

Analysis of policies in chemical regions to support the competitiveness of the chemicals industry

FINAL REPORT v 3.0

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Executive Summary

The current report represents the Final Report for the study on the “Analysis of policies in chemical regions to support the competitiveness of the chemicals industry” prepared by PwC for DG Enterprise and Industry of the European Commission. The report presents the results of a comparative analysis of relevant data and policies in regions with a strong presence of chemicals industries. The key objective of the study was to provide information that would assist public authorities, in particular, regional authorities, in designing strategies, policies and programmes to support and strengthen the international competitiveness of the European chemicals industry.

Good practice examples of relevant policies in support of the chemicals industry were collected from 26 European regions. Data collection involved activities such as desk research, in-depth interviews and the development of case studies for each policy. Data were collected from both public (regional authorities) and private (beneficiaries in the chemicals industry) sources. Sometimes, data from different sources and years were quoted. For consistency reasons data from the Cluster Observatory which were most widely available, were quoted throughout the study. Key interviewed stakeholders included industry representatives, relevant state, regional and financial institutions, as well as cluster organisations. The presented policies were grouped into five thematic areas: clusters & innovation; research, development and innovation; environment & sustainability; education & skills and logistics. The policies were analysed individually, as well as compared with each other within each thematic area, and finally between the thematic areas.

Several observations can be made regarding the identified policies within each thematic area. Many of the historically existing chemical clusters have been recently formalised by creating a dedicated cluster initiative. Organised cluster initiatives typically follow an objective of encouraging companies to join forces in R&D collaboration, and thereby to increase the competitiveness of the chemicals industry in the region and its attractiveness to investors. Cluster initiatives often take place in the broader industrial context, with chemicals being one of the industries supported by the policy. The identified cluster policies vary from regional authorities providing funds to support a structure of meetings and networking events facilitated by a small cluster organisation to a full financial and risk-sharing participation by the regional government in a triple-helix joint venture to operate a cluster site, including various facilities.

RDI policies target SMEs either exclusively or specifically as one of the groups. In general, these policies appear to realise their goals in terms of increasing innovation activity and accelerating the rate of innovation at the level of individual companies. The findings also show the importance of creating a platform for public-private cooperation when it comes to achieving environmental and sustainability goals. Such platforms contribute to eliminating a great deal of administrative burdens on both regional authorities and the chemicals industry in a region and thus also improve the cost-benefit ratio of policies in this area.

In the area of education & skills, policies often have different target groups. Some are designed for employees who already work in the chemicals industry or its suppliers and aim at increasing their skills in the engineering of plastics or other specific areas; some are aimed at the unemployed in the region and provide them with education and training to learn the skills required to start working in the chemicals industry; and others are aimed at motivating secondary school pupils to choose subjects in the area of chemistry. Although the intervention logic and specific target groups differ, the overall objective of training more workers for the chemicals industry is suggested to be central in most of the regions that have a chemicals industry.

The annual external expenditure on policies supporting the competitiveness of the chemicals industry varies widely. Policies on education & skills and environment & sustainability tend to use fewer public resources than innovation and logistics policies. This can be explained by different approaches of the policies: the first two policy categories typically take a “soft”, facilitating approach, whereas innovation and logistics policies are “hard” and mostly project-based in nature. Also, the nature of the chemicals industry determines that

innovation is capital-intensive in nature, thus requiring substantially higher investments than the facilitating policies.

Many of the identified policies are suggested to be highly transferable to other regions. Nevertheless, adopting a policy does not yet mean it will be successful. Among the factors suggested to influence the success of policies in chemical regions, the following were identified: high political priority for the support of the chemicals industry, strong commitment of leading political representatives, strong commitment of large companies, credibility and competence of cluster board and professional cluster management, as well as relations in the region and the presence of trust.

Conclusions

The key general conclusions of the study can be summarised as follows:

- Policies for chemical regions need to take into account a close interrelationship between local and global factors. The policies to upgrade the local/regional business environment need to be seen in the context of the broader global developments within the chemicals industry and beyond. Only then will the regions be able to effectively compete on the European (for clients) and global (for investment) perspective.
- When compared to the national and European levels of government, regional governments have relatively limited power, scope, tools and budgets, although the degree to which this is the case varies between Member States. At the same time, they are critical for mobilising and orchestrating efforts in ways that are aligned with the specific nature and needs of a chemical region. Regional policy makers can therefore contribute effectively to regional competitiveness by mobilising the larger resources of others in a targeted way, instead of trying to replicate the role of the national government at a smaller scale.
- Analysing the wealth of regions, measured by GDP per capita, in relation to the annual policy budgets, no clear link could be established.
- Regions in which the share of total employment in the chemicals industry in the region is relatively high make use of industry-specific policies for the chemicals industry more often than regions with a relatively small chemicals industry. This relationship does not hold when considering the share of the chemical industry in turnover or the share of chemical companies (as a percentage of the total number of companies) in the region.

The key conclusions for each of the thematic policy areas can be summarised as follows.

Clusters & innovation

- Cluster efforts in the chemical industry do not significantly differ in their nature from cluster efforts in other high-tech industries.
- Current cluster strategies often suffer from a lack of international and trans-regional perspective, and stay focused on the boundaries of their own region. Additionally, a sound analysis of a cluster's assets is often lacking, as well as practical insights from industry.

- The study was able to identify a number of general factors that make cluster policies successful. Those factors include the following:
 - Cluster programs create platforms for collaborative action between companies, academic institutions, and relevant government agencies.
 - Given that the average duration of the identified cluster policies is close to 8 years, policies with a long-term orientation are more likely to be successful.
 - Funding often comes from multiple sources, with a mix of public and private funds.
 - Policies should target companies of all sizes in the region (not only SMEs), as well as universities and research institutes (involvement of all actors of the value chain).
 - Policies should be continuously monitored and periodically evaluated.
 - Companies need to play a central role in setting the action agenda of cluster efforts.
 - High trust among cluster participants is vital for successful cluster efforts.
 - The level of bureaucracy related to application and implementation of a policy should be minimised.
 - Cluster initiatives can provide a range of services to beneficiaries in the cluster.
- Effective cluster structures rely on clear membership arrangements and well-defined duties and responsibilities of the members.
- Regional policy makers have multiple vital roles to play, and specifically the role of mobilisers, facilitators and participants.

Research, development & innovation

- Most RDI policies are not specifically developed for the chemicals industry. On the other hand, those RDI policies that are specific to the chemicals industry have been tailored to the requirements of that industry, which leads to the absence of complaints from beneficiaries about administrative burdens or similar challenges.
- R&D policies present the difficulty of matching the open-ended, uncertain nature of R&D projects with the planning and control mindset of policy-making. Therefore supporting companies in dealing with the administrative requirements leads to positive effects.
- Regional policy makers can benefit from the insights provided by a large amount of theoretical and policy studies without much effort, although it must be acknowledged that policies specifically developed for the chemicals industry require tailoring based on interactions with regional industrial partners.

Education & skills

- The policies analysed vary not only in the target audience of the people trained, but also in the type of chemical companies that benefit from them as well as their intervention logic and institutional history. However, they are similar in their objective to provide the chemicals industry (and in some cases other sectors) with skills that are not made available by the existing system of education. With regard to the goal of raising the interest for chemistry and the chemical industry among pupils and students, the findings of the ChemClust Skills Foresight project provide good practices.
- For this type of policy, the national context is of crucial importance, as the policies focus on filling gaps between the skills supplied by the educational system (in most Member States this is largely a competence of national governments) and those required by the (chemicals) industry.
- Analysis of the gap at regional level between skills supplied by existing education and training programmes and the demand from the chemicals industry should segment clearly the quality and quantity of skills required in different areas. Especially detailed data on regional demand for skills over time cannot be analysed without direct involvement of the regional chemicals industry and the educational institutions and should therefore include all parties in the triple helix.

Environment & sustainability

- The policies described in this study specifically aim at increasing the compliance of the chemicals industry with various regulations, while reducing the costs that are associated with that compliance. These policies tend to be based on voluntary agreements between industry and regional authorities.
- The main challenges reported by both regional authorities and beneficiaries in this policy area concern administrative and legal procedures that interfered with the informal interaction between government and industry that is the goal of these policies.
- These policies demonstrate that the dialogue between the chemicals industry and the regional government represents an important element of realising a sustainable industry.
- Whereas active dialogue between industry and regional authorities is needed, it may also blur the decision making process for stakeholders that are not part of this process, such as citizens and NGOs.

Logistics & infrastructure

- Infrastructure and logistics policies typically require the cooperation between the local, regional and national levels. They are part of broader infrastructure and logistics policies that are designed at the national level in most of the regions covered by the current study.
- Due to the scale and nature of logistics and infrastructure policies, a variety of stakeholders at different levels play a role. It is therefore of key importance to both local industry and regional authorities to engage in a dialogue, in which local needs are expressed and addressed.
- There is a strong need for dialogue between the various stakeholders. This keeps the different parties involved, and has a positive effect on both identifying and addressing local infrastructural and logistical needs.

Recommendations

Based on the conclusions presented above, recommendations are made to regional authorities, industry associations and cluster organisations.

The key recommendations for *regional authorities* include the following:

- Regional factors, and policies to improve them, need to be seen in their local context, in particular the companies present, and in their global context, i.e., how the beneficiary companies can co-operate internationally and gain markets in benefiting from their competitive advantages.
- Regional policy makers should aim at mobilising resources at other levels (national, EU, global) in a targeted way to best serve the specific needs of their chemical region. The connection to EU policies can be made through such existing platforms as ChemClust, ChemLog and ECRN.
- Smart specialisation strategies can help clusters and regions to identify their best assets in order to be able to concentrate their efforts and resources on a limited number of priorities where they can develop excellence.
- Regional authorities should aim at ensuring that regional policies and programs first support an effective process of identifying the action priorities, and evaluating their success perspectives, and then provide the right tools to address whatever those priorities are. Regional authorities should communicate with businesses in a service-oriented way to achieve the goals that underly these priorities.
- Cluster policies should be discussed with local companies, and designed in a way that captures the interest of the companies. They should involve companies of all sizes, both large and small. Policies should be managed in a way to ensure trust among authorities and companies but also between the partners.
- Cluster policies should support the development of a well-functioning structure of the cluster initiative which among others implies appointing a good cluster manager, developing clear membership arrangements and setting up a appropriate governance structure.
- The regional authorities should design RDI policies with effectiveness in mind. Priorities should be identified and implemented in a dialogue between authorities, companies and research institutes and take into account the needs of the companies in the area. Where relevant, cooperation between companies of different size should be encouraged.
- Wherever possible the open-ended, organic nature of R&D processes should be reflected in the design of RDI policies. Conditions or restrictions that hamper these processes should be eliminated to the extent possible.
- The regional authorities should not provide financing alone, but should also invest in developing their internal competences to be a professional counterpart to companies conducting R&D projects, for instance by providing a dedicated contact person to each beneficiary for the duration of their projects.
- The regional authorities should make efforts in understanding the technical and business logic of R&D projects rather than blindly following “policy speak”.
- The regional authorities should ensure their awareness of the relative strengths and weaknesses of related RDI policies and funding sources and use this information to design and continuously improve their own policies, and to advise companies in a service-oriented way.

- The regional authorities should ensure that a thorough and dynamic analysis of the gap between supply and demand of skills is conducted at the regional level. The regional authorities should actively involve the regional chemicals industry when conducting the gap analysis, so that the data and dynamics on the demand for skills are appropriately taken into account.
- The regional authorities should develop active education policies to raise interest among pupils and students in chemistry and the chemical industry. There should be an active exchange of ideas among responsible authorities and cooperation between local industries, schools and universities. This should aim at giving insight in business reality and the potential of chemicals for creating growth, markets and solve societal challenges.
- Administrative and legal procedures need to be designed or amended in such a way that new forms of interaction between industry, regional and national government, and other stakeholders are encouraged, and that interaction is not hampered in its effectiveness.
- Regional authorities should aim to create a platform for public-private cooperation to achieve environmental and sustainability goals. These goals should be clearly defined and policies should be embedded in clear structures. Policies should aim at being concrete and fitting into company reality. Regional authorities should provide services to make policies, legal obligations and opportunities easily understood. Administrative burden should be eliminated as far as possible.
- Regional authorities and local industry need to engage in active dialogue to realise sustainable industry. The dialogue ensures that local needs are identified, and contributes to a common goal among the various stakeholders.
- Regional authorities need to ensure that there is strong external communication to clearly communicate the benefits of the policies. A clear presentation of the (expected) benefits that underlines the advantages for all stakeholder groups ensures that expectations are aligned and helps to involve stakeholders.
- Regional authorities need to identify and address local (future) demand for logistics and infrastructure in order to both contribute effectively to national policies as well as design their own.
- Regional authorities should strive for transparent decision making to ensure the acceptance of new policies or regulation.
- Relevant stakeholder groups should be informed in an appropriate way, consulted and be invited to take part in the discussions.
- Regional authorities need to engage in active dialogue with both local industry and other relevant regional authorities, as well as with relevant local, national and international authorities, in order to address transregional infrastructural challenges in an effective manner.

The key recommendations for *industry associations* include the following:

- The chemicals industry associations should ensure that their regional branches engage regularly with regional authorities to draw their attention to potential areas where authorities could play a useful role in promoting the competitiveness of the regional chemical industry.
- The chemicals industry associations should provide input to the gap analyses on skills and to keep the regional authorities informed about any private initiatives that are already in place to complement the national education system.

The key recommendations for *cluster organisations* include the following:

- Cluster organisations should put stronger emphasis on the following areas as key activities:
 - Cluster managers need to earn trust of cluster participants, based on their knowledge of the value chain and the industry, as well as their personal attitude. A common understanding of cluster work and objectives needs to be achieved among cluster participants, and a trust base between cluster partners needs to be supported.
 - Diagnostics, technology foresight, market intelligence, i.e., providing information/collecting information from companies in the cluster to facilitate a discussion about the strategic position of the cluster as well as the opportunities and challenges it is facing; this information forms critical basis for selecting action priorities;
 - Service orientation towards the companies in the cluster needs to be put central (e.g., training courses; support with filling in the application form; explanation of State Aid Rules; organisation of networking events, conferences; coaching with regard to intercluster cooperation, e.g., on social and environmental responsibility; informing cluster members about changes in regulations; informing cluster members about calls for proposals for subsidies and grants etc.)
 - Cross-cluster linkages, i.e., focus on existing clusters within the region where close collaboration would be possible;
 - International linkages, i.e., identifying the right technology partners, markets and building connections to them.
- Cluster organisations need to understand the different types of linkages that exist and cover them in their activities, and specifically:
 - Lead a discussion about the regional cluster's position in the global/European value chain/market environment;
 - Provide opportunities for the clusters to engage with related clusters present in the region;
 - Provide information about market and technology trends, facilitating a strategic dialogue on the opportunities the cluster is facing.

1. *Introductory Note*

This document represents the Final Report for the study on the “Analysis of policies in chemical regions to support the competitiveness of the chemicals industry” prepared by PwC for DG Enterprise and Industry of the European Commission (service contract nr 30-CE-0464195/00-18). The report presents the results of the analysis of the support policies for the chemicals industry in selected regions and of conditions making those policies effective.

1.1. Background of the study

When introducing Europe 2020 Strategy, the European Commission emphasised the need to get Europe “back on track” after the economic crisis. One of the Commission’s goals is to promote the competitiveness of Europe’s industries and help those industries take advantage of the opportunities provided by globalisation and green economy. Therefore, a strong competitive industrial base is needed, supported by measures such as ‘smart’ regulation, setting standards, and promoting regions and clusters. Proper consultation of stakeholders, solid impact assessments, improved communication by the authorities and more harmonised and correct application of the agreed rules are key elements of a good regulatory framework.

The current study focuses on the needs of the European chemicals industry. The chemicals industry is among the largest and the most dynamic industrial sectors in the EU. However, there are signals that the competitiveness of the European chemicals industry is under threat. European companies have contributed to the development of competing regions and clusters closer to emerging markets (e.g., China and India) and cheap feedstocks in the Middle East.

For Europe, up-to-date manufacturing assets, as well as efficient and reliable logistics networks are prerequisites for remaining competitive in global markets¹. The developments between 2000 and 2010 indicate that the EU was the clear leader in terms of world chemicals sales, but the region has gradually lost its position to China and other Asian countries. The total value of sales in the EU has been growing continuously, but overall world chemicals sales are growing at an even faster pace².

Nevertheless, Europe’s chemicals industry has all the ingredients to maintain its competitiveness if the public and private sectors cooperate and take the appropriate decisions. The chemicals industry plays a pivotal role in manufacturing by producing a host of end products and intermediates to downstream users and consumers and has a high potential to continue providing vital solutions. The key challenge is to make sure that these opportunities are fully exploited in Europe in a sustainable manner and that Europe’s industry remains among the frontrunners.

The chemicals industry is a crucial part of the economy in *regions* where it is concentrated. To assess the role policy has played in affecting the competitiveness of Europe’s chemical industry, it is important to gain a better understanding of the regional (and, when relevant, national and EU) policies implemented so far, their characteristics and their impact on the European chemicals industry. A better understanding of these policies, both through an improved knowledge base and analysis of policy options, will facilitate the role of policy makers at regional but also at European, national and local levels in supporting the competitiveness of the European chemicals industry.

Europe’s chemicals industry has all the ingredients to maintain its competitiveness if the public and private sectors cooperate and take the appropriate decisions.

¹ “A Paradigm Shift: Supply Chain Collaboration and Competition in and between Europe’s Chemical Clusters”, Results of the EPCA Think Tank sessions organised and sponsored by EPCA, 2007

² “Facts and Figures 2011: The European chemical industry in a worldwide perspective”, Cefic report, 2011

Despite a large diversity of the European chemical regions, they all have to cope with similar challenges to safeguard their competitiveness, such as the impacts of globalisation, the enlarged EU with chemical regions in Eastern Europe and, above all, the requirements of a new chemicals policy. In order to better tackle the abovementioned challenges, there was a clear need to bring these regions together. Such interaction would allow for exchanging knowledge and best practices and developing solutions for common problems. For that reason, in 2004, the European Chemical Regions Network (ECRN) was created. It was originally launched as an INTERREG IIIc project with 13 member regions from 7 different European countries. Today the network consists of 21³ member regions from 10 different countries and with a Brussels-based secretariat. The key projects and priorities of the network include participation in “High Level Group on the Competitiveness of the European Chemical Industry” (HLG), where the ECRN has represented the regional perspective among representatives from the public and private sector and from civil society; providing consultation to the European Commission for actions relating to climate change; development of skills and innovation, technology platforms (SusChem), REACH, emission right trading and climate change; as well as projects in the field of logistics (ChemLog) and cluster building (ChemClust). The ECRN also works together with relevant stakeholders including Cefic, EMCEF, ECEG, EPCA, EEN, EEB, national chemical associations, partners from the Social Dialogue etc⁴.

The work of the HLG resulted in a publication of the final report (“Final Report of the High Level Group on the Competitiveness of the European chemicals industry”) addressing issues that determine the competitiveness of European chemicals industry. In particular, the HLG had the task to conduct economic and statistical analysis of the factors determining the structural changes in the chemicals industry, as well as other factors that influence its competitive position. A set of sector-specific policy recommendations were formulated that were oriented towards policy makers at the Community and national level, industry and civil society organisations.

It is crucial to understand which regional policies are likely to influence the development of the chemicals industry, as well as under what conditions the identified policies are effective, and to what extent successful policies can be transferred to other regions.

The findings of the HLG report indicate a clear need to explore the role of the regional dimension in supporting the competitiveness of the European chemicals industry. The report specifically emphasises that it is crucial to understand which regional policies are likely to influence the development of the chemicals industry, as well as under what conditions the identified policies are effective, and to what extent successful policies can be transferred to other regions. The current study aims to contribute in this respect.

1.2. Objectives of the study

The study implied a comparative analysis of relevant data and policies in regions with a strong presence of chemicals industries with an objective of identifying relevant benchmarks and good practices. The key objective of the study was to provide information that will assist public authorities, in particular, regional authorities, in designing strategies, policies and programmes to support and strengthen the international competitiveness of the European chemicals industry.

³ This number refers to the regions that were ECRN members at the moment of the initiation of the study.

⁴ <http://www.ecrn.net/abouttheecrn/welcomeandoverview.php>

The key objective of the study was to provide information that will assist public authorities, in particular, regional authorities, in designing strategies, policies and programmes to support and strengthen the international competitiveness of the European chemicals industry.

In order to achieve the objective, the study analyses policies, measures and actions in chemical regions to support the competitiveness of the chemical industry, including assessment of successful cross-border cooperation between chemical regions and support for SMEs, where relevant in the context of chemical clusters. The study has collected relevant information on the economic performance of the main EU chemical regions, their development over time, support to research and innovation, innovation rate, clusters and their development, infrastructure, employment, education and training (e.g., institutions and innovative programmes) and other relevant economic indicators. Additionally, the study has identified policies and measures to support the competitiveness and innovation of the chemicals industry in these regions, including a selection of policies and measures in favour of SMEs, as well as policies and measures to strengthen the infrastructure and clusters in these regions. The study also aimed to detect the main challenges for the chemicals industry in these regions. Finally, the study has drawn up a catalogue of good practices of relevant policies and measures and assessed their transferability to other chemical regions.

The key outcomes of the study refer to policy recommendations on how to link regional level chemical clusters and the most effective policy measures to the future European level programmes, like Horizon 2020 and others. The recommendations elaborate on synergy that can effectively be generated by links between regional and national/European-level support.

Specifically, the study aimed to produce the following outputs:

- Up-to-date profiles of the selected key chemical regions in the EU;
- A set of policy recommendations to the regional authorities on how to link regional-level chemical clusters and the most effective policy measures to the future European level programmes;
- A set of effective and efficient measures which can be adopted by other chemical regions in Europe;
- Link with other policy development studies and initiatives that result from the work of the HLG;
- Link with other relevant EU initiatives, e.g., the European Cluster Observatory platform⁵;
- Link with other policy development activities conducted in the area of regional policy.

1.3. Definitions and scope

The current section highlights the key definitions employed in this study and addresses the key scoping issues. The central notions of the study refer to chemicals industry, chemical regions, chemical clusters and regional policies.

1.3.1. Chemicals industry

The chemicals industry is difficult to define because of its complexity and product diversity. Broadly defined, the chemicals industry consists of companies for which primary business is to develop, manufacture, distribute, market and sell all products made by chemical synthesis or formulation.

Chemicals are an essential contributor to our standard of living – our food, safe water supply, clothing, shelter, healthcare, computer technology, transportation, and every other facet of modern life are dependent on the concept of chemistry. In practice, the chemicals industry usually excludes those end-product industries that are large enough to be considered separate industries of their own – e.g., pharmaceuticals and cosmetics.

⁵ <http://www.clusterobservatory.eu>

The chemicals industry consists of the following main sub-sectors:

- Commodity chemicals (or basic chemicals);
- Differentiated Commodities (plastics);
- Specialty Chemicals;
- Fertilisers and Agrochemicals;
- Industrial Gases;
- Fine chemicals including pharmaceuticals.

For the purpose of the current study, the chemicals industry has been defined within the limitations of the following NACE classifications:

- 20.11 Manufacture of industrial gases
- 20.12 Manufacture of dyes and pigments
- 20.13 Manufacture of other inorganic basic chemicals
- 20.14 Manufacture of other organic basic chemicals
- 20.20 Manufacture of pesticides and other agrochemical products
- 20.41 Manufacture of soap and detergents, cleaning and polishing preparations
- 20.52 Manufacture of glues
- 20.53 Manufacture of essential oils
- 20.59 Manufacture of other chemical products n.e.c.

Therefore, the operational definition for the current study does not include pharmaceuticals as a sub-sector. In the few cases where pharmaceuticals activities have been considered in the analysis, this is explicitly mentioned in the report.

The chemicals industry is influenced by a variety of internal and external factors such as cyclical, energy and raw material costs, mergers and acquisitions, globalisation etc. Below we provide a brief overview of these factors and elaborate on the way those influence the industry in question.

Cyclical

Demand for chemicals is cyclical, so the production level of chemicals tends to be closely related to economic output. This is because key customers in the automotive, construction, electrical, electronics and textiles industries face demand that has tended to be cyclical. When a contraction of global advanced economies occurs, the falling demand from major market industries invariably leads chemical companies to adjust capacity and lower production. The resulting effects of this rationalisation process are closures of old and inefficient less integrated plants.

In addition, chemical companies are also affected by the seasonality of end market customers. The precursor of the economic downturn of late 2008 and 2009 was rooted in the housing markets and subsequently expended to the broader credit markets. Credit issues for chemical companies include a general increase in borrowing costs for any end market industries such as construction, as well as for the chemical companies themselves.

Chemical companies that have increased the level of financial leverage in their capital structures have had a competitive disadvantage due to financing costs which are generally fixed and are impacted by their credit quality. This is causing these companies to focus on debt repayment, cost reduction and liquidity improvements.

Energy and raw material costs

Input costs are highly volatile. The majority of the raw materials consumed by the chemicals industry consists of oil and natural gas. United States and Middle East chemical companies are more exposed to resource volatility, while price fluctuations in crude oil derivatives mainly affect European and Asian companies. The costs of both of those inputs are highly volatile. Reliability of supply can be an issue for chemical companies as well. Industry pricing power may not offset energy costs. In an environment of rising energy crisis chemicals companies may not have sufficient pricing power to pass along the increase in raw material costs.

Globalisation

Globalisation has resulted in North-American and European chemicals industry production moving to Asia and the Middle East because of low cost manufacturing and low cost feedstock. In the period 2008-2012 considerable commodity capacity, mainly ethylene and polyethylene, is coming on line, especially in the Middle East and in China. This new capacity is not expected to be fully absorbed by Asia, but it is expected to affect the European markets.

In addition, pulp and paper production have moved to countries like Brazil, China and Indonesia. Prices have been impacted by the trends in globalisation as well. More than ever, chemical prices are influenced by global supply and demand relationships.

Intellectual property

As part of its “Innovation Union” Flagship Initiative, the European Commission has signalled private R&D spending as the factor that explains 50% of the competitiveness gap between the European Union and the United States and has developed measures to increase it⁶. R&D spending tends to be most vulnerable in a downturn because it is often viewed as discretionary. Protection and licensing of Intellectual Property are issues affecting the industry. Intellectual Property can come in a form of product innovations or process improvements, and the protection of the Intellectual Property is a key concern for the industry. Also licensing of Intellectual Property can provide a source of revenue for the industry.

Regulation and compliance

Tax requirements for the industry are increasingly complex and under continuous review. There has been more aggressive enforcement by taxing authorities and a push for increased transparency. Climate change is increasingly seen as an important issue by stakeholders. Sanctions by governmental authorities can lead to significant business interruption, as well as fines and penalties. The regulatory environment can also be influenced by environmental groups such as Greenpeace, Sierra club and Green Alliance. Similar legislative initiatives are being introduced throughout the world, especially in China. In Europe, regulatory organisations include both European institutions and Member States.

Europe-specific factors⁷

Europe continues to be a large market for chemical products. While other markets, particularly in Asia, experience strong growth, the absolute size of the European market continues to provide a strong basis for European clusters serving customers in this region. These clusters have often emerged around chemical sites and chemical parks, such as the 71 chemical sites in 10 countries in the western EU that are represented by the European Chemical Site Promotion Platform (ECSP)⁸.

Europe’s main strength is the highly developed business environment that enables chemical companies to reach levels of productivity that largely compensate for the high factor costs in Europe. The first key strength is the availability of efficient transportation infrastructure and services. Sometimes it builds on long traditions of individual locations as logistical hubs. The second asset is the access to a highly qualified labour force, often in regions where a long legacy of employment in the chemical industry has fostered the emergence of specialised educational institutions. The third advantage refers to the presence of many related and supporting industries, especially in the industrial heartlands of Europe, that provide the chemicals industry with access to productive general inputs and services.

Europe also has developed an advanced regulatory environment in which the production and use of chemical products have to meet high environmental and safety standards. Some of these regulations constitute a significant cost burden for the European chemical industry, threatening to undermine the viability of European

⁶ European Commission (2010). Europe 2020: A strategy for smart sustainable and inclusive growth. COM (2010) 2020, page 10

⁷ Ketels C. (2007) “The Role of Clusters in the Chemical Industry”, Harvard Business School in collaboration with EPCA

⁸ <https://ecspp.org/locations>

clusters. But as far as these standards foreshadow global trends and enable companies to come up with different solutions to meet them, they can also establish the role of European clusters as the innovation leaders in the global industry.

Based on these business environment conditions, Europe has developed a cadre of strong chemical companies, often with strong historical roots. Many of these companies have developed multinational reach and play an important role in the activities of clusters elsewhere in the world. This global reach is a key advantage for European clusters; it provides them with strong linkages to other markets. It exposes European clusters to constant competition. European companies always have to consider which of the many regions they are present in provides the best location for a particular activity.

The European chemical industry is older than many of its peers in other parts of the world, especially in Asia. It remains to be shaped by a legacy of fragmented markets, while competitors in other regions have (North America) or are (China) growing in an environment of larger, more integrated markets. While their long history has allowed European clusters to develop deeper and more complex structures, it also creates challenges. The capital stock in Europe is on average older, with production facilities not reaching the same economies of scale that new investments in Asia can reach. For European clusters, this creates challenges in terms of productivity levels. Markets in Europe are less consolidated, with more companies of sub-optimal size operating in some market segments. For European clusters, this also creates challenges in terms of the coordination of activities across larger groups of actors, some of whom have low levels of competitive potential.

1.3.2. Chemical regions

According to the reference guide on Regional and Urban Statistics 2010⁹, a “region” can be defined as a tract of land with more or less definitely marked boundaries, which often serves as an administrative unit below the level of the nation state. The limits of a region are usually based on one of the following:

- a) *natural boundaries*: rivers, mountains, sea or lake coasts, sparsely populated areas such as extensive woodlands or marshes;
- b) *historical boundaries*: until relatively recent times, much of Europe was a patchwork of dukedoms, principalities, free cities, kingdoms, etc. In a number of cases, some of the scattered territories of the feudal age appear on the modern map as enclaves;
- c) *administrative boundaries*: the functions of government require power to be exercised by administrative units at a lower level than the nation state, either through “top-down” devolution of responsibilities or through a federal structure.

In the context of this study, regions were considered as NUTS-2¹⁰ units; however, other geographical dimensions were also taken into account if properly justified (e.g., if within a NUTS-2 area the chemicals industry is concentrated in a NUTS-3 area).

Chemical regions, in turn, are regions where the chemicals industry plays a major role in terms of employment, GDP and value added. Areas where new concentrations of chemical-related companies are developing were also taken into account despite the fact that their current size is not yet relevant in terms of the abovementioned indicators.

1.3.3. Chemical clusters

Where relevant, chemical regions were analysed in the context of *chemical clusters*. A cluster is a geographical concentration of actors in vertical and horizontal relationships, showing a clear tendency of cooperating and

⁹ <http://ec.europa.eu/eurostat/ramon/statmanuals/files/KS-RA-10-008-EN.pdf>

¹⁰ http://epp.eurostat.ec.europa.eu/portal/page/portal/nuts_nomenclature/introduction

The current NUTS classification valid from 1 January 2008 until 31 December 2011 lists 97 regions at NUTS 1, 271 regions at NUTS 2 and 1303 regions at NUTS 3 level.

sharing their competencies, all involved in a localised infrastructure of support¹¹. Geographical proximity of cluster actors provides a platform for strong cooperation and the flow of knowledge and expertise. Chemical clusters thus refer to a geographical concentration of actors of the chemicals industry within NUTS-2 (or, when relevant, NUTS-3) administrative units.

In the context of this study, the notions of chemical regions and chemical clusters overlap to some extent. The cluster is the locus of the economic activity that policy ultimately aims to support. The region provides the business environment, including the context in terms of the overall portfolio of economic activities. The region can be considered a chemical region if it has a sufficiently large chemical cluster in it. Key metrics of a chemical region thus refer to the ones of a chemical cluster inside this region. Consequently, when *measuring* chemical regions, we will be referring to chemical clusters within those regions. At the same time, when *analysing relevant policies* and collecting good practices, we will be referring to regions as NUTS-2 (or, when relevant, NUTS-3) administrative units. In this case, the cluster notion will be of secondary importance.

1.3.4. Regional policies

A *regional policy* can be defined as a system of courses of action, regulatory measures, laws, and funding priorities concerning a given topic at the regional level and promulgated by a governmental entity or its representatives¹². Regional policies can be associated with a number of policy instruments such as grants/loans, regulations, standards, tax incentives, training, support for infrastructure and facilities etc. In this study, we focused on policies developed at either national or regional level and implemented at the regional level. The analysed policies were considered good practices if those:

- were already implemented in practice; *and*
- (preferably) were evaluated in an ex-post way with measurable outcomes; *and*
- were nominated by the corresponding regional authorities as good practices; *and*
- (preferably) were confirmed to be good practices by beneficiaries.

Regional policies for the chemicals sector typically refer to the fields such as infrastructure policy, cluster development, the establishment of chemical and science parks, logistics and the attraction of investment in the regions. Furthermore, regional actions are taken in the field of R&D and skills training, including vocational training and qualifications as well as specific activities at local level concerning sustainability, i.e., energy-efficiency and climate change and the support of entrepreneurial activities such as policies for SMEs, support for foreign trade relations, location marketing and policies focusing on support for inward investment.

1.4. Study design and methodology

The employed study design is of both quantitative and qualitative nature, and provides an opportunity to get a deeper understanding of the region-specific policy measures and initiatives that influence the competitiveness of the chemicals industry.

The first part of the approach builds on a broad range of regional data that are predominantly of quantitative nature and are often based on regional statistics. While such data provide valuable insights into the results and status quo of the regions in question, they often fail to identify the antecedents/enablers of a specific region's success. The latter is crucial for the development of effective public policies and measures, and the current study aims to contribute in this respect by incorporating extensive qualitative elements in the approach.

The study implies four technical work packages, the objective of which is to extract the evidence-based policy recommendations and good practices based on the multi-dimensional analysis of a sample of chemical regions.

¹¹ Chiesa V., and Chiaroni D. (2005) *Industrial Clusters in Biotechnology: Driving Forces, Development Processes and Management Practices*. Imperial College Press

¹² <http://www.musc.edu/vawprevention/policy/definition.shtml>

Below we provide a concise overview of each of the work packages.

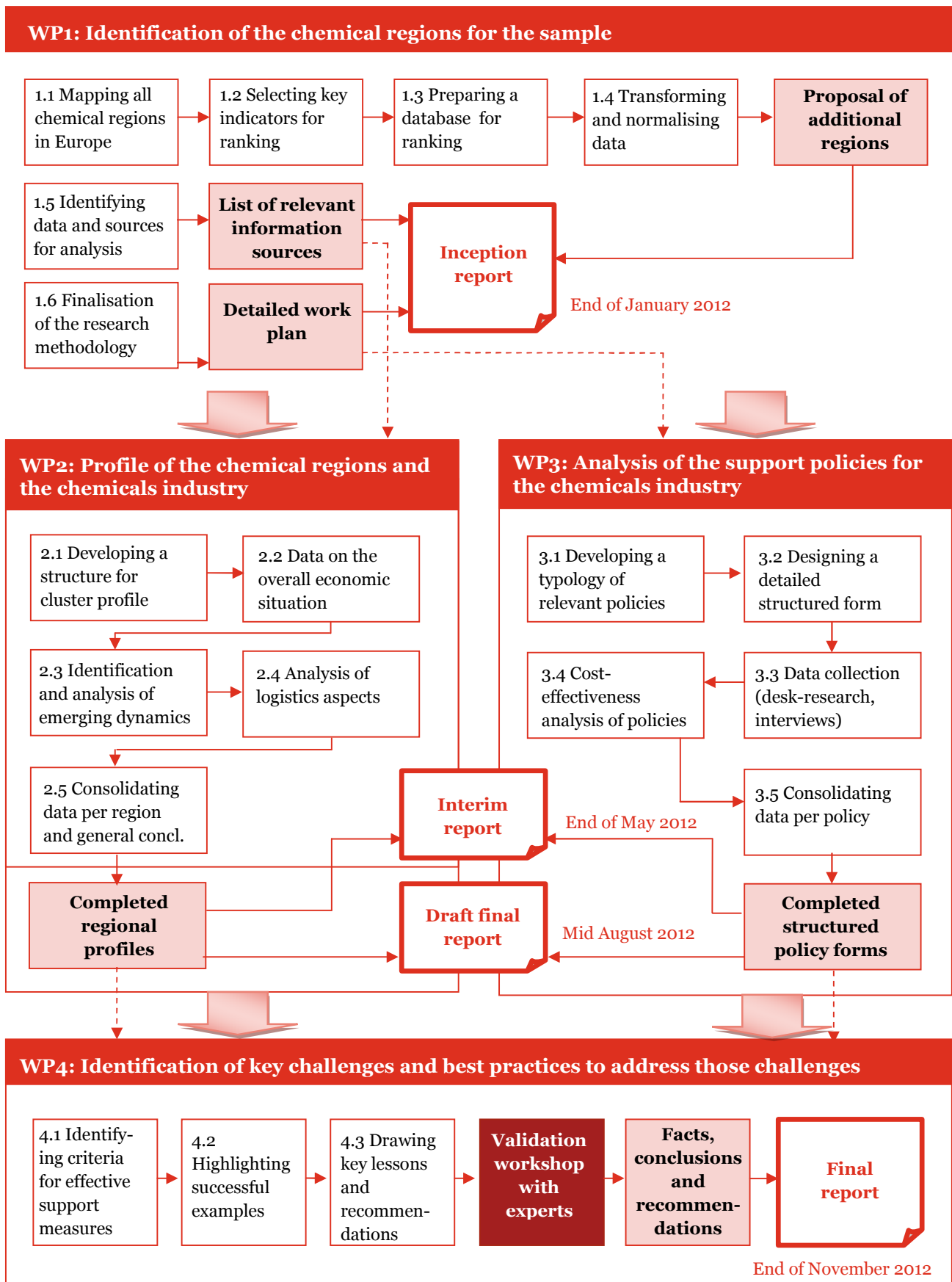


FIGURE 1-1: Study design

Specifically, the key activities under WP1 refer to the identification of a sample of chemical regions to be used in the course of the whole study. WP2 implies an updated analysis of the overall economic situation of the regions and their chemicals industry. Particular focus is put on the identification and analysis of emerging dynamics. Within WP3, for each region, good practice examples of relevant policies in support of the chemicals industry are being collected. In WP4, the results of WP2 and WP3 will be used to identify key trends and challenges for chemical regions, as well as to draw general conclusions and recommendations.

1.4.1. Work package 1: Identification of chemical regions for the sample

WP1 implied the identification of the chemical regions to be included in the sample for further analysis within WP2-4. Initially, the sample covered all 21 member regions of European Chemical Regions Network (ECRN)¹³. In addition to the ECRN member regions, five more European regions where the chemicals industry plays a significant economic role needed to be selected. For that purpose, we developed a preliminary sample of 15 regions with a ranking based on a sound reasoning supported by relevant factual information. This reasoning included standard economic indicators, as well as new emerging dynamics which could play a significant role in the future.

The selection of five additional regions for the sample consisted of two phases. The first phase was of *quantitative* nature, it was based on available statistical data and aimed to narrow the initial pool of relevant regions down to 15. The following three region-related indicators were employed at this stage: (1) employment in the chemicals industry per region (Employment Score; economic indicator; critical mass); (2) number of enterprises in the chemical industry per region (Enterprise Score; economic indicator; critical mass); and (3) European Regional Innovation Scoreboard (RIS) ranking per region (Innovation Score; emerging dynamics).

The second phase of the exercise aimed to select the final five regions for the sample, based on a set of *qualitative* criteria such as geographical location, specialisation, the number of firms in the region, the presence of both large companies and SMEs in the region, and historical strength and reputation of the region. The final selection of five regions from the preliminary sample of 15 regions was done in close cooperation with the Commission and the Steering Group during the First Steering Group meeting. Due to low data availability in two of the five regions that were selected¹⁴, it was decided in the Second Steering Group meeting that these regions should be replaced by two other regions. Table 1-1 provides an overview of the final sample.

TABLE 1-1: Overview of analysed regions

ECRN members		Additional regions
1. Asturias (Spain)	12. North Rhine-Westphalia (Germany)	22. Provence-Alpes-Côte d'Azur / PACA (France)
2. Bavaria (Germany)	13. Novara (Italy)	23. Veneto (Italy)
3. Brandenburg (Germany)	14. Rhône-Alpes (France)	24. Catalonia (Spain)
4. Cheshire West and Chester (UK)	15. Rhineland Palatinate (Germany)	25. Zuid-Holland/Noord-Brabant (Netherlands)
5. Flanders (Belgium)	16. Saxony-Anhalt (Germany)	26. Normandy (France)
6. Hesse (Germany)	17. Schleswig-Holstein (Germany)	
7. Ida Virumaa (Estonia)	18. Scotland (UK)	
8. Limburg (The Netherlands)	19. Ústí (Czech Republic)	
9. Lombardy (Italy)	20. Wallonia (Belgium)	
10. Lower Saxony (Germany)	21. Yorkshire & The Humber (UK)	
11. Mazovia (Poland)		

1.4.2. Work package 2: Profiles of the chemical regions and the chemicals industry

This WP started with a set of activities aiming at preparing a technical platform for rigorous data collection and analysis. The main activities within this stage included developing tools and procedures for thorough data

¹³ This number refers to the regions that were ECRN members at the moment of the initiation of the study.

¹⁴ These regions were Denmark (Denmark) and Île-de-France (France).

collection, developing a functional data storage system and preparing reporting formats to be used during the subsequent research phases.

For each region identified under WP1, we aimed to develop an updated analysis of both the overall economic situation of the region (e.g., key insights, main economic indicators and their evolution in time, information of specific relevance to the chemical industry such as on logistics) and its chemical industry (e.g., number of companies, breakdown by company size, main industrial players, sub-sectors, turnover, employment, foreign trade, innovation, clusters, research centres, universities and their evolution in time).

We put particular focus on the identification and analysis of emerging dynamics, such as the development of new technologies in companies or clusters in the relevant region or regional co-operation areas, the integration/cooperation with other sectors and areas that could represent a major asset for the future competitiveness of the chemicals industry. In addition, special attention was paid to logistics, analysing the infrastructure of the regions, critical nodes, bottlenecks and resources (intermodal nodes, railways, waterways, pipelines) and development projects which are relevant for the chemicals industry.

All the above mentioned data was consolidated in a detailed *regional profile* for each of the analysed regions.

In order to allow direct comparisons and aggregations, as well as possible updates in the future, we paid particular attention to identifying and using as much as possible official and public information sources that provide homogeneous data for all regions. The key sources used for filling in the regional profiles are the European Cluster Observatory (ECO) portal, ECRN's "Who is Who" of Chemical Regions in Europe (including updates from 2012), Eurostat and websites of the national statistics offices, as well as other dedicated web resources. Although compiling the regional profiles was the responsibility of the PwC team, regional authorities have been asked to comment on the contents of their own profile. In several cases this has led to more recent and appropriate data being included in the profiles. In those cases, data from sources that have consistent data for (almost) all regions from the same year, such as the ECO portal, was kept to ensure comparability.

Limitations of data collection procedure

Unfortunately, there is limited availability of data at regional level. Based on our experience in this study, as well as on discussions with statistical offices and experts, we were able to identify the following limitations:

- Indicators related to emerging dynamics and innovation are difficult to measure. For companies with activities in multiple establishments in more than one region, it is often impossible to know in which region the innovation activities occur. A comparison of regional innovation performance could therefore attribute all innovative activities of an enterprise to the region where its head-office is located, while a substantial part of these activities may be carried out in other regions. As a result, the aggregation of data at the regional level may be misleading.
- For many regions, data are not available for specific indicators. For a representative comparison of situations between regions 100% data availability would be needed, whereas average regional data availability for Regional Innovation Scoreboard regions is 77%. Cluster Observatory and Eurostat databases often contain missing data too.
- It should be noted here that the year for which the most recent data are available from ECO is 2009. This does not imply that these data are representative for the economic development over the past years. On the contrary, 2009 was for many European industries the year that showed the least favourable economic development of the last decade. We therefore caution not to take the 2009 data to be indicative for developments in other years.

The exact sources for specific indicators are provided in each regional profile in Annex A of this report.

1.4.3. Work package 3: Analysis of the support policies for the chemicals industry

Within WP3, for each region, we collected good practice examples of relevant policies in support of the chemicals industry. These policies can either be specifically targeted to the chemical sector or be policies with a wider scope that have a significant impact on the chemicals industry. The main focus is on policies at the level of regions but, where relevant, it covers the national or international context in which they are embedded. An additional focus is put on cross-border co-operation between chemical regions. We aimed to ensure that identified policies cover a broad range of relevant areas such as innovation, infrastructure, business development and cooperation, cluster development, education, employment and skills development, etc. Particular attention is paid to policies targeted at SMEs and innovation.

This study phase therefore implied a set of activities related to data collection such as desk research, in-depth interviews and the development of case studies for each policy. The collected data came from both public (regional authorities) and private (beneficiaries) sources. It includes information from web resources. In addition, interviews were carried out with industry representatives, relevant state, regional and (if relevant) financial institutions, as well as cluster organisations.

For each policy, we developed a detailed policy form containing all relevant information (e.g., main characteristics and goals, rationale and target group, allocated resources, implementation and management, legal and financial framework) and an assessment of its results (main achievements and output, main strengths and weaknesses, difficulties encountered, lessons learned, key factors influencing the effectiveness of the policy, as well as transferability to other regions).

Below, we describe the practical approach to WP3 as a step-by-step process.

Step 1: Contact the regional authority

As the first step of the study, all of the 26 selected regions were contacted. For the ECRN regions, listed ECRN contact persons were approached. For the five additional regions, the regional authorities were identified through an internet search, and the contact persons or departments most likely responsible for the policies under study were approached. All contact persons were contacted using a combined approach of telephone conversations and e-mail introductions, using an introduction letter provided by the Commission and a description of the study's objectives and approach, requesting cooperation from the regional authorities.

In some cases, contacting the regional authority proved to yield no response even after repeated efforts. In some of such cases, ECRN provided assistance with establishing the contact. Also, the PwC team attended several conferences to get in contact with regional authorities. Despite these efforts, the regional authorities of Ida Virumaa and Normandy never responded to requests for contact, and the regional authorities in the Dutch provinces of Zuid-Holland and Noord-Brabant chose not to participate in the study.

Step 2: Collect data on relevant policies

Once contact had been established with the regional authority, the contact person was asked to provide information about 1-3 policies aimed at improving the competitiveness of the chemicals industry in the region (in some cases among other objectives), using the policy analysis form. Subsequently, an interview was conducted with the contact person to collect additional information and clarify certain elements for the research team as required. The additions made to the policy forms as a result of these interviews were sent to the contact persons for approval.

In some cases, additional interviews were conducted with the contact person and/or other representatives of the regional authority who could provide more specific information.

Step 3: Contact one or more beneficiaries

Once the collection of data from the regional authority had been completed and a fully developed policy form was available, one or more beneficiaries in the region were contacted. In some cases, these beneficiaries were nominated by the regional authorities (in a small number of regions after consultation with ECRN), in other cases beneficiaries were contacted by the research team through the national chemicals industry associations, with the assistance of Cefic.

Despite these combined efforts, in some regions no beneficiaries were found willing to participate in the study. No beneficiaries were identified in Cheshire West and Chester, PACA and for one of the policies studied in the Ústí region. In Mazovia, the beneficiary identified chose not to participate in the study.

Step 4: Collect feedback from beneficiaries

Once beneficiaries were identified and confirmed that they were willing to participate in the study, they were requested to provide their feedback on the policy in writing in a shorter version of the policy form. The written feedback was subsequently discussed in a telephone interview, to collect additional information and clarify certain elements for the research team as required. In some cases, additional interviews were conducted with other beneficiaries to collect more information. The additions made to the policy forms as the result of these interviews were sent to the beneficiaries for approval.

Beneficiaries' comments were included in the full version of the policy forms in italics, to clearly set them apart from the factual information about the policies that was collected from the regional authorities. Annex B of this report provides the policy forms that are completed at this stage of the study.

Step 5: Perform comparative analysis of subsets of similar policies

Based on the policy data collected during the first months of the data collection stage of the study (i.e., between the first and second meetings of the Steering Committee), the research team found that the policies identified could be grouped into subsets of similar policies based on their objectives and the activities supported by the policies. The identified thematic areas are presented in Chapter 2 of this report.

Subsequently, a comparative analysis was conducted within each of the subsets, i.e., between policies using a similar approach to improve the competitiveness of the regional chemicals industry. In one case, the subset consisted of only two policies, making it unfit for comparable analysis due to the limited number of policies that could be compared. In this subsets, concerning logistics policies, only descriptive analysis has been performed.

In Chapter 2, we report the main findings for each type of policy. Annex B provides the policy forms that contain the policy data analysed in the study.

Limitations of the chosen research approach

The research approach of using interviews and self-reported policy descriptions by both regional authorities and beneficiaries was selected instead of desk-research because highly limited documentation is publicly available on regional policies. Since the chemical regions in the study cover a wide geographical area, the available budget and timeframe did not allow for visits to each of the regions, and the interviews were carried out by phone. The selected research approach led to an up-to-date extensive compilation of good practices in the field of policies for chemical regions. At the same time, the approach has a number of limitations.

First, the policies were selected by the regional authorities, specifically the ECRN contact persons and similar contacts at the non-ECRN regions. As these contact persons were mainly representatives of regional ministries of economic affairs or similar departments, the policies selected were in large part policies aimed at innovation goals, with fewer policies in the area of logistics, education and skills and environment and sustainability. The

latter policy categories may have been underrepresented in the selection, because they are the responsibility of the equivalents of regional ministries of transport, education and environment respectively.

After a first set of policies had been collected, we invited the regional authorities to submit more policies to the study (up to a maximum of three policies per region in total), citing the names of the policies that had already been included. The overview of included policies was aimed at illustrating the breadth of policy types included in the study.

Finally, no policies were submitted in the area of energy efficiency. This may have been due to the fact that the ECRN representatives are more familiar with the innovation type of policies because energy efficiency policies are the domain of the environmental department in a region, but it may also be the case that these policies are in most Member States a competence of the national government and were not identified by the regions for that reason.

1.4.4. Work package 4: Identification of key challenges and good practices to address those challenges

The results of WP2 and WP3 were used to identify key trends and challenges for chemical regions, as well as to draw general conclusions and recommendations to support the competitiveness of the chemicals industry in those regions and in the European Union as a whole. These conclusions and recommendations are related to the recommendations of the High Level Group on the competitiveness of the European chemical industry.

In particular, within this WP, we have identified criteria for effective and efficient support measures for the competitiveness of the chemicals industry. We highlight particularly successful examples and draw key lessons and recommendations for public authorities willing to develop initiatives to support their chemical industry. Those policies are presented and explained in their context. Finally, their transferability to other regions was assessed with a view to helping regional authorities but also relevant European, national and local authorities in designing strategies to develop a globally competitive chemicals industry as part of the Europe 2020 Strategy.

One of the key elements of WP4 refers to a one-day validation workshop with 45 experts from regional authorities, industry associations, cluster organisations and the Commission. The validation workshop took place in Brussels on 11 October 2012. The programme consisted of the presentation of the main findings of the preliminary analysis, followed by several discussions on the findings in a plenary setting as well as in smaller groups of participants focussing on specific policy types. The results of the validation workshop have been integrated in the Final Report.

1.5. Report structure

The remainder of the report is organised as follows. *Chapter 2* elaborates on the results of the analysis of identified policies. The analysis is built around the following thematic areas: (1) Clusters & Innovation (macro-level); (2) R&D & Innovation (micro-level); (3) Education & Skills; (4) Environment & Sustainability and (5) Logistics & Infrastructure. *Chapter 3* describes the conditions that make those policies effective. *Chapter 4*, in turn, focuses on the issue of transferability of the identified policies to other regions. Finally, *Chapter 5* provides a set of recommendations on how to link regional level chemical clusters and the most effective policy measures to the future European level programmes, like Horizon 2020 and others. *Annex A* contains updated regional profiles for all 26 regions from the sample. In *Annex B*, detailed policy forms for each analysed policy can be found.

2. Key findings on policies in chemical regions

The current chapter presents the results of the analysis of the identified policies. The following common thematic areas were identified among the policies in question: (1) Clusters & Innovation; (2) R&D & Innovation; (3) Education & Skills; (4) Environment & Sustainability and (5) Logistics & Infrastructure. Below we elaborate on the results within each of the abovementioned thematic areas.

Innovation-related policies are split into two groups: Clusters & Innovation, and R&D & Innovation. The first group of policies includes policies that aim at strengthening inter-firm collaboration on R&D and innovation within and beyond the region (*macro-level*). The second group comprises policies that aim at increasing the R&D and innovation capacity of firms (*micro-level*). Therefore, these two policy groups are analysed separately.

Within each of the thematic areas, we compare the policies along the following dimensions:

- (1) General policy characteristics (focus, involved instruments, duration);
- (2) Objectives and target group;
- (3) Implementation and management;
- (4) Legal and financial framework;
- (5) Main achievements;
- (6) Main strengths and weaknesses;
- (7) Difficulties encountered; *and*
- (8) Lessons learned.

In this chapter, we identify the key commonalities between policies from the same thematic area. We also highlight the specificities of the identified good practices. Both aspects combined with the analysis of conditions making policies effective (see *Chapter 3*) form the basis for the assessment of the transferability of these policies to other regions (see *Chapter 4*).

2.1. Clusters & Innovation

The importance of clusters for the development of the chemicals industry has already been demonstrated by several previous studies. For example, EPCA Study on Chemical Industry Clusters¹⁵ showed that clusters play a fundamental role in improving the supply chain competitiveness of the chemicals industry, and that most of the chemical clusters in Europe have evolved historically around a source of raw materials, or as a supplier to the downstream industry. Similarly, the High Level Group Report¹⁶ pointed out that the high integration of most of the European chemicals industry along the product value chain is one of its main competitive advantages. This integration into clusters largely allowed the European industry to compensate for its less favourable feedstock position and higher energy costs. The reports also encourage regional, national and European policy makers to introduce effective policy measures that would allow strengthening innovation clusters and open innovation processes which, in turn, facilitate cooperation across sectors and borders.

In the course of this study, the following cluster & innovation policies were identified:

- Asturias Cluster Policy;
- Bayern Cluster Initiative;

¹⁵ <http://www.epca.eu/content/Publications/ThinkTankReports/docs/2007Clusterreport.pdf>

¹⁶ High Level Group on the Competitiveness of the European Chemicals Industry (2009), Final Report, DG ENTR

- Cheshire West and Chester CLUNET Cluster Policy Networking and Exchange;
- Flanders Innovation Hub for Sustainable Chemistry (FISCH);
- Limburg Chemelot Campus;
- North Rhine-Westphalia ChemCologne;
- North Rhine-Westphalia Cluster CHEMIE.NRW;
- North Rhine-Westphalia ChemSite;
- Novara Innovation Pole;
- PACA Pôles Régionaux d'Innovation et de Développement Economique Solidaire (PRIDES);
- Rhineland-Palatinate chem2biz;
- Saxony Anhalt GRW Clustermanagement - Cluster Chemistry Plastics Central Germany;
- Wallonia networking cluster PLASTIWIN;
- Yorkshire and The Humber Sector Development.

Below we provide a short introduction to each of these policies. Detailed descriptions of each policy are provided in Annex B. At a later stage, the analysis of PACA Pôles Régionaux d'Innovation et de Développement Economique Solidaire (PRIDES) will be added. It was not included in this report as the data collection was in progress when this report was already under development.

Asturias Cluster Policy implies grants for cluster development activities awarded to companies by the Economic Development Agency of the Principality of Asturias (IDEPA), based on proposals. This initiative is not specifically focused on the chemicals industry, and is open to all sectors. The key criteria for receiving a grant among others include the quality of the proposal, the sector (industry vs. non-industry), impact on the economic environment, and previous experience in cooperation projects.

Bayern Cluster Initiative concentrates on nineteen branches and technologies with high importance for the future of Bavaria region. By promoting cooperation between companies and research institutions, the Bavarian state government aims to create a dynamic and self-organising process of growth and development within these nineteen fields. Within this initiative, *Chemie-Cluster Bayern* has been founded in 2006 mainly to coordinate joint product development activities, to manage synergies in research, qualification and marketing, and to implement business development strategies for groups of companies on new, international target markets.

Cheshire West and Chester CLUNET Cluster Policy Networking and Exchange represents a cross-regional initiative aiming to share experiences and implement concrete pilot projects regarding cluster innovation and development policies. The project was developed by uniting 13 regions represented in CLUNET and 64 top-level clusters. The project focused on future challenges and opportunities for clusters.

Flanders Innovation Hub for Sustainable Chemistry (FISCH) is the platform for the transformation towards a more sustainable industry. FISCH has three pillars: (1) strategic research programme (on resource management etc.); (2) open innovation and production infrastructures, and (3) sustainable business models and techniques. All of this is the result of brainstorming by industry and knowledge institutions.

Limburg Chemelot Campus represents an initiative that was set up to manage the growth and development of Chemelot Campus. The objective of this initiative is to achieve an increase of the number of FTEs on the campus. The collaboration efforts within the campus focus on three key components: increasing the education and research basis; accelerating and directing knowledge transfer to businesses; and strengthening business growth and development.

North Rhine-Westphalia ChemCologne is an initiative that sets out to increase the region's attractiveness and competitiveness for the chemical industry and to make it better known among domestic and foreign investors as a potential location for chemicals production. The activities supported by the initiative among others include national and international PR to improve the level of awareness of the chemical region, location marketing to attract investments for the chemical region, development of positive preconditions for industrial locations and intensification of the transfer of knowledge.

North Rhine-Westphalia Cluster CHEMIE.NRW is an initiative that promotes cooperation between companies and research institutions and aims to advance the dynamic and self organising process of growth and development within the priority areas for the region. Within this initiative, CHEMIE.NRW has been founded in 2007 as a management institution mainly to coordinate joint product development activities, to manage synergies in research and qualification and to develop chemical clusters.

North Rhine-Westphalia ChemSite is a chemical and plastics cluster in the Ruhr region and the central contact for issues and topics about chemistry and its value chains. Under the ChemSite umbrella brand, the initiative bundles all topics related to chemistry and plastics focusing on relocation of enterprises to existing chemical and industrial sites in the region, creation of innovative networks between enterprises and between enterprises and science, support to SMEs and start-ups, improvement of the general conditions for the chemical industry and related industries, and vocational training of staff members.

Novara Innovation Pole aims at stimulating partnerships for the common realisation of research activities in diverse fields. The Innovation Poles policy started in 2009. The poles were selected based on the geography of the region and sector. The funding is provided for cluster management activities and for specific R&D projects. Poles aim to support enterprises by means of funding research opportunities, offering infrastructures, and providing training and other services to SMEs.

PACA PRIDES (or “Regional Poles for Innovation and Economic and Solidarity-based Development”) is a cluster policy focused on SMEs, and particularly on Innovation, ICT, Education/Training for enterprises’ employees, Environment and Social Responsibility of the enterprises, and international dimension, with a common goal of increasing employment in clusters. The region has been developing a cluster policy since 2006. In terms of policy instruments, PACA PRIDES includes direct grants for cluster organisations, training, as well as grants and loans for cluster members.

Rhineland-Palatinate chem2biz aims at attracting chemistry-based company founders, start-up companies and existing SMEs to settle in the city of Ludwigshafen am Rhein and to expand the chemical cluster. The initiative is focused on supporting and strengthening Ludwigshafen as a chemistry-based location. The key activities within this initiative include consulting services during the start-up and growth phase; providing infrastructure including laboratories, offices and technical areas for rent; and providing other services (e.g., technical service, analysis expertise, office services).

Saxony Anhalt GRW Cluster management - Cluster Chemistry Plastics Central Germany is an initiative aiming to support the development of cluster management activities. The Cluster used the funding programme to develop sustainable cluster management structures and implement intensive activities for the promotion of the regional chemicals industry.

Wallonia networking cluster PLASTIWIN is an initiative developed by the plastic product division of Essenscia, the industry association for the chemicals and life sciences industry in Belgium. The cluster was accredited and supported by the Government of the Walloon Region. The cluster was officially set up in 2008. The cluster covers the entire value chain, from polymer producers up to mold makers. Its objective is to focus on packaging, recycling, technical and medical parts. The main focus of the cluster organisation is on facilitation of collaboration activities of cluster members, not on projects.

Yorkshire and The Humber Sector Development initiatives refer to funds for priority sectors that were used for various programmes, among others, for the networking groups like Humber Chemical Focus (HCF) and Yorkshire Chemical Focus (YCF). The funded activities aimed at creating jobs and growth of the sector, encouraging inward investment and innovation. Regional Development Agency Yorkshire Forward (YF) established detailed cluster development policy which later was known as sector development for a range of industrial/business sectors in the Yorkshire & Humber region of England.

2.1.1. General policy characteristics

Many of the chemical clusters have been recently formalised by creating a dedicated cluster initiative. Organised cluster initiatives typically follow the objective of encouraging companies to join forces in R&D and innovation efforts, and thereby to increase the competitiveness of the chemicals industry in the region and its attractiveness to investors. Table 2-1 provides an overview of the general characteristics of cluster & innovation policies.

Focus

Most of the analysed policies from this thematic area (9 out of 14) proved to be not chemicals-specific. Cluster initiatives are often developed in the broader industrial context, with chemicals being one of the industries supported by the policy (i.e., in the context of broader regional, national and/or European cluster policy not specifically aimed at the chemicals industry). However, this tendency applies to all European industries that form the top priorities for the European economy and are supported among others through cluster policies.

TABLE 2-1: General characteristics of cluster & innovation policies

Region and policy name	Focus (chemicals-specific?)	Instruments	Policy level	Duration
Asturias Cluster Policy	No	Grant	Regional, EU	2007 - 2013 (7 years) ¹⁷
Bayern Cluster Initiative	No	Grant	Regional	2007 - 2015 (9 years)
Cheshire West and Chester CLUNET	No	Grant	Regional, EU	2006 - 2009 (3 years) ¹⁸
Flanders Innovation Hub for Sustainable Chemistry (FISCH)	Yes	Grant	Regional	2012 - 2015 (4 years)
Limburg Chemelot Campus	Yes	Grant, infrastructure/facilities	Regional	2005 - 2012 (8 years)
North Rhine-Westphalia ChemCologne	Yes	Grant (funding for PR activities)	Regional	1999 - onwards (13 years)
North Rhine-Westphalia Cluster CHEMIE.NRW	No	Grant	Regional	2007 - onwards (5 years)
North Rhine-Westphalia ChemSite	Yes	Grant (public-private partnership)	Regional	1997 - onwards (15 years)
Novara Innovation Pole	No	Grant	Regional	2009 - 2014 (6 years)
PACA PRIDES	No	Grant, training	Regional	2007 - 2013 (6 years)
Rhineland-Palatinate chem2biz	Yes	Grant, infrastructure/facilities	Regional	2004 - onwards (8 years)
Saxony Anhalt GRW Cluster management - Cluster Chemistry	No	Grant, infrastructure/facilities	National policy implemented at regional level	2007 - 2010 1st period (3 years)
Plastics Central Germany				2010 - 2013 2nd period (3 years)
Wallonia networking cluster PLASTIWIN	No	Grant	Regional	2008 - 2011 1st period (3 years)
				2012 - 2014 2nd period (4 years)
Yorkshire and The Humber Sector Development	No	Grant	Regional	2000 - 2011 (12 years)

Instruments

In terms of policy instruments, in all analysed cases, the policy support took the form of a *grant*. Several options were identified: (1) grants for cluster management activities and specific collaboration projects (e.g., Asturias Cluster Policy, Bayern Cluster Initiative, Novara Innovation Pole, Saxony Anhalt GRW Cluster management initiative); (2) grants for PR activities to promote the cluster/region (e.g., North Rhine-Westphalia

¹⁷ The total number of years was calculated based on the exact starting dates of a specific policy (e.g., if a policy was launched in January 2009 and lasted till December 2010, the total duration of the policy is considered to be 2 years; if, however, a policy was launched in January 2009 and lasted till January 2010, the total duration is 1 year).

¹⁸ <http://www.proinno-europe.eu/project/clunet>

ChemSite); and (3) grants for developing infrastructure/facilities of the cluster (e.g., Limburg Chemelot Campus; Rhineland-Palatinate chem2biz).

Cluster policies typically are closely linked to other policies in various combinations, such as:

- R&D support through grant funding or venture capital;
- R&D and education/training support through shared testing and/or training facilities that may be used for a fee and are particularly relevant for SMEs, as they do not have the funds to invest in proprietary facilities;
- meetings, networking platforms that facilitate open discussion between the chemicals industry and the (regional and/or local) government;
- site development, often including logistics.

Most of the analysed cluster & innovation policies (11 out of 14) are reported to be purely regional policies, i.e., policies initiated, supported and administered at the regional level. These policies typically fit overarching national innovation agendas. Saxony Anhalt GRW Cluster management, in turn, represents a national policy implemented at the regional level. Asturias Cluster Policy and Cheshire West and Chester CLUNET initiative are combinations of a regional and EU policies (funding provided by ERDF and the Sixth Framework Programme respectively).

Duration

Developing a strong and well-connected chemical cluster takes time. Therefore, when developing effective cluster policies, it is reasonable to follow a long-term vision and ensure consistency of the provided support. The average duration of the analysed cluster policies is close to 8 years which confirms their long-term orientation.

Key funding sources

Table 2-2 provides an overview of the key funding sources and types of funded projects. Several types of policy partners can be identified for cluster & innovation policies:

- Regional government, municipalities;
- National Ministries of Economic Affairs, Education and Research;
- National and regional economic development agencies;
- Large companies from the region;
- Trade unions and employers associations;
- Universities;
- Other (e.g., EU institutions, industry associations, business networks, innovation agencies etc.).

Cluster initiatives are typically funded from multiple sources which imply a mix of public and private funding. Public funding comes in the form of grants (see above) and is provided by city, regional, national and EU authorities in different combinations and proportions. Later in this section, we will analyse the budgets allocated to these policies. Public funds, in turn, are complemented by support from private sector, mainly from large companies.

TABLE 2-2: Key funding sources and types of funded projects

Region and policy name	Key funding source/policy partners	Types of funded projects
Asturias Cluster Policy	ERDF 2007 - 2013	Cluster management (incl. website, training courses, technical sessions)
Bayern Cluster Initiative	Federal Ministry of Economic Affairs, "Invest in Bavaria"; specific innovation projects also supported by Federal Ministry of Education and Research and the European Commission	Cluster management; innovation projects initiated by the cluster are funded from industrial, national or European sources
Cheshire West and Chester CLUNET	Sixth Framework Programme - Research and Innovation	Pilot projects related to cluster innovation and development policies (collection and

Region and policy name	Key funding source/policy partners	Types of funded projects
		dissemination of best practices such as various policy tools, including SME internationalisation and incubation policies)
Flanders Innovation Hub for Sustainable Chemistry (FISCH)	Ministry of Innovation (in cooperation with Ministries of Economy and Work); Industry Federation Essenscia; Innovation Policy Council (VRWI); Innovation Agency (IWT)	Three pillars: (1) strategic research programme (on resource management etc.); (2) open innovation and production infrastructures; (3) sustainable business models and techniques
Limburg Chemelot Campus	DSM, Province of Limburg and University of Maastricht	Diverse projects aiming to increase the number of knowledge workers on campus, e.g., development of design and structure of a new venture capital fund; filling gaps in education and research infrastructure; advancing R&D facilities
North Rhine-Westphalia ChemCologne	Chemical companies in the region, the state of North Rhine-Westphalia, the employers' association Chemie Rheinland, the City of Cologne as well as the other towns and districts in the region, the chambers of commerce and industry, the Cologne regional government and the universities, as well as the Trade Union for Mining, Chemicals and Energy, and NRW.INVEST	PR activities to improve the level of awareness of the chemical region, location marketing to attract investments for the chemical region, development of positive preconditions for industrial locations and intensification of the transfer of knowledge
North Rhine-Westphalia Cluster CHEMIE.NRW	Ministry of Economic Affairs; cluster projects are supported by the Ministry of Innovation, Science and Technology, by the Federal Ministry of Education and Research and by the European Commission	Support to technology transfer between industry and science; R&D activities; innovation support.
North Rhine-Westphalia ChemSite	Major chemical companies, Ministry of Economic Affairs, Ministry of Science and Technology, Ministry of Environmental Affairs, Chamber of Commerce, Chemical Industry Association, Chemical Industry Union, regional government of Münster, municipalities of the region, economic development associations, labour agency	Activities focusing on creation of innovative networks between enterprises and between enterprises and science, support to SMEs and start-ups, vocational training and increase of qualification of staff members
Novara Innovation Pole	Main chemical enterprises, universities, Province of Novara	Two types of projects: (1) cluster management activities; (2) specific projects: funding opportunities for research, sharing infrastructures, training, services aimed to support SMEs in innovation and research
PACA PRIDES	ERDF and Ministry of Economic Affairs, Chamber of Commerce, industry associations	Direct grants for cluster organisations; training; loans for cluster members, with a key activity of organising networks for SMEs
Rhineland-Palatinate chem2biz	Rhineland Palatinate Ministry of Economics, City of Ludwigshafen, BASF SE	The key focus is on: consulting services during the start-up and growth phase; infrastructure including laboratories, offices and technical areas for rent; services (technical service, analysis expertise, office services); network.
Saxony Anhalt GRW Clustermanagement - Cluster Chemistry Plastics Central Germany	Regional Ministry of the Economic Affairs, Federal Ministry of Internal Affairs – responsible for regional development in Eastern Germany, Economic Development Agencies in Central Germany, ZAB, LEG, IMG, GTAI, Chamber of Commerce, Chemical Industry Association North East (VCI)	Cluster management; initiation of joint R&D projects (funded by other sources)
Wallonia networking cluster PLASTIWIN	Walloon Administration (Operational Directorate-General for Economy, Employment and Research), AWEX (Walloon Foreign Trade Agency), AST (Technological Stimulation Agency), ASE (Economic Stimulation Agency), CIDE-Socran (Business creation and Support service), Innovatech (Innovation Support), PICarré (Intellectual property support service)	Cluster management (incl. networking, company visits, PR activities for the cluster, training opportunities etc.)
Yorkshire and The Humber Sector Development	Universities, businesses, local authorities, e.g., Humber Chemical Focus networking group	Consulting services, training, PR activities to raise the awareness about the region

Types of funded projects

Several types of funded projects were identified:

- Cluster management activities (including facilitation of networking, matchmaking, company visits, provision of training to SMEs and start-ups, etc.);
- Specific collaboration projects bringing together different cluster members;
- Development of design and structure of a venture capital fund;
- Advancing R&D facilities and other infrastructure including laboratories, offices and technical areas for rent;
- PR activities to improve the level of awareness of the region;
- Location marketing to attract investments for the region;
- Activities to support technology transfer between industry and science; *and*
- Collection and dissemination of best practices such as various policy tools, including SME internationalisation and incubation policies.

Consequently, cluster & innovation policies cover a broad array of activities which reflects the complex nature of clusters as a phenomenon, and include fields like collaboration, growth of SMEs, technology transfer, venture capital, internationalisation, training etc.

2.1.2. Objectives and target groups

In this sub-section, we compare the key objectives, key beneficiaries and key stakeholders of the analysed policies (see Table 2-3).

TABLE 2-3: Objectives and target groups of cluster & innovation policies

Region and policy name	Key objective	Key beneficiaries	Key stakeholders
Asturias Cluster Policy	To promote the gathering of companies in clusters in order to undertake joint projects; to encourage companies to pool resources (collaboration)	Companies from the chemical sector in the region	Universities and research centres of the region
Bayern Cluster Initiative	To intensify chemical value creation in Bayern by supporting SMEs, technology transfer and international site marketing (collaboration, visibility)	SMEs and start-up companies from the chemical sector in the region	Large chemical companies, local chemical industry association VCI, universities
Cheshire West and Chester CLUNET	To share experiences and implement concrete pilot projects regarding cluster innovation and development policies (exchange of best practices)	Chemicals and biomedical companies of all sizes	Regional development agencies, universities and research centres
Flanders Innovation Hub for Sustainable Chemistry (FISCH)	To support research activities related to sustainability; to support the industrial transition to a new sustainable model (collaboration)	SMEs and other companies	Universities and research centres
Limburg Chemelot Campus	To boost economic development of the region (employment)	SMEs, large chemical companies, universities and research centres	LIOF (regional development agency), Chamber of Commerce
North Rhine-Westphalia ChemCologne	To increase the attractiveness and competitiveness for the chemical industry and to make it better known among domestic and foreign investors as a promising location for chemical production (visibility)	Chemical and chemicals-related (e.g. logistics distributors, engineering) companies	The employers' association Chemie Rheinland, the operators of the chemical parks in the ChemCologne region, universities and research centres, towns and districts of the region
North Rhine-Westphalia Cluster CHEMIE.NRW	To create market pull and technology push by intensifying cooperation and networking between all actors within those value chains relevant for the chemical industry in NRW (collaboration)	Chemical SMEs, large chemical companies, universities and research centres	Local chemical industry association VCI

Region and policy name	Key objective	Key beneficiaries	Key stakeholders
North Rhine-Westphalia ChemSite	To increase employment in the chemicals industry of the region (employment)	Chemical companies of all sizes	Municipalities, universities and research centres
Novara Innovation Pole	To establish partnerships for the common realisation of research activities (collaboration)	Chemical companies (most of which are SMEs), universities and research centres	Industrial associations, chamber of commerce, municipalities, trade unions, high schools
PACA PRIDES	To support the development of the regional economy by creating employment (employment)	Cluster organisations	SMEs, as well as other types of enterprises, public laboratories, technology platforms or technology centers
Rhineland-Palatinate chem2biz	To attract chemistry-based company founders, start-up companies and existing SMEs to settle in the city of Ludwigshafen am Rhein and to expand the chemical cluster (visibility, employment)	Companies in the sectors of chemistry, nanotechnology, new materials, biotechnology, environmental engineering, as well as process and analytical engineering	Ministry of Economics, municipality, large companies (BASF SE)
Saxony Anhalt GRW Clustermanagement - Cluster Chemistry Plastics Central Germany	To develop Central Germany as a competitive chemical region with high attractiveness for new companies and improved market position of existing companies and institutions (visibility)	Companies from the chemicals and plastics industry in Central Germany	Chemical Parks, VCI, GKV plastic industry association, universities and research centres (e.g., Fraunhofer), large companies (Linde, Dow, BASF, Infraluna), enterprise networks of plastics industry
Wallonia networking cluster PLASTIWIN	To strengthen the economic, technical and commercial potential of the cluster members (collaboration)	Companies producing materials (polymers, compounds, master batches, dyes, additives); producers of finished or semi-finished products; other companies (tool makers, mould makers, engineering and design offices, manufacturers of processing machinery), research centres and university laboratories	Research centres, laboratories, schools, training centres and industry associations
Yorkshire and The Humber Sector Development	To support clusters/sectors in the region, supply chain collaboration, inward investment, jobs and skills development (collaboration, employment, visibility)	Chemical companies of all sizes	Cluster organisations such as HCF, local authorities, UK government

Key objectives

While the strategic objective of all cluster & innovation policies is to increase the competitiveness of the chemicals industry in the region, some differences can be observed with regard to *specific* objectives of such policies, i.e., the objectives related to the specific results of cluster activities. The following categories were identified:

- *Collaboration*: intensifying cooperation and networking between all actors within the value chains relevant for the chemicals industry;
- *Employment*: increasing the number of FTEs working in the chemicals industry of the region, especially knowledge workers;
- *Visibility*: improving the level of internal (within the region) and external awareness of the chemical region, location marketing to attract investments; *and*
- *Exchange of best practices*: sharing experiences and implementing specific pilot projects regarding cluster innovation and development policies.

As can be seen from Table 2-3, most of the identified policies (7 out of 14) primarily aim at intensified collaboration among cluster members, i.e., more active collaboration is expected to increase the competitiveness of the region. 5 policies explicitly mention visibility as one of the key objectives. 4 policies aim

at increasing the employment in the region. Finally, 1 policy focuses on the exchange of best practices. In most cases, cluster & innovation policies pursue several specific objectives simultaneously.

Key beneficiaries

Beneficiaries here refer to the groups directly targeted by the policy. In case of all analysed cluster & innovation policies, the beneficiaries are chemical companies in the region (e.g., companies producing materials such as polymers, compounds, master batches, dyes, additives; producers of finished or semi-finished products; other companies such as tool makers, mould makers, engineering and design offices, manufacturers of processing machinery etc.). In some cases (6 out of 14) policies exclusively focus on start-ups and SMEs, while in other cases, chemical companies of all sizes are targeted by the policy. Finally, university laboratories and research centres were reported to be beneficiaries in one of the cases (Wallonia networking cluster PLASTIWIN).

Focus on SMEs can be explained by the fact that chemical clusters need thriving start-ups as well as more mature SMEs that can act as role models. Large firms, in turn, act as miniature innovation systems in their own right, providing incubation space to employees, financing their own start-ups, offering technical expertise, product specifications and initial markets. In addition, large firms also provide a steady flow of trained people which small innovating firms can hire, and can share expertise with the supply chain¹⁹. Therefore, policies encouraging collaboration typically support chemical companies of all sizes.

Key stakeholders

Stakeholders here refer to the groups that are not directly targeted by the policy, but that have a direct interest in the policy. Where universities and research centres were not mentioned as key beneficiaries, those were mentioned as key stakeholders. Universities and research centres are essential components of chemical clusters as sources of company formation, skilled personnel and collaborative partners with industry. In addition, research organisations are the major drivers of cluster development through providing services and facilities. Other relevant stakeholder groups include industry associations, regional development agencies, chambers of commerce, employers associations, municipalities, business networks, schools and training centres etc.

2.1.3. Implementation and management

In this sub-section, we compare the instruments used to monitor the implementation of the analysed policies, as well as the composition of the monitoring committee and the aspects related to ex-post evaluation. Table 2-4 provides an overview of the abovementioned elements for each policy.

TABLE 2-4: Implementation and management of cluster & innovation policies

Region and policy name	Instruments to monitor the implementation	Monitoring committee	Ex-post evaluation
Asturias Cluster Policy	Compulsory process for justifying the use of the grant money coordinated by IDEPA; a detailed dossier needs to be submitted by the cluster, containing invoices and payment receipts	No specific monitoring committee, monitoring is done by IDEPA	Annual evaluation of the results of specific grants, but not of the whole policy
Bayern Cluster Initiative	Chemie-Cluster Bayern GmbH regularly provides a full-service business plan as a cluster management agency, which has to be approved by the Bavarian Ministry of Economic Affairs.	The cluster is supervised by a cluster committee, including representatives of the Ministry, industry and research. The cluster committee discusses the management reports twice a year.	There have been two ex-post evaluations during the first phase of the cluster policy (2008 and 2010); the second phase will be evaluated in 2013 and 2015. Evaluation includes an interview with cluster managers, controlling of KPI's, consideration of individual projects and an inquiry of cluster members. KPIs include share of own budget; share of public funding received from

¹⁹ A Practical Guide to Cluster Development. A Report to the Department of Trade and Industry and the English RDAs by Ecotec Research & Consulting

Region and policy name	Instruments to monitor the implementation	Monitoring committee	Ex-post evaluation
			other sources (national, EU); number and importance of initiated innovation projects; feedback by the cluster members.
Cheshire West and Chester CLUNET	No information available	No information available	No information available
Flanders Innovation Hub for Sustainable Chemistry (FISCH)	IWT evaluation procedures	'Innovation Direction Group' (expert group composed by VRWI on demand of Minister of Innovation) has assessed the strategy of FISCH	The competence pole will be asked to evaluate its own functioning in due time. FISCH will also be assessed as a model for the new Flemish cluster policy.
Limburg Chemelot Campus	Interviewing stakeholders, regular evaluation of projects	No monitoring committee has been created.	No ex-post evaluation took place so far. General KPIs refer to FTEs and financial indicators.
North Rhine-Westphalia ChemCologne	Regular internal reviews	No monitoring committee has been created.	No ex-post evaluation took place so far.
North Rhine-Westphalia Cluster CHEMIE.NRW	Regular meetings of the cluster managers, the NRW cluster secretariat and members of the governmental administration	Innovation Committee consisting of stakeholders: R&D managers of chemical companies (large and medium sized); managers of chemical parks: ChemCologne and Chemsite, heads of university departments; representatives of the governmental administration, e.g. ministries of innovation, and economic affairs	No ex-post evaluation took place so far.
North Rhine-Westphalia ChemSite	Regular meetings of the partners on different levels (operational and top management level), regular reports on the funded projects	ChemSite is supervised by a members (partners) assembly coming together twice a year and a working group meeting four times a year. The funded projects are supervised by a steering committee involving the cluster CHEMIE.NRW.	No ex-post evaluation took place so far.
Novara Innovation Pole	The project audit is carried out by the Department of Industry and Productive Activities of the Piedmont Region by external experts.	The Piedmont Region itself monitors the implementation of the policy, even though, the implementation process is also followed by a local stakeholders committee.	The (external) evaluation is still ongoing, it will be finished by the end of 2012. The majority of projects that were approved in 2009 started in 2010. Hence there are no finished projects yet with concrete results. Example of KPIs for the policy: nr of research projects.
PACA PRIDES	For the first period: ex-post evaluation; for the ongoing period: continuous evaluation with indicators	A dedicated monitoring committee is directed by the Vice-President for Employment, Economy Development, as well as elected representatives of the regional council	An external evaluation took place in 2010. Key indicators included number of members; number of meetings; number of collective actions for SMEs/ number of SMEs that participate; number of R&D projects, number of partners/ budget; number of trade shows abroad.
Rhineland-Palatinate chem2biz	The monitoring is done by the chem2biz steering committee	chem2biz is supervised by a steering committee, including representatives of the Ministry of Economics, the City of Ludwigshafen and BASF SE. The steering committee discusses management reports three or four times a year.	There have been two internal ex-post evaluations. The members of the steering committee assessed the development of the initiative. KPIs include number of founders and companies settled at the sites of BASF and TZL; number of staff of the companies; number of new

Region and policy name	Instruments to monitor the implementation	Monitoring committee	Ex-post evaluation
Saxony Anhalt GRW Clustermanagement - Cluster Chemistry Plastics Central Germany	The monitoring takes place on the basis of annual reports which are discussed with the Ministry of Science and Economy of Saxony-Anhalt.	The Cluster has established a Cluster board with about 40 representatives from the regional stakeholders, which defines the strategic direction and is responsible for monitoring.	prospective tenants. No ex post evaluation has taken place so far. Evaluation takes place on the basis of an annual progress report.
Wallonia networking cluster PLASTIWIN	External evaluation	The Board consists of 6 representatives of “plastic converters” industry, 2 representative of raw material producers, 1 representative of research centres, 1 representative of industrial federation (Federplast)	The first three working years of the cluster have been evaluated in December 2011 (external evaluation). The evaluation implied comparing initial budget and used budget, as well as proportion of identified “plastic companies” in the Region that joined the cluster
Yorkshire and The Humber Sector Development	Contract manager to review progress of project through quarterly meetings and reports	No information available	The evaluation has only taken place during the ‘project’. The ERDF might conduct an ex-post evaluation, as it provided matching funds to the RDAs. The national government is not expected do this.

Instruments to monitor the implementation

In case of all policies, certain instruments are put in place to monitor the implementation. Those instruments include:

- Detailed dossiers to be submitted by the beneficiaries to the managing authority;
- Interviews with beneficiaries by the managing authority;
- Regular meetings of the managing authority with beneficiaries;
- Periodical reports prepared by beneficiaries;
- Monitoring activities by external consultants or the managing authority (Steering Group).

Monitoring committee

Monitoring committee is responsible for the systematic collection and analysis of information as a policy progresses. These activities aim at improving the efficiency and effectiveness of the policy. They are typically based on targets set and activities planned during the planning phases of policy. Monitoring enables to determine whether the available resources are sufficient and are being well used, whether the capacity is sufficient and appropriate, and whether the activities supported by the policy proceed as expected.

For some of the analysed policies, no specific monitoring committees were created. In these case, monitoring activities are typically carried out by the managing authority. In other cases, a dedicated monitoring committee was established. Such monitoring committee usually consists of the key regional stakeholders including R&D managers of chemical companies (large and medium); managers of chemical parks; heads of university departments; and representatives of the governmental administration, e.g., Ministries of innovation and economic affairs.

Ex-post evaluation

Ex-post evaluation is the comparison of the actual impacts against the agreed strategic plans at a certain point of time (in contrast to monitoring which is a continuous process). Evaluation results allow to conclude whether the objectives of the policy are being achieved, what the strongest areas are, and which areas require special attention.

Ex-post evaluation of the whole policy has been carried out only in one of the analysed cases (Bayern Cluster Initiative). In other cases, the following situations were observed:

- No ex-post evaluation of the whole policy (e.g., because the policy is still ongoing);
- Annual evaluation of specific projects funded by the policy;
- Mid-term evaluation of the policy.

A decision on whether to go for internal or external evaluation depends on a number of reasons. Internal evaluators are more familiar with the policy, its objectives, operational activities and beneficiaries. In case of sensitive information, beneficiaries may be more likely to share it with the internal evaluators than with outsiders. At the same time, internal evaluators may lack specific skills or training in evaluation techniques. In addition, internal evaluators are likely to have a biased approach leading to a tendency of reaching positive conclusions. External evaluation is likely to be more objective and professional. Furthermore, it gives greater credibility to the obtained findings, which is particularly important for communication with national governments and private investors (e.g., when additional funding needs to be secured). At the same time, external evaluation is likely to be more costly. An external evaluator may also not understand the culture within the cluster and the actual objectives of evaluation²⁰. Therefore, in case external evaluation is chosen, managing authorities and external evaluators should ensure good communication with each other.

As for the Key Performance Indicators (KPIs), those typically include the number of initiated collaboration projects and the number of FTEs created.

Key difficulties encountered during implementation

Several difficulties were mentioned when implementing cluster & innovation policies. These include:

- *Lack of interest in the policy* from the company side which results into limited number of proposals as companies do not see enough added value;
- *Lack of trust among cluster participants*, lack of regional integration and unwillingness of companies to cooperate with each other; possible measures to improve the situation include facilitation of networking events, organisation of workshops and match making events (however, these measures were mentioned as hypothetical remedies, and, when looking at the analysed policies, it is too early to judge if those are effective);
- *Strict state aid regulations* putting caps on the maximum percentage of investment from public authorities make it less attractive for large companies to invest in infrastructure and facilities (large chemical companies have significant funds available, but do not make the required investments without being incentivised);
- *Constant need to adjust the strategic direction of the policy* due to changes in the interests of the partners regarding general economic situation, international investment decisions (e.g., focus on Asia), changes in political focus etc., as well as difficulties in integrating interests of different stakeholder groups;
- *Procedures related to application and implementation* are sometimes perceived by industry to be highly bureaucratic which limits the number of applications; the number of applications, in turn, is directly related to the budgets of the policy, which then are reduced due to lack of interest from the beneficiary side.

2.1.4. Legal and financial framework

In this sub-section, we analyse the key aspects of the legal and financial framework of the analysed policies. Those include:

- Support services offered to beneficiaries;
- Key dissemination activities;

²⁰ Shapiro, J. (2001) Monitoring and Evaluation. CIVICUS: World Alliance for Citizen Participation

- Deadlines and flexibility;
- Corrective measures;
- Budgets and number of projects.

Support services offered to beneficiaries

Several types of support services were reported to be offered to beneficiaries of the analysed policies:

- *Dedicated website and newsletters* (e.g., Asturias Cluster Policy; North Rhine-Westphalia ChemSite; Rhineland-Palatinate chem2biz; Saxony Anhalt GRW Cluster management; Wallonia networking cluster PLASTIWIN);
- *Training courses* (e.g., Asturias Cluster Policy; PACA PRIDES, Wallonia networking cluster PLASTIWIN);
- *Meetings with beneficiaries* (e.g., Bayern Cluster Initiative; North Rhine-Westphalia Cluster CHEMIE.NRW; Yorkshire and The Humber Sector Development);
- *Support with filling in the application form* (e.g., Limburg Chemelot Campus);
- *Explanation of State Aid Rules* (e.g., Limburg Chemelot Campus);
- *Organisation of networking events, conferences* (e.g., North Rhine-Westphalia ChemCologne; Saxony Anhalt GRW Cluster management);
- *Coaching with regard to intercluster cooperation*, e.g., on social and environmental responsibility (e.g., PACA PRIDES);
- *Informing cluster members about changes in regulations* (e.g., Wallonia networking cluster PLASTIWIN);
- *Informing cluster members about calls for proposals for subsidies and grants* (e.g., Wallonia networking cluster PLASTIWIN);
- *Local and international promotion of the sector and its members* through a directory, promotional materials, participation on fairs (e.g., Wallonia networking cluster PLASTIWIN).

Key dissemination activities

Key dissemination activities range from publishing information on a dedicated webpage (e.g., Saxony Anhalt GRW Cluster management; Wallonia networking cluster PLASTIWIN) through public presentations at conferences and workshops to messages on TV and radio (e.g., Asturias Cluster Policy). Annual reports are often presented to the relevant ministries and Parliament (e.g., Bayern Cluster Initiative; Limburg Chemelot Campus; North Rhine-Westphalia Cluster CHEMIE.NRW). Dissemination of information on the progress of the policy within the cluster also takes place during massive networking events and congresses, meetings of cluster members or similar activities (e.g., North Rhine-Westphalia ChemCologne; Novara Innovation Pole). Additionally, newsletters (e.g., Saxony Anhalt GRW Cluster management) and press releases are used (e.g., Rhineland-Palatinate chem2biz; Yorkshire and The Humber Sector Development).

Deadlines and flexibility

In terms of deadlines, the analysed policies can be split into two groups: policies with strictly fixed deadlines and policies with no fixed deadlines. Whether the deadline is fixed or not depends on the nature of the policy. In cases when a policy funds specific collaboration projects or cluster management activities, deadlines are reported to be fixed (e.g., Asturias Cluster Policy, PACA PRIDES). The absence of fixed deadlines in other cases can be explained by the fact that no public funding was allocated to a policy (e.g., North Rhine-Westphalia Cluster CHEMIE.NRW).

In case of strict deadlines, those sometimes were allowed to be extended if the reason was justified (e.g., Asturias Cluster Policy, where the deadlines could be extended by as much as half of the time initially allowed; North Rhine-Westphalia ChemSite). The extension of deadlines in this case does not imply the extension of allocated budgets.

Corrective measures

Several corrective measures were reported. Those include:

- Regular revision of KPIs to be achieved (e.g., Asturias Cluster Policy);
- Measures based on the regular analysis of the progression of the policy by policy partners and beneficiaries (e.g., North Rhine-Westphalia ChemCologne; North Rhine-Westphalia ChemSite);
- Securing additional budget to support the policy (e.g., Novara Innovation Pole).

Budgets and number of projects

The annual budgets of the analysed policies vary from 108,000 EUR in Rhineland-Palatinate to 32M EUR in Yorkshire and The Humber²¹ (see Table 2-5). These differences can be explained by diversity of activities funded by such policies. In some cases (with relatively low policy budgets), the policy mainly funds cluster management activities (e.g., Bayern, Asturias, Saxony Anhalt), while funds for innovative R&D projects are obtained from other public and private sources at regional, national and European levels. In other cases (e.g., Flanders), policies go beyond supporting cluster management and include strategic research programmes; open innovation and production infrastructures; as well as the development of sustainable business models and techniques.

TABLE 2-5: Budgets and number of projects of cluster & innovation policies

Region and policy name	Annual budget	Nr of projects	Minimum and maximum project budgets
Asturias Cluster Policy	500,000 – 650,000 EUR	Information not available	5,000 – 60,000 EUR
Bayern Cluster Initiative	~437,500 EUR	More than 30	0,1 – 1M EUR
Cheshire West and Chester CLUNET	Information not available	Information not available	Information not available
Flanders Innovation Hub for Sustainable Chemistry (FISCH)	5M EUR	Information not available	N/A
Limburg Chemelot Campus	~7M EUR ²²	Information not available	<ul style="list-style-type: none"> • 15M EUR to cover the costs of the Chemelot Campus organisation (for a period of ten years); • 14M EUR to finance the buildings at the Chemelot Campus; • 6M EUR for the fund (for a period of ten years).
North Rhine-Westphalia ChemCologne	Limited to membership fees	Information not available	Limited to membership fees.
North Rhine-Westphalia Cluster CHEMIE.NRW	No granted budget	No specific nr of projects	CleanTechNRW: 80M EUR (planned); COPT: ~50M EUR (NMW.NRW); SusChemSys: 5.4M EUR
North Rhine-Westphalia ChemSite	Private Partners: 450,000 - 650,000 EUR, Public Partners: average 460,000 EUR	260 investment projects acquired	Average 1.0M EUR, max. 1.2M EUR, min. 0.8M EUR
Novara Innovation Pole	On average 1,8 million EUR	11 projects related to chemicals industry	~492.000 EUR
PACA PRIDES	~20M EUR ²³	29	Average annual budget for a PRIDES project (regional)

²¹ Total budget was about 300M GBP or 382M EUR. This was used to finance hundreds of programmes at any time. About 100M would go to support for businesses, the remainder would go to logistics, planning and redevelopment of land and adult education etc. For the business directorate: business parks, collaboration with universities would be a major part.

²² Based on the estimate of 70M EUR funding for 10 years

²³ Based on the total budget for the period 2007 – 2011 of 100 M EUR:

- 26 M EUR for governance;
- 22 M EUR for collective actions;
- 27 M EUR for R&D collective projects of SMEs and laboratories;
- 27 M EUR loans for SMEs.

Region and policy name	Annual budget	Nr of projects	Minimum and maximum project budgets
			funding) is 283,000 EUR. Minimum annual budget is 75,000 EUR; maximum annual budget is 650,000 EUR
Rhineland-Palatinate chem2biz	108,000 – 120,000 EUR	About 30 projects	Information not available
Saxony Anhalt GRW Clustermanagement - Cluster Chemistry Plastics Central Germany	227,500 EUR	About 25 projects	0,1 – 20M EUR
Wallonia networking cluster PLASTIWIN	160,000 EUR	About 218 projects	24,000 EUR (average)
Yorkshire and The Humber Sector Development	32M EUR ²⁴	No information available	No information available
Minimum/maximum per category	108,000 EUR/32M EUR	25/260	5,000 EUR/80M EUR

The number of projects varies per policy and depends on the nature of activities supported by a policy. If the policy focuses on different collaboration projects among cluster members (e.g., Novara Innovation Pole), the number of funded projects is substantially higher than in case of large infrastructural investments (e.g., Limburg Chemelot Campus). The first category of policies implies substantially smaller budgets per project than the second category (again due to the different nature of funded activities).

2.1.5. Main achievements

In this sub-section, we review the main achievements of the analysed policies, and specifically look at the extent to which the goals have been achieved, as well as key outcomes of the policy, and importance of these outcomes to the beneficiaries, industry and region.

Extent to which the goals have been achieved

Several of the analysed policies have been launched relatively recently, and it is still too early to judge if their goals have been achieved (e.g., Asturias Cluster Policy, Flanders Innovation Hub for Sustainable Chemistry, Limburg Chemelot Campus). For the majority of the policies in question, however, it is already possible to observe the first results. In one of the previous sub-sections, we analysed the objectives of the policies. The anticipated results and specific KPIs are directly stemming out of the objectives. Since policies have different objectives, different types of results are expected, measured and evaluated. The following categories of measured results were identified:

- **Collaboration** (KPI: number of innovation projects)

Bayern Cluster Initiative: cluster managers needed two years to build up an effective network. Since 2009, the network's output in terms of innovation projects is reported to be beyond expectations - each EUR of Bavarian funding initiates another 10 EUR of industrial and national R&D expenses.

North Rhine-Westphalia Cluster CHEMIE.NRW: the cluster is reported to have a good basis for cooperation, which is still developing. For example, the cluster of industrial biotechnology is suggested to be successful in creating a trust-based cooperation between diverse industrial partners, biotech companies and academia. In the beginning, there were many disagreements between biochemical companies, large chemical companies and academia. Gradually, a common understanding of cluster work and a trust base between partners have been developed.

Novara Innovation Pole: the first results of an external evaluation show an increased capacity for cooperation in the SMEs in the region. The Novara Pole has the responsibility to select and propose research projects to the Piedmont Region. It has been characterised by a high percentage of approved versus proposed projects (100%, 67% and 100% for the first, second and third year respectively). For

²⁴ Based on the estimate of the total budget of 300M GBP (or 382M EUR) for 12 years

example, one project was aimed at eliminating all VOC from paints, which is in line with the sustainability goal of the policy.

Saxony Anhalt GRW Cluster management: in several areas, the objectives were reported to be attained with a good results, for example in chemical logistics cooperation or in the use of new feedstock coal for chemistry and bio-economy applications.

- **Economic growth** (KPIs: number of newly created firms; number of newly created FTEs)

Limburg Chemelot Campus: since 2005, 61 new companies and 350 FTEs have been created. There are examples of several successful business cases, e.g. several spin-outs of DSM, some companies that started at the university of Maastricht and came to the campus. These companies demonstrate fast growth.

Rhineland-Palatinate chem2biz: the main objective is to establish new companies which create sustainable jobs. This objective has been reported to be attained to a large extent.

- **Cluster growth** (KPI: number of new cluster members)

North Rhine-Westphalia ChemCologne: the number of cluster members is constantly rising.

Wallonia networking cluster PLASTIWIN: 20% of potential members joined at the very beginning. Members have indicated that they get benefits from the cluster. According to a survey among the members company, the cluster helped them to establish new commercial partnerships (63%), meet new clients (60%), get access to new markets (47%), and get access to R&D facilities (44%).

Yorkshire and The Humber Sector Development: the cluster initiative gained over 100 members. The cluster organisation is the first point of contact for local authorities and UK government regarding inward investment, issues and challenges for the sector.

Key outcomes of the policy

Specific key outcomes of the analysed policies include:

- Integration of chemical companies (both large and SMEs) and universities into a broad **innovation network** (e.g., Bayern Cluster Initiative; Cheshire West and Chester CLUNET: establishing Knowledge Transfer Networks; North Rhine-Westphalia Cluster CHEMIE.NRW; Limburg Chemelot Campus; North Rhine-Westphalia ChemSite; Novara Innovation Pole; PACA PRIDES; Saxony Anhalt GRW Cluster management);
- Initiation of multiple **R&D projects** with a concrete marketing perspective (e.g., Bayern Cluster Initiative: more than 30 R&D projects with the budget above 30M EUR);
- Creating **new companies and jobs** (e.g., Bayern Cluster Initiative: about 150 FTEs; North Rhine-Westphalia ChemSite: 23 companies established facilities in the Ruhr region and created 400 direct jobs; Rhineland-Palatinate chem2biz: there are 10 companies located on the BASF-site or at the TZL-site which secured more than 50 jobs; Saxony Anhalt GRW Cluster management);
- Establishing an **international network** between local SME and industrial players from Europe, Asia and the US (e.g., Bayern Cluster Initiative; Limburg Chemelot Campus);
- Attracting **additional funding** to the cluster (e.g., Limburg Chemelot Campus);
- Improving **cooperation between the state government and industry** (North Rhine-Westphalia ChemSite: the cooperation industrial partners and the state government improved the understanding for each other's problems and restrictions; the time schedule of the application procedures has been shortened significantly; the authorities cooperate proactive within their legal framework);
- Raising **awareness of capabilities and attractiveness of the region** (e.g., North Rhine-Westphalia ChemCologne; Yorkshire and The Humber Sector Development).

Importance of these outcomes for beneficiaries/industry/region

When analysing the importance of these outcomes for beneficiaries, industry and region, increased **cooperation** within the region, as well as with companies and organisations outside the region is mentioned as the key enabler of higher competitiveness of the region:

- *Asturias Cluster Policy*: because of the high added value the technology creation brings to the economy of the region (new companies, new jobs etc.), there is a high importance associated with outcomes of the policy. The policy is expected to improve relations between the companies and increase cooperation on projects that benefit the sector and region.
- *Bayern Cluster Initiative*: Cluster management results show concrete economic effects for participating companies. Cluster management activities are appreciated by SMEs as well as by big companies like Wacker. Chemie-Cluster Bayern provides support to local authorities by building regional innovation networks.
- *North Rhine-Westphalia Cluster CHEMIE.NRW*: the initiative has led to a good economic position of most chemical/plastics companies, innovative activities on a broad scale, enhanced cooperation between companies and between companies and universities and research institutions in NRW.
- *North Rhine-Westphalia ChemSite*: the cooperation of partners from industry, state government and municipalities is reported to be of high value for all partners. Supporting the ChemSite Initiative with its goals is suggested to be essential for overcoming the structural changes in the Ruhr region, where coal mining and steel industries are turning down since years and almost completely vanished.
- *Novara Innovation Pole*: SMEs can now afford new initiatives thanks to the cooperation with other SMEs and local large companies and with universities. The policy has helped companies to open to new technologies and encouraged research, putting points in favour of an economic growth.
- *Saxony Anhalt GRW Cluster management*: The policy leads to strengthening competitiveness, better access to innovation and public support. A strong cluster community has been developed with plenty of cooperation opportunities in the field of R&D.

In other cases, economic growth as a direct result of increased collaboration is mentioned as the key outcome of the policy (e.g., Limburg Chemelot Campus, Rhineland-Palatinate chem2biz).

2.1.6. *Main strengths and weaknesses*

In this sub-section, we address the key strengths and weaknesses of the analysed policies, as well as new opportunities created by those policies and external threats.

Key strengths of the policy

The key principles that make the analysed policies effective can be grouped into the following categories:

- **Network approach:**
The network approach is suggested to be one of the most efficient ways to increase the dynamics of innovation by creating market pull and technology push within the value chain. It is reported to be particularly crucial for the development of SMEs. This approach is effectively strengthened by public funding programs supporting cooperation efforts (e.g., Asturias Cluster Policy; Bayern Cluster Initiative; North Rhine-Westphalia Cluster CHEMIE.NRW).
- **Involvement of all actors of the value chain:**
Successful policies recognise the importance of integration of all actors of the value chain including industry, universities and research centres, and policy makers (e.g., Cheshire West and Chester CLUNET, North Rhine-Westphalia ChemSite, Novara Innovation Pole, Saxony Anhalt GRW Cluster management, Wallonia networking cluster PLASTIWIN).
- **Trust between cluster members and cluster managers:**
Managers of chemical clusters have to find for each cluster the right balance between market pull and technology push. Cluster managers should also continuously communicate with the members of their cluster. Cluster managers need to earn trust, based on their knowledge of the value chain and the industry, as well as their personal attitude (e.g., North Rhine-Westphalia Cluster CHEMIE.NRW).
- **Consistency of policy actions:**
As mentioned above, developing clusters takes time, and therefore long-term orientation and support is required from cluster & innovation policies for those to be effective. That implies clear and consistent

policy position, taking responsibility for long-term results, and alignment of policy goals and actions with agendas of the industry (e.g., Flanders Innovation Hub for Sustainable Chemistry (FISCH); Limburg Chemelot Campus).

Key weaknesses of the policy

Several types of weaknesses of the analysed policies were reported:

- **Difficulties in convincing companies to cooperate with each other:** the key beneficiaries sometimes demonstrate lack of interest in the policy among others due to their conviction that, in the current economic climate, survival is more important than cooperation in R&D projects. It particularly holds for SMEs. Companies that do not participate in clusters do not see the benefits (e.g., Asturias Cluster Policy; North Rhine-Westphalia Cluster CHEMIE.NRW; Saxony Anhalt GRW Cluster management; Wallonia networking cluster PLASTIWIN).
- **Difficulties in creating direct return on investment and outcomes measurable in a short-term time frame:** specific outcomes of cluster & innovation policies can typically be measured only in a long-term time frame. Offering a public service, the cluster management agency has only limited capacity to create return-on-investment on its own (e.g., Bayern Cluster Initiative).
- **High geographical dispersion of cluster members makes it difficult to apply cluster policies:** clusters are not always geographically concentrated in one place. For example, the model of chemical parks in the UK is not as clearly defined as in Germany. The chemical manufacturers are more organic. In Germany, chemical parks place the industry in a clear geographical area. Within that area, one overlying company often covers utilities and administration. The same model does not operate in the UK. NE England does have pilot actions to form knowledge parks, but this does not yet compensate for the difference (e.g., Cheshire West and Chester CLUNET).
- **Scattered responsibilities and contacts:** in some cases, the need for one clear contact person who can make decisions was reported, as at this point, the responsibilities and contacts are scattered (e.g., Limburg Chemelot Campus).
- **High levels of bureaucracy:** complicated management procedures; long approval procedures for projects and excessive administrative workload were reported to be present in some cases (e.g., Limburg Chemelot Campus; Novara Innovation Pole).
- **Risk of discontinuing the policy:** sustainability of some policies was reported to be uncertain as the relevant regional (and sometimes also EU) funding will eventually be reduced (e.g., Novara Innovation Pole).
- **High dependence on public funding:** at this stage, it is predominantly public funding that supports cluster & innovation policies (with a few exceptions mentioned above). Public funding allocated to these policies, however, will gradually decrease, and at a certain point of time, cluster organisations will have to shift to a self-sustaining model based on among others membership fees. That means that if no commitment will be achieved from companies' side, the initiative will not be able to continue (e.g., Wallonia networking cluster PLASTIWIN).

New opportunities created for regions, industry etc.

The analysed policies created a wide range of new opportunities including:

- **International site marketing** (e.g., Bayern Cluster Initiative);
- **Creation of new science parks and colleges** (e.g., Cheshire West and Chester CLUNET; Limburg Chemelot Campus);
- **Collaboration treaties with other regions** (e.g., Flanders Innovation Hub for Sustainable Chemistry);
- **Training opportunities** (e.g., North Rhine-Westphalia Cluster CHEMIE.NRW; Yorkshire and The Humber Sector Development);

- **Cooperation with other industries**, e.g., Automotive, Photovoltaic, Aviation, Energy etc. (e.g., Saxony Anhalt GRW Cluster management).

External threats

External threats to the analysed policies include:

- **Economic crisis** (e.g., Asturias Cluster Policy; Flanders Innovation Hub for Sustainable Chemistry; Limburg Chemelot Campus; Novara Innovation Pole);
- **Changes in regional governance and political situation in general** (e.g., Cheshire West and Chester CLUNET; Flanders Innovation Hub for Sustainable Chemistry; Limburg Chemelot Campus; PACA PRIDES; Saxony Anhalt GRW Clustermanagement);
- **Administrative burden of European requirements for public funding** (e.g., North Rhine-Westphalia Cluster CHEMIE.NRW);
- **Attractiveness of emerging economies and their growing markets**, higher incentives in other European regions (e.g., North Rhine-Westphalia ChemSite).

2.1.7. Difficulties encountered

This sub-section focuses on the key difficulties encountered by beneficiaries, reasons behind those difficulties, as well as ways these difficulties were tackled.

Difficulties encountered by beneficiaries and reasons behind those difficulties

The key difficulties encountered by beneficiaries include:

- **IPR-related issues** in the context of collaboration: rules for IPR management are a fundamental aspect of collaborative R&D projects, defining the success of dissemination and utilisation activities. It is therefore vital that these rules take into account the mission and legitimate interests of both public research institutes and participating industrial partners, otherwise disputes among participants are inevitable. To avoid such disputes, clear and streamlined rules for IP and access rights need to be defined. This may be achieved through mandatory Consortium Agreement templates that may depend on the type of project and the phase of the innovation cycle, with which the participants have to be acquainted in advance. Additionally, the consortium size is suggested to affect the complexity of IP issues. Smaller consortia are easier to coordinate also from IP perspective, while large consortia inevitably create highly complex IP agreements and associated disputes. From IP perspective, it would therefore be desirable to allow consortia to be compact in size²⁵ (e.g., Cheshire West and Chester CLUNET);
- **Scattered & unclear focal points of the policy** (e.g., Limburg Chemelot Campus);
- **Negative image of the chemicals sector**: when people think of chemicals they typically think of oil, large dangerous production plants with big pipes, etc. Therefore it is hard to interest students in chemicals and chemicals-related studies, as the industry is not considered a great place to work (e.g., Limburg Chemelot Campus);
- **No time from SME side to engage in cluster activities**: the number of people employed by SMEs is small, and these people typically are overloaded with their own work having no time for additional activities such as active participation in cluster events, meetings etc. (e.g., North Rhine-Westphalia Cluster CHEMIE.NRW; North Rhine-Westphalia ChemSite);
- **Unattractive rules for participation for SMEs in large projects**: SMEs with limited resources often lack the manpower and experience to apply for public funding. A considerable number of high-tech SMEs and academic collaborators, that may be interested in participating, drop out also when

²⁵ “EU budget support for research and innovation” (2012), Report prepared by PwC for the European Parliament, available at: <http://www.europarl.europa.eu/committees/fr/studiesdownload.html?languageDocument=EN&file=74671>

faced with the requirement of matching financial contributions. Such enterprises tend to be at the stage in their evolution when resources are extremely tightly constrained and exploratory expenditure is a luxury that only few can afford (e.g., Novara Innovation Pole).

- **Heavy administrative burden** (see above): main difficulty is related to administrative requirements, i.e., documents required, different formats for project administration than regular administration of the companies (e.g., Novara Innovation Pole);
- **Insufficient financial support for large infrastructural investments**: if larger investments are necessary, e.g., if expensive equipment is required for a new/better production process, the maximum financial support provided by public funds is often not sufficient (e.g., Rhineland-Palatinate chem2biz).

Ways these difficulties were tackled

Below we provide examples of how the abovementioned difficulties were tackled:

- **Detailed pre-agreed frameworks** describing the terms and conditions of cooperation (e.g., Cheshire West and Chester CLUNET);
- The regional authorities have been open to discuss the problems of high bureaucracy and low SME involvement with the Poles; a **Task Force** has been created to solve such problems as well as a **helpdesk** to support beneficiaries. The Task Force has already met four times and tries to find solutions (e.g., Novara Innovation Pole).

2.1.8. Lessons learned

In this sub-section, we elaborate on the key learning points and suggestions for improvement.

Key learning points

The following common key learning points were detected:

- **A need to assign a task of initiating and coordinating specific innovation projects to cluster managers**: cluster managers were reported to be crucial for initiating and coordinating collaborative projects between the cluster members. Organising events and platforms only was suggested to be insufficient. Additionally, as branch experts at the crossroads of industry, science and policy, cluster managers are more and more asked for their suggestions regarding other fields of political innovation support (e.g., Bayern Cluster Initiative);
- **A need to create networks and encourage personal engagement**: it is crucial to find mutual interest between players along the whole value chain in order to be able to develop strong projects. Bringing partners of the value chain together is the major task for a cluster management. Public funding from European or local funds are necessary for starting new projects. However, it is about individual people who contribute to the process, strategies only provide insight in what should be done and describe the route to success (e.g., North Rhine-Westphalia Cluster CHEMIE.NRW; North Rhine-Westphalia ChemSite).
- **A need to assemble a strong team for cluster management activities**: the fact that there is a strong cluster organisation (and other sector network organisations) meant that other programmes like, for example, supporting innovation and R&D in renewables, environmental sustainability, inward investment could be justified and were more successful than they might have been (e.g., Yorkshire and The Humber Sector Development).

Suggestions for improvement

Finally, the following suggestions for improvement were identified:

- **Stimulate cross-regional collaboration** at the EU level and globally;
- **Coordinate cluster policy of different European regions**, based on the suggestions of cluster managers, to ensure evidence-based policy making and consistency in policies;
- **Incorporate “experimental” phase in cluster policies** before making final decisions on applicable rules and regulations (i.e., a certain amount of funding should be made available for initial operations and pilot activities within the policy, then the evaluation needs to take place; and based on the results of that evaluation, the final decisions including budgets need to be determined);
- **Reduce bureaucracy** associated with public funds: as long as funding rules and procedures are complicated and need a large amount of administration, strong companies are likely to focus on their own projects and to avoid applying for financial resources from the public sector;
- **Demonstrate long-term financial commitment**: cluster & innovation policies need a long term financial support. Financial support should be granted on a long term basis with scheduled evaluations and space for possible adjustments, but not to projects with a short duration.

2.2. RDI

RDI corresponds to research, development and innovation. Innovation-related policies were also included in the previous section. As mentioned before, the difference between this policy category and the previous one refers to the level of innovation. While cluster-related innovation refers to the macro-level (i.e., regional level, groups of companies and other stakeholders), policies mentioned in this category are of micro-level (i.e., those refer to specific R&D and/or commercialisation projects). Seven policies were identified in this category:

- Brandenburg Technology Transfer Office for Chemistry and Plastics;
- Catalonia Technological Innovation Strategy;
- Limburg Venture fund II;
- Lombardy Innovation & Research Policy;
- Lower Saxony Innovation Development Programme;
- Mazovia Regional Innovation Strategy;
- Scotland R&D Grant Support.

Below we provide a short introduction to these policies. Detailed descriptions of each policy are provided in Annex B.

The *Brandenburg Technology Transfer Office for Chemistry and Plastics* has created a point of contact between entrepreneurs and scientists in all cases of sector-specific technology transfer. As an interface between science and economy, BTS assists companies in the chemical and the plastics sector. BTS initiates personal contact with industry experts. It supports the search for partners and helps by preparing R&D projects.

Catalonia Technological Innovation Strategy refers to a set of actions by the Catalan Government aimed at improving technological transfer efficiency, promoting private investment on RDI and enhancing cooperation between SMEs since 1990. In order to adapt these programs to the new scenario characterised by strong budgetary restrictions and reduction of expenditure, all the actions have been reviewed and integrated under the Industrial Policy Plan for 2012-2014.

Limburg Venture fund II is a recent policy initiative that targets development and growth of SMEs and start-ups. With a mix of private and public funding, the initiative provides seed money to these companies. The initiative aims to foster growth in employment and create an attractive business location at the Chemelot Campus (Limburg) for chemical companies. Furthermore, the involved partners advice on all important issues of fast-growing young companies, such as financing, market intelligence, and intellectual property.

The *Lombardy Innovation & Research Policy* has arisen from the combined action of numerous players: citizens, businesses, financial institutions, research and university bodies and public administration. Such complexity implies that the policy for research and innovation does not develop in a vacuum but interacts with the activities of a considerable number of players. Hence, the policy covers a range of topics as broad as environment, competition, R&D, innovation and entrepreneurship.

The *Lower Saxony Innovation Development Programme* provides financial support for projects of research and development. This program is open to applications from all economic sectors in Lower Saxony, and hence also for the chemical industry. In order to qualify for support, the result of the project has to be new in Germany, it has to be implemented in Lower Saxony and there also has to be a technological and economic risk for the project.

The *Regional Innovation Strategy for Mazovia (RIS)* defines the execution methods for the innovation support policy focused on regional development. The RIS currently contains four main projects: (1) setting up six information points: helpdesks for all innovation stakeholders in the major cities in the region, as well as regular seminars at these six locations where stakeholders can receive information and exchange experiences about such topics as cooperation and commercialisation strategies; (2) developing a system for measuring innovative performance at the regional level, including criteria and monitoring approach; (3) training for staff of the Office of the Marshal of Mazowieckie Voivodeship responsible for implementation of RIS; (4) grant programme to encourage cooperation between companies and universities.

Scotland R&D Grant Support is aimed at assisting companies undertaking research & technological development in Scotland leading to new/enhanced products or processes offering a leading edge. The policy was developed in response to a demand from the chemical sector. It was targeted at SMEs in the chemicals industry. Later, the Scottish Government and the responsible implementing agency Scottish Enterprise found that the policy had become a success, and the Scottish Government decided to open the policy to other sectors. No such grants were available at the time for non-SMEs to undertake work in R&D. Hence, the Government also expanded the target group to include non-SMEs.

2.2.1. General policy characteristics

In comparison to the policies in the other categories we analyse in this chapter, the RDI policies are remarkably homogeneous at first sight when it comes to their focus, the instruments used and the level at which they have been conceived and are implemented.

Focus

Five of the seven policies under study are not specifically designed to support the chemicals industry, although the Scottish R&D Grant Support started out as an industry-specific policy but was expanded after proving to be successful.

Instruments

The seven policies all use grants to companies as an instrument, although the type of projects supported differs from one policy to another. Some policies combine the grants with other ways of funding R&D. The Brandenburg Technology Transfer Office has the widest range of instruments of all seven policies and is also the most recent one.

Policy level

All policies are strictly regional in the sense that they were developed and are currently implemented at the regional level.

Duration

Duration of the policies varies, but appears to be related to ERDF programme periods (at least as regards the start date of the policies) when ERDF is a source of funding. Most of the regional authority representatives that were interviewed expressed their intention to continue the policy after the current period.

TABLE 2-6: General characteristics of RDI policies

Region and policy name	Focus (chemicals-specific?)	Instruments	Policy level	Duration
Brandenburg Technology Transfer Office for Chemistry (BTS)	Yes	<ul style="list-style-type: none"> • Grant/loan /R&D, Innovations, Network etc.; • Training; special events & workshops; • Group Exhibit at Trade fairs; • Networking, cooperation, initiation; • Knowledge transfer; • Newsletter. 	Regional	09/2009 - 08/2012 ; 3 years
Catalonia Technological Innovation Strategy	No	Grant	Regional	2007 – ongoing; 5 years
Limburg Venture fund II	Yes	Participation seed money	Regional	2011 – 2020 (9 years ²⁶)
Lombardy Innovation & Research Policy	No	<ul style="list-style-type: none"> • Grant; • Loan; • Co-financing 	Regional	2007 – 2013; 6 years
Lower Saxony Innovation Development Programme	No	Grant (25% of project costs for large firms, 35% for SMEs and 45% for companies that have existed less than 5 years; a bonus of 10% is awarded for cooperation)	Regional	01/2009 – 12/2015; 7 years (but the policy already existed prior to the current period in a somewhat different form for 12 years)
Mazovia Regional Innovation Strategy	No	<ul style="list-style-type: none"> • Grant/loan; • Regulation or standard 	Regional	2007 – 2015; 8 years
Scotland R&D Grant Support	No	Grant	Regional	2004 – ongoing; 8 years

Key funding sources and types of funded projects

The projects are either funded entirely from the regional budget – which, depending on the region, may either be based on income raised by the region itself through certain regional taxes or may be provided for a large share by the national government – or, as is the case with the Limburg Venture fund II, private parties also contribute to the initiative.

In general, the policies are somewhat “traditional” in the sense that they fund R&D projects in all industries (with the exception of the BTS in Brandenburg and the Limburg Venture fund II) based on applications submitted by (consortia of) companies. The policies can be distinguished from each other by the specific requirements made of applicants. Two of the seven policies (those in Brandenburg and Mazovia) require cooperation between companies and university researchers, one (Catalonia) requires consortia of at least four companies to apply, one (Limburg) focuses exclusively on high-tech start-ups and SMEs and one (Lower Saxony) has specific requirements of the R&D projects themselves. The remaining two RDI policies (in Lombardy and Scotland) have relatively few requirements, although the Scottish policy does have quite specific criteria for the selection of projects from the applications received by the managing authority.

²⁶ The total number of years was calculated based on the exact starting dates of a specific policy (e.g., if a policy was launched in January 2009 and lasted till December 2010, the total duration of the policy is considered to be 2 years; if, however, a policy was launched in January 2009 and lasted till January 2010, the total duration is 1 year).

TABLE 2-7: Funding sources and type of funded projects of R&D and innovation policies

Region and policy name	Key funding source/policy partners	Types of funded projects
Brandenburg Technology Transfer Office for Chemistry (BTS)	Regional budget	Collaborative R&D projects, in which SMEs in the chemicals and plastics sector and university researchers are brought together by BTS
Catalonia Technological Innovation Strategy	Regional budget	Collaborative R&D projects that involve the participation of at least 4 unrelated companies
Limburg Venture fund II	Province of Limburg, DSM, LIOF and 2 other private partners	Funding of start-ups and SMEs focused on one of the key themes of the provincial policy (performance materials, bio-based materials, biomedical materials, biotechnology / biosynthesis, analytical support)
Lombardy Innovation & Research Policy	ERDF 2007 – 2013 and Regional budget	R&D projects, both of single companies and cooperating partners
Lower Saxony Innovation Development Programme	ERDF 2007 – 2013 and Regional budget	R&D projects; as a special topic projects of industrial and experimental development, which have the function to show solutions for power generation, renewable energy e.g. wind- and solar energy, hydropower and energy saving are supported. The result of the project furthermore has to be new in Germany, it has to be implemented in Lower Saxony and there also has to be a technological and economic risk for the project.
Mazovia Regional Innovation Strategy	ERDF 2007 – 2013 (85%), National budget (7.5%), Regional budget (7.5%)	New cooperation between companies and universities
Scotland R&D Grant Support	Regional budget	R&D projects of individual companies (both SME and non-SMEs) “The selection process takes account of a number of factors including the nature of R&D, whether it creates or safeguards R&D jobs, whether it links in to other local companies perhaps for materials or specialist knowledge, whether there is a global market opportunity, whether intellectual property has been considered. SE also looks at the financial and commercial aspects of an application as well as the management expertise available to the business. Account is also taken of the wider impact and the project’s implications for society including factors such as environmental impact, sustainability and health and safety. SE will not support projects which will have a known adverse effect on the environment and/or society.” ²⁷

2.2.2. Objectives and target groups

While the focus of objectives differs for the seven RDI policies, the role of SMEs as drivers of innovation is prominent in all of them, as is the relationship with research institutions.

Key objectives

The objectives of the policies differ in their focus: while some objectives are more input-oriented and focus on the R&D expenditure itself or even the conditions for increasing R&D, others target the resulting innovation effects in the form of new products and services, knowledge and technology transfer. Finally, some policy

²⁷ Regional Innovation Monitor, <http://www.rim-europa.eu/index.cfm?q=p.support&n=13994&r=UKM>

objectives are explicit about the end goal of increasing the competitiveness of (specifically small- and medium-sized) enterprises in the region.

Key beneficiaries

All seven policies target SMEs either exclusively or specifically as one of the groups. Exclusivity for SMEs significantly reduces the budgetary impact of the policy for the regional authority.

Key stakeholders

All policies except Limburg Venture fund II and Scottish R&D Grant Support specify researchers or research institutions as important stakeholders. Given the nature of the policies in the category, researchers are logical partners and stakeholders for the policy.

TABLE 2-8: Objectives and target groups of R&D and innovation policies

Region and policy name	Key objectives	Key beneficiaries ²⁸	Key stakeholders ²⁹
Brandenburg Technology Transfer Office for Chemistry (BTS)	To improve the competitiveness of SMEs through knowledge and technology transfer	SMEs in Chemistry/Plastics	Research institutions, universities and colleges, Plastics Association Berlin Brandenburg
Catalonia Technological Innovation Strategy	To achieve an R&D expenditure of 1.9% of GDP by 2014 (was 1.48% in 2007, 1.68% in 2009), as well as 10,000 companies performing R&D projects on a regular basis (7,000 in 2009).	SMEs and large firms, with a focus on SMEs, and technological centres	Researchers and cluster organisations
Limburg Venture fund II	Substantial growth in employment, attractive location climate, strong chemicals cluster, through the funding of interesting start-ups and SMEs and bring them to Limburg and Chemelot.	Start-ups, SMEs	DSM, LIOF and 2 other private partners
Lombardy Innovation & Research Policy	To create a consistent series of support instruments along the entire length of the "innovation chain", from the basic research to the placing of innovative products and services on the market.	SMEs and large firms, Universities, Research Centres	Researchers, cluster organisations, non-governmental organisations
Lower Saxony Innovation Development Programme	To increase research and development by supporting especially SMEs and to increase their competitiveness. Objective is to support the companies in their research & development for new products, production processes or business services.	SMEs and large firms	Research institutions ³⁰
Mazovia Regional Innovation Strategy	<ol style="list-style-type: none"> 1. Strengthening of cooperation in innovation development processes 2. Increase of internationalisation of Mazovian enterprises 3. Increase of measures and effectiveness of innovative activity financing in the region 4. Development and promotion of pro-innovative and pro-enterprising attitudes in the region 	SMEs and large firms, with a focus on SMEs	R&D units (i.e. public-funded centres for applied research, which do not have an education task), universities, local administrations, business environment institutions
Scotland R&D Grant Support	To attract new R&TD into Scotland, retain more where it exists or attract new front end R&TD to an existing manufacturing process	SMEs and large firms	None reported

²⁸ Beneficiaries here refer to the groups directly targeted by the policy

²⁹ Stakeholders here refer to the groups that are not directly targeted by the policy, but that have a direct interest in the policy

³⁰ Regional Innovation Monitor. <http://www.rim-europa.eu/index.cfm?q=p.support&n=13431&r=DE9>

2.2.3. Implementation and management

The monitoring instruments used by each regional authority differ for each of the seven policies. Although each of the policies is (expected to be) monitored by some type of monitoring committee, the composition of the committees varies between only members of the managing authority to a wide range of stakeholders to R&D and innovation. Finally, in the approach to evaluation many differences are visible, and not one approach is dominant.

TABLE 2-9: Implementation and management of R&D and innovation policies

Region and policy name	Instruments to monitor the implementation	Monitoring committee	Ex-post evaluation
Brandenburg Technology Transfer Office for Chemistry (BTS)	Cross-reference, property reports	Ministry of Economy and European Affairs and Brandenburg Economic Development Board for Compliance with Directive, Investment Bank of Brandenburg for correct use of funds.	Regular annual evaluation (last 31.12.2011)
Catalonia Technological Innovation Strategy	Each project is individually monitored, sometimes this is performed by external experts	A steering committee (council board) gives advice during the design of policies and monitors their implementation. This steering committee is composed of representatives from government, industry associations, researchers, trade unions and chambers of commerce	The program is called once a year, when the regional budget is approved. Then a set of targets is established for this specific call. Evaluation is performed when the funded projects are completed.
Limburg Venture fund II	KPIs of the participation company, which are defined as return on investment, number of participants and FTEs working at the companies.	No specific monitoring committee established. As the fund, however, is still being established, this may change in the near future.	No evaluation has taken place, as the fund is still being established.
Lombardy Innovation & Research Policy	Audits, Evaluations	Regional authority	Not available yet because projects are still ongoing
Lower Saxony Innovation Development Programme	The success of all steps of the project is controlled every time before the applicant gets a part of the grant. The program itself is monitored after every period by the Landesrechnungshof (audit office of Niedersachsen).	Composed of the managing authorities: Ministry of Economics, Labour and Transport Niedersachsen, the Ministry of Environment Niedersachsen, the "Innovationszentrum Niedersachsen Strategie und Ansiedlung GmbH" and the "Innovations- und Förderbank Niedersachsen (NBank)".	For the projects there is an ex-post evaluation. The company has to write a report about the results of the project. The results are proved by the NBank. The program itself is analysed annually (number of projects). For an extension of the program there have to be given reasons.
Mazovia Regional Innovation Strategy	EU Project: Monitoring and evaluation of the implementation of the RIS. Financed by Human Capital Operational Programme.	Mazovian Innovation Council tasks: assessment of innovation policy of the region based on RSI Mazovia, assessment of status of strategy execution on the basis of data from monitoring system and evaluation strategy, taking decisions on directions of evaluation analysis. Approx. 30 representatives:	Policy is currently under evaluation (to be finished in 2013). Work has started on updating the policy in the context of future policy strategy for Europe 2020.

Region and policy name	Instruments to monitor the implementation	Monitoring committee	Ex-post evaluation
		universities, public administration, business.	
Scotland R&D Grant Support	Project objectives, milestones, regular audit	Monitoring committee: company, technical expert, SE	Evaluation of projects: generally within 2 months of the final grant drawdown being sought

Key difficulties encountered during implementation

Two difficulties were mentioned by interviewees in relation to more than one of the policies:

- SMEs find cooperation with research institutions, but also with other companies, difficult. This can hamper the effectiveness of the policies as cooperation is known to be beneficial to R&D and even required by some policies, such as the Technological Innovation Strategy of Catalonia.
- Some policies have long administrative and approval procedures, which result in delays starting the projects as well as in administrative burden on the beneficiaries.

2.2.4. Legal and financial framework

Although the overall approach of providing grant support to R&D projects is relatively similar for all regions, some specific approaches are taken with regard to the legal and financial framework. In particular, the wide range of policy-related budgets that is found in the seven regions suggests that the policy is easily scalable to suit the specific requirements of individual regions.

Challenges related to administrative procedures

Several of the policies are facing some challenges, namely:

- High administrative expense for beneficiaries of the policies, due to detailed and complicated requirements of either the application for funding or drawdown procedures. This could lead to high costs associated with the compliance with the requirements and, especially in the case of SMEs, distraction of senior management away from the R&D project itself. Lowering or simplifying those requirements would in most cases reduce the administrative burden for beneficiaries of the policy. On the other hand, one beneficiary reports that the regular reporting requirements increased the importance and the attention the project received from senior management.
- The tension between the dynamics of an R&D project for a company and the limited flexibility offered by the regulations that govern the policies in this category sometimes lead to difficulties for the regional authorities in the award of the grants. This is emphasised by findings that beneficiaries highly appreciate the flexibility provided in some of the policies under study.

Support services offered to beneficiaries

All seven policies offer communication facilities to beneficiaries, mostly in the form of a helpdesk that answers questions about the process of applying for a grant and complying with administrative requirements. Beneficiary comments about these facilities are positive without exception.

In the case of the Brandenburg Technology Transfer Office, the nature of the policy also implies that the management authority assists beneficiaries in finding partners and recruiting personnel specialised in R&D processes. This support is acknowledged and appreciated by the beneficiaries.

Another good practice is found in Lombardy, where the beneficiary has commented positively on the web-based system that region offers for the management of ongoing R&D projects.

A third good practice in this area is referred to by the beneficiary of the Scottish R&D Grant Support programme, who indicates having strongly appreciated that a dedicated “account manager” was available from Scottish Enterprise for the entire duration of the project. The account manager took the time to understand the situation of the company as well as its specific goals for the RDI projects that were supported, which allowed for a professional approach to supporting RDI.

Key dissemination activities

All except one of the regional authorities conduct several activities to disseminate the results of the projects under the policies. Seminars, events and conferences are particularly common for this type of policy in addition to communication of results via websites and newsletters.

Fixed deadlines and flexibility

While most regions have fixed deadlines for at least some milestones specified by the policy, Scotland’s R&D Grant Support is purposefully flexible when it comes to timelines for beneficiaries. As mentioned before, this is highly appreciated by beneficiaries.

Corrective measures

Most regions have not yet implemented corrective measures. One region reports that calls for applications are designed taking into account lessons learned from previous calls, which allows for continuous improvement of the policy on the tactical/operational level.

Budgets and nr of projects

The annual budgets for the RDI policies studied vary widely, as do the minimum and maximum project budgets for each policy and the number of projects supported³¹. This demonstrates that the support of R&D projects can be implemented on either a small or a large scale, which demonstrates the versatility of this type of policy. Hence, regional authorities can decide based on the requirements of the chemicals industry (and other industries) in the region which scope is appropriate and manageable for them.

TABLE 2-10: Budgets and nr of projects of R&D and innovation policies

Region and policy name	Annual budget policy	Nr of projects	Minimum and maximum project budgets
Brandenburg Technology Transfer Office for Chemistry (BTS)	€ 60,000 - € 120,000	9	€ 1,500 - € 80,000
Catalonia Technological Innovation Strategy	€ 4 million - € 12 million	Estimate for the chemicals industry (as made by the regional authority): between 20 and 40	Average budget: € 1.2 million (Minimum budget: € 750,000)
Limburg Venture fund II	1.11M EUR on average (the province of Limburg will participate with 10M EUR for the total period of 9 years)	Information not available	As of yet unknown
Lombardy Innovation & Research Policy	€ 11,79 million on average (roughly 27% of € 262 million for 6 years)	Estimate for the chemicals industry(as made by the regional authority): 75	€ 20,000 - € 2 million
Lower Saxony Innovation Development Programme	€ 15 million	Information not available	€ 5,000 - € 500,000 ³²
Mazovia Regional Innovation Strategy	€ 35,850 on average (€ 71,700 for 2 years, starting in 2013) ³³	Unknown for chemicals industry (grants will not be awarded until 2013)	€ 3,850 (fixed grant amount)

³¹ As the Limburg Venture fund II has only come into effect recently, they were unable to identify minimum and maximum budgets per project as of yet.

³² This is the maximum since 2010, no information available to us prior to that.

³³ The Regional Innovation Strategy covers four projects, one of which involves providing grants to business. The other three projects are concerned with 1. setting up six information points; 2. developing a system for measuring innovative performance at the regional level, including criteria and monitoring approach; and 3. training for staff of Office of the

Region and policy name	Annual budget policy	Nr of projects	Minimum and maximum project budgets
Scotland R&D Grant Support	€ 670.890 - € 3.5 million ³⁴	Estimate for the chemicals industry: 220 (based on 30 projects per year in the period 2004-2010 and a significant decline after 2010)	€ 31,500 - € 6.3 million
Minimum/maximum per category	€ 35,850 - € 12 million	9 - 220	€ 1,500 - € 6.3 million

2.2.5. Main achievements

Although most of the policies are ongoing, some tangible results can be measured which are appreciated by the beneficiaries.

Extent to which the goals have been achieved

Three of the seven regional authorities report that the policies achieved most or all of their goals. The other four comment that it is too early to tell, as goals set for innovation resulting from the R&D projects are expected to take a long time to be realised. Interestingly, regional authorities in both groups refer to the large number of applications for the R&D support as an indicator for success of the policy, as it suggests that the policy is appreciated by the beneficiaries.

In its Regional Innovation Report of April 2012, RIM comments on the Catalonia Technological Innovation Strategy: “This policy measure is well regarded in the business and technological sector of Catalonia. The results obtained by the companies that had participated in it were particularly positive. The main beneficiaries of this measure are enterprises in cooperation with a least one SME, although universities and technological centres must participate as subcontractors within the R&D business projects”³⁵.

Key outcomes of the policy and importance of these outcomes for beneficiaries/region/industry

Similar to the goals achieved, some regions indicate that it is too early to provide a full picture of the outcomes of ongoing policies. However, several regions have established that private expenditure on R&D has increased and that more permanent R&D structures have been located in the region.

Beneficiaries report the market introduction of a new product, shortening of the time required to develop a new product and an improvement of competitiveness in a specific market segment as examples of tangible results. Results associated with the policy by one beneficiary are reduction of environmental pollution and creation of new jobs. In one case, the beneficiary indicated that the chemicals site that benefited from the policy would have been closed without two RDI projects that were supported by the policy in question.

2.2.6. Main strengths and weaknesses

In general, the policies appear to realise their goals in terms of increasing innovation activity and accelerating the rate of innovation at the level of individual companies. This is supported by the statistics from, for example, Catalonia, as well as anecdotal evidence by some beneficiaries.

Marshal of Mazovia, which is responsible for implementation of RIS. Only the grants project is covered in this amount, as it is the only policy measure directly involved with concrete RDI projects. The grants project is not specific to the chemicals industry, but the share of the industry in the grants is not yet known.

³⁴ Source: Regional Innovation Monitor, <http://www.rim-europa.eu/index.cfm?q=p.support&n=13994&r=UKM>

³⁵ The Regional Innovation Report on Catalonia, in which the Catalonia Technological Innovation Strategy is labelled “R&D Collaborative Projects” can be downloaded from <http://www.rim-europa.eu/index.cfm?q=p.file&r=9d228c1d3fcc395acb54d62cbc9f6e91>.

Key strengths of the policy

For five out of the seven policies, positive feedback has been received from beneficiaries during the current study, who indicate that these policies result in economic benefits for them.³⁶ The Scottish R&D Grant Support was evaluated in 2009. The results of the evaluation are reported by the European Commission's Regional Innovation Monitor (see the box to the right). The beneficiary of the policy that was interviewed for the current study confirmed the RIM's assessment that the Grant Support facility increases private spending on innovation, because "companies can share the risk of R&D projects, which are inherently uncertain in terms of their outcomes". The beneficiary mentioned as further strengths:

- The requirement to report regularly brings a discipline to the project. The site manager was "drawn into the project" as a result.
- The policy allows for flexibility to change the milestones during project implementation. Scottish Enterprise thus recognises the fact that an R&D project cannot be fully mapped out at the start.

Regional Innovation Monitor assessment of the Scottish R&D Grant Support

The 2009 evaluation of R&D Plus project concluded that there is a strong strategic case for continued and increased support for R&D grant funding and that it makes a substantial contribution to economic development activity in Scotland. With companies committing the majority of funding, there is reported to be a good maximisation of resources. All stakeholders were in agreement that the intervention was well managed with scope to refine and streamline the processes in order to speed up approvals. There was strong belief that the programme has had an impact on firms' R&D capacity and spend, their turnover and employment, and therefore that it is having a positive impact on the wider economy.

With regard to spillover benefits, to date these are minimal, occurring predominantly at the knowledge and market levels and not at the network level. Overall, the programme presents good value for money, despite the high levels of initial investment required.

It was recommended that support be continued and increased and the number of companies supported also increased, while taking into account a number of considerations for improving on the current programme.

Source: Regional Innovation Monitor, <http://www.rim-europa.eu/index.cfm?q=p.support&n=13994&r=UKM>

According to the regional authority, the strength of the Catalonian Technological Strategy is its relevance: it targets both challenges for SMEs in the region: limited cooperation with other firms and lack of private R&D investment. The first element is mirrored in beneficiary feedback on the Lombardy Innovation & Research Policy, which indicates that the required cooperation between SMEs and research institutions is a key strength of the policy. Although not specifically mentioned by beneficiaries, this requirement is also part of the policy in Brandenburg and supported by the policy in Mazovia.

With regard to the other two policies, the Limburg Venture fund II was referred to as providing **a strong link to the growth of the Chemelot Campus** community by providing seed capital. In Lower Saxony, the beneficiary indicated that R&D of the size and scope that takes place in the region would not have been possible without the policy.

Key weaknesses of the policy

Some regional authorities see the burden on beneficiaries that is created by the administrative procedures as a weakness. Indeed, innovation processes can be delayed if the time required to receive the financial support is long.

Also, three regional authorities report adverse effects or benefits not realised as expected with regard to the interaction between companies, research institutions and private financiers of R&D. The nature of these adverse effects is different for each region and varies from researchers not being engaged in the policy to them

³⁶ No beneficiary feedback was received on the RDI policies in Limburg and Mazovia.

being too dominant, as well as to new modes of R&D financing not being realised despite expectations of the regional authority to that effect.

With reference to the Limburg Venture fund II **geographically limited focus** was mentioned as a weakness, meaning that it is relatively hard to find partners since the geographical scope is relatively small.

Regarding the Lower Saxony Innovation & Research Policy, the Commission's Regional Innovation Monitor recommends: "Based on experiences with similar measures in other regions the regional expert would suggest that such a measure should be implemented with care if resources are limited, e.g., outside Convergence regions. With the same amount of resources other forms of support may yield better results. If a measure like this is implemented, however, a fair and competitive selection process needs to be put in place to ascertain a justifiable return on investment".

New opportunities created for regions, industry etc.

New opportunities are reported mainly in two areas. First, a general increase in innovation, competitiveness and markets that beneficiaries operate in. Second, regional authorities report increased interaction between industry and research institutions and even the development of cluster-like activities. This second development may also have longer-term structural effects on the regional level than R&D projects by single companies would. For the Limburg Venture fund II, **a multiplier effect on equity capital available** to the industry, which is expected to bring in more investors, is expected to create ongoing new opportunities.

The beneficiary of the Scottish R&D Grant Support reports that due to the support for the companies' R&D projects, it could continue its operations even though having been threatened by closure. Hence, while some policies clearly create new opportunities for the chemicals industry in the region, it may also be the case that they protect the industry against external threats and maintain the status quo in a dire economic climate.

External threats

All regional authorities have mentioned threats to the budget. These are mostly related to the economic and financial crisis that Europe is facing and the associated budget cuts in national and regional governments. In addition, specific threats mentioned by regions relate to EU policies, namely state aid rules and limited flexibility in the allocation of Structural Funds for innovation policies. **A decrease in attractiveness of the chemical industry to investors** makes it challenging to attract capital for the Limburg Venture fund II.

2.2.7. Difficulties encountered

The difficulties encountered relate to two topics:

- limited experience of companies, research institutions and regional authorities with cooperation around R&D projects, which results in lower-than-expected interaction;
- difficulties resulting from legal requirements, such as:
 - the demand that is made of beneficiaries to acquire a certain amount of private co-financing;
 - the requirement to comply with extensive accounting standards, submit financial documents more than once a year during the project and to provide bank guarantees;
 - EU or national regulations restricting access of some economic sectors to the policy.

While in some cases these difficulties could be reduced by communication between beneficiaries and the regional authority, the difficulties related to the issue of experience will likely have reduced the benefits from the policies, while the difficulties related to legal requirements have demonstrably resulted in compliance costs for the beneficiaries concerned.

2.2.8. Lessons learned

The learning points identified by the regional authorities are concerned mainly with improving the interaction between business, research institutions and regional authorities. Hence, regional authorities report that they intend to communicate more intensively with the beneficiaries of the policies.

The following key learning points were identified with regard to the Limburg Venture fund II:

- It is key to **invest in trust between the key partners at both high level and working level.**
- A good track record for a venture fund implies **trust in Return on Investment.**

Beneficiaries have made suggestions to reduce the administrative burden associated with the requirements of co-financing and bank guarantees. They propose to implement a sponsorship programme based on grants that have been awarded, so that companies may acquire additional financing from other sources to help meet the co-financing target. Regarding bank guarantees, one beneficiary refers to the Participant Guarantee Fund that has been implemented in the EU's Seventh Framework Programme to eliminate the requirement of bank guarantees in exchange for a reimbursable insurance fund compiled of 5% of the grants awarded to all beneficiaries of the programme. The insurance premium is reimbursed to the beneficiaries of none of the participants defaults.

2.3. Environment & sustainability

The policies in the category environment & sustainability are aimed at supporting the chemicals industry in complying with regulations and requirements promoting the societal goals of environmental protection and quality of life for citizens living near chemical sites. As such, the policies are aimed at increasing the compliance of the chemicals industry (and sometimes other industries) with various regulations, while reducing the costs that are associated with that compliance. Such cost reductions may result from regional authorities supporting the search for information about regulations, reducing the administrative burden of regulations and creating a discussion platform that allows environmental compliance to become a joint project of authorities and the chemicals industry instead of forcing individual companies to find their own way.

Four policies have been included in this category, namely:

- Hesse Environmental Alliance;
- Ústí Cooperation Contract;
- Veneto Program Agreement for Chemistry in Porto Marghera;
- Wallonia REACH Implementation Programme.

Below, a short introduction is provided for each of the policies. Detailed descriptions of each policy are provided in Annex B.

In the German state of Hesse a voluntary “*Environmental Alliance of Hesse*” was formed in 2000. The initiative has two goals: (1) to achieve environmental protection and conservation of resources on a high level and (2) to improve the overall conditions for economic development. More than 1,000 companies and trade associations are members of the alliance so far.

Ústí region has set the acquisition of important companies in the region as its priority and is trying to find a form of cooperation which that is beneficial to the citizens of Ústí region as well as companies. Both sides note that their common goal is close cooperation in the field of environmental improvements, employment, health and social services, education, sport, culture and business support, which has resulted in the *Cooperation Contract*. Ústí region is committed to integrating sustainability into its internal operations. The region has assessed its current practices against several sustainability criteria and, in cooperation with its partners

(companies), will develop a Corporate Sustainability Action Plan to establish specific sustainability goals for the Region.

The *Program Agreement for Chemistry in Porto Marghera* was signed with the objective to establish and maintain the optimal conditions of coexistence between the protection of the environment and the productive development in the chemical sector. Until the time of writing this report, three consecutive Program Agreements have been signed in 1998, 2002 and 2012. Signatories of the first two agreements include the Italian Ministry of Industry, Ministry of Environment, Ministry of Public Works, Veneto Region, industry associations UNINDUSTRIA Venezia and FEDERCHIMICA, trade unions organisations (national, regional and provincial), as well as a number of companies from the region. The third agreement was signed only by public entities and implies the commitment of these entities to increase the speed of their review and decision making on requests for investments and expansions of the industry in Porto Marghera.

The *REACH Implementation Programme* of Wallonia (WALRIP) was aimed at helping SMEs to know if they are concerned by REACH, and if so, how to proceed to the implementation of REACH. The programme provided trainings and exchange sessions and was implemented with the help of Essenscia Wallonia, the regional chemicals industry association.

2.3.1. General policy characteristics

There is a clear distinction between the policies that are time-bound and specific to the chemicals industry (WALRIP and the first two editions of the Veneto Program Agreement) and the policies aimed at long-term cooperation between industry and government, which are not limited to an industry or a specific period in time.

Focus

Table 2-11 shows that the Environmental Alliance and the Cooperation Contract are not specific for the chemicals industry. As such they provide broad discussion platforms for all industries in their regions to interact with regional and local authorities.

The Program Agreement for Chemistry and the WALRIP policy are concerned specifically with the chemicals industry and are also more specific in their goal-setting. The Programme Agreement, while covering a broad set of activities, is primarily focused on realising a sustainable chemicals industry at the chemicals site of Porto Marghera, while WALRIP was aimed at providing information about the requirements of the first registration deadline of the REACH Regulation.

Instruments

While three of the four policies are based on voluntary agreements between government and industry, the Cooperation Contract and the Program Agreement have resulted in the use of other instruments as well to facilitate more specific projects under the policy. WALRIP relied on the use of training and exchange sessions only.

Policy level

All policies except the Program Agreement were developed and implemented at the regional level. The Program Agreement is part of a larger initiative to increase the sustainability of industry in Italy and as such also involves national partners. This also relates to the significant investments required for the policy.

Duration

The table shows that three of the four policies have been effective for around a decade. This also applies to the policies similar to the Hessen Environmental Alliance that exist in other German states. These policies have a

long history in the European Member State with the largest chemicals industry, where the interaction between the regional governments and the industry is an important aspect of regional policy.

TABLE 2-11: General characteristics of environment & sustainability policies

Region and policy name	Focus (chemicals-specific?)	Instruments	Policy level	Duration
Hesse Environmental Alliance	No	Voluntary Agreement	Purely regional policy	2000 – ongoing; 12 years
Ústí Cooperation Contract	No	<ul style="list-style-type: none"> • Voluntary Agreement • Grants • Regulation • Infrastructure and facilities 	Purely regional policy	2003 – ongoing; 9 years
Veneto Program Agreement for Chemistry in Porto Marghera	Yes	<ul style="list-style-type: none"> • Voluntary Agreement • Investments and employment protection • Grants and subsidies 	National Policy Implemented at a regional level	02/1999 – ongoing; 13 years
Wallonia REACH Implementation Programme	Yes	Trainings and exchange sessions	Purely regional policy	10/2007 – 11/2008; 1 year

The WALRIP policy that is the exception to the rule described above, is also significantly more specific and narrow in its scope, as described earlier in the paragraph on objectives.

Key funding sources and types of funded projects

While the other three policies rely fully on the regional budget for their funding, the Veneto Program Agreement also relies on national funding for more than 80% of its budget. It also has the largest budget by far of the four policies.

Of the four policies, the Hessen Environmental Alliance focuses most clearly on long-term cooperation between industry and the government on a broad array of topics. Whereas the Ústí Cooperation Contract is centred around formulating a one-time action plan and subsequently implementing that plan and the Veneto Program Agreement has a specific agenda, scope and timeline, the Environmental Alliance employs recurring meetings that are open to new topics being raised. The Environmental Alliance has even evolved overtime to broaden the topics on the agenda beyond the scope of environmental matters and has become a platform for managing many issues between the regional government and the chemicals industry before they become problems.

The WALRIP policy (and similar policies in other regions) is very specific in its nature in that it is focused on supporting the segment of the chemicals industry for which compliance with REACH is most challenging, namely SMEs. Because REACH registration was required in 2010 for all companies that utilise chemical substances in certain quantities, the WALRIP policy was also time-bound.

TABLE 2-12: Key funding sources and types of funded projects of environment & sustainability policies

Region and policy name	Key funding source/policy partners	Types of funded projects
Hesse Environmental Alliance	Regional budget <ul style="list-style-type: none"> • Prime Minister of Hessen • Hessian Minister for the Environment • President of the Federation of the Hessian Business Associations • President of the Consortium of Hessian Chambers of Commerce and Industry • President of the Hessian Chamber of Crafts 	Regular meetings between representatives of multiple branches of the regional and local governments, as well as multiple industries. During these meetings, environmental matters are discussed and voluntary agreements are made.
Ústí Cooperation Contract	Regional budget Chamber of Commerce, industry associations	Development of a Corporate Sustainability Action Plan by the regional authority and industry representatives and the joint implementation of the resulting projects.

Region and policy name	Key funding source/policy partners	Types of funded projects
Veneto Program Agreement for Chemistry in Porto Marghera	Regional and national budget (€1.6 billion arising from the special legislation for Venice and approximately €7.3 billion from the reclamation national program) Signatories of the Agreement for Chemistry: Ministry of Industry, Ministry of Environment, Ministry of Public Works, Veneto Region, , UNINDUSTRIA Venezia, FEDERCHIMICA, Trade Union Organisations (national, regional and provincial), as well as a number of companies from the region	Undertaking actions of pollution remediation, reclamation or assurance of safety of the sites, reduction of emissions into the atmosphere and water and the prevention of risks of major accidents; Equipping existing installations with the best environmental technologie.
Wallonia REACH Implementation Programme	Regional budget Essenscia Wallonia (association for chemicals industry)	Projects for SMEs only: -Sensibilisation seminars about REACH; -Specific training on how to implement REACH; -Specific trainings on CLP; -Experience exchange groups.

2.3.2. Objectives and target groups

All policies explicitly combine sustainability/environmental goals with the aim of maintaining a competitive (chemicals) industry in the region. As such, the beneficiaries and stakeholders may or may not include other sectors than the chemicals industry, as well as various societal partners.

Key objectives

The table below shows the objectives of the four policies as provided by the responsible regional authorities. From the wording of each of the objectives, the combination of societal/environmental goals and competitiveness goals for business is clear. Except for the WALRIP policy, which is specifically aimed at compliance with REACH by SMEs, the objectives of the all policies cover a broad scope of environmental and sustainability issues.

Key beneficiaries

For the policies in Hesse and Ústí all industrial sectors are included as beneficiaries, while the policies in Veneto and Wallonia focus exclusively on the chemicals industry. In Veneto specific companies are named, as they are located on the Porto Marghera chemicals site and thus have direct involvement in both the implementation and the outcomes of the policy. Ústí and Wallonia target exclusively SMEs as their industrial beneficiaries.

Key stakeholders

Interestingly, the policies of Hesse and Ústí differ in the stakeholders they identify and while Hesse considers citizens of the regions (the general public) a stakeholder group, Ústí includes this group as a beneficiary of its policy.

TABLE 2-13: Objectives and target groups of environment & sustainability policies

Region and policy name	Key objectives	Key beneficiaries ³⁷	Key stakeholders ³⁸
Hesse Environmental Alliance	To improve the high standard of environmental protection and to improve the overall conditions for economic development	Hessian industry of all kinds	Local authority of districts/communities and the general public
Ústí Cooperation Contract	Sustainable development, corporate social responsibility	Ústí region citizens, SMEs	Researchers, regional university
Veneto Program Agreement for Chemistry in Porto	To establish and maintain the optimal conditions of coexistence	Industry signatories of the Agreement: Enichem	Ministry of Environment and Sea and Land

³⁷ Beneficiaries here refer to the groups directly targeted by the policy.

³⁸ Stakeholders here refer to the groups that are not directly targeted by the policy, but that have a direct interest in the policy.

Region and policy name	Key objectives	Key beneficiaries ³⁷	Key stakeholders ³⁸
Marghera	between the protection of the environment and the productive development in the chemical sector	corporation, EVC European Vinyls Corporation, Edison Termoelettrica, Elf Atochem, Crion, Sapio, Agip Petroli, Esso Italiana, Api, Ausimont, Montefibre, San Marco Petroli, Decal, Agipgas, Ambiente corporation, Railway Crossings Body.	Protection, Ministry of Infrastructures (Water Authority of Venice), Veneto Region, , UNINDUSTRIA Venezia, FEDERCHIMICA, Trade Unions, Railway Crossings Body, Authority of the Industrial Area of Porto Marghera.
Wallonia REACH Implementation Programme	To help SMEs to know if they are concerned by REACH, and if so, how to proceed to the Implementation of REACH	SMEs, particular industries – producing, transforming or consuming chemical substances	None, other than the beneficiaries

2.3.3. Implementation and management

The three policies with relatively small budgets are similar in the sense that they do not rely on a monitoring committee and have limited evaluation activities. In contrast, the Veneto Program Agreement with its much larger budget and long implementation period also has more intensive monitoring and evaluation activities

TABLE 2-14: Implementation and management of environment & sustainability policies

Region and policy name	Instruments to monitor the implementation	Monitoring committee	Ex-post evaluation
Hesse Environmental Alliance	No monitoring instruments are used.	No	No evaluation has been conducted.
Ústí Cooperation Contract	Monitoring was undertaken in response to the requirement of the Regional Council to assess the performance of the Cooperation agreement.	No	Yearly; The objective of the evaluation was to assess the extent of which work carried out under the Agreement succeeded in achieving its intended goals.
Veneto Program Agreement for Chemistry in Porto Marghera	A Technical Secretariat at the Ministry of Environment, General Department of Protection of Land and Water Resources, which are attended by one representative from each of the signatories' bodies, designated by the Public Bodies themselves. A voluntary agreement was signed committing every company to an audit assessing the environmental certification of the chemical industries.	Monitoring Committee: appointed to monitor the Program Agreement concerning its implementation. Audit Commission: Commission "for the verification of operations on plants, services and infrastructure provided for by the Program Agreement for Chemistry of Porto Marghera, part of the commitments of the companies that have signed the Agreement." Permanent Board: in addition to a function of direction and coordination of policies, it performs the task of monitoring their implementation.	The evaluations were carried out "in itinere" (ongoing evaluations) in accordance with the Master Plan for the reclamation of polluted sites in Porto Marghera. The process is in progress and has led to the signing of the new agreement of Chemistry on April 16, 2012.
Wallonia REACH Implementation Programme	Report presented by the Managing Body to the Steering Committee	No	No evaluation has been conducted.

2.3.4. Legal and financial framework

While the overall characteristics of the policies already vary somewhat between the four regions, their legal and financial characteristics demonstrate that each has different approaches to implementation.

Challenges related to administrative procedures

The main challenges reported by both regional authorities and beneficiaries relate to the new forms of interaction created by the voluntary agreements that form the basis of three of the four policies. There are some examples of administrative and legal procedures that interfered with the more informal interaction between government and industry that is the goal of these policies.

In the case of the Veneto Program Agreements, specific challenges arose from the interaction between industry, regional and national government and the various administrative requirements associated with the infrastructural works and the large budget that are specific for this policy.

Support services offered to beneficiaries

The support services offered are unique for each policy. They range from procedures surrounding risk analysis and wastewater management in Veneto to exchange sessions between government and industry in Hesse.

Key dissemination activities

All policies except WALRIP make use of various media to provide information to (potential) beneficiaries and the general public. In Hesse a specific journal has been developed and Ústí makes use of various social media.

Fixed deadlines and flexibility

The policies in Hesse and Ústí have no deadlines due to their ongoing and relatively informal nature. Being a programme of significant scope and budget, the Veneto Program Agreement specifies various implementation periods. Finally, WALRIP was put in place to help SMEs comply with the first deadline for registration under REACH and as such was clearly timebound.

Corrective measures

For the policies in Hesse and Wallonia, no corrective measures have been reported. In Ústí, all corrective measures are the result of agreement between the partners of the Cooperation Contract and the same seems to apply to the Hessian Environmental Alliance. Finally, in Veneto the initial Program Agreement left some elements unspecified which were later addressed by a Memorandum of specific agreements and subsequent editions of the Program Agreement.

Budgets and nr of projects

The comparison of the policies' budgets in the table below demonstrates the difference in scope between the Veneto Program Agreement and the three other policies. While the latter are focused on providing or exchanging information, the policy in Veneto involves numerous civil works that are carried out at and around the chemical site of Porto Marghera. Hence, the difference in scope explains the one significant difference between the annual budgets.

The project budgets for these policies (where available) provide only limited information. This is because "projects" are not necessarily projects carried out by companies, but are often joint projects between government and the industry. These projects, when they are implemented, differ widely in scope and therefore also in budget.

TABLE 2-15: Budgets and nr of projects of environment & sustainability policies

Region and policy name	Annual budget policy	Nr of projects	Minimum and maximum project budgets
Hesse Environmental Alliance	€ 200,000 - € 415,000	6	€ 1,000 - € 100,000
Ústí Cooperation Contract	€ 40,000	No information available	Not reported

Region and policy name	Annual budget policy	Nr of projects	Minimum and maximum project budgets
Veneto Program Agreement for Chemistry in Porto Marghera	€ 685 million on average (€ 8.9 billion for 13 years)	11	Not reported
Wallonia REACH Implementation Programme	€ 110,000	1 project, encompassing 50 training and exchange sessions	N/A
Minimum/maximum per category	€ 40,000 – € 685 million	1-11	Insufficient data for comparison

2.3.5. Main achievements

All four of the policies achieved their goals to some extent and were able to realise benefits for the chemicals industry in the region. The paragraphs below will specify the results in individual regions.

Extent to which the goals have been achieved

Both the regional authorities and beneficiaries in Hesse and Wallonia are positive about the realisation of benefits by the policies in those regions, although the beneficiary in Hesse does specify that important benefits have also resulted from the unintended side effect of broadening the scope of the Environmental Alliance to the discussion of topics not strictly related to environmental issues. As such, the EA has become a platform for broader discussions, resulting in more benefits for all involved. On the other hand, the beneficiary also specified that the expectations of the industry about the reduction of administrative burdens due to the EA would have been more significant than they turned out to be, which reduces the beneficiary's perception of the extent to which the goals of the policy have been achieved.

For the WALRIP policy, the training and exchange sessions were evaluated by asking the participants for feedback, which was generally positive. Also the number of participants in the trainings was in line with expectations.

In Veneto the goals were achieved to a lesser extent. According to the regional authority, realisation of project goals was estimated to be between 50% and 100% at the time of this study. The beneficiary is more critical and specifies that none of the goals of the first, second and third Program Agreement have been realised fully. In some cases, the beneficiary indicates that activities have been undertaken by the regional and national authorities to work towards the goals, but also specifies that from an industry perspective the results do not meet the goals that were set by the regional authority.

For the Ústí Cooperation Contract, no beneficiary feedback has been received, which makes it difficult to provide a complete assessment of the extent to which the goals of the policy have been achieved.

Key outcomes of the policy and importance of these outcomes for beneficiaries/region/industry

Most outcomes are reported for the policy in Hesse, while for the other three regions very limited information was provided. In Hesse, the working relationship between the regional government and the industry has improved as a result of the policy. Also the environmental situation appears to be improving and some reduction of administrative burden is reported. Finally, the Environmental Alliance allowed for the joint development of the Ecostep quality standard for SMEs. Ecostep allows for somewhat lower requirements than ISO 14001, which makes it attainable for more SMEs. In addition to Hesse, it has also been adopted in the German state of Bremen. Both the regional authority and the beneficiary that was consulted report that these benefits have high impact for the beneficiaries.

For the Veneto Program Agreement, the regional authority reports that the goals that were achieved thus far have allowed the companies at the Porto Marghera site to remain located there. While this is clearly a benefit for the companies concerned, it also poses challenges to the further activities at the site to improve the environmental situation and the soil quality. In addition, two major international companies have left the site

since 1998. According to the beneficiary interviewed, this is partly due to the limited results of the consecutive Program Agreements.

2.3.6. Main strengths and weaknesses

Various strengths, weaknesses, opportunities and threats have been reported in the four regions concerned. The balance seems to be positive.

Key strengths of the policy

The findings about the Environmental Alliance and Cooperation Contract (as well as the anecdotal information we have received during interviews about similar policies in other regions) demonstrate the importance of creating a platform for public-private cooperation when it comes to achieving environmental and sustainability goals. The experiences with the Environmental Alliance show that such a platform contributes to eliminating a great deal of administrative burdens on both regional authorities and the chemicals industry in a region and thus also improves the cost-benefit ratio of policies in this area.

Regarding WALRIP and other policies supporting the implementation of REACH, these clearly provide an economic benefit. Recent studies conducted by and on behalf of the European Commission show that the costs of compliance with REACH are significant and vary strongly with the amount of companies that have registered a specific substance. This is due in large part to the intervention logic behind REACH, which for the first time puts the “burden of proof” on the companies that use chemical substances. Understanding this complex new legislation and the required activities that follow from it has been a top priority for the chemicals industry in Europe as well as globally. WALRIP and other similar programmes typically focus on the support for SMEs and the so-called “downstream users” of chemical substances and thus contribute to reducing the costs they have to incur to acquire information. It is expected that successors of these policies will be seen in preparation of the subsequent REACH registration deadlines in 2013 and 2018.

All four policies demonstrate that the success or failure of dialogue between the chemicals industry and the regional government represents a crucial element of realising a sustainable industry.

Key weaknesses of the policy

The main weakness of this type of policy seems to be in the area of administrative burdens, which arise as a result of legal or organisational limitations for regional authorities in conducting the dialogue with the industry. Examples of these limitations are the segmentation into functional organisational units that have different ways of working that cannot be simultaneously aligned to the policy of open dialogue (as is the case in Hesse) and the long duration of decision-making procedures that make it impossible to provide efficient and flexible support to the chemicals industry (Veneto).

Also, despite the strengths associated with discussion platforms such as the Environmental Alliance, such close cooperation between government and industry may lead to a reduction of transparency of the resulting policy choices, as the discussions often limit participation of or information towards NGOs or citizens of the region.

New opportunities created for regions, industry etc.

The main new opportunity created by policies in this area appears to be the ongoing dialogue between the regional government and the chemicals industry at least in some cases. As is seen in Hesse, this provides a platform for more open and informal communication about new topics of interest in the future.

External threats

Two external threats have been identified in more than one of the regions:

- Restrictive regulation from the EU; and
- Budgetary effects of the economic crisis.

2.3.7. Difficulties encountered

For the Environmental Alliance in Hesse, two difficulties have been reported: low acceptance by NGOs and the impression of beneficiaries that some departments of the regional government are more involved in the EA and its informal way of working than others.

NGOs have expressed their concerns about the EA to the regional authority, as they have not been allowed to participate in EA meetings. This relates to the weaknesses of the policy described in the previous paragraph.

The second difficulty leads to some uncertainty as to which topics of for example compliance with environmental regulations the policy of informal coordination applies and where it does not, and maintains administrative burdens that could be reduced if the policy was more broadly accepted.

In Ústí, the regional authority also reports unwillingness to cooperate, but this is one the side of the industry. This relates to high expectations of the benefits that the Cooperation Contract could deliver, which is the same reason that causes beneficiaries in Hesse to indicate that they do not see full achievement of the Environmental Alliance's goals.

The regional authority of Veneto reports that difficulties encountered there are mainly related to the administrative burdens associated with the policy, resulting from the duration and bureaucratic nature of administrative procedures to acquire approval for financing specific activities under the Program Agreement. This is confirmed by the beneficiary.

No difficulties were reported in relation to WALRIP.

2.3.8. Lessons learned

The regional authorities of Hesse and Ústí both mention more and broader external communication as learning points. In addition, the regional authority of Hesse provided the following lessons learned:

- presentation of the benefits, win-win situation;
- the people in charge of the projects must “breathe” the spirit of cooperation;
- involvement of all participants;
- information in administration and business entities and consequently: increase of acceptance.

A beneficiary from Hesse added to this that the main message of the communication should be focused on positioning the Environmental Alliance as the way to de-regulation.

2.4. Education & skills

Education & skills policies are aimed at training current or prospective employees of the chemicals industry in order to provide them with the skills necessary to work in this capital-intensive sector. The high capital intensity and the significant safety requirements that characterise the industry make qualified employees scarce at all levels. This is why education & skills policies can be aimed at audiences as different as current employees

of the chemicals industry, the unemployed and students in various types of education, from technical secondary education all the way to technical universities.

For this policy category, we have analysed the following policies:

- Flanders Sectoral Covenants;
- Schleswig-Holstein Chemistry Campus;
- Ústí Stipends for secondary school pupils;
- Wallonia Cefochim.

Below we provide a short introduction to these policies. Detailed descriptions of each policy are provided in Annex B.

In Flanders, there is a clear challenge in matching the processes of the chemicals industry to the workforce that is available. One aspect of this is the government's diversity policy, aimed at securing employment for women and immigrants. Specific aspects of the chemicals industry include the 24/7 production process, the industry's capital intensity and resulting requirement for significant technical skills even in blue-collar jobs and other aspects of complexity and security. *Sectoral covenants* are protocols of cooperation between industries, labour unions (i.e. sectoral social partners) and the Flemish Government on current topics, such as:

- improving the connection between education and the job market,
- support for the development of new competences, and
- increasing diversity in the labour market.

The *Chemistry Campus Schleswig-Holstein* is aimed at the implementation and furthering of continuing education programs. These programs will be carried out by the Volkshochschule Brunsbüttel (VHS), which is the regional institution for professional training at the west coast of Schleswig-Holstein, and the University of Applied Science in Lübeck (Fachhochschule Lübeck, FHL) with its centre for competence in plastics engineering. The target group is the chemicals industry and its suppliers.

Stipends for secondary school pupils in the area chemistry part of the Motivation programs for secondary school pupils. The programs are realised from September 2011 and are meant for pupils who have started their education in school years 2009/2010, 2010/2011 and 2011/2012 and are the citizens of Ústí region. The policy is aimed at motivating pupils of last grades in primary schools to choose and start their secondary education in branches demanded by labour market. Among 10 branches supported by Ústí Region are mostly handcraft ones (vocational training). Applied chemistry is the only branch finished by graduation exams (A Levels/Matura).

Cefochim is a sector training centre that aims to train the production labour force as well as maintenance personal, on reduced scale equipment in close to reality conditions. Cefochim covers the fields of chemistry as well as bio-technology. In 2006 the Walloon Government recognised the training centre as "Competence Centre". The region finances training programmes for its competitiveness clusters GREENWIN and BIOWIN.

2.4.1. General policy characteristics

In this sub-section, we analyse the general characteristics of education & skills policies.

Focus

The first three policies have different target groups. The Chemistry Campus is designed for employees who already work in the chemicals industry or its suppliers and want to increase their skills in the engineering of plastics; the Sectoral Covenants are aimed at the unemployed in Flanders and provide them with education and training to learn the skills required to start working in the chemicals industry; and the Stipends policy of Ústí is aimed at motivating primary school pupils to choose a secondary education in the area of applied chemistry. The Cefochim training centre, which is much broader in scope than the other policies, provides training courses

to workers in the chemicals industry, the unemployed and students in technical secondary schools as well as higher education.

Although the intervention logic and specific target groups differ for each of the three policies, the overall objective of training more workers for the chemicals industry is an important one in almost all regions that have a chemicals industry.

Instruments

Although all of the policies use education or training as a means to achieve their goals in one way or another, it is not the only instrument used by the regional authorities. In the case of the Chemical Campus and Cefochim the regional authority provides a grant to a training centre to provide training, whereas for the Stipends policy the regional authority provides a grant to students who take applied chemistry in high school. Finally, in the case of the sectoral covenants, the regional authority pays the salary of industry-specific consultants who match the supply on the labour market to the needs of specific industries, in this case chemicals.

Policy level

All policies have been developed and are implemented at the regional level.

Duration

Although the shortest policy in duration (the Stipends policy) has run for only one year at the time of writing this report, it is ongoing and due to its nature likely to continue for at least three more years. When this is taken into account, the Schleswig-Holstein policy is clearly the shortest in duration. This can be explained by its specific nature. It makes economic sense not to have such a specific policy run for a long time, because the demand for skills in the regional chemicals industry may change in relatively short periods of time, making the policy redundant. The policies in Flanders and Wallonia do not suffer from this problem, because the training courses provided there can be changed within the framework of the policies, thus allowing for a demand-driven approach that is updated regularly to adapt to the sector's requirements.

TABLE 2-16: General characteristics of education & skills policies

Region and policy name	Focus (chemicals-specific?)	Instruments	Policy level	Duration
Flanders Sectoral Covenants	No	Training; Other (sectoral consultants to match supply and demand on labour market)	Regional	2004 – ongoing; 9 years
Schleswig-Holstein Chemistry Campus	Yes	Training; Infrastructure and facilities	Regional	01/2011 – 12/2012; 2 years
Ústí Stipends for secondary school pupils	No	Training; Grant	Regional	09/2011 – ongoing; 1 year
Wallonia Cefochim	Yes	Training; Infrastructure and facilities	Regional	2006 – 2014; 9 years

Key funding sources and types of funded projects

All four policies are funded by the regional budget. In the case of Cefochim, this funding is complemented by funding from FOREM (see table below), that indirectly comes from the regional budget as well. The remainder of the funding is provided by the sector.

As mentioned before, the types of funded projects differ for each of the four regions, as each serves a different target group that receives training and has a different approach.

TABLE 2-17: Key funding sources and types of funded projects of education & skills policies

Region and policy name	Key funding source/policy partners	Types of funded projects
Flanders Sectoral Covenants	Regional budget Ministry of Labour Department for Work and Social Economy Ministry of Education Department of Education, Training and Work Flemish Labour Mediation Service Syntra (Flemish entrepreneurship support centre) SERV (Social-Economic Council of Flanders, which provides the platform for discussion and cooperation between employers' and workers' organisations) VLOR (Strategic Council for Education and Training) The network of Regional Technological Centres	Sectoral consultants who support the industry in absorbing its agreed quota of unemployed after training by the Flanders Government
Schleswig-Holstein Chemistry Campus	Regional budget Business Development Agency Brunsbüttel Ministry for Employment	Specialised training courses in the field of plastics engineering provided to current employees of SMEs in the chemicals sector
Ústí Stipends for secondary school pupils	Regional budget Secondary schools founded by Ústí Region	Monthly stipends for secondary school pupils choosing applied chemistry as a subject
Wallonia Cefochim	<ul style="list-style-type: none"> Regional budget (around 85% of the total funding required for the training centre) FOREM (regional managing body for training and employment) www.leforem.be Essencia (industry association) Fondschem (sector-based fund) www.fondschem.be 	Training courses provided to: <ul style="list-style-type: none"> workers in the chemicals industry; the unemployed; and students in technical secondary schools as well as higher education.

2.4.2. Objectives and target groups

Two general objectives can be distinguished in the four policies. Interestingly, two policies put more emphasis on the benefits to workers and the labour market, while the other two are more specifically targeted towards the needs of the chemicals industry.

Key objectives

Although the benefits of the chemicals industry in the four regions concerned are similar (more skilled personnel is available to the industry, albeit that the specific qualifications supported vary between the policies), the overarching logic as the described by the objectives varies. Interestingly, the two policies that are not specific to the chemicals industry are also the ones that have labour market policy clearly reflected in their stated objectives. The other two policies are specific for the chemicals industry and logically also focus primarily on the benefits in terms of competitiveness of the chemicals industry based on the skills most needed by the sector.

Key beneficiaries

The two policies not specific to the chemicals industry focus primarily on “employability” of the currently unemployed (in Flanders) and secondary school students (in Ústí), which is a goal that the chemicals industry can assist in reaching, but which is also attainable with the help of other industries.

Although the approach to the industry-specific education & skills policies certainly will not harm the employability of the people trained, this is not the primary goal. As a result, the policies in Schleswig-Holstein and Wallonia include current workers in the chemicals industry as (part of) their target audience.

Key stakeholders

The key stakeholders are regional actors involved in labour market issues, which differ slightly between the regions.

TABLE 2-18: Objectives and target groups of education & skills policies

Region and policy name	Key objectives	Key beneficiaries ³⁹	Key stakeholders ⁴⁰
Flanders Sectoral Covenants	To engage the sectoral social partners in implementing the priorities of the labour market policy	The beneficiary varies for each sector. The instrument demands that it is managed by employers and workers in an equal representation. Management organisations are often education funds or associations.	Through the nature of the actions taken the instrument targets students, job seekers, workers and employers in a specific industry.
Schleswig-Holstein Chemistry Campus	To further the skills in plastics engineering at SMEs to strengthen their competitiveness and ability to innovative; To build a chemical knowledge base for subcontractors and service companies	SMEs, service companies, University of Applied Science Lübeck, Volkshochschule Brunsbüttel	Chemical industry, Chemical associations, unions, job centres
Ústí Stipends for secondary school pupils	To help match the supply and demand on the labour market	Pupils, secondary schools, enterprises demanding the supported branches	Regional authority, municipalities, primary and secondary schools, job agencies, enterprises, Council for HR development, Committee for Education
Wallonia Cefochim	To provide trainings that match industrial needs, at attractive prices	SMEs and large companies, job seekers, teachers, students	BIOWIN (competiveness pole), GREENWIN (competiveness pole), secondary tech schools, universities and higher-education institutes

2.4.3. Implementation and management

In this sub-section, we compare the instruments used to monitor the implementation of the analysed policies, as well as the composition of the monitoring committee and the aspects related to ex-post evaluation.

Instruments to monitor the implementation

For each of the policies, a different approach to monitoring exists.

Monitoring committee

Currently none of the policies has an active monitoring committee.

Ex-post evaluation

The approaches to evaluation differ for each of the policies.

³⁹ Beneficiaries here refer to the groups directly targeted by the policy

⁴⁰ Stakeholders here refer to the groups that are not directly targeted by the policy, but that have a direct interest in the policy

TABLE 2-19: Implementation and management of education & skills policies

Region and policy name	Instruments to monitor the implementation	Monitoring committee	Ex-post evaluation
Flanders Sectoral Covenants	<ol style="list-style-type: none"> 1. Within SERV the sectoral consultants meet to exchange experiences and information, testing policies and proposals etc. The networks meet four times a year. 2. All sectoral covenants are monitored and evaluated annually by the Flemish government. At the end of the year and at the end of the covenant, the industry is required to submit a progress report or a final evaluation report respectively to the Flemish Government, based on a template provided by the Department of Work and Social Economy. The Government regularly provides a report to VESOC. 3. In order to be able to follow-up and optimise the impact of the labour market policy within the industries, the Department of WSE has developed “sectoral pictures” since 2010, which provide a detailed view of the labour and education markets. 	During 2005-2006 the representatives of the ministries and working group members involved were also invited to discuss the evaluation reports with the industries.	Idea Consult drafted an Evaluation report in 2007 about the sectoral covenants 2005-2006.
Schleswig-Holstein Chemistry Campus	Evaluation after the first two years of the project	No monitoring committee	Yes, in 2013
Ústí Stipends for secondary school pupils	Control and audit	No monitoring committee	The motivation programs assure not ending of some educational branches demanded from enterprises. Even the Applied Chemistry would be threatening by lack of pupils if the stipend program would not exist. And according to this the local enterprises could not find enough skilled workers in the region.
Wallonia Cefochim	None	No monitoring committee	No information available

Key difficulties encountered during implementation

For the Sectoral Covenants policy, the contribution from the industry is in the form of activities that result in taking up weaker groups from the labour market. The regional authority indicated that it would prefer to agree on results rather than activities, as that would allow for better evaluation of the effects of the policy.

The Chemistry Campus encountered two difficulties. First, bringing together the cultures of universities and technical education and to ensure cooperation with the industry posed a challenge. Second, it was challenging to involve individual companies in the policy.

The difficulties encountered with the Stipends policy are limited to administrative demands, while the regional authority in Wallonia did not report any difficulties for Cefochim.

2.4.4. Legal and financial framework

Challenges related to administrative procedures

The administrative burden of the Sectoral Covenants are in drafting the covenants, keeping accounts and drafting monitoring and evaluation reports by the industry. However, according to a beneficiary, the covenants are relatively simple in terms of administrative procedures. For the regional authority, administrative burden is in finding agreement with industry, signing the covenants and conducting evaluations.

For the Chemistry Campus, most of the burden is in coordination between two very different partners and the associated financial management and reporting. This is described as “very time consuming” by the regional authority.

A beneficiary from Ústí reports that the chemicals industry has to deal with an image problem in the region in order to make it an attractive career perspective for high school students.

Regarding Cefochim, the beneficiary reports that the procedures for administration related to each training course are heavy and require 5 FTEs for administration purposes only.

Support services offered to beneficiaries

All policies are supported by communication on the internet. For the Sectoral Covenants in Flanders, this communication is supported by discussion meetings at the time of drafting covenants for a new period and by a government contact point for the industry during the implementation period.

In Schleswig-Holstein and Ústí, financial and administrative support for respectively businesses and schools are provided by the regional authorities.

Key dissemination activities

For all policies, information about results is provided through the internet and publications in one way or another.

Fixed deadlines and flexibility

The timing of the Sectoral Covenants was changed during the years. Covenants used to differ in terms of their duration. They were subsequently synchronised to start on 1 January and end on 31 December two years later. Depending on the context, this duration can be used in a flexible manner. The current covenants 2010-2011 were extended to include the year 2012 in order to be able to incorporate the new “career contract” in the next covenants.

On the other policies, no fixed deadlines have been reported.

Corrective measures

No corrective measures have been reported for any of the policies.

Budgets and nr of projects

Although it addresses a vital need that will become even more pressing in those European economies that will lose significant amounts of workers due to an ageing society, this policy type is also one of the two types that require the least public expenditure and therefore appear to provide a favourable cost-benefit ratio to policy makers. In comparison with innovation (cluster as well as RDI) policies, for which the societal outcomes are never known beforehand, education & skills policies also have the benefit of relatively low inherent risks.

A comparison between project budgets would not be meaningful, as the “projects” under the policies are not comparable. The training courses under the policies from Schleswig-Holstein and Wallonia differ in their scope and partly in their target audience, and the funding in the two other regions is not awarded to specific training courses, but rather to students (Ústí) and consultants that match supply to demand (Flanders).

TABLE 2-20: Budgets and nr of projects of education & skills policies

Region and policy name	Annual budget policy	Nr of projects	Minimum and maximum project budgets
Flanders Sectoral Covenants	€ 255,000	4 sectoral consultants	€ 51,000 (cost of one sectoral consultant)
Schleswig-Holstein Chemistry Campus	€240,560	2 types of training	€ 120,280
Ústí Stipends for secondary school pupils	€ 39,460	± 80 pupils per school	€ 805 (assuming a student that completes the four year education in applied chemistry)
Wallonia Cefochim	€ 2.5 million	1 training centre	Amount of individual training courses not reported
Minimum/maximum per category	€ 39,460 – € 2.5 million	Insufficient data for comparison	Insufficient data for comparison

2.4.5. Main achievements

All of the policies demonstrates benefits for the competitiveness of the chemicals industry in the region, although some policies are more mature than others.

Extent to which the goals have been achieved

A study conducted on the Sectoral Covenants in 2008 by HIVA showed that the covenants have assisted in translating the overall social policy into specific industries. The chemicals industry has always received a positive evaluation of its efforts. A beneficiary has commented that the policy is successful in bridging the gap between education and industry and that there is hardly any education left that does not fit the needs of the industry.

For the Chemistry Campus, all training programmes have been developed during the first years and implementation of the training courses is currently underway.

A beneficiary of the Stipends policy reports that the declining trend of pupils of the subject of applied chemistry has stopped since the start of the policy.

Also for Cefochim the achievement of goals is reported as being high.

Key outcomes of the policy

A clear dynamism has been established in the Flanders chemicals industry around the 3 covenant themes:

- connection education – labour market;
- life-long learning and competence policies;
- diversity and specific groups of workers.

This dynamism is also acknowledged by beneficiaries.

As a result of the Chemistry Campus, the knowledge base of technical workers in companies, mainly SMEs, is expected to be strengthened, but no results are as yet available.

In Ústí, a new class of applied chemistry will be starting every year, ensuring a steady supply of workers for the chemicals industry.

Finally, about 80% of the unemployed people trained at the Cefochim training centre receive employment. About 50 % of the trainings capacities are oriented to employed people.

Importance of these outcomes for beneficiaries/region/industry

A beneficiary from Flanders reports that the Sectoral Covenants are “Very important as Flanders has an ageing problem, the workforce gets older and starting in 2017 a lot of workers in the chemicals industry will retire. We cannot do the work with fewer people, hence we need to ensure replacement”. A similar sentiment is voiced by the regional authority of Ústí.

In Schleswig-Holstein, the main benefit foreseen is increased competitiveness of the regions chemical SMEs.

For the chemicals industry in Wallonia, the activities of Cefochim are of key importance, as many of the training courses provided are not offered by any other public or private education organisations.

2.4.6. Main strengths and weaknesses

Although all policies have received positive feedback from beneficiaries, some appear to be more appropriate for SMEs than others.

Key strengths of the policy

For all four policies, positive feedback has been received from beneficiaries, who indicate that these policies result in economic benefits for them. A beneficiary for Flanders indicates that the industry is forced to adopt a competence-based approach to skills, which would not have happened without the covenants but does present an important benefit.

Both in Schleswig-Holstein and Ústí the beneficiaries indicate that the policies show the industry as an attractive employer and thus avoid that chemical companies leave the region.

In Wallonia companies are satisfied with the training provided by Cefochim.

Key weaknesses of the policy

The Sectoral Covenants are reported to reach large firms easier than SMEs.

The Chemistry Campus is a good policy, but has a relatively small impact on the region as a whole.

In Ústí, the policy is not independent from changes in political priorities.

New opportunities created for regions, industry etc.

The Sectoral Covenants were used to provide additional financial support to the industry during the economic crisis, thus maintaining educational participation. The Chemistry Campus courses can be replicated elsewhere.

External threats

Broadening the scope of Sectoral Covenants might lead to more difficulties in reaching agreement between government and industry.

For the Stipends policy, budget cuts may present a threat in the future. The same applies to Cefochim.

2.4.7. Difficulties encountered

No difficulties were mentioned in addition to the ones already mentioned above.

2.4.8. Lessons learned

In Flanders, both the regional authority and a beneficiary agree that the current form of the Sectoral Covenants is insufficiently flexible to accommodate the specific character of the chemicals industry. The industry is developing a proposal to change this.

For Cefochim an important learning point is that the industry should lead a training centre, so that the supply of training courses is efficiently aligned with market demands. Essenscia has provided recommendations to this effect in its White Book of 2009.

2.5. Logistics & Infrastructure

In this study, two policies related to logistics and infrastructure were proposed. This section will explore these policies in more detail. Although both policies are in the same domain, they differ quite substantially. Any comparison therefore needs to be done with great caution.

For this policy category, we have analysed the following policies:

- Bayern Ethylen-Pipeline-Süd (EPS)
- Act of regulation of North Eastern Piedmont region for the territorial system of goods traffic and logistics in the area of Novara-Piedmont region (from here onwards AGTL, short for Act of Goods, Traffic and Logistics);

Below we provide a short introduction to these policies. Detailed descriptions of each policy are provided in Annex B.

Bayern Ethylen-Pipeline-Süd (EPS) is a chemical industry specific infrastructure project. Specifically, using a mix of public and private funding, an Ethylin pipeline is commissioned in the region. With the pipeline, Ethylin becomes available on demand for the companies in the region, making on-site storage redundant for (chemical) production companies. The aim is to increase the global competitiveness of the region, especially compared to the U.S., where an extensive pipeline network is already in place. The pipeline is expected to attract more chemical companies to the region, fuelling economic growth.

Act of Goods, Traffic and Logistics is an infrastructure initiative in the region of Novara that aims to improve infrastructure for intermodal transports. It aims to do so by increasing the effectiveness of public interventions through a synergetic combination of initiatives that are carried out at different levels (municipal, provincial, regional, governmental and private companies).

2.5.1. General policy characteristics

These policies share a common goal to raise the attractiveness of the area, by easing administrative burdens (AGTL) and improving infrastructure for more efficient transportation of goods (AGTL, EPS).

Focus

In terms of focus, the two policies differ. EPS specifically focuses on the chemicals industry, whereas AGTL does not. Although the infrastructure policy in Novara does not focus on the chemicals industry in specific, it was noted that a relevant percentage of transported hazardous goods – mainly consisting of chemicals – is affected by this policy. For example, the policy includes the facilitation of a cleaning station, which allows for cleaning of

tankers and containers that have contained hazardous goods. This station will be used by local chemical companies.

TABLE 2-21: General characteristics of other policies

Region and policy name	Focus (chemicals-specific?)	Instruments	Policy level	Duration
Bayern Ethylen-Pipeline-Süd	Yes	Grant	Regional, national	10/2006-07/2012 (± 6 years)
Act of Goods, Traffic and Logistics (North Eastern Piedmont)	No	Infrastructure and facilities	Regional	01/2011 - 12/2019 (9 years)

Instruments

In terms of instruments, the two policies also show two different instruments. Although funding is provided in all two cases, the nature of it differs. For EPS a grant was used, whereas for AGTL, public funding is used to provide infrastructure and facilities.

Duration

The policies analysed in this section typically show long durations of 6-9 years. EPS, however, initially had a planned duration of only 2 years. The project was significantly delayed by due to problems with acquiring the rights of way to built the pipeline. Overall, we can say that the duration of the analysed policies in this section is in line with the duration of policies analysed in the previous sections. Considering the nature of the projects, it also makes sense that we observe a timeframe of 6-9 years. Infrastructure, for instance, is not built over night and, in the case of AGTL, concerns multiple projects that are expected to be realised over time.

Key funding sources

Table 2-22 provides an overview of the key funding sources and types of funded projects. Several types of policy partners can be identified for these policies:

- National and regional government, municipalities;
- National Ministries of Economic Affairs, Infrastructure and Logistics;
- Private partners from the region;
- Trade unions, employers associations and Chambers of Commerce and Industry;
- Other (e.g., EU institutions, industry associations, business networks, innovation agencies etc.).

The funding for the policies analysed in this section typically comes from the regional authority. In the case of EPS, private parties also contribute to the initiative. Moreover, for EPS, many other partners were involved, such as unions. This may be explained by the fact that the pipeline runs across the state and that for commissioning it, they needed to acquire the Rights of Way. This required them to communicate with many partners as well.

TABLE 2-22: Key funding sources and types of funded projects

Region and policy name	Key funding source/policy partners	Types of funded projects
Bayern Ethylen-Pipeline-Süd	The Bavarian state government (funding) / The Ministries of Economic Affairs; The Chambers of Commerce and Industry; Associations of the Chemical Industry; Industrial Union coal mining, chemical industry, energy; Farmers' Unions; the German Government, National Governments, State Parliaments and County Councils of Bavaria, Baden-Wuerttemberg, Rhineland-Palatinate.	Infrastructure (more specifically: an Ethylen pipeline that runs over 370km and allows for the availability of ethylyn "on-demand" for industry)
Act of Goods, Traffic and	National Ministry for Infrastructures and	Infrastructure (currently, 4 new logistics

Region and policy name	Key funding source/policy partners	Types of funded projects
Logistics (North Eastern Piedmont)	logistics, CIM Spa (company managing the intermodal centre of Novara), Piedmont region, Province of Novara, Municipalities of Novara of Galliate and of San Pietro Mosezzo (policy partners).	platforms, 1 enlargement of an existing platform, 1 new road, 2 new railways, 3 new intermodal services).

Types of funded projects

Both projects focus on infrastructure, hence the types of projects that are funded by these policies are related to infrastructure.

2.5.2. Objectives and target groups

In this sub-section, we compare the key objectives, key beneficiaries and key stakeholders of the analysed policies (see Table 2-23).

TABLE 2-23: Objectives and target groups of Infrastructure & Logistics policies

Region and policy name	Key objective	Key beneficiaries	Key stakeholders
Bayern Ethylen-Pipeline-Süd	EPS aims to help compensate for the competitive disadvantages of the European petrochemical industry in comparison to that in the US and the Middle East, and to enhance the competitive strength of the European industry in the global market.	EPS Ethylen-Pipeline-Süd GmbH & Co. KG, a consortium of BASF, Borealis Polymere GmbH, Clariant Produkte (Deutschland) GmbH, OMV Deutschland GmbH, Basell Polyolefine GmbH; Vinnolit GmbH & Co. KG and Wacker Chemie AG;	The chemical and petrochemical continuing chemical industries in Bavaria, Baden-Wurttemberg and Rhineland-Palatinate; companies producing products on the basis of ethylene, such as plastics for the automobile industry; the pipeline construction industry in Germany; the employees of EPS Ethylen-Pipeline-Süd GmbH & Co. KG.
Act of Goods, Traffic and Logistics (North Eastern Piedmont)	Better effectiveness of interventions to improve infrastructures for intermodal transports through a synergetic combination of initiatives carried out at different levels (municipal, provincial, regional, governmental and of private companies)	CIM, companies transporting goods and companies dispatching goods (most of them are SMEs and a relevant number are chemical companies)	Municipalities surrounding the area (for environmental and employment effects)

Key objectives

The two infrastructure policies (EPS, AGTL) share a common goal to improve infrastructure, but they way both policies are structured is rather different. EPS has a clear goal in commissioning a pipeline to compensate for the competitive disadvantage of the European petrochemical industry in comparison to that in the U.S. AGTL aims to improve infrastructures with a better effectiveness of interventions. One of the beneficiaries of AGTL furthermore indicated the following shared goals of the policy:

- **One great intermodal terminal** (Terminale Intermodale Unico - T.I.U.) to connect all freight terminals in the area, as well as the Ligurian Ports and Malpensa airport;
- **Development of integrated services** to support the activities of the intermodal terminal;
- **Increase intermodal transportation**, taking into account the opening of two new tunnels to Switzerland (Gotthard and Loetschberg) , which will increase rail traffic, as well as traffic from France and Ligurian ports and Malpensa airports by 162.% and total intermodal traffic by 200%. (statistics were taken from the Development Plan of the Intermodal Centre)

Key beneficiaries

Large companies are key beneficiaries of EPS, as they are most likely to benefit from the ethylin on demand. However, all companies in the region that require ethylin for their activities, can benefit from the availability of a pipeline. AGTL affects companies of all sizes in both the region and the surrounding municipalities.

Key stakeholders

Stakeholders here refer to the groups that are not directly targeted by the policy, but that have a direct interest in the policy. The identified stakeholders mostly concern parties that can, for example, benefit from a pipeline (chemical companies, companies producing products on the basis of ethylene), employees (e.g. for building infrastructure) and surrounding municipalities and/or states that benefit from things such as an improved infrastructure in the region.

2.5.3. Implementation and management

In this sub-section, we compare the instruments used to monitor the implementation of the analysed policies, as well as the composition of the monitoring committee and the aspects related to ex-post evaluation. Table 2-24 provides an overview of the abovementioned elements for each policy.

TABLE 2-24: Implementation and management of other policies

Region and policy name	Instruments to monitor the implementation	Monitoring committee	Ex-post evaluation
Bayern Ethylen-Pipeline-Süd	Periodic meetings of shareholders; periodic meetings of the advisory board; periodic project audits; talks and discussions with ministries	A meetings of shareholders regularly take place four times a year; the meetings of the advisory board regularly take place two times a year; the project audits take place once a year.	Evaluation will take place after the pipeline has been commissioned
Act of Goods, Traffic and Logistics (North Eastern Piedmont)	Constant monitoring through stakeholder meetings and periodic expert reviews	The signing authorities constituted a committee to steer the implementation of the agreement.	No evaluation has taken place thus far.

Instruments to monitor the implementation

In case of all policies, certain instruments are put in place to monitor the implementation. Those instruments include:

- Periodical stakeholder meetings;
- Periodical meetings with an advisory board;
- Periodical expert reviews;
- Discussions with ministries/municipalities.

Monitoring committee

For the two policies, the monitoring committee included either shareholders, (local) authorities or a combination of the two. They typically monitored the activities through regular (stakeholder) meetings.

Ex-post evaluation

As the policies in this section are still relatively new, none of them has been evaluated so far.

Key difficulties encountered during implementation

Several difficulties were mentioned when implementing these policies. These include:

- **Strict state aid regulations** putting caps on the maximum percentage of investment from public authorities make it difficult for them to provide the funding they are ready to commit;
- **Cooperation between privately held companies and public sector** was sometimes difficult to facilitate;
- There were **difficulties related to funding**, either due to unforeseen delays or an overall uncertainty of national funding for the policy;
- Local opposition to the policy due to expected negative environmental impacts.

2.5.4. Legal and financial framework

In this sub-section, we analyse the key aspects of the legal and financial framework of the analysed policies. These include:

- Support services offered to beneficiaries;
- Key dissemination activities;
- Deadlines and flexibility;
- Corrective measures;
- Budgets and number of projects.

Support services offered to beneficiaries

Several types of support services were reported to be offered to beneficiaries of the analysed policies:

- Discussions between several ministries in order to solve regional challenges (EPS);
- New logistics platforms, better road and rail systems and specific services like cleaning stations, which is elaborated through the European ChemLog project (AGTL).

Key dissemination activities

Key dissemination activities range from periodic press releases (EPS) to a constant collection of information on intervention advancement (AGTL).

Deadlines and flexibility

One of the policies (EPS) had no pre-defined fixed deadlines. Although a specific and detailed planning defined, no deadline was conditional for the funding. For AGTL, a 9 years policy period to build the infrastructure was defined with a possible extension of 3 years.

Corrective measures

None of the analysed policies in this category had corrective measures in place.

Budgets and number of projects

None of the policies have an annual budget. Instead, they opt for a total investment for the whole duration of the policy. EPS includes a single project and the total budget for the pipeline was estimated to be 157 million EUR at first. Due to difficulties encountered in acquiring the rights of way, the project was significantly delayed. The total costs of EPS now approximate 220 million EUR.

With regard to AGTL, the policy does not work with a fixed annual budget. As the maximum allowed budget per project exceeds the average annual budget, we stress that these averages are only indicative and by no means limits the regional authority to grant higher amounts on a case-by-case basis. The total budget of 25 million EUR, however, is fixed.

TABLE 2-25: Budgets and number of projects of other policies

Region and policy name	Annual budget	Nr of projects	Minimum and maximum project budgets
Bayern Ethylen-Pipeline-Süd	7.48M EUR on average over 6 years (Bayern provided 44.85M EUR in subsidies for the project)	1	Single project, hence 44.85M EUR fixed budget
Act of Goods, Traffic and Logistics (North Eastern Piedmont)	2.78M EUR on average (25M EUR is allocated for 9 years)	Currently 11 (4 new logistics platforms, 1 enlargement of an existing platform, 1 new road, 2 new railways, 3 new intermodal services).	500,000 – 3M EUR
Minimum/maximum per category	2.78M EUR/7.48M EUR	1/11	500,000 / 44.85 M EUR

2.5.5. Main achievements

As none of the included policies in this category have been evaluated yet, and as most are recent initiatives, stakeholders were unable to identify the main achievements. Although clear benefits are expected, it remains best to revisit the main achievements once the respective policies have been evaluated.

2.5.6. Main strengths and weaknesses

In this sub-section, we address the key strengths and weaknesses of the analysed policies, as well as new opportunities created by those policies and external threats. As the policies have not yet been evaluated, this section specifically discusses the strengths and weaknesses of the policy already experienced by the relevant stakeholders, and threats to the policy for the near future.

Key strengths of the policy

The key strengths of the analysed policies are as follows:

- **Effective and excellent cooperation** between politics, ministries and industry (EPS);
- **Greater effectiveness** in the goods transport and in intermodality (AGTL);
- **All partners are interested in investing in new possibilities.** More than 3,000 additional jobs are expected (non-chemicals; AGTL).

Key weaknesses of the policy

Several types of weaknesses of the analysed policies were reported:

- **Complex negotiations** with and owners and long lasting procedures for expropriation caused substantial delays in the project (EPS);
- **Many different actors to coordinate and uncertainties of national financing;** the region has the authority to decide about financing, the companies have to cooperate and the municipalities have their own roles (AGTL).

New opportunities created for regions, industry etc.

The analysed policies are expected to create a wide range of new opportunities including:

- The operation of the EPS expects to **help maintain and expand the sites of the chemical and petrochemical industries** in southern Germany. This will serve to secure existing jobs, create new ones and promote the settlement of more enterprises along the pipeline.
- **Better transport and cost reduction**, new jobs and further economic development (AGTL).

External threats

External threats to the analysed policies include:

- **Long lasting administrative procedures**, e.g. the procedures of planning approval notices and expropriation procedures at the expropriation authorities (EPS);
- **Court proceedings** of land owners against the planning approval notices of EPS Ethylen-Pipeline-Süd GmbH & Co. KG and the resolutions of expropriation of the expropriation authorities;
- Reduction in national-level investment due to the economic crisis (AGTL).

2.5.7. Lessons learned

In this sub-section, we elaborate on the key learning points and suggestions for improvement.

Key learning points

The following key learning points were identified:

- The beneficiary of EPS emphasised that **future pipeline projects should only be realised if all needed Rights of Way are granted and legally guaranteed**. The beneficiary's experience shows that a lack of this may have a serious effect on both budget and planning;
- **Higher level of collaboration** among different public administrations and between public authorities and private companies can be of great benefit to the process.

Suggestions for improvement

Apart from the points described above, no further suggestions were made.

3. *Conditions making policies effective*

The objective of this chapter is to examine the conditions making the analysed policies effective. For each region included in the study, we developed an updated analysis of the overall economic situation of the region (e.g., key insights, main economic indicators and their evolution in time, information of specific relevance to the chemical industry such as on logistics) and its chemical industry (e.g., number of companies, breakdown by company size, main industrial players, sub-sectors, turnover, employment, foreign trade, innovation, clusters, research centres, universities and their evolution in time).

In this chapter, we link the economic data to the identified regional policies. We do not intend to benchmark regions, and any comparison is for data exploration purposes only. We particularly analyse the overall economic situation of the regions, characteristics of the chemicals industry of the regions, as well as research capacity and link with regional innovation performance. Finally, we look at energy-related aspects and regional specialisation. The dimensions for the analysis in this chapter were selected based on the theoretical hypotheses on conditions making policies effective and on the availability of data (which determines the feasibility of analysis). Annex A of the report contains detailed regional profiles for all regions from the sample.

The current chapter does not explicitly aim at establishing the causality between the quantitative data from the regional profiles and the characteristics and effects of the analysed policies. From the methodological perspective, this link cannot be made without an extensive econometric analysis, which would require collecting data for a significantly longer period of time (i.e., 10 years or more) on the variables presented in this chapter, as well as control variables to be able to exclude external influences. Based on the data that were collected in the context of this study, we therefore instead provide a snapshot analysis of the key economic indicators in the analysed regions and examine the common patterns across and within specific policy themes.

Note: throughout this chapter, inclusion of specific regions is subjective to the availability of data for the region in question. If a region is not included in the figures presented in this chapter, that specific data was unavailable to the research team.

3.1. Overall economic situation of the regions

One of the key indicators related to the overall economic situation in the region is the Gross Domestic Product per capita, i.e., GDP per capita. The GDP per capita offers an approximation of the wealth of the region. With respect to policy making, one could argue that a wealthier region can afford costlier investments than a less wealthy region. High policy budgets may therefore be biased by the general wealth in the region. On the other hand, emerging regions may be more *willing* to invest, e.g., to foster growth and innovation, hence high policy budgets may also occur in less developed regions. We will therefore explore this relationship for our sample.

To first have an overview of the distribution in our sample, Figure 3-1 ranks the GDP per capita per region from high to low. The majority of our sample is categorised as having a GDP per capita between 20,000 and 30,000 EUR. As can be seen from the Figure, the regions in our sample differ in terms of GDP per capita, which allows us to further explore whether this is also reflected in the policy budgets.

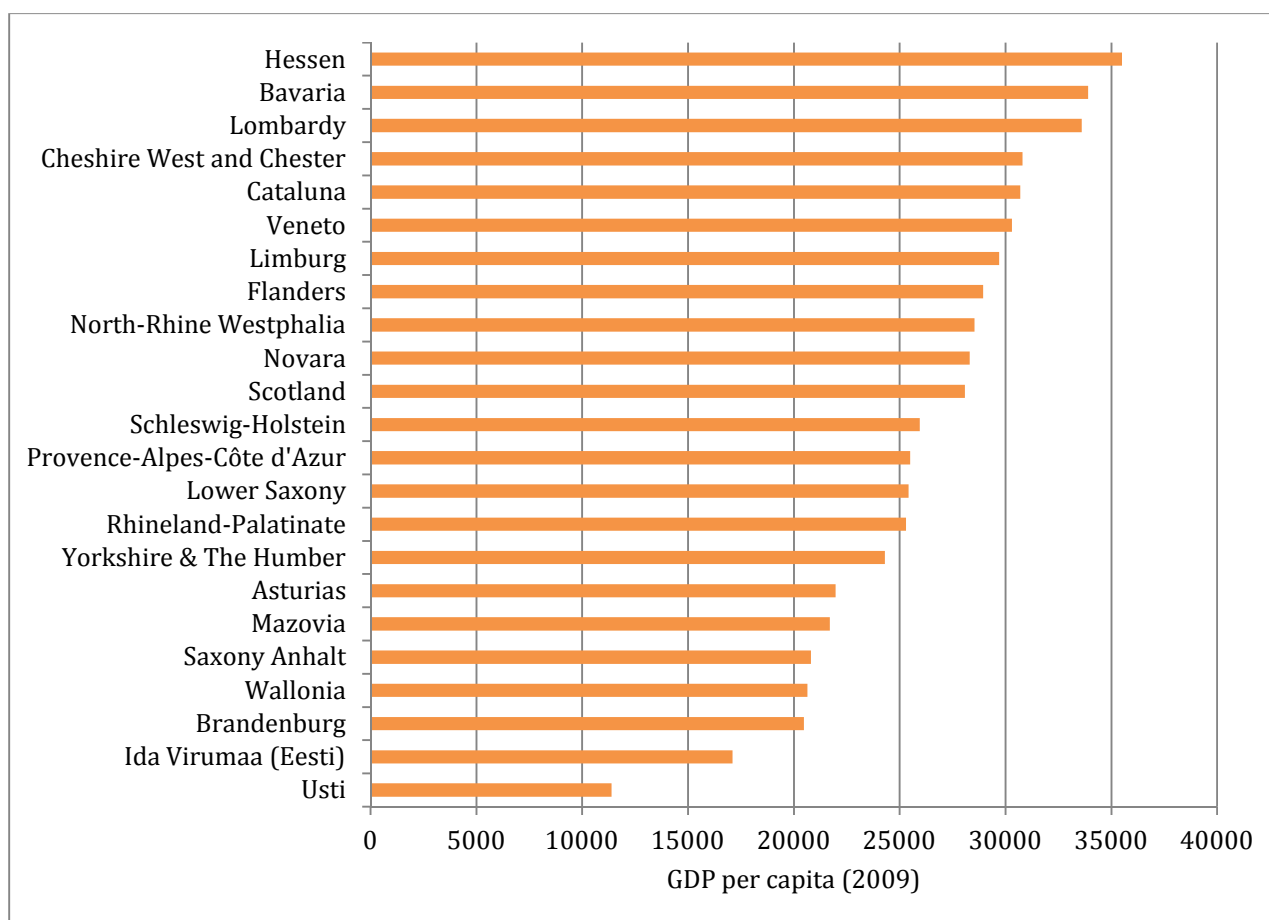


FIGURE 3-1: GDP per capita for the regions in our policy sample⁴¹

Table 3-1 presents an overview of the policy budget per type of policy, and the related GDP per capita of the region. Ranking the regions on the lower bound of the annual budget, and linking that to the GDP per capita of the respective regions, does not result in a clear relationship. This does not change if we rank on the upper bound of the annual budget either, as this hardly changes the order. For 4 out of 5 policy types, those are not the regions with the highest GDP per capita that grant the highest budgets. Conversely, only at the considerably lower GDP per capita for Ústí we observe that they generally grant lower budgets. Nevertheless, for the majority of the regions, no such distinction can be made. Consequently, no clear relationship was found between GDP per capita and budgets allocated to the analysed policies.

All in all, policy budgets are rather dispersed among the different levels of GDP per capita. Moreover, in the large group of regions with a GDP per capita between 20,000 and 30,000 EUR, no clear relationship can be established between GDP per capita and the annual policy budget. Other factors are likely to play a more dominant role in the determination of the annual policy budget. The case of Ústí, however, suggests that in extreme cases, low regional wealth - as measured by GDP per capita - may strongly limit the available budget. We emphasise though that this cannot be confirmed over the sample and that in-depth econometric analysis in the future studies is welcomed to distinguish between the various underlying factors.

⁴¹ GDP per capita (2009) statistics were taken from Cluster Observatory. Cluster Observatory (2009) data was unavailable for Asturias, Ústí, Bayern, Hesse and Schleswig-Holstein. For the German regions with missing values, we used the 2009 GDP per capita statistics from the "Regionaldatenbank Deutschland". For the remaining regions with missing values, we used the statistics that can be found in the regional profiles.

TABLE 3-1: Policy budgets related to regional GDP per capita

Region	Min. annual budget	Max. annual budget	GDP per capita (2009) ⁴²
Cluster & Innovation policies			
<i>Yorkshire & The Humber</i>	32,000,000	32,000,000	24,301.5
<i>Novara</i>	20,000,000	20,000,000	28,300
<i>PACA</i>	20,000,000	20,000,000	25,500
<i>Limburg</i>	7,000,000	7,000,000	29,700
<i>Flanders</i>	5,000,000	5,000,000	28,947
<i>Asturias</i>	500,000	650,000	21,976
<i>North Rhine-Westphalia</i>	460,000	460,000	28,530
<i>Bavaria</i>	437,500	437,500	33,897
<i>Saxony Anhalt</i>	227,500	227,500	20,800
<i>Wallonia</i>	160,000	160,000	20,642.5
<i>Rhineland-Palatinate</i>	108,000	120,000	25,297
RDI policies			
<i>Lower Saxony</i>	15,000,000	15,000,000	25,424
<i>Lombardy</i>	11,790,000	11,790,000	33,600
<i>Cataluna</i>	4,000,000	12,000,000	30,700
<i>Scotland</i>	670,890	3,500,000	28,083.5
<i>Brandenburg</i>	60,000	120,000	20,477
<i>Mazovia</i>	35,850	35,850	21,700
Environment & Sustainability policies			
<i>Veneto</i>	685,000,000	685,000,000	30,300
<i>Hesse</i>	200,000	415,000	35,513
<i>Wallonia</i>	110,000	110,000	20,642.5
<i>Ústí</i>	40,000	40,000	11,383
Education & Skills policies			
<i>Wallonia</i>	2,500,000	2,500,000	20,642.5
<i>Flanders</i>	255,000	255,000	28,947
<i>Schleswig-Holstein</i>	240,560	240,560	25,953
<i>Ústí</i>	39,460	39,460	11,383
Logistics & Infrastructure policies			
<i>Bavaria</i>	7,480,000	44,850,000 (total budget)	33,897
<i>Novara</i>	2,780,000	25,000,000 (total budget)	28,300

3.2. Chemicals industry in the region

Concerning the chemicals industry in the regions, an important factor to consider are the dynamics of both employment and enterprise growth. Whereas the overall economic situation may be excellent in a region, the sector specific dynamics may differ. Some policies may even be put into place to counter, for example, negative growth in employment or enterprises.

⁴² GDP per capita (2009) statistics were taken from Cluster Observatory. Unfortunately, Cluster Observatory (2009) data was unavailable for Asturias, Ústí, Bayern, Hesse and Schleswig-Holstein. For the German regions with missing values, we used the 2009 GDP per capita statistics from the "Regionaldatenbank Deutschland". For the remaining regions with missing values, we used the statistics that can be found in the regional profiles.

Figure 3-2 maps the regions on both employment growth (in %) and enterprise growth (in %). In this Figure, we can observe four different situations. A large number of regions (9) show both positive (or 0%) enterprise and employment growth. One region shows positive enterprise growth, but a slightly negative growth in employment. Three regions in Figure 3-2 show negative growth in the number of enterprises, but positive growth in employment. Finally, four regions show negative growth for both employment and enterprises.

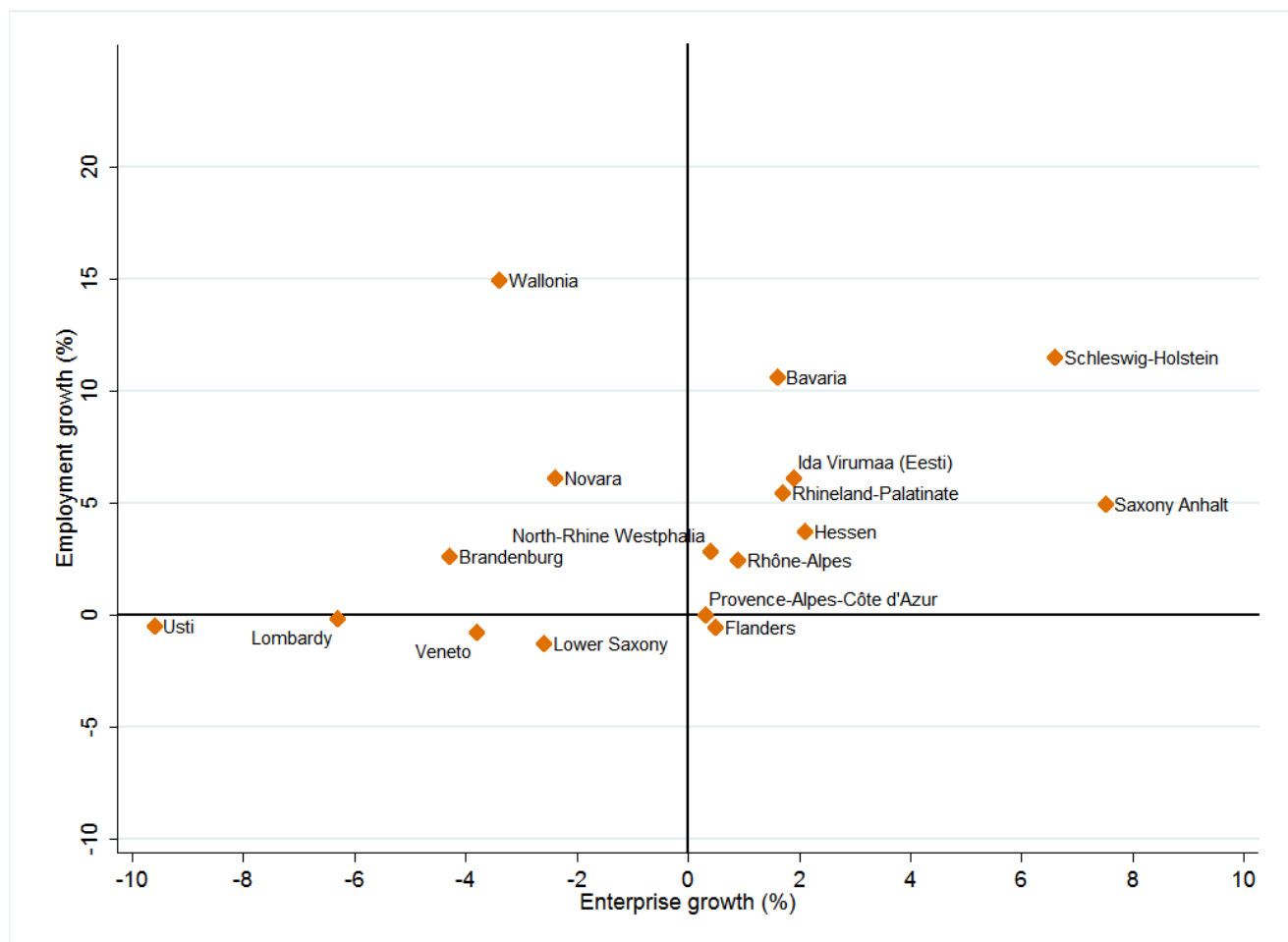


FIGURE 3-2: Employment growth vs. enterprise growth (2008-2009)

Possible reasons for double negatives in Figure 3-2 could be that companies are merely consolidating, or that efficiency per work has sharply risen, e.g. through the use of new technologies. Moreover, negative growth in the number of enterprises is not a negative factor per se; economies of scale may for instance bring about more efficiency and/or output for the region.

Although Figure 3-2 is better categorised as a snapshot than as a comprehensive time-series analysis, it is nonetheless interesting to see if we can find any relationship between a region's exposure to positive or negative growth and its decision making process regarding policies. In the case of Veneto, the *Program Agreement for Chemistry in Porto Marghera* is primarily focused on realising a sustainable chemicals industry at the chemicals site of Porto Marghera. The category of environmental and sustainability policies was furthermore categorised as being reactive in nature, which is supported by the growth figures presented for Veneto. Unfortunately, the *Program Agreement for Chemistry in Porto Marghera* is the only policy in our sample that can be categorised as reactive to employment and enterprise dynamics specifically. We can therefore only show that the data is supportive of the notion.

It is more difficult to assess the *effects* of the policies on the basis of this data. There are a number of cluster policies that specifically aim to increase employment (Limburg Chemelot Campus, North Rhine-Westphalia ChemSite and PACA PRIDES), increase attractiveness of region for companies (Saxony Anhalt GRW

Clustermanagement - Cluster Chemistry Plastics Central Germany, North Rhine-Westphalia ChemCologne) or both (Rhineland-Palatinate chem2biz, Yorkshire and The Humber Sector Development). Even though we can link these policies to the presented employment and enterprise dynamics, it would be impossible to assess the *causality* of the growth rates on the basis of this data. This would require an in-depth econometric analysis, specifically with panel data over time that includes several region specific control variables which could be a suggestion for future studies.

3.3. Research capacities

For analysing research capacities, we gathered information on the number of universities and the percentage of students respectively in pre-vocational and vocational, and tertiary programmes. We also gathered information on the proportion of 25-64 years old who engage in lifelong learning. For a better overview of the data, we present the three respective indicators on a regional level and the data averaged per country.

3.3.1. Percentage of students in pre-vocational and vocational programmes (% of 15-24 years old)

Figure 3-3 compares the data for the regions where this information was available. The collected data show a dispersion between different regions. This mostly refers to the two Belgian regions, Wallonia and Flanders, which both show considerably higher percentages. The majority of the regions show statistics in this category between 10 and 30%.

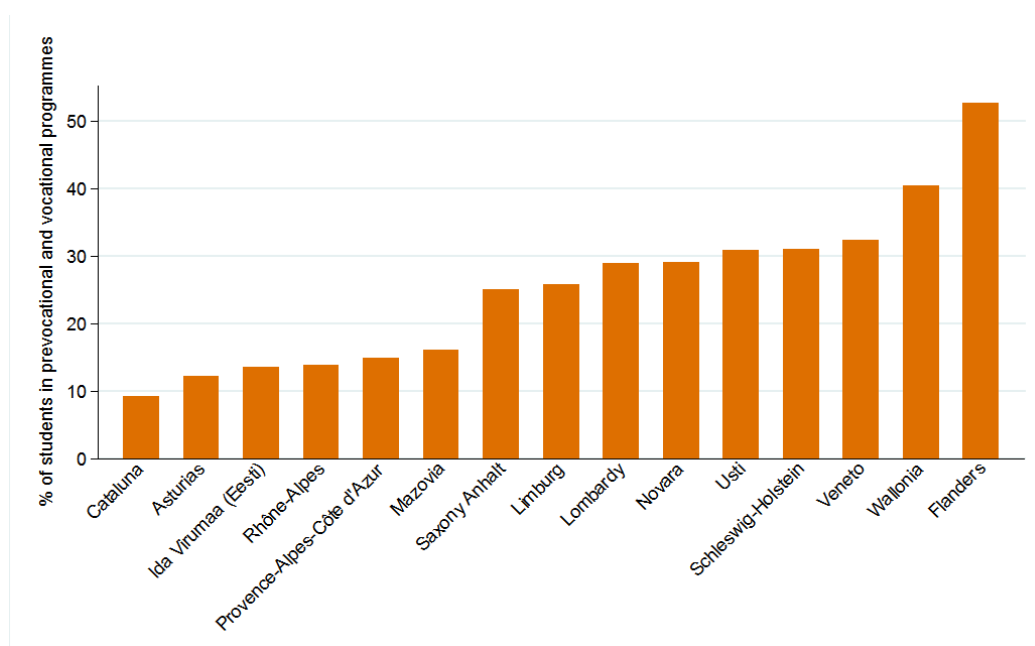


FIGURE 3-3: Percentage of students in pre-vocational and vocational programmes (2009)

3.3.2. Percentage of students in tertiary programmes with academic orientation (% of 20-24 years old)

Figure 3-4 compares the data on the percentage of students in tertiary programmes with academic orientation for the regions where this information was available. The dispersion in percentages across the regions is more significant for this indicator. While we noted that the two Belgian regions were mostly causing the high level of dispersion in Figure 3-3, in Figure 3-4 they are located on the left side of the figure. The Italian regions showcase high percentages, as well as the included Spanish regions. With the exception of Limburg, both

countries make up the right end spectrum of this indicator. Interestingly, the regions that nominated policies in Education & Skills tend to report lower percentages for students in tertiary programmes (Flanders, Schleswig-Holstein, Ústí and Wallonia). This does not necessarily mean that their policies do not work; it may be the case that the overall situation triggered them to design policies in this field.

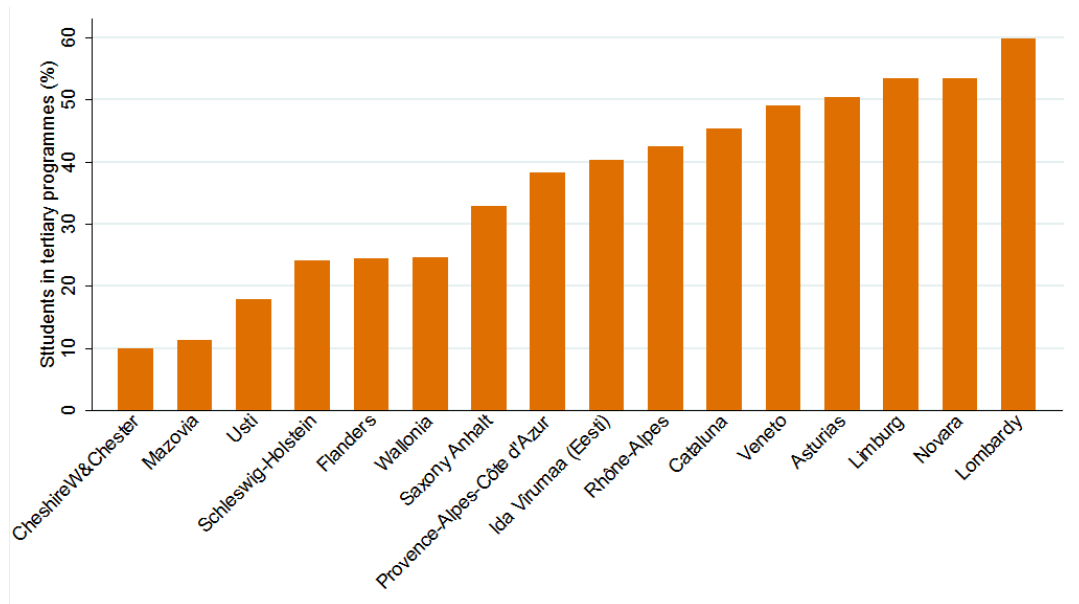


FIGURE 3-4: Percentage of students in tertiary programmes with academic orientation (% of 20-24 years old; 2009)

3.3.3. Lifelong learning (% of 25-64 years old)

Figure 3-5 presents the data for lifelong learning. Although levels are fairly comparable for most regions from our sample, the four regions on the right-end of the spectrum cause the overall picture to be more dispersed. Three regions from the U.K. in particular showcase high statistics here. Moreover, the data show that developing regions (e.g., Mazovia, Ida Virumaa) do not necessarily report lower figures in lifelong learning.

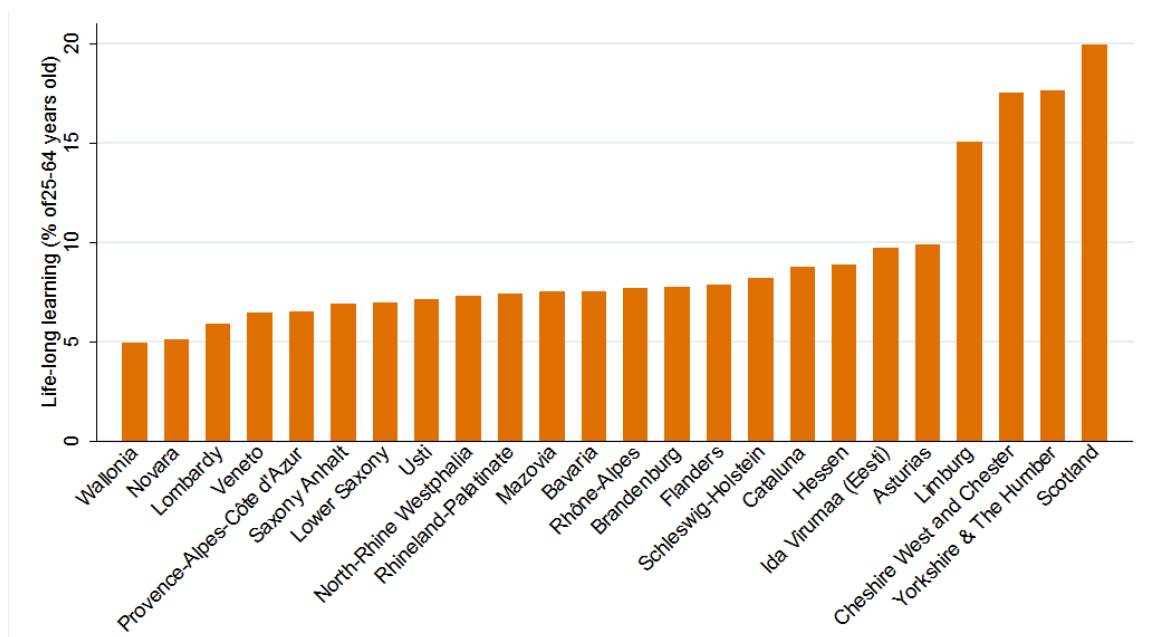


FIGURE 3-5: Lifelong learning (% of 25-64 years old; 2009)

3.3.4. Country level

The figures in the previous sections often show that regions within a single country report comparable statistics. A possible explanation for this is that fields like education are influenced by national policies as well. Figure 3-6 presents the indicators at the country-level.

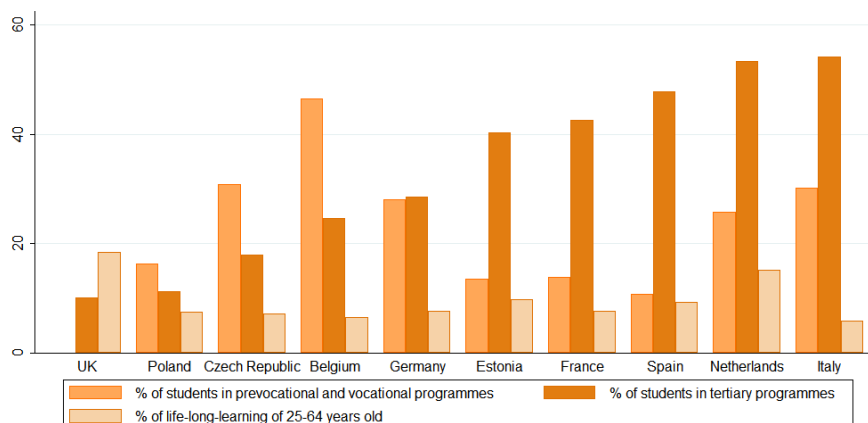


FIGURE 3-6: Country level analysis of indicators for education (sorted on tertiary programmes; 2009)

Figure 3-6 clearly shows that the situation differs per indicator. Whereas some regions report high percentages for the indicator on tertiary programmes (Italy, Spain), they do not necessarily show this for lifelong learning.

3.4. Link with regional innovation performance

Figure 3-7 shows the results of the Regional Innovation Scoreboard 2012⁴³ (RIS 2012, based on 2011 data) for all regions in the EU. RIS 2012 ranks the innovation performance of the regions in four groups: Leaders, Followers, Moderate Innovators and Modest Innovators. Within each group, three further levels of innovation performance are distinguished, as is represented by the colours on the map. The RIS ranking does not provide specific information about individual industries.

The RIS scores are the results of three composite indicators, each made up of several specific indicators measured at the regional level. The composite indicators are Enablers, Firm Activities and Outputs. Hence, they represent the interactions between the regional environment and the economic activities of the firms in the region.

⁴³ http://ec.europa.eu/enterprise/policies/innovation/files/ris-2012_en.pdf

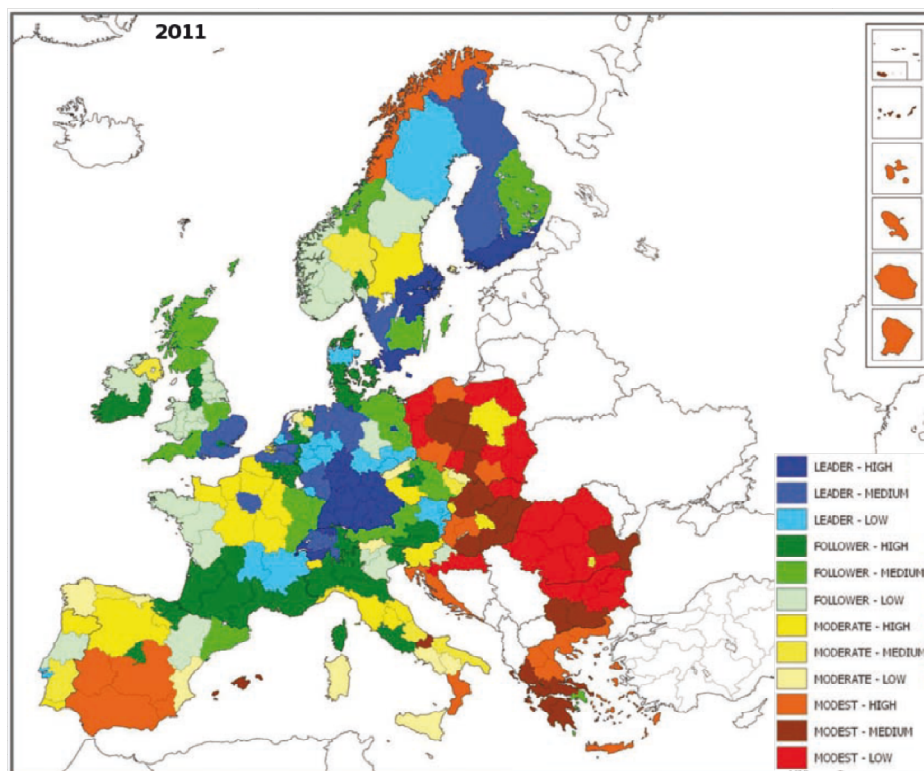


FIGURE 3-7: Regional Innovation Scoreboard 2012

Table 3-2 reflects the scores in RIS 2012 (based on 2011 data) and RIS 2008 (based on 2007 data) of the chemical regions included in this study. The table shows that none of the regions fall in the lowest category of “modest” innovation in 2012 and almost all regions are in the two highest categories. Further analysis of the results shows that all except one of the regions in the study have either improved their RIS score since 2007 or stayed at the same level. The one region that did decrease in score did so by only one sub-level in the RIS classification. Therefore it can be said that the chemical regions included in the study are a subset of European regions performing relatively well in the area of innovation.

The results of the table also imply that no direct link can be established between RDI policies, industry-specific or not, and the innovative performance of the regions: the seven regions that have nominated RDI policies are evenly distributed among the three categories of Leaders, Followers and Moderate Innovators. Almost the same applies to the regions that support the 13 cluster policies analysed in the previous section: these regions range from Leader-High through to Follower-Low.

TABLE 3-2: Chemical Regions in the Regional Innovation Scoreboard⁴⁴

Region	RIS 2012 score	RIS 2008 score
Bavaria	Leader - High	Leader - Medium
Hessen	Leader - High	Leader - Medium
Flanders	Leader - Medium	Leader - Medium
Lower Saxony	Leader - Medium	Follower - High
Rhineland-Palatinate	Leader - Medium	Follower - High
Noord-Brabant	Leader - Medium	Leader - Low
North Rhine Westphalia	Leader - Low	Follower - High
Rhône-Alpes*	Leader - Low	Follower - Low
Zuid-Holland	Leader - Low	Leader - Low
Wallonia	Follower - High	Follower - Medium
Schleswig-Holstein	Follower - High	Follower - Medium
Provence-Alpes-Côte d'Azur**	Follower - High	Moderate - High
Novara***	Follower - High	Follower - High
Lombardy	Follower - High	Follower - Medium
Limburg	Follower - High	Follower - High
Cheshire West and Chester****	Follower - High	Follower - High
Brandenburg	Follower - Medium	Follower - Medium
Catalonia	Follower - Medium	Follower - Low
Scotland	Follower - Medium	Follower - High
Saxony-Anhalt	Follower - Low	Moderate - High
Veneto	Follower - Low	Moderate - High
Yorkshire & The Humber	Follower - Low	Follower - Low
Normandy*****	Moderate - High	Moderate - Low
Mazovia	Moderate - High	Moderate - Low
Asturias	Moderate - Medium	Moderate - Low
Ústí*****	Moderate - Low	Modest - High
<p>* The score of Centre-Est was taken from the RIS 2012. ** The score of Méditerranée was taken from the RIS 2012. *** The score of Piemonte was taken from the RIS 2012. **** The score of North West (UK) was taken from the RIS 2012. ***** The score of Bassin Parisien was taken from the RIS 2012. ***** The score of Severozápad was taken from the RIS 2012.</p>		

3.5. Energy

Energy prices are of high importance to the chemicals industry, especially for the heavy chemicals industry. As these companies tend to need large volumes of resources for their operations, it may be useful to compare the prices of gas and electricity across the countries (see Figure 3-8). For data availability reasons, we note that this was collected at the country level, not at the regional level. Energy prices may vary across regions, hence we emphasise that the comparison only holds from country to country. Although electricity prices may vary less across regions due to the established country-level wholesale power markets, regional factors may especially play a role in the determination of gas prices.

France showcases the lowest electricity costs which can be explained by a wide availability of cheap nuclear power. Although Germany also showcases relatively low electricity prices, it must be noted that the data does not yet take into account the price effect of the post-Fukushima shutdown of all nuclear power plants in

⁴⁴ In some cases (marked with *) the region analysed in this study is not a region analysed by RIS, but is part of an RIS region. In those cases, the region that was analysed in RIS is mentioned at the bottom of the table.

Germany⁴⁵. Electricity prices in Italy are the highest in our sample, and the remaining countries show highly comparable electricity prices.

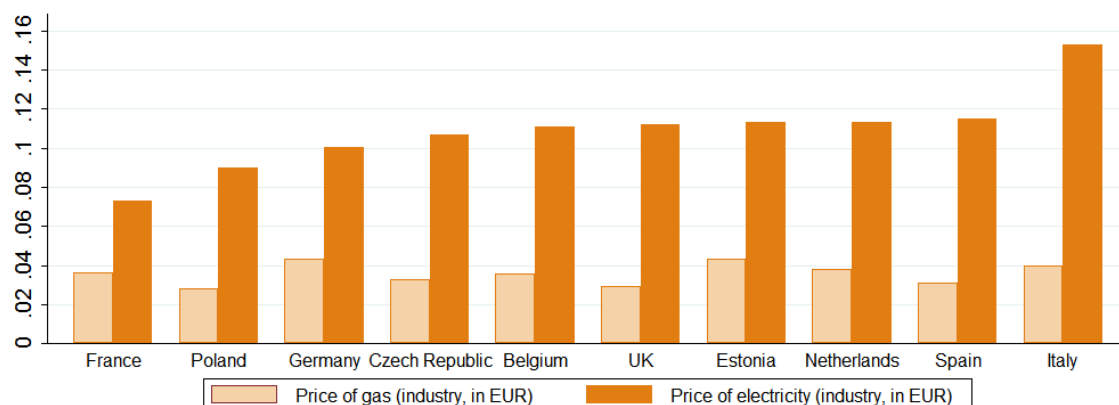


FIGURE 3-8: Comparison of energy prices across countries (sorted on price of electricity; 2009)

In terms of gas prices, the picture is rather different. Whereas France and Germany show comparatively low electricity prices, gas prices are comparably high. Poland, Spain, the UK and the Czech Republic, on the other hand, report rather low gas prices. Although lower energy prices are considered to be an advantage for companies, it is less clear cut whether low gas prices or low energy prices are of more importance. In fact, it is likely to depend on the type of chemical industry, as different types of chemical industry may be relatively more (or less) dependent on gas (or electricity).

Overall, there is not a clear difference in energy prices between the EU-15 countries and the others. In fact, different EU-15 countries showcase both high and low energy prices across the board.

3.6. Industry-specific policies

Table 3-3 shows that regions in which the share of employment in the chemicals industry as part of total employment in the region is relatively high, make use of industry-specific policies for the chemicals industry more often than regions with a relatively low share of employment in the chemicals industry. Interestingly, this relationship with industry-specific policy applies only when the relative importance of the chemicals industry is expressed in terms of employment. The same does not hold true for the share of the chemicals industry in the total turnover realised by all industries in the region or for the share of chemical companies in the total number of companies.

Nonetheless it stands to reason that the relative importance of any industry in the regional economic landscape influences the decision of regional authorities to develop specific policies targeting that industry. However, even with the small number of policies in the current study it is clear that a relatively low employment share of the chemicals industry does not automatically imply that no industry-specific policy is available.

⁴⁵ <http://www.bbc.co.uk/news/business-12745899>

TABLE 3-3: Share of the chemicals industry in relation to industry-specific policies

Region	Share turnover %	Share enterprises %	Share employment %	Industry-specific policy
Brandenburg	7,8	0,14	0,28	Yes
Scotland	25	.	0,52	No
Ida Virumaa (Eesti)	.	0,37	0,695	N/A
Schleswig-Holstein	8	0,24	0,97	Yes
Asturias	4,35	.	0,986	No
Bavaria	5	0,24	1,03	Yes
Yorkshire & The Humber	10	.	1,08	Yes
Novara	27	0,39	1,13	No
Lower Saxony	5,1	0,41	1,45	No
Lombardy	12	0,53	1,52	No
Mazovia	34,9	0,38	1,54	No
Cataluna	15,7	.	1,64	No
Hessen	12,2	0,42	1,99	No
Rhineland-Palatinate	33	0,47	2,01	Yes
Veneto	.	0,9	2,06	Yes
Wallonia	22,1	0,64	2,16	Yes
North-Rhine Westphalia	14,8	0,50	2,23	Yes
Saxony Anhalt	17,7	0,83	2,28	Yes
PACA	.	0,49	2,42	Yes
Rhône-Alpes	.	0,4	2,44	N/A
Flanders	23	0,43	2,93	Yes
Usti	49	0,48	4,15	Yes
Limburg	17	.	4,31	Yes
Cheshire West and Chester	10	.	6,79	Yes

3.7. Summary

In this chapter, we explored a number of regional conditions, based on the collected data in the regional profiles. Linking the data to the various policies analysed in this study, however, has not resulted in clear relationships between the two. From a methodological perspective, this can also be explained. In order to establish causal relationships between the quantitative data from the regional profiles and the characteristics and effects of the analysed policies, an extensive econometric analysis would be required. Such an analysis would require collecting data for a significantly longer period of time (i.e., 10 years or more) on the variables presented in the regional profiles, as well as control variables to be able to exclude external influences.

Nonetheless, the chapter has provided an overview of the conditions in the various regions. Concerning the wealth of regions, measured by GDP per capita, we found that the majority of the analysed regions report statistics between 20,000 and 30,000 EUR. Linking these statistics to the annual policy budgets, did not result in a clear relationship between the two. In specific cases, however, very low regional wealth may strongly limit the available budget, as is suggested by the data we collected for the Ústí region. Other factors are likely to play a more dominant role in the determination of the annual policy budget.

Regarding the regional data on research capacities, we considered the relationship between education & skills policies and statistics on education in more detail. Interestingly, we found that the regions that nominated policies in Education & Skills reported comparatively lower percentages for students in tertiary programmes

(Flanders, Schleswig-Holstein, Ústí and Wallonia). This does not necessarily mean that their policies do not work; it may be the case that the overall situation *triggered* them to design policies in this field.

Using data from the Regional Innovation Scoreboard, we explored whether patterns could be observed with respect to innovation. Based on the collected data, it can be said that the chemical regions included in the study are a subset of European regions performing relatively well in the area of innovation. However, no direct link could be established between RDI policies and the innovative performance of the regions. The seven regions that nominated RDI policies were found to be evenly distributed among the different levels of innovative performance. Furthermore, a similar pattern was found for the regions that nominated cluster policies in this study.

Finally, we considered the relative importance of the chemical industry in the region with respect to the number of industry-specific policies nominated by the region. It stands to reason that the relative importance of any industry in the regional economic landscape influences the decision of regional authorities to develop specific policies targeting that industry. We indeed found that regions in which the share of total employment in the chemicals industry in the region is relatively high, make use of industry-specific policies for the chemicals industry more often. However, we also found that a relatively low employment share of the chemicals industry does not automatically imply that no industry-specific policy is available.

4. *Transferability to other regions*

The current chapter provides findings with regard to assessing the transferability of the identified good practices to other regions. The objective is to help regional authorities in designing strategies to develop a globally competitive chemicals industry as part of the Europe 2020 Strategy. At this point, we highlight the key findings with regard to transferability.

4.1. The essence of transferability

Policy transfer refers to a process in which knowledge about policies, administrative arrangements, institutions and ideas in one political setting (past or present) is used in the development of policies, administrative arrangements, institutions and ideas in another political setting. Policy transfer can bring to both policy success or failure. Successful experiences in one region therefore do not necessarily have to lead to success in a different region. The analysis of the different components of the processes of transfer can explain the reasons for each of these possibilities. Three factors that can produce policy failure in a process of transfer are⁴⁶:

- **Uninformed transfer:** the borrowing region has insufficient information about the institution or policy transferred.
- **Incomplete transfer:** even if transfer has occurred, crucial elements of the policy in the original region has not been introduced. Lack of motivation or capacity may be behind this failure.
- **Inappropriate transfer:** a common case in which the differences in economic, social, political and ideological contexts have not been taken sufficiently into consideration.

Mutual understanding between lender and borrower of policy experiences is a necessary prerequisite for successful transfer. In all cases, the nature and conditions of receiving regional institutions is a crucial element explaining capacities for successful policy transfer. Willingness of national and regional governments is another important factor⁴⁷.

4.2. Key conclusions on the transferability of analysed policies

An important consideration when discussing transferability is that transferring good practices to regions is not an objective in itself, it is rather a means of achieving certain objectives. The transfer of any policy should be preceded by a careful assessment of the region's unique needs, challenges and action priorities. Once the assessment signalled the type of policy that needs to be introduced in order to achieve the region's objectives, another consideration needs to be taken into account. What works in one region, does not necessarily have to work in another. Therefore, to achieve the most effective results, customisation of the transferred policy is likely to be needed to make sure it best respects the local specificities and is tailored to the specific needs of the region.

⁴⁶ Dolowitz David P. – Marsh, David, “Learning from Abroad: The Role of Policy Transfer in Contemporary Policy-Making”, in *Governance: An International Journal of Policy and Administration*, vol. 13, n^o 1, January 2000 (pp. 5-24)

⁴⁷ Experts meeting on “Approaches and methodologies for the assessment and transfer of best practices in governance and public administration” SESSION III ABSORBING AND IMPLEMENTING A BEST PRACTICE: ISSUES OF LOCAL CAPACITY AND ENVIRONMENTAL SUITABILITY AND SUSTAINABILITY Policy transfer in the EU: a model for MENA countries? (Carlos Conde Martínez Universidad de Granada, Spain)
<http://unpan1.un.org/intradoc/groups/public/documents/un/unpano30445.pdf>

Table 4-1 provides an overview of the key conclusions regarding the transferability for all policy themes. As can be seen from the table, the degree of transferability varies per policy theme, with cluster & innovation and RDI policies being the most transferable, and infrastructure & logistics policies being the most difficult to transfer. The differences in the degree of transferability among policy themes depends on the conditions that need to be present in the region for a certain policy to become transferrable. The easier it is to create such conditions (in case those are not present in the region yet), the higher the degree of transferability of a policy.

For example, some policies (e.g., in the area of education & skills) rely heavily on an existing institutional structure of cooperation between social partners (employers and employees organisations) and acknowledgement of such cooperation by the government as a basis for policy decisions. Such institutional structure needs to be developed historically, and is not likely to be present in the same form in all regions. Developing a similar cooperation in regions where it does not exist may take years of coordinated effort, which provides a serious obstacle to transfer of such policies.

Transferability of policies may also be influenced by the differences in legislation. For example, in case of infrastructure & logistics policies, and specifically, the pipelines, legislation in Germany concerning the rights of way of infrastructure projects (e.g., expropriation laws) is different compared to legislation in, for example, France or Italy. While in some cases legislation may be supporting the introduction of the new policy, in other cases it may have an opposite effect.

TABLE 4-1: Transferability of analysed policies

Policy type	Degree of transferability	Remarks	Examples of good practices
Clusters & innovation	High	<p>General factors crucial for the successful transferability:</p> <ul style="list-style-type: none"> • high political priority for the support of the chemicals industry; • strong commitment of leading political representatives; • strong commitment of large companies; • credibility and competence of cluster board and professional cluster management (if cluster already exists); • trust among cluster participants (if cluster already exists). 	<ul style="list-style-type: none"> • Asturias Cluster Policy • Bayern Cluster Initiative • Cheshire West and Chester CLUNET Cluster Policy Networking and Exchange • Flanders Innovation Hub for Sustainable Chemistry (FISCH) • Limburg Chemelot Campus • North Rhine-Westphalia ChemCologne • North Rhine-Westphalia Cluster CHEMIE.NRW • North Rhine-Westphalia ChemSite • Novara Innovation Pole • PACA Pôles Régionaux d'Innovation et de Développement Economique Solidaire (PRIDES) • Rhineland-Palatinate chem2biz • Saxony Anhalt GRW Clustermanagement - Cluster Chemistry Plastics Central Germany • Wallonia networking cluster PLASTIWIN • Yorkshire and The Humber Sector Development
RDI	High	<ul style="list-style-type: none"> • Limited barriers to transferability; • Presence of at least some knowledge and research institutions required; • Important for successful transfer: taking lessons learned from other policies into consideration by consulting e.g. Regional Innovation Monitor. 	<ul style="list-style-type: none"> • Brandenburg Technology Transfer Office for Chemistry and Plastics • Catalonia Technological Innovation Strategy • Limburg Venture fund II • Lombardy Innovation & Research Policy • Lower Saxony Innovation Development Programme • Mazovia Regional Innovation Strategy • Scotland R&D Grant Support
Environment & sustainability	Medium	<ul style="list-style-type: none"> • Limited barriers to transferability of cooperation and support policies, as shown by the many examples of this type of policy around Europe; • Specific stakeholders and topics covered by the policy should be customised to the regional context. 	<ul style="list-style-type: none"> • Hesse Environmental Alliance • Ústí Cooperation Contract • Veneto Program Agreement for Chemistry in Porto Marghera • Wallonia REACH Implementation Programme

Education & skills	Low	<ul style="list-style-type: none"> • Individual policies can be easily transferred to other regions, but not without a separate assessment of the gap between demand and supply of skills. • Gap analysis should: <ul style="list-style-type: none"> ○ be specific to the regional situation; ○ involve both quantitative and qualitative information; ○ provide segmentation into specific functional areas and education levels; ○ take into account developments over time. • The regional chemicals industry should be involved in performing the analysis together with the regional authority. • The policies designed should be flexible to changes in demand and supply of skills. 	<ul style="list-style-type: none"> • Flanders Sectoral Covenants • Schleswig-Holstein Chemistry Campus • Ústí Stipends for secondary school pupils • Wallonia Cefochim
Infrastructure & logistics	Very low	<ul style="list-style-type: none"> • Infrastructure & logistics policies are often designed at the national level and implemented at the regional level. As a result, some policies are more complicated or cover a larger geographical area. This, in turn, makes transferability more complicated. • For both analysed infrastructure & logistics policies, specific factors and conditions play a role. This complicates transferability, as these conditions were taken into account while designing the specific policies. 	<ul style="list-style-type: none"> • Bayern Ethylen-Pipeline-Süd • Act of Goods, Traffic and Logistics (North Eastern Piedmont)

In the remainder of this chapter, we elaborate on the transferability of each specific policy theme in more detail.

4.3. Transferability of cluster & innovation policies

The analysed cluster policies are embedded in the general European cluster policy and are of rather universal nature. All analysed cluster & innovation policies were rated as highly transferable. The elements of the cluster management are often already shared and discussed with representatives from other regions. Nevertheless, adopting a policy does not yet mean it will be successful. Among the factors suggested to influence the success of cluster policies in chemical regions, the following were mentioned: high political priority for the support of the chemicals industry, strong commitment of leading political representatives, strong commitment of large companies, credibility and competence of cluster board and professional cluster management, as well as relations in the cluster and trust.

The study results suggest that, with regard to the transferability of cluster & innovation policies, there is no generic ‘silver bullets’ across all chemical regions. Instead, **it is crucial to make sure that the specific cluster policies introduced to the region are aligned with the unique set of challenges and opportunities the region is facing.** The critical task is then to ensure that policies and programs first support an effective process of identifying the action priorities and then provide the right tools to address whatever those priorities are.

Examples of possible priorities as identified by the study are as follows:

- Specific business environment dimensions to upgrade;
- The need to address specific weaknesses in company development;

- Specific market opportunities to leverage through collaboration etc.

Similar policies in other regions

Policies similar to the ones analysed can be found in many other regions. There is an intensive exchange of information and sharing of best practices between chemical cluster managers in Europe in a form of bilateral and multilateral cooperation. Examples of such initiatives refer to INTERREG-projects “ALPlastics”⁴⁸ and “NANOFORCE”, CIP-project “WIINTECH”, as well as “Regions of Knowledge” project MentorChem, ChemClust and ChemLog, and ChemSME.

The *WIINTECH* project (or “Worldwide Intercluster Initiative for New materials and processes focused on clean *TECH*nologies”) is undertaken to build a common international strategy between a set of leading European clusters aiming to the following objectives: fostering the already accomplished intercluster and transnational partnerships, extending them to international cooperation, developing a joint intercluster cooperation towards internationally leading clusters (technology and industrial partnerships, training, tech transfer, mobility, mentoring etc.) in particular with Japan, USA, Korea, Brazil, China, India, Russia, Mediterranean region, and focusing on material and production technologies for fast growing lead markets such as clean tech markets⁴⁹.

The *NANOFORCE* project is implemented in the Central Europe Program co-financed by the ERDF. The project involves partners from 7 countries of Central Europe. The objective of the project is to foster the innovative nanotechnology-sector networks across Central Europe regions by bringing together public and private organisations to carry out collaborative and interdisciplinary researches on nanomaterials. *NANOFORCE* aims to locate and bundle the competences in the countries and identify and check technologies on its compatibility with the REACH regulation and its application potential. Modern interactive methods like online platforms, informative fora and topic-specific workshops aim to ensure the exchange of information between research groups and industry. *NANOFORCE* was started on 1 May 2011, and runs until 31 October 2013 (30 months)⁵⁰.

MentorChem (or “Mentoring European Knowledge of the Chemical Regions”) is a cooperation between the regions Saxony-Anhalt, Lombardia and Asturias. The three regions are at different stages of development and with different experiences in the area of research and regional policy. Therefore, they have been specifically selected to join together in a project of “Knowledge Regions”, being a representative panel of the European economic landscape, due to their complementary differentials and a common sector of evolution such as the chemistry. The cooperation approach of the project emphasises an innovative-pragmatic mentoring model, which is based on a classic approach of identifying the weaknesses-needs of disadvantaged vs. developed regions and the exchange & modeling of best-practices. As a result, joint solutions for the transfer of innovative policy instruments aim to be developed and implemented⁵¹.

ChemClust is a project of cooperation with the objective to improve the effectiveness of regional development policies in the area of innovation and cluster policies for the chemical sector. 10 chemical regions from 7 Member States work together by means of interregional cooperation and exchange of best-practice. The cooperation is based on the partnership of the European Chemical Regions Network (ECRN). The partners are regional authorities and development agencies from Saxony-Anhalt (Germany), North Rhine Westphalia (Germany), Asturias (Spain), Masovia (Poland), Ustí Region (Czech Republic), Cheshire West and Chester (UK), Novara (Italy), Limburg (Netherlands), Teesside (UK) and Schleswig-Holstein (Germany) which are

⁴⁸ A network of private/public actors actively involved in local development policies in 5 Alpine regions, to create proper conditions for strategic innovation in the Alpine plastics clusters and strengthen the related economic sector; see <http://www.alplastics.net/>

⁴⁹ <http://www.clustercollaboration.eu/web/project-wiintech/home>

⁵⁰ <http://www.nanoforceproject.eu/home>

⁵¹ <http://www.mentorchem.net/html/info.html>

responsible for the establishment and support of clusters and the implementation of regional innovation policies⁵². Specific objectives of ChemClust include:

- Improving the rate of innovation capacity in the chemical regions by transfer of 15 best practices and by benchmarking the regional performance in a European context;
- Supporting the chemical industry in Europe in the years ahead by an improved "know how" of public policy actors in the chemical regions on innovation and cluster development;
- Developing new innovation concepts and strategies with the mainstream SF;
- Improving the efficiency of regionally based R&D and innovation and cluster initiatives in the chemical regions, and improving 10 regional policies in the area;
- Creating new or strengthening existing clusters towards R&D and innovation in and between the chemical regions.

One of the key initiatives within ChemClust refers to a pilot project "*Chemical Parks as Knowledge Sites*" involving three chemical regions: Saxony-Anhalt, Ústí and North Rhine-Westphalia. The initiative among others aims at improving the innovation capacity of chemical companies by developing chemical parks as knowledge sites; exchanging experience about best-practice solutions for the settlement of research infrastructure on chemical parks for the development of innovation services of SME; as well as better integration of chemical parks into the regional innovation landscape in cooperation with regional R&D entities. The first results indicate that the participating chemical parks have strengthened their efforts to improve innovation capacities and have further developed their innovation profiles in focusing on important R&D priorities alongside the value chain of the companies⁵³.

ChemLog is a European cooperation project between regional authorities, chemical industry associations and scientific institutions from Germany, Poland, Czech Republic, Slovakia, Hungary and Italy with the objective to strengthen competitiveness of the chemical industry by improving framework conditions for supply chain management in Central and Eastern Europe. ChemLog aims to overcome barriers for transnational transport in the West-East and East-West dimension by initiating a broad process of exchange of experience and facilitating the development of transnational infrastructure projects with high relevance for the chemical industry. The project partners aim to establish fruitful cooperation with relevant administrative entities from regional, national and European level, chambers, associations, enterprises and logistic providers to identify priorities and find common solutions for the improvement of logistic infrastructure in Central and Eastern Europe⁵⁴.

The objective of the *ChemSME* project is to exchange information on chemical clusters in the European regions of Saxony-Anhalt, Limburg and the North-East of England for mutual benefit in improving cluster development, particularly amongst SMEs⁵⁵.

Several region-related factors making these policies successful have been identified:

- Presence of the key actors of the whole value chain: chemical companies of all sizes including international companies, universities and research centres, and service providers;
- Presence of industrial tradition in the region (history of the chemicals industry);
- High R&D expenditure in the region and innovation-friendly climate;
- High political priority for the support of chemical industry, strong commitment of leading political representatives;
- Strong commitment of large companies to cluster development;
- Credibility and competence of the cluster board and cluster speakers, professional cluster management.

⁵² <http://chemclust.eu/>

⁵³ Report on the results of Pilot Project "Chemical Parks as Knowledge Sites", ChemClust Final Conference, Brussels, 22 November 2012

⁵⁴ <http://www.chemlog.info>

⁵⁵ <http://www.chemsme.net>

The key barriers for transferring the identified policies to other regions include differences in culture, infrastructure, type of companies and public research infrastructure, organisation of the government, involvement and commitment of the regional authorities. Clusters are informal networks which rely on personal relations and trust; this cooperation and communication culture can hardly be copied by other regions and needs to be established respecting regional frameworks.

4.4. Transferability of RDI policies

As the policies within this category rely at least to a certain extent on cooperation between SMEs and large firms or research centres, the presence of the latter in a sufficiently critical mass is suggested to be a key requirement. For the rest, the barriers for transferability were suggested to be limited.

Of the seven RDI policies studied in this category, the Lower Saxony Innovation Development Programme is “recommended as an example of regional good practice to policy-makers from other regions” by the Regional Innovation Monitor (RIM)⁵⁶.

4.5. Transferability of environment & sustainability policies

Although these policies have been introduced into the study as a result of the choices made by the representatives of the regional authorities in the regions involved (within the requirements determined by the study), they are not unique to these regions. The Environmental Alliance, for example, has pendants in at least nine other German regions, as well as in the Ústi Cooperation Contract.

The experiences with the Environmental Alliance show that such platform contributes to eliminating a great deal of administrative burdens on both regional authorities and the chemicals industry in a region and thus also improves the cost-benefit ratio of policies in this area. It also appears that this policy approach can be transferred relatively easily, as it has spread to more than ten European regions in less than two decades. Examples of similar policies are:

- Umweltpakt Bayern
- Umweltpartnerschaft Brandenburg
- Partnerschaft Umwelt Unternehmen Bremen
- UmweltPartnerschaft Hamburg
- Umweltallianz Mecklenburg-Vorpommern
- Umweltpakt Saar
- Umweltallianz Sachsen
- Umweltallianz Sachsen-Anhalt
- Umweltinitiative für die Thüringer Wirtschaft

The alliances are different in other states. Bavaria was one of the first states to start a similar policy in the 1990s. Many more German states have a similar policy since then. Not all states appear to use the same names for the same policies. The matter of cooperation depends also on the states' history. VCI (the German Chemicals Industry Association) does not have coverage of each specific state, depending on the presence of chemicals industry.

Also, the WALRIP is not unique in its intervention logic, as the chemicals industry associations of many regions have supported chemical companies in the implementation of the REACH (and CLP) regulation in one way or another (be it that the amount of financial backing by the regional authority varied per region). Many other regions in the study have referred to REACH compliance support in one way or another. Such appears to be

⁵⁶ Source: Regional Innovation Monitor, <http://www.rim-europa.eu/index.cfm?q=p.support&n=13431&r=DE9>

commonly implemented by the national or regional chemicals industry association (i.e. equivalent to Essenscia).

Regarding the Veneto Program Agreement, the regional authority has indicated that it is not straightforward to transfer such a policy: “The Agreement depends on the area involved, its size, the many companies settled there, the type of activities historically carried out and the time of crisis experienced by the chemical industry. The implemented policy, therefore, cannot be replicated in all the cases but only with the concomitant presence of such factors”.

4.6. Transferability of education & skills policies

With regard to the possibilities to transfer this type of policy to other regions, the Chemistry Campus offers the most concrete opportunities for other regions. In fact, the regional authority has already indicated that it intends to share its approach through the ECRN network. As the policy relies on e-learning methodologies for its implementation, it can be implemented with relative ease in other regions. However, investments in hardware and software are required and may present an obstacle. Also, some translation efforts will be required to transfer the software outside of Germany.

The Ústí Stipend programme may also be easily transferred to other regions. This is not so much the case for the Sectoral Covenants of Flanders, as they rely on an existing institutional structure of cooperation between social partners (employers and employees organisations) and acknowledgement of such cooperation by the government as a basis for policy decisions. Such institutional structure has historically developed in Flanders and The Netherlands, but may not be present in other regions. Developing a similar cooperation in regions where it does not exist may take years of coordinated effort, which provides a serious obstacle to transfer of this policy.

Finally, the Cefochim training centre in Wallonia required a significant start-up investment as well as large annual funding to continue its operations. Such capital investment may not be possible in other regions.

Although these individual policies can be easily transferred to other regions, each region should make its own separate assessment of the gap between the skills required by the chemicals industry and those already provided by existing public and private education and training programs. Such an analysis should be specific to the regional situation, involve both quantitative and qualitative information and a segmentation into specific functional areas and education levels. It should also be dynamic, in order to take into account developments over time wherever possible. Therefore, it is important that representatives of the regional chemicals industry be involved in performing the analysis together with the regional authority and that the policies designed are flexible to changes in demand and supply of skills.

4.7. Transferability of infrastructure & logistics policies

While there are policies on infrastructure & logistics with relevance to chemicals industry in other regions, the transferability of them is more complicated. Infrastructure & logistics policies are often designed at the national level and implemented at the regional level. This is part of the reason why some policies are more complicated or cover a larger geographical area. Moreover, only two such policies were analysed in this study, making it difficult to draw conclusions on the overall transferability of infrastructure & logistics policies in general.

Nevertheless, several region-related factors making these policies successful have been identified. These include:

- Presence of the necessary expertise and experience in the field;
- Effective and excellent cooperation between politics, ministries and industry;

- Presence of a (strong) chemicals industry in the region;
- Strong political commitment for the support of chemical industry.

Transferability of EPS, the pipeline in Bavaria, specifically to other regions is somewhat complicated. For instance, legislation in Germany concerning the rights of way of infrastructure projects is different compared to legislation in, for example, France or Italy. Particular laws, such as expropriation laws, may therefore differ among countries. While in some cases the Rule of Law may facilitate a pipeline better (e.g. by having fast expropriation legislation), in other regions this could be the opposite. It should therefore be assessed on a case-by-case basis. Moreover, to prevent substantial delays, stakeholders recommended to only start building such a pipeline when all the rights of way are secured.

Transferability of the second policy that was analysed in this category, the Act of Goods, Traffic and Logistics in North Eastern Piedmont (Novara), is also characterised by the specific factors that play a role. The way this policy is organised, may have an effect on its transferability. Specifically, it was noted that it is hard to find a similar possibility to combine the different levels of interventions as is done in Novara. This makes the way the policy is designed less applicable to regions where this is not the case. If, however, such different levels of intervention can be found in another region, Novara may provide a model to look at.

5. *Conclusions and recommendations*

The key objective of the study was to provide information that will assist public authorities, in particular, regional authorities, in designing strategies, policies and programmes to support and strengthen the international competitiveness of the European chemicals industry. The current chapter contains the key study conclusions and recommendations with regard to the abovementioned objective.

The recommendations in this chapter address the total pool of chemical regions/clusters in Europe, and are likely to be of different degrees of relevance for regions at different stage of their development. Less developed regions are likely to find more recommendations relevant, while the most developed regions are likely to have some of the recommendations already applied in practice and thus of less relevance for their region.

The policies analysed in this study were nominated by the regional authorities, specifically the ECRN contact persons and similar contacts at the non-ECRN regions. The policies nominated were in large part policies aimed at innovation goals, with fewer policies in the area of logistics, education and skills and environment and sustainability. This reflected by the extent to which conclusions and recommendations have been derived for each policy type: where the basis for analysis was larger, more extensive conclusions and recommendations were possible.

For each of the policy types, good practices have been identified in successful policies. These are presented in the sections 5.2.2, 5.3.2, 5.4.2, 5.5.2 and 5.6.2 in this chapter. These good practices are based on our findings in the analyses of individual policies and policy types of Chapter 2 of this report.

5.1. General

In this sub-section, we present the general conclusions and recommendations relevant to the regional policy dimension.

5.1.1. The role of the chemicals industry in Europe

Latest data suggest that the European chemicals industry continues to be a major global player, accounting for about one-fifth⁵⁷ of world chemicals sales in value terms. At the same time, worldwide competition is getting fiercer, and Europe's global position is considerably influenced by among others the strong growth in China and the recent developments of large scale petrochemical plants in the Middle East⁵⁸.

Nevertheless, the absolute size of the European market continues to provide a strong basis for European clusters serving customers in this region. Europe's main strength is its high levels of productivity that largely compensate for the high factor costs in Europe. This is the result of the following comparative advantages:

- availability of efficient transportation infrastructure and services;
- access to a highly qualified labour force;
- presence of many related and supporting industries;

⁵⁷ Cefic data

⁵⁸ Facts and Figures 2011: The European chemical industry in a worldwide perspective", Cefic report, 2011

- a large amount of industry-based clusters representing large parts of chemical value chains, situated around chemical sites and chemical parks, as demonstrated by e.g. the website of the European Chemical Site Promotion Platform, which represents 71 chemical sites in 10 countries in the western EU⁵⁹;
- advanced regulatory environment with high environmental and safety standards, which can lead to innovative solutions.

5.1.2. *Need to focus on both success and failure in policy development*

While the policies profiled in the current report provide a good reflection of existing practices within European chemical regions, from the methodology perspective, there is no sufficient evidence that would allow us to call these policies *best practices*. As mentioned before, the analysed policies were nominated by the regions themselves, and the type of nominated policies proved to significantly depend on the affiliation of regional contact persons. As the key contact persons involved in this study were mainly representatives of regional ministries of economic affairs or similar departments, the policies selected were to a large extent aimed at clusters & innovation, with fewer policies in the area of logistics, education and skills, and environment and sustainability. The latter policy categories may have been underrepresented in the selection since they are the responsibility of the equivalents of regional ministries of transport, education and environment respectively. However point 5.1.4 complements information on some of those issues.

Nevertheless, the collected data represents a platform for moving to the next stage of successful regional policy development to increase the competitiveness of the European chemical regions. The study thus fulfills one of the recommendations made by the High Level Group on the Competitiveness of the European chemicals industry. Besides strong points, the analysis also highlighted the key learning points and barriers to the development of the nominated policies thereby showing that there are no ideal policies, and that there is always room to design policies that are better than the previous ones. Therefore ***a balanced perspective equally focussing on the reasons for both success and failure of policies for chemical regions should be put central in the regions' initiatives.***

5.1.3. *Need to connect local upgrading with global competitive needs*

The study highlighted a clear need to frame the role of chemical regions and regional government policies in the broader context of how competition and policy are interrelated in the chemicals industry. From that perspective, geographical factors prove to play an important role. Below we elaborate on the role of geography for the chemicals industry from both industry and government perspective.

As mentioned before, the chemicals industry is highly globalised, with many companies being active across the globe and making their key strategic choices in the view of the global context. This global nature is illustrated by recent data on mergers and acquisitions in the chemicals industry published by PwC⁶⁰. The data show that in 2011, 9 out of the 17 largest deals in the chemicals industry concerned the acquisition of a European company. In 4 out of these 9 cases, the acquiring company was also European. Hence, while Europe is still an important place for large deals, half the European companies bought are acquired by American, Russian or Chinese buyers. It is therefore key to assess what chemical firms from outside Europe are looking for in their acquisitions and which types of policies matter most to them.

Despite the requirement of more detailed study of the motives of foreign investors, some examples of policies studied here demonstrate concrete benefits for the competitive position of the EU chemicals industry. We should stress here that these are specific examples identified in interviews, of which the exact financial-economic impact is not known, and that we have also found examples of policies that could have contributed to EU competitiveness, but did not realise their objectives in this respect. The following are some of the examples that were identified in the current study, which illustrate how regional policies can contribute to the European chemicals industry's effectiveness:

⁵⁹ <https://ecspp.org/locations>

⁶⁰ PwC 2012. Chemical Compounds, page 6. <http://www.pwc.com/us/en/industrial-products/publications/chemical-compounds.jhtml>

- In Scotland, a beneficiary reported that due to two R&D projects made possible by the R&D Grant Support program, the labour productivity and value added of the chemical site could be increased, thus **convincing the parent company not to close the site** in favour of a site outside the EU.
- In Limburg, active promotion of the Chemelot cluster has resulted in **32 new companies locating on the site** in the 2005-2010 period, some of which are partly financed by foreign investment. Foreign and European investors also participate in the Limburg Venture Fund II, thus **directing capital to the region** where it could have also been invested outside Europe.
- Chemie Cluster Bayern reports increased significant import-export figures associated with its **“Transatlantic Technology Transfer Initiative”**.
- Chemical parks in Germany, together with policies such as the Hessen Environmental Alliance, appear to **increase the attractiveness for foreign investment**.
- The region of Wallonia is reported to be attractive to chemical companies for the skills offered by its workers. This is likely due to the significant contribution of the Ceofchim training centre, that provides **almost all chemicals industry-specific training** to students, workers and unemployed in the region.

At the same time, for the productivity at specific sites, the regional/local conditions are of key importance. Many of these conditions are set not within the company's facilities, but in the surrounding business environment, especially with regard to suppliers, skill base and infrastructure. Consequently, policies for chemical regions need to take into account a close interrelationship between local and global factors. **The policies to upgrade the local/regional business environment need to be seen in the context of the broader global developments within the chemicals industry and beyond.** Only then will the regions be able to effectively compete on the European (for clients) and global (for investment) perspective.

Recommendation to regional authorities: Regional factors, and policies to improve them, need to be seen in their local context, in particular the companies present, and in their global context, i.e., how the beneficiary companies can co-operate internationally and gain markets in benefiting from their specific activity strengthens competitive advantages relevant in the existing global market context of the chemicals industry.

Recommendation to industry associations: The chemicals industry associations should ensure that their regional branches engage regularly with regional authorities to draw their attention to potential areas where authorities could play a useful role in promoting the competitiveness of the regional chemical industry.

From a government perspective, European chemicals industry is subject to choices made at all levels of the government, i.e., global, EU, national and regional. For example, global rules are key in determining environmental standards and market access. EU policies determine key regulations (e.g., REACH), as well as set guidelines for national and regional authorities with regard to innovation, infrastructure and other relevant policy areas. National policies, in turn, set structures and make funding decisions on education, workforce skills, public procurement, infrastructure, innovation, science and other policies that materialise in specific regions or affect different regions asymmetrically. When compared to the previous levels, regional governments have relatively limited power, scope, tools and budgets, although the degree to which this is the case varies between Member States. At the same time, they are critical for mobilising and orchestrating efforts in ways that are aligned with the specific nature and needs of a chemical region. **It is therefore critical that regional policy makers play this role effectively, mobilising the larger resources of others in a targeted way, instead of trying to be a smaller version of the national government.**

Recommendation to regional authorities: Regional policy makers should aim at mobilising resources at other levels (national, EU, global) in a targeted way to best serve the specific needs of their chemical region. The connection to EU policies can be made through such existing platforms as ChemClust, ChemLog and ECRN.

5.1.4. *Link between regional policies and regional economic conditions*

Chapter 3 provided an overview of the regional conditions in the various regions. The regional conditions were linked to the various policies analysed in this study.

Analysing the wealth of regions, measured by GDP per capita, in relation to the annual policy budgets, no clear link could be established. In specific cases, however, very low regional wealth may strongly limit the available budget, as is suggested by the data we collected for the Ústí region. Overall, other factors are likely to play a more dominant role in the determination of the annual policy budget.

With respect to Education & Skills policies, the regions that nominated policies in this category (Flanders, Schleswig-Holstein, Ústí and Wallonia) reported comparatively lower percentages for students in tertiary programmes. This does not necessarily mean that their policies do not work; it may be the case that the overall situation *triggered* them to design policies in this field.

Regarding the overall innovative capacity of the regions, we compared data collected from the Regional Innovation Scoreboard. Based on the collected data, and the Regional Innovation Scoreboard, the chemical regions included in the study are demonstrably a subset of European regions performing relatively well in the area of innovation. However, no direct link could be established between RDI policies and the innovative performance of the regions.

Finally, regions in which the share of total employment in the chemicals industry in the region is relatively high make use of industry-specific policies for the chemicals industry more often than regions with a relatively small chemicals industry. However, we also found that a relatively low employment share of the chemicals industry does not automatically imply that no industry-specific policy is available. Moreover, this relationship could not be established when considering the share of the chemical industry in turnover or the share of chemical companies (as a percentage of the total number of companies) in the region.

5.1.5. *Link to other initiatives*

As mentioned above, the current study builds on the work of the High Level Group on the Competitiveness of the European chemicals industry. It also complements several other existing initiatives, and below we highlight some of them.

The findings of the study are in line with a broad set of recommendations from the Best Practice Guide⁶¹ on How to Improve Innovation Capacity of European Chemical Clusters. The guide represents the outputs of the previously mentioned ChemClust project. The guide identifies six key action lines that are suggested to form the foundation for any industrial policy: (1) connect industry and society; (2) promote business cooperation and public-private partnerships; (3) increase R&D potential; (4) foster innovation and business creation; (5) retain industrial base and avoid relocation, and increase the attractiveness of the region as chemicals industry location; and (6) improve industry competitiveness. Similar to this study, the guide provides an integrated picture of the industrial development strategies carried out by some of the leading chemical regions in Europe. The guide provides valuable inputs by setting a general scene with regard to the key factors increasing the competitiveness of the chemical regions. The current study takes a step further – it makes a distinction between different policy themes and offers recommendations tailored to the needs of each policy area.

Another source that shows some overlap with the scope of the current is the Commission's Regional Innovation Monitor (RIM). The RIM, which is available at <http://www.rim-europa.eu>, contains quantitative data and descriptive information on innovation policies in 200 European regions. In addition, regular reports are published to identify good practices and facilitate inter-regional policy learning. Several of the cluster and RDI policies that have been analysed in this study have also been analysed by the RIM. Where relevant, we have commented on the outcomes of the RIM analyses in the analysis in this report. As such, the RIM provides a much broader inventory (both geographically and in terms of policy strategies) of innovation policies that are not industry-specific, and can be a source of inspiration for policy makers who focus (among other sectors) on the chemicals industry.

⁶¹ http://lsa-st36.sachsen-anhalt.de/files/BEST_PRACTICE_GUIDE.pdf

With regard to skills policies, the ChemClust report on the Skills Foresight project provides some interesting findings. Skills Foresight identified as a key practice that of engaging children and young people with the chemicals industry⁶². Interestingly, this study identifies one example of this in the form of a policy awarding stipends to secondary school children who choose applied chemistry as a subject.

Finally, a third relevant initiative that needs to be mentioned here is the ChemLog initiative. ChemLog is a European cooperation project between regional authorities, chemical industry associations and scientific institutions from Germany, Poland, Czech Republic, Slovakia, Hungary and Italy. Its objective is to strengthen the competitiveness of the chemical industry by improving framework conditions for supply chain management in Central and Eastern Europe⁶³. The ChemLog partners want to overcome barriers for transnational transport in the West-East and East-West dimension by initiating a broad process of exchange of experience and facilitating the development of transnational infrastructure projects with high relevance for the chemical industry. They have also published a report that details 18 best practices in the field located in the respective regions, providing support for the notion that logistics and infrastructure policies are being employed in regions with success.

An important element is that they aim to establish cooperation with relevant administrative entities from regional, national and European level, chambers, associations, enterprises and logistic providers to identify priorities and find common solutions for the improvement of logistic infrastructure in Central and Eastern Europe. The ChemLog initiative has opened up the discussion of important infrastructure projects among various stakeholders, both regional, national and transnational. This corresponds to our finding that dialogue between the various stakeholders is an important element.

5.2. Clusters & innovation

In this sub-section, we present the conclusions and recommendations specifically related to cluster & innovation policies.

5.2.1. General nature of cluster policies

The results of the study suggest that **cluster efforts in the chemicals industry do not significantly differ in their nature from cluster efforts in other high-tech industries**, with a particular attention to the issues of internationalisation, the role of academic players and connections to other industries. This conclusion is in line with common understanding that the general principles of how cluster policies work apply to many industries in the same way (e.g., semiconductors, ICT, biotechnology, nanotechnology etc.). In that sense, the distinction we made between chemical-specific cluster policies and general cluster policies in the analysed regions does not signal the difference in the nature of such policies; it only indicates whether there is a larger regional program with cluster-specific activities or not. In case of the latter, a cluster policy is developed in a more ad-hoc way specifically for a chemical region, while the nature of such policy is still rather general.

5.2.2. Factors making cluster & innovation policies for chemical regions successful

Based on the sample of the analysed chemical regions, several common patterns can be identified among successful cluster & innovation policies:

- Since chemical regions represent highly complex systems with multiple stakeholders involved, **cluster & innovation policy measures should not be applied on a solely basis**. It is rather a combination of various complementary measures that need to be applied simultaneously. Those complementary measures go beyond the scope of cluster & innovation policies, and include other fields like education & skills, logistics & infrastructure etc. (e.g., Bayern Cluster Initiative combined with Bayern Ethylen-Pipeline-Süd (logistics & infrastructure); Flanders Innovation Hub for Sustainable

⁶² http://www.chemclust.eu/projects_s3.html

⁶³ <http://www.chemlog.info>

Chemistry combined with Flanders Sectoral Covenants (education & skills); Limburg Chemelot Campus combined with Limburg Venture Fund II (RDI policies)).

- When developing effective cluster policies, it is crucial for policy makers to follow a **long-term vision** and ensure **consistency of the provided support**. That implies clear and consistent policy position, taking responsibility for long-term results, and alignment of policy goals and actions with agendas of the industry. The average duration of the identified good practice cluster policies is close to 8 years which confirms their long-term orientation (e.g., Asturias Cluster Policy; Flanders Innovation Hub for Sustainable Chemistry; Limburg Chemelot Campus; North Rhine-Westphalia ChemCologne; North Rhine-Westphalia ChemSite; Rhineland-Palatinate chem2biz; Yorkshire and The Humber Sector Development).
- Funding of successful policies typically comes from multiple sources (i.e., a **diversified funding strategy**) which imply a mix of public and private funding. Public funding comes in the form of grants and is typically provided by city, regional, national and EU authorities in different combinations and proportions. Public funds, in turn, are complemented by support from private sector, mainly from large companies (e.g., Limburg Chemelot Campus; North Rhine-Westphalia ChemCologne; North Rhine-Westphalia ChemSite; Novara Innovation Pole; Rhineland-Palatinate chem2biz; Yorkshire and The Humber Sector Development).

North Rhine-Westphalia ChemCologne: the funding comes from mixed sources including chemical companies in the region, the state of North Rhine-Westphalia, the employers' association Chemie Rheinland, the City of Cologne as well as the other towns and districts in the region, the chambers of commerce and industry, the Cologne regional government and the universities, as well as the Trade Union for Mining, Chemicals and Energy, and NRW.INVEST.

Limburg Chemelot Campus: the partners of the Chemelot Campus Consortium are DSM, Province of Limburg and University of Maastricht, which illustrates a mixed type of funding. As for a specific example, the project M3 41 with an aim to create a multi-functional multi-client mini-plant facility, was initiated by DSM and Sabic, and *co-financed* by the Province of Limburg. This mini-plant configuration will enable future production processes to be run on a small scale, on the basis of which tests can be conducted on a semi-industrial scale.

Rhineland-Palatinate chem2biz: it is a joint initiative by TechnologieZentrum Ludwigshafen am Rhein GmbH (TZL) and BASF SE. Partners of TZL – the Rhineland Palatinate Ministry of Economics together with the City of Ludwigshafen am Rhein – are collaborating with BASF in a public-private-partnership in order to finance this initiative.

- Policies should **target companies of all sizes in the region**, not only SMEs, as well as universities and research institutes, i.e., there is a need for involvement of **all actors of the value chain** (e.g., Cheshire West and Chester CLUNET; Limburg Chemelot Campus; North Rhine-Westphalia ChemCologne; North Rhine-Westphalia Cluster CHEMIE.NRW; North Rhine-Westphalia ChemSite; Novara Innovation Pole; Yorkshire and The Humber Sector Development). Universities and research centres are essential components of chemical clusters as sources of company formation, skilled personnel and collaborative partners with industry. In addition, research organisations are the major drivers of cluster development through providing services and facilities. Other relevant stakeholder groups include industry associations, regional development agencies, chambers of commerce, employers associations, municipalities, business networks, schools and training centres etc.
- Policies need to be **continuously monitored and periodically evaluated** which implies appointing a responsible managing authority, monitoring committee, as well as carrying out interviews with beneficiaries, reporting by beneficiaries etc. *Monitoring committee* is responsible for the systematic collection and analysis of information as a policy progresses. These activities aim at

improving the efficiency and effectiveness of the policy. They are typically based on targets set and activities planned during the planning phases of policy. Monitoring enables to determine whether the available resources are sufficient and are being well used, whether the capacity is sufficient and appropriate, and whether the activities supported by the policy proceed as expected (e.g., Bayern Cluster Initiative; North Rhine-Westphalia Cluster CHEMIE.NRW; North Rhine-Westphalia ChemSite; Novara Innovation Pole; PACA PRIDES; Rhineland-Palatinate chem2biz; Saxony Anhalt GRW Clustermanagement; Wallonia networking cluster PLASTIWIN). *Ex-post evaluation*, in turn, is the comparison of the actual impacts against the agreed strategic plans at a certain point of time (in contrast to monitoring which is a continuous process). Evaluation results allow to conclude whether the objectives of the policy are being achieved, what the strongest areas are, and which areas require special attention (e.g., Bayern Cluster Initiative; Novara Innovation Pole; PACA PRIDES; Rhineland-Palatinate chem2biz; Wallonia networking cluster PLASTIWIN).

Bayern Cluster Initiative: The cluster is supervised by a cluster committee, including representatives of the Ministry, industry and research. The cluster committee discusses the management reports twice a year. There have been two ex-post evaluations during the first phase of the cluster policy (2008 and 2010); the second phase will be evaluated in 2013 and 2015. Evaluation includes interviews with cluster managers, controlling of KPIs, consideration of individual projects and an inquiry of cluster members. KPIs include share of own budget; share of public funding received from other sources (national, EU); number and importance of initiated innovation projects; feedback by the cluster members.

- ***Interest in the policy from the company side***, which typically represents the policy's key target audience, is crucial for its success. Higher interest is likely to be achieved if the policy is developed in close cooperation with the key stakeholders (i.e., active engagement of the key stakeholders begins before the policy is even launched, by means of, for example, public consultations, workshop sessions, interviews etc.), and regular adjustments are incorporated into the policy after it was launched, based on the stakeholder feedback. There is a constant need to adjust the strategic direction of the policy due to changes in the interests of the partners regarding general economic situation, international investment decisions (e.g., focus on Asia), changes in political focus etc., as well as difficulties in integrating interests of different stakeholder groups (e.g., Flanders Innovation Hub for Sustainable Chemistry (FISCH); North Rhine-Westphalia ChemSite).

Flanders Innovation Hub for Sustainable Chemistry (FISCH) is the platform for the transformation towards a more sustainable industry based on three pillars: (1) strategic research programme (on resource management etc.); (2) open innovation and production infrastructures, and (3) sustainable business models and techniques. All of this is the result of brainstorming by industry and knowledge institutions.

- There is a need for ***trust among cluster participants***, regional integration and willingness of companies to cooperate with each other. Managers of chemical clusters have to find for each cluster the right balance between market pull and technology push. Cluster managers should also continuously communicate with the members of their cluster. Cluster managers need to earn trust, based on their knowledge of the value chain and the industry, as well as their personal attitude (e.g., North Rhine-Westphalia Cluster CHEMIE.NRW).

North Rhine-Westphalia Cluster CHEMIE.NRW: the cluster is suggested to be successful in creating a trust-based cooperation between diverse industrial partners, biotech companies and academia. In the beginning, there were many disagreements between different groups of stakeholders. Gradually, a common understanding of cluster work and a trust base between partners have been developed.

- **The level of bureaucracy** related to application and implementation of a policy **needs to be minimised** (i.e., complicated management procedures; long approval procedures for projects and excessive administrative workload need to be removed). If procedures related to application and implementation are perceived by industry to be highly bureaucratic, it limits the number of applications; the number of applications, in turn, is directly related to the budgets of the policy, which then are reduced due to lack of interest from the beneficiary side (e.g., Novara Innovation Pole).

Novara Innovation Pole: The regional authorities have been open to discuss the issues of high bureaucracy and low SME involvement with the Poles; a Task Force has been created to solve such issues, as well as a helpdesk to support beneficiaries. The Task Force has already met four times.

- **Support services** need to be offered to beneficiaries in the cluster (i.e., service orientation towards the companies):
 - *Dedicated website and newsletters* (e.g., Asturias Cluster Policy; North Rhine-Westphalia ChemSite; Rhineland-Palatinate chem2biz; Saxony Anhalt GRW Cluster management; Wallonia networking cluster PLASTIWIN);
 - *Training courses* (e.g., Asturias Cluster Policy; PACA PRIDES, Wallonia networking cluster PLASTIWIN);
 - *Meetings with beneficiaries* (e.g., Bayern Cluster Initiative; North Rhine-Westphalia Cluster CHEMIE.NRW; Yorkshire and The Humber Sector Development);
 - *Support with filling in the application form* (e.g., Limburg Chemelot Campus);
 - *Explanation of State Aid Rules* (e.g., Limburg Chemelot Campus);
 - *Organisation of networking events, conferences* (e.g., North Rhine-Westphalia ChemCologne; Saxony Anhalt GRW Cluster management);
 - *Coaching with regard to intercluster cooperation*, e.g., on social and environmental responsibility (e.g., PACA PRIDES);
 - *Informing cluster members about changes in regulations* (e.g., Wallonia networking cluster PLASTIWIN);
 - *Informing cluster members about calls for proposals for subsidies and grants* (e.g., Wallonia networking cluster PLASTIWIN);
 - *Local and international promotion of the sector and its members* through a directory, promotional materials, participation on fairs (e.g., Wallonia networking cluster PLASTIWIN).

5.2.3. Need to understand the role of industrial boundaries

The study revealed a clear need to understand the role of industrial boundaries for chemical clusters, as the industry provides inputs to many different parts of the economy. From a conceptual perspective, it is important to distinguish linkages that create local spill-overs affecting the productivity of specific activities within the chemicals industry from linkages that reflect market interactions but do not have a strong geographic dimension or spill-overs. The prior category defines industries that are part of the cluster category needs to be included in cluster efforts. The latter category defines market connections that are important to understand when a cluster initiative discussed the strategic positioning of its location in the global/European value chain/market environment.

Recommendation to cluster organisations: cluster organisations need to understand the different types of linkages that exist and cover them in their activities, and specifically:

- Lead a discussion about the regional cluster's position in the global/European value chain/market environment;
- Provide opportunities for the clusters to engage with related clusters present in the region;
- Provide information about market and technology trends, facilitating a strategic dialogue on the opportunities the cluster is facing.

5.2.4. *Need for focused cluster strategies*

Current cluster strategies often suffer from a lack of international and trans-regional perspective, and stay focused on the boundaries of their own region⁶⁴. Additionally, a sound analysis of a cluster's assets is often lacking, as well as practical insights from industry. Such approach hampers the realisation of the cluster potential and jeopardises the cluster's ability to attract public and private funds in the future.

To deal with the abovementioned challenges, Horizon 2020 adopts the notion of smart specialisation. Member States and regions are called upon to work out a national/regional innovation strategy, i.e. "a multi-annual strategy aimed at developing a well-performing national or regional research and innovation system". Smart specialisation implies a policy mix focusing on a limited number of priorities targeted at stimulating smart growth⁶⁵.

Building on smart specialisation, successful cluster strategies should⁶⁶:

- focus on a cluster's capabilities, competences, competitive advantages and potential for excellence within European and global value chains;
- identify innovation and knowledge-based development priorities, challenges and needs;
- outline measures to stimulate private investment;
- foster comprehensive stakeholder involvement;
- be evidence-based and include sound monitoring and evaluation systems.

Recommendation to cluster organisations: Smart specialisation strategies can help clusters and regions to identify their best assets in order to be able to concentrate their efforts and resources on a limited number of priorities where they can develop excellence.

5.2.5. *There is no one 'silver bullet' cluster policy*

The study results suggest that there is no specific policy that is a generic 'silver bullet' across all chemical clusters. Instead ***it is crucial to make sure that the specific activities are aligned with the unique set of challenges and opportunities the cluster is facing.*** The critical task is then to ensure that policies and programs first support an effective process of identifying the action priorities and then provide the right tools to address whatever those priorities are.

Examples of possible priorities as identified by the study are as follows:

- Specific business environment dimensions to upgrade;
- The need to address specific weaknesses in company development;
- Specific market opportunities to leverage through collaboration.

Recommendation to regional authorities:

- Regional authorities should aim at ensuring that regional policies and programs first support an effective process of identifying the action priorities and evaluating their success perspectives and then provide the right tools to address whatever those priorities are.
- Cluster policies should be discussed with local companies, and designed in a way that captures the interest of the companies. They should involve companies of all sizes, both large and small. Policies should be managed in a way to ensure trust among authorities and companies but also between the partners.

⁶⁴ See also "The Global Cluster Initiative Survey (GCIS)" at <http://www.cluster-research.org/gcis.htm>

⁶⁵ <http://ipts.jrc.ec.europa.eu/activities/research-and-innovation/s3platform.cfm>

⁶⁶ DG Regional Policy (2011), Fact Sheet: Regional Innovation Strategies for Smart Specialisation

Another common pattern spanning from the results of the study refers to the role of *trust* between the cluster members. The existence of trust relationships proves to be a determining advantage in the success of local concentrations of the actors of the chemicals industry. The interactions between cluster participants lie at the heart of cluster dynamics, and trust defines the quality of relations and exchanges in the cluster⁶⁷.

Recommendation to cluster organisations: Cluster managers need to earn trust of cluster participants, based on their knowledge of the value chain and the industry, as well as their personal attitude. A common understanding of cluster work and objectives needs to be achieved among cluster participants, and a trust base between cluster partners needs to be supported.

Despite the absence of one best way of approaching the development of cluster policies for chemical regions, the study was able to identify a number of general factors that make cluster policies successful. Those factors include the following:

- Cluster programs create platforms for collaborative action between companies, academic institutions, and relevant government agencies. These platforms can then be used as a process tool to ensure that efforts across a wider range of public program, e.g. on workforce skills, SME upgrading, internationalization, etc. are fully integrated.
- Given that the average duration of the identified cluster policies is close to 8 years, policies with a long-term orientation are more likely to be successful.
- **Funding often comes from multiple sources, where** a mix of public and private entities can play a role (i.e., public funds are complemented by support from private sector, mainly from large companies).
- Policies should target **companies of all sizes in the region** (not only SMEs), as well as universities and research institutes (involvement of all actors of the value chain).
- **Policies should be continuously monitored and periodically evaluated** (responsible managing authority, monitoring committee, interviews with beneficiaries, reporting by beneficiaries etc.).
- **Companies** need to play a central role in setting the action agenda of cluster efforts.
- High **trust among cluster participants** is important for successful cluster efforts.
- **The level of bureaucracy** related to application and implementation of a policy **should be minimised**.
- Cluster initiatives can provide a range of **services** to beneficiaries in the cluster:
 - Dedicated website and newsletters;
 - Training courses;
 - Meetings with beneficiaries;
 - Coordination of joint applications for government funding for specific projects
 - Networking events, conferences;
 - Information about changes in regulations;
 - Information about calls for proposals for subsidies and grants; etc.

5.2.6. Need for appropriate structure for cluster initiative

Implementation of a cluster policy is unlikely to work unless the structure of the cluster initiative is set up appropriately. Several publicly available reports provide key guidelines on how such initiatives can be developed, for example, Cluster Initiative Greenbook⁶⁸ and other recent efforts⁶⁹. The current study identified the following three areas as being the most important for the successful development of a cluster initiative:

⁶⁷ See also Bachmann R., (2003) "The Coordination of Relations Across Organizational Boundaries", International Studies of Management and Organization, Vol. 33, nr. 2

⁶⁸ http://www.europe-innova.eu/c/document_library/get_file?folderId=148900&name=DLFE-6119.pdf

⁶⁹ See, for example, PwC Report on "Uncovering excellence in cluster management" at http://www.europe-innova.eu/c/document_library/get_file?folderId=148901&name=DLFE-12850.pdf

- **Leadership and skill profile of the cluster manager.** It is important to select the appropriate kind of an individual for the role of cluster manager and to provide him/her with the relevant training. While some specific skills are needed related to the knowledge of the chemicals industry, such cluster managers primarily need broader cluster management skills.
- **Role of public and private sector.** This area can easily derail the effectiveness of the initiative. The public sector often focuses on selecting a specific activity and funding it. In some cases, the focus is put on specific type of companies, e.g., SMEs. The government also frequently selects specific market opportunities, for example, opportunities related to the ‘grand challenges’ identified by the EU. Such approach creates a dynamic where the private sector needs to be convinced to participate in activities that are expected to be highly attractive to them and enhance their competitiveness.
- **Financing.** There is a number of different models that are suggested to work well in different contexts. Government funding is reported to be helpful in creating a more effective cluster organisation. The challenge is to match the right type of funding (including the exact government source) with the right type of activity. Another challenge is to support collective action, sustained efforts over time, and a focus on the actions that are strategically important for the cluster.

Cluster organisations are mostly set-up as public-private partnerships by industry and government or by government only, supported by a university. The organisations managing the initiatives typically are non-profit organisations, universities or public agencies⁷⁰.

Effective cluster structures rely on clear membership arrangements and well-defined duties and responsibilities of the members. Those imply⁷¹:

- developing the governance agreement containing specific terms and conditions related to member withdrawal from the cluster (for instance, if the member has received funding for executing a cluster project, withdrawal from the cluster may only occur upon conclusion of the member’s obligations);
- defining the role of special interest committees, task forces and advisory groups;
- including the procedures of cluster project proposals and evaluation of results⁷².

The cluster governance structure should be developed for a limited period of time (e.g., three years), with evaluation activities incorporated into the governance agreement. In the final year of the agreement, the governance structure should be evaluated, and decisions should be made about the continuation of cluster governance in the current way or its transformation, if necessary. Such evaluation also provides an opportunity to renew the vision of the cluster, as smart specialisation approach is a long-term search journey rather than one-time choice.

Recommendation to regional authorities: Cluster policies should support the development of a well-functioning structure of the cluster initiative which among others implies appointing a good cluster manager, developing clear membership arrangements and setting up an appropriate governance structure.

⁷⁰ The Global Cluster Initiative Survey (GCIS): <http://www.cluster-research.org/gcis.htm>

⁷¹ See also PwC Report on “Uncovering excellence in cluster management” at http://www.europe-innova.eu/c/document_library/get_file?folderId=148901&name=DLFE-12850.pdf

⁷² Creech, H. and Willard, T. (2001) Strategic Intentions: Managing knowledge networks for sustainable development. International Institute for Sustainable Development

Recommendation to cluster organisations: Cluster organisations should put stronger emphasis on the following areas as potential activities:

- Diagnostics, technology foresight, market intelligence, i.e., providing information/collecting information from companies in the cluster to facilitate a discussion about the strategic position of the cluster as well as the opportunities and challenges it is facing; this information forms critical basis for selecting action priorities;
- Cross-cluster linkages, i.e., focus on existing clusters within the region where close collaboration would be possible;
- International linkages, i.e., identifying the right technology partners, markets and building connections to them.

5.2.7. Regional authorities as mobilisers, facilitators and participants

The study results suggest that regional policy makers have multiple vital roles to play, and specifically the role of mobilisers, facilitators and participants.

- As **mobilisers**, regional policy makers need to organise a selection process that avoids ‘picking clusters’ in which private sector participants than need to be convinced to participate. Instead, effective policies and programs provide an open door and encourage clusters to form in a bottom-up way if they have the willingness to do so.
- As **facilitators**, regional policy makers need to concentrate more on diagnostics and strategic choice, i.e., on identifying the strategic priorities that a regional cluster organisation should pursue. This activity needs to be a visible focus of cluster programs. At the same time, cluster organisations should be given freedom to the industry to operationalise the abovementioned strategic priorities into a specific service portfolio that best reflects the needs of that particular cluster.
- As **participants**, regional policy makers need to employ feedback mechanisms so that clusters can influence decisions of the regional level in other policy areas (e.g., infrastructure, skills, investment attraction) or give the regional government guidance on what they should lobby for at the national/EU level.

Recommendation to regional authorities:

- The regional authorities should be open to all clusters, be ready engage with them, provide a data/process infrastructure, and ensure that public programs are open to clusters;
- The regional authorities should provide financing, especially to enable joint action or support activities with spill-overs, and should encourage cluster groups to form;
- The regional authorities should not limit the participants in the initiative (size, type) and should not drive the decisions about the efforts action priorities.

5.3. Research, Development & innovation

In this sub-section, we present the conclusions and recommendations specifically related to research, development & innovation (RDI) policies.

5.3.1. General nature of RDI policies

The results of the study suggest that **most RDI policies are not specifically developed for the chemicals industry**, but there are some exceptions. This conclusion is in line with common understanding

that the general principles of how RDI policies work apply to many industries in the same way. However, those RDI policies that are specific to the chemicals industry have been tailored specifically to the requirements of that industry, which leads to some idiosyncratic features as well as the absence of any complaints about administrative burdens or other challenges.

The following examples have been mentioned as outcomes of successful RDI policies:

- increased innovation activity and **accelerating the rate of innovation** at the level of individual companies, resulting in:
 - introduction of new products, shortening of the time required to develop a new product and an improvement of competitiveness in a specific market segment;
 - reduction of environmental pollution and creation of new jobs;
 - in one case, the beneficiary indicated that the chemicals site that benefited from the policy would have been closed without two RDI projects that were supported by the policy in question;
- increased private R&D expenditure and the establishment (or prevention from closure) of **more permanent R&D structures** at the level of the region.

5.3.2. Factors making RDI policies for chemical regions successful

Based on the sample of the analysed chemical regions, several common patterns can be identified among successful R&D and innovation policies:

- **Focus on the needs of the chemicals industry:** Industry-specific policies (in the sample these are the Brandenburg Technology Transfer Office for Chemistry and Plastics (BTS), Limburg Venture fund II and the Scotland R&D Grant Support program – which started out as a specific facility for the chemicals industry and was opened up to other industries after it proved successful) are all reported by beneficiaries to be successful, which is not always the case for generic RDI policies.
- **Joint public-private funding of R&D:** All grants in this type of policy cover only part of the RDI project costs, thus requiring financial contributions from the beneficiaries and, as is the case with the Limburg Venture fund II, other private parties. This increases not only the *leverage* of public R&D funding, but also strengthens the commitment and involvement of beneficiaries in innovation project.
- **Support for the involvement of SMEs:** SMEs find cooperation with research institutions, but also with other companies, more difficult than large firms. This can hamper the effectiveness of the policies as cooperation is known to be beneficial to R&D. Some regions (Brandenburg, Catalonia, Lombardy) have made cooperation between SMEs and research institutions an explicit requirement in their policies. However, while only making cooperation compulsory leads to mixed results, this specific challenge is addressed in very successful fashion by BTS, where specific support is provided to the cooperation between SMEs and researchers.
- **Smart administrative requirements:** High administrative expense for beneficiaries of the policies, due to detailed and complicated requirements of either the application for funding or drawdown procedures are a key weakness of some policies in the RDI area. Examples of good practices with regard to administrative requirements are:
 - flexibility provided for beneficiaries to scope their own R&D projects and changing milestones during the project by e.g. the Scotland R&D Grant Support programme;
 - a web-based system that the region of Lombardia offers for the management of ongoing R&D projects;
 - a dedicated “account manager” from Scottish Enterprise who was available as a first point of contact for the entire duration of the project and had sufficient time available to develop a relationship with the beneficiary.

5.3.3. *Recurring challenge on flexibility*

R&D policies present ***the difficulty of matching the open-ended, uncertain nature of R&D projects with the planning and control mindset of policy-making***. In this sense, specific features of some of the policies place an administrative burden on beneficiaries, while others ease the “straitjacket” of the policies. Interestingly, even those beneficiaries who are overall quite positive about the policy they participated in, have mentioned administrative challenges such as the requirement of submitting a very detailed grant application, which is subsequently set in stone by the regional authority, the requirement to submit invoices at least every two months, or to have an external audit conducted at the end of the project. Although the comments suggest that it the impact of administrative burdens are largest with SMEs, large firms also report administrative obstacles. With SMEs, some beneficiaries fear that they may in fact be deterred from applying for RDI grants due to the administrative burdens involved in managing the projects.

On the other hand, ***supporting companies in dealing with the administrative requirements leads to very positive effects***. Examples of support are tailor-made web-based systems that support beneficiaries in managing the administration of their RDI projects and dedicated account managers within the organisation of the regional authority, who build up a relationship with specific beneficiaries and stay with them throughout their projects as a first point of contact. These are considered by beneficiaries to be features of regional authorities behaving as “professional counterparts” to the industry.

Recommendation to regional authorities:

- The regional authorities should design RDI policies with effectiveness in mind. Priorities should be identified and implemented in a dialogue between authorities, companies and research institutes and take into account the needs of the companies in the area. Where relevant, cooperation between companies of different size should be encouraged.
- Wherever possible the open-ended, organic nature of R&D processes should be reflected in the design of RDI policies. Conditions or restrictions that hamper these processes should be eliminated to the extent possible.
- The regional authorities should not provide financing alone, but should also invest in developing their internal competences to be a professional counterpart to companies conducting R&D projects, for instance by providing a dedicated contact person to each beneficiary for the duration of their projects.
- The regional authorities should make efforts in understanding the technical and business logic of R&D projects rather than blindly following “policy speak”.

5.3.4. *Many opportunities to learn more*

In addition to the current report, significant amounts of other resources are available that identify good practices, theoretical insights and the results of cooperation between regions, particularly in the area of RDI policies. In addition to the large amount of theoretical and policy studies that are published on the subjects of firm-level R&D and innovation by entities such as the European Commission, the OECD, universities and research centres, as well as private entities, practical findings such as those published by the RIM and the ChemClust project are publicly available to regional policy makers. Also, support for Research and Innovation Strategies for Smart Specialisation is available from the S3 Platform of the European Commission⁷³.

The current study includes several RDI policies that receive positive feedback from both beneficiaries and RIM researchers, but also some that could mature further taking into account the available insights from other regional, national and European policy makers and researchers. ***Regional policy makers can benefit***

⁷³ <http://s3platform.jrc.ec.europa.eu/home>

from these insights without much effort, although it must be acknowledged that policies specifically developed for the chemicals industry require tailoring based on interactions with regional industrial partners.

Recommendation to regional authorities:

- The regional authorities should ensure their awareness of the relative strengths and weaknesses of related RDI policies and funding sources and use this information to design and continuously improve their own policies, and to advise companies in a service-oriented way.

5.4. Education & Skills

In this sub-section, we present the conclusions and recommendations specifically related to education and skills policies.

5.4.1. General nature of education and skills policies

The results of the study suggest that **a wide range of education and skills policies is available to the chemicals industry**. The policies analysed vary not only in the target audience of the people trained, but also in the type of chemical companies that benefit from them as well as their intervention logic and institutional history. However, they are similar in their objective to provide the chemicals industry (and in some cases other sectors) with skills that are not made available by the existing system of education. With regard to the goal of raising the interest for chemistry and the chemical industry among pupils and students, the findings of the ChemClust Skills Foresight project provide good practices⁷⁴.

5.4.2. Factors making education and skills policies for chemical regions successful

Based on the sample of the analysed chemical regions, several common patterns can be identified among successful education and skills policies:

- **Involvement of industry to determine regional needs:** The Sectoral Covenants in Flanders, the Cefochim training centre in Wallonia and the Chemistry Campus in Schleswig-Holstein all demonstrate the importance of involving industry in some way or another in setting priorities for training and programming the quantity and quality of the specific training courses provided. The Belgian chemicals industry association Essenscia has provided recommendations to this effect in its White Book of 2009. It appears the required involvement of the industry in contributing to the skills agenda is quite significant, as the regional authority and a beneficiary in Flanders agree that the current form of the Sectoral Covenants is insufficiently flexible to accommodate the specific character of the chemicals industry. We will elaborate on this point in paragraph 5.4.4 below.
- All policies are supported by **communication on the internet**, with regard to both the requirements for participation and the results that have been achieved. This is quite relevant due to the combined industry (making available the required skills) and societal goals (increasing employment at the regional level). For the Sectoral Covenants in Flanders, this communication is supported by discussion meetings at the time of drafting covenants for a new period and by a government contact point for the industry during the implementation period.
- With regard to the possibilities to transfer this type of policy to other regions, **the Chemistry Campus offers the most concrete opportunities for other regions**. The Ústí Stipend programme may also be easily transferred to other regions, while replicating the policies from Flanders and Wallonia is likely to be more difficult. However, the possibilities for transfer are conditional upon thorough prior analysis of the specific regional situation. The following paragraphs elaborate on this crucial aspect.

⁷⁴ http://lsa-st36.sachsen-anhalt.de/files/Skills_Final_Implementationreport.pdf

5.4.3. Role of national context

For this type of policy, **the national context is of crucial importance**, as the policies centre on filling gaps between the skills supplied by the educational system (in most Member States this is largely a competence of national governments) and those required by the (chemicals) industry. Hence, the educational systems in different European Member States determine to a large extent the gaps that emerge at the regional level. As an example, representatives of several regional authorities in Germany have expressed that they face a problem of too many chemistry graduates rather than too few, as is the case in many other European regions. This situation is the result of a long-standing tradition of cooperation between education and industry in many levels of the German education system, allowing students to become familiar with the working environment in (among others) the chemicals industry before they enter the job market.

This is an indication of why the one policy in this category that was nominated by a German regional authority is much more specific in the type of skills that is developed in the policy than those in regions in Belgium and the Czech Republic, where the skills supported are of a more generic nature.

5.4.4. Importance of segmentation of demand and supply of skills

Each of the policies in this category provides a different type of skills to a different amount of people in a different target audience. This is an important finding, as it demonstrates the relevance of intervention at the regional level. Even the regions of Flanders and Wallonia, both in Belgium, go about providing skills to the chemicals industry in a different way. This underlines **the importance of a separate assessment by regional authorities of the gaps between supply and demand of skills in their regions**.

A clear insight resulting from the discussion on skills policies in this study is that for such a gap analysis, the mere number of skilled persons is insufficient basis for designing a policy. The analysis should include such elements as skills levels required (segmenting lower and higher vocational education and training, as well as university levels, and linking these to the specific domains of skills), the match between the skills provided by graduates from existing education programmes and the specific requirements of jobs in the regional chemicals industry and the dynamics of both demand and supply over time. Only when those elements are part of the analysis conducted by regional policy makers, can policies be expected to provide effective results.

In conclusion, it is clear that especially detailed data on regional demand for skills over time cannot be analysed without direct involvement of the regional chemicals industry and the educational institutions and should therefore include all parties in the triple helix.

Recommendation to regional authorities:

- The regional authorities should ensure that a thorough and dynamic analysis of the gap between supply and demand of skills is conducted at the regional level. The regional authorities should actively involve the regional chemicals industry when conducting the gap analysis, so that the data and dynamics on the demand for skills are appropriately taken into account.
- The regional authorities should develop active education policies to raise interest among pupils and students in chemistry and the chemical industry. There should be an active exchange of ideas among responsible authorities and cooperation between local industries, schools and universities. This should aim at giving insight in business reality and the potential of chemicals for creating growth, markets and solve societal challenges.

Recommendation to chemicals industry associations:

- The chemicals industry associations should provide input to the gap analyses on skills and to keep the regional authorities informed about any private initiatives that are already in place to complement the national education system.

5.5. Environment & sustainability

In this sub-section, we present the conclusions and recommendations specifically related to environment and sustainability policies.

5.5.1. General nature of environment and sustainability policies

Policies in the category environment & sustainability are aimed at supporting the chemicals industry in complying with regulations and requirements **promoting the societal goals of environmental protection and quality of life for citizens living near chemical sites**. Due to the nature of the underlying factors that are addressed, **policies in this field thus affect both the chemical industry and the quality of life of the local population**. Not only do these policies aim to stimulate a sustainable chemical industry, they also typically improve its reputation, especially in regions where this industry is regarded as a burden to the environment. The policies described in this study specifically aim at increasing the compliance of the chemicals industry (and sometimes other industries) with various regulations, while reducing the costs that are associated with that compliance. Moreover, they tend to be based on **voluntary agreements** between industry and regional authorities.

5.5.2. Factors making environment & sustainability policies for chemical regions successful

Based on the sample of the analysed chemical regions, several common patterns can be identified among successful environment & sustainability policies:

- **Dialogue between the chemicals industry and the regional government** is a crucial element of realising a sustainable chemical industry. All four policies in the sample have demonstrated this.
- **Administrative burdens need to be minimised**: Such burdens may arise as a result of legal or organisational limitations for regional authorities in conducting the dialogue with the industry. Examples of these limitations are the segmentation into functional organisational units that have different ways of working that cannot be simultaneously aligned to the policy of open dialogue (as is the case in Hesse) and the long duration of decision-making procedures that make it impossible to provide efficient and flexible support to the chemicals industry (Veneto).

The Environmental Alliance (Hesse): experiences show that such a platform contributes to eliminating a great deal of administrative burdens on both regional authorities and the chemicals industry in a region and thus also improves the cost-benefit ratio of policies in this area.

- **Policy making in the area of environment & sustainability needs to be transparent**, despite close cooperation between government and industry. Such close cooperation may lead to a reduction in transparency of the decision-making process.

5.5.3. Simplification of administrative and legal procedures

Due to the voluntary nature of the agreements in this area, **new forms of interaction for local stakeholders were brought about**. This particularly resulted in some of the key challenges that were identified for this category. The main challenges reported by both regional authorities and beneficiaries in this policy area concern **administrative and legal procedures that interfered with the informal interaction between government and industry that is the goal of these policies**. Some of these procedures are inherent in the way regional administration is often organised. With the regional authority, different departments exist and often more than one department is involved. In the Environmental Alliance in Hesse, for example, not all relevant ministries are fully involved in the alliance, which complicates the procedure. As this interference negatively affects the effectiveness of the policies in this field, it was identified in

three out of four cases that these challenges need to be addressed. **Administrative and legal procedures need to be designed or amended** in such a way that the interaction between industry, regional and national government, and other stakeholders **is not discouraged or hampered in its effectiveness**. In some cases, this may be facilitated by more coordination between the different departments.

Recommendation to regional authorities:

- Administrative and legal procedures need to be designed or amended in such a way that new forms of interaction between industry, regional and national government, and other stakeholders are encouraged, and that interaction is not hampered in its effectiveness.

5.5.4. *Strong external communication and active dialogue*

The findings of these policies, especially of the Environmental Alliance (Hesse) and the Cooperation Contract (Usti), demonstrate **the importance of creating a platform for public-private cooperation** when it comes to achieving environmental and sustainability goals. The experiences with the Environmental Alliance show that such a platform contributes to **eliminating a great deal of administrative burdens** on both regional authorities and the chemicals industry in a region and thus also improves the cost-benefit ratio of policies in this area.

Furthermore, all four policies demonstrate that **the dialogue between the chemicals industry and the regional government represents an important element of realising a sustainable industry**. The dialogue ensures that local needs are identified, and contributes to a common goal among the various stakeholders. In Hesse, for example, the dialogue between industry and regional authority has resulted in a more open and informal communication about new topics of interest in the future. Moreover, in the case of WALRIP (Wallonia), the regional authority understood that local industry could benefit from more information on (the compliance with) the (then) new REACH regulation. They subsequently supported the initiative.

The benefits of this dialogue are thus clearly evident in the analysed policies. Furthermore, **strong external communication also turned out to be an important element**. In two out of four policies, it was identified that more and broader external communication was needed to clearly communicate the benefits of the policies. In two cases, local stakeholders had different expectations of the benefits of the policies. In one case this resulted in an unwillingness of industry to cooperate, while in the other case stakeholders generally thought that the policy had not achieved its goals to the full extent. **A clear presentation of the (expected) benefits that underlines the advantages for all stakeholder groups can prevent such a discrepancy in perception from occurring**.

The European Technology Platform for Sustainable Chemistry (SusChem) also emphasises that is “*key to bring key stakeholders in the chemical industry and associated sectors together to boost investment in chemical research, development and innovation in Europe*”⁷⁵. Moreover, they argue that it “*requires concerted action on the European, national and regional level*”⁷⁶.

⁷⁵ SusChem, (2012). “The vision for 2025 and beyond”, available at <http://www.suschem.org>.

⁷⁶ Ibid.

Recommendation to regional authorities:

- Regional authorities should aim to create a platform for public-private cooperation to achieve environmental and sustainability goals. These goals should be clearly defined and policies should be embedded in clear structures. Policies should aim at being concrete and fitting into company reality. Regional authorities should provide services to make policies, legal obligations and opportunities easily understood. Administrative burden should be eliminated as far as possible.
- Regional authorities and local industry need to engage in active dialogue to realise sustainable industry. The dialogue ensures that local needs are identified, and contributes to a common goal among the various stakeholders.
- Regional authorities need to ensure that there is strong external communication to clearly communicate the benefits of the policies. A clear presentation of the (expected) benefits that underlines the advantages for all stakeholder groups ensures that expectations are aligned and helps to involve stakeholders.

5.5.5. Transparent decision making

Although active collaboration between industry and regional authorities was identified to have clear benefits, it also resulted in an interesting side effect for one of the policies that requires our attention. Whereas active dialogue between industry and regional authorities is needed, it may also **blur the decision making process for stakeholders that are not part of this process**. In this particular policy, NGOs were not invited to the discussion table and were also not allowed to sit in on their request. This left these organisations wondering how the regional authority arrived at certain policies or regulatory decisions, and the amount of influence for instance industry has on these. As a result, NGOs were generally sceptical towards the policy at first, which made acceptance by all stakeholders in the region more difficult.

Recommendation to regional authorities:

- Regional authorities should strive for transparent decision making to ensure the acceptance of new policies or regulation.
- Relevant stakeholder groups should be informed in an appropriate way, consulted and be invited to take part in the discussions.

This provides us with a key learning point which regional authorities need to keep in mind. **While active dialogue between industry and regional authorities is beneficial, it is important that the decision making process stays transparent.** Transparent decision making ensures that stakeholders that were not part of the discussions understand how certain policies or regulations are brought about. This, in turn, has **a positive effect on the acceptance of such policies under all the relevant stakeholders.** Possible ways of increasing the transparency of the decision-making process include making meeting minutes available where appropriate, allowing equal opportunities for the related stakeholder groups to take part in the discussions, and engaging in public consultation,. Moreover, regional authorities can be transparent about the particular organisations that were involved in the decision-making process of particular policies or regulation.

5.6. Logistics & Infrastructure

In this sub-section, we present the conclusions and recommendations specifically related to logistics and infrastructure policies.

5.6.1. General nature of logistics and infrastructure policies

For this study, only two policies were nominated that fit in the category of either logistics or infrastructure. It is, however, important to emphasise that **this should not be interpreted as a lack of importance of such policies**. This is also evidenced by the number of logistics and infrastructure policies collected for the ChemLog study, which identified and described 18 best-practices in this field⁷⁷.

Infrastructure and logistics policies typically require the cooperation between the local, regional and national levels. They are part of broader infrastructure and logistics policies that are designed at the national level in most of the regions covered by the current study, but in Member States where regional autonomy is relatively large this may be different. Put differently, this depends on the specific size of the region and the political framework⁷⁸. Although regional authorities face local demands, they often **co-implement broader infrastructure and logistics policies that are designed at the national level**. Moreover, such policies are often the responsibility of different departments than those that are (partially) responsible for policies that specifically support the competitiveness of the chemical industry. Logistics and infrastructure policies also tend to be rather **reactive**. This is especially the case in our sample, where both policies clearly address a (future) need. Moreover, the policies described in the ChemLog study also confirm this.

5.6.2. Factors making logistics & infrastructure policies for chemical regions successful

As only two logistics & infrastructure policies were nominated in this study, it is difficult to identify general factors that make these kind of policies successful. Nonetheless, two key factors were found of significant importance for successful logistics & infrastructure policies:

- **A high level collaboration among different public administrations and between public authorities and private companies** can be of great benefit to the process. This was particularly demonstrated in the Act of Goods and Logistics (Novara), where a diverse group of stakeholders needed to collaborate. In case of EPS (Bavaria), the need for this was demonstrated particularly in the way they were forced to secure all Rights of Way to construct the pipeline.
- The policies are **responsive to local demand or local need** (i.e. bottom-up) and provide clear benefits. Both policies analysed in this domain address a clear local need and were able to convince local partners of its importance.

5.6.3. Considering local demands

Despite the notion that infrastructure and logistics policies are often designed at the national level, regional authorities also play a substantial role. As regional authorities are closest to local industry, **they have a responsibility to identify and address local needs**. On the one hand, local industry needs to express its needs, while on the other hand regional authorities should actively identify and address such local needs. Both policies described in this study underline the ability of regional authorities to be responsive. A pipeline is being commissioned in Bavaria to satisfy the strong need for ethylene on demand, and specific measures are being carried out in Novara to cope with an expected strong rise in logistics in the near future.

Recommendation to regional authorities:

- Regional authorities need to identify and address local (future) demand for logistics and infrastructure in order to both contribute effectively to national policies as well as design their own.

⁷⁷ For more information, see ChemLog, (2010). “Best Practice Solutions of Chemical Logistics in Central and Eastern Europe”, available at http://lsa-st38.sachsen-anhalt.de/files/120410_Best_Practice_Studie_Final.pdf

⁷⁸ For instance, in Germany infrastructure policy is often formulated at the regional level, which can be explained by the relatively large geographical area of these individual regions.

5.6.4. *The importance of dialogue*

Due to the scale and nature of logistics and infrastructure policies, **a variety of stakeholders at different levels play a role**. At the regional level, both local industry and regional authorities face a certain local need. Moreover, **regional authorities may need to interact with different departments**, as infrastructure is often managed in a different department than for example innovation policy. It is therefore of key importance to both local industry and regional authorities to engage in a dialogue, in which local needs are expressed and addressed.

As it was established that these policies are often designed at the national level, there is also a clear need for local parties, both industry and regional authorities, **to communicate with the respective bodies at the national level**. A strong dialogue between national and regional parties is therefore of key importance. Moreover, logistics & infrastructure policies also have transnational effects. For instance, infrastructure policies may cause relevant environmental impacts, which are not bound to regional or national borders. Communication with the respective bodies at the international level is therefore also important. **There is a strong need for dialogue between the various stakeholders. This keeps the different parties involved, and has a positive effect on both identifying and addressing local infrastructural and logistical needs.**

The policies that are described in this study are both exemplary for this need. Concerning the EPS pipeline, there was a clear local demand that was addressed. More importantly, the long expropriation procedures showcase the need for a strong dialogue between local parties, in this case the local population, industry and the regional authorities. For Novara's Act of Goods and Logistics, in order to make the policy work, different regional parties and bodies needed to cooperate and national bodies needed to be involved. The high level collaboration among different public administrations and between public authorities and private companies was of great benefit to the process.

Recommendation to regional authorities:

- Regional authorities need to engage in active dialogue with both local industry and other relevant regional authorities, as well as with relevant local, national and international authorities, in order to address transregional infrastructural challenges in an effective manner.


Annex A: Regional profiles

A.1. Regional profiles ECRN regions

The current section contains the 21 profiles of the ECRN regions included in the study. The key sources used for filling in the regional profiles European Cluster Observatory (ECO) portal, ECRN's "Who is Who" of Chemical Regions in Europe (including updates from 2012), Eurostat and websites of the national statistics offices, as well as other dedicated web resources. Although compiling the regional profiles was the responsibility of the PwC team, regional authorities have been asked to comment on the contents of their own profile. In several cases this has led to more recent and appropriate data being included in the profiles. In those cases, data from sources that have consistent data for (almost) all regions from the same year, such as the ECO portal, was kept to ensure comparability. It should be noted here that the year for which the most recent data are available from ECO is 2009. This does not imply that these data are representative for the economic development over the past years. On the contrary, 2009 was for many European industries the year that showed the least favourable economic development of the last decade. We therefore caution not to take the 2009 data to be indicative for developments in other years.

For a detailed description of our methodology for data collection, we refer to paragraph 1.4.2 of this report.

Asturias



Items/indicators	Data	Sources
1. General characteristics		
1.1. Name of the region	Asturias	
1.2. Associated picture (logo/map)		
1.3. Regional authority		
1.3.1. Organisation name	IDEPA, Instituto de Desarrollo Económico del Principado de Asturias (Agency for Economic Development of the Principality of Asturias)	ECRN update January 2012
1.3.2. Address	Parque Tecnológico de Asturias, 33428 Llanera, Asturias	ECRN update January 2012
1.3.3. Country	Spain	ECRN update January 2012
1.3.4. Phone number	0034 - 98598020	ECRN update January 2012
1.3.5. Fax number	0034 - 985264455	ECRN update January 2012
1.3.6. Homepage	www.idepa.es	ECRN update January 2012
1.3.7. Governance (type of regional	Autonomous community	IDEPA

Items/indicators	Data	Sources
body; regional coordination mechanism)		
1.3.8 Legal competence and authority of the region	Legal competence includes: <ul style="list-style-type: none"> • Industry and Energy; • Education; • Economics and Finance; • Employment. 	http://www.asturias.es
1.3.9. Contact details of focal point	Name: Jamie Fernández Email: Jaime@idepa.es Tel.: 0034 – 985 980 020 Details of 2 more contacts available on ECRN website (Paz Palacio and Natalia Díaz)	ECRN update January 2012
2. Overall economic situation of the region		
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	1,081,487 inhabitants (2011)	INE
2.1.2. Area (km ²)	10,603 km ²	INE
2.1.4. GDP (billion EUR)	23.17 EUR (2011)	INE
2.1.5. GDP per capita	21,976 EUR(2011)	INE
2.1.6. GDP growth per capita	0.3%	INE
2.1.6. Export (billion EUR)	3.69 billion EUR (2011)	ICEX
2.1.7. Import (billion EUR)	4.19 billion EUR (2011)	ICEX
2.2. Chemicals industry in the region		
2.2.1. History of the chemicals industry in the region	Historically, economic activity in Asturias has been concentrated in four main sectors: steel, mining, shipbuilding and agriculture. The balance is shifting and over the past few years Asturias has implemented a policy of reindustrialisation that has introduced a high level of diversity and modernisation. Services such as advanced engineering or software development, and industries such as environmental equipment or new materials are growing fast in Asturias. Right now, the sector most rapidly expanding in Asturias is the chemical sector.	ECRN update January 2012
2.2.2. Age of technical installations	DuPont has a 100-hectare complex in Asturias that is home to its plants for production of Nomex (high temperature resistant Aramid fibre), Sontara (non-woven fabrics) and Agro (crop protection products). Recently a new plant was built that focuses on production of Isophthaloyl Chloride (ICL) (one of the raw materials for manufacture of Nomex) and components for Kevlar, another company brand.	http://www.idepa.es/sites/web/idepaweb/Repositorios/galeria_descargas_idepa/SI_MEETING_POINT.pdf
2.2.3. Total nr of chemical companies (cluster; region)	104 (2010)	INE (CNAE 20, 21 and 22)
2.2.4. Enterprise growth (cluster; region)	Information currently unavailable	
2.2.5. Breakdown by the company size (large, middle, SMEs; start-ups and	Information currently unavailable	

Items/indicators	Data	Sources
spin-offs)		
2.2.6. Nr of employees (in the chemicals industry)	2,994 (1,360 according to Cluster Observatory)	INE (CNAE 20, 21 and 22) http://www.idepa.es/sites/web/handleFlashSectorialPDF?xsl=/system/modules/es.indigo.opencms.content.flashes/xml/flashsectorial-fop.xml&converter=es.indigo.opencms.content.flashes.pdf.XMLFlashesSectorialesConverter&nombre_fichero=flash_sector_quimico_asturias&flash=19
2.2.7. Employment dynamics (declining/increasing)	Declining	<i>Information provided by regional authority</i>
2.2.8. Turnover	542.38 million EUR (2009)	INE(CNAE 20, 21 and 22)
2.2.9. Sector structure	The main products produced by the chemical sector are carbon-based chemicals, fertilisers, pharmaceutical products, cosmetic and paper. In addition, DuPont manufactures other specialised products, such as synthetic fibres.	ECRN update January 2012
2.2.10. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)	<ul style="list-style-type: none"> • 17 public institutions (6 Research Centres, 6 Technology Centres, 5 Technological Services Providers); • 6 private R&D centres; • 10 University Institutions. 	ECRN update January 2012
2.2.11. Share of chemistry in relation to whole industry in the region (% of turnover)	4.35	ECRN update January 2012
2.2.12 Interaction of SMEs with large companies	Information currently unavailable	
2.3. Research capacities		
2.3.1. Number of universities/technical colleges/universities of applied science	1	ECRN update January 2012
2.3.2. Number of universities/technical colleges/universities of applied science with chemical department	1	ECRN update January 2012
2.3.3. Students in pre-vocational and vocational programmes (% of 15-24 years old)	12.31	http://www.clusterobservatory.eu
2.3.4. Students in tertiary programmes with academic orientation (% of 20-24 years old)	50.36	http://www.clusterobservatory.eu
2.3.5. Lifelong learning (% of 25-64 years old)	9.86	http://www.clusterobservatory.eu
2.4. Main players (companies)		
2.4.1 List of main players (name, turnover, employees, webpage)	<ul style="list-style-type: none"> • Du Pont Ibérica, S. L. • Linpac Plastics Pravia, S. A. • Celulosas de Asturias, S. A. • Industrial Química del Nalón, S. A. • Mecanizaciones y Fabricaciones, S. A. • Fertiberia, S. A. • Química Farmacéutica Bayer, S. A. 	ECRN update January 2012
2.5. Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.27	
2.5.2. Patents per million habitants	14.93	

Items/indicators	Data	Sources
2.5.3. Business R&D share of GDP (%)	0.4	
2.5.4. Public R&D share of GDP (%)	0.2	
2.5.5. Integration/cooperation with other sectors and areas	Region is part of: • European Chemical Regions Network (ECRN)	ECRN update January 2012
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	Information currently unavailable	
3.2. New or significantly improved chemical products introduced to the market in the last 5 years	Information currently unavailable	
3.3. Integration/cooperation with other sectors and areas	Information currently unavailable	
3.4. Main areas of regional cooperation	Information currently unavailable	
4. Logistics		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)	1 airport: Asturias International Airport 1 sea port: Port of Gijón	en.wikipedia.org/wiki/Asturias
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	Exact information on railways and waterways is currently unavailable	
4.2. Access to natural resources and energy		
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.115 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.2.2. Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	0.031 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.3. Bottlenecks	Information currently unavailable	
4.4. Development projects	Information currently unavailable	

Bavaria

Items/indicators	Data	Sources
1. General characteristics		
1.1. Name of the region	Bavaria (Bayern)	Cluster overview
1.2. Associated picture (logo/map)	 	www.ecrn.net http://www.invest-in-bavaria.de/en/cities-and-regions/locations/?no_cache=1

Items/indicators	Data	Sources
1.3. Regional authority		
1.3.1. Organisation name	Bavarian Ministry of Economic Affairs, Infrastructure, Transport and Technology	http://www.ecrn.net
1.3.2. Address	Prinzregentenstrasse 28, D-80538 Munich	http://www.ecrn.net
1.3.3. Country	Germany	http://www.ecrn.net
1.3.4. Phone number	0049 - (0)8921620	http://www.ecrn.net
1.3.5. Fax number	0049 - (0)8921622760	http://www.ecrn.net
1.3.6. Homepage	www.stmwivt.bayern.de	http://www.ecrn.net
1.3.7. Governance (type of regional body; regional coordination mechanism)	Regional model (partnering with regional ministry)	http://www.ecrn.net
1.3.8 Legal competence and authority of the region	Economic Development	http://www.invest-in-bavaria.de/branchen-und-cluster/materialentwicklung/chemie
1.3.9. Contact details of focal point	Dr. Niedzela-Schmutte, Andrea Email: andrea.niedzela-schmutte@stmwivt.bayern.de Telephone: 0049 - (0)89 - 2162 - 2308 Fax: 0049 - (0)89 - 2162 - 3308	http://www.ecrn.net
2. Overall economic situation of the region		
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	12,519,000 million	http://www.stmwivt.bayern.de/fileadmin/Web-Dateien/Dokumente/wirtschaft/Bavarias_Economy_Facts_and_Figures_2011.pdf
2.1.2. Area (km ²)	70,550	
2.1.4. GDP (billion EUR)	442.4 (2010)	
2.1.5. GDP per capita (EUR ppp)	35.337 (2010)	
2.1.6. GDP growth per capita (%)	3.9% (2010)	http://www.clusterobservatory.eu
2.1.6. Export (billion EUR)	145.1 (2010)	http://www.stmwivt.bayern.de/fileadmin/Web-Dateien/Dokumente/wirtschaft/Bavarias_Economy_Facts_and_Figures_2011.pdf
2.1.7. Import (billion EUR)	131.6 (2010)	
2.2. Chemicals industry in the region		
2.2.1. History of the chemicals industry in the region	<p>Bavaria is a traditional site of Germany's chemical industry. The Bavarian chemical triangle (ChemDelta Bavaria) in the south eastern part of Upper Bavaria looks back on a history stretching back almost 100 years. It is one of the most important economic factors of Bavaria as a high-tech location and among Europe's most important chemical regions. With a total workforce of 47,500 and annual sales of 13.7 billion EUR, Bavaria's chemical industry is one of the largest in the state's manufacturing sector.</p> <p>In Bavaria, cluster management structures are supported by the State Ministry of Economics within the "Cluster-Initiative Bavaria". Chemie-Cluster Bayern, as part of</p>	<p>http://www.chemiecluster-bayern.de/fileadmin/Redaktion/ICNS/20120118_Concept_ICNS_ext.pdf</p> <p>http://www.invest-in-bavaria.de/en/bavarias-clusters/materials-engineering/chemical-industries/</p>

Items/indicators	Data	Sources
	this initiative, is a professional management institution to connect more than 220 companies within the chemical industry and research. Starting from 2007, Chemie-Cluster Bayern has made substantial efforts in building strategic cluster alliances worldwide. The organisation has initiated a transatlantic technology transfer together with partners in France and the United States in order to improve foreign market access of academic start-up companies in the chemical sector.	
2.2.2. Specialisation	The industry's main products are pharmaceutical specialties, primary plastics, paints, lacquers and putties, body care products, and chemical fibers.	http://www.invest-in-bavaria.de/en/bavarias-clusters/materials-engineering/chemical-industries/ Chemie-Cluster Bayern
2.2.3. Top 5 chemical products of the region	<ul style="list-style-type: none"> • Primary plastics (e.g. Vinnolit, market leader in PVC production); • Pharmaceuticals; • Paints, pigments, coatings (e.g. Keimfarben, global market leader in silicate paintings); • Basic chemicals, fine and special chemicals (e.g. global market leader Wacker Silicones); • Chemical fibres (e.g. Kelheim Fibres, global market leader in viscose speciality fibres). 	http://www.chemiecluster-bayern.de/en/cluster-partner/
2.2.4. Age of technical installations	Following from the amount of development in the industry and focus on innovation, the state-of-the-art installations consequently are young (5 years). In Bavaria's leading chemical region, the so-called "ChemDelta Bavaria", companies have invested more than 3 billion EUR in infrastructure between 2007 and 2011.	Initiative ChemDelta Bavaria
2.2.5. Total nr of chemical companies (cluster; region)	370 chemical companies; 250 members of Chemie-Cluster Bayern	Die bayerische Chemie in Zahlen (VCI) Chemie-Cluster Bayern
2.2.6 Nr of multinational companies in the region	About 20% of the cluster members are big chemical companies such as Wacker, Süd-Chemie or BASF.	http://www.b2match.eu/clustersforum/participants/45
2.2.7. Enterprise growth (cluster; region)	1.6%(2009)	http://www.clusterobservatory.eu
2.2.8. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	<ul style="list-style-type: none"> • Over 250 chemical plants are located in Bavaria; • 20% of the cluster members are big chemical companies such as Wacker, Süd-Chemie or BASF; • About 210 SMEs in the area; • A large variety of specialty products are developed and produced by SMEs (companies with less than 500 employees) that account for almost 50% of 	http://www.bavaria.org/chem_market.php http://www.b2match.eu/clustersforum/participants/45 Chemie-Cluster Bayern

Items/indicators	Data	Sources
	the industry's workforce.	
2.2.9. Nr of employees (in the chemicals industry)	18,931 (2009) 54,696 (ECRN, 2010)	http://www.clusterobservatory.eu http://www.ecrn.net
2.2.10. Employment dynamics (declining/increasing)	+10.6% (2009)	http://www.clusterobservatory.eu
2.2.11. Turnover (billion EUR)	13.7 (includes pharmaceuticals)	http://www.invest-in-bavaria.de/branchen-und-cluster/materialentwicklung/chemie
2.2.12. Sector structure	basic chemicals (43%), pharmaceuticals (12%), soap, washing powder, cleaning agents and body care products (14%), dyes, print colours and fillers (10%), other chemical products (21%)	http://www.ecrn.net
2.2.13. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)	<ul style="list-style-type: none"> • Verband der Chemischen Industrie e.V. Landesverband Bayern; • Verein der Bayerischen Chemischen Industrie e.V. Arbeitgeberverband; • Bavarian Ministry of Economic Affairs, Infrastructure, Transport and Technology; • Chemie-Cluster Bayern/ 	http://www.ecrn.net http://www.invest-in-bavaria.de http://www.chemiecluster-bayern.de
2.2.14. Share of chemistry in relation to whole industry in the region (% of turnover; % of employment)	• 5% of turnover, 5% of all employees	http://www.ecrn.net
2.2.15 Interaction of SMEs with large companies	Information currently unavailable	
2.3. Research capacities		
2.3.1. Number of universities/technical colleges/universities of applied science	47	http://www.ecrn.net
2.3.2. Number of universities/technical colleges/universities of applied science with chemical department	12	http://www.ecrn.net
2.3.3. Students in pre-vocational and vocational programmes (% of 15-24 years old) ⁷⁹	<ul style="list-style-type: none"> • Secondary school: 243,000 • Comprehensive school: 11,000 • Vocational school: 442,000 	http://www.stmwivt.bayern.de/fileadmin/Web-Dateien/Dokumente/wirtschaft/Bavarias_Economy_Facts_and_Figures_2011.pdf
2.3.4. Students in tertiary programmes with academic orientation (% of 20-24 years old)	287,000	http://www.stmwivt.bayern.de/fileadmin/Web-Dateien/Dokumente/wirtschaft/Bavarias_Economy_Facts_and_Figures_2011.pdf
2.3.5. Lifelong learning (% of 25-64 years old)	7.54 (2009)	http://www.clusterobservatory.eu
2.4. Main players (companies)		
2.4.1 List of main players (name, turnover, employees, webpage)	<ul style="list-style-type: none"> • AlzChem Trostberg GmbH • BASF SE • Borealis Polymere GmbH • Clariant Produkte (Deutschland) GmbH • Roche Diagnostics GmbH • Süd-Chemie AG • Vinnolit GmbH & CoKG • WACKER Chemie AG 	http://www.ecrn.net



⁷⁹ Information on this topic could only be provided for Bavaria in absolute numbers.

Items/indicators	Data	Sources
2.5. Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.63 (2009)	http://www.clusterobservatory.eu
2.5.2. Patents per million habitants	306.86 (2009)	http://www.clusterobservatory.eu
2.5.3. Business R&D share of GDP	2.2 (2009)	http://www.clusterobservatory.eu
2.5.4. Public R&D share of GDP (%)	0.3 (2009)	http://www.clusterobservatory.eu
2.5.5. Integration/cooperation with other sectors and areas (bavarian region)	The Bavarian Cluster Initiative aims at expanding and strengthening national networks between companies, universities, research institutions, as well as service providers and funders in 19 key sectors and 5 technology fields. The chemical sector is among the most important industrial innovation drivers. Together with strong industry partners, the cluster introduces new companies into established development cooperations.	http://www.invest-in-bavaria.de/branchen-und-cluster http://www.chemiecluster-bayern.de
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	23,000 key technologies in Bavaria (year of origin unspecified)	http://www.bayern-international.de/aktiv-in-bayern/key-technologies-in-bavaria
3.2. New or significantly improved chemical products introduced to the market in the last 5 years	458 key chemical technologies in Bavaria (year of origin unspecified)	http://www.bayern-international.de/aktiv-in-bayern/key-technologies-in-bavaria
3.3. Integration/cooperation with other sectors and areas (chemical cluster)	<ul style="list-style-type: none"> Region is part of European Chemical Regions Network (ECRN) <p>Chemie-Cluster Bayern is an initiator of international innovation networks in different sectors. Strategic alliances are set up with more than 20 international chemical sites, particularly in Europe and Asia. The cluster's "Transatlantic Technology Transfer Initiative" matches small Bavarian companies with global players like Boeing or Adidas.</p>	www.ecrn.net http://www.invest-in-bavaria.de/branchen-und-cluster/materialentwicklung/chemie http://www.chemiecluster-bayern.de
3.4. Main areas of regional cooperation	<ul style="list-style-type: none"> Innovation networks with symposia and cooperation forums are organised in the areas of automotive, electronics / micro-technology, textiles, environmental technology, life sciences and medical technology / pharmaceutical; The support of regional initiatives is an important task of Chemie-Cluster Bayern in order to maintain the innovative power and competitiveness of the Bavarian chemical industry. The cluster runs an own innovation network for glass producing industry in the eastern part of Bavaria and provides management support to regional initiatives such as the centre for renewable resources in Straubing or the centre for colloids at the 	http://www.invest-in-bavaria.de/branchen-und-cluster/materialentwicklung/chemie http://www.chemiecluster-bayern.de

Items/indicators	Data	Sources
	university of Bayreuth.	
4. Logistics		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)	<ul style="list-style-type: none"> • Bavaria's autobahn's and highways have total length of 137,000 km. It consists of 7 major routes linking east, west, south and north Europe; • Bavaria is one of the world's leading providers of rail links and rail based technologies with a railroad-network of 6,182 km (2010); • The Rhine-Main-Danube waterway, flowing through Bavaria from Passau to Anschaffenburg, connects Bavaria to international ports on the North Sea and Black Sea; • Around a 170 of the world's carriers serve Munich and Nurnberg Bavaria's International airports. 	<p>www.bavaria.org/images/04_Infrast- ructure.pdf</p> <p>http://www.stmwivt.bayern.de/filea- dmin/Web- Dateien/Dokumente/wirtschaft/Bav- arias_Economy_Facts_and_Figures _2011.pdf</p>
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	<p>Goods Transport (M tonnes)</p> <ul style="list-style-type: none"> • Total: 591.8 • Road: 521.0 • Rail: 44.1 • Pipelines: 17.8 • Inland shipping: 9.0 <p>The "Ethylene pipeline South" from Münchsmünster to Ludwigshafen connects to the ethylene pipeline network in the Benelux. It allows more flexible and secured supply of ethylene in the long term.</p>	<p>http://www.stmwivt.bayern.de/filea- dmin/Web- Dateien/Dokumente/wirtschaft/Bav- arias_Economy_Facts_and_Figures _2011.pdf</p> <p>http://www.bavaria.org/chem_adva- ntages.php</p>
4.2. Access to natural resources and energy		
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.113 (2009)	http://epp.eurostat.ec.europa.eu/sta- tistics_explained/index.php/Energy _price_statistics#Industrial_cons- umers
4.2.2. Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	0.043 (2009)	http://epp.eurostat.ec.europa.eu/sta- tistics_explained/index.php/Energy _price_statistics#Industrial_cons- umers
4.3. Bottlenecks	Main bottleneck is the highway and railway connection of the chemical sites in Burghausen, and Trostberg. Local companies need an extension of highway A94 and an improved railway system.	Chemie-Cluster Bayern; Initiative "ChemDelta Bavaria".
4.4. Development projects	<ul style="list-style-type: none"> • The technology funding focuses on entrepreneurs and SME's. The cross-sectoral program "New Materials" specifically focuses on the development of new materials (metallic materials, polymeric materials, ceramics, glass and composites) and their transformation into new products. • Joint R&D activities play a vital 	http://www.invest-in- bavaria.de/branchen-und- cluster/materialentwicklung/chemie

Items/indicators	Data	Sources
	<p>role in the strategy of most chemical companies in Bavaria. The research centre of Technische Universität München in Garching is a best practice for the development of joint research structures by academia and chemical industry. Initiating and coordinating interdisciplinary R&D projects between chemical companies and universities is the major task of Chemie-Cluster Bayern: Since 2009, the cluster has coordinated about 40 R&D projects, covering a budget of nearly 40 M EUR.</p>	

Brandenburg

Items/indicators	Data	Sources
1. General characteristics		
1.1. Name of the region	Brandenburg	Cluster overview
1.2. Associated picture (logo/map)	 	http://www.ecrn.net http://europa.eu commons.wikimedia.org
1.3. Regional authority		
1.3.1. Organisation name	Ministry of Economics and European Affairs	ECRN update January 2012
1.3.2. Address	Heinrich-Mann-Allee 107, D-14473 Potsdam	ECRN update January 2012

Items/indicators	Data	Sources
1.3.3. Country	Germany	ECRN update January 2012
1.3.4. Phone number	0049 - (0)331 – 8661620	ECRN update January 2012
1.3.5. Fax number	0049 - (0)331 – 8661573	ECRN update January 2012
1.3.6. Homepage	www.mwe.brandenburg.de	ECRN update January 2012
1.3.7. Governance (type of regional body; regional coordination mechanism)	Regionalised model (partnering with regional ministry)	ECRN update January 2012
1.3.8 Legal competence and authority of the region	All important decisions concerning fundamental political questions, bills as well as important administrative and personnel issues are taken by the federal state government. The federal states have the legislative power and administrative responsibilities for e.g.: <ul style="list-style-type: none"> • Education; • Environmental policy; • Healthcare. 	http://www.brandenburg.de http://www.landenweb.net/duitsland/samenleving/
1.3.9. Contact details of focal point	Name: Klaus - Peter Siebke Email: klaus-peter.siebke@mwe.brandenburg.de Tel.: 0049 - (0)3318661642 Name: Michael Rohland Email: michael.rohland@mwe.brandenburg.de Tel.: 0049 - (0)3318661620	ECRN update January 2012
2. Overall economic situation of the region		
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	2.6 million	ECRN update January 2012
2.1.2. Area (km ²)	29,500	ECRN update January 2012
2.1.4. GDP (billion EUR)	53.89	ECRN update January 2012
2.1.5. GDP per capita (EUR ppp)	20,477 (2009)	http://www.clusterobservatory.eu
2.1.6. GDP growth per capita (%)	9.9% (2009)	http://www.clusterobservatory.eu
2.1.6. Export (billion EUR)	0.0122 (2010)	ECRN update January 2012
		Department of Statistics Berlin-Brandenburg
2.1.7. Import (billion EUR)	0.0144 (2010)	Department of Statistics Berlin-Brandenburg
2.2. Chemicals industry in the region		
2.2.1. History of the chemicals industry in the region	Since about 1940: <ul style="list-style-type: none"> • Schwarzheide (fuelproduktion, now Polyrethanchemie) • Premnitz, Guben (until today fiberproduction) • Wittenberge (Zellstoff) Since 1950 till 1990: <ul style="list-style-type: none"> • Schwedt/Oder (Refinery) 	Information provided by the local companies
2.2.2. Specialisation	Brandenburg is one of the most important regions in the production of bio-fuels. The structure of the chemical industry is determined by a relatively small proportion (<15%) of the pharmaceutical industry.	http://www.zab-brandenburg.de Report "Branchenstrategie zur Unterstützung des Branchenkompetenzfeldes Kunststoffe/Chemie im Land Brandenburg" February 2008 http://www.zab-brandenburg.de
2.2.3. Top 5 chemical products of the	<ul style="list-style-type: none"> • Chemical Fibers; 	Information provided by the local

Items/indicators	Data	Sources
region	<ul style="list-style-type: none"> • Colors, Paint; • Plastics; • Basic chemicals; • Chemical specialities. 	companies ECRN Update 2012
2.2.4. Age of technical installations	Since 1990: reconstruction of companies	ILB/ZAB, <i>provided by the regional authorities.</i>
2.2.5. Total nr of chemical companies (cluster; region)	31	ECRN update January 2012
2.2.6 Nr of multinational companies in the region	At least 4 (non pharmaceutical)	http://www.zab-brandenburg.de/en/252.aspx
2.2.7. Enterprise growth (cluster; region)	-4.3% (2009)	http://www.clusterobservatory.eu
2.2.8. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	Brandenburg's plastics processing industry is mainly made up of medium-sized businesses. 99.5 % of Brandenburg companies form part of the SME sector. 77.8% of Brandenburg's employees work for SMEs.	http://www.zab-brandenburg.de Report: "Brandenburg – European Entrepreneurial Region - Strategy for the Strengthening of Innovation and Creativity in the SME Sector" 25 February 2010. http://www.mwe.brandenburg.de
2.2.9. Nr of employees (in the chemicals industry)	4,500	ECRN update January 2012
2.2.10. Employment dynamics (declining/increasing)	+2.6% (2009)	http://www.clusterobservatory.eu
2.2.11. Turnover (billion EUR)	1.62 billion EUR (2012, +14.3% from 2011)	http://www.zab-brandenburg.de
2.2.12. Sector structure	Basic chemicals, chemical fibers, paints, pharmaceuticals, plastics, chemical specialties	ECRN update January 2012
2.2.13. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)	<ul style="list-style-type: none"> • Verband der Chemischen Industrie e.V. Landesverband Nordost; • Kunststoff-Verbund – Brandenburg Berlin e.V.; • Brandenburg Economic Development Board GmbH (ZAB); • KuBra e.V. - Kunststoffnetzwerk Brandenburg. 	ECRN update January 2012 Report "The Future Cluster Chemistry /Plastics Central Germany" http://www.mitteldeutschland.com/
2.2.14. Share of chemistry in relation to whole industry in the region (% of turnover; % of employment)	7.8% of turnover	ECRN update January 2012
2.2.15 Interaction of SMEs with large companies	Mainly synergies in the Chemicalparks, Schwedt und Schwarzeide, regional and substantial networking	ZAB
2.3. Research capacities		
2.3.1. Number of universities/ technical colleges/universities of applied science	9	ECRN update January 2012
2.3.2. Number of universities/ technical colleges/ universities of applied science with chemical department	4	ECRN update January 2012
2.3.3. Students in pre-vocational and vocational programmes (% of 15-24 years old)	About 300 ⁸⁰	Tiefenanalyse Chemie Kunststoffe 2011 – ZAB
2.3.4. Students in tertiary programmes with academic	About 2,300 ⁸¹	Information provided by the universities


⁸⁰ Only absolute numbers were available for Brandenburg

Items/indicators	Data	Sources
orientation (% of 20-24 years old)		
2.3.5. Lifelong learning (% of 25-64 years old)	7.73 (2009)	http://www.clusterobservatory.eu
2.4. Main players (companies)		
2.4.1 List of main players (name, turnover, employees, webpage)	<ul style="list-style-type: none"> • BASF Schwarzheide GmbH • Trevira GmbH Werk Guben • Vestas Blades Deutschland GmbH • Verbio AG 	ECRN update January 2012
2.5. Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.47 (2009)	http://www.clusterobservatory.eu
2.5.2. Patents per million inhabitants	71.57 (2009)	http://www.clusterobservatory.eu
2.5.3. Business R&D share of GDP	0.3 (2009)	http://www.clusterobservatory.eu
2.5.4. Public R&D share of GDP (%)	0.6 (2009)	http://www.clusterobservatory.eu
2.5.5. Integration/cooperation with other sectors and areas	<p>Berlin-Brandenburg provides a number of business cooperation opportunities and intellectual networking in its biotech parks and at its several scientific institutes. Among them are recognised centres, such as for instance the Max-Delbrück-Center for Molecular Medicine, the German Heart Institute, The German Rheumatism Research Centre and the Synchrotron Radiation Facility BESSY 2. Furthermore, Berlin was also announced as the location for the German Resource Centre for Genome Research. Many experts from various disciplines such as molecular biology, biochemistry, biotechnology, materials sciences, micro-engineering, and ICT, provide a high degree of cross-sector collaboration and innovation have established themselves here.</p>	<i>Information provided by regional authority</i>
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	Use of nanoparticles for catalysts for the automotive industry – this saves approximately 50% of the raw materials.	<i>Information provided by companies</i>
3.2. New or significantly improved chemical products introduced to the market in the last 5 years	The creation of complete home construction parts out of fibre-reinforced plastic panels through new IQ technologies, which can reduce production cycles.	<i>Information provided by companies</i>
3.3. Integration/cooperation with other sectors and areas (chemical cluster)	<ul style="list-style-type: none"> • Region is part of the European Chemical Regions Network (ECRN) • The Cluster Chemicals / Plastic in Central Germany • European Chemical Cluster for the support of SMEs 	www.ecrn.net http://www.chemsme.net
3.4. Main areas of regional cooperation	<p>Chemical parks:</p> <ul style="list-style-type: none"> • Schwedt/Oder; • Schwarzheide/Lauchham 	ZAB


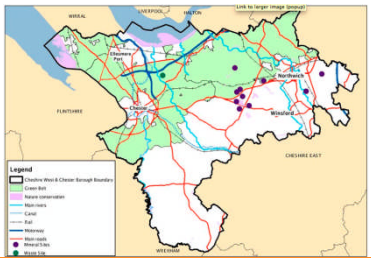
⁸¹ Only absolute numbers were available for Brandenburg

Items/indicators	Data	Sources
	mer; • Premnitz.	
4. Logistics		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)	Important trans-European roads - pass through the region. Today, the region has almost 900 kilometres of autobahn, 1,500 kilometres of railroads and around 900 kilometres of waterways that are largely significant for freight transport. 1 international airport: Berlin Brandenburg Airport.	http://www.zab-brandenburg.de
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	3 freight villages	http://www.zab-brandenburg.de/
4.2. Access to natural resources and energy		
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.113 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.2.2. Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	0.043 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.3. Bottlenecks	<ul style="list-style-type: none"> • High costs of energy; • Lack of trained experts (demographical development) 	Information provided by the local companies
4.4. Development projects	<ul style="list-style-type: none"> • Development of plants and machinery for the dissociation of materials; • Developments of membranes for gas plants; • Development of biogas testing plants ; • Biopolymere research; • System solutions for the use of biodegradable substances or biobased plastics. 	Tiefenanalyse Chemie Kunststoffe 2011 - ZAB

Cheshire West and Chester⁸²

Items/indicators	Data	Sources
1. General characteristics		
1.1. Name of the region	Cheshire West and Chester (North-West UK)	Cluster overview
1.2. Associated picture (logo/map)		http://consult.cheshirewestandchester.gov.uk/events/6452/images/web/992639_0_1.jpg

⁸² As data from the Nuts3 region “Cheshire West and Chester” (UKD22) are not available in Cluster Observatory, data from the Nuts2 region “Cheshire” (UKD2) were used.

Items/indicators	Data	Sources
 		
1.3. Regional authority		
1.3.1. Organisation name	Cheshire West and Chester Council	ECRN update January 2012
1.3.2. Address	HQ – 58 Nicolas Street, Chester, CH1 2NP	ECRN update January 2012
1.3.3. Country	United Kingdom	ECRN update January 2012
1.3.4. Phone number	+44 300 123 8 123	ECRN update January 2012
1.3.5. Fax number	n/a	
1.3.6. Homepage	http://www.cheshirewestandchester.gov.uk/	ECRN update January 2012
1.3.7. Governance (type of regional body; regional coordination mechanism)	Federalised model	http://en.wikipedia.org/
1.3.8. Legal competence and authority of the region	The Regional Authority was wound up, in line with other regions in UK. They have not been replaced.	http://en.wikipedia.org/
1.3.9. Contact details of focal point	Name: Francis Lee Email: francis.lee@cheshirewestandchester.gov.uk Tel.: +44 1244 602263 Details of 2 more contacts available on ECRN page (Herbert Manley and Vince Hollender)	ECRN update January 2012
2. Overall economic situation of the region		
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	686,400 inhabitants (2009) (Cheshire East 327,500 and Cheshire West and Chester 358,900)	ECRN update January 2012
2.1.2. Area (km ²)	2,083 (2009) (Cheshire East 917 and Cheshire West and Chester 1.166)	ECRN update January 2012
2.1.4. GDP (billion EUR)	21.14 (2009)	Own calculation (GDP per capita*Population)
2.1.5. GDP per capita (EUR ppp)	30,800* (2009)	http://www.clusterobservatory.eu
2.1.6. GDP growth per capita (%)	2.9* (2009)	http://www.clusterobservatory.eu
2.1.6. Export (billion EUR)	24.5	ECRN update January 2012
2.1.7. Import (billion EUR)	22.9 (2012)	ECRN update January 2012
2.2. Chemicals industry in the region		
2.2.1. History of the chemicals industry in the region	Cheshire is the birthplace of much of the UK's chemical industry, and has a history of producing salt and alkalis stretching back more than 300 years.	http://www.cheshirewestandchester.gov.uk
2.2.2. Specialisation	See 2.2.12	




Items/indicators	Data	Sources
2.2.3. Top 5 chemical products of the region	See 2.2.12	
2.2.4. Age of technical installations	<p>Victrex plc, a leading company providing high performance materials, opened a polymer manufacturing plant at its main production facility in Thornton Cleveleys in Lancashire, UK. 2007</p> <p>In 2007 Brunner Mond, one of the world's leading manufacturers and suppliers of soda ash and associated alkaline products, announced a £10m investment in a new sodium bicarbonate manufacturing plant in Northwich base.</p> <p>Plant improvement Forum is a programme introduced on behalf of Chemicals Northwest to give process companies in the North West easy access to proven continuous improvement tools and techniques. Eight companies joined the Plant Improvement Forum, and obtained on average over half a million pounds worth of opportunities to improve their bottom line.</p>	<p>"Newsletter", Chemicals northwest, Issue 11, November 2007</p> <p>"Chemistry-using sector directory", Chemicals Northwest, 2009/10</p>
2.2.5. Total nr of chemical companies (cluster; region)	800	ECRN update January 2012
2.2.6 Nr of multinational companies in the region	The chemical sector North West England accommodates 800 chemical companies. Nearly 60% of the world's top 50 chemical companies are present in this region.	<p>Report "A Cultural Guide -The North West of England", Northwest Regional Development Agency, Investing in Englands NorthWest, March 2009 available at http://www.rln-northwest.com/Publications/pdfs/cultural_doc_hq.pdf</p> <p>Report "Cheshire's Chemical Industry", Invest in Englands NorthWest, Cheshire County Council</p>
2.2.7. Enterprise growth (cluster; region)	Information currently unavailable	
2.2.8. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	More than 50% of businesses have fewer than 20 employees and approximately 70% of employees work for businesses with more than 250 employees.	"Chemistry-using sector directory", Chemicals Northwest, 2009/10
2.2.9. Nr of employees (in the chemicals industry)	160,000	ECRN update January 2012
2.2.10. Employment dynamics (declining/increasing)	+24.8% (2009)	http://www.clusterobservatory.eu
2.2.11. Turnover (billion EUR)	England's North annual turnover for the region exceeds 9 billion GBP.	Report "A Cultural Guide -The North West of England", Northwest Regional Development Agency, Investing in Englands NorthWest, March 2009 available at http://www.rln-northwest.com/Publications/pdfs/cultural_doc_hq.pdf

Items/indicators	Data	Sources
		ultural_doc_hq.pdf
2.2.12. Sector structure	Downstream Chemical Manufacturing (33%), Base Chemical Manufacturing (19%), Analysis & Testing (8%), Technical Consulting (10%), Services (10%), Sales (17%), Pharmaceuticals (3%).	ECRN update January 2012
2.2.13. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)	<ul style="list-style-type: none"> Chemicals Northwest Northwest Regional Development Agency National Skills Academy Business Link North West DICIDA The Institution of Chemical Engineers (IChemE) Chemical Industries Association (CIA) The Royal Society of Chemistry Chemistry innovation Chemical business association 	ECRN update January 2012 http://www.icheme.org http://www.chemicalsnorthwest.org.uk http://www.chemicalsnorthwest.org.uk http://www.chemical.org.uk http://www.cogent-ssc.com
2.2.14. Share of chemistry in relation to whole industry in the region (% of turnover; % of employment)	10%	ECRN update January 2012
2.2.15 Interaction of SMEs with large companies	Information currently unavailable	
2.3. Research capacities		
2.3.1. Number of universities/technical colleges/universities of applied science	19	ECRN update January 2012
2.3.2. Number of universities/technical colleges/universities of applied science with chemical department	12	ECRN update January 2012
2.3.3. Students in pre-vocational and vocational programmes (15-24 years old)	Information currently unavailable	
2.3.4. Students in tertiary programmes with academic orientation (20-24 years old)	In 2007/08, a total of 241,465 full and part time students studied at North West universities, which is approximately 10% of all students at UK universities.	"Chemical Science Capabilities in the North West", Chemicals North West, www.chemicalsnorthwest.org.uk
2.3.5. Lifelong learning (% of 25-64 years old)	17.52 (2009)	http://www.clusterobservatory.eu
2.4. Main players (companies)		
2.4.1 List of main players (name, turnover, employees, webpage)	<ul style="list-style-type: none"> Innospec GrowHow Tata Chemicals Europe Ineos ChlorVinyls Essar Energy Shell Chemicals (UK) Ltd 	ECRN update January 2012
2.5. Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.54* (2009)	http://www.clusterobservatory.eu (UKD2)
2.5.2. Patents per million habitants	38.1* (2009)	http://www.clusterobservatory.eu (UKD2)
2.5.3. Business R&D share of GDP	4.3* (2009)	http://www.clusterobservatory.eu

Items/indicators	Data	Sources
		(UKD2)
2.5.4. Public R&D share of GDP (%)	0.2* (2009)	http://www.clusterobservatory.eu (UKD2)
2.5.5. Integration/cooperation with other sectors and areas	<ul style="list-style-type: none"> • Cogent: the Sector Skills Council (SSC) for the Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymer Industries. • The Society of Chemical Industry (SCI) - international forum where science meets business 	http://www.cogent-ssc.com/ http://www.soci.org
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	Information currently unavailable	
3.2. New or significantly improved chemical products introduced to the market in the last 5 years	Information currently unavailable	
3.3. Integration/cooperation with other sectors and areas (chemical cluster)	<ul style="list-style-type: none"> • Region is part of the European Chemical Regions Network (ECRN); • Cooperates with other leading European chemical regions through the ChemClust initiative. 	http://www.ecrn.net http://www.chemclust.eu/partnership.html
3.4. Main areas of regional cooperation	Information currently unavailable	
4. Logistics		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)	<p>No airport, closest airport is Liverpool (18 miles) or Manchester (28 mile).</p> <p>No ports, closest is Liverpool.</p> <p>There is a reasonable provision of transport infrastructure but this is focused mainly on the north of the area.</p> <p>Rail links to London, Manchester and Liverpool as well as some parts of North Wales are good.</p>	http://www.locations4business.com maps.google.com Report "Local Economic Assessment – Story of place" February 2011 www.investincheshire.com
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	Information currently unavailable	
4.2. Access to natural resources and energy		
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.112 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.2.2. Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	0.029 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.3. Bottlenecks	Information currently unavailable	
4.4. Development projects	One City Plan is a strategy which aims to co-ordinate and drive a program of public and	http://www.cheshirewestandchester.gov.uk/microsites/chester_renaissance/a_changing_city/one_city_plan

Items/indicators	Data	Sources
	<p>private investment and development activity into Chester city centre over the next 15 years.</p> <p>Key to developing a strategic approach has been the development of a Rural Regeneration Strategy and Action Plan. The Council aims to use this strategy with the goal to maximise economic potential, create access to affordable living for rural communities, empower and connect rural communities and capitalise on the environmental potential.</p>	<p>.aspx</p> <p>“Cheshire West and Chester Council - Doing thing differently”, Cheshire West and Chester, Annual report 2011</p>

Flanders


Items/indicators	Data	Sources
1. General characteristics		
1.1. Name of the region	Flanders (Vlaams gewest)	Cluster overview www.ecrn.net
1.2. Associated picture (logo/map)	  	http://commons.wikimedia.org
1.3. Regional authority		
1.3.1. Organisation name	Department of Economy, Science and Innovation	ECRN update January 2012
1.3.2. Address	Koning Albert- Laan 35, 1030 Brussels	ECRN update January 2012
1.3.3. Country	Belgium	ECRN update January 2012
1.3.4. Phone number	0032 - (0)2 - 5533890	ECRN update January 2012
1.3.5. Fax number	0032 - (0)2 - 5536007	ECRN update January 2012
1.3.6. Homepage	www.ewi-vlaanderen.be	ECRN update January 2012
1.3.7. Governance (type of regional body; regional coordination mechanism)	Regionalised model (partnering with regional ministry)	ECRN update January 2012
1.3.8 Legal competence and authority of the region	Legal competence includes: <ul style="list-style-type: none"> • Public Governance • Finance and Budget • Education and Training • Economy, Science and Innovation • Environment, Nature and Energy 	discover.flanders.be
1.3.9. Contact details of focal point	Name: Pol Verhaegen Email: pol.verhaegen@ewi.vlaanderen.be Tel.: 0032 - (0)2 - 5533890	ECRN update January 2012
2. Overall economic situation of the region		


Items/indicators	Data	Sources
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	6,161,600	ECRN update January 2012
2.1.2. Area (km ²)	13,522	ECRN update January 2012
2.1.4. GDP (billion EUR)	162.82	ECRN update January 2012
2.1.5. GDP per capita (EUR ppp)	28,947.4 (2009)	http://www.clusterobservatory.eu
2.1.6. GDP growth per capita (%)	3.5% (2009)	http://www.clusterobservatory.eu
2.1.6. Export (billion EUR)	190.6	ECRN update January 2012
	Chemical industry: 36.6 (2009)	www.investinlanders.be
2.1.7. Import (billion EUR)	194	ECRN update January 2012
2.2. Chemicals industry in the region		
2.2.1. History of the chemicals industry in the region	For a detailed description, see “De Chemische Industrie in Vlaanderen” (chapter 3) In short, the area has a long history in chemistry, but it was mainly after WWII that the industry shaped as we can observe it now. Between the 50s and 60s, there was a strong need for the region to innovate. Lack of knowledge in the region forced them to pursue joint ventures with international companies. Mostly from the 60s onwards, international parties established in the regions, especially in the petrochemical sector at the time.	http://www.vrwi.be/pdf/studiereeks11.pdf
2.2.2. Specialisation	<ul style="list-style-type: none"> • Consumer chemicals (36%) • Pharmaceuticals (16%) • Products destined for other branches of economic activity (48%) 	Essenscia
2.2.3. Top 5 chemical products of the region	See 2.2.2	Essenscia
2.2.4. Age of technical installations	Most installations in Antwerp-Port are from 1960-1970 but undergo maintenance and are being “de-bottlenecked”	<i>Information provided by regional authority</i>
2.2.5. Total nr of chemical companies (cluster; region)	916	ECRN update January 2012
2.2.6. Nr of multinational companies in the region	233	<i>Information provided by regional authority</i>
2.2.7. Enterprise growth (cluster; region)	0.5 (2009)	http://www.clusterobservatory.eu
2.2.8. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	(large, middle, SMEs; start-ups and spin-offs): 37 % (254) very small (< 10 persons); 35 % (242) small (between 10 and 49 persons); 18 % (126) middle-sized (50-199 persons) and 10 % (68) big companies (> 200 persons)	Essenscia
2.2.9. Nr of employees (in the chemicals industry)	64,000	ECRN update January 2012
2.2.10. Employment dynamics (declining/increasing)	-0.6% (decline)	http://www.clusterobservatory.eu
2.2.11. Turnover (billion EUR)	30.4 (2009)	www.investinlanders.be
2.2.12. Sector structure	<ul style="list-style-type: none"> • basic chemicals (>30%); • pesticides and other agro-chemical products; 	ECRN update January 2012 www.investinlanders.be

Items/indicators	Data	Sources
	<ul style="list-style-type: none"> • Paints, varnishes and similar coatings, printing ink and mastics; • Pharmaceuticals, medicinal chemicals and botanical products (15%); • Soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations; • Other chemical products; • Man-made fibres; • Rubber; • Plastic (>28%). 	
2.2.13. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)	<ul style="list-style-type: none"> • Essenscia Vlaanderen; • Unions: KVCV - K VIV – VIK; • MCB-Forum (Forum for Multi-national Companies in Belgium); • SusChem (European technological platform for sustainable chemistry). 	ECRN update January 2012 http://www.investinlanders.be
2.2.14. Share of chemistry in relation to whole industry in the region (% of turnover; % of employment)	23% (10% of employment)	ECRN update January 2012 http://www.investinlanders.be
2.2.15 Interaction of SMEs with large companies	Several ways of interaction exist , such as trade, transport and piping, and exchange of experiences.	<i>Information provided by regional authority</i>
2.3. Research capacities		
2.3.1. Number of universities/ technical colleges/universities of applied science	13; 3 universities / 10 technical colleges	ECRN update January 2012
2.3.2. Number of universities/ technical colleges/ universities of applied science with chemical department	22; 5 universities / 17 technical colleges	ECRN update January 2012
2.3.3. Students in pre-vocational and vocational programmes (% of 15-24 years old)	52.55 (2009)	http://www.clusterobservatory.eu
2.3.4. Students in tertiary programmes with academic orientation (% of 20-24 years old)	24.48 (2009)	http://www.clusterobservatory.eu
2.3.5. Lifelong learning (% of 25-64 years old)	7.87 (2009)	http://www.clusterobservatory.eu
2.4. Main players (companies)		
2.4.1 List of main players (name, turnover, employees, webpage)	<ul style="list-style-type: none"> • 3M Belgium • Air Liquide Industries Belgium • BASF Antwerpen • Bayer Antwerpen Comm.V • Degussa Antwerpen • DOW Belgium bvba, • Janssen Pharmaceutica, • Solvic Lillo 	ECRN update January 2012
2.5. Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.61 (2009)	http://www.clusterobservatory.eu
2.5.2. Patents per million habitants	104.93 (2009)	http://www.clusterobservatory.eu
2.5.3. Business R&D share of GDP (%)	Business R&D was 1.37 billion (2009), which would imply 0.8%	Essenscia
2.5.4. Public R&D share of GDP (%)	Information not available for chemical sector in specific	<i>Information provided by regional authority</i>
2.5.5. Integration/cooperation with other sectors and areas	Pharmaceutical sector and Universities	<i>Information provided by regional authority</i>

Items/indicators	Data	Sources
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	Live sciences (pharmaceutical and biotechnology)	<i>Information provided by regional authority</i>
3.2. New or significantly improved chemical products introduced to the market in the last 5 years	Live sciences and biotechnology	<i>Information provided by regional authority</i>
3.3. Integration/cooperation with other sectors and areas (chemical cluster)	<ul style="list-style-type: none"> Region is part of the European Chemical Regions Network (ECRN) 	www.ecrn.net
3.4. Main areas of regional cooperation	Information currently unavailable	
4. Logistics		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)	6 Airports (4 international) 1 port <ul style="list-style-type: none"> Investment in the road and rail infrastructure and inland waterways is ongoing; As for pipelines, Flanders is – mostly through the Port of Antwerp – a major Northern European hub. 	http://www.luchthavenvervoer.be/Luchthaven-Luik-6 http://www.investinlanders.be <i>Information provided by regional authority</i>
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	2.9 billion (2011)	www.phillipemuyters.be <i>Information provided by regional authority</i>
4.2. Access to natural resources and energy		
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.111 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.2.2. Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	0.038 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.3. Bottlenecks	<ul style="list-style-type: none"> Antwerp Port (mobility) Railtransport (second railway and Iron Rhein) Pipes: missing links (10 bottlenecks Antwerp Port) and direction Ruhr-area (NRW) 	Essencia
4.4. Development projects	Information currently unavailable	

Hesse

Items/indicators	Data	Sources
1. General characteristics		
1.1. Name of the region	Hesse (Hessen)	Cluster overview
1.2. Associated picture (logo/map)		www.ecrn.net http://europa.eu/abc/maps/regions/germany/hessen_nl.htm

Items/indicators	Data	Sources
		
1.3. Regional authority		
1.3.1. Organisation name	Hessian Ministry of Economics, Transport, Urban and Regional Development (HMWVL)	ECRN update January 2012
1.3.2. Address	Kaiser-Friedrich-Ring 75, D-65185 Wiesbaden	ECRN update January 2012
1.3.3. Country	Germany	ECRN update January 2012
1.3.4. Phone number	0049 - (0)611 - 8150	ECRN update January 2012
1.3.5. Fax number	0049 - (0)611 - 8152228	ECRN update January 2012
1.3.6. Homepage	www.wirtschaft.hessen.de	ECRN update January 2012
1.3.7. Governance (type of regional body; regional coordination mechanism)	Regional ministry	http://www.wirtschaft.hessen.de
1.3.8 Legal competence and authority of the region	Legal competence includes: <ul style="list-style-type: none"> • Land development, urban development, housing • Economic policy, economic development • Economic system, financial services, stock exchanges • Foreign economic affairs, vocational education, energy, technology • Mobility and transport • Infrastructure management 	http://www.wirtschaft.hessen.de
1.3.9. Contact details of focal point	Name: Hans Weigandt Email: hans.weigandt@hmwvl.hessen.de Tel.: 0049 - (0)6118152286 Name: Thomas Schuster Email: thomas.schuster@hmwvl.hessen.de Tel.: 0049 - (0)6118152495	ECRN update January 2012
2. Overall economic situation of the region		
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	6,067,000	http://www.statistik-hessen.de/themenauswahl/bevoelkerung-gebiet/index.html
2.1.2. Area (km ²)	21,115	http://www.statistik-hessen.de/themenauswahl/bevoelkerung-gebiet/index.html
2.1.4. GDP (billion EUR)	225	http://www.vgrdl.de/Arbeitskreis_VGR/tbbs/WZ2003tabo1.asp
2.1.5. GDP per capita (EUR ppp)	37,101	http://www.vgrdl.de/Arbeitskreis_VGR/tbbs/WZ2003tabo1.asp
2.1.6. GDP growth per capita (%)	3.3%	http://www.statistik-hessen.de
2.1.6. Export (billion EUR)	55	http://www.statistik-hessen.de

Items/indicators	Data	Sources
2.1.7. Import (billion EUR)	76 (due to Frankfurt airport)	http://www.statistik-hessen.de
2.2. Chemicals industry in the region		
2.2.1. History of the chemicals industry in the region	<p>If one considers the development of the nowadays largest chemical estates, they were created over 140 years ago. Entrepreneurs in this region produced paints and pharmaceuticals from coal tar left over in the coal regions.</p> <p>The 1990s were years of consolidation for the chemical industry in Hesse. The Hoechst AG for example had to get more open, more agile and more competitive again. One result of the changes was the transformation of single company sites to industrial parks with many companies and one operating company.</p> <p>Since the beginning the chemical and the pharmaceutical industries have been an integrated industrial complex in Hesse.</p>	<i>Information provided by regional authority</i>
2.2.2. Specialisation	<ul style="list-style-type: none"> • Consumer chemicals • Pharmaceuticals • Products destined for other branches of economic activity 	www.invest-in-hessen.com
2.2.3. Top 5 chemical products of the region	See 2.2.2	
2.2.4. Age of technical installations	Information currently unavailable	
2.2.5. Total nr of chemical companies (cluster; region) with 20 or more employees	144	http://www.statistik-hessen.de/publikationen/download/261/index.html
2.2.6. Nr of multinational companies in the region	See 2.4.1	http://www.invest-in-hessen.com
2.2.7. Enterprise growth (cluster; region)	2.1% (2009)	http://www.clusterobservatory.eu
2.2.8. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	1-19: 2% 20-49: 30% 50-99: 22% 100-249: 26% 250-499: 10% 500 and more: 10%	http://www.statistik-hessen.de/publikationen/download/261/index.html
2.2.9. Nr of employees (in the chemicals industry) with 20 or more employees	37,300	http://www.statistik-hessen.de
2.2.10. Employment dynamics (declining/increasing)	+3.7% (2009)	http://www.clusterobservatory.eu
2.2.11. Turnover (billion EUR) (in the chemicals industry)	Revenue of 12.9 billion EUR (2011)	http://www.statistik-hessen.de
2.2.12. Sector structure	Structure of the chemical and pharmaceutical industry: Pharmaceuticals (49%), basic chemicals (33%), paints, printing inks (6%), other chemical products (5%), detergents and personal care products (3%)	ECRN update January 2012 <i>Information provided by regional authority</i>
	The official statistical numbers	

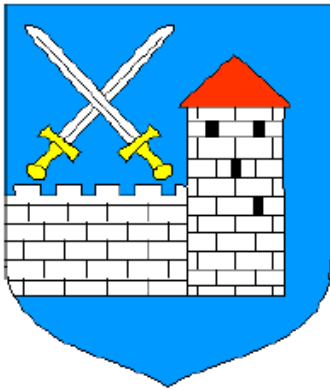


Items/indicators	Data	Sources
	lack one important fact: the Hessian industry is on its way from traditional industries, as shown in this breakdown, to a "Smart Industry", that is combined with intelligent software and services. A large part of the Hessian GDP is due to company-related services that would not exist without industry.	
2.2.13. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)	<ul style="list-style-type: none"> • Hessen Agentur GmbH • Hessen's business portal • Industry location initiative • Frankfurt am Main Chamber of Commerce and Industry • German Chemical Industry Association, Regional Association Hessen • Association of Chemical and Related Industry Employers in the State of Hesse • Science4life • Dechema Gesellschaft für Chemische Technik und Biotechnologie • Rhein-Main-Cluster • T ransMIT Gesellschaft für Technologietransfer mbH 	ECRN update January 2012
2.2.14. Share of chemistry in relation to whole industry in the region (% of turnover; % of employment)	12.2% of turnover; 10.6% of employment	http://www.statistik-hessen.de
2.2.15 Interaction of SMEs with large companies	Information currently unavailable	
2.3. Research capacities		
2.3.1. Number of universities/ technical colleges/universities of applied science	18	ECRN update January 2012
2.3.2. Number of universities/ technical colleges/ universities of applied science with chemical department	8	ECRN update January 2012
2.3.3. Students in pre-vocational and vocational programmes (15-24 years old)	2,200, although not specifically within age limit.	http://www.hessen-agentur.de/dynasite.cfm?dssid=75&dsmid=6987
2.3.4. Students in tertiary programmes with academic orientation (20-24 years old)	More than 10,000, although not specifically within age limit.	http://www.hessen-agentur.de/dynasite.cfm?dssid=75&dsmid=6987
2.3.5. Lifelong learning (% of 25-64 years old)	8.89 (2009)	http://www.clusterobservatory.eu
2.4. Main players (companies)		
2.4.1 List of main players (name, turnover, employees, webpage)	<p>The list of main players includes⁸³:</p> <ul style="list-style-type: none"> • Abbott GmbH & Co. KG • Agfa-Gevaert Graphic Systems GmbH • AllessaChemie GmbH • Alsecco GmbH, CAPAROL Farben Lacke Bautenschutz GmbH • B.Braun Melsungen AG • Bayer CropScience AG • Biotest AG 	<p>http://www.invest-in-hessen.de</p> <p>http://www.hessen-agentur.de/dynasite.cfm?dssid=75&dsmid=6987</p> <p><i>Information provided by the regional authority</i></p>

⁸³ For a full list, please refer to the provided links.

Items/indicators	Data	Sources
	<ul style="list-style-type: none"> Basell Polyolefine GmbH BASF Lampertheim GmbH 	
2.5. Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.61 (2009)	http://www.clusterobservatory.eu
2.5.2. Patents per million inhabitants	206.86 (2009)	http://www.clusterobservatory.eu
2.5.3. Business R&D share of GDP	2.1 (2009)	http://www.clusterobservatory.eu
2.5.4. Public R&D share of GDP (%)	0.2 (2009)	http://www.clusterobservatory.eu
2.5.5. Integration/cooperation with other sectors and areas	Regional cooperation with biotechnology sector	http://www.invest-in-hessen.com
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	Information currently unavailable	
3.2. New or significantly improved chemical products introduced to the market in the last 5 years	Information currently unavailable	
3.3. Integration/cooperation with other sectors and areas (chemical cluster)	Region is part of the European Chemical Regions Network (ECRN)	www.ecrn.net
3.4. Main areas of regional cooperation	<ul style="list-style-type: none"> Frankfurt: Industrial park Höchst and industrial park Griesheim Darmstadt region Wiesbaden region: Industrial park Kalle-Albert Hanau: Industrial park Wolfgang Marburg: Industrial park Behringwerke 	<i>Information provided by regional authority</i>
4. Logistics		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)	1 airport (Frankfurt, Germany's largest and Europe's third largest airport) Many trans-European and German motorways, high-speed train, and waterways lines (part of Europe's major water transportation network) cross Hessen.	http://en.wikipedia.org http://www.hessen.eu
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	See 4.1.1	
4.2. Access to natural resources and energy		
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.113 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.2.2. Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	0.043 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.3. Bottlenecks	No bottlenecks at the moment	<i>Information provided by regional authority</i>
4.4. Development projects	The Ministry of Economic Affairs is concerned to create equally good conditions for every industry. The deadlock in the highway projects A 44 and A 49 is overcome, the regional coverage by broadband is reached and the expansion of Frankfurt airport is confirmed by	<i>Information provided by regional authority</i>

Items/indicators	Data	Sources
	the highest court. Additionally, the judgment makes it possible to implement the mediation result quite sure. This shows that infrastructure-planning of large projects can be done in an effective way. This supports all lines of industry.	

Ida Virumaa

Items/indicators	Data	Sources
1. General characteristics		
1.1. Name of the region	Ida Virumaa (Eesti)	Cluster overview
1.2. Associated picture (logo/map)	  	www.ecrn.net
1.3. Regional authority		
1.3.1. Organisation name	Ida – Virumaa County Government, ESTONIA	ECRN update January 2012
1.3.2. Address	Keskväljaku 1, 41594 Jõhvi	ECRN update January 2012
1.3.3. Country	Estonia	ECRN update January 2012
1.3.4. Phone number	+372 – 3321201	ECRN update January 2012
1.3.5. Fax number	+372 – 3321240	ECRN update January 2012
1.3.6. Homepage	www.ivmv.ee	ECRN update January 2012
1.3.7. Governance (type of regional body; regional coordination)	Regionalised model	http://www.ida-viru.maavalitsus.ee




Items/indicators	Data	Sources
mechanism)		
1.3.8 Legal competence and authority of the region	Legal competence includes: <ul style="list-style-type: none"> • Rural development • Economic Development • Education & Training • Healthcare • Social policy • Transport & infrastructure • Environmental policy 	http://www.ida-viru.maavalitsus.ee
1.3.9. Contact details of focal point	Name: Riho Breivel Email: riho.breivel@ivmv.ee Tel.: 00372 – 3321201 Name: Indrek Narusk Email: indrek.narusk@ivmv.ee Tel.: 00372 - 3321201	ECRN update January 2012
2. Overall economic situation of the region		
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	178,000	ECRN update January 2012
2.1.2. Area (km ²)	3,364	ECRN update January 2012
2.1.4. GDP (billion EUR)	0.95	ECRN update January 2012
2.1.5. GDP per capita (EUR ppp)	17,100 (2009)	http://www.clusterobservatory.eu
2.1.6. GDP growth per capita (%)	11.3 (2009)	http://www.clusterobservatory.eu
2.1.6. Export (billion EUR)	0.6	ECRN update January 2012
2.1.7. Import (billion EUR)	0.28	ECRN update January 2012
2.2. Chemicals industry in the region		
2.2.1. History of the chemicals industry in the region	Industrial production of Estonian shale oil started in 1924. Producing oil from oil shale, producing cosmetics and applied chemistry are a long-term tradition in Estonia. There were some big changes in the structure of chemical industry in 1990s, expressed mostly in decrease of production volume and in vanishing some of the sectors of chemical industry (production of phosphor fertilisers, benzene and toluene has finished, production of medicine decreased)	http://www.keemia.ee http://www.investinestonia.com
2.2.2. Specialisation	Oil shale chemistry and producing of rare earth metals and their oxides.	http://www.keemia.ee
2.2.3. Top 5 chemical products of the region	See 2.2.2	
2.2.4. Age of technical installations	Information currently unavailable	
2.2.5. Total nr of chemical companies (cluster; region)	10	ECRN update January 2012
2.2.6 Nr of multinational companies in the region	Information currently unavailable	
2.2.7. Enterprise growth (cluster; region)	1.9 (2009)	http://www.clusterobservatory.eu
2.2.8. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	Ida-Viru county is characterised by long-term industrial tradition, and the abundance of large manufacturing firms.	http://www.ida-virumaa.ee
2.2.9. Nr of employees (in the	6000	ECRN update January 2012

Items/indicators	Data	Sources
chemicals industry)		
2.2.10. Employment dynamics (declining/increasing)	+6.1% (2009)	http://www.clusterobservatory.eu
2.2.11. Turnover (billion EUR)	0.425	EstRuCluster, (2009). "Trans-border clusters of Russian North-West and Estonian North-East", available at http://www.kohtla-jarve.ee/uploads/documents/valissuhted/projektid/2/cd/en/eternal.pdf
2.2.12. Sector structure	<ul style="list-style-type: none"> • Oil shale Industry; • Consumer/applied Chemistry and Cosmetics; • Dyes, paints and varnishes Industry; • Construction Chemistry; • Fertiliser Industry; • Organic Synthesis; • Chemicals Transport; • Science Development. 	
2.2.13. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)	<ul style="list-style-type: none"> • AS Narva Elektri jaamad • AS Silmet • AS Nitrofert • AS Viru Keemia Grupp • AS Novotrade Invest • OÜ Kiviõli Keemiatööstuse • AS Genovique Specialties • Federation of Estonian Chemical Industries (FECI) • International Council of Chemical Associations • Eesti Keemiatööstuse Liit (EKTL) • Foundation Ida-Virumaa Industrial Areas Development (SAIVTA) 	ECRN update January 2012 http://www.keemia.ee http://www.icca-chem.org http://ivia.ee/
2.2.14. Share of chemistry in relation to whole industry in the region (% of turnover; % of employment)	Information currently unavailable	
2.2.15 Interaction of SMEs with large companies	Information currently unavailable	
2.3. Research capacities		
2.3.1. Number of universities/technical colleges/universities of applied science	5	ECRN update January 2012
2.3.2. Number of universities/technical colleges/universities of applied science with chemical department	1	ECRN update January 2012
2.3.3. Students in pre-vocational and vocational programmes (15-24 years old)	13.55 (2009)	http://www.clusterobservatory.eu
2.3.4. Students in tertiary programmes with academic orientation (20-24 years old)	40.27 (2009)	http://www.clusterobservatory.eu
2.3.5. Lifelong learning (% of 25-64 years old)	9.7 (2009)	http://www.clusterobservatory.eu
2.4. Main players (companies)		
2.4.1 List of main players (name, turnover, employees, webpage)	<ul style="list-style-type: none"> • Viru Keemia Grupp AS • Nitrofert AS • Flora Kadrina AS • ES Sadolin AS: • Krimelte AS 	http://www.investinestonia.com

Items/indicators	Data	Sources
	<ul style="list-style-type: none"> • Henkel Makroflex AS • Estko AS • Kemivesi AS • Kiviõli Keemiatööstus OÜ • Orto AS • Silmet AS • Vivacolor • Eskaro AS 	
2.5. Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.38 (2009)	http://www.clusterobservatory.eu
2.5.2. Patents per million inhabitants	7.93 (2009)	http://www.clusterobservatory.eu
2.5.3. Business R&D share of GDP	0.5 (2009)	http://www.clusterobservatory.eu
2.5.4. Public R&D share of GDP (%)	0.1 (2009)	http://www.clusterobservatory.eu
2.5.5. Integration/cooperation with other sectors and areas	Information currently unavailable	
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	Information currently unavailable	
3.2. New or significantly improved chemical products introduced to the market in the last 5 years	Information currently unavailable	
3.3. Integration/cooperation with other sectors and areas (chemical cluster)	Region is part of the European Chemical Regions Network (ECRN)	
3.4. Main areas of regional cooperation	<ul style="list-style-type: none"> • Export of goods (construction materials; chemical products; packaging products); • Investment abroad (building trading malls); • Services for enterprises (transport; etc); • Services for customers in cooperation with enterprises across the border. 	Tallinn University of Technology, (2006). "Challenges and Prospects of Cross Border Cooperation in the Context of EU Enlargement", Estonia, available at http://www.crossbordercoop.net/Publications/RSR_Ida-Viru.pdf
4. Logistics		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)	Ida Virumaa is located at the crossroads between the East and the West, close to large important cities, such as St. Petersburg and Tallinn, the geographical location of Ida-Viru county and the border town of Narva. Due to its strategic location, the infrastructure and transport play an essential role. There are renovated roads and railways, and the most modern port is located in Estonia, the Port of Sillamäe.	http://ivia.ee http://en.wikipedia.org/wiki/Via_Hanseatica Tallinn University of Technology, (2006). "Challenges and Prospects of Cross Border Cooperation in the Context of EU Enlargement", Estonia, available at http://www.crossbordercoop.net/Publications/RSR_Ida-Viru.pdf
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	Information currently unavailable	
4.2. Access to natural resources and energy		
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.113 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.2.2. Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	0.043 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers

Items/indicators	Data	Sources
4.3. Bottlenecks	<ul style="list-style-type: none"> The number of small-sized chemical companies has decreased As of 2010, the manufacturers of chemical substances must, according to REACH Regulation, register their first substances which, depending on the company and substances will cost tens of millions of kroons. Due to the poor Estonian chemical safety policy and lack of knowledge and skills, the region is ill-prepared. The current transport servicing capacity is unsatisfactory with regard to the demand that accompanies the growing flow of goods and number of passengers. The county possesses unused infrastructural capacity that could offer good conditions for the development of entrepreneurship in Ida-Viru county. 	<p>umers www.keemia.ee</p> <p><i>Information provided by regional authority</i></p>
4.4. Development projects	<p>The Estonian government under the guidance of the Ministry of the Interior has introduced a development strategy for Ida-Virumaa for 2005-2013 to ensure Ida-Virumaa's competitiveness, sustainability and balanced development.</p> <p>There is also a high potential for cross border cooperation based on the strategic location of the county. The regional authority is supporting the development of the transport sector. Opening the port of Sillamäe has, for example, created opportunities for cross border cooperation.</p> <p>A number of environmental projects are carried out in the county in order to keep the ecological balance, such as sustainable groundwater and the monitoring system of East-Vuri County.</p>	<p>http://www.mapsofworld.com/estonia/counties/ida-viru.html</p> <p>http://www.tuit.ut.ee/orb.aw/class=file/action=preview/id=401834/Groundwater+hand-out.pdf</p> <p>http://www.siseministerium.ee/16540/</p> <p>Tallinn University of Technology, (2006). "Challenges and Prospects of Cross Border Cooperation in the Context of EU Enlargement", Estonia, available at http://www.crossbordercoop.net/Publications/RSR_Ida-Viru.pdf</p>

Limburg

Items/indicators	Data	Sources
1. General characteristics		
1.1. Name of the region	Limburg	Cluster overview
1.2. Associated picture (logo/map)	provincie limburg   	http://www.limburg.nl
1.3. Regional authority		
1.3.1. Organisation name	Province of Limburg (Provincie Limburg)	ECRN update January 2012
1.3.2. Address	Postal address: PO Box 5700, 6202 MA Maastricht Visitors: Limburglaan 10, 6229 GA Maastricht	<i>Information provided by regional authority</i>
1.3.3. Country	Netherlands	ECRN update January 2012
1.3.4. Phone number	0031 - (0)43 - 3899999	ECRN update January 2012
1.3.5. Fax number	0031 - (0)43 - 3897107	<i>Information provided by regional authority</i>
1.3.6. Homepage	www.limburg.nl	ECRN update January 2012
1.3.7. Governance (type of regional body; regional coordination mechanism)	Regionalised model	
1.3.8 Legal competence and authority of the region	Legal competence includes: <ul style="list-style-type: none"> • Environmental planning & infrastructure • Security & quality of life • Culture & Nature • Economical & competitive development 	www.limburg.nl
1.3.9. Contact details of focal point	Name: Dirk Plees Email: d.plees@prvlimburg.nl Tel.: 0031 – (0)433897664 Name: Theo Hommels Email: thommels@liof.nl Tel.: 0031 – (0)433280280	ECRN update January 2012


Items/indicators	Data	Sources
2. Overall economic situation of the region		
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	1,123,154 (2009)	http://www.clusterobservatory.eu
2.1.2. Area (km ²)	2,209	ECRN update January 2012
2.1.4. GDP (billion EUR)	33.36 (2009)	Calculation; population x GDP per capita
2.1.5. GDP per capita (EUR ppp)	29,700 (2009)	http://www.clusterobservatory.eu
2.1.6. GDP growth per capita (%)	5.4% (2009)	http://www.clusterobservatory.eu
2.1.6. Export (billion EUR)	70% (export/total turnover in 2003)	http://www.ecrn.net/abouttheecrn/limburg.php
2.1.7. Import (billion EUR)	Information currently unavailable	n/a
2.2. Chemicals industry in the region		
2.2.1. History of the chemicals industry in the region	After closing of the state mines (1965 – 1973) new industry has developed. Focus was placed on the petrochemical industry (by DSM = Dutch State Mines) and Bulk Chemicals. Later on the focus area has broadened, covering also final products, such as plastics and fine chemicals. In the 90s, DSM had another transition. DSM went further on to the fine chemicals and life sciences (more added value) and sold the Bulk Chemicals to companies like Sabic, OCI Nitrogen, Lanxess. From 2000 to 2008 DSM also transformed its home base Chemelot into an industrial site and a research campus with more than 70 companies which were, and most still are, doing research and production. As from there, the idea was born to create a public private partnership with DSM, The University of Maastricht and the Province of Limburg to develop the research campus. In 2012 the Chemelot Campus Consortium will be raised with a start of 1,300 FTE research and 60 companies with an ambition to grow to 2300 FTE and 100 companies in 2020.	<i>Information provided by regional authority</i>
2.2.2. Specialisation	Chemelot Campus: <ul style="list-style-type: none"> • performance materials; • biobased materials; • biomedical materials; • biotechnology/biosynthesis; • analytical support. 	<i>Information provided by regional authority</i>
2.2.3. Top 5 chemical products of the region	PM	<i>Information provided by regional authority</i>
2.2.4. Age of technical installations	Industry settled here in the period of 1965 – 1973. The factories on the industrial site are from that period. The activities on the campus (research) started later on.	<i>Information provided by regional authority</i>
2.2.5. Total nr of chemical companies (cluster; region)	Chemicals 96, Rubber and plastics 116 (2008)	ECRN update January 2012
2.2.6 Nr of multinational companies	At the research campus and	<i>Information provided by regional authority</i>


Items/indicators	Data	Sources
in the region	industrial site there are 9 multinational companies: (DSM, SABIC, OCI-Nitrogen, Lanxess, Mitsubishi engineering plastics, Lydall, Sekisui S-Lec)	authority
2.2.7. Enterprise growth (cluster; region)	Information currently unavailable	
2.2.8. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	Information currently unavailable	
2.2.9. Nr of employees (in the chemicals industry)	Chemicals 10,621, Rubber and plastics 4,168 (2008)	ECRN update January 2012
2.2.10. Employment dynamics (declining/increasing)	Information currently unavailable. One of the main goals of the Chemelot Campus is to increase the number of knowledge workers from 1,300 to 2,300 in 2020.	Information provided by regional authority
2.2.11. Turnover (billion EUR)	Information currently unavailable	
2.2.12. Sector structure	Basic chemicals (58% of number of employees), Manufacture of rubber and plastic products (28% of NE), Engineering Plastics, Performance Materials, Special Products, Pharmaceuticals and Life Sciences.	ECRN update January 2012
2.2.13. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)	<ul style="list-style-type: none"> • Industriebank LIOF NV; • Chemelot Campus; • De Vereniging van de Nederlandse Chemische Industrie (VNCI); • Regiogroup chemie; • Chematerials & Energy cluster as part of the “Versnellingsagenda”; • Brainport 2020 (Top sector Chemie). 	ECRN update January 2012 http://www.limburg.nl http://www.versnellingsagenda.nl http://www.topsectorenzuidlimburg.nl/chemie.html
2.2.14. Share of chemistry in relation to whole industry in the region (% of turnover; % of employment)	17% of industrial net earnings (14,789/84,999 EUR) in 2008	ECRN update January 2012
2.2.15 Interaction of SMEs with large companies	Information currently unavailable	
2.3. Research capacities		
2.3.1. Number of universities/technical colleges/universities of applied science	5	ECRN update January 2012
2.3.2. Number of universities/technical colleges/universities of applied science with chemical department	2	ECRN update January 2012
2.3.3. Students in pre-vocational and vocational programmes (% of 15-24 years old)	25.8 (2009)	http://www.clusterobservatory.eu
2.3.4. Students in tertiary programmes with academic orientation (% of 20-24 years old)	53.34 (2009)	http://www.clusterobservatory.eu
2.3.5. Lifelong learning (% of 25-64 years old)	15.07 (2009)	http://www.clusterobservatory.eu
2.4. Main players (companies)		
2.4.1 List of main players (name, turnover, employees, webpage)	<ul style="list-style-type: none"> • DSMSABIC • Trespa • Ciba Specialty Chemicals bv • Ineos Silicas Netherlands bv • Vinamul Polymers 	ECRN update January 2012
2.5. Innovation capacities		

Items/indicators	Data	Sources
2.5.1. Regional Innovation Scoreboard	0.53 (2009)	http://www.clusterobservatory.eu
2.5.2. Patents per million habitants	117.45 (2009)	http://www.clusterobservatory.eu
2.5.3. Business R&D share of GDP (%)	0.9 (2009)	http://www.clusterobservatory.eu
2.5.4. Public R&D share of GDP (%)	0 (2009)	http://www.clusterobservatory.eu
2.5.5. Integration/cooperation with other sectors and areas	<ul style="list-style-type: none"> Euregio Maas-Rhine Euregio Rhine-Maas-North Euregio Rhine-Waal Collaboration Flanders-Netherlands 	http://www.applicatieserverlimburg.nl <i>Information provided by regional authority</i>
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	PM	<i>Information provided by regional authority</i>
3.2. New or significantly improved chemical products introduced to the market in the last 5 years	Valencene Pure(TM) (natural aroma, by Isobionics)	http://www.chemelot.nl/default.aspx?id=5&nid=476&template=overig/nieuwsdetail.htm&taal=nl
3.3. Integration/cooperation with other sectors and areas (chemical cluster)	<ul style="list-style-type: none"> Region is part of the European Chemical Regions Network (ECRN) Cooperates with other leading European chemical regions through the ChemClust initiative. European Chemical Cluster for the support of SME's 	http://www.ecrn.net http://www.chemclust.eu/partnership.html http://www.chemsme.net
3.4. Main areas of regional cooperation	All key players at the Chemelot Campus are global players	<i>Information provided by regional authority</i>
4. Logistics		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)	<ul style="list-style-type: none"> On the intersection of European main highways network; Entry to Europe's main waterways through 2 rivers/canals; Railroads connecting to West-Netherlands, the Rhine/Ruhr-region and Centraal Europe; 1 international airport (Maastricht Aachen Airport); The Maas river is a major navigable inland waterway 1 major inland port (Maastricht) 	http://www.limburg.nl
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	Information currently unavailable	
4.2. Access to natural resources and energy		
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.076 – 0.100	http://ec.europa.eu/energy/observatory/eu_27_info/doc/key_figures.pdf#page=33
4.2.2. Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	2.01 – 2.50	http://ec.europa.eu/energy/observatory/eu_27_info/doc/key_figures.pdf#page=33
4.3. Bottlenecks	Information currently unavailable	
4.4. Development projects	The central point of the current policies in Limburg is the program Top Technological Region (TTR-ELAt). This program has the ambition to allow Limburg to become – in association with neighboring regions in the rectangle Aachen/Jülich,	“ChemSME - SWOT Analysis and Benchmarking Study” European Chemical Cluster for the Support of SME. http://www.ecrn.net/abouttheecrn/limburg.php

Items/indicators	Data	Sources
	<p>Eindhoven/Venlo, Maastricht/Liège and Louvain – the top technological region in Europe with an open, creative and attractive business climate.</p> <p>In order to reach this, Limburg focuses on the the following main points: promotion of Maastricht as a cosmopolitan European city on the one hand, and on the other the expansion and strengthening of activities in Limburg in three priority areas: Chemistry/Materials, Health/Life Sciences and Agrofood/Logistics. In this respect, action programs are implemented targeting these areas. Three main projects in this context are:</p> <ul style="list-style-type: none"> • expanding DSM's Research Campus into an International Research & Business Centre as a springboard for innovative entrepreneurs and start-up companies; • strengthening and revitalising the agro food business in the area of new food technology; • developing an Integrated Innovation Programme for Small and Medium-Sized Enterprises in Limburg (SLIM) in association with external partners. <p>Also, a new program has been implemented targeting the development of the Limburg chemical cluster. DSM, SABIC, the investment bank LIOF, the city of Sittard-Geleen and the Province of Limburg are members of the steering group. The goal of this program is the development of Petrochemicals, performance materials, biomaterials, biotechnology and life sciences.</p>	

Lombardy

Items/indicators	Data	Sources
1. General characteristics		
1.1. Name of the region	Lombardy (Lombardia)	Cluster overview
1.2. Associated picture (logo/map)		www.regione.lombardia.it http://www.europa-planet.com

Items/indicators	Data	Sources
		
1.3. Regional authority		
1.3.1. Organisation name	REGIONE LOMBARDIA, University and Research Unit, Presidency	ECRN update January 2012
1.3.2. Address	Via F. Filzi, 22, 20124 Milano	ECRN update January 2012
1.3.3. Country	Italy	ECRN update January 2012
1.3.4. Phone number	0039 - 02 - 67656818	ECRN update January 2012
1.3.5. Fax number	0039 - 02 - 67656882	ECRN update January 2012
1.3.6. Homepage	www.regione.lombardia.it	ECRN update January 2012
1.3.7. Governance (type of regional body; regional coordination mechanism)	Regionalised model	ECRN update January 2012
1.3.8 Legal competence and authority of the region	Legal competence includes: <ul style="list-style-type: none"> • Programming and Budget. • Constitutional Affairs. • Health Care. • Production and Employment. • Territory • Environment and Civil Protection. • Culture, Education, Training, Sport and Information. • Agriculture, Water Resources and Parks. 	http://www.consiglio.regione.lombardia.it
1.3.9. Contact details of focal point	Name: Alberto Cavalli Email: alberto_cavalli@regione.lombardia.it Tel.: 0039 - 02 6765.2220 Name: Armando De Crinito Email: armando_de_crinito@regione.lombardia.it Tel.: 0039 - 02 6765.6818 Details of 3 more contacts available on ECRN page. (Vincenzina Cristofaro, Carmela Rundo and Folco Ciulli)	ECRN update January 2012
2. Overall economic situation of the region		
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	9,917,714	ECRN update January 2012
2.1.2. Area (km ²)	23,861	ECRN update January 2012
2.1.4. GDP (billion EUR)	310.95 (20.4% of Italian GDP)	ECRN update January 2012
2.1.5. GDP per capita (EUR ppp)	33,600 (2009)	http://www.clusterobservatory.eu
2.1.6. GDP growth per capita (%)	3.4% (2009)	http://www.clusterobservatory.eu
2.1.6. Export (billion EUR)	115.969	ECRN update January 2012
2.1.7. Import (billion EUR)	93.903	ECRN update January 2012
2.2. Chemicals industry in the region		



Items/indicators	Data	Sources
2.2.1. History of the chemicals industry in the region	Chemical industry was born in mid-1800 and the most important Italian Company Montecatini was born in Lombardy.	http://www.federchimica.it
2.2.2. Specialisation	The specialisation of Italy and, in particular, of Lombardia in active ingredients for pharmaceuticals...	http://www.federchimica.it
2.2.3. Top 5 chemical products of the region	See 2.2.2	
2.2.4. Age of technical installations	Information currently unavailable	
2.2.5. Total nr of c-chemical companies (cluster; region)	2,438	ECRN update January 2012
2.2.6 Nr of multinational companies in the region	In Italy, foreign multinational enterprises (MNEs) represent about one third of total chemical production. An overwhelming share of these MNEs (68% in terms of workers) is in Lombardia.	http://www.federchimica.it
2.2.7. Enterprise growth (cluster; region)	-6.3% (2009)	http://www.clusterobservatory.eu
2.2.8. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	33% SME's , 17% of employees In Lombardia a well-balanced mix of all the actors forming the Italian chemical industry can be found	http://www.regione.lombardia.it http://www.federchimica.it
2.2.9. Nr of employees (in the chemicals industry)	78,616	ECRN update January 2012
2.2.10. Employment dynamics (declining/increasing)	-0.2% ⁸⁴ (2009)	http://www.clusterobservatory.eu http://www.federchimica.it
2.2.11. Turnover (billion EUR)	~23	http://www.federchimica.it
2.2.12. Sector structure	<ul style="list-style-type: none"> • detergents and cosmetics • other chemical products: a varied aggregate where chemicals for industry prevail • pharmaceuticals • paint, varnish, ink, adhesives • Basic chemicals • Agro-chemicals • Man-made fibers 	http://www.federchimica.it
2.2.13. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)	• FederchimicaCNR Istituto di Scienze e Tecnologie Molecolari (ISTM)	ECRN update January 2012
2.2.14. Share of chemistry in relation to whole industry in the region (% of turnover; % of employment)	12%	http://www.federchimica.it
2.2.15 Interaction of SMEs with large companies	This aspect is one of the key success factors of Lombardy Region	http://www.federchimica.it
2.3. Research capacities		
2.3.1. Number of universities/technical colleges/universities of applied science	12 universities and 1 institute for advanced studies	ECRN update January 2012
2.3.2. Number of universities/technical colleges/universities of applied science with chemical department	About 6	ECRN update January 2012
2.3.3. Students in pre-vocational and	28.99 (2009)	http://www.clusterobservatory.eu

⁸⁴ Since 1971, the chemical industry has experienced a considerable reduction of its employees in Lombardia. However, in Lombardia this drop has been relatively smaller than in the rest of Italy (-28.8% versus -32.0% till 2001). Looking at the development of chemical employment by class of employment, it turns out that the fall in employment in particular has affected large companies (-71.9%) while SMEs have even experienced an employment growth relative to 1971 (+7.5%).

Items/indicators	Data	Sources
vocational programmes (% of 15-24 years old)		
2.3.4. Students in tertiary programmes with academic orientation (% of 20-24 years old)	59.88 (2009)	http://www.clusterobservatory.eu
2.3.5. Lifelong learning (% of 25-64 years old)	5.92 (2009)	http://www.clusterobservatory.eu
2.4. Main players (companies)		
2.4.1 List of main players (name, turnover, employees, webpage)	<ul style="list-style-type: none"> • Polimeri Europa • Gruppo Mapei • Radici Group • Gruppo Bracco • Gruppo P & R • Polynt Group (www.polynt.it), • Gruppo C.O.I.M. • Gruppo Sol • Gruppo SIAD • Gruppo Sapio • Gruppo Lamberti <p>Important multinational companies (i.e. Bayer, Aventis, Sanofi, Roche, Rhodia, Solvay, BASF, AstraZeneca, etc.) have established their headquarters and production plants in Lombardia.</p>	ECRN update January 2012
2.5. Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.49 (2009)	http://www.clusterobservatory.eu
2.5.2. Patents per million inhabitants	99.34 (2009)	http://www.clusterobservatory.eu
2.5.3. Business R&D share of GDP	0.9 (2009)	http://www.clusterobservatory.eu
2.5.4. Public R&D share of GDP (%)	0.1 (2009)	http://www.clusterobservatory.eu
2.5.5. Integration/cooperation with other sectors and areas	Region is part of: <ul style="list-style-type: none"> • World Regions Forum; • Network of European Regions Using Space Technologies (NEREUS); • European Regions and Municipalities Partnership for Hydrogen and Fuel cells (HyRaMP); • Enterprise Europe Network; • European Cluster alliance. 	http://www.regione.lombardia.it
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	Biotechnologies, nanotechnologies, biobase chemicals.	http://www.federchimica.it
3.2. New or significantly improved chemical products introduced to the market in the last 5 years	Many new products in the area of sustainability.	http://www.federchimica.it
3.3. Integration/cooperation with other sectors and areas (chemical cluster)	Region is part of: <ul style="list-style-type: none"> • European Chemical Regions Network (ECRN) 	www.ecrn.net
3.4. Main areas of regional cooperation	5 Meta-districts with a strong inter-sectorial integration : Food Bio-technologies, Non-food biotechnologies, Design, Fashion, Materials.	Report "SWOT Analysis and Benchmarking Study Lombardy Region - Part I The macroeconomic development of Lombardy Region" http://www.mentorchem.net
4. Logistics		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at	4 airports	maps.google.com

Items/indicators	Data	Sources
regional level (e.g. in km/area)		
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	No specific information could be provided, but the regional authority noted that the territory is well equipped in terms of transport/logistics/infrastructures	<i>Information provided by regional authority</i>
4.2. Access to natural resources and energy		
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.153(2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.2.2. Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	0.040 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.3. Bottlenecks	To obtain plant authorisations	<i>Information provided by regional authority</i>
4.4. Development projects	Main innovation technologies in the regional chemical area are nanotechnologies, sustainable chemistry, biotechnologies and new materials.	http://www.federchimica.it

Lower Saxony

Items/indicators	Data	Sources
1. General characteristics		
1.1. Name of the region	Lower Saxony (Niedersachsen)	Cluster overview
1.2. Associated picture (logo/map)	 Lower Saxony 	ECRN update January 2012 http://www.lower-saxony.eu
1.3. Regional authority		
1.3.1. Organisation name	Lower Saxony Ministry for Economics, Labour and Transport	ECRN update January 2012
1.3.2. Address	Friedrichswall 1, D- 30159 Hannover	ECRN update January 2012
1.3.3. Country	Germany	ECRN update January 2012
1.3.4. Phone number	0049 - (0)511 – 1200	ECRN update January 2012
1.3.5. Fax number	0049 - (0)511 – 1205782	ECRN update January 2012
1.3.6. Homepage	www.mw.niedersachsen.de	ECRN update January 2012
1.3.7. Governance (type of regional body; regional coordination mechanism)	Regionalised model (partnering with regional ministry)	http://www.lower-saxony.eu/en/landesregierung.html
1.3.8 Legal competence and authority of the region	Legal competence includes: <ul style="list-style-type: none"> • Culture 	http://www.lower-saxony.eu/en/landesregierung.html


Items/indicators	Data	Sources
	<ul style="list-style-type: none"> • Education & Training • Security 	http://en.wikipedia.org/wiki/Lower_Saxony
1.3.9. Contact details of focal point	Name: Dr. Sabine Palandt Email: sabine.palandt@mw.niedersachsen.de Tel.: 0049 - (0)511 - 1205649	ECRN update January 2012
2. Overall economic situation of the region		
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	7,913,502 (31-12-2011)	Landesbetrieb für Statistik und Kommunikationstechnologie Niedersachsen (LSKN)
2.1.2. Area (km ²)	47,613 (31-12-2011)	Landesbetrieb für Statistik und Kommunikationstechnologie Niedersachsen (LSKN)
2.1.3. GDP (billion EUR)	224.4 (2011)	Landesbetrieb für Statistik und Kommunikationstechnologie Niedersachsen (LSKN)
2.1.4. GDP per capita (EUR ppp)	28,306 (2011)	Landesbetrieb für Statistik und Kommunikationstechnologie Niedersachsen (LSKN)
	25,424(2009; from Cluster Observatory)	http://www.clusterobservatory.eu
2.1.5. GDP growth per capita (%)	4.4 (2011/2010)	Landesbetrieb für Statistik und Kommunikationstechnologie Niedersachsen (LSKN)
	19.8 (2009; from Cluster Observatory)	http://www.clusterobservatory.eu
2.1.6. Export (billion EUR)	75.44	Landesbetrieb für Statistik und Kommunikationstechnologie Niedersachsen (LSKN)
2.1.7. Import (billion EUR)	83.30	Landesbetrieb für Statistik und Kommunikationstechnologie Niedersachsen (LSKN)
2.2. Chemicals industry in the region		
2.2.1. History of the chemicals industry in the region	Information currently unavailable	
2.2.2. Specialisation	See 2.2.12	
2.2.3. Top 5 chemical products of the region	See 2.2.12	
2.2.4. Age of technical installations	Information currently unavailable	
2.2.5. Total nr of chemical companies (cluster; region)	144 (2011)	Landesbetrieb für Statistik und Kommunikationstechnologie Niedersachsen (LSKN)
2.2.6 Nr of multinational companies in the region	There are at least 6 multinational companies (see 2.4.1)	
2.2.7. Enterprise growth (cluster; region)	+1.4% (2011/2010)	Landesbetrieb für Statistik und Kommunikationstechnologie Niedersachsen (LSKN)
	-2.6% (2009; from Cluster Observatory)	http://www.clusterobservatory.eu
2.2.8. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	94.5% are SMEs	Landesbetrieb für Statistik und Kommunikationstechnologie Niedersachsen (LSKN)
2.2.9. Nr of employees (in the	23,458 (2011)	Landesbetrieb für Statistik und


Items/indicators	Data	Sources
chemicals industry)		Kommunikationstechnologie Niedersachsen (LSKN)
2.2.10. Employment dynamics (declining/increasing)	+5.3% (2011/2010) -1.3% (2009; from Cluster Observatory)	Landesbetrieb für Statistik und Kommunikationstechnologie Niedersachsen (LSKN) http://www.clusterobservatory.eu
2.2.11. Turnover (billion EUR)	9.609 (2011)	Landesbetrieb für Statistik und Kommunikationstechnologie Niedersachsen (LSKN)
2.2.12. Sector structure	Inorganic and Organic Chemicals, Cosmetics and Scents, Paint and Lacquers	<i>Information provided by regional authority</i>
2.2.13. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)	<ul style="list-style-type: none"> • Verband der Chemischen Industrie e.V. (VCI), • ChemCoast e.V. • Industriepark Walsrode 	ECRN update January 2012
2.2.14. Share of chemistry in relation to whole industry in the region (% of turnover; % of employment)	5.0% of turnover, 4.7% of employment (2011)	ECRN update January 2012
2.2.15 Interaction of SMEs with large companies	Information currently unavailable	
2.3. Research capacities		
2.3.1. Number of universities/ technical colleges/universities of applied science	28	ECRN update January 2012
2.3.2. Number of universities/ technical colleges/ universities of applied science with chemical department	8	ECRN update January 2012
2.3.3. Students in pre-vocational and vocational programmes (15-24 years old)	Information currently unavailable	
2.3.4. Students in tertiary programmes with academic orientation (20-24 years old)	Information currently unavailable	
2.3.5. Lifelong learning (% of 25-64 years old)	6.96 (2009)	http://www.clusterobservatory.eu
2.4. Main players (companies)		
2.4.1 List of main players (name, turnover, employees, webpage)	<ul style="list-style-type: none"> • DOW Deutschland GmbH • BASF Polyurethanes GmbH • Symrise AG • HC Starck GmbH & Co. KG • Ineos Chlor Vinyls Deutschland GmbH • Honeywell Specialty Chemicals Seelze GmbH • Dow Wolff Cellulosics 	ECRN update January 2012
2.5. Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.49 (2009)	http://www.clusterobservatory.eu
2.5.2. Patents per million habitants	110.66 (2009)	http://www.clusterobservatory.eu
2.5.3. Business R&D share of GDP (%)	1.76 (2010) 1.7 (2009)	Landesbetrieb für Statistik und Kommunikationstechnologie Niedersachsen (LSKN) http://www.clusterobservatory.eu
2.5.4. Public R&D share of GDP (%)	0.90 (2010) 0.3 (2009)	Landesbetrieb für Statistik und Kommunikationstechnologie Niedersachsen (LSKN) http://www.clusterobservatory.eu

Items/indicators	Data	Sources
2.5.5. Integration/cooperation with other sectors and areas	<ul style="list-style-type: none"> "Innovationsnetzwerk Niedersachsen" (Business and science innovation network). 	http://www.lower-saxony.eu/en/innovationsland.html
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	Longest superconductor cable Nexans developed in Hanover.	http://www.innovatives.niedersachsen.de/DE/Nachrichten/Meldung/laengstes-supraleiterkabel-bei-nexans-in-hannover-entwickelt/2148
3.2. New or significantly improved chemical products introduced to the market in the last 5 years	Information currently unavailable	
3.3. Integration/cooperation with other sectors and areas (chemical cluster)	Region is part of: <ul style="list-style-type: none"> European Chemical Regions Network (ECRN) 	ECRN update January 2012
3.4. Main areas of regional cooperation	The region Lower Saxony cooperates even in the international dimension and maintains partnerships with other regions such as with Poland's voivodeships of Lower Silesia and Greater Poland, in France with Haute Normandie, in Russia with Perm and Tjumen, in China with the province of Anhui, in Japan with the prefecture of Tokushima, and in South Africa with Eastern Cape Province. Lower Saxony enjoys especially close cooperation with the Netherlands along the shared border. Lower Saxony's global links correspond to the activities of the global players located in the federal state. These include Deutsche Messe AG, organiser of the world's largest IT exhibition (CEBIT) and the world's biggest industrial show (Hannover Messe), car and tyre giants Volkswagen and Continental respectively, and many other companies actively involved in the global markets.	http://www.lower-saxony.de/portal/live.php?navigation_id=28543&article_id=99169&psmand=1016
4. Logistics		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)	<ul style="list-style-type: none"> Outstanding infrastructure of road and rail links and waterways; Lower Saxony's sea ports are the gateway to America, the Far East and the rest of the world. JadeWeserPort Wilhelmshaven, Germany's first and only container deepwater port went into operation on the 21st of September 2012 1 international airport (Hannover Airport) 	http://www.lower-saxony.eu/en/wirtschaft.html http://www.ourairports.com/countries/DE/NI/ http://www.jwplz.de/cms_gvz/index.php?client=7&lang=8&idcat=280&idart=1976
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	The state roads in Niedersachsen reach out to all areas within the region. There are 1,400 kilometers of autobahn routes leading to all German and European destinations. There are	<i>Information provided by regional authority</i> http://www.nglobal.com/fileadmin/media/docs/Folder_Logistik_EN.pdf?PHPSESSID=6f059bd1942a1cf8ca

Items/indicators	Data	Sources
	around 4,200 kilometers of railroad track, and the region boasts a highly efficient network of waterways stretching over around 1,100 km. Niedersachsen has numerous sea ports, inland ports, airports and a wide net of cargo transport centers for ideal connections and networking to all of Europe's most important industrial centers.	8fcfe1482f9572
4.2. Access to natural resources and energy		
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.113 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.2.2. Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	0.043 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.3. Bottlenecks	Information currently unavailable	
4.4. Development projects	<ul style="list-style-type: none"> Regional Operational Programme for Lüneburg (Lower Saxony) was implemented thanks to the European Commission for the period 2007-2013 with the goal to strengthen regional competitiveness and to create and secure permanent jobs through economic growth. 	http://ec.europa.eu/regional_policy/country/prordn/details_new.cfm?gv_PAY=DE&gv_reg=649&gv_PGM=1089&gv_defL=7&LAN=7

Mazovia

Items/indicators	Data	Sources
1. General characteristics		
1.1. Name of the region	Mazovia (Mazowieckie)	Cluster overview
1.2. Associated picture (logo/map)		http://www.mazovia.pl http://en.armsa.pl/web/pages/armsa/about-mazovia

Items/indicators	Data	Sources
		
1.3. Regional authority		
1.3.1. Organisation name	Samorząd Województwa Mazowieckiego	http://www.mazovia.pl
1.3.2. Address	ul. Jagiellońska 26, 03-719 Warsaw	http://www.mazovia.pl
1.3.3. Country	Poland	http://www.mazovia.pl
1.3.4. Phone number	(+48 22) 5979-100	http://www.mazovia.pl
1.3.5. Fax number	(+48 22) 5979-290	http://www.mazovia.pl
1.3.6. Homepage	www.mazovia.pl	http://www.mazovia.pl
1.3.7. Governance (type of regional body; regional coordination mechanism)	Regional model (Self-governing voivodeship ⁸⁵)	www.mazovia.pl
1.3.8. Legal competence and authority of the region	Legal competence includes: <ul style="list-style-type: none"> • Agriculture & Rural development 	http://purple.episerverhotell.net
1.3.9. Contact details of focal point	The Office of the Marshal of the Mazowieckie Voivodeship in Warsaw Email: urzed_marszalkowski@mazovia.pl Tel.: (+48 22) 5979-100	www.mazovia.pl
2. Overall economic situation of the region		
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	5,222,167 (2009)	ECRN Update 2012
2.1.2. Area (km ²)	35,559 (2009)	ECRN Update 2012
2.1.4. GDP (billion EUR)	112.8 (2009)	http://www.clusterobservatory.eu
2.1.5. GDP per capita (EUR ppp)	21,700 (2009)	http://www.clusterobservatory.eu
2.1.6. GDP growth per capita (%)	9.1 (2009)	http://www.clusterobservatory.eu
2.1.6. Export (billion EUR)	Information currently unavailable	
2.1.7. Import (billion EUR)	Information currently unavailable	
2.2. Chemicals industry in the region		
2.2.1. History of the chemicals industry in the region	After World War II, Poland became a part of the Eastern Bloc. Many factories were placed in Mazovia, such as the Huta Warszawa (Ironworks Warsaw) and PKN Orlen S.A. in Plock (Refinery and Petrochemical Complex).	<i>Information provided by regional authority</i>
2.2.2. Specialisation	Processing of crude oil, plastics	<i>Information provided by regional authority</i>
2.2.3. Top 5 chemical products of the	Petrol, diesel, petrochemicals,	<i>Information provided by regional</i>


⁸⁵ Since January 1st, 1999 the inhabitants of Mazovia region, became according to the law, a regional self-government community. This community and territory of the voivodeship make up voivodeship's self-government. To realise its tasks and use its rights, voivodeship's self-government has been equipped with a legal entity (government-appointed governor), the bodies of the Sejmik of the Voivodeship (elected assembly/ regional council) and the Management Board of the Voivodeship (executive board chosen by the sejmik).

Items/indicators	Data	Sources
region	plastics, paints and varnishes, glues.	authority
2.2.4. Age of technical installations	Information currently unavailable	
2.2.5. Total nr of chemical companies (cluster; region)	654 (2009) 1100 (ECRN, 2009)	http://www.clusterobservatory.eu ECRN Update 2012
2.2.6 Nr of multinational companies in the region	Information currently unavailable	
2.2.7. Enterprise growth (cluster; region)	-1.1% (2009)	http://www.clusterobservatory.eu
2.2.8. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	Information currently unavailable	
2.2.9. Nr of employees (in the chemicals industry)	17744 (manufacture of chemicals and chemical products, 2010), 17142 (manufacture of rubber and plastic products, 2010) 7607 (Cluster Observatory, 2009)	http://www.stat.gov.pl/cps/rde/xbcr/warsz/ASSETS_biuletyn_04_2011.pdf http://www.clusterobservatory.eu
2.2.10. Employment dynamics (declining/increasing)	Information currently unavailable	
2.2.11. Turnover (billion EUR)	4.826 sold production (2010)	“Sold Production of Industry: manufacture of chemicals and chemical, and manufacture of rubber and plastic products products”, available at http://www.stat.gov.pl/cps/rde/xbcr/warsz/ASSETS_biuletyn_04_2011.pdf
2.2.12. Sector structure	Petrochemical production 68%, chemicals 13.2%, pharmaceuticals 5.8%, cosmetics 4.6%, paints and lacquers 3.3%, other chemicals 5.1%	ECRN Update 2012
2.2.13. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)	Polish Chamber of Chemical Industry	ECRN Update 2012
2.2.14. Share of chemistry in relation to whole industry in the region (% of turnover; % of employment)	39.4	ECRN Update 2012
2.2.15 Interaction of SMEs with large companies	Information currently unavailable	
2.3. Research capacities		
2.3.1. Number of universities/ technical colleges/universities of applied science	4 technical colleges/3 universities	ECRN Update 2012
2.3.2. Number of universities/ technical colleges/ universities of applied science with chemical department	7	ECRN Update 2012
2.3.3. Students in pre-vocational and vocational programmes (15-24 years old)	16.18 (2009)	http://www.clusterobservatory.eu
2.3.4. Students in tertiary programmes with academic orientation (20-24 years old)	111.23 (2009)	http://www.clusterobservatory.eu
2.3.5. Lifelong learning (% of 25-64 years old)	7.52 (2009)	http://www.clusterobservatory.eu
2.4. Main players (companies)		
2.4.1 List of main players (name, turnover, employees, webpage)	• PKN Orlen	ECRN Update 2012
2.5. Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.51 (2009)	http://www.clusterobservatory.eu

Items/indicators	Data	Sources
2.5.2. Patents per million habitants	4.8 (2009)	http://www.clusterobservatory.eu
2.5.3. Business R&D share of GDP	0.3 (2009)	http://www.clusterobservatory.eu
2.5.4. Public R&D share of GDP (%)	0.6 (2009)	http://www.clusterobservatory.eu
2.5.5. Integration/cooperation with other sectors and areas	Information currently unavailable	
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	Information currently unavailable	
3.2. New or significantly improved chemical products introduced to the market in the last 5 years	Information currently unavailable	
3.3. Integration/cooperation with other sectors and areas (chemical cluster)	<ul style="list-style-type: none"> Region is part of the European Chemical Regions Network (ECRN) Cooperates with other leading European chemical regions through the ChemClust initiative. 	http://www.ecrn.net http://www.chemclust.eu/partnership.html
3.4. Main areas of regional cooperation	Information currently unavailable	
4.		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)	1 international airport 3 regional airports Railways	http://www.en.investmazovia.com
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	Transport via waterway is limited	http://www.en.investmazovia.com
4.2. Access to natural resources and energy		
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.090 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.2.2. Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	0.028 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.3. Bottlenecks	Information currently unavailable	
4.4. Development projects	<p>The European Commission accepted the regional development programme in the Mazovia region in Poland for the period 2007-2013 called "the Operational Programme for the Mazowieckie voivodship". The main target of the program is "the improvement of the region's competitiveness and improvement of the social, economic, and territorial cohesion of the voivodship".</p> <p>The Mazovian Valley of Green Chemistry is a project introduced in order to turn the region Mazovia a hub for green chemistry research in Europe thanks to new research infrastructure that will be used by top chemistry-related institutions from all over the country. Thanks to this, development of a friendly</p>	http://ec.europa.eu/regional_policy/country/prordn/details_new.cfm?LAN=7&gv_PAY=PL&gv_reg=ALL&gv_PGM=1205&gv_defL=7 http://cordis.europa.eu/fetch?CALLER=EN_NEWS&ACTION=D&RCN=34387

Items/indicators	Data	Sources
	research environment conducive to dynamic development of various fields of chemistry and the fast transfer of research will be possible.	

North Rhine-Westphalia

Items/indicators	Data	Sources
1. General characteristics		
1.1. Name of the region	North Rhine-Westphalia	Cluster overview
1.2. Associated picture (logo/map)		ECRN update January 2012
1.3. Regional authority		
1.3.1. Organisation name	Ministry of Economic Affairs, Energy and Industry of the State of North Rhine-Westphalia	<i>Information provided by the regional authority</i>
1.3.2. Address	Haroldstrasse 4, D-40213 Duesseldorf	ECRN update January 2012
1.3.3. Country	Germany	ECRN update January 2012
1.3.4. Phone number	0049 - (0)211 - 83702	ECRN update January 2012
1.3.5. Fax number	0049 - (0)211 - 8372200	ECRN update January 2012
1.3.6. Homepage	http://www.wirtschaft.nrw.de/	ECRN update January 2012
1.3.7. Governance (type of regional body; regional coordination mechanism)	Regionalised model (partnering with regional ministry)	ECRN update January 2012 http://www.fes.hr/E-books/pdf/Reforming%20Local%20Public%20Administration/o2.pdf
1.3.8. Legal competence and authority of the region	Legal competence includes: <ul style="list-style-type: none"> • Urban development • Economic Development • Social • Ecologic 	http://www.mbv.nrw.de
1.3.9. Contact details of focal point	Name: Bettina Kittel Email: Bettina.kittel@mweimh.nrw.de Tel.: 0049 -(0)211 - 8372507 Name: Karl-Uwe Bütöf Email: Karl-	<i>Information provided by the regional authority</i>

Items/indicators	Data	Sources
	uwe.buetof@mweimh.nrw.de Tel.: 0049 -(0)211 - 8372203	
2. Overall economic situation of the region		
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	18 million	ECRN update January 2012
2.1.2. Area (km ²)	34,086	ECRN update January 2012
2.1.3. GDP (billion EUR)	543	ECRN update January 2012
2.1.4. GDP per capita (EUR ppp)	28,529.80	http://www.clusterobservatory.eu
2.1.5. GDP growth per capita (%)	4.4	http://www.clusterobservatory.eu
2.1.6. Export (billion EUR)	162.1	ECRN update January 2012
2.1.7. Import (billion EUR)	11.4 (2010)	http://www.nrwinvest.com ECRN update January 2012
2.2. Chemicals industry in the region		
2.2.1. History of the chemicals industry in the region	In the 1980s and 1990s, the chemical industry of western Germany had to undergo substantial restructuring processes. A consequence of these changes was a reduction in the labour force by 45,000 people between 1991 and 1994. Firms invested into new production technologies with a high degree of automation in order to reduce labour costs and replace even more capital for labour. Furthermore, production activities have been reorganised to increase efficiency and secure high productivity. Facing greater global competition, chemical firms have eliminated overcapacities and restructured the geographical distribution of their production facilities in favor of a stronger market orientation. This became even more important as markets in Germany were subject to stagnation while other world regions seemed to have a higher growth potential and associated lower costs. As a consequence, the large producers have expanded their production networks into the major world regions. Some branches of the industry such as textile dyes and synthetic fibres have been forced to relocate their centre of activities simply because a large proportion of their customer basis (in this case, the textile and clothing industry) had moved away from Germany. Other changes in the production structure have been related to new health and environmental regulations and a shift in demand towards higher-quality products, a greater variety of products and those products which are 'environmentally friendly'. As a result, changes within the product	http://www.v-g-t.de/english/brd/module/m4/u5.htm

Items/indicators	Data	Sources
	structure have occurred in recent years. Inorganic and organic basic chemicals have experienced growing price competition from producers in low-cost countries. Their share of the total production value in western Germany has decreased from 29% to 21% during the period from 1983 to 1992. Producers of consumer goods and specialty chemicals have been the primary beneficiaries of the restructuring processes.	
2.2.2. Specialisation	See 2.2.12	
2.2.3. Top 5 chemical products of the region	<ul style="list-style-type: none"> • Petrochemicals/ Chemical Basics • Dyes / Print Colours • Rubber and Plastics • Pharmaceuticals • Soap and Washing / Body Care Products 	<i>Information provided by the regional authority</i>
2.2.4. Age of technical installations	Information on the age of installations is currently unavailable, though the regional authority mentioned that the installations are continuously updated.	<i>Information provided by the regional authority</i>
2.2.5. Total nr of chemical companies (cluster; region)	467 (20 and more employees)	ECRN update January 2012
2.2.6 Nr of multinational companies in the region	>10	<i>Information provided by the regional authority</i>
2.2.7. Enterprise growth (cluster; region)	0.4%	http://www.clusterobservatory.eu
2.2.8. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	A special mixture of a broad mid-market and numerous internationally successful large corporations.	http://www.nrwinvest.com
2.2.9. Nr of employees (in the chemicals industry)	99,976	ECRN update January 2012
2.2.10. Employment dynamics (declining/increasing)	+2.8%	http://www.clusterobservatory.eu
2.2.11. Turnover (billion EUR)	51.4 total chemical sales (2010)	http://www.chemicalparks.com
2.2.12. Sector structure	<ul style="list-style-type: none"> • Petrochemicals; • chemical basics; • dyes/print colours/ fillers; • industrial gas; • rubber and plastics; • pharmaceutical products; • soap and washing/ body care products; • chemical fibers; • pesticides and biocides. 	ECRN update January 2012
2.2.13. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)	<ul style="list-style-type: none"> • Verband der Chemischen Industrie VCI • ChemCologne e.V. • Chemsite • Clib2021.de • Cluster CHEMIE.NRW 	ECRN update January 2012
2.2.14. Share of chemistry in relation to whole industry in the region (% of turnover; % of employment)	14.8% of whole turnover (No.1 in NRW)	ECRN update January 2012

Items/indicators	Data	Sources
2.2.15 Interaction of SMEs with large companies	<p>The following two networks have been introduced in order to strengthen the establishments in the cluster:</p> <ul style="list-style-type: none"> • Surface Treatment Network is the centralised contact and coordination platform for the entire value-added chain – reaching from producers of raw materials, lacquer and adhesives formulators to the wide range of the application sector to plant construction, service providers as well as universities and scientific institutes. • Polymer Network is the centralised contact and coordination platform for the entire value chain – from plastics producers to processing enterprises, machine and mould construction to trade, technical service providers and scientific institutes. The goal of the polymer network is to connect industry and research and to improve the competitiveness of the network members. 	http://www.chemsite.de/chemsite-en/innovative-chemiecluster/polymernetzwerk.php
2.3. Research capacities		
2.3.1. Number of universities/ technical colleges/universities of applied science	40	ECRN update January 2012
2.3.2. Number of universities/ technical colleges/ universities of applied science with chemical department	17	ECRN update January 2012
2.3.3. Students in pre-vocational and vocational programmes (% of 15-24 years old) ⁸⁶	<p>2.118.079 students and pupils in pre-vocational studies / schools (2011, no age specification)</p> <p>326.136 students in vocational training programmes (2011, no age specification)</p>	<i>Information provided by the regional authority</i>
2.3.4. Students in tertiary programmes with academic orientation (% of 20-24 years old) ⁸⁷	<p>528 661 students enrolled in academic programmes (2011, no age specification)</p> <p>The universities in North Rhine-Westphalia educate approximately one third of all chemists and almost half of the chemical engineers in Germany. In the Ruhr Region at 13 faculties for chemistry, 260 professors train around 31 % of the German chemists and 43 % of chemical engineers.</p>	<i>Information provided by the regional authority</i>
2.3.5. Lifelong learning (% of 25-64 years old)	7.3	http://www.clusterobservatory.eu

⁸⁶ Comparable information based on the Cluster Observatory database was unfortunately unavailable for this region, which is why we present absolute figures here on request of the regional authority.

⁸⁷ Ibid.


Items/indicators	Data	Sources
2.4. Main players (companies)		
2.4.1 List of main players (name, turnover, employees, webpage)	<ul style="list-style-type: none"> • Bayer Chemicals AG • Evonik Industries AG • Lanxess Deutschland GmbH • Byk-Chemie GmbH • Cognis GmbH • Henkel, AG & Co. KGaA • Westfalen AG 	ECRN update January 2012
2.5. Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.51	http://www.clusterobservatory.eu
2.5.2. Patents per million inhabitants	160.71	http://www.clusterobservatory.eu
2.5.3. Business R&D share of GDP (%)	1.1	http://www.clusterobservatory.eu
2.5.4. Public R&D share of GDP (%)	0.3	http://www.clusterobservatory.eu
2.5.5. Integration/cooperation with other sectors and areas	There is tight-knit cooperation between the world of business, academia and the research sector as they work to respond to structural change.	http://www.bundesrat.de
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	e.g.: Environmentally friendly plastics made of carbon dioxide; Lizard skin serves as a model for material surfaces.	“Innovation at its best Highlights from North Rhine-Westphalia www.nrwinvest” Economic Development Agency of the German State of North Rhine-Westphalia, available at http://www.nrwinvest.com/nrwinvest_englisch/Publications/NRW_INV_EST_Highlight_EN_20110913_web.pdf
3.2. New or significantly improved chemical products introduced to the market in the last 5 years	e.g.: Printed micro-electronics from Dormagen; Flat light through innovative technology; NanoFocus.	“Innovation at its best Highlights from North Rhine-Westphalia www.nrwinvest” Economic Development Agency of the German State of North Rhine-Westphalia, available at http://www.nrwinvest.com/nrwinvest_englisch/Publications/NRW_INV_EST_Highlight_EN_20110913_web.pdf
3.3. Integration/cooperation with other sectors and areas (chemical cluster)	Region is part of: <ul style="list-style-type: none"> • European Chemical Regions Network (ECRN) • Chemclust 	www.ecrn.net http://www.chemclust.eu/partnership.html
3.4. Main areas of regional cooperation	Ruhr area and Rhine area	<i>Information provided by the regional authority</i>
4. Logistics		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)	Excellent rail and road connections, container terminal on site, connection to chemical pipeline network (natural gas, ethylene, steam etc.). Road: 2,200 km express ways, 4,800 km federal highways 9700 km local district roads 12,800 km country roads 6 airports: 2 international, 4 with European connections.	Information provided by regional authority http://www.nrwinvest.com/NRW_at_a_glance/index.php http://www.nrwinvest.com/NRW_at_a_glance/Facts_Figures/Transportation_and_traffic/index.php

Items/indicators	Data	Sources
	120 ports: 23 public, 92 private. Duisburg is the world's largest inland port. Rail: 6,500 km	
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	NRW has the densest railway network in Germany. The track reaches the length of approximately 6,500 km (Thalys connections to Brussels and Paris, as well as ICE high-speed line from Cologne via Frankfurt/Main to Basel). Deutsche Bahn AG and many other regional rail services and tram and light rail systems provide local transport rail services every day in NRW. NRW lies at the intersection of major European waterways connections to important European seaports. The 226 kilometers of the Rhine is one of the world's most busiest waterways. NRW has in total 720 kilometers of waterways providing connections via the Rhine or the European canal system to the North Sea (Rotterdam), the Baltic, the Atlantic, the Mediterranean and the Black Sea.	http://www.nrwinvest.com/NRW_at_a_glance/Facts_Figures/Transportation_and_traffic/index.php
4.2. Access to natural resources and energy		
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.113 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.2.2. Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	0.043 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.3. Bottlenecks	Information currently unavailable	
4.4. Development projects	Operational Programme "North Rhine-Westphalia" has been introduced by the European Commission as the regional development programme for the German Land of North Rhine-Westphalia for the period 2007-2013. Its goal is the improvement of the competitiveness and adaptability of the economy and the creation of employment.	http://ec.europa.eu/regional_policy/country/prordn/details_new.cfm?gv_PAY=DE&gv_reg=ALL&gv_PGM=1091&gv_defL=9&LAN=7

Novara⁸⁸

Items/indicators	Data	Sources
1. General characteristics		
1.1. Name of the region	Novara (Piemonte)	Cluster overview

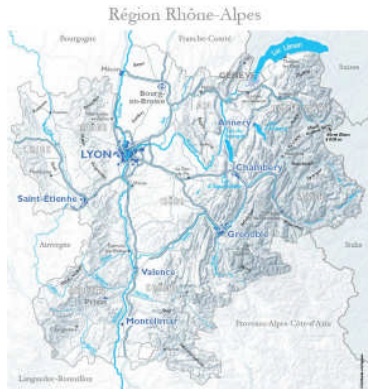
⁸⁸ In the following profile, for lack of details, we sometimes refer to Piemonte, which is the region in which the Province of Novara is located.

Items/indicators	Data	Sources
1.2. Associated picture (logo/map)		www.ecrn.net
1.3. Regional authority		
1.3.1. Organisation name	Provincia di Novara	ECRN update January 2012
1.3.2. Address	Piazza Matteotti, 1, 28100 NOVARA	ECRN update January 2012
1.3.3. Country	Italy	ECRN update January 2012
1.3.4. Phone number	0039 – 0321 – 3781	ECRN update January 2012
1.3.5. Fax number	0039 – 0321 – 37836087	ECRN update January 2012
1.3.6. Homepage	http://www.provincia.novara.it	ECRN update January 2012
1.3.7. Governance (type of regional body; regional coordination mechanism)	Regionalised model	en.wikipedia.org
1.3.8 Legal competence and authority of the region	Legal competence includes: <ul style="list-style-type: none"> • Agriculture & Rural development • Economic Development • Education & Training • Energy • Social policy • Transport & infrastructure 	<i>Information provided by regional authority</i>
1.3.9. Contact details of focal point	Name: Silvano Brustia	ECRN update January 2010

Items/indicators	Data	Sources
	Email: s.brustia@provincia.novara.it Tel.: 0039 – 0321378875	
2. Overall economic situation of the region		
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	366,479	ECRN update January 2010
2.1.2. Area (km ²)	1,339	ECRN update January 2010
2.1.4. GDP (billion EUR)	28.49 Agriculture 1.5%, Industry 33.7%, Services 64.8%	ECRN update January 2010
2.1.5. GDP per capita (EUR ppp)	28,300	http://www.clusterobservatory.eu
2.1.6. GDP growth per capita (%)	3.5%	http://www.clusterobservatory.eu
2.1.6. Export (billion EUR)	4,111	ECRN update January 2010
2.1.7. Import (billion EUR)	2,999	ECRN update January 2010
2.2. Chemicals industry in the region		
2.2.1. History of the chemicals industry in the region	<p>1910 - The Italian chemical industry is born with Montecatini directed by Guido Donegani.</p> <p>1921 - Giacomo Fauser invents a new process for ammonia synthesis in Novara (80 systems sold worldwide) and in Novara the first pilot plant and research laboratory starts its activity.</p> <p>1941 - In Novara the Research Centre "Institute Guido Donegani" is created.</p> <p>1954 - A collaboration between the Polytechnic and Montecatini produces the isotactic polypropylene, through the work of Giulio Natta - Nobel Prize for chemistry. Since 1938 to today, the Institute Guido Donegani has created 1,200 patents in Italy and approx. 6,000 worldwide.</p> <p>1991 - After the failure of the Enimont the Institute Guido Donegani is included in the group ENI, becoming Corporate Research Centre POLIMERI EUROPA.</p> <p>Spin offs The success in research and the know-how produced by the Research Institute G. Donegani have given great impetus to the activity carried out in chemistry in the Novara area. Starting from the obtained patents and the development of the skills of the staff employed in the Institute, we can say that around 200 companies operating in the chemical industry were founded, in which about 6,000 people are employed. The Institute G. Donegani has created important spin offs, such as Novamont, Süd Chemie, Isagro, Memc, Procos etc.</p>	
2.2.2. Specialisation	See 2.2.12	
2.2.3. Top 5 chemical products of the	See 2.2.2	

Items/indicators	Data	Sources
region		
2.2.4. Age of technical installations	Information currently unavailable	
2.2.5. Total nr of chemical companies (cluster; region)	243	ECRN update January 2010
2.2.6 Nr of multinational companies in the region	There are at least 7 multinational companies in the region (see 2.4.1.)	
2.2.7. Enterprise growth (cluster; region)	-2.4%	http://www.clusterobservatory.eu
2.2.8. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	Information currently unavailable	
2.2.9. Nr of employees (in the chemicals industry)	6,134	ECRN update January 2010
2.2.10. Employment dynamics (declining/increasing)	+6.1%	http://www.clusterobservatory.eu
2.2.11. Turnover (billion EUR)	Information currently unavailable	
2.2.12. Sector structure	Base chemistry 11%, Gum resin and plastic materials 53%, Petrochemical 5%, Pharmaceuticals 5%, Fine chemistry and fibres 3%, Adhesives, Synthetic dyes, others 23%	ECRN update January 2010
2.2.13. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)	<ul style="list-style-type: none"> • Consorzio Ibis • Fondazione Novara Sviluppo • Incubatore Di Impresa Del Polo Di Innovazione Di Novara Scarl • Universita' Piemonte Orientale Facolta Di Farmacia • Universita' Piemonte Orientale Facolta' Di Economia • Itis Omar • Itis Fauser 	<i>Information provided by regional authority</i>
2.2.14. Share of chemistry in relation to whole industry in the region (% of turnover; % of employment)	27% (13% share calculated on the total of Italian chemistry)	<i>Information provided by regional authority</i>
2.2.15 Interaction of SMEs with large companies	Information currently unavailable	
2.3. Research capacities		
2.3.1. Number of universities/technical colleges/universities of applied science	1	ECRN update January 2012
2.3.2. Number of universities/technical colleges/universities of applied science with chemical department	1	ECRN update January 2012 "Swot Analysis Of Chemical Industry And Chemical Logistics In Eastern Piedmont Province of Novara" April 2011, available at http://www.losamedchem.eu
2.3.3. Students in pre-vocational and vocational programmes (% of 15-24 years old)	29.13	http://www.clusterobservatory.eu
2.3.4. Students in tertiary programmes with academic orientation (% of 20-24 years old)	53.36	http://www.clusterobservatory.eu
2.3.5. Lifelong learning (% of 25-64 years old)	5.09	http://www.clusterobservatory.eu
2.4. Main players (companies)		
2.4.1 List of main players (name, turnover, employees, webpage)	<ul style="list-style-type: none"> • Novamont Spa • Isagro Ricerca S.R.L. • Radici Chimica Spa • Polioli S.P.A. • M&G S.P.A. 	ECRN update January 2012

Items/indicators	Data	Sources
	<ul style="list-style-type: none"> • Mirato S.P.A • Sarpom • Memc Electronic Materials S.P.A 	
2.5. Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.49	http://www.clusterobservatory.eu
2.5.2. Patents per million habitants	100.16	http://www.clusterobservatory.eu
2.5.3. Business R&D share of GDP	1.5	http://www.clusterobservatory.eu
2.5.4. Public R&D share of GDP (%)	0.1	http://www.clusterobservatory.eu
2.5.5. Integration/cooperation with other sectors and areas	Information currently unavailable	
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	Information currently unavailable	
3.2. New or significantly improved chemical products introduced to the market in the last 5 years	Information currently unavailable	
3.3. Integration/cooperation with other sectors and areas (chemical cluster)	<ul style="list-style-type: none"> • Region is part of the European Chemical Regions Network (ECRN) • Cooperates with other leading European chemical regions through the ChemClust European project. • Region is part of Arco Latino Network 	http://www.ecrn.net http://www.chemclust.eu/partnership.html http://www.arcolatino.org/
3.4. Main areas of regional cooperation	Information currently unavailable	
4. Logistics		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)	<p>The Piedmont railway infrastructure has 1,873 km of lines.</p> <p>Motorways No. A4 (from Turin to Venice) and A26 (from Genoa to Switzerland) cross near Novara as well as the corresponding railways.</p> <p>Novara is in the crossroad of European Corridors no. 5 (Lisbon – Kiev) and no. 24 (Genoa – Rotterdam).</p> <p>There is no airport or port in the region of Novara. However, the Milan Malpensa Airport can be reached from Novara in 45 minutes.</p>	<p>“Swot Analysis Of Chemical Industry And Chemical Logistics In Eastern Piedmont Province of Novara” April 2011, available at http://www.losamedchem.eu</p>
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	The gas pipelines network in Piedmont is 2,000 km.	“Swot Analysis Of Chemical Industry And Chemical Logistics In Eastern Piedmont Province of Novara” April 2011, available at http://www.losamedchem.eu
4.2. Access to natural resources and energy		
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.153 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers

Items/indicators	Data	Sources
		
1.3. Regional authority		
1.3.1. Organisation name	Conseil Régional Rhône-Alpes	ECRN update January 2012
1.3.2. Address	78, route de Paris, 69751 Charbonnières-les-Bains	ECRN update January 2012
1.3.3. Country	France	ECRN update January 2012
1.3.4. Phone number	0033 - (0)472594000	ECRN update January 2012
1.3.5. Fax number	0033 - (0)472594218	ECRN update January 2012
1.3.6. Homepage	www.rhonealpes.fr	ECRN update January 2012
1.3.7. Governance (type of regional body; regional coordination mechanism)	Regionalised model	http://www.ucl.ac.uk/spp/publications/unit-publications/64.pdf http://en.wikipedia.org
1.3.8. Legal competence and authority of the region	Legal competence includes: <ul style="list-style-type: none"> • Economic Development • Education & Training • Transport & infrastructure • Spatial planning 	http://en.rhonealpes.fr/363-regional-council-remit.htm
1.3.9. Contact details of focal point	Name: Philippe Le Thuaut Email: philippe.lethuat@axelera.org Tel.: 0033 - (0)478773619 Details of 2 more contacts available on ECRN page for the Economy, Research, innovation, and Tourism Department (DERTT) (Hortense Lutz and Christine Picard)	ECRN update January 2012
2. Overall economic situation of the region		
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	6,000,000	ECRN update January 2012
2.1.2. Area (km ²)	43,000	ECRN update January 2012
2.1.4. GDP (billion EUR)	182.6	ECRN update January 2012
2.1.5. GDP per capita (EUR ppp)	27,300 (2009)	http://www.clusterobservatory.eu
2.1.6. GDP growth per capita (%)	4.2 (2009)	http://www.clusterobservatory.eu
2.1.6. Export (billion EUR)	46.6	ECRN update January 2012
2.1.7. Import (billion EUR)	40.4	ECRN update January 2012
2.2. Chemicals industry in the region		
2.2.1. History of the chemicals industry in the region	At the end of the 18 th century, the chemistry industry was born in Lyon, with the original intention to provide the textile industries with the necessary dyes. The first chemical association was established in Lyon in 1887. Then the chemical industry started to	“Chemical Industries in Rhones Alpes”, Enterprises Rhone Alpes International, available at http://www.docstoc.com/docs/69436930/Chemical-industries-in-Rhone-Alpes


Items/indicators	Data	Sources
	spread reaching the area of Grenoble through the Rhone Valley. In 1967 the petrochemical refinery settled in Feyzin.	
2.2.2. Specialisation	<ul style="list-style-type: none"> • Petrochemicals; • Basic inorganics; • Polymers; • Specialities; • Consumer chemicals. 	“France’s Sectors of Excellence – Chemical Industry”, available at http://www.invest-in-france.org/Medias/Publications/227/Chemical%20Industry.pdf
2.2.3. Top 5 chemical products of the region	<ul style="list-style-type: none"> • Paracetamol (100% of national production) • PVC (major part of national production) • Silicone/ phenol (leading region) 	“Chemical Industries in Rhones Alpes”, Entreprises Rhone Alpes International, available at http://www.docstoc.com/docs/69436930/Chemical-industries-in-Rhne-Alpes
2.2.4. Age of technical installations	Information currently unavailable	
2.2.5. Total nr of chemical companies (cluster; region)	350	ECRN update January 2012
2.2.6 Nr of multinational companies in the region	12 or more	“France’s Sectors of Excellence – Chemical Industry”, available at http://www.invest-in-france.org/Medias/Publications/227/Chemical%20Industry.pdf
2.2.7. Enterprise growth (cluster; region)	0.9 (2009)	http://www.clusterobservatory.eu
2.2.8. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	50% of the companies in the region employ < 20 employees.	“Chemical Industries in Rhones Alpes”, Entreprises Rhone Alpes International, available at http://www.docstoc.com/docs/69436930/Chemical-industries-in-Rhne-Alpes
2.2.9. Nr of employees (in the chemicals industry)	32,000 (the third largest regional employer in France)	ECRN update January 2012
2.2.10. Employment dynamics (declining/increasing)	2.4% increase	http://www.clusterobservatory.eu
2.2.11. Turnover (billion EUR)	No specific data was available, but the chemical sector is the second largest industrial sector in the region by turnover.	http://www.ecrn.net http://www.invest-in-france.org
2.2.12. Sector structure	In share of enterprises: 28% for basic chemistry, 38% for intermediate and speciality chemistry, 17% for consumption chemical products.	ECRN update January 2012
2.2.13. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)	<ul style="list-style-type: none"> • AXELERA/ ERAI chemical cluster • IFP: World-class public sector research and training center • UCBL: Claude Bernard University of Lyon • Ecole Nationale Supérieure des Mines de Saint-Etienne • CEMAGREF: Agricultural and environmental Engineering research • CNRS: Centre National de la Recherche Scientifique 	ECRN update January 2012 www.eraf.org
2.2.14. Share of chemistry in relation to whole industry in the region (% of turnover; % of employment)	16% of regional exports. (6.9 billion EUR). The 2nd largest industrial sector in the region by turnover and 15% of all regional industrial investments:	ECRN update January 2012

Items/indicators	Data	Sources
	500 millions EUR investments	
2.2.15 Interaction of SMEs with large companies	Information currently unavailable	
2.3. Research capacities		
2.3.1. Number of universities/technical colleges/universities of applied science	9 universities and 40 ‘grandes écoles’ in total in Rhône-Alpes; 25% of national research capacities	ECRN update January 2012
2.3.2. Number of universities/technical colleges/universities of applied science with chemical department	6	ECRN update January 2012
2.3.3. Students in pre-vocational and vocational programmes (15-24 years old)	13.86	www.clusterobesservatoy.eu
2.3.4. Students in tertiary programmes with academic orientation (20-24 years old)	42.48	www.clusterobesservatoy.eu
2.3.5. Lifelong learning (% of 25-64 years old)	7.67	www.clusterobesservatoy.eu
2.4. Main players (companies)		
2.4.1 List of main players (name, turnover, employees, webpage)	<ul style="list-style-type: none"> • Arkema • Rhodia • Gdf-Suez • Bluestar Silicones • Thetis Environment • Odotech • Jet Metal Technologies 	ECRN update January 2012
2.5. Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.6	www.clusterobesservatoy.eu
2.5.2. Patents per million habitants	153.62	www.clusterobesservatoy.eu
2.5.3. Business R&D share of GDP	1.6	www.clusterobesservatoy.eu
2.5.4. Public R&D share of GDP (%)	0.2	www.clusterobesservatoy.eu
2.5.5. Integration/cooperation with other sectors and areas.	Information currently unavailable	
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	Time Domain Reflectometry	http://www.prweb.com/releases/tdr/level/prweb5249544.htm
3.2. New or significantly improved chemical products introduced to the market in the last 5 years	Information currently unavailable	
3.3. Integration/cooperation with other sectors and areas (chemical cluster)	Region is part of ECRN	ECRN update January 2012
3.4. Main areas of regional cooperation	Information currently unavailable	
4. Logistics		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)	Railways/ TGV (high-speed train), Major road network (3,000 km of roads and 1,000 km of motorways), Inland waterway system. 8 airports: 2 international, 6 regional.	”Welcome to Rhone-Alpes” Région Rhône-Alpes, available at http://ina2008.univ-lyon1.fr/docs/Welcome_RA.pdf http://en.rhonealpes.fr/ http://www.invest-in-france.org
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	An infrastructure of transport networks connects the key urban centres in Rhône-Alpes with each other, on top of the connection to major European cities.	”Welcome to Rhone-Alpes” Région Rhône-Alpes, available at http://ina2008.univ-lyon1.fr/docs/Welcome_RA.pdf

Items/indicators	Data	Sources
	<p>This network is composed of:</p> <ul style="list-style-type: none"> • Functional rail links: based on a TER (regional express transport) network joining the principal towns and cities of Rhône-Alpes, a • TGV (high-speed train) crossroads on a European scale and the perspective of the Lyon- • Turin transalpine link; • a major road network: with 3,000 km of roads and 1,000 km of motorways; • an air network: Lyon-Saint Exupéry Airport is linked to a TGV station; • an inland waterway system: the Rhône river allows for exchanges between the North and the South of the region. 	
4.2. Access to natural resources and energy		
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.073 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.2.2. Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	0.036 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.3. Bottlenecks	Information currently unavailable	
4.4. Development projects	<ul style="list-style-type: none"> • Operational Programme for the Rhône-Alpes region in France for 2007-2013 (This project has been introduced with the goals to increase the potential of training, research and innovation, to encourage the development of enterprises, to improve environmental quality and ensure sustainable development for the Rhône-Alpes and finally to support the competitiveness of the region). • In 2008, a collaborative project was introduced, called "knowledge economy". This project has had the goal to build lasting international partnerships in a globalised economy. The core of the project is collaboration on innovative projects between universities, research centres and businesses in Rhône-Alpes and their counterparts in partner regions worldwide. • The Clusterplast project was founded by Plastipolis 	<p>http://ec.europa.eu/regional_policy/country/prordn/details_new.cfm?LAN=7&gv_PAY=FR&gv_reg=ALL&gv_PGM=1125&gv_defL=7</p> <p>http://cordis.europa.eu/rhone-alpes/projects_en.html</p>

Items/indicators	Data	Sources
	<p>and is coordinated by the Rhône-Alpes Region in partnership with six other European clusters. comprised of local institutions, research laboratories, universities and industries from six countries. Clusterplast's goal is to coordinate scientific activities in polymer processing across Europe.</p> <ul style="list-style-type: none"> The Piter project is coordinated by the Rhône-Alpes Region and covers the Piedmont Region. Piter focuses on two essential aspects: reducing CO₂ emissions and disseminating scientific advances in renewable energies to businesses with a view to bolstering their competitiveness, growth and job creation. 	

Rhineland Palatinate⁸⁹

Items/indicators	Data	Sources
1. General characteristics		
1.1. Name of the region	Rhineland Palatinate (Rheinland-Pfalz)	Cluster overview
1.2. Associated picture (logo/map)		http://www.ecrn.net
1.3. Regional authority		
1.3.1. Organisation name	Ministry for Economic Affairs, Climate Protection, Energy and Regional Planning of the State of Rhineland-Palatinate (MWKEL)	<i>Information provided by regional authority</i>
1.3.2. Address	Stiftsstrasse 9, D - 55116 Mainz	<i>Information provided by regional authority</i>
1.3.3. Country	Germany	ECRN update January 2012
1.3.4. Phone number	0049 - (0)6131 160	ECRN update January 2012

⁸⁹ On request of the regional authority, various updated statistics are also included in the profile. For comparability of the data for Chapter 4, however, we also provide the data here that was used for that overview.

Items/indicators	Data	Sources
1.3.5. Fax number	0049 - (0)6131 162100	ECRN update January 2012
1.3.6. Homepage	http://www.mwkel.rlp.de	<i>Information provided by regional authority</i>
1.3.7. Governance (type of regional body; regional coordination mechanism)	Regionalised model (partnering with regional ministry)	http://www.nationsencyclopedia.com
1.3.8 Legal competence and authority of the region	<ul style="list-style-type: none"> • Economic development • Climate protection • Energy • Regional planning 	<i>Information provided by regional authority</i>
1.3.9. Contact details of focal point	Name: Dr. Ralf Teepe Email: ralf.teepe@mwkel.rlp.de Tel.: 0049 - (0)6131162242 Details of 2 more contacts available on ECRN page. (Ingeborg Kiese Wetter and Jutta Hoffmann)	ECRN update January 2012
2. Overall economic situation of the region		
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	4,003,745 (2010)	Statistisches Landesamt Rheinland-Pfalz
2.1.2. Area (km ²)	19,854 (2010)	Statistisches Landesamt Rheinland-Pfalz
2.1.3. GDP (billion EUR)	107.6 (2010)	Statistisches Landesamt Rheinland-Pfalz
2.1.4. GDP per capita (EUR ppp)	26.861 (2010) 25,297 (2009)	http://www.clusterobservatory.eu
2.1.5. GDP growth per capita (%)	5.8% (2009-2010) 11.9% (2005-2007)	Statistisches Landesamt Rheinland http://www.clusterobservatory.eu
2.1.6. Export (billion EUR)	44.853 (2011) 40.426 (2010)	Statistisches Landesamt Rheinland-Pfalz
2.1.7. Import (billion EUR)	31.289 (2011) 27.086 (2010)	Statistisches Landesamt Rheinland-Pfalz
2.2. Chemicals industry in the region		
2.2.1. History of the chemicals industry in the region	<p>The history of the chemical industry in Rhineland-Palatinate began around 1850. Development of the production centres originated in the course of the industrial revolution as a result of the rapid increase of knowledge from research and development. An important development was the founding of the „Badische Anilin- & Soda-Fabrik“ in Ludwigshafen in 1865, today known as BASF SE. In close proximity to the chemical industry is the plastic processing industry. More than forty years ago it began in Rhineland-Palatinate with the production of films, window profiles and form parts. It is also known as an essential supplier for the automotive industry and it holds a firm market share within Germany's industrial structure today.</p>	<i>Information provided by regional authority</i>
2.2.2. Specialisation	<ul style="list-style-type: none"> • Petrochemicals; • Basic inorganics; • Polymers; 	Internet search, interviews with regional representatives.

Items/indicators	Data	Sources
	<ul style="list-style-type: none"> Specialities; Consumer chemicals; Colours and coatings; Adhesives; Detergents and performance products; Plastics. 	<i>Information provided by regional authority</i>
2.2.3. Top 5 chemical products of the region	The biggest share represents processing of plastics, chemical raw materials, and painting products, printing ink and mastics, glues and adhesives.	<i>Information provided by regional authority</i>
2.2.4. Age of technical installations	Information currently unavailable	
2.2.5. Total nr of chemical companies (cluster; region)	Chemicals industry: 53 (2010) (for companies with ≥50 employees) Polymers industry: 106 (2010) (for companies with ≥50 employees)	Industriekompass RLP 2011
2.2.6 Nr of multinational companies in the region	Information currently unavailable	
2.2.7. Enterprise growth (cluster; region)	1.7 (2009)	http://www.clusterobservatory.eu
2.2.8. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	97% of the companies have < 500 employees: 54% are companies with 20-49 employees, 43% are companies with 50-499 employees.	Industriekompass RLP 2011
2.2.9. Nr of employees (in the chemicals industry)	Chemicals industry: 42,612 (2010) Polymers industry: 21,339 (2010)	<i>Statistisches Landesamt Rheinland-Pfalz</i>
2.2.10. Employment dynamics (declining/increasing)	5.4% increase (2009)	http://www.clusterobservatory.eu
2.2.11. Turnover (billion EUR)	Chemicals industry: 24.6 (2010) (for companies ≥50 employees) Polymers industry: 4.5 (2010) (for companies ≥50 employees)	Industriekompass RLP 2011
2.2.12. Sector structure	Chemicals industry: 86.8% basic chemicals (2010), 4.0% detergence and performance products (2010), 9.2% other chemicals (2010)	<i>Calculated by regional authority as percentage of all employees in Chemicals industry (based on Industriekompass RLP 2011)</i>
2.2.13. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)	<ul style="list-style-type: none"> Verband der Chemischen Industrie e.V. (VCI) - Landesverband Rheinland-Pfalz Arbeitgeberverband Chemie Rheinland-Pfalz e.V. Chem2biz - Public-Private Partnership 	ECRN update January 2012
2.2.14. Share of chemistry in relation to whole industry in the region (% of turnover; % of employment)	Chemicals industry: <ul style="list-style-type: none"> 33% of turnover (2010), 18% of all employees (2011) (for companies ≥50 employees) Polymers industry: <ul style="list-style-type: none"> 6% of turnover (2010), 9% of all employees (2011) (for companies ≥50 employees) 	Industriekompass RLP 2011
2.2.15 Interaction of SMEs with large companies	Information currently unavailable	
2.3. Research capacities		
2.3.1. Number of universities/ technical colleges/universities of applied science	25	ECRN update January 2012
2.3.2. Number of universities/ technical colleges/	7	ECRN update January 2012

Items/indicators	Data	Sources
universities of applied science with chemical department		
2.3.3. Students in pre-vocational and vocational programmes (% of 15-24 years old) ⁹⁰	184,174 secondary school (2011-2012) 127,094 vocational school (2011-2012) 73,968 vocational training system (2011)	<i>Statistisches Landesamt Rheinland-Pfalz</i>
2.3.4. Students in tertiary programmes with academic orientation (% of 20-24 years old)	113,069 (2010-2011)	<i>Statistisches Landesamt Rheinland-Pfalz</i>
2.3.5. Lifelong learning (% of 25-64 years old)	7.41	http://www.clusterobservatory.eu
2.4. Main players (companies)		
2.4.1 List of main players (name, turnover, employees, webpage)	Chemicals industry: <ul style="list-style-type: none"> • BASF • Evonik • Grace • Chemische Fabrik Budenheim • Zschimmer und Schwarz Chemie GmbH Polymers industry: <ul style="list-style-type: none"> • Michelin • RENOLIT AG • Goodyear Dunlop Tires • profine GmbH International Profile Group • Simona AG 	<i>Information provided by regional authority</i>
2.5. Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.52 (2009)	http://www.clusterobservatory.eu
2.5.2. Patents per million inhabitants	167.5 (2009)	http://www.clusterobservatory.eu
2.5.3. Business R&D share of GDP	1.4 (2009)	http://www.clusterobservatory.eu
2.5.4. Public R&D share of GDP (%)	0.1 (2009)	http://www.clusterobservatory.eu
2.5.5. Integration/cooperation with other sectors and areas.	<ul style="list-style-type: none"> • Cooperation with other chemical association and companies has a big importance in order to exchange field knowledge and practises; • It is attempted to support the infrastructure of the key technologies with a high growth potential in order to support the settling down of the companies, to open existing companies for these technologies and in order to initiate technology-oriented establishments of enterprises. The focus is placed especially on the areas of biotechnology, agro ecology, nano- and micro technology, solids, surfaces and thin film layers, optical crystals and components, technical ceramics, software technology, composites and life sciences; • Mainzer Max-Planck-Institute 	<i>Letter from regional Minister to the Minister of Sachsen-Anhalt</i>


⁹⁰ Comparable information was unavailable at the Cluster Observatory, but absolute figures were provided to us by the regional authority.

Items/indicators	Data	Sources
	<p>for chemical and polymer research has an essential importance. Max-Planck-Institute for Chemistry focuses on the development, creation and future of the planet and their neighbors with a special focus on chemistry of the atmosphere, biogeochemistry, geochemistry, particle chemistry and satellite remote sensing;</p> <ul style="list-style-type: none"> The focus of the companies on the environment and climate is also essential. 	
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	In 2008 AESKU.Systems won the Success Award for the successful development and market launch of the lab processor HELMED®	http://www.aesku.com
3.2. New or significantly improved chemical products introduced to the market in the last 5 years	SCHOTT CERAN® are revolutionary glass ceramic cooktops. SCHOTT was awarded the German Innovation Award 2010 in the Large Enterprises category.	<p>http://www.us.schott.com/hometech/english/products/ceran/index.html</p> <p>“Welcome to RHEINLAND-PFALZ” Rheinland-Pfalz, February 2009 available at http://www.rlp.de/fileadmin/staatskanzlei/rlp.de/bilder/wirtschaft/en_businesslocation_rlp.pdf</p>
3.3. Integration/cooperation with other sectors and areas (chemical cluster)	<p>Region is part of:</p> <ul style="list-style-type: none"> European Chemical Regions Network (ECRN) 	www.ecrn.net
3.4. Main areas of regional cooperation	<p>The Innovation Cluster Metall-Keramik-Kunststoff und "Kom-K-Tec" are regional Clusters with high potential for innovation and cooperation.</p> <p>Of special importance are the clusters cross-border together with partners of the Metropolregion Rhein-Neckar.</p> <p>Very important clusters in the region are "Organic Electronics", StoREgio, BioRN and nanoValley.eu.</p> <p>The Rhein-Main Cluster CI3 cluster focuses on pharmaceuticals and biotechnologie and won “Spitzenclusterwettbewerb” of the Federal Ministry of Education and Research in 2011</p>	<i>Information provided by regional authority</i>
4. Logistics		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)	<p>Excellent highway system with the densest network of large-volume und multiregional roads in Germany.</p> <p>Rhineland-Palatinate is located at</p>	http://www.rlp.de

Items/indicators	Data	Sources
	<p>the intersection of important European transverse rail-freight routes.</p> <p>Road: 875 km express ways, 2,944 km federal highways 7,229 km local district roads 7,365 km country roads</p> <p>13 ports (public)</p> <p>3 airports: 1 international (Frankfurt-Hahn), 2 local (Zweibrücken, Speyer)</p>	
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	<p>Three rivers run in the area: the Rhine, Mosel and Saar river. The inland waterways in Rheinland-Pfalz have a very well established waterway network of approximately 600 km and thirteen public inland ports, which function as distribution centres linking road, rail and water transport. The inland ports in connection with the inland waterways are essential logistic portals and represent an important advantage for the business location Rheinland-Pfalz.</p>	<p><i>Information provided by regional authority</i></p>
4.2. Access to natural resources and energy		
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.113 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.2.2. Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	0.043 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.3. Bottlenecks	Information currently unavailable	
4.4. Development projects	<p>Fighting climate change and promoting renewable energies and energy efficiency, the so called “Energiewende”, are important policy issues in the region. Rhineland-Palatinate is committed to have 100% of power consumed produced by renewable energies in 2030. The “Energiewende” offers great chances for companies from various sectors, including the chemical industry. It can help enhancing competitiveness by research and development, which enables companies to expand into new markets, creating innovative products and jobs.</p> <p>A well-developed infrastructure is an essential especially for the chemical industry. The most</p>	

Items/indicators	Data	Sources
	recent example concerning the infrastructure in the region is the construction of the Ethylene-Pipeline South (Ethylen-Pipeline Süd - EPS) and the BASF propylene line between Ludwigshafen and Karlsruhe.	

Saxony-Anhalt

Items/indicators	Data	Sources
1. General characteristics		
1.1. Name of the region	Saxony-Anhalt	Cluster overview
1.2. Associated picture (logo/map)		ECRN update January 2012
1.3. Regional authority		
1.3.1. Organisation name	Ministry of Science and Economy of Saxony-Anhalt	ECRN update January 2012
1.3.2. Address	Hasselbachstraße 4, D-39104 Magdeburg	ECRN update January 2012
1.3.3. Country	Germany.	ECRN update January 2012
1.3.4. Phone number	0049 – (0)391567 – 01	ECRN update January 2012
1.3.5. Fax number	0049 – (0)391567 – 4722	ECRN update January 2012
1.3.6. Homepage	www.mw.sachsen-anhalt.de	ECRN update January 2012
1.3.7. Governance (type of regional body; regional coordination mechanism)	Regionalised model (partnering with regional ministry)	www.mw.sachsen-anhalt.de
1.3.8. Legal competence and authority of the region	German Bundesland (Federal State)	<i>Information provided by the regional authority</i>
1.3.9. Contact details of focal point	Name: Catrin Gutowsky Email: catrin.gutowsky@mw.sachsen-anhalt.de Tel.: 0049 – (0)391 – 5674452 Name: Thomas Steinmetz Email: thomas.steinmetz@mw.sachsen-anhalt.de Tel.: 0049 - (0)391 - 5674346	ECRN update January 2012 <i>Information provided by the regional authority</i>
2. Overall economic situation of the region		
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	2,337,000	<i>Information provided by the regional authority</i>

Items/indicators	Data	Sources
2.1.2. Area (km ²)	20,447	ECRN update January 2012
2.1.4. GDP (billion EUR)	53.8	ECRN update January 2012
2.1.5. GDP per capita (EUR ppp)	20.800	http://www.clusterobservatory.eu
2.1.6. GDP growth per capita (%)	5.5	http://www.clusterobservatory.eu
2.1.6. Export (billion EUR)	12.81	ECRN update January 2012
2.1.7. Import (billion EUR)	11.8	ECRN update January 2012
2.2. Chemicals industry in the region		
2.2.1. History of the chemicals industry in the region	<p>The chemical industry in the region originated in the first part of 20th century. The southern part of Saxony has become a main location of chemical industry, with a number of big companies. After the 2nd World War the chemical industry spread also to the eastern part. Nowadays the main challenge represents the keep the environmental standards. According to the political decisions based on the economic reasons, the industry will remain in the area and will receive funding. The investments into new and productive processes started in 90's .</p> <p>The development pattern of the process of transformation from socialist economy to market economy after the unification of Germany has significantly impacted the Saxony-Anhalt and especially its chemical industry. The economic change has led to the diversification of the mono-structures in the former chemical region and resulted in the establishment of a modern infrastructure and new settlements of small and medium sized enterprises.</p>	http://www.chemsme.net/regions.htm
2.2.2. Specialisation	See 2.2.12	
2.2.3. Top 5 chemical products of the region	See 2.2.2	
2.2.4. Age of technical installations	Lot of investments have been done in the 1990's. There are always new investment in the chemical park.	<i>Information provided by the regional authority</i>
2.2.5. Total nr of chemical companies (cluster; region)	67 (Divided over 5 chemistry parks)	ECRN update January 2012
2.2.6 Nr of multinational companies in the region	<p><i>Specific information currently unavailable.</i></p> <p>Multinational companies such as DOW, TOTAL, DuPont, BASF, Akzo Nobel, Atofina, Bayer, Radici, Solvay, Degussa, AMI or Linde are present in the cluster. (12)</p>	http://www.chemsme.net/clu_saxanh.htm
2.2.7. Enterprise growth (cluster; region)	7.5 (2009)	http://www.clusterobservatory.eu
2.2.8. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	Predominantly small and mid-sized companies; around 10% of all chemistry companies are categorised as large companies.	http://www.invest-in-saxony-anhalt.com http://www.chemsme.net/

Items/indicators	Data	Sources
	88% of the enterprises in the chemical industry have less than 200 employees.	
2.2.9. Nr of employees (in the chemicals industry)	15.825 (March 2012) 14,839 (ECRN)	<i>Information provided by the regional authority</i> ECRN update January 2012
2.2.10. Employment dynamics (declining/increasing)	+3.3% (2011) +4.9% (2009)	<i>Information provided by the regional authority</i> http://www.clusterobservatory.eu
2.2.11. Turnover (billion EUR)	6.405	ECRN update January 2012
2.2.12. Sector structure	<ul style="list-style-type: none"> • basic chemicals (64%); • pharmaceuticals (16%); • other chemicals (20%). 	ECRN update January 2012
2.2.13. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)	<ul style="list-style-type: none"> • Arbeitgeberverband Nordostchemie e.V. (AGV) • Verband der Chemischen Industrie e.V. (VCI), Landesverband Nordost • CeChemNet – “Central European Chemical Network • Cluster Chemistry Plastics Central Germany • Fördergemeinschaft für Polymerentwicklung und Kunststofftechnik in Sachsen-Anhalt / Mitteldeutschland POLYKUM e.V. • Netzwerk Pipeline- und Anlagenbau in Mitteldeutschland – network of the companies of pipeline construction equipment and construction companies in Central Germany • Research Project – Innovative Regional Growth Pole “Reactive Wet Coating • 4chiral – Netzwerk für Forschung, Produktion und Marketing chiraler Verbindungen – network for research, production and marketing of chiral bonds • CPI ChemiePark Institute for Lead Industrial Research • Fraunhofer Pilot Plant Center for Polymer Synthesis and Processing Schkopau 	ECRN update January 2012 <i>Information provided by the regional authority</i>
2.2.14. Share of chemistry in relation to whole industry in the region (% of turnover; % of employment)	17.7% of turnover	ECRN update January 2012
2.2.15 Interaction of SMEs with large companies	Many small and only a few large companies are present in the cluster. DOW is active in promoting networking, polymer networks (it used to bring together small companies and clients to large and other important players to speak about innovation). There are few thematic networks that integrate small companies. The focus of these is placed on the	<i>Information provided by the regional authority</i>




Items/indicators	Data	Sources
	whole value chain - not just R&D but also cooperation on projects.	
2.3. Research capacities		
2.3.1. Number of universities/ technical colleges/universities of applied science	7	ECRN update January 2012
2.3.2. Number of universities/ technical colleges/ universities of applied science with chemical department	4	ECRN update January 2012
2.3.3. Students in pre-vocational and vocational programmes (15-24 years old)	25.06 (2009)	http://www.clusterobservatory.eu
2.3.4. Students in tertiary programmes with academic orientation (20-24 years old)	32.85 (2009)	http://www.clusterobservatory.eu
2.3.5. Lifelong learning (% of 25-64 years old)	6.92 (2009)	http://www.clusterobservatory.eu
2.4. Main players (companies)		
2.4.1 List of main players (name, turnover, employees, webpage)	<ul style="list-style-type: none"> • Dow Olefinverbund GmbH, • Salutas Pharma GmbH • Bayer Bitterfeld GmbH • Caproleuna GmbH • SKW Stickstoffwerke Piesteritz GmbH • Radici Chimica Deutschland GmbH • Total Raffinerie Mitteldeutschland GmbH 	ECRN update January 2012
2.5. Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.36 (2009)	http://www.clusterobservatory.eu
2.5.2. Patents per million habitants	32.28 (2009)	http://www.clusterobservatory.eu
2.5.3. Business R&D share of GDP	0.3 (2009)	http://www.clusterobservatory.eu
2.5.4. Public R&D share of GDP (%)	0.4 (2009)	http://www.clusterobservatory.eu
2.5.5. Integration/cooperation with other sectors and areas	Saxony-Anhalt works closely together with is neighbouring regions Thuringia, Saxony and Brandenburg representing "Central Germany": Future Cluster Chemical / Plastics in Central Germany – Wirtschaftsinitiative für Mitteldeutschland GmbH.	ECRN update January 2012
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	Vereinigte BioEnergie AG set up and put into operation the world's first industrial biomethane plant in Zörbig, where bio natural gas will be produced from straw with new technology.	http://www.invest-in-saxony-anhalt.com/
3.2. New or significantly improved chemical products introduced to the market in the last 5 years	Styron Deutschland GmbH was awarded the 2011 IQ Innovationspreis Mitteldeutschland [Central German Prize for Innovation] in June. This recognised the development of innovative rubber polymers that can significantly reduce the rolling friction of car tyres	http://www.invest-in-saxony-anhalt.com
3.3. Integration/cooperation with other sectors and areas (chemical cluster)	Region is part of: <ul style="list-style-type: none"> • European Chemical Regions 	http://www.sachsen-anhalt.de

Items/indicators	Data	Sources
	<p>Network (ECRN);</p> <ul style="list-style-type: none"> • Central European Chemical Network; • Association for the Promotion of Polymer Development and Plastics Technology in Central Germany; • Cooperates with other leading European chemical regions through the ChemClust initiative; • The creation of innovation networks (clustering and networking business and science) is well advanced in Saxony-Anhalt; • European Chemical Cluster for the support of SMEs. 	<p>http://www.ecrn.net</p> <p>http://www.chemclust.eu/partnership.html</p> <p>http://www.chemsme.net</p>
3.4. Main areas of regional cooperation	Foreign investment, logistics, demographic development, feedstock, innovation, skills development, chemical park development	<i>Information provided by the regional authority</i>
4. Logistics		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)	<p>Saxony-Anhalt is integrated into the European waterway network by means of the Rivers Elbe, Saale and Havel, the Elbe-Havel Canal and the Mittelland Canal. The canals in Saxony-Anhalt are navigable over a total of 600km. There are 17 operating ports and transshipment points, as well as additional company-owned ports.</p> <p>3 airports: 1 international (Leipzig/Halle), 2 regional (Magdeburg & Cochstedet)</p> <p>Approximately 11,000km of roads are available to goods traffic in Saxony-Anhalt</p> <p>More than 3,000km of rail network in Saxony-Anhalt</p>	<p>http://www.sachsen-anhalt.de</p> <p>http://www.theneweuropa.co.uk/feature-1677/saxony-anhalt-germanys-powerhouse.html</p>
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	There are pipelines in the region	http://www.gtai.de/GTAI/Content/EN/Invest/_SharedDocs/Downloads/GTAI/Maps/C-H/map-pipelines-for-germany-chemistry.pdf
4.2. Access to natural resources and energy		
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.113 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.2.2. Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	0.043 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.3. Bottlenecks	<ul style="list-style-type: none"> • Promoting innovation in SMEs is necessary because there is no research department, thus the 	<i>Information provided by the regional authority</i>

Items/indicators	Data	Sources
	<p>innovation relies on other research infrastructure. Private R&D is not taking place. They tried to establish cooperation between public research, universities. The R&D organisations are located on neighbour side. Lot of money is dedicated to cooperation between/with Fraunhofer and companies;</p> <ul style="list-style-type: none"> • Logistics of the region is rather disadvantaged. There is no sea and consequently no open sea harbours, and the road connections are not sufficiently sophisticated; • Demographic challenge – aging population, old people, few young people. Thus it is the problem is attracting qualified labour force. The companies try to perform marketing and lobby in order to gain the human capital. However the chemical industry is nowadays not really attractive industry since it is “dirty industry”; • Funding; public support has played big role in promoting competitiveness. If the level of funding decreased, it would have significant impact on the industry development. experienced development In the future it is necessary to react on the new funding frameworks sufficiently. 	
4.4. Development projects	<ul style="list-style-type: none"> • There are some infrastructure projects currently proceeding (binding station for train, combined railway transport); • Logistics is the main focus area; • Operational Programme 'Saxony-Anhalt' ; the targets of this program are convergence through sustainable development, especially by enhancing growth, and the improvement of employment prospects. 	<p>http://ec.europa.eu/regional_policy/country/prordn/details_new.cfm?LAN=7&gv_PAY=DE&gv_reg=ALL&gv_PGM=1097&gv_defL=9</p>

Schleswig-Holstein

Items/indicators	Data	Sources
1. General characteristics		
1.1. Name of the region	Schleswig-Holstein	Cluster overview




Items/indicators	Data	Sources
1.2. Associated picture (logo/map)	 Landesregierung Schleswig-Holstein  ChemCoast Park BRUNSBÜTTEL EIN PROJEKT DER EGB: WIRTSCHAFTSFÖRDERUNG 	ECRN update January 2012 http://www.schlemmerinfo.de
1.3. Regional authority		
1.3.1. Organisation name	ChemCoast Park Brunsbüttel c/o egeb:Wirtschaftsförderung	ECRN update January 2012
1.3.2. Address	Elbenhafen, 22541 Brunsbüttel	ECRN update January 2012
1.3.3. Country	Germany	ECRN update January 2012
1.3.4. Phone number	0049 - (0)4852 - 838419	ECRN update January 2012
1.3.5. Fax number	0049 - (0)4852 - 838430	ECRN update January 2012
1.3.6. Homepage	www.chemcoast.de/brunsbuettel www.egeb.de	ECRN update January 2012
1.3.7. Governance (type of regional body; regional coordination mechanism)	Regionalised model (own parliament and ministerial government and legislature, considerable influence in federal legislation)	http://www.nationsencyclopedia.com http://en.wikipedia.org
1.3.8. Legal competence and authority of the region	Legal competence includes: • Economic Development	http://www.egeb.de
1.3.9. Contact details of focal point	Name: Jens Wrede Email: wrede@egeb.de Tel.: 0049 - (0) 4852838419 Details of 2 more contacts available on ECRN page. (Volker Ziedorn and Julia Dethlefs)	ECRN update January 2012
2. Overall economic situation of the region		
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	2.83 million	ECRN update January 2012
2.1.2. Area (km ²)	15,800	ECRN update January 2012
2.1.4. GDP (billion EUR)	73.4	ECRN update January 2012
2.1.5. GDP per capita (EUR ppp)	25,936	ECRN update January 2012
2.1.6. GDP growth per capita (%)	3.3	http://www.clusterobservatory.eu
2.1.6. Export (billion EUR)	18.4 (2010)	http://www.chemicalparks.com/parks/Seiten/SchleswigHolstein.aspx ECRN update January 2012
2.1.7. Import (billion EUR)	Volume is currently unavailable, but import rate equals 23.2%	ECRN update January 2012
2.2. Chemicals industry in the region		
2.2.1. History of the chemicals industry in the region	Started 1864 with oil exploration at the west coast. Intensified after opening of the "Kiel-Canal" (main waterway for seagoing vessels to the Baltic Sea). Today large	<i>Information provided by regional authority</i>

Items/indicators	Data	Sources
	production sites for bulk chemicals at river Elbe and pharmaceutical in the metropolitan region of Hamburg	
2.2.2. Specialisation	Organic chemicals: fertilizers, fatty alcohols, isocyanides	Information provided by regional authority
2.2.3. Top 5 chemical products of the region	TDI, MDI, Ammonia, Urea, Cement	Information provided by regional authority
2.2.4. Age of technical installations	20 – 50 Years	Information provided by regional authority
2.2.5. Total nr of chemical companies (cluster; region)	46	ECRN update January 2012
2.2.6 Nr of multinational companies in the region	12	Information provided by regional authority
2.2.7. Enterprise growth (cluster; region)	6.6 (2009)	http://www.clusterobservatory.eu
2.2.8. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	Information currently unavailable	
2.2.9. Nr of employees (in the chemicals industry)	5,403	ECRN update January 2012
2.2.10. Employment dynamics (declining/increasing)	+11.5%	http://www.clusterobservatory.eu
2.2.11. Turnover (billion EUR)	4.2 billion total sales (2010)	http://www.chemicalparks.com/parks/Seiten/SchleswigHolstein.aspx
2.2.12. Sector structure	Heterogeneous mix of chemical / energy production and logistics	National statistics offices (see Table 2-3), consultation with cluster organisations (if those exist)
2.2.13. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)	<ul style="list-style-type: none"> • Landesamt für Landwirtschaft, Umwelt und ländliche Räume • Ministerium für Wissenschaft, Wirtschaft und Verkehr • VCI Nord – Verband der Chemischen Industrie e.V. 	ECRN update January 2012
2.2.14. Share of chemistry in relation to whole industry in the region (% of turnover; % of employment)	8% of turnover	Cluster Observatory, National statistics offices (see Table 2-3)
2.2.15 Interaction of SMEs with large companies	No strong connection between SME and large companies	Information provided by regional authority
2.3. Research capacities		
2.3.1. Number of universities/ technical colleges/universities of applied science	6	ECRN update January 2012
2.3.2. Number of universities/ technical colleges/ universities of applied science with chemical department	4	ECRN update January 2012
2.3.3. Students in pre-vocational and vocational programmes (% of 15-24 years old)	31.01 (2009)	http://www.clusterobservatory.eu
2.3.4. Students in tertiary programmes with academic orientation (% of 20-24 years old)	24.11 (2009)	http://www.clusterobservatory.eu
2.3.5. Lifelong learning (% of 25-64 years old)	8.21 (2009)	http://www.clusterobservatory.eu
2.4. Main players (companies)		
2.4.1 List of main players (name, turnover, employees, webpage)	<ul style="list-style-type: none"> • Bayer Material Science • Sasol Germany • Yara • Total Bitumen Deutschland 	ECRN update January 2012
2.5. Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.45 (2009)	http://www.clusterobservatory.eu
2.5.2. Patents per million inhabitants	101.3 (2009)	http://www.clusterobservatory.eu

Items/indicators	Data	Sources
2.5.3. Business R&D share of GDP	0.5 (2009)	http://www.clusterobservatory.eu
2.5.4. Public R&D share of GDP (%)	0.3 (2009)	http://www.clusterobservatory.eu
2.5.5. Integration/cooperation with other sectors and areas	The large companies have a strong connection to oil refining in the region, to trade and shipping in metropolitan Hamburg and to the energy sector (esp. storing technologies). Plastic producing SME are working more closely together with clients from other sectors which use the materials.	Chemie Cluster Schleswig-Holstein
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	No specific technologies known	Chemie Cluster Schleswig-Holstein
3.2. New or significantly improved chemical products introduced to the market in the last 5 years	Improvement on Diesel Exhaust Fluid (DEF) (aqueous urea solution to lower NOx)	Chemie Cluster Schleswig-Holstein
3.3. Integration/cooperation with other sectors and areas (chemical cluster)	Region is part of: <ul style="list-style-type: none"> European Chemical Regions Network (ECRN) Chemcoast e.V. (includes 4 other chemical parks; Seelze, Stade, Bomlitz/Walsrode and Wilhelmshaven) 	www.ecrn.net http://www.chemcoast.de
3.4. Main areas of regional cooperation	<ul style="list-style-type: none"> Permission processes Industry policy Energy saving and storage Eco analysis Skills and qualification Shared feedstock and services 	Chemie Cluster Schleswig-Holstein
4. Logistics		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)	1 International port. Located between the busy maritime routes of the Elbe and the North & Baltic Sea Canal.	http://www.egeb.de
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	Own industrial railroad 1 Ethylene pipeline (Sasol Germany)	http://www.chemcoast.de/brunsbue ttel
4.2. Access to natural resources and energy		
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.113 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.2.2. Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	0.043 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.3. Bottlenecks	Information currently unavailable	Chemie Cluster Schleswig-Holstein
4.4. Development projects	Information currently unavailable	Chemie Cluster Schleswig-Holstein

Scotland

Items/indicators	Data	Sources
1. General characteristics		
1.1. Name of the region	Scotland	Cluster overview

Items/indicators	Data	Sources
1.2. Associated picture (logo/map)	  	ECRN update January 2012
1.3. Regional authority		
1.3.1. Organisation name	Chemical Sciences Scotland	ECRN update January 2012
1.3.2. Address	Laurel Hill Business Park	ECRN update January 2012
1.3.3. Country	Scotland	ECRN update January 2012
1.3.4. Phone number	0044 – (0)1786 – 451919	ECRN update January 2012
1.3.5. Fax number	0044 – (0)1786 – 478123	ECRN update January 2012
1.3.6. Homepage	www.chemicalsciencesscotland.com	ECRN update January 2012
1.3.7. Governance (type of regional body; regional coordination mechanism)	Devolving unitary model (organised through 32 unitary authorities designated as Councils which consist of councillors elected every four years by registered voters in each of the council areas.	http://en.wikipedia.org/wiki/Local_government_in_Scotland
1.3.8 Legal competence and authority of the region	Economic Development	www.chemicalsciencesscotland.com
1.3.9. Contact details of focal point	Name: Fiona Soutar Email: fiona.soutar@scotent.co.uk Tel.: 0044 – (0)1786 – 452049 Details of 2 more contacts available on ECRN page. (Caroline Strain and Lilian Hamilton)	ECRN update January 2012
2. Overall economic situation of the region		
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	5,168,500	ECRN update January 2012
2.1.2. Area (km ²)	78,807	ECRN update January 2012
2.1.4. GDP (billion GBP)	2.140	ECRN update January 2012
2.1.5. GDP per capita (EUR ppp)	28,083.5	http://www.clusterobservatory.eu
2.1.6. GDP growth per capita (%)	3.5%	http://www.clusterobservatory.eu
2.1.6. Export (billion GBP)	3.5	ECRN update January 2012
2.1.7. Import (billion EUR)	Information currently unavailable	
2.2. Chemicals industry in the region		
2.2.1. History of the chemicals industry in the region	Chemical industry became an important priority only in 1996. The gradual change in the	Report “The Formula for Success A strategic plan for the Chemical Sciences in Scotland”, Chemical


Items/indicators	Data	Sources
	business climate and the different focus by the Chemical Industries Association led to efforts in direction of developing this industry. A new attempt to develop a chemical sciences strategy started in 2004. From this point on Scottish Enterprise has began to work with an engaged group of industry leaders, entrepreneurs and leading academics with the goal to develop a sector-led, Scottish initiative that will address the long-term opportunities and risks for the Scottish chemical sciences sector. The outcome of this whole process has been the strategic plan for Chemical Sciences Scotland. The key points of the plan is the work done by this group of industry and academic leaders, the SE Chemical Sciences Team, key people from the support and regulatory arms of government and other agencies with an interest in the chemical sciences sector. The plan also lines up the Scottish strategy with the CIGT approach for the UK and with the regional initiatives that are already in place in the north of England.	Sciences Scotland, available at http://www.scottish-enterprise.com/~media/SE/Resources/Documents/Sectors/Chemical%20sciences/chemical%20sciences%20scotland%20strategy.ashx
2.2.2. Specialisation	See 2.2.12	
2.2.3. Top 5 chemical products of the region	See 2.2.2	
2.2.4. Age of technical installations	Information currently unavailable	Cefic, Regional contact points
2.2.5. Total nr of chemical companies (cluster; region)	150	ECRN update January 2012
2.2.6 Nr of multinational companies in the region	Approx. 60-90	“Chemical Sciences Scotland”, Chemical Sciences Scotland, September 2011, document available at http://www.sdi.co.uk/~media/SDI/Files/documents/chemical-sciences/Chemical%20Sciences%20Scotland%202011.ashx
2.2.7. Enterprise growth (cluster; region)	Information currently unavailable	Cluster Observatory
2.2.8. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	There are more than 200 chemical sciences companies in Scotland, many of them SMEs.	www.chemicalsciencesscotland.com
2.2.9. Nr of employees (in the chemicals industry)	14,000 (70,000 directly dependant on the sector)	ECRN update January 2012
2.2.10. Employment dynamics (declining/increasing)	+0.4%	http://www.clusterobservatory.eu
2.2.11. Turnover (billion GBP)	9.3	www.chemicalsciencesscotland.com
2.2.12. Sector structure	Basic chemicals, Pharmaceuticals, Speciality chemicals	ECRN update January 2012
2.2.13. Private and public bodies involved in chemistry (e.g., associations, networks, other	<ul style="list-style-type: none"> • Scottish Enterprise • Chemical Industry Association • ScotCHEM (major players in 	ECRN update January 2012


Items/indicators	Data	Sources
initiatives)	research in chemical sciences)	
2.2.14. Share of chemistry in relation to whole industry in the region (% of turnover; % of employment)	25 % of Scottish manufacturing by turnover, 6 % of Scottish manufacturing employment.	www.chemicalsciencesscotland.com
2.2.15 Interaction of SMEs with large companies	Information currently unavailable	
2.3. Research capacities		
2.3.1. Number of universities/technical colleges/universities of applied science	10	ECRN update January 2012
2.3.2. Number of universities/technical colleges/universities of applied science with chemical department	10	ECRN update January 2012
2.3.3. Students in pre-vocational and vocational programmes (% 15-24 years old)	Information currently unavailable	
2.3.4. Students in tertiary programmes with academic orientation (% 20-24 years old) ⁹¹	In the year 2005/2006 18,140 students graduated from tertiary educational institutions in Scotland. 718 of these students graduated from Scottish universities in Subjects related to Chemicals or Chemistry. These chemistry related graduates account for 4% of the total number of graduates.	Document available at http://www.scottish-enterprise.com/~media/SE/Microsites/Chemical%20Sciences%20Scotland/Documents/5AAA669Bdo1.ashx
2.3.5. Lifelong learning (% of 25-64 years old)	19.95	http://www.clusterobservatory.eu
2.4. Main players (companies)		
2.4.1 List of main players (name, turnover, employees, webpage)	<ul style="list-style-type: none"> • INEOS • DuPont • Teijin Films • UK Limited • GSK • FUJI Film • DSM Nutritional Products (UK) Ltd • Polimeri Europa UK Ltd • Rohm & Haas (Scotland) Ltd • Dow 	ECRN update January 2012
2.5. Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.45	http://www.clusterobservatory.eu
2.5.2. Patents per million habitants	28.99	http://www.clusterobservatory.eu
2.5.3. Business R&D share of GDP	0.5	http://www.clusterobservatory.eu
2.5.4. Public R&D share of GDP (%)	0.3	http://www.clusterobservatory.eu
2.5.5. Integration/cooperation with other sectors and areas	Information currently unavailable	Internet search, consultation with regional authorities and cluster organisations (if those exist)
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	Information currently unavailable	Internet search, consultation with regional authorities and cluster organisations
3.2. New or significantly improved chemical products introduced to the market in the last 5 years	Smart-paint (that can detect microscopic faults before structural damage occurs)	http://www.strath.ac.uk/press/news_releases/headline_583703_en.html
3.3. Integration/cooperation with other sectors and areas (chemical cluster)	Information currently unavailable	Internet search, consultation with regional authorities and cluster organisations
3.4. Main areas of regional cooperation	Information currently unavailable	Internet search, consultation with

⁹¹ This information was unavailable for the region, but the information provided is related to the indicator.

Items/indicators	Data	Sources
		regional authorities and cluster organisations
4. Logistics		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)	<ul style="list-style-type: none"> • 5 main international airports, 11 regional airports • 3,000 km of railway track • 1 Freight port (Rosyth) 	http://nl.wikipedia.org
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	Information currently unavailable	
4.2. Access to natural resources and energy		
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.112 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.2.2. Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	0.029 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.3. Bottlenecks		
Information currently unavailable		
4.4. Development projects		
	<ul style="list-style-type: none"> • Program 'Yes to Growth' was introduced in order to enhance Scotland's economy; • 3 funding calls for bio-based chemicals and sustainable manufacturing funding calls have been launched, with the goal to spread research and development into the areas of sustainable manufacturing, feedstock and industrial biotech; • With the goal to boost the academic research sector in Scotland, EastChem, WestChem and, most importantly, ScotCHEM have been created, which are pooling the research within the academic sector. 	http://www.scottish-enterprise.com/news/2012/05/scotland-needs-to-say-yes-to-growth.aspx http://www.scottish-enterprise.com/news/2012/04/funding-calls-for-bio-based-chemicals.aspx http://www.scottish-enterprise.com/

Ústí Region

Items/indicators	Data	Sources
1. General characteristics		
1.1. Name of the region	Ústí Region	<i>Information provided by regional authority</i>
1.2. Associated picture (logo/map)		www.kr-ustecky.cz www.ecrn.net

Items/indicators	Data	Sources
		
1.3. Regional authority		
1.3.1. Organisation name	Regional Authority of the Ústí Region	ECRN update January 2012
1.3.2. Address	Velká Hradební 48 400 02, Ústí nad Labem	ECRN update January 2012
1.3.3. Country	Czech Republic	ECRN update January 2012
1.3.4. Phone number	00420 – (0)475 – 657756	ECRN update January 2012
1.3.5. Fax number	00420 – (0)475 – 657719	ECRN update January 2012
1.3.6. Homepage	www.kr-ustecky.cz	ECRN update January 2012
1.3.7. Governance (type of regional body; regional coordination mechanism)	Regionalised model	ECRN update January 2012
1.3.8. Legal competence and authority of the region	Legal competence includes: <ul style="list-style-type: none"> Sustainable development of economical, cultural and social pillars 	http://www.kr-ustecky.cz Report “Sustainable development strategy for the Usti region 2006-2020”
1.3.9. Contact details of focal point	Name: Fiala, Petr Email: fiala.p@kr-ustecky.cz Tel.: 0042 - (0)475 – 657818 Details of 2 more contacts available at the regional authority. (Zuzana Kadlecova and Jan Kadraba)	ECRN update January 2012 <i>Information provided by regional authority</i>
2. Overall economic situation of the region		
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	836,063	ECRN update January 2012
2.1.2. Area (km ²)	5,335	ECRN update January 2012
2.1.4. GDP (billion EUR)	9,517	ECRN update January 2012
2.1.5. GDP per capita (EUR ppp)	11,383	ECRN update January 2012
2.1.6. GDP growth per capita (%)	5.3% (2009)	http://www.clusterobservatory.eu
2.1.6. Export (billion EUR)	0.006365	ECRN update January 2012
2.1.7. Import (billion EUR)	Is not monitored on the regional level.	<i>Information provided by regional authority</i>
2.2. Chemicals industry in the region		
2.2.1. History of the chemicals industry in the region	Chemicals have been a staple of production in Usti for decades	http://www.locations4business.com/europe/czech-republic/usti/usti/business-sectors/chemicals/
2.2.2. Specialisation	Petrochemicals	http://www.locations4business.com/europe/czech-republic/usti/usti/business-sectors/chemicals/
2.2.3. Top 5 chemical products of the region	Liquid epoxy resins (Spolchemie), engine fuels (Unipetrol), nitrogen fertilizers (Lovochemie), viscose yarn for tyres (Glanzstoff), cosmetic and cleanse products (Lybar)	<i>Information provided by regional authority</i>
2.2.4. Age of technical installations	Different, depends on type of	<i>Information provided by regional</i>


Items/indicators	Data	Sources
	producer and production.	<i>authority</i>
2.2.5. Total nr of chemical companies (cluster; region)	215 (2009) 20 (enterprises >100 employees and head office in the region)	http://www.clusterobservatory.eu ECRN update January 2012
2.2.6 Nr of multinational companies in the region	Exact data is currently unavailable. The chemical sector in Ústí regions is composed mostly of large companies (>250 employees). There are at least 7 multinational companies. (see 2.4.1, excluding the research institute)	Report "Brownfields in Usti Region", Czech Invest, available at http://www.czechinvest.org/data/files/usti-bf-offer-514.pdf "Ústí Region", Region Office Usti, Credit Info, Company Monitor 2012, available at http://www.czechinvest.org/data/files/usti-2012-3117-en.pdf ECRN update January 2012 Internet search, consultation with regional authorities and cluster organisations
2.2.7. Enterprise growth (cluster; region)	-9.6% (2009)	http://www.clusterobservatory.eu
2.2.8. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	Exact data is currently unavailable. The chemical sector in Ústí regions is prospering and made up mostly of large companies (>250 employees). There are at least 7 multinationals and 80-93 SMEs.	"Newsletter", ChemClust, October 2010, available at http://lsa-st36.sachsen-anhalt.de/files/CHEMCLUST_October_2010_WEB.pdf Internet search, consultation with regional authorities and cluster organisations
2.2.9. Nr of employees (in the chemicals industry)	7,472	ECRN update January 2012
2.2.10. Employment dynamics (declining/increasing)	-0.5% (2009)	http://www.clusterobservatory.eu
2.2.11. Turnover (billion EUR)	5.1 billion EUR (for Ústí, 2010)	"Chemical Cluster Development in European Regions", ChemClust, Summary of Benchmarking Study presented at 1st ChemClust Dissemination Conference, Maastricht, 2010, available at http://www.chemelot.nl/bestand.aspx?id=1135360e-a44c-42a6-960a-e21f6b4f4b83
2.2.12. Sector structure	50% production of chemicals, cosmetics, pharmaceuticals and synthetic fibres, 45% production of rubber and plastics, 5% production of coke, fissionable fuel and crude oil processing	ECRN update January 2012
2.2.13. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)	<ul style="list-style-type: none"> • Association of Chemical Industry CZ (Svaz ChemickéHo Průmyslu ČR) • The Research Institute for Inorganic Chemistry (VUAnCh) is solving a lot of specific projects for the most of chemical manufacturers in the region • In the most of chemical companies exist agreements with the Institute of Chemical technology in Prague concerned the enlightenment of specialists for their needs. • SCHP delegated its innovation 	ECRN update January 2012 http://www.innowacyjni.mazovia.pl (Chemical Cluster Development in European Regions Benchmark report 2010)

Items/indicators	Data	Sources
	problems to CTP SusChem.	
2.2.14. Share of chemistry in relation to whole industry in the region (% of turnover; % of employment)	<ul style="list-style-type: none"> Share of Chemistry in relation to whole industry in the region: 49% Employment: 11% in the whole industry in the region 	ECRN update January 2012
2.2.15 Interaction of SMEs with large companies	Information currently unavailable	Internet search, consultation with regional authorities and cluster organisations
2.3. Research capacities		
2.3.1. Number of universities/technical colleges/universities of applied science	3	ECRN update January 2012
2.3.2. Number of universities/technical colleges/universities of applied science with chemical department	3	ECRN update January 2012
2.3.3. Students in pre-vocational and vocational programmes (% of 15-24 years old)	30.85 (2009)	http://www.clusterobservatory.eu
2.3.4. Students in tertiary programmes with academic orientation (% of 20-24 years old)	17.93 (2009)	http://www.clusterobservatory.eu
2.3.5. Lifelong learning (% of 25-64 years old)	7.11 (2009)	http://www.clusterobservatory.eu
2.4. Main players (companies)		
2.4.1 List of main players (name, turnover, employees, webpage)	<ul style="list-style-type: none"> UNIPETROL RPA s.r.o. Spolchemie a.s. Česká rafinérská a.s. Lovochemie a.s. Glanzstoff Bohemia s.r.o. CHEMOTEX Děčín a.s. Research Institute of Inorganic Chemistry, Ústí nad Labem 	ECRN update January 2012 http://www.czechinvest.org
2.5. Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.12 (2009)	http://www.clusterobservatory.eu
2.5.2. Patents per million inhabitants	2.44 (2009)	http://www.clusterobservatory.eu
2.5.3. Business R&D share of GDP	0.2 (2009)	http://www.clusterobservatory.eu
2.5.4. Public R&D share of GDP (%)	0 (2009)	http://www.clusterobservatory.eu
2.5.5. Integration/cooperation with other sectors and areas (batavia region)	3-CIP (3 Country Innovation Push) Was developed as a contribution to the economic distinction of the border triangle of Germany, Poland and Czech Republic. Chemical industry is one of the core branches.	http://www.kr-ustecky.cz/EN/vismo/zobraz_dok.asp?id_org=450021&id_ktg=1003&p1=1009
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	Examples: Chemotex (modernisation of phenolsulph. acid production), Spolchemie (green epoxy resins); Some of the companies used EU funds for new technologies implementation.	<i>Information provided by regional authority</i>
3.2. New or significantly improved chemical products introduced to the market in the last 5 years	Example: Spolchemie (green epoxy resins); In the region there are mostly produced materials or semi-finished products.	<i>Information provided by regional authority</i>
3.3. Integration/cooperation with other sectors and areas (chemical cluster)	<ul style="list-style-type: none"> Region is part of the European Chemical Regions Network (ECRN) Cooperates with other leading 	http://www.ecrn.net http://www.chemclust.eu/partnership.html

Items/indicators	Data	Sources
	European chemical regions through the ChemClust initiative.	
3.4. Main areas of regional cooperation	Education and HR development, counteracting migration and regional development.	<i>Information provided by regional authority</i>
4. Logistics		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)	1,099.4 km of railways Roads: 4,191.7 km in total, of which 56.5 km of motorways, 490.3 km of speedways and 1 st class roads, 895.5 km of 2 nd class roads, and 2,755.4 km of 3 rd class roads Approx. 110 km of inland waterways (Labe river from borders to Melnik)	<i>Information provided by regional authority</i> http://www.rsd.cz http://www.lavdiz.cz
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	The main European roads and railway lines on the axis from Berlin to Vienna via Prague, together with the Labe water way, go through the region.	<i>Information provided by regional authority</i>
4.2. Access to natural resources and energy		
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.107 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.2.2. Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	0.033 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.3. Bottlenecks	<ul style="list-style-type: none"> Railway between Dresden and Decin used for both personal and freight transport; Waterway between Dresden and Usti nad Labem which cannot be used during the low summer water levels. 	<i>Information provided by regional authority</i>
4.4. Development projects	<ul style="list-style-type: none"> Water Work "Decin navigation level" - in preparation; Motorway nr. D8 between Lovosice and Usti nad Labem – in construction. Public Logistic Centre in Lovosice – in development. 	<i>Information provided by regional authority</i>

Wallonia

Items/indicators	Data	Sources
1. General characteristics		
1.1. Name of the region	Wallonia	Cluster overview

Items/indicators	Data	Sources
1.2. Associated picture (logo/map)		ECRN update January 2012
1.3. Regional authority		
1.3.1. Organisation name	Service Public de Wallonie – DGO6 – Département de la Compétitivité et de l'Innovation	ECRN update January 2012
1.3.2. Address	Place de la Wallonie, 1 Bât 1 B – 5100 Namur	ECRN update January 2012
1.3.3. Country	Belgium	ECRN update January 2012
1.3.4. Phone number	0032 - (0)81 33 39 00.	ECRN update January 2012
1.3.5. Fax number	0032 - (0)81 33 37 44.	ECRN update January 2012
1.3.6. Homepage	http://economie.wallonie.be	ECRN update January 2012
1.3.7. Governance (type of regional body; regional coordination mechanism)	Regionalial Administration	<i>Information provided by regional authority</i>
1.3.8 Legal competence and authority of the region	Legal competence includes: <ul style="list-style-type: none"> • Economy and foreign trade • Local governments and urban policy • Social and public health • public works, agriculture, rural affairs, heritage and nature conservation • budget, finance, employment and sport • energy, housing, public services and sustainable development • environment, space and mobility 	http://nl.wikipedia.org
1.3.9. Contact details of focal point	Name: COLLET, Daniel Email: daniel.collet@spw.wallonie.be Name: SCHMETZ, Vinoj Email: vinoj.schmetz@spw.wallonie.be Tel.: 0032 - (0)81 33 39 56 Fax: 0032 - (0)81 33 37 44	SPW
2. Overall economic situation of the region		
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	3,430,000	ECRN update January 2012

Items/indicators	Data	Sources
2.1.2. Area (km ²)	16,844	ECRN update January 2012
2.1.4. GDP (billion EUR)	73.8	Eurostat
2.1.5. GDP per capita (EUR ppp)	20,642.5	http://www.clusterobservatory.eu
2.1.6. GDP growth per capita (%)	3%	http://www.clusterobservatory.eu
2.1.6. Export (billion EUR)	46.2	National Bank of Belgium
2.1.7. Import (billion EUR)	32.2	National Bank of Belgium
2.2. Chemicals industry in the region		
2.2.1. History of the chemicals industry in the region	Until the early 70's, the chemical industry in the Walloon region was centred on fertilisers and heavy inorganic chemistry. After the two petrol crises that marked the end of the 20th century, the Walloon chemical industry reacted by diversifying production at the existing operating centres, opening new fine chemicals units (pharmacy, cosmetics), developing an important chemical centre in the Feluy-Seneffe-Manage triangle, setting up research centres in Walloon Brabant and the province of Hainaut and investing in the province of Luxembourg.	http://www.brussels-wallonia.ie/industry.htm
2.2.2. Specialisation	<ul style="list-style-type: none"> • Polypropylene • PVC • Cosmetics 	<i>Information provided by regional authority</i>
2.2.3. Top 5 chemical products of the region ⁹²	<ul style="list-style-type: none"> • Polypropylene (about 1 million tons per year), polyethylene and polystyrene (produced by Total, about 200 000 tons per year, derived from Naphta) • PVC (produced by Solvay): about 500 000 tons per year are produced in Wallonia • Plastic films (Mima Films, Exxon Mobil Latour) • Silicone (Dow Corning) • Cosmetics (L'Oréal) • Detergents (McBride, Vandeputte) • Phosphates (Prayon) • Pesticides (Agriphar, Syngenta) • Roofing (Derbigum) • Nitrate (Yara) 	Belfirst
2.2.4. Age of technical installations	Information currently unavailable	<i>Information provided by regional authority</i>
2.2.5. Total nr of chemical companies (cluster; region)	370	ECRN update January 2012
2.2.6. Nr of multinational companies in the region	6 (Dow Chemical, ExxonMobil, INEOS, Total, AkzoNobel and Air Liquide)	"Belgium, a world champion for chemicals and plastics", PPT presentation Essenscia, available at http://www.essenscia.be/NL/essenscia/Publicaties/Economie/page.aspx/1336
2.2.7. Enterprise growth (cluster; region)	-3.4% (2009)	http://www.clusterobservatory.eu
2.2.8. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	Small to medium-sized companies make up 95% of the economic base	http://www.brussels-wallonia.ie/industry.htm

⁹² On request of the regional authority, more chemical products are mentioned here.

Items/indicators	Data	Sources
2.2.9. Nr of employees (in the chemicals industry)	26,100 direct (and 40 000 indirect) for chemistry and life sciences (2011)	http://www.essenscia.be/01/MyDocuments/WALL_KF_2011.pdf
2.2.10. Employment dynamics (declining/increasing)	14.9% (2009)	http://www.clusterobservatory.eu
2.2.11. Turnover (billion EUR)	11.8 (chemistry and life sciences, 2011)	http://www.essenscia.be/01/MyDocuments/WALL_KF_2011.pdf
2.2.12. Sector structure	high-tech pharmaceutical industry & biotechnology (47.8%) ⁹³ of the jobs), basic chemical manufacturing (21.1%), plastics processing (14.0%), cosmetics, perfumes, detergents (6.2%)	http://www.essenscia.be/01/MyDocuments/WALL_KF_2011.pdf
2.2.13. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)	<ul style="list-style-type: none"> • Essenscia Wallonie • Biowin (competitiveness pole) • Greenwin (competitiveness pole) • Plastiwin (cluster) • CEFOCHIM 	ECRN update January 2012 http://clusters.wallonie.be/federateur/en/competitiveness-clusters/walloon-competitiveness-clusters/index.html www.cefochim.be
2.2.14. Share of chemistry in relation to whole industry in the region (% of turnover; % of employment)	28 % (2011, chemistry and life sciences) Employment: 2.16% (6772/312922, based on 2009 data) The chemical sector generates over 1/5 of the turnover of the Belgian industrial sector.	http://www.essenscia.be/01/MyDocuments/WALL_KF_2011.pdf http://www.clusterobservatory.eu http://www.brussels-wallonia.ie/industry.htm
2.2.15 Interaction of SMEs with large companies	25 % of the Essenscia-Wallonia members are SMEs	http://www.essenscia.be/01/MyDocuments/Points_cl%C3%A9s_Livre_blanc_2009_FIN.pdf
2.3. Research capacities		
2.3.1. Number of universities/technical colleges/universities of applied science	9 university centres, 13 higher education colleges, 30 research centres, 6 university science parks, numerous shared research centres and a wide “centres of excellence” network.	ECRN update January 2012
2.3.2. Number of universities/technical colleges/universities of applied science with chemical department	5 out of 9 universities ⁹⁴ have a chemical department	http://www.ciu.be/cms/loffredenseignement.html
2.3.3. Students in pre-vocational and vocational programmes (% of 15-24 years old)	40.47 (2009)	http://www.clusterobservatory.eu
2.3.4. Students in tertiary programmes with academic orientation (% of 20-24 years old)	24.6 (2009)	http://www.clusterobservatory.eu
2.3.5. Lifelong learning (% of 25-64 years old)	4.95 (2009)	http://www.clusterobservatory.eu
2.4. Main players (companies)		
2.4.1 List of main players (name, turnover, employees, webpage)	Main players (NACE 20): <ul style="list-style-type: none"> • Dow Corning • Total Petrochemicals • Air Liquide Belge • AKZO Nobel Chemicals • Prayon • INEOS 	BELFIRST database

⁹³ As percentages of total employment in the sector⁹⁴ Including Brussels ULB (on territory of the Brussels-Wallonia Federation)

Items/indicators	Data	Sources
	<ul style="list-style-type: none"> • Yara • Solvay • Afton Chemical • Mc Bride • L'Oreal • Vandeputte 	
2.5. Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.49 (2009)	http://www.clusterobservatory.eu
2.5.2. Patents per million habitants	62.58 (2009)	http://www.clusterobservatory.eu
2.5.3. Business R&D share of GDP	Share of Business Expenditure on R&D in GERD (in %) 75.86 (value averaged over 2005-2010)	http://www.rim-europa.eu/index.cfm?q=p.regionalProfile&r=BE3
2.5.4. Public R&D share of GDP (%)	Gross Expenditure on R&D per GDP (in %) was 1.98 (value averaged over 2005-2010)	http://www.rim-europa.eu/index.cfm?q=p.regionalProfile&r=BE3
2.5.5. Integration/cooperation with other sectors and areas.	<p>The Walloon chemical industry is strongly vertically integrated within the sector itself, composing thus itself an own value chain. The flows within the sector are various and complex, but one of the most important is the transformation of olefins obtained from Naphtha as propylene, ethylene or styrene into -granular-polymers, basic PVC or basic plastics (e.g. Solvay, Total Feluy). Polymers, basic plastics or PVC will then be used for many other applications in other sectors. Crude Oil arrives at the Antwerp Harbor, is distilled and naphtha is getting 'cracked' (steam cracker) in Antwerp to produce ethylene, propylene and styrene, which is transported by pipeline or other transport means to other locations for further treatment.</p>	<p>Etude relative à la caractérisation des relations inter-industrielles en Wallonie et au positionnement de l'industrie wallonne au sein des chaînes de valeur mondiales – Une vision prospective (Interim report of the industrial policies study, conducted by IDEA consult, on behalf of the Walloon Administration –SPW, to be published in 2013)</p> <p><i>Information provided by regional authority</i></p>
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	Polyimide track etched membrane.	http://www.arb-ils.com/products/it4ip/innovation_p_rize_announcement_10-2009.pdf
3.2. New or significantly improved chemical products introduced to the market in the last 5 years	<ul style="list-style-type: none"> • MTO/OCP Pilot plant at Total Feluy (Feluy Research Centre): to diversify feedstock for making petrochemicals; • Futerro project (joint venture between Galactic and Total Feluy) to develop a production technology for bioplastics of renewable vegetable origin • Derbigum, specialised in roofing membranes, has recently developed a new, highly reflective membrane which acts as passive cooler to reduce energy consumption. 	<p>"Belgium, a world champion for chemicals and plastics", PPT presentation Essenscia, available at http://www.essenscia.be/NL/essenscia/Publicaties/Economie/page.aspx/1336</p>
3.3. Integration/cooperation with other sectors and areas (chemical cluster)	<ul style="list-style-type: none"> • Region is part of the ECRN • Connected to the Western European Pipeline Network 	<p>ECRN update January 2012</p> <p><i>Information provided by regional authority</i></p>

Items/indicators	Data	Sources
3.4. Main areas of regional cooperation	<p>There is a general cooperation agreement between France and the Wallonia Region, which was signed on May 10th, 2004 in Brussels. According to this agreement, France-Wallonia collaboration in all of Wallonia's fields of competence takes place.</p> <p>The Foreign Ministry is particularly committed to developing this cooperation through the action of its embassy in Brussels: establishing of a forum for discussing cross-border issues involving all governmental and local French and Belgian actors; supporting cooperation, in both a thematic (internationalising competitive clusters, deepening scientific and academic cooperation by establishing joint Master's degrees and dual diploma programs) and sectorial (developing cross-border projects with Champagne-Ardenne) approach.</p>	<p><i>authority</i> http://www.diplomatie.gouv.fr/en/country-files/belgium/france-and-belgium/other-types-of-cooperation-6094/ http://www.unido.org/index.php?id=035730</p>
4. Logistics		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)	<p>2 airports: Brussels South Charleroi Airport and Liège Airport.</p> <p>1 port: port of Liège (PAL)</p> <p>Also see 4.1.2</p>	<p><i>Information provided by regional authority</i></p>
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	<p>Presence of the Western European Pipeline Network with three major connections to Wallonia.</p> <p>Wallonia has one autonomous port of Liège (PAL), which is the third largest inland port in Europe. The region does not have direct access to the sea. In spite of that it is very well connected to the major ports thanks to an extensive network of navigable waterways that pervades Belgium, and it has effective river connections to Antwerp, Rotterdam and Dunkirk.</p> <p>There are also a number of motorways which fall within the scope of the TransEuropean Transport network program (TEN-T).</p> <p>Both of the two largest cities in Wallonia have an airport (the Brussels South Charleroi Airport, the Liège Airport). In Wallonia</p>	<p><i>Information provided by regional authority</i></p> <p>See map in "Belgium, a world champion for chemicals and plastics", PPT presentation Essenscia, available a http://www.essenscia.be/NL/essenscia/Publicaties/Economie/page.aspx/1336</p> <p>http://en.wikipedia.org/wiki/Wallonia#Transportation</p>

Items/indicators	Data	Sources
	there is a well-developed rail network.	
4.2. Access to natural resources and energy		
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.111 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.2.2. Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	0.033 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.3. Bottlenecks	<p>There are 2 crucial factors:</p> <ul style="list-style-type: none"> • High energy costs (the most important factor) • Workforce costs (especially in terms of fiscal regimes) <p>Other factors that are difficult to rank:</p> <ul style="list-style-type: none"> • price of raw materials • lack of regional integration (lack of interconnections at regional level, e.g. the residue of company could become the raw material of another company) • bad image, especially towards young people • number of end users does not grow. 	<p>Etude relative à la caractérisation des relations inter-industrielles en Wallonie et au positionnement de l'industrie wallonne au sein des chaînes de valeur mondiales – Une vision prospective (Interim report of the industrial policies study, conducted by IDEA consult, on behalf of the Walloon Administration –SPW, to be published in 2013)</p> <p><i>Information provided by regional authority</i></p>
4.4. Development projects	The project 'Géother-wall' provides funding toward new deep geothermal wells, working towards a future renewable urban heating network.	http://egec.info/walloon-region-supports-geothermal-development-in-mons/

Yorkshire & The Humber

Items/indicators	Data	Sources
1. General characteristics		
1.1. Name of the region	Yorkshire & The Humber	Cluster overview

Items/indicators	Data	Sources
1.2. Associated picture (logo/map)		http://www.ecrn.net
1.3. Regional authority		
1.3.1. Organisation name	Humber Chemical Focus Ltd & Yorkshire Chemical Focus Ltd	http://www.ecrn.net
1.3.2. Address	HCF Ltd, CATCH, Kiln Lane, Stallingborough, DN41 8 TH , Grimsby NE, Lincolnshire	http://www.ecrn.net
1.3.3. Country	United Kingdom	http://www.ecrn.net
1.3.4. Phone number	0044 – 1469 552840	http://www.ecrn.net
1.3.5. Fax number	0044 – 1469 552849	http://www.ecrn.net
1.3.6. Homepage	www.humberchemicalfocus.org www.ycf.org.uk	http://www.ecrn.net
1.3.7. Governance (type of regional body; regional coordination mechanism)	Local enterprise Partnerships The Regional Authority, Yorkshire Forward was wound up in March 2012, in line with other regions in UK. They have not been replaced, however Local enterprise Partnerships have been formed, presently without funding or powers fully defined.	http://en.wikipedia.org/wiki/Local_Enterprise_Partnership ECRN update January 2012
1.3.8. Legal competence and authority of the region	Legal competence includes: <ul style="list-style-type: none"> Economic development 	http://en.wikipedia.org/wiki/Yorkshire_Forward
1.3.9. Contact details of focal point	Name: Dr Hughes, Glyn Email: glyn.hughes@humberchemical.co.uk Tel.: 0044 – (0)776 33422 Details of 1 more contact relevant available on ECRN page. (Katie hedges). The second on the ECRN page, Ralph Gerrard, recently left the organisation.	http://www.ecrn.net
2. Overall economic situation of the region		
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	5,000,000	ECRN update January 2012
2.1.2. Area (km ²)	15,000	http://www.clusterobservatory.eu
2.1.4. GDP (billion EUR)	90 billion	ECRN update January 2012

Items/indicators	Data	Sources
2.1.5. GDP per capita (EUR ppp)	24,301.50	http://www.clusterobservatory.eu
2.1.6. GDP growth per capita (%)	1.7%	http://www.clusterobservatory.eu
2.1.6. Export (billion EUR)	Chemical sector export 65% of production	ECRN update January 2012
2.1.7. Import (billion EUR)	Information currently unavailable	
2.2. Chemicals industry in the region		
2.2.1. History of the chemicals industry in the region	Large chemical companies are located on the Humber close to pipelines and ports. This includes 2 oil refineries, processing 25% of the UK transport fuels. The west Yorkshire companies are predominately SMEs-, originally supporting the woollen and textile industries, now synthetic organic specialities eg colourants, lubricants, surfactants. Yorkshire and Humber is home to one of the largest concentrations of chemical related activity in the UK, making up 10% of the UK total. It is the largest manufacturing sector in Yorkshire and Humber.	<i>Information provided by relevant contact person</i>
2.2.2. Specialisation	No specific data found, see 2.2.1 and 2.2.12	
2.2.3. Top 5 chemical products of the region	No specific data found, see 2.2.1 and 2.2.12	
2.2.4. Age of technical installations	Early installations are over 100 years old. There have been major expansions in 1960s and 70s to present day.	<i>Information provided by relevant contact person</i>
2.2.5. Total nr of chemical companies (cluster; region)	300 (ECRN) 450, with over 400 chemical manufacturing sites and a well-developed supply chain of supporting industries. (YCF)	ECRN update January 2012 http://www.ycf.org.uk
2.2.6. Nr of multinational companies in the region	Information currently unavailable	
2.2.7. Enterprise growth (cluster; region)	Information currently unavailable	
2.2.8. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	Information currently unavailable	
2.2.9. Nr of employees (in the chemicals industry)	20,000 (ECRN) 24,000 (YCF)	ECRN update January 2012 http://www.ycf.org.uk
	8,301 (Cluster Observatory, 2009)	http://www.clusterobservatory.eu
2.2.10. Employment dynamics (declining/increasing)	-5.2% (2009)	http://www.clusterobservatory.eu
2.2.11. Turnover (billion EUR)	8 billion GBP	http://www.ycf.org.uk
2.2.12. Sector structure	All major sectors represented: petrochemicals, pharma, paints, pigments, personal care, oleochemicals, biofuels, specialty chemicals, commodity chemicals & solvents	ECRN update January 2012
2.2.13. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)	Humber Chemical Focus Ltd Yorkshire Chemical Focus Ltd	ECRN update January 2012
2.2.14. Share of chemistry in relation	Second largest manufacturing	

Items/indicators	Data	Sources
to whole industry in the region (% of turnover; % of employment)	sector in regional with average of 10% GVA contribution Employment (2009): 1,08% (24,000/ 766729)	ECRN update January 2012 http://www.clusterobservatory.eu
2.2.15 Interaction of SMEs with large companies	Information currently unavailable	
2.3. Research capacities		
2.3.1. Number of universities/ technical colleges/universities of applied science	9; 6 major research universities (Hull, York, Leeds, Huddersfield, Bradford, Sheffield) and also Sheffield Hallam and Leeds Metropolitan Universities.	ECRN update January 2012
2.3.2. Number of universities/ technical colleges/ universities of applied science with chemical department	9; All universities have chemical science departments	ECRN update January 2012
2.3.3. Students in pre-vocational and vocational programmes (% of 15-24 years old)	Information currently unavailable	
2.3.4. Students in tertiary programmes with academic orientation (% of 20-24 years old)	Information currently unavailable	
2.3.5. Lifelong learning (% of 25-64 years old)	17.65 (2009)	http://www.clusterobservatory.eu
2.4. Main players (companies)		
2.4.1 List of main players (name, turnover, employees, webpage)	The main players include ⁹⁵ : <ul style="list-style-type: none"> • Total • ConocoPhillips • BP • Ineos • Kemira • Novartis, • Cristal(Tioxide), • Nippon Ghosie • Centrica • Syngenta • Rhodia 	ECRN update January 2012
2.5. Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.49 (2009)	http://www.clusterobservatory.eu
2.5.2. Patents per million habitants	22.51 (2009)	http://www.clusterobservatory.eu
2.5.3. Business R&D share of GDP	0.4 (2009)	http://www.clusterobservatory.eu
2.5.4. Public R&D share of GDP (%)	0.1 (2009)	
2.5.5. Integration/cooperation with other sectors and areas	Yorkshire Forward (RDA) employed a sector manager and 'strategic sector champion' for chemicals, helping to identify opportunities for innovation through collaboration, and brokering relationships between businesses and the science base. Close cooperation was supported with Advanced Manufacturing, Food, Biosciences, IT, Digital and Creative Industries and Environmental Technologies.	http://www.yorkshire-forward.com/our-wonderful-region/key-industries/chemicals
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	Biorefining, biofuels.	<i>Information provided by relevant contact person</i>
3.2. New or significantly improved	See 3.1	<i>Information provided by relevant</i>


⁹⁵ The full list can be found in the ECRN Who-is-Who 2012 update.


Items/indicators	Data	Sources
chemical products introduced to the market in the last 5 years		<i>contact person</i>
3.3. Integration/cooperation with other sectors and areas (chemical cluster)	<ul style="list-style-type: none"> Region is part of the ECRN 	ECRN update January 2012
3.4. Main areas of regional cooperation	Information currently unavailable	
4. Logistics		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)	<p>3 Airports (1 heliport).</p> <p>3 Freight ports: in Hull, Immingham and Goole.</p> <p>A main motorway connection and rail infrastructure servicing industrial locations and ports. The region also has a canal network and several smaller canals in the region, often built for quite specific purposes. An extensive river system feeds into the Humber estuary.</p>	http://en.wikipedia.org/wiki/Yorkshire_and_the_Humber#Transport
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	See 4.1.1. Also gas, oil and chemicals pipelines from ports and terminals.	<i>Information provided by relevant contact person</i>
4.2. Access to natural resources and energy		
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.112 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.2.2. Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	0.029 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.3. Bottlenecks	Information currently unavailable	
4.4. Development projects	Information currently unavailable	

A.2. Regional profiles additional regions

The current section contains regional profiles for 5 additional regions.

Veneto

Items/indicators	Data	Sources
1. General characteristics		
1.1 Name of the region	Veneto	
1.2 Associated picture (logo/map)		http://upload.wikimedia.org/wikipedia/commons/thumb/9/9e/Regione-Veneto-Posizione.png/180px-Regione-Veneto-Posizione.png



Items/indicators	Data	Sources
		
1.3 Regional authority		
1.3.1. Organisation name	Regione del Veneto	http://www.regione.veneto.it
1.3.2. Address	Palazzo Balbi - Dorsoduro 3901 30123 Venezia	http://www.regione.veneto.it
1.3.3. Country	Italy	http://www.regione.veneto.it
1.3.4. Phone number	041 2793636	http://www.regione.veneto.it
1.3.5. Fax number	041 2792884	http://www.regione.veneto.it
1.3.6. Homepage	http://www.regione.veneto.it	
1.3.7. Governance (type of regional body; regional coordination mechanism)	Regionalised model	
1.3.8 Legal competence and authority of the region	Information currently unavailable	
1.3.9. Contact details of focal point	Secretariat Responsabile: Marco Volpato Palazzo Balbi - Dorsoduro 3901 30123 Venezia Tel. 041 2792863 - 2864 Fax. 041 5242524 E-Mail: presidenza@regione.veneto.it	http://www.regione.veneto.it
2 Overall economic situation of the region		
2.1 Regional economics		
2.1.1. Population (nr inhabitants)	4,858,944 (2009)	http://www.clusterobservatory.eu
2.1.2. Area (km ²)	18,398.9 (2009)	http://www.clusterobservatory.eu
2.1.4. GDP (billion EUR)	149.4 billion EUR (2008)	http://en.wikipedia.org/wiki/Veneto
2.1.5. GDP per capita (EUR ppp)	30,300 (2009)	http://www.clusterobservatory.eu
2.1.6. GDP growth per capita (%)	3.4	http://www.clusterobservatory.eu
2.1.6. Export (billion EUR)	In 2007, Veneto's exports were higher than 0.0506 billion EUR	http://statistica.regione.veneto.it/EN/NG/Pubblicazioni/RapportoStatistico2009/Capitolo02a.jsp
2.1.7. Import (billion EUR)	Imports exceeded 0.0398 billion EUR in 2007	http://statistica.regione.veneto.it/EN/NG/Pubblicazioni/RapportoStatistico2009/Capitolo02a.jsp
2.2 Chemicals industry in the region		
2.2.1. History of the chemicals industry in the region	<ul style="list-style-type: none"> • Burst in the post-war period; • Flexible character of region has shown to be fruitful for growth of high-tech services; • Low level of investments, however, reduced the level of technical innovation; • In recent years, some local chemical units had to stop production to either restructure or to be dismissed because of their dangerousness to the (dense) 	Eurostat, 2003 "Portrait of the Regions".

Items/indicators	Data	Sources
	population; <ul style="list-style-type: none"> Chemicals processing is more important in the eastern central belt of the region, especially around Porto Marghera. 	
2.2.2. Specialisation	Production (e.g. of fertiliser)	Eurostat, 2003 "Portrait of the Regions".
2.2.3. Top 5 chemical products of the region	Information currently unavailable	
2.2.4. Age of technical installations	Veneto's current installations are considered to be very old.	<i>Information provided by regional authority</i>
2.2.5. Total nr of chemical companies (cluster; region)	Information currently unavailable	
2.2.6. Nr of multinational companies in the region	1,118	http://www.clusterobservatory.eu
2.2.7. Enterprise growth (cluster; region)	-3.8%	http://www.clusterobservatory.eu
2.2.8. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	<i>Information currently unavailable for the chemical industry specifically in Veneto.</i> The presence of SMEs is especially important in Italy, where they account for 41% of the total value of production. There are more than 200 foreign owned companies producing in Italy, employing about 34 thousand workers and represent 37% of the whole Italian chemical production value.	http://www.federchimica.it/Libraries/sito_in_inglese/Chemicals_in_Italy_2011.sflb.ashx http://interreg-minieurope.com/good-practices/clusters-programme-in-veneto/
2.2.9. Nr of employees (in the chemicals industry)	<i>Information currently unavailable for the chemical industry specifically in Veneto.</i> In 2010, 114,500 employees were employed in the chemical industry in Italy. Region-specific information is not available.	http://www.federchimica.it/Libraries/sito_in_inglese/Chemicals_in_Italy_2011.sflb.ashx
2.2.10. Employment dynamics (declining/increasing)	-0.8%	http://www.clusterobservatory.eu
2.2.11. Turnover (billion EUR)	Information currently unavailable	
2.2.12. Sector structure	Information currently unavailable	
2.2.13. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)	Information currently unavailable	
2.2.14. Share of chemistry in relation to whole industry in the region (% of turnover; % of employment)	Information currently unavailable	
2.2.15. Interaction of SMEs with large companies	Information currently unavailable	
2.3 Research capacities		
2.3.1. Number of universities/technical colleges/universities of applied science	3 (in Padua, Venice and Verona)	Internet search on individual university websites
2.3.2. Number of universities/technical colleges/universities of applied science with chemical department	3	Internet search on individual university websites
2.3.3. Students in pre-vocational and vocational programmes (% of 15-24 years old)	32.29	http://www.clusterobservatory.eu

Items/indicators	Data	Sources
2.3.4. Students in tertiary programmes with academic orientation (% 20-24 years old)	49.01	http://www.clusterobservatory.eu
2.3.5. Lifelong learning (% of 25-64 years old)	6.48	http://www.clusterobservatory.eu
2.4 Main players (companies)		
2.4.1 List of main players (name, turnover, employees, webpage)	Information currently unavailable	
2.5 Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.4	http://www.clusterobservatory.eu
2.5.2. Patents per million habitants	96.85	http://www.clusterobservatory.eu
2.5.3. Business R&D share of GDP	0.3	http://www.clusterobservatory.eu
2.5.4. Public R&D share of GDP (%)	0.1	http://www.clusterobservatory.eu
2.5.5. Integration/cooperation with other sectors and areas	Information currently unavailable	
3 Emerging dynamics		
3.1 New or significantly improved technologies introduced to the market in the last 5 years	Information currently unavailable	
3.2 New or significantly improved chemical products introduced to the market in the last 5 years	Information currently unavailable	
3.3 Integration/cooperation with other sectors and areas (chemical cluster)	<p>The region is involved in the project MINI EUROPE, within which the European regions exchange and develop regional policies in SME development, focussing on the main themes of promoting entrepreneurship and providing infrastructure for innovation.</p> <p>Veneto and Valencia exchange good practices: two-day visits and many meeting are organised in order to deepen and share the good practices between these two regions.</p>	<p>http://interreg-minieurope.com/the-project/</p> <p>http://interreg-minieurope.com/news/veneto-valencia-exchange-of-good-practices/</p>
3.4 Main areas of regional cooperation		
4 Logistics		
4.1 Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)	<p>Airports, harbours and inter-modal structures are accessible in the area.</p> <p>14 airports: 2 international (in Venice and in Verona), 12 regional</p> <p>3 ports: Port of Venice, Port of Chioggia and Porto Levante.</p>	<p>http://www.eriknetwork.net/regions/veneto.html</p>
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	<p>There is a major motorway running from east to west and links the main centres of the region with the industrial triangle of Milan, Turin and Genoa.</p> <p>Verona is an important crossroads for road and rail communications with northern Europe. Railroads are also well developed.</p> <p>Veneto has well-equipped ports on</p>	<p>http://www.eriknetwork.net/regions/veneto.html</p>

Items/indicators	Data	Sources
	the Adriatic sea.	
4.2 Access to natural resources and energy	Information currently unavailable	
4.2.1 Electricity price for industrial consumers (EUR per kWh) country level	0.153 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.2.2 Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	0.040 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.3 Bottlenecks	Information currently unavailable	
4.4 Development projects	The European Commission approved a Regional Operational Programme for the Italian region of Veneto for the period 2007-13 with the goal to render the Veneto region more appealing to both people and to businesses. The Programme will make investments in the field of research and Development (R&D), innovation, new business creation, renewable energy and clean urban transportation.	http://ec.europa.eu/regional_policy/country/prordn/details_new.cfm?v_PAY=IT&gv_reg=ALL&gv_PGM=1053&gv_defL=7&LAN=7

Catalonia


Items/indicators	Data	Sources
1. General characteristics		
1.1. Name of the region	Catalonia (Cataluña)	
1.2. Associated picture (logo/map)	 	ECRN "Who-is-Who"
1.3. Regional authority		
1.3.1. Organisation name	Secretariat for Industry and Energy. Ministry of Labour and Industry	ECRN "Who-is-Who"
1.3.2. Address	Passeig de Gràcia 129 E-08008 Barcelona	ECRN "Who-is-Who"
1.3.3. Country	Spain	ECRN "Who-is-Who"
1.3.4. Phone number	+34 - 934 - 767200	ECRN "Who-is-Who"
1.3.5. Fax number	+34 - 934 - 767282	ECRN "Who-is-Who"
1.3.6. Homepage	http://www.gencat.com	ECRN "Who-is-Who"
1.3.7. Governance (type of regional)	Autonomous Region	http://www.oecd.org/dataoecd/28/

Items/indicators	Data	Sources
body; regional coordination mechanism)		36/46826969.pdf
1.3.8 Legal competence and authority of the region	The Statute of Autonomy gives the Generalitat of Catalonia the powers which enable it to carry out the functions of self-government. These can be exclusive, concurrent and shared with the Spanish State or executives.	http://www.gencat.cat/generalitat/eng/estatut/titol_4.htm
1.3.9. Contact details of focal point	Name: Figuerola, Eduard E-mail: efiguerola@gencat.net Tel.: +34 - 934 767 200 Details of 2 more contacts available on ECRN website (Narcis Mir and Ricard Ramon)	ECRN "Who-is-Who"
2. Overall economic situation of the region		
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	6,704,000 (2002)	ECRN "Who-is-Who"
2.1.2. Area (km ²)	32,000	ECRN "Who-is-Who"
2.1.4. GDP (billion EUR)	210.15	http://www.idescat.cat/pub/?id=acc&n=356&lang=en
2.1.5. GDP per capita	30,700 (28,269.81)	http://www.clusterobservatory.eu http://www.idescat.cat/pub/?id=acc&n=356&lang=en
2.1.6. GDP growth per capita	5.4%	http://www.clusterobservatory.eu
2.1.6. Export (billion EUR)	4.860	<i>Information provided by regional authority</i>
2.1.7. Import (billion EUR)	6.724	<i>Information provided by regional authority</i>
2.2. Chemicals industry in the region		
2.2.1. History of the chemicals industry in the region	Information currently unavailable	
2.2.2. Age of technical installations	<ul style="list-style-type: none"> 60 million EUR is annually invested to improve installations in Tarragona; Grand investment for Repsol in Tarragona amounting to 1,000 million EUR for the development of a 'coker' (a fabrication plant for products of high value such as gasoil and carbon from coke). The plant it to be completed in 2016. 	http://catalannewsagency.com/news/business/most-important-petrochemical-pole-mediterranean-nourished-training-and-innovation
2.2.3. Total nr of chemical companies (cluster; region)	1150	ECRN "Who-is-Who"
2.2.4. Enterprise growth (cluster; region)	Information currently unavailable	
2.2.5. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	Micro: 87% Small: 10% Medium: 2% Large: 1% Start ups and spin-off: n/a	<i>Information provided by regional authority</i>
2.2.6. Nr of employees (in the chemicals industry)	61,100 (19024 according to Cluster Observatory, which excludes pharmaceuticals)	ECRN "Who-is-Who" http://www.clusterobservatory.eu

Items/indicators	Data	Sources
2.2.7. Employment dynamics (declining/increasing)	declining	Information provided by regional authority
2.2.8. Turnover	19,444 million EUR	ECRN "Who-is-Who"
2.2.9. Sector structure	Main activities include petrochemical, pharmacy, plastic transformation and manufacturing of final consumer goods	ECRN "Who-is-Who"
2.2.10. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)	FedeQuim (Federation of Catalan Chemical Industries) www.fedequim.es AEQT (Association of Chemical Industries of Tarragona) www.aeqt.com aeqt@aeqt.com	ECRN "Who-is-Who"
2.2.11. Share of chemistry in relation to whole industry in the region (% of turnover)	15.7	ECRN "Who-is-Who"
2.2.12 Interaction of SMEs with large companies	Information currently unavailable	
2.3. Research capacities		
2.3.1. Number of universities/technical colleges/universities of applied science	12	ECRN "Who-is-Who"
2.3.2. Number of universities/technical colleges/universities of applied science with chemical department	8	ECRN "Who-is-Who"
2.3.3. Students in pre-vocational and vocational programmes (% of 15-24 years old)	9.21	http://www.clusterobservatory.eu
2.3.4. Students in tertiary programmes with academic orientation (% of 20-24 years old)	45.23	http://www.clusterobservatory.eu
2.3.5. Lifelong learning (% of 25-64 years old)	8.73	http://www.clusterobservatory.eu
2.4. Main players (companies)		
2.4.1 List of main players (name, turnover, employees, webpage)	<ul style="list-style-type: none"> • BASF Española • Henkel Iberica • Reckitt Benckiser España • Sociedad Española de Carburos Metálicos • DuPont Iberica • Boehringer Ingelheim España • Bayer Polímeros • Solvay Química 	ECRN "Who-is-Who"
2.5. Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.47	http://www.clusterobservatory.eu
2.5.2. Patents per million habitants	46.88	http://www.clusterobservatory.eu
2.5.3. Business R&D share of GDP (%)	0.9	http://www.clusterobservatory.eu
2.5.4. Public R&D share of GDP (%)	0.2	http://www.clusterobservatory.eu
2.5.5. Integration/cooperation with other sectors and areas	<ul style="list-style-type: none"> • Region was part of European Chemical Regions Network (ECRN) 	ECRN "Who-is-Who"
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	e.g. Photovoltaic Integration and Printed Electronics Devices; Light and Heat Technology Electronic Integration of Sensors, Thermochromatic Applications, Smart and IT.	http://www.cetemmsa.com/innovacion.php?id=00000012L

Items/indicators	Data	Sources
3.2. New or significantly improved chemical products introduced to the market in the last 5 years	e.g. Procedure for obtaining nanoparticles for reaction in oil in water (O/W)-type microemulsions, Bi-pyrroles as synthesis intermediaries for obtaining conductive polymers, antennae in artificial photosynthesis systems and photodynamic drugs, development and sale of sensors using microelectronic technology.	http://www.acc10.cat/en/technology/tecnio/centres/GEM-IQS.jsp http://www.acc10.cat/en/technology/tecnio/centres/GTQ.jsp
3.3. Integration/cooperation with other sectors and areas	Information currently unavailable	
3.4. Main areas of regional cooperation	Information currently unavailable	
4. Logistics		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)	Highways: 14,00 km Roads: 10,700 km Railways: 1,600 km 8 Ports: 2 main ports are Port of Barcelona and Port of Tarragona Airports: 6	<i>Information provided by regional authority</i>
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	Catalonia saw the first railway construction in the Iberian Peninsula in 1848, linking Barcelona with Mataró. Most of the lines radiate from Barcelona. The city has both suburban and inter-city services. High speed rail (AVE) services from Madrid currently reach Lleida, Tarragona and Barcelona.	http://en.wikipedia.org/wiki/Catalonia#Transport
4.2. Access to natural resources and energy		
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.115 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.2.2. Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	0.031 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.3. Bottlenecks	Standard gauge connection with European Railway network	<i>Information provided by regional authority</i>
4.4. Development projects	Mediterranean Corridor, the railway junction that links Europe to the south and east of Spain. The strengthening and consolidation of the Mediterranean railway corridor in the future will improve the competitiveness and efficiency of freight and passengers in Spain. It also aims to improve economic competitiveness, strengthen territorial cohesion and promote freight transport by railway. It is intended to be finished by 2020.	<i>Information provided by regional authority</i> http://singularspain.com/general/the-mediterranean-railway-corridor-the-railway-junction-that-links-europe-to-the-south-and-east-of-spain/

Provence-Alpes-Côte d'Azur

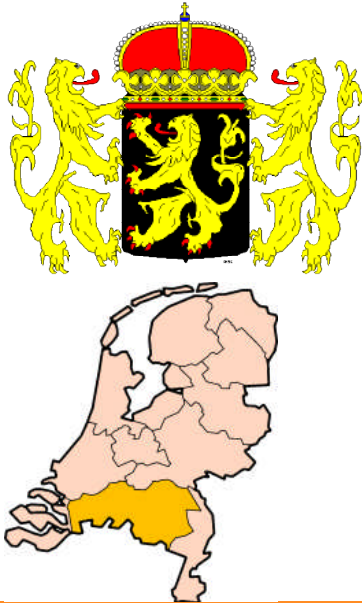
Items/indicators	Data	Sources
1. General characteristics		
1.1. Name of the region		
1.2. Associated picture (logo/map)		
		http://nl.wikipedia.org/wiki/Provence-Alpes-C%C3%B4te_d'Azur
1.3. Regional authority		
1.3.1. Organisation name	Conseil régional de Provence-Alpes-Côte d'Azur	http://www.regionpaca.fr
1.3.2. Address	Hôtel de Région 27, place Jules Guesde, 13481 Marseille Cedex 20	http://www.regionpaca.fr
1.3.3. Country	France	http://www.regionpaca.fr
1.3.4. Phone number	+33 4 91 57 50 57	http://www.regionpaca.fr
1.3.5. Fax number	+33 4 91 57 51 51	http://www.regionpaca.fr
1.3.6. Homepage	http://www.regionpaca.fr	http://www.regionpaca.fr
1.3.7. Governance (type of regional body; regional coordination mechanism)	Regionalised model	
1.3.8. Legal competence and authority of the region	Legal competence includes: <ul style="list-style-type: none"> • Economic development; • Innovation; • Education; • Transport; • Energy. 	http://www.iledefrance.fr/english/the-regional-council/the-regional-councils-fields-of-intervention/the-regional-councils-fields-of-intervention/
1.3.9. Contact details of focal point	Christine Garotta-Derail E- mail : cgarotta@regionpaca.fr Tel : + 33 (0)4 91 57 50 57 / 6402	
2. Overall economic situation of the region		
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	4,920,250 (2009)	http://www.clusterobservatoire.eu
2.1.2. Area (km ²)	31,399.6 (2009)	http://www.clusterobservatoire.eu
2.1.4. GDP (billion EUR)	Information currently unavailable	
2.1.5. GDP per capita (EUR ppp)	25,500 (2009)	http://www.clusterobservatoire.eu
2.1.6. GDP growth per capita (%)	4.4% (2009)	http://www.clusterobservatoire.eu
2.1.6. Export (billion EUR)	Information currently unavailable	
2.1.7. Import (billion EUR)	Information currently unavailable	
2.2. Chemicals industry in the region		
2.2.1. History of the chemicals industry in the region	Information currently unavailable	
2.2.2. Specialisation	Petrochemicals	http://investinpaca.com/files/Fiche_Petrochimie_2007_7Mo.pdf

Items/indicators	Data	Sources
2.2.3. Top 5 chemical products of the region	<ul style="list-style-type: none"> • Base chemicals; • Intermediates; • Specialty chemicals; • Performance solutions; • Various end products, such as colours, plastics, etc. 	http://investinpaca.com/files/Fiche_Petrochimie_2007_7Mo.pdf
2.2.4. Age of technical installations	Information currently unavailable	
2.2.5. Total nr of chemical companies (cluster; region)	217	http://www.clusterobesservatoy.eu
2.2.6. Nr of multinational companies in the region	Information currently unavailable	
2.2.7. Enterprise growth (cluster; region)	.3%	http://www.clusterobesservatoy.eu
2.2.8. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	Information currently unavailable	
2.2.9. Nr of employees (in the chemicals industry)	9582	http://www.clusterobesservatoy.eu
2.2.10. Employment dynamics (declining/increasing)	0%	http://www.clusterobesservatoy.eu
2.2.11. Turnover (billion EUR)	Information currently unavailable	
2.2.12. Sector structure	Petrochemicals, base chemicals, specialty chemicals, plastics.	http://investinpaca.com/files/Fiche_Petrochimie_2007_7Mo.pdf
2.2.13. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)	<ul style="list-style-type: none"> • PRIDES Novachim • PRIDES Artemis • CRITT Chimie • Centre d'Animation Régional et Matériaux Avancés (CARMA) • UIC PACA Corse 	http://investinpaca.com/files/Fiche_Petrochimie_2007_7Mo.pdf
2.2.14. Share of chemistry in relation to whole industry in the region (% of turnover; % of employment)	Information currently unavailable	
2.2.15. Interaction of SMEs with large companies	Information currently unavailable	
2.3. Research capacities		
2.3.1. Number of universities/technical colleges/universities of applied science	6	http://en.wikipedia.org/wiki/University_Institutes_of_Technology#Provence-Alpes-C.C3.B4te_d.27Azur
2.3.2. Number of universities/technical colleges/universities of applied science with chemical department	2	http://investinpaca.com/files/Fiche_Petrochimie_2007_7Mo.pdf
2.3.3. Students in pre-vocational and vocational programmes (% of 15-24 years old)	14.90	http://www.clusterobesservatoy.eu
2.3.4. Students in tertiary programmes with academic orientation (% of 20-24 years old)	38.29	http://www.clusterobesservatoy.eu
2.3.5. Lifelong learning (% of 25-64 years old)	6.52	http://www.clusterobesservatoy.eu
2.4. Main players (companies)		
2.4.1. List of main players	<p>Leading players include:</p> <ul style="list-style-type: none"> • Air Liquide; • Arkéma; • Esso; • Inéon; • Infineum; • Kraton Polymer; • Lyondell Chimie France; • Solvay. 	http://investinpaca.com/files/Fiche_Petrochimie_2007_7Mo.pdf
2.5. Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.49	http://www.clusterobesservatoy.eu

Items/indicators	Data	Sources
2.5.2. Patents per million habitants	61.64	http://www.clusterobesservatoy.eu
2.5.3. Business R&D share of GDP	1.1	http://www.clusterobesservatoy.eu
2.5.4. Public R&D share of GDP (%)	0.4	http://www.clusterobesservatoy.eu
2.5.5. Integration/cooperation with other sectors and areas	Information currently unavailable	
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	Information currently unavailable	
3.2. New or significantly improved chemical products introduced to the market in the last 5 years	Information currently unavailable	
3.3. Integration/cooperation with other sectors and areas (chemical cluster)	Information currently unavailable	
3.4. Main areas of regional cooperation	Information currently unavailable	
4. Logistics		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)	Access to TGV (high speed train), well connected train network. 7 airports: 4 international (Avignon, Marseille-Provence, Toulon-Hyères, Nice-Côte d'Azur); 3 local (Cannes-Mandelieu, Tallard, Castellet)	http://www.investinpaca.com/
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	The region offers a favourable location with a large transport hub linking together harbour, river, pipelines, rail and road. 4 "Ports Maritimes": Fos-Sur-Mer, Marseille, Toulon, Nice. 4 "Ports Fluviaux": Arles, Beaucaire, Avignon, L'Ardoise.	http://www.investinpaca.com/
4.2. Access to natural resources and energy		
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.073 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.2.2. Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	0.036 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.3. Bottlenecks	Information currently unavailable	
4.4. Development projects	<p>Euroméditerranée programme</p> <p>Between now and 2020, the Euroméditerranée programme, among other things, aims to develop:</p> <ul style="list-style-type: none"> • transport infrastructures: high-speed rail station at Saint-Charles, the multimodal station in Arenc with a suburban rail link to the airport, shortening the motorway to La Porte d'Aix, creation of three interlink tunnels. • 5 km of coastline paths restored 	

Items/indicators	Data	Sources
	from the Vieux-Port to Cap Pinède, and 2.5 hectares of harbour cleared as far as the old "J4" site.	

Zuid-Holland/Noord-Brabant

Items/indicators	Data	Sources
1. General characteristics		
1.1. Name of the region	Noord Brabant	n.a.
1.2. Associated picture (logo/map)		http://upload.wikimedia.org/wikipedia/commons/6/65/Noord_Brabant-Position.png
1.3. Regional authority		
1.3.1. Organisation name	Provincie Noord-Brabant	http://www.brabant.nl
1.3.2. Address	Brabantlaan 1, 5216 TV 's-Hertogenbosch	http://www.brabant.nl
1.3.3. Country	The Netherlands	http://www.brabant.nl
1.3.4. Phone number	0031 (0) 73 681 28 12	http://www.brabant.nl
1.3.5. Fax number	0031 (0) 73 614 11 15	http://www.brabant.nl
1.3.6. Homepage	http://www.brabant.nl	http://www.brabant.nl
1.3.7. Governance (type of regional body; regional coordination mechanism)	Regionalised model	http://www.brabant.nl
1.3.8. Legal competence and authority of the region	Policy areas include a number of fields, such as energy and environment	http://www.brabant.nl
1.3.9. Contact details of focal point	n/a	
2. Overall economic situation of the region		
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	2,429,694 (2009)	http://www.clusterobservatory.eu
2.1.2. Area (km ²)	5081.8 (2009)	http://www.clusterobservatory.eu
2.1.4. GDP (billion EUR)	81.39 (2009)	Based on 2.1.2 and 2.1.5
2.1.5. GDP per capita (EUR ppp)	33,500 (2009)	http://www.clusterobservatory.eu
2.1.6. GDP growth per capita (%)	6% (2009)	http://www.clusterobservatory.eu
2.1.6. Export (billion EUR)	Information currently unavailable	
2.1.7. Import (billion EUR)	Information currently unavailable	
2.2. Chemicals industry in the region		
2.2.1. History of the chemicals	<ul style="list-style-type: none"> • Chemie-Pack, the largest 	booz&co, (2009). "NRW im

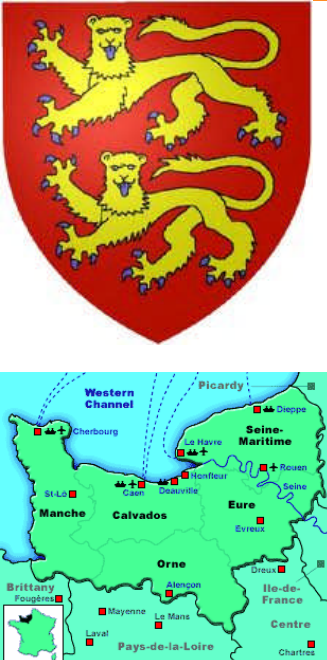
Items/indicators	Data	Sources
industry in the region	chemical company in the region, suffered damage from a fire on the 5 th of Januari 2011, which resulted in an estimated damage both to the company's premises and to the environment of 40 million EUR. <ul style="list-style-type: none"> • Mostly Moerdijk area, for which we can identify a chemical cluster of Moerdijk-Rotterdam (see Booz, 2009); though the latter is an area from Zuid-Holland. • Extensive chemical industry development in combined area. 	Wettbewerb Europäischer Chemieregionen"
2.2.2. Specialisation	Bulk chemicals, petrochemical	booz&co, (2009). "NRW im Wettbewerb Europäischer Chemieregionen
2.2.3. Top 5 chemical products of the region	Information currently unavailable	
2.2.4. Age of technical installations	Information currently unavailable	
2.2.5. Total nr of chemical companies (cluster; region)	Information currently unavailable	
2.2.6 Nr of multinational companies in the region	Presence of large international players (e.g. ExxonMobil), but no data on number of SMEs	
2.2.7. Enterprise growth (cluster; region)	Information currently unavailable	
2.2.8. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	Information currently unavailable	
2.2.9. Nr of employees (in the chemicals industry)	Information currently unavailable	
2.2.10. Employment dynamics (declining/increasing)	Information currently unavailable	
2.2.11. Turnover (billion EUR)	Information currently unavailable	
2.2.12. Sector structure	See 2.2.2	
2.2.13. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)		
2.2.14. Share of chemistry in relation to whole industry in the region (% of turnover; % of employment)	Information currently unavailable	
2.2.15 Interaction of SMEs with large companies	Information currently unavailable	
2.3. Research capacities		
2.3.1. Number of universities/ technical colleges/universities of applied science	1	http://www.kiesjestudie.nl
2.3.2. Number of universities/ technical colleges/ universities of applied science with chemical department	1	http://www.kiesjestudie.nl
2.3.3. Students in pre-vocational and vocational programmes (% of 15-24 years old)	24.06	http://www.clusterobservatory.eu
2.3.4. Students in tertiary programmes with academic orientation (% of 20-24 years old)	56.92	http://www.clusterobservatory.eu
2.3.5. Lifelong learning (% of 25-64 years old)	15.98	http://www.clusterobservatory.eu

Items/indicators	Data	Sources
2.4. Main players (companies)		
2.4.1 List of main players (name, turnover, employees, webpage)	Information currently unavailable	
2.5. Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.68	http://www.clusterobservatory.eu
2.5.2. Patents per million habitants	238.11	http://www.clusterobservatory.eu
2.5.3. Business R&D share of GDP	2.5	http://www.clusterobservatory.eu
2.5.4. Public R&D share of GDP (%)	0.1	http://www.clusterobservatory.eu
2.5.5. Integration/cooperation with other sectors and areas (region)	Information currently unavailable	
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	e.g. new ignition system for Ariane 5 rocket was developed by a chemical company in the region.	http://www.vnci.nl/Files/DIVEXTRA/CM0806_o8_o9_wetenswaardig.pdf
3.2. New or significantly improved chemical products introduced to the market in the last 5 years	e.g. special chemical substance for the Ariane 5 rocket.	http://www.vnci.nl/Files/DIVEXTRA/CM0806_o8_o9_wetenswaardig.pdf
3.3. Integration/cooperation with other sectors and areas (chemical cluster)	Information currently unavailable	
3.4. Main areas of regional cooperation	Information currently unavailable	
4. Logistics		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)	The infrastructure of the region is well developed. There is an airport, and road and railway connection to other essential destinations.	http://www.brabant.nl/subsites/english/portfolio/traffic-and-transportation.aspx
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	The regional airport is located in Eindhoven and provides many international connections. Breda railway station provides TGV (the French high-speed train) connections to numerous destinations. The roads and railways running along Europe's north (Amsterdam) - south (Paris, Maastricht, Luxembourg) and west (Rotterdam, Vlissingen, Antwerp) - east (Venlo, Düsseldorf) axes pass through Brabant.	http://www.brabant.nl/subsites/english/portfolio/traffic-and-transportation.aspx
4.2. Access to natural resources and energy		
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.113 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.2.2. Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	0.038 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.3. Bottlenecks	Information currently unavailable	
4.4. Development projects	Information currently unavailable	

Normandy⁹⁶

Items/indicators	Data	Sources
1. General characteristics		
1.1. Name of the region	Normandie (Haute & Basse)	

⁹⁶ Note that unfortunately, the Cluster Observatory data was only available for earlier years than 2009. This explains why the data is from respectively 2007 or 2008.

Items/indicators	Data	Sources
<p>1.2. Associated picture (logo/map)</p>		<p>http://www.conseil-general.com/</p> <p>http://www.drivethroughfrance.com/images/lowernormandy/Normandy.gif</p>
<p>1.3. Regional authority</p>		
<p>1.3.1. Organisation name</p>	<p>Normandy is split in two sub-regions: Upper and Lower Normandy.</p> <p>- Regional Council Haute Normandie</p> <p>- Regional Council Basse Normandie</p>	<p>http://www.conseil-general.com/</p>
<p>1.3.2. Address</p>	<p>Upper: Abbaye aux Dames, 14000 CAEN</p> <p>Lower: 5 rue Robert Schuman, 76174 ROUEN Cedex</p>	<p>http://www.conseil-general.com/</p>
<p>1.3.3. Country</p>	<p>France</p>	<p>http://www.conseil-general.com/</p>
<p>1.3.4. Phone number</p>	<p>Upper: +33 2 31 06 98 98</p> <p>Lower: +33 2 35 52 56 00</p>	<p>http://www.conseil-general.com/</p>
<p>1.3.5. Fax number</p>	<p>Upper: +33 2 31 06 95 95</p> <p>Lower: +33 2 35 52 56 56</p>	<p>http://www.conseil-general.com/</p>
<p>1.3.6. Homepage</p>	<p>http://www.hautenormandie.fr/</p> <p>http://www.cr-basse-normandie.fr</p>	<p>http://www.conseil-general.com/</p>
<p>1.3.7. Governance (type of regional body; regional coordination mechanism)</p>	<p>Regionalised model</p>	
<p>1.3.8 Legal competence and authority of the region</p>	<p>Legal competence includes:</p> <ul style="list-style-type: none"> • Economic development; • Innovation; • Education; • Transport; • Environment 	<p>http://www.hautenormandie.fr/</p> <p>http://www.cr-basse-normandie.fr</p>
<p>1.3.9. Contact details of focal point</p>	<p>No particular focal points</p> <p>E-mail (Upper): communication@cr-Haute-Normandie.fr</p> <p>E-mail (Lower): courrier@crbn.fr</p>	<p>http://www.conseil-general.com/</p>
<p>2. Overall economic situation of the region</p>		

Items/indicators	Data	Sources
2.1. Regional economics		
2.1.1. Population (nr inhabitants)	Upper: 1,820,750 (2008) Lower: 1,465,500 (2008)	http://www.clusterobservatory.eu
2.1.2. Area (km ²)	Upper: 12317.4 (2008) Lower: 17589.3 (2008)	http://www.clusterobservatory.eu
2.1.4. GDP (billion EUR)	Information currently unavailable	
2.1.5. GDP per capita (EUR ppp)	Upper: 24,500 (2007) Lower: 22,000 (2007)	http://www.clusterobservatory.eu
2.1.6. GDP growth per capita (%)	Upper: 4.3% (2007) Lower: 3.6% (2007)	http://www.clusterobservatory.eu
2.1.6. Export (billion EUR)	Information currently unavailable	
2.1.7. Import (billion EUR)	Information currently unavailable	
2.2. Chemicals industry in the region		
2.2.1. History of the chemicals industry in the region	Information currently unavailable	
2.2.2. Specialisation	Petrochemicals	“Invest in Normandy – Overview”, slides available at http://www.slideshare.net/NormandyDev/invest-in-normandy-overview https://ecspp.org/organizations/normandy-le-havre-developpement
2.2.3. Top 5 chemical products of the region	<ul style="list-style-type: none"> • Oil refining, • chemicals, • petrochemicals (luboils and lubricants, biofuels, additives, polymers, plastics & elastomers, pigments, fertilizers...) • fine chemicals. 	
2.2.4. Age of technical installations	Information currently unavailable	
2.2.5. Total nr of chemical companies (cluster; region)	Upper: 58 (2008) Lower: 27 (2008)	http://www.clusterobservatory.eu
2.2.6. Nr of multinational companies in the region	Information currently unavailable	
2.2.7. Enterprise growth (cluster; region)	Upper: -4.2% (2008) Lower: -10.2% (2008)	http://www.clusterobservatory.eu
2.2.8. Breakdown by the company size (large, middle, SMEs; start-ups and spin-offs)	Information currently unavailable	
2.2.9. Nr of employees (in the chemicals industry)	Upper: 6614 (2008) Lower: 1094 (2008)	http://www.clusterobservatory.eu
2.2.10. Employment dynamics (declining/increasing)	Upper: 8.1% (2008) Lower: 2.3% (2008)	http://www.clusterobservatory.eu
2.2.11. Turnover (billion EUR)	Information currently unavailable	
2.2.12. Sector structure	See 2.2.3	
2.2.13. Private and public bodies involved in chemistry (e.g., associations, networks, other initiatives)	<ul style="list-style-type: none"> • UIC Normandie 	
2.2.14. Share of chemistry in relation to whole industry in the region (% of turnover; % of employment)	Upper: 3.5% (2008; 6614/190401) Lower: 0.8% (2008; 1094/136682)	http://www.clusterobservatory.eu
2.2.15. Interaction of SMEs with large companies	Information currently unavailable	
2.3. Research capacities		
2.3.1. Number of universities/technical colleges/universities of applied science	3	http://www.univ-lehavre.fr http://webetu.unicaen.fr http://www.univ-rouen.fr/
2.3.2. Number of universities/technical colleges/universities of applied science with chemical department	3	http://www.univ-lehavre.fr http://webetu.unicaen.fr http://www.univ-rouen.fr/
2.3.3. Students in pre-vocational and	Upper: 15.98 (2007)	http://www.clusterobservatory.eu

Items/indicators	Data	Sources
vocational programmes (% of 15-24 years old)	Lower: 17.81 (2007)	
2.3.4. Students in tertiary programmes with academic orientation (% of 20-24 years old)	Upper: 29.44 (2007) Lower: 27.69 (2007)	http://www.clusterobservatory.eu
2.3.5. Lifelong learning (% of 25-64 years old)	Upper: 7.34 (2007) Lower: 5.86 (2007)	http://www.clusterobservatory.eu
2.4. Main players (companies)		
2.4.1 List of main players	Leading players include: <ul style="list-style-type: none"> • Akzo Nobel; • Arkéma; • BASF; • ChevronTexaco; • ExxonMobil; • Shell; • Toyo Ink; • Total Petrochemicals. 	“Invest in Normandy – Overview”, slides available at http://www.slideshare.net/NormandyDev/invest-in-normandy-overview
2.5. Innovation capacities		
2.5.1. Regional Innovation Scoreboard	0.41 (2007, for whole of Normandy)	http://www.clusterobservatory.eu
2.5.2. Patents per million habitants	Upper: 58.81 (2007) Lower: 43.72 (2007)	http://www.clusterobservatory.eu
2.5.3. Business R&D share of GDP (%)	Upper: 1.3 (2007) Lower: 0.6 (2007)	http://www.clusterobservatory.eu
2.5.4. Public R&D share of GDP (%)	Upper: 0 (2007) Lower: 0.1 (2007)	http://www.clusterobservatory.eu
2.5.5. Integration/cooperation with other sectors and areas	Information currently unavailable	
3. Emerging dynamics		
3.1. New or significantly improved technologies introduced to the market in the last 5 years	Information currently unavailable	
3.2. New or significantly improved chemical products introduced to the market in the last 5 years	Information currently unavailable	
3.3. Integration/cooperation with other sectors and areas (chemical cluster)	Information currently unavailable	
3.4. Main areas of regional cooperation	<ul style="list-style-type: none"> • Le Havre-Port-Jérôme-Rouen, France’s leading petrochemical cluster. 	http://www.invest-in-france.org/Medias/Publications/227/Chemical%20Industry.pdf
4. Logistics		
4.1. Infrastructure of the region		
4.1.1. Road, rail, air and navigable inland waterways networks at regional level (e.g. in km/area)		
4.1.2. Transport resources (intermodal nodes, railways, waterways, pipelines)	<p>12 local airports (3 local airports in Lower Normandy)</p> <p>The port in Le Havre is France’s largest deep-water port. It handles 50% of France’s maritime foreign trade, controls 60% of the national container traffic and 95% of major shipliners call in Normandy.</p>	<p>http://normandy.angloinfo.com/information/transport/air-sea-travel/local-airports/</p> <p>http://www.french-property.com/regions/basse_normandie/airports/</p> <p>http://en.wikipedia.org/wiki/Le_Havre</p> <p>“Invest in Normandy – Overview”, slides available at http://www.slideshare.net/NormandyDev/invest-in-normandy-overview</p>
4.2. Access to natural resources and energy		

Items/indicators	Data	Sources
4.2.1. Electricity price for industrial consumers (EUR per kWh) <i>country level</i>	0.073 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.2.2. Gas price for industrial consumers (per kWh, EUR) <i>country level</i>	0.036 (2009)	http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Energy_price_statistics#Industrial_consumers
4.3. Bottlenecks	Information currently unavailable	
4.4. Development projects	Port 2000 is one of the largest port expansion projects in Europe which aims to double global container traffic in Le Havre, Normandy.	“Invest in Normandy – Overview”, slides available at http://www.slideshare.net/NormandyDev/invest-in-normandy-overview

Annex B: Detailed policy forms

The data collected in the policy forms came from both public (regional authorities) and private (beneficiaries) sources. It includes information from web resources and documents supplied by these sources. In addition, interviews were carried out with industry representatives, relevant state, regional and (if relevant) financial institutions, as well as cluster organisations.

For a detailed description of the methodology for collection of policy data, we refer to paragraph 1.4.3 of this report.

B.1. Clusters & Innovation policies

B.1.1. Asturias Cluster Policy

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy (region)	Cluster policy (R&D and innovation) [Asturias].
1.2 Brief description	<p>Grant awarded after the submission, evaluation and passing of a cluster proposal (competing with other proposals) by the Economic Development Agency of the Principality of Asturias (IDEPA). A cluster in this case consists of about 20 companies. IDEPA does not distinguish between organic or inorganic chemicals because they do not have any specific chemicals policy. IDEPA pays for the setting up of the clusters, but not for R&D output. IDEPA is bounded by subsidy legislation which states that subsidies must be open to all sectors.</p> <p>Criteria for awarding the grants are:</p> <ul style="list-style-type: none"> • Quality of the proposal: well-written, clear description of objectives, activities, budget (Max 10 points) • Sector: industrial scored higher than other sectors (Max 15 points) • Impact on the economic environment: sector-wide / 10 companies or more / less than 10 companies (Max 15 points) • Experience in cooperation projects (Max. 15 points) • Number of companies included in cluster (Max. 5 points) • Quality of Strategic Plan (Max. 10 points) • 30 out of 100 points to be awarded at the discretion of the Award Committee
1.3 Policy focus	To promote the association of companies in clusters in order to undertake common projects, (for example in R&D) and learn to cooperate. In this policy, grants are provided as an incentive for cluster formation, not for R&D specifically.
1.4 Policy instruments involved	Grant.
1.5 Policy level	Regional Policy.
1.6 Policy period (mm/yy - mm/yy or present)	2007-2013 Budgets are determined on an annual basis. The chemicals cluster has existed for one year.
2. Rationale and target group	
2.1 The goal of the policy	To set up mechanisms for cooperation and R&D projects. The economy is mainly composed of SMEs, which have a low budget available for innovation. The rationale behind the policy is to facilitate collaboration among companies which includes encouraging companies to pool resources.
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	Cluster policy is a European policy to promote cooperation and innovation.
2.3 Policy partners	European Commission through ERDF 2007-2013.
2.4 Involvement of other regions in the policy	No.
2.5 Key beneficiaries of the	Companies of the chemical sector.

Policy characteristics	Collected data
policy (beneficiaries here refer to groups that are directly targeted by the policy)	
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	R&T centres (Fundación ITMA http://www.itma.es , INCAR http://www.incar.csic.es) and University of Oviedo (http://www.uniovi.es).
3. Implementation and management	
3.1 Responsible Managing Authority	Economic Development Agency of the Principality of Asturias (IDEPA) http://www.idepa.es .
3.2 Key tasks of Managing Authority	Evaluation of the proposal made by companies willing to set up a cluster or to develop an existing one and, after the approval, checking that the subsidized activities have been completed and funded according to the approval document.
3.3 Instruments used to monitor the implementation of the policy	There is a compulsory process for justifying the use of the grant money. This process is done by IDEPA using a dossier submitted by the cluster, containing invoices and payment receipts.
3.4 Key difficulties encountered during implementation	Lack of interest in companies, low level of proposed activities and a difficulty adapting to the new culture of cooperation. Since the cluster is at initial stage, it is hard to recognise which activities (such as seminars) will be successful in facilitating cooperation. Public bodies can only grant funds following strict regulations. It cannot tell companies precisely what to do nor force companies to take interest in cooperation.
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	There is no monitoring committee, though there is an evaluation committee for the grant assignment process, composed by: Director of the RDI Office from the Regional Ministry of Science & Education, Industry Director and Energy & Mining Director from the Regional Ministry of Industry & Labour, Vice-Director of Innovation, Director of Industrial Projects and Director of Economic & Administrative Area from IDEPA.
3.6 Ex-post evaluation of the policy (including time period when it took place)	IDEPA is certified in ISO 9001, which makes it compulsory for them to evaluate the effectiveness of the grants that they give. This is done annually.
3.7 KPIs used to measure the outputs	Since the Asturias Chemical Cluster is in its first year of life, no measurement has been made of its activities. The website of the cluster is http://www.clusterasturias.es/en/iqpa .
3.8 Approach towards evaluation	By questionnaire that will be sent to the companies involved.
4. Legal and financial framework	
4.1 Policy-related legislations	European: ERDF regulations, minimis rules (DOCE 12/28/2006) Spain: Subsidy law Asturias: IDEPA creation law, Regional subsidy Law.
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	Creating a good relationship between companies and IDEPA. To achieve this IDEPA has set up an electronic contact point. <i>The following measures are being undertaken to ease administrative process:</i> - <i>Facilitating the relationship between clusters with a common website</i> http://www.clusterasturias.es - <i>Creating a website for the cluster of chemical and process industries where members can exchange data. This is currently in progress.</i>
4.3 Support services offered to the beneficiaries	Support through subsidies for innovations, support for the participation in FP7. <i>Other services offered are websites, training courses, and technical sessions.</i>
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	IDEPA webpage, Regional public TV and radio and public presentations. <i>Quarterly meetings.</i>
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	Since the subsidy is a heavily regulated grant, deadlines are quite strict. Nonetheless, the deadline can be extended by as much as half of the time initially allowed if the reason is satisfactory.
4.6 Corrective measures	None reported

Policy characteristics	Collected data
4.7 Minimum and maximum total budget for the policy	€500,000 - €650,000 (for all industries) IDEPA budgets and subsidy lines are decided on annual basis by the regional government. If the budget is not spent in a year, IDEPA has to give it back to the relevant fund-releasing body such as regional ministry.
4.8 Number of projects supported by the policy	1 for the chemical sector entitled "Asturias chemical cluster web and organisation of technical seminars on the chemical industry" Budget: €34,091 Current grant (2011): € 27,041 (for the cluster managing costs, a cluster webpage and organising several seminar)
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	€5,000 - €60,000
5. Main achievements	
5.1 The extent to which the goals have been attained	The activities are not finished yet.
5.2 Key outcomes of the policy	We expect an increase in the cooperation of companies involved in the cluster and also in the volume of R+D activity.
5.3 Importance of these outcomes for beneficiaries/region/industry	Because of the high added value the technology creation brings to the economy of the region (new companies, new jobs etc.), there is a high importance associated with outcomes of the policy. <i>The policy is expected to improve relations between the companies and increase cooperation on projects that benefit the sector and region.</i>
5.4 Unintended negative changes that can be attributed to the policy (if any)	None reported
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	The policy encourages cooperation among companies, promotes innovation and fosters the region's chemical sector.
6.2 Key weaknesses of the policy	Risk of a lack of interest of the key actors (companies, R+D Centres, University..) especially in the current economic climate. Companies are focused on surviving rather than on cooperation or research. <i>Difficulties in obtaining cooperation between companies on joint projects, especially during the current economic climate.</i>
6.3 New opportunities created by the policy (for the region, for industry)	<i>The activities are not finished yet.</i>
6.4 External threats to the policy	<i>Economic crisis</i>
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	One of the key difficulties is to the funding of the cluster, and especially the financing of the employment cost. The main difficulty is a lack of interest; companies want to pay taxes and please their shareholders, but they seem uninterested in public policy. <i>Financing the cluster. SMEs have less people. It is difficult for them to find time to cooperate.</i>
7.2 Reasons behind these difficulties	Low engagement of the companies as a result of the financial crisis. <i>The financial crisis has forced companies and governments to cut their expenses.</i>
7.3 The way these difficulties were tackled by the beneficiaries	None
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	The chemical cluster has existed for one year, so no lessons learned.
8.2 Effect of lessons learned on other policies	None reported
8.3 Suggestions for improvement	<i>Creation of new subsidies for clusters, which favour the project financing and promote the chemical regional industry.</i>
9. Transferability to other regions	
9.1 Similar policies in other regions	Yes.
9.2 Region-related factors that make this policy	Presence of key actors (chemical companies, even a big one like Dupont, R+D centres, University of Oviedo, IDEPA), and a industrial culture in Asturias thanks to the coal

Policy characteristics	Collected data
successful	mines that brought to the region the industrial revolution at the end of the 19th century and subsequently all the chemical industry upstream of the coal distillation. <i>Industrial tradition in the Region, presence of international chemical companies and presence of R+D centres.</i>
9.3 Barriers for transferring the policy to other regions	Cluster policy may be more or less effective; however any region can implement it. <i>Cluster Policy is being implemented in other regions.</i>

B.1.2. Bayern Cluster Initiative

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy	Cluster Initiative Bavaria – “Chemie-Cluster Bayern”
1.2 Brief description	<p>The "Bavarian Cluster Initiative" is a new feature of the modernisation strategy designed to enhance Bavaria's role as a top location for business and research. Bavarian cluster policy concentrates on nineteen branches and technologies with high importance for the future of Bavaria. By promoting cooperation between companies and research institutions the Bavarian state government aims to create a dynamic and self organising process of growth and development within these nineteen fields.</p> <p>Within this initiative, Chemie-Cluster Bayern has been founded in 2006 as a management institution mainly to coordinate joint product development activities, to manage synergies in research, qualification and marketing and to implement business development strategies for groups of companies on new, international target markets.</p>
1.3 Policy focus	<p>Intensifying chemical value creation in Bavaria by supporting</p> <ul style="list-style-type: none"> • Technology transfer between industry and science; • R&D activities especially of SME; • Innovation support and marketing; • Qualification activities; • International site marketing in cooperation with public authorities.
1.4 Policy instruments involved	<p>The cluster initiative is an integrated approach to support SME by</p> <ul style="list-style-type: none"> • Easier access to public innovation funding (regional, national, European); • Providing network structures; • International marketing.
1.5 Policy level	The cluster initiative is a regional initiative by the State of Bavaria.
1.6 Policy period (mm/yy - mm/yy or present)	01/2007 – 12/2015
2. Rationale and target group	
2.1 The goal of the policy	The initiative is designed to increase local value creation by supporting innovation development and to increase competitiveness especially of SME.
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	Cluster initiatives have been set up in other European regions before. <i>The Bavarian cluster initiative, however, is unique regarding its integrated approach (e.g. moderated cooperation between all cluster units etc.)</i>
2.3 Policy partners	Main political partner is the Ministry of Economic Affairs and its institutions like “Invest in Bavaria”. Cluster projects are supported by the Federal Ministry of Economic Affairs, by the Federal Ministry of Education and Research and by the European Commission.
2.4 Involvement of other regions in the policy	Cluster policy is discussed with representatives of other chemical regions in Europe within the ECRN. Cluster management has established shared working structures with chemical clusters throughout Europe and Asia.
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	Bavarian cluster policy concentrates on nineteen branches and technologies with high importance for the future of Bavaria. <i>The chemical cluster initiative, Chemie-Cluster Bayern, is designed to provide special benefit for chemical SME and start-up companies – by the network approach, however, also global players and universities benefit from the cluster work.</i>
2.6 Key stakeholders of the policy	Main supporters and stakeholders are big chemical companies as well as the

Policy characteristics	Collected data
(stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	local chemical industry association VCI and the network of Bavarian Universities.
3. Implementation and management	
3.1 Responsible Managing Authority	Chemie-Cluster Bayern GmbH
3.2 Key tasks of Managing Authority	Chemie-Cluster Bayern GmbH regularly provides a full-service business plan as a cluster management agency, which is approved by the Bavarian Ministry of Economic Affairs in terms of a grant agreement.
3.3 Instruments used to monitor the implementation of the policy	All major players (chemical industry association and Bavarian Universities as well as innovative companies) have been motivated to develop the cluster strategy on their own and to provide their proposal to the Ministry of Economic Affairs.
3.4 Key difficulties encountered during implementation	<i>It took a first period of about two years to initiate a real project development network by building up trust and communicate value added by the network.</i>
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	<i>The cluster is supervised by a cluster committee, including representatives of the Ministry, industry and research. The cluster committee discusses the management reports twice a year.</i>
3.6 Ex-post evaluation of the policy (including time period when it took place)	There have been two ex-post evaluations during the first phase of the cluster policy (2008 and 2010); the second phase will be evaluated in 2013 and 2015.
3.7 KPIs used to measure the outputs	<i>The grant agreement includes the following performance indicators, which are regularly evaluated by an external institution:</i> <ul style="list-style-type: none"> • <i>share of own budget</i> • <i>share of public funding received from other sources (national, EU)</i> • <i>number and importance of initiated innovation projects</i> • <i>feedback by the cluster members</i>
3.8 Approach towards evaluation	<i>Evaluation includes an interview with cluster managers, controlling of KPI's, consideration of individual projects and an inquiry of cluster members.</i>
4. Legal and financial framework	
4.1 Policy-related legislations	Cluster policy in general has been ratified by the council of ministers; individual legislation is part of the grant agreement.
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	<i>KPI had to be identified due to the individual needs of the network members. It took some time to identify the entire potential of cluster management activities.</i>
4.3 Support services offered to the beneficiaries	All Bavarian cluster managers are in charge of a cluster department, organising regular meetings, providing information about national and European policies etc.
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	The grant agreement includes the duty to provide an annual report to the Ministry of Economic Affairs. A representative of the Ministry is member of the cluster committee.
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	During the first years, the cluster did not have to provide a relevant budget from own resources in order to allow a more holistic network building. Cluster management strategy is created by a bottom-up approach within the network itself.
4.6 Corrective measures	The annual grant agreement includes regular hints concerning KPI's to be achieved.
4.7 Maximum and minimum total budgets for the policy	Cluster management was granted 2.1M EUR. EUR for the first period and 1.4M EUR for the second period.
4.8 Number of projects supported by the policy	The "Bavarian Cluster Initiative" concentrates on nineteen branches and technologies with high importance for the future of Bavaria. <i>Cluster management of Chemie-Cluster Bayern initiates innovation projects as its own discretion and has to provide project budgets from industrial, national or European sources. Currently, more than 30 projects are coordinated by the cluster.</i>
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	<i>Concerning Chemie-Cluster Bayern, management of concrete projects has started in 2009. Projects usually cover about 4 – 5 partners (companies, research institutions); project budget is between 0.1 and 1 M EUR.</i>

Policy characteristics	Collected data
5. Main achievements	
5.1 The extent to which the goals have been attained	<i>Cluster management needed two years to build up an effective network. Since 2009, the network's output in terms of innovation projects is beyond expectations – each Euro of Bavarian funding initiates another 10 Euros of industrial and national R&D expenses. However, the cluster agency still has to make sure that it can provide its own management budget from own network resources.</i>
5.2 Key outcomes of the policy	<p>Main achievements of Chemie-Cluster Bayern are:</p> <ul style="list-style-type: none"> • integration of different chemical companies (1/3 big, 2/3 SME) and universities into a broad innovation network; • initiation of more than 30 R&D projects (budget above 30M EUR) with a concrete marketing perspective; • securing about 150 jobs short-termed within own cluster projects; • establishing a working network between local SME and industrial players from Europa, Asia and the US (e.g. Boeing); • building up a worldwide chemical cluster network, including joint offices in China.
5.3 Importance of these outcomes for beneficiaries/region/industry	<i>Cluster management results mentioned above show concrete economic effects for participating companies. Cluster management is appreciated by SME as well as by big companies like Wacker. Chemie-Cluster Bayern provides support to local authorities by building very regional innovation networks; it is also cooperating intensively with the chemical industry association.</i>
5.4 Unintended negative changes that can be attributed to the policy (if any)	-
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	<i>The network approach seems to be the most efficient way to leverage competitiveness of SMEs by public funding. Cluster managers are most experienced to allocate the need for public support and to evaluate project proposals.</i>
6.2 Key weaknesses of the policy	<i>Concrete outcome can only be measured in a long-term time frame. Offering a public service, the cluster management agency has only limited capacity to create return-on-investment on its own.</i>
6.3 New opportunities created by the policy (for the region, for industry)	<i>As a full service agency, Chemie-Cluster Bayern has become a regional innovation hub for R&D topics also beyond chemical production. This way, it helps to activate synergies between other institutions of public innovation support and provides assistance e.g. to international site marketing etc.</i>
6.4 External threats to the policy	<i>Chemie-Cluster Bayern covers a broad network and a capacious list of innovation topics, so technological changes may not cause any threats to the cluster management program. State funding, however, will steadily decrease over the next period, till 2015 to be exact. Until 2015, the cluster budget will stay approximately the same. This is mainly attributed to the financial gains of a small growth of the cluster. From 2016 onwards it still remains unclear.</i>
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	<i>Both SMEs and big companies had to be convinced about the project management capability of the cluster, including personal interviews, NDA's etc. This process took about two years.</i>
7.2 Reasons behind these difficulties	<i>Chemical cluster management demands sharing very sensitive information – a certain level of trust has to be built up in advance.</i>
7.3 The way these difficulties were tackled by the beneficiaries	<i>Personal service by cluster managers was essential to inspire commitment. Due to international market pressure, companies more and more showed own motivation to participate in the network. Currently, cluster managers receive a high number of external cooperation requests.</i>
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	<i>Inspiring a cluster management agency like Chemie-Cluster Bayern is an optimised way to run a public innovation policy without influencing market dynamics. Cluster management has to initiate and coordinate concrete innovation projects by working with different contact persons of its member companies. Just organizing events and platforms is not a sufficient strategy.</i>
8.2 Effect of lessons learned on other	<i>As branch experts at the interface of industry, science and policy, cluster</i>

Policy characteristics	Collected data
policies	<i>managers are more and more asked for their suggestions regarding other fields of political innovation support.</i>
8.3 Suggestions for improvement	<i>Coordination of cluster policy between different European regions, based on the suggestions of cluster managers, could help to leverage innovation potential of targeted branches.</i>
9. Transferability to other regions	
9.1 Similar policies in other regions	<i>Especially in Europe, there is already an intensive work flow between chemical cluster managers. <i>Chemie-Cluster Bayern</i> takes part in certain European initiatives to share best practices on cluster management level (e.g. INTERREG-projects “ALPlastics” and “Nanoforce” or CIP-project “Wiintech”). Regarding the integration of global industrial key accounts into the cluster management program, <i>Chemie-Cluster Bayern</i> is European best practice.</i>
9.2 Region-related factors that make this policy successful	<i>Bavaria’s chemical industry is represented by a broad variety of traditional enterprises, many of them are global players with a strong regional background. As a project development agency, <i>Chemie-Cluster Bayern</i> benefits very much from the heterogeneous structure of complementary chemical products produced in Bavaria.</i>
9.3 Barriers for transferring the policy to other regions	<i>All elements of regional cluster management are already shared and discussed with representatives of other regions, both on cluster management level and within the ECRN. Concrete cluster management strategies, however, depend on the very local expectations and needs of the targeted companies.</i>

B.1.3. Cheshire West and Chester CLUNET Cluster Policy Networking and Exchange

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy	European Cluster Alliance – CLUNET Cluster Policy Networking and Exchange Through via the themes of Internationalisation and Incubation (Cheshire West and Chester)
1.2 Brief description	Improving Cluster performance through policy actions The North of England offers close access to raw material. Emphasis of the policy is therefore on innovation, collaborating, sharing knowledge and products brought to market.
1.3 Policy focus	To foster innovation, competitiveness and lever in FDI to regional clusters in the EU states P3
1.4 Policy instruments involved	Regional cluster policy
1.5 Policy level	Purely regional policy; PRO-INNO at EU level
1.6 Policy period (mm/yy - mm/yy or present)	2007 to present
2. Rationale and target group	
2.1 The goal of the policy	Identify the best elements that define the ideal innovation infrastructure. The theme of internationalisation features prominently in the policy.
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	Clunet-European Cluster Alliance Consortium of Partners Some other examples that were taken account were: <ul style="list-style-type: none"> Spain, Madrid – biotechnology clusters, dairy industry cluster support; Slovenia – automotive, wood.
2.3 Policy partners	North West Regional Development Agency- NW England – Lead partner plus ECA associations etc
2.4 Involvement of other regions in the policy	Other EU MS regions
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	Key regional sectors including chemicals and biomedical companies of all sizes
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that	RDA's, Chemicals NW, Universities and Centres of Excellence

Policy characteristics	Collected data
have a direct interest in the policy)	
3. Implementation and management	
3.1 Responsible Managing Authority	Regional authority; as Lead under ECA Consortium In all of the UK, the RDAs are now defunct and all materials have been archived at the national level. Currently, the only organisation supporting the chemicals industry in the region is Chemicals Northwest, which used to be part of the RDA but is now fully industry-funded. Chemicals NW continuously seeks cooperation with local councils and universities to support the industry.
3.2 Key tasks of Managing Authority	Improve cluster cooperation, policy networking, incubation and internalisation Some key activities are building incubators, collaborating in creating infrastructure and sharing IP.
3.3 Instruments used to monitor the implementation of the policy	Concrete policy model actions
3.4 Key difficulties encountered during implementation	Lack of regional cluster integration The regional authorities do not communicate regularly with company directors at board levels.
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	No
3.6 Ex-post evaluation of the policy (including time period when it took place)	No evaluation has thus far taken place.
3.7 KPIs used to measure the outputs	Value added, including value of exports/new jobs created
3.8 Approach towards evaluation	Benchmark against RES targets
4. Legal and financial framework	
4.1 Policy-related legislations	None
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	None reported
4.3 Support services offered to the beneficiaries	Managed workspace, Science parks, Business Technology Centres, Incubator/Innovation centres
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	Project mapping. Questionnaires, workshops and draft discussion reports
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	None reported
4.6 Corrective measures	None reported
4.7 Maximum and minimum total budgets for the policy	None reported
4.8 Number of projects supported by the policy	None reported
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	None reported
5. Main achievements	
5.1 The extent to which the goals have been attained	FDI and jobs top be collated by new LEP
5.2 Key outcomes of the policy	Increased FDI, new innovation networks and processes including establishment of Knowledge Transfer Networks
5.3 Importance of these outcomes for beneficiaries/region/industry	Consolidation and expansion of mature cluster underpinned by new innovation processes
5.4 Unintended negative changes that can be attributed to the policy (if any)	None
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	Involves all key sector partners
6.2 Key weaknesses of the policy	Weak on traditional manufacturers support if not on key sub-sector of interest

Policy characteristics	Collected data
	Cluster are not easily geographical located. The model of chemical parks in the UK is not as clearly defined as in Germany. The chemical manufacturers are more organic. In Germany chemical parks place the industry in a clear geographical area. Within that area one overlying company often covers utilities and administration. The same model does not operate England. NE England does have pilot actions to form knowledge parks, but this does not yet compensate for the difference.
6.3 New opportunities created by the policy (for the region, for industry)	New Science Parks created with networks of excellence
6.4 External threats to the policy	Regional governance in England has now dismantled- no clear regional cluster policy has emerged
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	Collaborative projects have IPR issues
7.2 Reasons behind these difficulties	Lack of clarity
7.3 The way these difficulties were tackled by the beneficiaries	Pre-agreed frameworks
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	Business support to the cluster companies is the way to grow and compete. A building cannot grow the company.
8.2 Effect of lessons learned on other policies	Enables national links and thus EU wide concentrations
8.3 Suggestions for improvement	Re-introduce integrated BS infrastructure
9. Transferability to other regions	
9.1 Similar policies in other regions	Replication is feasible across the MS.
9.2 Region-related factors that make this policy successful	None
9.3 Barriers for transferring the policy to other regions	Lack of mirror structure in MS.

B.1.4. Flanders Innovation Hub for Sustainable Chemistry (FISCH)

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy (region)	Competence Pole (light coordination structures) (Flanders) 'Flanders Innovation Hub for Sustainable Chemistry' (FISCH)= first new beneficiary
1.2 Brief description	Support for 'transformation by innovation' <ul style="list-style-type: none"> - Strategic platform (coordination) - Strategic research and innovation programme (earmarked budget) - (further: cluster policy approach) FISCH is a non-profit organisation with a governance approved by the government The new industrial policy really started in 2011 with a white paper on the "factory of the future". For the chemicals industry this means a transformation towards a more sustainable industry. The competence pole is the platform for this and receives a budget for strategic research into more sustainable business models. Competitiveness and sustainability go hand-in-hand in Flanders' policy rationale.
1.3 Policy focus	<ul style="list-style-type: none"> • Research & Development; • Innovation and Entrepreneurship;
1.4 Policy instruments involved	<ul style="list-style-type: none"> • 80% grant funding of platform activity (0,6 mio a year) • R&D and innovation support via earmarked subsidies from IWT of proposed projects in innovation agenda (5 mio a year)
1.5 Policy level	Purely regional policy
1.6 Policy period (mm/yy - mm/yy or present)	January 2012- December 2015
2. Rationale and target group	
2.1 The goal of the policy	Challenge Driven Innovation Policy on 'Innovation Crossroads' (Transformation by innovation); Industrial transition to new growth model (in this case for sustainable chemistry for the chemicals using industries in Flanders) The government wants to support research that is aimed at increasing sustainability.

Policy characteristics	Collected data
	<p>Sustainability is the key rationale behind the policy, because it is in the collective interest to promote this. Making sustainable investments is not a natural tendency for all companies, which is why incentives are provided. Old industrial facilities need to make a transition, which is supported by the policy.</p> <p>The rationale behind the intervention is support industry actors in formulating their own vision of the future. Policy ambition “Vlaanderen in actie” is aimed at “greening” industry and making it more innovative. FISCH has three pillars: 1) strategic research programme (on resource management etc.) 2) open innovation and production infrastructures and 3) sustainable business models and techniques. All of this is a result of brainstorming by industry and knowledge institutions that originated in the “transition arena” on green chemistry. This was picked up by the new “challenge-driven” innovation policy. Sustainability is one of the challenges identified by the Flanders Innovation Steering Group (VIRG).</p> <p>The policy is mostly horizontal and bottom-up, FISCH is the only instrument directed specifically at chemicals industry and targets mostly base chemicals. Pharma and plastics also have specific instruments, which are outside FISCH. For plastics there is also a Competence Pole “Plastic Vision”, which is mainly oriented towards market applications. Also energy covenants for all energy-intensive industries, which are aimed at establishing most energy-efficient standards and rewarding companies that implement them. Energy efficiency is at the world’s frontier of the industry.</p> <p>FISCH also provides the basis for a cluster approach, which is supported by industry, knowledge institutions and the government. 700-800 people representing 300 organisations were involved in the formation of FISCH.</p>
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	None
2.3 Policy partners	Ministry of Innovation (in cooperation with Ministries of Economy and Work); Industry Federation essenscia; Innovation Policy Council (VRWI); Innovation Agency (IWT)
2.4 Involvement of other regions in the policy	Possibly via Suschem Belgium
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	Chemistry using industries (e.g., SMEs, particular industries etc.)
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	Knowledge institutes
3. Implementation and management	
3.1 Responsible Managing Authority	IWT (Innovation Agency) → regional authority
3.2 Key tasks of Managing Authority	<p>Assessment of work programme Assessment of projects</p> <p>The Flanders Agency for Innovation through Science and Technology (IWT) can assist by creating special conditions that allow financing of this type of research. Related to this the Flemish Service for Job Placement and Professional Education (VDAB) has developed specific education and training to promote innovation and sustainability. In addition to the research conducted through IWT there are also brownfield covenants through other government bodies.</p> <p>Research is financed up to 50% (basic research), prototype research up to 35%. SMEs get a bonus of 10% on top of this.</p> <p><i>In addition there is the TINA fund (Transformation INnovation Acceleration), which has € 200 million to invest in participations and loans to consortia that implement transformation projects. It is currently evaluating the first applications, including several from FISCH participants. TINA is an innovative financing instrument as it is focused exclusively on transformation and on consortia of companies that share a strategic vision on the level of the value chain and the cluster. It is managed by PMV, a</i></p>

Policy characteristics	Collected data
	<i>public investment company</i> (http://www.pmv.eu/nl/diensten/tina).
3.3 Instruments used to monitor the implementation of the policy	IWT evaluation procedures
3.4 Key difficulties encountered during implementation	Lengthy process: looking back some parts of the process could have been implemented faster. Cluster policy (focus on strategic challenges) is still in development, horizontal policy proves to be slow. Chemical companies have significant finances available, but do not make the required investments without being incentivised (in part because decision-making takes place outside Flanders). The chemicals industry was selected as a pioneer for cluster policy.
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	'Innovation Direction Group' (expert group composed by VRWI on demand of Minister of Innovation) has assessed the strategy of FISCH
3.6 Ex-post evaluation of the policy (including time period when it took place)	N/A
3.7 KPIs used to measure the outputs	In negotiation (work plan)
3.8 Approach towards evaluation	The competence pole will be asked to evaluate its own functioning in due time. FISCH will also be assessed as a model for the new Flemish cluster policy.
4. Legal and financial framework	
4.1 Policy-related legislations	Government decision
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	None for the managing authority. <i>For the beneficiaries:</i> - Ooze out (drop through) of the new industrial and innovation policy in all budgets of all funding organisations of the Flemish government - Effective and policy related decisions for large ('systemic') collective projects with societal spill-over supporting the new chemistry related value chains (knowledge centers, pilot units, demonstration plants, test beds, innovation studios, business incubators and accelerators, service organisations) - Coupling of a region of a small country like Belgium with large transnational and EU programmes and projects (Horizon 2020) Large problem is that large systems in small countries cannot influence the policies. Germany can shape the policy to accommodate its industry, but Belgium or Denmark cannot. Even a top institute such as IMEC is not recognised by EU policy makers
4.3 Support services offered to the beneficiaries	- Funding of roadmap studies of promising new chemistry related value chains - Funding of projects related to these value chains - Management of the available Innovation infrastructures in Flanders - To assure and put at disposal of knowledge related to sustainable chemistry (LCA, organisational models, new business models)
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	FISCH is promoted as a learning case for new transformation and cluster policies
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	The coordination structure is allowed for four year periods
4.6 Corrective measures	N/A
4.7 Maximum and minimum total budgets for the policy	€ 5 million a year maximum for FISCH
4.8 Number of projects supported by the policy	Projects are assigned within this budget
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	N/A
5. Main achievements	

Policy characteristics	Collected data
5.1 The extent to which the goals have been attained	Starting-up <i>The policy is only 1 year old and still has to prove its benefits.</i>
5.2 Key outcomes of the policy	Higher capacity of strategic management <i>The policy is only 1 year old and still has to prove its benefits.</i>
5.3 Importance of these outcomes for beneficiaries/region/industry	Transition of the most important industry (in terms of value added) structure By supporting a permanent structure with professional staff the strategic transition will be guaranteed. The structure is light and is financed up to 80% of its personnel costs (€ 600,000 annually) by the Flanders government. <i>The policy is only 1 year old and still has to prove its benefits.</i>
5.4 Unintended negative changes that can be attributed to the policy (if any)	Lock-in is possible <i>Possibly less chemistry related projects submitted in competition funding channels</i>
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	Long-term structural change policy <i>- Align all the current chemistry related universities and knowledge centers to the FISCH innovation agenda - International clarity of the Flemish (and Belgian) strategic innovation agenda: in march 2012 the SUSCHEMbelgium platform was erected, one of 11 national technology platforms of SUSCHEM, the European technology platform for sustainable chemistry. This would have been impossible without the current innovation and industry policy. The FISCH case was presented as one of two Belgian cases for the recent OECD study on smart specialisation</i>
6.2 Key weaknesses of the policy	Frontrunner risks (learning) A wide range of policy instruments and implementing agencies is used. Although this results in some difficulties for companies that have trouble dealing with the complexity, the structure is a direct result of the goals of the policy. <i>Speed (and courage) to implement the new policy. The chemicals industry and chemicals-using industry have never been able to establish a knowledge centre, unlike other industries. We are unique now with our sustainability report, which hopefully will accelerate the knowledge exchange. However, the government is not so fast. May 2011 the policy was launched, but no practical results are visible yet. Innovation should not be limited to 3% of government budgets, but instead be reflected in all government spending. Innovation crossroads should be represented in all funding bodies. The TINA fund behaves like a bank and takes no risks whatsoever. IWT says: we use the additional funds for new policy, the rest will remain the same. These approaches do not foster innovation.</i> <i>Government should choose one innovation policy and drop the rest, instead of trying to combine sustainability, social innovation, technological innovation. No desire to direct fundamental research more toward innovation crossroads. Many agencies are responsible for parts of the policy, but there is not one top-down vision.</i> <i>Challenge for SMEs to work with top researchers, they're worlds apart. Even applied universities are becoming more academic.</i>
6.3 New opportunities created by the policy (for the region, for industry)	Early start of the transformation <i>Transnational collaboration potential on chemistry issues (the Netherlands, Germany regions, France, ...). A collaboration treaty with the Netherlands, encompassing chemistry related topics, is already active since 5 years. Last week a collaboration with NorthRhein Westfalia was signed on chemistry related to logistics and energy.</i>
6.4 External threats to the policy	Strategic decisions are mostly taken by foreign company decision centres <i>- Economic situation of Belgium and Europe - The policy is not yet anchored independent from politics. Every four years elections. It is a little more stable now due to the existence of two ministries. Soete said in his latest study that policy should be anchored more to be independent from policy.</i>
7. Difficulties encountered	

Policy characteristics	Collected data
7.1 Difficulties encountered by the key beneficiaries of the policy	Time-lags <i>The policy is only 1 year old and still has to prove itself. Realisation of large 'systemic' projects. Much is expected from the newly erected industry council and the TINA (venture fund for Transformation by Innovation Infrastructure Acceleration) fund (February 2012).</i>
7.2 Reasons behind these difficulties	Strategic capacity <i>The policy is only 1 year old and still has to prove itself. Large projects were in the past not supported by public funding or by political decision. The new policy makes the decision making more objective but the thematic positive discrimination of projects related to the innovation hubs is not yet realized.</i>
7.3 The way these difficulties were tackled by the beneficiaries	Strong mobilisation; new alliances (consortia) <i>Essenscia, the Belgian industry federation for chemistry and life sciences is still very active in the advocacy of the remaining difficulties with the new policy.</i>
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	Strong vision; strong networking effort is necessary to achieve such a platform Nothing definitive, but the dynamics that have evolved around the first projects show some indications. Some studies are already available, yielding results that companies are using to improve sustainability. Local company Proviron is developing a solution to 'package' algae for chemical production processes. Dessenderlo Chemie also has a project in the area of reconversion.
8.2 Effect of lessons learned on other policies	None for regional authority.
8.3 Suggestions for improvement	International cross-border dimension
9. Transferability to other regions	
9.1 Similar policies in other regions	Cluster policies; transition management; smart specialisation <i>Europe 2020 (and Horizon 2020) is a very similar policy.</i>
9.2 Region-related factors that make this policy successful	Future programme of the government 'Flanders in Action' (learning loop in Flemish context); <i>Flanders has a very strong industrial and knowledge base for chemistry, but they are not aligned. The new policy aligns all actors related to the chemistry using industries in Flanders to a common innovation program for sustainable chemistry, governed by FISCH.</i>
9.3 Barriers for transferring the policy to other regions	Still ad hoc / emerging framework <i>In principle none. But it took Flanders 5 years to develop the new policy together with all stakeholders.</i>

B.1.5. Limburg Chemelot Campus

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy	Acceleration agenda – Chematerials – Chemelot Campus (Limburg)
1.2 Brief description	Developing the Chemelot Campus and participating as a 1/3 shareholder Goal: getting 10 new companies to locate on Chemelot Campus each year The Acceleration agenda has started in 2005. Within this agenda chemistry is defined as one of the "growing engines" of the Province of Limburg. Focus is mainly on the development of a research & development campus, The Chemelot Campus. The Acceleration Programme indicates the following areas as opportunities for growth and development at the Chemelot Campus: <ul style="list-style-type: none"> Performance materials: biomedical materials, specialty packaging, functional coatings, automotive polymer based systems, electrical and electronics polymer based systems.

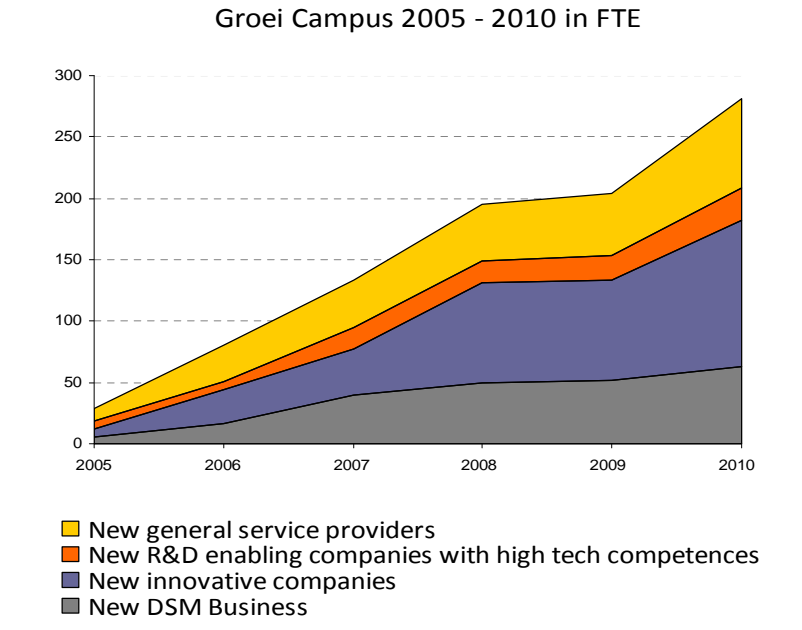
Policy characteristics	Collected data
	<ul style="list-style-type: none"> • Life sciences: intermediates for pharmaceuticals, intermediates for nutraceuticals, red biotechnology. • Sustainably produced energy. <p>The goal is to achieve an increase of around one thousand FTE knowledge workers by 2015, taking the total number up to over two thousand FTE. In order to facilitate this growth, a development company with a limited number of shareholders will be set up to manage the Chemelot Campus. Two of the shareholders have already been established, Royal DSM, the global Life Sciences and Materials Sciences company, and the Province of Limburg. A 2009 study carried out by Buck Consultants International on behalf of the Ministry of Economics, Agriculture and Innovation listed the Chemelot Campus as one of the campuses of national importance. The report defines the campus as a natural crystallization point for open innovation and public-private R&D collaboration that holds great appeal for knowledge workers and R&D departments. Its ability to distinguish itself and respond to national priorities also helps it to fulfil its role in quickening the pace of innovation.</p> <p>REALIZATION OF OBJECTIVES</p> <p>Looking back on the ambitions set out in the Acceleration Agenda 2008-2011 for the Chemelot Campus, we can pinpoint particular milestones in the development process.</p> <p>Signing of Letter of Intent (LOI)</p> <p>In March 2010, the Province of Limburg, DSM, and Maastricht University / university hospital Maastricht UMC+ signed a letter of intent agreeing to draw up a joint master plan for the development of the Chemelot Campus. The aim of the master plan was to kick start the development process and ensure that within ten years the number of knowledge workers on the campuses would reach over two thousand FTE.</p> <p>Master Plan Chemelot Campus</p> <p>The Consortium Chemelot Campus Master Plan sets out in detail the planned collaboration between the Province of Limburg, DSM and Maastricht University / UMC+. The collaboration focuses on three key components of the 'logical axis':</p> <ul style="list-style-type: none"> • Increasing the education and research basis • Accelerating and directing knowledge transfer to businesses • Strengthening business growth and development <p>The above will be conducted primarily at Chemelot but there is most certainly room for expansion and cohesion to include other parties and locations in the Euregio area, in particular the Maastricht Health Campus.</p> <p>The campus focuses on the following areas of expertise:</p> <ul style="list-style-type: none"> • performance materials • bio-based materials • biomedical materials • biotechnology / biosynthesis • analytical support <p>Adoption of Consortium Chemelot Campus Master Plan</p> <p>On 11 February 2011, the Consortium Chemelot Campus Master Plan was presented to the States-Provincial for consideration. The States-Provincial responded as follows:</p> <ul style="list-style-type: none"> • Expressed their wishes and concerns regarding the yet to be established and developed CV / BV construction for the development of the Chemelot Campus.

Policy characteristics	Collected data
	<ul style="list-style-type: none"> • Agreed to establish a reserve of € 15 million to cover the costs of the Chemelot Campus organization (for a period of ten years). • Agreed to issue a credit decision for € 14 million to finance the buildings at the Chemelot Campus (total investment real estate € 70 mln in 10 years). • Approved the creation of an allowance of € 6 million for the empty fund (for a period of ten years). <p>Development / Implementation of Master Plan</p> <p>The details of the Consortium Chemelot Campus Master Plan were forged between 11 February 2011 and 21 December 2011. During this period, the following documents were signed:</p> <ul style="list-style-type: none"> • Chemelot Campus adoption agreement, signed 25 April 2011, in which the parties pledged their commitment to the programme and identified areas requiring further development. • Participation Agreement, signed in September 2011, which set out the frameworks and principles governing Chemelot Campus BV operations until the final legal structure is determined. <p>While developing the initial plans into a business plan, new ideas and information emerged which resulted in modifications to the master plan. For example, the property business model was modified in order to strengthen the viability of the campus organization. The design and structure of a new venture capital fund, Limburg Ventures II, was also determined. Venture capital is crucial for new product and knowledge development as the market and banking sector provides insufficient start-up venture capital. The size of the fund is currently set at € 80 million and is a public-private venture fund.</p> <p>However, there is no money without skills and knowledge. The new Sciences Programme will provide for this need and fill a gap in Limburg's education and research infrastructure. The programme will include a new Bachelor's offered by Maastricht University which will teach some of its practical components at the Chemelot Campus and others at the Maastricht Health Campus. There is also no campus appeal without R&D facilities – a crucial role that be filled by the Enabling Technologies project. These proposals were presented to the States-Provincial for consideration in March 2012. The new development organization Chemelot Campus should be up and running by mid-2012.</p> <p>Various projects</p> <p>In addition to the developments afoot at the Chemelot Campus, various other projects were started and completed during the period 2008-2011.</p> <p>Center for Open Chemical Innovation</p> <p>2010 saw the opening of the first Center for Open Chemical Innovation (COCI) in the Netherlands located on the Chemelot Campus. COCI is a promising initiative designed to accelerate the growth of young businesses active in the chemicals and materials industry by providing them with a location in the direct vicinity of major chemical companies like DSM and SABIC. The COCI target group comprises of starter companies that have already developed a product and received their first orders. The funding, office and lab space, and tailored innovation strategies provided will facilitate accelerated growth for these starter companies and boost their chances of success. The COCI will be incorporated within the Chemelot Campus development organization.</p> <p>Business Plan M3 41</p> <p>The aim of the project - initiators include DSM and Sabic, co-financed by the Province of Limburg - is to create a concept for a new communal environment consisting of a multi-functional multi-client mini-plant</p>

Policy characteristics	Collected data		
	<p>facility. This new facility will offer residents of the Chemelot Campus the opportunity to explore their innovative developments. Use by non-Chemelot parties is also a possibility. The proposed mini-plant configuration will enable future production processes to be run on a small scale, on the basis of which tests can be conducted on a semi-industrial scale. It is a tool for innovation acceleration. The plan is currently under development and the feasibility report should be completed by the end of 2012.</p>		
	<p>Facts & Figures Chemelot Campus</p>		
	<p>Residents Chemelot Campus as of March 2011</p>		
		# companies	# FTE
	DSM companies	9	758
	Non-DSM companies	36	377
	Total Campus	45	1.135
	<i>New since 2005 (still present)</i>	<i>32</i>	<i>251</i>
	<p>Residents Chemelot Industrial Park as of March 2011</p>		
		# companies	# FTE
	Sitech	8	2,133
	SABIC (excl. Campus R&D)	1	1,730
	DSM Netherlands - Chemelot	8	308
	VOS	13	992
	Other	38	265
	Total Industrial park	68	5,428
	<i>New since 2005 (still present)</i>	<i>15</i>	<i>390</i>
	Total Chemelot	105	6,563
	<p>Realised FTE growth Chemelot Campus 2005 – 2010 (Source: Masterplan Chemelot Campus)</p>		

Policy characteristics **Collected data**

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Base case scenario FTE growth 2010 - 2019, + 1000 FTE (source: Masterplan Chemelot Campus)

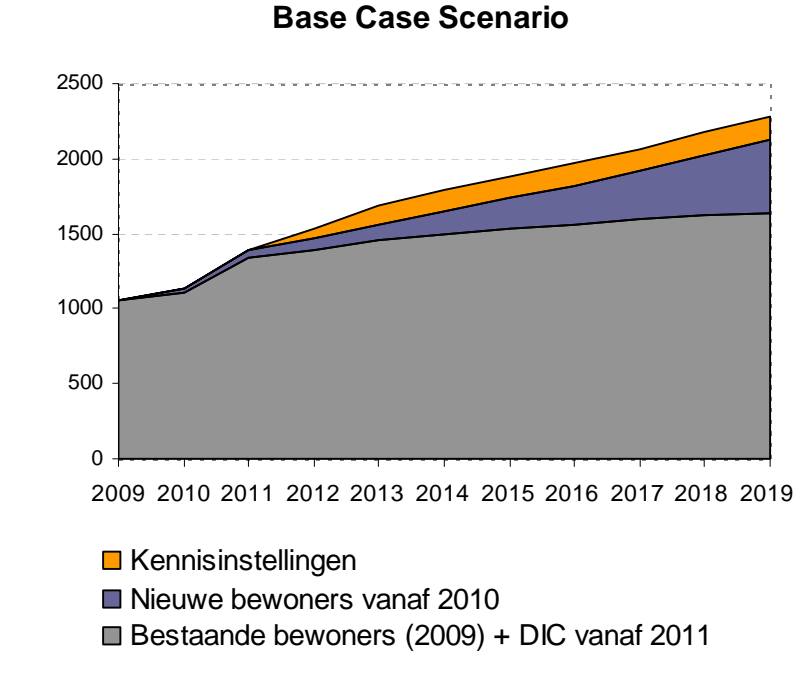


Table: Base case scenario number of new companies per year in the 2010-2019 period and expected FTE growth (source: ...)

Policy characteristics	Collected data																																																							
	<p>Masterplan Chemelot Campus)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="11" style="text-align: center;">Base Case Scenario</th> </tr> <tr> <th></th> <th>2010</th> <th>2011</th> <th>2012</th> <th>2013</th> <th>2014</th> <th>2015</th> <th>2016</th> <th>2017</th> <th>2018</th> <th>2019</th> </tr> </thead> <tbody> <tr> <td>nieuwe bedrijven per jaar</td> <td>4</td> <td>5</td> <td>5</td> <td>6</td> <td>6</td> <td>7</td> <td>7</td> <td>8</td> <td>8</td> <td>9</td> </tr> <tr> <td>nieuwe bedrijven cumulatief</td> <td>4</td> <td>9</td> <td>14</td> <td>20</td> <td>26</td> <td>33</td> <td>40</td> <td>48</td> <td>56</td> <td>65</td> </tr> <tr> <td>FTE</td> <td>20</td> <td>48</td> <td>74</td> <td>108</td> <td>147</td> <td>197</td> <td>252</td> <td>320</td> <td>397</td> <td>488</td> </tr> </tbody> </table>	Base Case Scenario												2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	nieuwe bedrijven per jaar	4	5	5	6	6	7	7	8	8	9	nieuwe bedrijven cumulatief	4	9	14	20	26	33	40	48	56	65	FTE	20	48	74	108	147	197	252	320	397	488
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1.5 Policy level	Regional policy																																																							
1.6 Policy period (mm/yy - mm/yy or present)	The Acceleration agenda started in 2005 and ends in 2012. The policy and participation in the development of Chemelot Campus however will continue after 2012. The Province of Limburg has committed herself to this development for the next 10 years through participation in the consortium.																																																							
2. Rationale and target group																																																								
2.1 The goal of the policy	To boost economic development and to make the performance of the government, knowledge institutions and businesses more effective.																																																							
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	The model of Leuven where the cooperation in the “triple helix” on regional/local and concrete scale is very successful. One difference is that Leuven is a university-based concept where the Chemelot concept is that of business.																																																							
2.3 Policy partners	The acceleration agenda is developed in cooperation with knowledge institutions, ministry of economic affairs, representatives of large and small cooperations, municipality, employees. Partners of the Chemelot Campus Consortium are: DSM, Province of Limburg and University of Maastricht.																																																							
2.4 Involvement of other regions in the policy	Not directly. There is a strong coherence with : BRAINPORT 2020 The Chemelot Campus is part of Brainport 2020, the national policy framework to promote the leading industry sectors in the Netherlands. One of the key goals enshrined in Brainport 2020 is to strengthen the international competitiveness of the nation’s top innovation campuses, which include the Chemelot Campus. This goal is reflected in the strategy ‘ensuring an open innovation ecosystem’. TOP SECTOR CHEMISTRY The top sector Chemistry (national policy) presents a focused and specific plan for the sector as a whole, with the long-term ambition of attaining a global leading position in the 'green chemistry' and 'smart materials' sectors. This ties in well with the key areas of focus established at the Chemelot Campus. CROSS-BORDER COOPERATION In terms of cross-border cooperation, the leading universities of Maastricht (partner in the Chemelot Campus Consortium) and RWTH Aachen have already formed a research partnership, which will provide a major growth engine for the Chemelot Campus. A European institute for Bio-based Materials, ‘Cooperation of Excellence’, is also planned. This new institute																																																							

Policy characteristics	Collected data
	for modern biomaterial research will be located at the Chemelot Campus in Sittard-Geleen. Also the TTR-ELAt cooperation plays an important role to develop the policy in collaboration with neighbouring countries.
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	SME, Knowledge institutions, large chemical / life science enterprises
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	LIOF (regional development company), Chamber of Commerce,
3. Implementation and management	
3.1 Responsible Managing Authority	Chemelot Campus B.V. is the legal entity representing the Consortium Chemelot Campus. The consortiums' initiators, the Province of Limburg, Maastricht University and the university hospital Maastricht UMC+, and Royal DSM, the global Life Sciences and Materials Sciences company, are very pleased with the appointments of both these leading experts "within the field".
3.2 Key tasks of Managing Authority	<p>The Chemelot Campus B.V. has two key areas of responsibility, as set out in the Chemelot Campus Consortium Business Plan:</p> <ul style="list-style-type: none"> • turning innovations into real business opportunities (valorization) within the five primary sectors listed; • managing the support facilities and shared services ("adequate" property) for education and research activities, managing the activities on campus, and operating the buildings at Chemelot. <p>The emphasis is on encouraging business development, high-quality applied research, product development and production. The establishment of research and educational institutes, in particular Maastricht University, RWTH Aachen University, Eindhoven University of Technology, Zuyd University of Applied Sciences, Arcus College and Leeuwenborgh College, is also important for the development and exploitation of knowledge. The result will be new businesses, new jobs - both direct and indirect employment - and new graduates.</p> <p>The shareholders in the Chemelot Campus B.V. are the Province of Limburg, Maastricht University and DSM, each holding a total of 33.3 percent.</p> <p>All this is in keeping with the government policy Brainport 2020 that seeks to transform the south-eastern region of the Netherlands into one of the nation's economic engines and which now accounts for 55% of the patents, 45% of private R&D investments and 35% of Dutch exports. The Chemelot Campus is one of the six campuses deemed of national importance by the Ministry of Economics, Agriculture and Innovation.</p> <p>Communicate policy to stakeholders Select / judge projects Provide grants / loans Evaluations of projects Evaluation policy</p>
3.3 Instruments used to monitor the implementation of the policy	Interview stakeholders Evaluation of projects
3.4 Key difficulties encountered during implementation	State aid regulations Cooperation between privately held companies and public sector
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	No committee
3.6 Ex-post evaluation of the policy (including time period when it took place)	No evaluation has taken place so far.
3.7 KPIs used to measure the outputs	These KPI's are defined in the new to establish company for the development of the Chemelot Campus. => Financial KPIs since the campus is a company

Policy characteristics	Collected data
	=> + FTE 1000 working at the Chemelot Campus in 10 years
3.8 Approach towards evaluation	Idem 3.7
4. Legal and financial framework	
4.1 Policy-related legislations	State aid Participating interests (Environment, safety) Permits
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	Measurement of indirect employment
4.3 Support services offered to the beneficiaries	For companies located on Chemelot: availability of analysis equipment for a fee, location near education and research facilities For companies that want to locate on Chemelot: integral location advice (including permits and support of an accountant), access to venture capital Support fill application form grant Explanation rules state aid
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	Basic reports (2 times per year) at the Parliament of the Provincie of Limburg.
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	N/A
4.6 Corrective measures	N/A
4.7 Maximum and minimum total budgets for the policy	<ul style="list-style-type: none"> • a reserve of € 15 million to cover the costs of the Chemelot Campus organization (for a period of ten years). • a credit decision for € 14 million to finance the buildings at the Chemelot Campus (total investment real estate € 70 mln in 10 years). • allowance of € 6 million for the empty fund (for a period of ten years).
4.8 Number of projects supported by the policy	The Chemelot Campus is a very large project, in which several smaller projects are comprehended
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	The Province of Limburg has committed a total of € 70 mln to the Chemelot Campus (grant, loan, participation)
5. Main achievements	
5.1 The extent to which the goals have been attained	Not measurable yet, still in process <ol style="list-style-type: none"> 1. Economic growth (with SME focus): as from 2005, 61 new companies and additional 350 fte 2. Valorisation: there are examples of and therefore experience with several successful business cases at Chemelot Campus, e.g. several spin-outs of DSM, companies that started with intellectual property and are now successful, some companies that started at the university of Maastricht and came to the campus and are now growing fast. 3. <i>Link to education: University Maastricht & Hogeschool Zuyd have location at Campus and provide education using available facilities & knowledge. Students can also be deployed by companies with dual benefit – “cheap labour” for companies and building experience by students</i>
5.2 Key outcomes of the policy	Substantial growth in employment, attractive location climate (?), strong chematerials cluster <ul style="list-style-type: none"> • <i>The Chemelot Campus open for entrepreneurs</i> • <i>Drive for innovation through investments & project finance</i> • <i>Investment based rather than subsidy based climate</i> • <i>Set up of Centre of Expertise Chemistry</i> • <i>Set-up of consortium</i> • <i>Additional entrance to Campus for SME companies through links with teachers at schools located at Campus</i>

Policy characteristics	Collected data
	<ul style="list-style-type: none"> • <i>Future improvement of accessibility by public transport</i> • <i>Alignment of interests of multinationals & SMEs to cooperate</i>
5.3 Importance of these outcomes for beneficiaries/region/industry	Substantial growth in employment, attractive location climate (?), strong chematerials cluster <i>Chemelot Campus has become an attractive place for students</i>
5.4 Unintended negative changes that can be attributed to the policy (if any)	None reported
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	<p>Creating strong chematerials cluster, creating attractive location climate, boost to economic development, creating employability</p> <ul style="list-style-type: none"> • <i>Focus on limited number of sectors / clusters</i> • <i>Creates momentum to make things happen</i> • <i>Commitment through participation</i> • <i>Consistency of policy</i> • <i>Concept / business plan contains integral approach</i> • <i>The Province has committed itself to taking up a clear policy position, providing consistent guidance to all parties involved and taking responsibility in difficult situations that were new to all involved</i>
6.2 Key weaknesses of the policy	<p>Focus on one large project, Chemelot Campus</p> <ul style="list-style-type: none"> • <i>Scattered responsibilities and contacts at Province of Limburg, not one clear contact person who can make decisions</i> • <i>Bureaucracy and speed of progress</i>
6.3 New opportunities created by the policy (for the region, for industry)	Cooperation between business and education, new science college, cooperation Chemelot – RWTH, unite Maastricht Health Campus – Chemelot Campus
6.4 External threats to the policy	<p>Change in politics, economic recession ((financial) cuts (both in government as in businesses))</p> <ul style="list-style-type: none"> • <i>Changing role of Provincie Limburg from participant to stakeholder</i> • <i>Business plan for consortium is comprehensive and therefore complex. Prohibits quick progress and might hamper policy objectives</i>
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	<ul style="list-style-type: none"> • <i>Resources for acquisition of companies to Campus and to set-up cooperation</i> • <i>Precautionary attitude</i> • <i>Financing of real estate & properties</i> • <i>Accessibility of Campus (by public transport)</i> • <i>Need to publicly invite to tender for work to be contracted out</i> • <i>Scattered & unclear focal points at Province of Limburg</i> • <i>Politics – involving the right people at the right moment</i> • <i>Investors with different (conflicting) interests</i> • <i>Chemicals sector is less attractive for investors</i> • <i>Issue of “state aid”</i> • <i>Difficulties on cross-border cooperation (not aligned with national regions initiatives and requirements)</i> • <i>Lack of facilities, e.g. conference centre</i> • <i>Image of chemicals sector: when people think of chemicals they think of oil, large production plants with big pipes, dirty, dangerous, etc. It is therefore not a positive image. Therefore the image is bad and it is hard to interest students for chemical or chemicals-related studies, as the industry is not considered a great place to work.</i>
7.2 Reasons behind these difficulties	<ul style="list-style-type: none"> • <i>Availability sufficient budgets</i> • <i>Existing legislation, i.e. state aid rules: chemical companies invest heavily but it is hard to support these companies as a government</i> • <i>Time: acquiring a company takes 2 years from the first contact till moving to the campus. Going from a company with a proof of concept till maturity takes another 7-10 years. So it takes time to become successful. It is hard to maintain a consistent policy over</i>

Policy characteristics	Collected data
	<i>a period of 10 years.</i>
7.3 The way these difficulties were tackled by the beneficiaries	<ul style="list-style-type: none"> • <i>Set-up of consortium between Province of Limburg, DSM & University of Maastricht</i> • <i>Use of investment funds</i> • <i>Province's participating role</i>
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	Invest in trust between the key partners at both high level and working level.
8.2 Effect of lessons learned on other policies	Focus, launch of other initiatives which are basic ingredients for the whole concept like an international school, centres for expats, etc
8.3 Suggestions for improvement	<ul style="list-style-type: none"> • <i>Create "experimental" phase including all stakeholders, in which operations start running and issues can be experienced by all stakeholders. This will create understanding and more effective resolution of issues encountered. Only after experimental phase, final decisions should be taken on e.g. applicable rules & regulations</i> • <i>Even more consistent policy – prioritize and stick to priorities</i> • <i>Develop specific tools at company level (in addition to tools on Campus level)</i>
9. Transferability to other regions	
9.1 Similar policies in other regions	Open innovation also flourishes at DPI, FISCH Flanders.
9.2 Region-related factors that make this policy successful	(Strong) Chemical industry already present in region <i>The Province of Limburg itself is a key success factor, because of its constructive and committed attitude.</i>
9.3 Barriers for transferring the policy to other regions	Differences in culture, infrastructure, type of companies and public research infrastructure, organisation of the government, sense of urgency, etc. <i>Involvement of the Province.</i>

B.1.6. North Rhine-Westphalia Cluster CHEMIE.NRW

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy	Cluster "CHEMIE.NRW" (North Rhine-Westphalia)
1.2 Brief description	<p>"CHEMIE.NRW" is part of the "NRW Cluster Initiative". The "NRW Cluster Initiative" is a new feature of the modernization strategy designed to enhance NRW's role as the leading industry area in Europe. NRW cluster policy concentrates on 12 branches and 4 technology areas with high importance for the future of NRW (see www.exzellenz-nrw.de). By promoting cooperation between companies and research institutions the NRW state government aims to advance the dynamic and self organising process of growth and development within these nineteen fields.</p> <p>Within this initiative, CHEMIE.NRW has been founded in 2007 as a management institution mainly to coordinate joint product development activities, to manage synergies in research and qualification and to implement branch related chemical clusters such as "Oberfläche NRW", a cluster of the value chain surface technology.</p>
1.3 Policy focus	Intensifying chemical value creation in NRW by supporting <ul style="list-style-type: none"> • Technology transfer between industry and science • R&D activities • Innovation support • Qualification activities
1.4 Policy instruments involved	<p>"CHEMIE.NRW" is an integrated approach to intensifying the exchange and cooperation within industrial value chains relevant for the chemical industry in NRW and amongst different value chains by</p> <ul style="list-style-type: none"> • Providing network structures • Cooperating with other clusters of the "NRW Cluster Initiative" • International marketing via the regional initiatives of chemical industry "ChemCologne" and "ChemSite"
1.5 Policy level	The cluster initiative is a regional initiative by the State of North-Rhine Westphalia.
1.6 Policy period (mm/yy - mm/yy or present)	The cluster policy in NRW started in 2007, CHEMIE.NRW in 2008
2. Rationale and target group	

Policy characteristics	Collected data
2.1 The goal of the policy	<p>The initiative is designed to increase the dynamic of innovation processes within value chains to by creating market pull and technology push by intensifying cooperation and networking between all actors within those value chains relevant for the chemical industry in NRW.</p> <p><i>To strengthen the strength of NRW: chemistry in economy/industry, the producing and processing industry, and universities as well, in particular to enhance technology transfer from research to innovations, i.e. products successful in the market, to intensify contacts between companies, large and small ones, and universities and research institutions, last not least to encourage young people to study chemistry and to set up qualification activities/training of all kinds.</i></p> <p><i>VCI is directly involved in NRW wide cluster initiatives relevant for the chemical industry, such as "Netzwerk Oberfläche", which is a cluster of the value chain surface/coating industry. Furthermore VCI has organized a consortium of chemical companies, universities and biotec companies which successfully participated in a contest of the German Ministry of Innovation for the best cluster concept in industrial biotechnology in 2006. This concept won first place and developed meanwhile to a highly visible cluster at national and international level (www.clib2021.de).</i></p>
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	A blue print for successful cluster initiatives still does not exist. Also "cluster" structures vary, and the word "cluster" is understood in many ways. All cluster initiatives of "NRW Cluster Initiative" is in the process of working out the best way to fit the added value for the relevant companies in the value chains. Cluster CHEMIE.NRW builds on "sub clusters" structures as ChemSite, ChemCologne or the regional "surface clusters".
2.3 Policy partners	<p>Main partners for the implementation of policy are other market or technology related clusters (e.g. Nano/Micro + Materials, Plastics, Biotechnology, Environmental technologies) (see 3.4).</p> <p>Main political partner is the Ministry of Economic Affairs. Cluster projects are supported by the Ministry of Innovation, Science and Technology, by the Federal Ministry of Education and Research and by the EU Commission.</p>
2.4 Involvement of other regions in the policy	Cluster activities are discussed with other chemical regions in Germany within the federal chemical industry association VCI.
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	<p>Strengthening the competitiveness of companies by:</p> <ul style="list-style-type: none"> Increasing dynamic of innovations creating technology push and market pull within the relevant value chains by appropriate tools Creating synergies within the chemical branch Optimization of qualification and education of /undergraduate, graduate and PhD students. <p>To increase the innovation power of SMEs, a competition for public fundings (CheK.NRW) was initiated in 2007; In three calls (2007; 2009 and 2011) about 40 jointed R&D projects with several partners each were identified. In these projects SME's collaborate with technical universities or universities for applied sciences, but large companies as well, to develop new technical solutions for product developments or training methodologies for advanced skills for employees. The project investments over all nearly hit 70 Mio. € And is granted by subsidies of roughly 45 Mio. €.</p>
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	Main supporters and stakeholders are large chemical companies and SME's as well as the local chemical industry association VCI, universities, and applied universities in NRW.
3. Implementation and management	
3.1 Responsible Managing Authority	Association of chemical industries in NRW (VCI NRW) and the cluster manager
3.2 Key tasks of Managing Authority	VCI NRW is providing the cluster with material and personal support. The cluster manager is heading the innovation committee, which is the main committee of the cluster.
3.3 Instruments used to monitor the implementation of the policy	regularly meetings of the cluster managers, the NRW cluster secretariat and members of the governmental administration
3.4 Key difficulties encountered during implementation	Problem: The chemical industry is a cross-sector branch, which is relevant for most of the industrial value chains. Therefore, as R+D is concerned, chemical companies are mostly interested in market or technology related networking (e.g. cluster Biotechnology or Nano/Mico + Materials, Kunststoff.NRW). Thus, a key task of CHEMIE.NRW is to link interested chemical companies with projects of value chain related clusters.

Policy characteristics	Collected data
	<p>Problem: Chemical companies are only willing to finance market or technology related clusters, but not branch related clusters such as a cluster for the chemical industry. Therefore, the financial resources of CHEMIE.NRW are restricted to support only a minimum of activities. Much of the work is done voluntary without financial compensation.</p>
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	<p>Innovation Committee:</p> <ul style="list-style-type: none"> • Stakeholders: R+D managers of chemical companies (large + medium sized); managers of chem-parks: ChemCologne and Chemsite, heads of university departments; representatives of the governmental administration, e.g. ministries of innovation, and economic affairs • Tasks: <ul style="list-style-type: none"> ○ analysis of activities of those universities and academic institutes relevant for the chemical industry ○ identifying of key issues in R+D ○ organizing of innovation for regarding issues highly relevant for future development of chemical industry ○ Initiating and supporting of issue related clusters e.g. „Oberfläche NRW“. ○ Connecting chemical companies with projects generated by market or technology related clusters ○ support of young academics and their qualification ○ advising policy
3.6 Ex-post evaluation of the policy (including time period when it took place)	--
3.7 KPIs used to measure the outputs	--
3.8 Approach towards evaluation	--
4. Legal and financial framework	
4.1 Policy-related legislations	Cluster policy in general has been ratified by the council of ministers; individual legislation is part of the grant agreement.
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	<p>Due to the restricted resources the activities of CHEMIE.NRW are highly focused and run with minimum costs. NRW has carried out different contests for public funding referring to all NRW clusters. As the corresponding funding procedures were too bureaucratic, many companies decided not to join future contests.</p> <p><i>Clusters organise the activities for the benefit of industry and its competitiveness, for the benefit of research institutions, but also for the benefit of the state government, since Clusters transport the policy of the government to the public and the beneficiaries.</i></p> <p><i>The cluster organisation of Chemie.NRW itself is financed by VCI. No co-finance is granted by the government of NRW. The chemicals industry is always part of technology- or customer-related value chains. Benefit of cluster work can only be created by such clusters.</i></p> <p><i>The chemicals industry can never form a cluster by itself. Technology- and customer-related clusters exist in NRW and chemical companies consider that these result in significant expenses already, hence they do not want to pay for another cluster organisation. Main task of Chemie.NRW is networking the chemicals industry with the existing technology and customer-related clusters in NRW in cross innovation issues.</i></p>
4.3 Support services offered to the beneficiaries	<p>CHEMIE.NRW is in charge of a cluster management, organizing regular meetings, providing information about national and European policies etc.</p> <p><i>Bringing industrial people and research people from universities together (‘industry meets universities’), organizing discussions on actual topics (energy efficiency, material efficiency, sustainability), training in leading abilities and networking, support in applying for research projects, suggesting cooperation partners, Newsletter, ‘report’ with special information and opportunity of industry and research institutes for presenting themselves.</i></p>
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	<p>CHEMIE.NRW annually provides a report to the NRW cluster secretariat and the Ministry of Economic Affairs. A representative of the Ministry of Economic Affairs is member of the cluster committee (committee for innovation).</p> <p><i>Newsletter, ‘report’, Internet sites, ‘Branchentag’ (special meeting of cluster people), consulting, general and in particular financial, job and opening announcement.</i></p>
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms	Due to the fact that no public funding has been granted for CHEMIE.NRW no fixed deadlines exist for this cluster.

Policy characteristics	Collected data
of time needed to meet policy targets	
4.6 Corrective measures	Policy and measures of the cluster will be evaluated and adjusted regularly.
4.7 Maximum and minimum total budgets for the policy	CHEMIE.NRW is solely financed by VCI NRW within the limits of the budget of VCI NRW. It is not publicly funded or supported by the government of NRW. The cluster manager is working on an honorary basis and will be supported by VCI's organisation. A granted budget is not available.
4.8 Number of projects supported by the policy	There is no specific number of cluster projects, as all projects, such as CleanTech.NRW, COPT (Centre for Organic electronics Production Technologies) in Cologne or SusChemSys are run in cooperation with other clusters.
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	see 4.8 CleanTechNRW: 80 Mio.€ (planned) http://www.produktion.nrw.de/index.php?id=102&tx_ttnews%5Btt_news%5D=345&tx_ttnews%5BbackPid%5D=8&cHash=498409d95d5fbc0ca2d7a8c7bfec04e1 COPT: ~50 Mio.€ (NMW.NRW) http://www.frp.nrw.de/frp2/_dld/va/v619/S3_NMP_1_Nothofer/NanoMicro/Materials.pdf SusChemSys: 5,4 Mio.€ http://www.cmt.rwth-aachen.de/projects.html
5. Main achievements	
5.1 The extent to which the goals have been attained	<p>By bringing the value chain together and support the initiation and founding of several large projects with zero budgets this is clearly a full success.</p> <p><i>Very positive evaluation, especially of 'kunststoffland NRW e.V.' which is handling the plastics Cluster. Achievement of goals is on a very good way. The basic financing by the government, however, is decreasing which in the long run is counterproductive, in particular in view of the advantage of the Cluster for the government.</i></p> <p><i>In Chemie.NRW there is a good basis for cooperation, which is still developing. For example the cluster of industrial biotechnology is very successful in creating a trust-based cooperation between diverse industrial partners, biotech companies and academia. In the beginning, there were many different opinions between biochemical companies, large chemical companies and academia. By tackling these hurdles a common understanding of cluster work and a trust base between partners has been developed.</i></p> <p><i>In the coming years, more attention will be given to find new innovations at the borders of the various value chains.</i></p> <p><i>Overall, beneficiaries expect the cluster policies of the NRW government to stay the same in the coming years.</i></p>
5.2 Key outcomes of the policy	<p>Main achievements of CHEMIE.NRW are</p> <ul style="list-style-type: none"> • the support of the start of large projects as described in 4.8 • building a platform of information exchange in the innovation committee • be an advisor to the ministries for innovation and economic affairs <p><i>Active cooperation of many companies in NRW and of companies with research institutions.</i></p>
5.3 Importance of these outcomes for beneficiaries/region/industry	Making sure that we have a strong chemical industry in NRW also in the future by interlining the stake holders for innovation. <i>Good economic position of most chemical/plastics companies, innovative activities on a broad scale, enhanced cooperation between companies and between companies and universities and research institutions in NRW.</i>
5.4 Unintended negative changes that can be attributed to the policy (if any)	<i>Definitely no negative results. However, in future, disappearance of the Clusters because of shortage in financial support will have great negative results.</i>
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	<p>The network approach is one of the most efficient ways to increase the dynamic of innovation by creating market pull and technology push within the value chain. This approach is effectively strengthened by public funding programs of der NRW Government.</p> <p><i>Enhancement of in-state cooperation, exchange of ideas, mutual use of innovations and innovative ideas.</i></p> <p><i>In general, NRW has a very advanced cluster practice based on its long-standing and broad industrial base.</i></p>

Policy characteristics	Collected data
	<p><i>Also, NRW has no “blueprint” of what a cluster should look like. Cluster managers have to find for each cluster the right balance between market pull and technology push. Every cluster has to go its own way. A good practice are the forums in which cluster managers report on activities that work and those that do not. Cluster managers should also keep in touch continuously with their cluster’s members. A key aspect of this is that cluster managers should earn the members trust, based on their knowledge of the value chain and the industry, as well as their personal attitude that invites people to share their ideas. Clusters can only be successful based on mutual trust between the partners. Open exchange of opinions is crucial to innovation.</i></p>
6.2 Key weaknesses of the policy	<p>A blue print for successful clusters which meets the beneficiaries of industry still does not exist. Every cluster builds its own structure and has to find the way to success by itself.</p> <p><i>Administration should be sponsored basically by the government to an amount increasing with the number and the value of activities for the local industries. Present basic financing is decreasing and in the future will be definitely too small.</i></p> <p><i>Companies that do not participate in clusters do not see the benefits. Since the existence of the cluster, this understanding of the benefits has evolved. However, the budget and personnel remain a challenge, as the government tends not to finance cluster organisations over a longer period of time.</i></p> <p><i>Also, the companies are not always willing and able to commit resources for all clusters relevant for their company. As NRW has the multiple complete value chains within its borders, it has the luxury problem that companies have to choose between participation in multiple clusters. VCI brings companies together and tries to help them decide in which initiatives and to focus on the most relevant cross innovation issues.</i></p>
6.3 New opportunities created by the policy (for the region, for industry)	<p>For industry: the cross-link between different clusters / industry branches e.g. surface cluster and polymer cluster or chemical-/ steel- and energy industry, which generates new approaches for innovation.</p> <p>For industry: Better knowledge in companies about competencies of universities in der region. Better knowledge in companies about present and future demands of customers</p> <p>For industry: approaches for synergies e.g. common used technology (e.g. High Throughput Screening Technology for SMEs)</p> <p><i>Active mutual exchange, special training opportunities, dissemination of innovative ideas for the region and the industry of the region.</i></p>
6.4 External threats to the policy	Administrative burdens by European requirements for public funding
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	<p>Both SME and big companies have to be convinced about the beneficiaries of clusters. To establish a self-financing cluster need years, if possible at all besides classical structures like industry associations.</p> <p><i>Difficulty to take advantage of the offers of the Clusters. Employed people in SMEs are so small that because of the daily problems they do not have time to take advantage of clusters.</i></p>
7.2 Reasons behind these difficulties	<ul style="list-style-type: none"> • Chemical cluster management demands the share of very sensitive information – a certain level of trust has to be built up in advance. • Existing structures are already strong base for the industry • Many companies prefer bilateral cooperations to multilateral precompetitive activities in R&D <p><i>Limited number of personal in industry strongly engaged in daily problems.</i></p>
7.3 The way these difficulties were tackled by the beneficiaries	<p>Personal networks of the acting people brought companies and academia at the table. New projects were pushed by individual companies or persons who were interlinked by the innovation committee. Although no formal power and no money were available, contacts and networks did the job.</p> <p><i>The problem of less people and limited time is still an ongoing problem.</i></p>
8. Lessons learned	
8.1 Key learning points from the implementation of the	Networks and personal engagement are the basis for cooperation. It is important to find mutual interests between industry and university along the whole value chain to build strong

Policy characteristics	Collected data
policy	projects. Public funding from European or local funds brought forward by the administration is necessary for starting new projects. In the end, it is as always about individual people who contribute to the process, strategies only provide insight what should be done and describe the route to success. Nothing is done by itself.
8.2 Effect of lessons learned on other policies	No branch can be successful just by itself. The value chain is the key for future development. Bringing “elements”/ partners of the value chain together is the major task for a cluster management.
8.3 Suggestions for improvement	As long as funding policies are very complicated and need a large amount of administration, strong companies will do their own projects and will avoid financial resources from the public funding sector. We need a much better alignment of funding mechanisms and schemes from the different sources coming from local, federal or European organisations. <i>Significant basic financial support of the activities by the government beside the financial engagement of the industry.</i>
9. Transferability to other regions	
9.1 Similar policies in other regions	Especially in Europe, there is already an intensive work flow between chemical cluster managers. CHEMIE.NRW takes part in certain European and national initiatives to share best practices on cluster management level. <i>In particular in Bavaria (Bayern Innovative) very successful activities.</i>
9.2 Region-related factors that make this policy successful	NRW is a highly industrialised area. Almost 1/3 of the turnover of the chemical industry in Germany is generated in NRW. Together with or neighbour countries Belgium and Netherlands this region is the number 1 area for the chemical industry in Europe. Nearly all value chains exist from production of basic substances up to the respective end products. The whole chemical value chain is located in NRW. In nearly all of those chains the chemical industry plays an important part. Therefore NRW is a unique area for implementing successful cluster policy. <i>Strong chemical industry in the region, existing network, producing and processing industry, the whole value added chain, strong research competence, good infrastructure (local organizations)</i>
9.3 Barriers for transferring the policy to other regions	All elements of regional cluster management are already shared and discussed with representatives of other regions, both on cluster management level and within the ECRN. Concrete cluster management strategies, however, depend on the very local expectations and needs of the targeted companies. <i>Transfer is possible to any region in which a strong industry together with a strong scientific basis is present in a particular field like chemistry.</i>

B.1.7. North Rhine-Westphalia ChemCologne

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy	ChemCologne e.V. [North Rhine-Westphalia]
1.2 Brief description	ChemCologne is an initiative that sets out to develop the region's attractiveness and competitiveness for the chemical industry and to make it better known among domestic and foreign investors as a potential location for chemical production. ChemCologne is supported by the chemical companies in the region in cooperation with the state of North Rhine-Westphalia, the employers' association Chemie Rheinland, the City of Cologne as well as the other towns and districts in the region, the chambers of commerce and industry, the Cologne regional government and the universities as well as the Trade Union for Mining, Chemicals and Energy, and NRW.INVEST. The various partners and members of the chemical industry, public facilities and research and development departments together provide a wide range of competencies. Regular meetings of ChemCologne offer its members the opportunity to network, swap ideas and benefit from synergies. The available areas for new development and investment are centrally located in Europe's biggest conurbation and offer additional synergies

Policy characteristics	Collected data
	through their proximity to other chemical companies, suppliers, and customers.
1.3 Policy focus	<p>The main focus of ChemCologne is to safeguard and strengthen the chemical industry in the Rhineland. The aims of the club are:</p> <ul style="list-style-type: none"> • National and international PR to improve the level of awareness of the chemical region. • Location marketing to attract investments for the chemical region. • Development of positive preconditions for industrial locations. • Promotion of the “Verbund” and assistance to cooperation between the local companies of the chemical industry • Increase of the innovative strength through intensification of the transfer of knowledge.
1.4 Policy instruments involved	<ul style="list-style-type: none"> • Providing network structures • International marketing • Organisation of events.
1.5 Policy level	ChemCologne is supported by the chemical companies in the region in cooperation with the state of North Rhine-Westphalia, the employers' association Chemie Rheinland, the City of Cologne as well as the other towns and districts in the region, the chambers of commerce and industry, the Cologne regional government and the universities as well as the Trade Union for Mining, Chemicals and Energy, and NRW.INVEST.
1.6 Policy period (mm/yy - mm/yy or present)	ChemCologne started in 1999.
2. Rationale and target group	
2.1 The goal of the policy	<p>The initiative is designed to increase the attractiveness and competitiveness for the chemical industry and to make it better known among domestic and foreign investors as a promising location for chemical production.</p> <p><i>VCI is not directly involved in local cluster initiatives such as ChemCologne or ChemSite, but networks with them at the NRW state level. ChemCologne and ChemSite main tasks are bringing in FDI and organising discussion platforms between industry, chemical parks and local governments. Beyond that ChemSite also focuses on innovation goals (Polymer Net, Surface Net)</i></p> <p><i>The synergy between VCI and local organisations such as ChemCologne and ChemSite is in policy discussions and cooperating in dialogues with the government.</i></p>
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	None.
2.3 Policy partners	Main partners are the employers' association Chemie Rheinland and the operators of the chemical parks in the ChemCologne region. Furthermore chemical and chemical related (e.g. logistics distributors, engineering companies) companies are members, as well as the universities and towns and districts of the region.
2.4 Involvement of other regions in the policy	<p>Cluster policy is discussed with representatives of other chemical regions in Europe within the ECRN and ECSPP (European Chemical Site Promotion Platform).</p> <p>ChemCologne operates in close contact with other initiatives in the region, e.g. HyCologne, CHEMIE.NRW, Network Innovative Werkstoffe.</p>
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	Main beneficiaries of the policy are the members of the initiative.
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	See 2.3.
3. Implementation and management	
3.1 Responsible Managing Authority	ChemCologne e.V.
3.2 Key tasks of Managing Authority	ChemCologne provides a broad variety of networking events to encourage its members to an exchange of ideas. Furthermore the organisation of

Policy characteristics	Collected data
	location marketing events is another key task.
3.3 Instruments used to monitor the implementation of the policy	Regular internal reviews.
3.4 Key difficulties encountered during implementation	1) ChemCologne is operating on small budget based on membership fees. 2) Maintaining strict neutrality since members from industry are also competitors in the marketplace.
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	Board members representing all groups of stakeholders Plenary meeting once per year with full statement of accounts and progress made.
3.6 Ex-post evaluation of the policy (including time period when it took place)	No ex-post evaluation.
3.7 KPIs used to measure the outputs	None.
3.8 Approach towards evaluation	Not applicable.
4. Legal and financial framework	
4.1 Policy-related legislations	None.
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	Funding by subsidies/grants (EU, NRW) proved to be very cumbersome. Efforts in this direction have been cancelled for the time being.
4.3 Support services offered to the beneficiaries	See 1.4.
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	Due to the constitution of the club an annual general meeting is being taking place once a year.
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	Not applicable.
4.6 Corrective measures	See 3.5.
4.7 Maximum and minimum total budgets for the policy	Limited to membership fees.
4.8 Number of projects supported by the policy	No specific number.
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	See 4.7.
5. Main achievements	
5.1 The extent to which the goals have been attained	Initiative is a continuous process, never finalized. Recognisable progress has been made in the past, indirect indicator: the number of members is constantly rising.
5.2 Key outcomes of the policy	Main achievements of ChemCologne are: - being a platform for the chemical industry in the Rhinland.
5.3 Importance of these outcomes for beneficiaries/region/industry	Making sure that we remain one of the strongest chemical regions in Europe.
5.4 Unintended negative changes that can be attributed to the policy (if any)	-
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	-
6.2 Key weaknesses of the policy	-
6.3 New opportunities created by the policy (for the region, for industry)	The links between different chemical (related) branches and/or R&D-facilities offer a high potential of finding new business- or cooperation partners.
6.4 External threats to the policy	-
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	-
7.2 Reasons behind these difficulties	-
7.3 The way these difficulties were tackled by the beneficiaries	-
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	-
8.2 Effect of lessons learned on other policies	-
8.3 Suggestions for improvement	-

Policy characteristics	Collected data
9. Transferability to other regions	
9.1 Similar policies in other regions	-
9.2 Region-related factors that make this policy successful	-
9.3 Barriers for transferring the policy to other regions	-

B.1.8. North Rhine-Westphalia ChemSite

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy	Regional Chemical Industry Cluster ChemSite Initiative (Ruhr Region) [North Rhine-Westphalia].
1.2 Brief description	<p>ChemSite is the chemical and plastics cluster in the Ruhr region and the central contact for all issues and topics along chemistry and its value chains.</p> <p>Under the ChemSite umbrella brand, the initiative bundles all topics related to chemistry and plastics focusing on: relocation of enterprises to existing chemical and industrial sites in the region, creation of innovative networks between enterprises and between enterprises and science, support of small and medium-sized enterprises and start-ups, improvement of the general conditions for the chemical industry and related industries, vocational training and qualification of staff members.</p> <p>With the foundation of the ChemSite Initiative in 1997, a “public-private partnership” of model character was founded jointly with partners from the chemical industry, the state government of North Rhine-Westphalia, the communities in the region, the district government of Münster as well as further partners from politics, economy, and public authorities.</p>
1.3 Policy focus	Main focus at the stage of foundation of ChemSite was to increase and secure employment in the chemical industry and its valuable chains, in view of the structural changes in the region.
1.4 Policy instruments involved	Public and private partners committed themselves to the above common goals. Private partners (chemical companies) agreed to utilise their international contacts for the acquisition of investment projects. Public partners agreed to support the goals by providing best in class procedures for planning and building legislation, permitting, incentives, etc. Industrial partners with sites agreed to develop the sites to complement one another and to market them jointly.
1.5 Policy level	ChemSite is a regional initiative of the State of North-Rhine Westphalia, the chemical industry and other public and private partners.
1.6 Policy period (mm/yy - mm/yy or present)	10/1997 – present.
2. Rationale and target group	
2.1 The goal of the policy	<p>Essential goals are:</p> <ul style="list-style-type: none"> • To improve the general conditions for the chemical industry in the region, • To encourage chemical or chemicals-related companies to establish themselves in the Ruhr region, • To support the establishment of innovative enterprises and start-ups, • To support the establishment of networks between science and enterprises along the chemical valuable chains, • To support the training and education of people, focussing on staff for the chemical industry. <p><i>VCI is not directly involved in local cluster initiatives such as ChemCologne or ChemSite, but networks with them at the NRW state level. ChemCologne and ChemSite main tasks are bringing in FDI and organising discussion platforms between industry, chemical parks and local governments. Beyond that ChemSite also focuses on innovation goals (Polymer Net, Surface Net).</i></p>

Policy characteristics	Collected data
	<i>The synergy between VCI and local organisations such as ChemCologne and ChemSite is in policy discussions and cooperating in dialogues with the government.</i>
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	There were no models or reference.
2.3 Policy partners	Major chemical companies, Ministry of Economic Affairs, Ministry of Science and Technology, Ministry of Environmental Affairs, Chamber of Commerce, Chemical Industry Association, Chemical Industry Union, regional government of Münster, municipalities of the region, economic development associations, labour agency.
2.4 Involvement of other regions in the policy	ChemSite cooperates with Germany Trade & Invest and other national and European organisations, e.g. ECSP.
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	Strengthening the chemical industry in the region, increasing employment, strengthening the financial situation of the municipalities in the region.
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	The chemical industry environment, the municipalities, employees, universities.
3. Implementation and management	
3.1 Responsible Managing Authority	<ul style="list-style-type: none"> • ChemSite Initiative (office & personnel provided by Evonik Industries) • WiN Emscher-Lippe GmbH
3.2 Key tasks of Managing Authority	The President of ChemSite is coordinating the initiative; WiN Emscher-Lippe GmbH is running the projects funded by the state government with EU-backing.
3.3 Instruments used to monitor the implementation of the policy	Regularly meetings of the partners on different levels (operational and top management level), regularly reports for the funded projects.
3.4 Key difficulties encountered during implementation	Changes in the interests of the partners related to the general economic situation, the international investment strategies (focus on Asia), the political focus (SMEs and innovative clusters) made lots of adjustment in the strategy necessary. It is a lot of work to keep all the partners engaged. Private partners lowered their financial engagement. State government directed their financial engagement to other targets.
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	ChemSite is supervised by a members (partners) assembly coming together twice a year and a working group meeting four times a year. The actually funded projects are supervised by a steering committee involving the cluster CHEMIE.NRW.
3.6 Ex-post evaluation of the policy (including time period when it took place)	--
3.7 KPIs used to measure the outputs	The output of funded projects is measured in accordance with the funding notice.
3.8 Approach towards evaluation	--
4. Legal and financial framework	
4.1 Policy-related legislations	
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	Funding of marketing activities was reduced and finally stopped in 2009 which led to significant reductions on the private side as well. Administrative procedures in the funding of following projects led to brakes in the employment of the project staff; new staff starts sometimes a zero again.
4.3 Support services offered to the beneficiaries	The ChemSite website gives a lot of information about the chemical industry and the chemical sites in the Ruhr region. The website www.chemieatlas.de holds essential information about more than 500 chemical and chemical related enterprises (companies, employees, products, skills, etc.) in NRW.
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	The results of the activities are reported to the partners and the partners decide on their individual financial engagement on a year by year basis. The output of funded projects is measured in accordance with the funding notice.
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	The funded projects have fixed deadlines, but cost neutral prolongation has been agreed on in several cases.
4.6 Corrective measures	The assembly of members/partners reviews the strategy regularly and gives input for corrective measures. In case of funded projects the steering

Policy characteristics	Collected data
	committee is in charge of corrective measures.
4.7 Maximum and minimum total budgets for the policy	Private Partners: max. 650,000 €, min. 450,000 € Public Partners: average 460,000 €.
4.8 Number of projects supported by the policy	About 260 investment projects were acquired, 23 of them settled down on one of the sites. Since the start of the cluster projects Oberfläche.NRW and Polymernetzwerk in 2010 two cooperation projects successfully achieved funding in competitions (CheK.NRW, Interreg), in several other projects potential partners for cooperation have been identified and presented to interested SMEs.
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	Average 1.0 mio. €, max. 1.2 mio. €, min. 0.8 mio. €.
5. Main achievements	
5.1 The extent to which the goals have been attained	The ChemSite Initiative emerged to a very successful private public partnership, although the expectations to find new enterprise establishing productions in the area were too high.
5.2 Key outcomes of the policy	The cooperation of the partners from industry and the state government improved the understanding for each other's problems and restrictions. The time schedule of the permitting procedures has been shortened significantly; the authorities cooperate proactive within their legal framework. 23 companies established facilities in the Ruhr region and created 400 direct jobs. The networks Oberfläche.NRW and Polymernetzwerk set up several cooperation involving partners from industry and science. A joint master course for polymer science was initiated as cooperation between the university of Dortmund and the university of applied sciences in Gelsenkirchen. The Chemieatlas was set up as a web based information platform.
5.3 Importance of these outcomes for beneficiaries/region/industry	The cooperation of partners from industry, state government and municipalities is of high value for all partners. It creates an excellent climate for the neighbourhood of industry and people. Supporting the ChemSite Initiative with its goals is essential for overcoming the structural changes in the Ruhr region, where coal mining and steel industries are turning down since years and nearly completely vanished.
5.4 Unintended negative changes that can be attributed to the policy (if any)	--
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	The involvement of key drivers from the chemical industry is the main strength of the policy.
6.2 Key weaknesses of the policy	SMEs are still underrepresented.
6.3 New opportunities created by the policy (for the region, for industry)	The cluster projects created lots of new opportunities for SME bringing them in touch with new technologies, university and science.
6.4 External threats to the policy	Finding international companies to settle down is increasingly difficult because of the high energy costs, which are essential for the chemical industry. The pull towards emerging countries with their growing markets as well as higher incentives in other European regions goes in the same direction. Burdens by European requirements for public funding led to a stop in funding affords for site marketing.
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	Funding of the projects is done project wise and not continuously. The gaps lead to fluctuation of staff and knowledge. The expectations on an increasing participation of SME in the cluster projects (Oberfläche.NRW & Polymernetzwerk) cannot be realised, since the economic value for the companies can hardly be measured, especially in the short term of the project.
7.2 Reasons behind these difficulties	A lot of trust to the cluster management and to the cooperating project partners is necessary. It needs years to build up this trust. Project duration of 3 years expecting a finished project is an illusion. Changes in personnel caused by the uncertainty at the end of a project whether there will be a following project destroys a lot of the projects success; new knowledge about the companies and new trust needs to be created with the new staff again, a big waste of money.
7.3 The way these difficulties were tackled by the beneficiaries	The president of the ChemSite Initiative is an employee of a major chemical company. A lot of support is provided by the head of the economic

Policy characteristics	Collected data
	development of the township of Marl and by the managing director of WiN Emscher-Lippe GmbH. But this does not help in case of the cluster projects, since these persons are not involved in the meetings with the SMEs.
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	Improving the regional attractiveness for inward investment as well as setting up networks between enterprises and science can only be achieved on the long term. Cooperation between the public and the private sector brings things most effectively forward.
8.2 Effect of lessons learned on other policies	-
8.3 Suggestions for improvement	Policies like ChemSite need a long term financial support. Financial support should be granted on a long term basis with scheduled evaluation and adjustment, but not on projects with 3 years duration.
9. Transferability to other regions	
9.1 Similar policies in other regions	There are several chemical initiatives in different parts of Europe. Most of them are governmental initiatives.
9.2 Region-related factors that make this policy successful	For the success of this policy the engagement of the chemical industry as a main driver is essential.
9.3 Barriers for transferring the policy to other regions	The region and its people need to be well exposed to industrial productions in general, acknowledging the value of the industry for their economic situation and for their day by day life.

B.1.9. Novara Innovation Pole

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy	Piedmont Region Innovation Poles
1.2 Brief description	Regional policy aimed to support the birth and the development of innovation poles on the territory, which are enterprise consortia dedicated to research activities. One of these is IBIS (implementing the Pole of Innovation for Sustainable Chemistry)
1.3 Policy focus	Research and Development Innovation and Entrepreneurship
1.4 Policy instruments involved	Grant/loan Thanks to this policy it has been possible to set up 12 Innovation Poles in Piedmont, providing a total budget of 87 million euros for all the poles (for budgets specifically for the chemicals industry, see item 4.7 below), nowadays the 12 poles represent 1,166 regional stakeholders.
1.5 Policy level	Regional policy implementing the European ERDF regulation
1.6 Policy period (mm/yy - mm/yy or present)	2009-2014
2. Rationale and target group	
2.1 The goal of the policy	Establishing partnerships for the common realisation of research activities in the diverse fields of production of the Poles. The Innovation Poles policy dates from 2009. There are now 12 poles, one of which is in Novara. They were selected based on the geography of the region and by territories' vocation sectors. Two types of financing: one towards the innovation pole manager and the other towards the projects undertaken. Aim of the Poles is cooperation between enterprises on research activities. The innovation pole manager inventories the innovation needs of the member companies and confer this to the regional government. Poles should also sustain enterprises in funding opportunities research, sharing infrastructures, support to SMEs start up, training, services aimed to support SMEs in innovation and research. <i>Before starting in 2009 the industry was discussing with the regional authority that many chemical companies were already working on sustainability, e.g. biobased start-ups. However there was no tool or support for working together with schools or universities. After discussing with different players in 2009, the industry applied to become an</i>

Policy characteristics	Collected data
	<p><i>innovation pole. To do so, it needed a legal form of organisation, which is IBIS. It was required to have SMEs, large firms and universities. The shareholders were throughout the Piedmont region (not only in Novara). IBIS set up a statute, elected a president and other board members. Mr. Pellacini was re-elected president in 2012. IBIS decided not to have employees in the consortium, but share the tasks between the member companies. This avoids inefficiencies. IBIS focuses on projects between companies and universities, not so much on dissemination of information. It received money from the region for the projects, but only a very small amount to support the consortium. IBIS tries also to co-operate with other innovation poles, such as the biomedical pole.</i></p> <p><i>In the first year of the policy, 6.4 million Euros were awarded to support projects in the chemicals pole. In the second and third years, this amount was EUR 3.5 million and EUR 950,000 respectively.</i></p>
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	This policy is the product of the local Piedmont elaboration and carrying out of the European Regulation of ERFD and of the related Italian national rules.
2.3 Policy partners	<p>The main chemical enterprises, the universities. the Province of Novara.</p> <p>Other sectors that have Innovation Poles are for example biotechnology and biomedical, mecatronics, ICT, new materials, textile, agrofood, renewable energy and biobased, minihydro, sustainable building. The chemicals industry works together closely with the new materials.</p>
2.4 Involvement of other regions in the policy	None
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	<p>Chemical companies, most of which are SMEs, Universities.</p> <p>Chemicals pole has almost 30 participating companies. This relatively low number resulted because there are relatively few SMEs in the chemicals sector.</p>
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	Industrial associations, chamber of commerce, municipalities, trade unions, high schools.
3. Implementation and management	
3.1 Responsible Managing Authority	The Department of Industry and Productive Activities of the Piedmont Region is responsible for the implementation of the policy. The Executive Board of IBIS is responsible for the functioning of Consortium implementing the Pole of Innovation
3.2 Key tasks of Managing Authority	The Executive Board of IBIS is the responsible in charge for the implementation working plan of the pole, it coordinates the research projects to be developed and proposes the financial plan of the Pole to the endorsement of the Region (according to Regional indications).
3.3 Instruments used to monitor the implementation of the policy	The project audit is carried out by the Department of Industry and Productive Activities of the Piedmont Region by external experts.
3.4 Key difficulties encountered during implementation	<p>Although the pole is competing with other industries for the available budget, based on the quality of project proposals, it might have received more funding if more high-quality proposals had been submitted by the industry. The limited number of SMEs in the chemicals industry may have put a limit to the number of eligible proposals that the industry could submit (see also 4.7).</p> <p><i>Procedures of approval and of implementation are considered by the industry to be complicated and may have hindered applications.</i></p>
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	The Piedmont Region itself monitors the implementation of the policy, even though, the implementation process is also followed by a local stakeholders committee.
3.6 Ex-post evaluation of the policy (including time period when it took place)	The (external) evaluation is still ongoing, will finish end of 2012. The majority of projects that were approved in 2009 started in 2010. Hence no finished projects yet with concrete results.
3.7 KPIs used to measure the outputs	The 12 innovation poles have already developed 220 research projects.
3.8 Approach towards evaluation	Not reported

Policy characteristics	Collected data
4. Legal and financial framework	
4.1 Policy-related legislations	<p>P.O.R. (Regional Operative Program) financed by ERDF</p> <p>At the inception of the policy, each pole has drafted a technological roadmap that provides a guideline in evaluating applications for funding.</p>
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	<p>Coordination of all 12 Poles and respect of the working plan.</p> <p><i>Main administrative problem for the Managing Authority has been the impossibility to receive the foreseen Regional funds because the Novara Pole is basing its works on activities performed by the personnel of associated companies, and not by Pole personnel which is not existent. This choice of a very lean structure has been made by the Pole associated because it is a guaranty of flexibility and good control of inefficiency, but it results as a hindrance for receiving Regional funding.</i></p> <p><i>Main problem for the beneficiaries is the complexity and burden of the administrative rules.</i></p>
4.3 Support services offered to the beneficiaries	<p>The Department for Productive Activities of the Piedmont Region offers direct support to the poles both in the development and in the reporting.</p> <p><i>The region is providing many services for SMEs. IBIS had significant challenges in convincing SMEs to participate in the innovation pole. Three SMEs applied for the support services from the region. The services are of different types, such as support for open innovation or marketing activities. The challenge is that SMEs have to pay some part of the services themselves to ensure their involvement, but they prefer to invest in projects.</i></p>
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	<p>The piedmont Region organizes dissemination conferences to spread the results achieved, also the poles use to organizes assemblies with local stakeholders to disseminate their outcomes. A special part of the policy is dedicated to dissemination activities.</p> <p><i>IBIS has participated in symposia, but not yet organised one ourselves. By now there is a person in charge of communication, so this is expected to improve. The pole did have meetings with IBIS members on practical matters such as dealing with the region's administrative requirements.</i></p>
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	<p>The policy is part of the above mentioned Regional program POR ending in 2013</p>
4.6 Corrective measures	<p>The Region has already established 30 millions in addition to the initial budget to support the Poles</p>
4.7 Maximum and minimum total budgets for the policy	<p>The initial budget is about 90 millions euros. Right now, the funding for the poles is € 120 million, of which € 9 million for the pole managers and € 111 million to projects. Each pole manager gets € 850,000 for 2009-2014 (50% of the eligible costs, completely financed by the ERDF). Some of the poles have been spending less then foreseen. In 2014 ERDF co financing will expire and the new policy is under elaboration.</p> <p>Project funding awarded specifically to the chemicals industry:</p> <ul style="list-style-type: none"> • 2009: € 3.5 million/4 projects • 2010: € 1.34 million/5 projects • 2011: € 574,000/2 projects. <p>The maximum number of projects for each pole has be maximised in 2011. The projects last between 12 and 36 months, hence companies are still working on projects they proposed in earlier years and do not apply for new funding each year. 40% to 60% of the projects are funded by the region, depending on the size of the company. SMEs can apply by themselves, but large companies and universities only with SMEs.</p>
4.8 Number of projects supported by the policy	<p>220 research projects (+ 21 to be approved)</p>
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	<p>Not reported.</p> <p>Based on the numbers of 4.7 above, we calculate an average budget size of € 492.282.</p>

Policy characteristics	Collected data
5. Main achievements	
5.1 The extent to which the goals have been attained	<p>It is too early to define whether the policy has been successful, but first results of external evaluation show an increased capacity for cooperation in the SMEs in the region. The evaluation is still ongoing, will finish end of 2012. The majority of projects that were approved in 2009 started in 2010. Hence no finished projects yet with concrete results.</p> <p><i>The Novara Pole, which is a Regional Pole so that associated companies and Universities are located not only in the Novara Provincia but in all Piedmont, has the responsibility to select and propose Research projects to the Piedmont Regione. It has been characterised by a very high percentage of approved versus proposed projects (100% 67% and 100% for the first, second and third year respectively) as well as a high evaluation for the quality of the projects. IBIS proposed 12 projects since 2009, of which 10 were approved. Except one, all are still ongoing. As an example of project goal, one project was aimed at eliminating all VOC from paints, hence very much in line with the sustainability goal of the policy.</i></p>
5.2 Key outcomes of the policy	<p>Improving and boosting of the R&D system of the Piedmont Region</p> <p><i>It is still too early for a clear evaluation of the outcome of the policy as almost all projects are underway or just started however one result is already clearly visible: a network of SMEs, big industries and academia has been established and is working together.</i></p>
5.3 Importance of these outcomes for beneficiaries/region/industry	<p>SMEs can now afford new initiatives thanks to the cooperation with other SMEs and local large companies and with universities.</p> <p><i>In a critical period as this one the policy has helped companies to open to new technologies, encouraged research, putting points in favour of a counter tendency and in favour of an economic growth.</i></p>
5.4 Unintended negative changes that can be attributed to the policy (if any)	<p>None reported.</p> <p><i>Some rules of the policy that are intended to favour the SMEs in some case play a contradictory effect, because if SMEs must have an important percentage of the costs of a projects. That means that the projects are either small, and thus in some cases not interesting for big companies, or they are too big for SMEs to enter, and in this case the project is outside of the policy. So the result is that in the chemical sector, where the big companies are the main drivers of innovation, the interplay between SMEs and big companies is sometime limited by the rules that are intended to favour it.</i></p>
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	<p>Financial support to shared research projects.</p> <ol style="list-style-type: none"> 1. Policy allows many SMEs to cooperate with other SMEs and research centres, thus increasing their capacity for cooperation and knowledge sharing. 2. Duplication of research efforts is avoided, e.g. biotechnology, energy, new materials. 3. Increase of the size/turnover of the SMEs. 4. <i>Encouragement of innovation and interplays between different regional players.</i> <p><i>General tendency of the industry is that they are interested in the policy and consider ways to participate. For large companies, the projects are too small and administratively too complicated. A decrease in funding is expected in the coming years, which does not help to improve this sentiment. The large companies' interest depends very much on the availability.</i></p> <p><i>This policy has strengthened the interaction between companies and academia, also on the level of personal contacts. This can be expected to result in new projects.</i></p>
6.2 Key weaknesses of the policy	<p>Too complicated management procedures; too long approval procedures for projects; sometimes the Regional scenario is not wide enough, the involvement of companies from neighbouring Regions would be an added</p>

Policy characteristics	Collected data
	<p>value.</p> <ol style="list-style-type: none"> Some poles have difficulties to increase the number of SMEs involved. Sustainability of the innovation poles is still unsure: not clear whether they will be able to stand by themselves considering that regional funding might eventually be reduced after 2014. The regional authority hopes that the poles will be able to compete with other clusters in Europe. Risk of discontinuing if ERDF funding will not be available after 2014. <p><i>Excessive administrative workload</i></p>
6.3 New opportunities created by the policy (for the region, for industry)	<p>Thanks to this tool the Region is now among the ones with the highest grade of research in Italy.</p> <p><i>The network that has resulted from the policy is robust, because it was set up with hardly any funding. One goal for the coming years is to initiate projects together with other Italian regions and European partners.</i></p>
6.4 External threats to the policy	<p>None reported.</p> <p><i>Reduction of funding due to the crisis will decrease the effect of the policy. IBIS is now looking for other sources of funding. It has good hope to achieve this. In any case there is now a network, which did not exist before.</i></p>
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	<p>The Poles sometimes do not present enough valid research projects. Heavy administrative weights.</p> <p><i>Main difficulty is related to administrative requirements, i.e. documents required, different format for project administration form regular administration of the companies.</i></p> <p><i>Also, the rules for participation of small companies are difficult for them when it comes to larger projects. As SME participation is required, this presents a challenge, which has not yet been resolved.</i></p>
7.2 Reasons behind these difficulties	<p>As mentioned above, due the difficulties of cooperation between competitors. The rules are too inspired to bureaucratic principles.</p> <p><i>Rules too complicated or the requests of information in formats different from the formats used by the companies, difficulties in obtaining clear interpretations of the rules.</i></p>
7.3 The way these difficulties were tackled by the beneficiaries	<p>Big companies try to steer the development of the Pole as they own bigger resources. In general, companies suffer from heavy administrative charges and nothing else.</p> <p><i>The Regione has been very open to discuss these problems with the Poles so that there is now in place a Task Force to solve all these problems as well as an help desk to support beneficiaries. The Task Force has already met four times and tries to find solutions.</i></p>
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	<p>This policy is an important model of Regional R&D boosting, hopefully this project will continue in the future with more elastic rules.</p> <p><i>It could be helpful to have the same type of policies in other Italian regions and at the national level. The Novara pole would then be able to cooperate with counterparts in other regions.</i></p>
8.2 Effect of lessons learned on other policies	<p>Currently Piemonte is the only region in Italy that has a competence poles policy. Tuscany, Liguria and Calabria started similar policies in succession of Piemonte. No experiences are as yet available from those regions.</p>
8.3 Suggestions for improvement	<p>Better coordination of the grants system and more elastic (but effective) administrative rules.</p>
9. Transferability to other regions	
9.1 Similar policies in other regions	<p><i>There are limited examples of similar policies in Italy. IBIS is in contact with other regions in Germany, Poland and other Mediterranean</i></p>

Policy characteristics	Collected data
	<i>countries, both bilaterally and through ChemLog and Chemclust.</i>
9.2 Region-related factors that make this policy successful	<p>Piedmont Region can claim one of the highest percentage of expenditure on R&D in Italy, therefore the territory already had a good innovative framework.</p> <p><i>The Regione Piedmont is an industrialized one with different specialisations and it is to note that the number of interPole projects is increasing demonstrating that the presence of different compartments help the exchange of knowledge and technologies.</i></p>
9.3 Barriers for transferring the policy to other regions	<p>This policy can be developed in other Regions with similar results. This policy could be a good example for each European region willing to foster and boost the current R&D system.</p> <p><i>Probably the Policy should be adapted to the industrial structure of the region but there are no reasons against an application of this policy to other regions. In Piedmonte it was decided to have 12 poles, because there are this many industries/markets. In some regions, a smaller number would be more appropriate.</i></p>

B.1.10. Rhineland-Palatinate chem2biz

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy	chem2biz (Rhineland-Palatinate)
1.2 Brief description	<p>chem2biz is a joint initiative by TechnologieZentrum Ludwigshafen am Rhein GmbH (TZL) and BASF SE. Partners of TZL – the Rhineland Palatinate Ministry of Economics together with the City of Ludwigshafen am Rhein – are collaborating with BASF in a public-private-partnership in order to finance this initiative.</p> <p>chem2biz is a partner both for new chemistry-based company founders as well as for existing smaller and medium-sized enterprises (SMEs) within the chemistry-based sectors of chemistry, nanotechnology, new materials, biotechnology, environmental engineering as well as process and analytical engineering.</p>
1.3 Policy focus	<p>Attracting chemistry-based company founders, start-up companies and existing SMEs to settle in the city of Ludwigshafen am Rhein and to expand the chemical cluster. Supporting and strengthening Ludwigshafen as a chemistry-based location.</p> <ul style="list-style-type: none"> • Consulting services during the start-up and growth phase; • Infrastructure including laboratories, offices and technical areas for rent; • Services (technical service, analysis expertise, office services); • Network.
1.4 Policy instruments involved	<p>chem2biz offers support to chemistry-based start-ups and SMEs in the following ways:</p> <ul style="list-style-type: none"> • Infrastructure and Facilities; • Information about Financing and Subsidized Funding; • Business Plans; • Providing Network Structures; • Public Relations • Innovation and Growth Management.
1.5 Policy level	Regional policy.
1.6 Policy period (mm/yy - mm/yy or present)	7/2004 – present
2. Rationale and target group	
2.1 The goal of the policy	The central aim of the initiative is to support and strengthen Ludwigshafen as a chemistry-based location.
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	The chem2biz initiative provides a unique service.

Policy characteristics	Collected data
2.3 Policy partners	Rhineland Palatinate Ministry of Economics City of Ludwigshafen BASF SE.
2.4 Involvement of other regions in the policy	None.
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	Chemistry-based company founders and start-up companies in the sectors of chemistry, nanotechnology, new materials, biotechnology, environmental engineering as well as process and analytical engineering.
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	Rhineland Palatinate Ministry of Economics City of Ludwigshafen am Rhein BASF SE
3. Implementation and management	
3.1 Responsible Managing Authority	The responsible managing authority is a public equivalent body: TZL-TechnologieZentrum Ludwigshafen am Rhein GmbH directed by the chem2biz steering committee.
3.2 Key tasks of Managing Authority	TZL is the point of contact for company founders, start-up companies and for young enterprises within the chemistry-based sector. TZL provides consulting services and assistance.
3.3 Instruments used to monitor the implementation of the policy	The monitoring takes place in the chem2biz steering committee.
3.4 Key difficulties encountered during implementation	It took about two years to develop the project.
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	chem2biz is supervised by a steering committee, including representatives of the Ministry of Economics, the City of Ludwigshafen and BASF SE. The steering committee discusses management reports three or four times a year.
3.6 Ex-post evaluation of the policy (including time period when it took place)	There have been two internal ex-post evaluations.
3.7 KPIs used to measure the outputs	Number of founders and companies settled at the sites of BASF and TZL; Number of staff of the companies; Number of new prospective tenants.
3.8 Approach towards evaluation	The members of the steering committee assess the development of the initiative.
4. Legal and financial framework	
4.1 Policy-related legislations	The initiative has been ratified by the Minister of Economics, the Mayor of Ludwigshafen and the BASF site management.
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	There was a learning process in how to deal with the contracts, the content of the services and the needs of the tenants. <i>An administration had to be established to evaluate the needs for potential chem2biz tenants. Due to the manpower provided by the BASF this task have been managed in a professional way.</i>
4.3 Support services offered to the beneficiaries	BASF offers support to find the right laboratory infrastructure and equipment referring to the laboratory processes; BASF and TZL care for the problems of tenants and provide a network to link tenants with the relevant partners and institutions to promote the enterprise; TZL offers business-management-consultation and office services. Additionally, TZL organizes events and training such as consultation-hours and "InnoTreff" that provide information about current topics for technology companies and offer a platform for establishing contacts with other companies. There is also an Internet-Homepage which can be used by the beneficiaries to introduce themselves. <i>TechnologieZentrum Ludwigshafen (TZL) acts as a contact partner and offers support by creating business plans and by submitting financial subsidy programs; via email there's routine information about actual tenant related news and offers for presentations.</i>
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	Ongoing press releases about the initiative and about how tenants benefit from the initiative; Press conferences. <i>Press releases and information via email.</i>
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	There is no fixed deadline but the initiative chem2biz is based on the commitment of partners that is prolonged year by year.

Policy characteristics	Collected data
4.6 Corrective measures	Corrective measures can be discussed in meetings of TZL and BASF and in the steering committee.
4.7 Maximum and minimum total budgets for the policy	Max. €120,000 per year Min. €108,000 per year.
4.8 Number of projects supported by the policy	About 30 projects have been supported by chem2biz.
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	Not specified.
5. Main achievements	
5.1 The extent to which the goals have been attained	The main goal is to establish new companies which create sustainable jobs. This was realized in some cases, so the goal has been attained to a large extent. <i>The company was founded and as a tenant in the chem2biz building, beneficiaries benefit from the infrastructure inside the BASF (office, lab and production capabilities).</i>
5.2 Key outcomes of the policy	There are 10 companies located on the BASF-site or at the TZL-site which provided or secured more than 50 jobs. <i>Being able to make some investments as a result of the policy, the future prospects of our company are very good and not only German but also first orders from European countries can be handled.</i>
5.3 Importance of these outcomes for beneficiaries/region/industry	These outcomes are very important for beneficiaries and for the economic development of the region. <i>Continuous growth of production and related turnover will lead to new jobs.</i>
5.4 Unintended negative changes that can be attributed to the policy (if any)	None
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	The key strengths of the policy are a combination of customized technical infrastructure that can be rented and business-management consultancy and services especially for company founders and start-ups. <i>The combination of TZL with business support services and BASF infrastructure is an excellent basis for start ups.</i>
6.2 Key weaknesses of the policy	Not every prospective tenant gets the financing that is needed to start and not every request can be granted. <i>Because chem2biz cannot guarantee that successful financing can be achieved, a lot of time consuming effort is needed before a start-up can be realized.</i>
6.3 New opportunities created by the policy (for the region, for industry)	The region is notable for being an innovative region that provides a good infrastructure and network to improve the success of the companies. <i>Using the network structure the company can benefit from further growth.</i>
6.4 External threats to the policy	External threats have not been identified yet.
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	At first, a level of trust between the beneficiaries and the project management has to be developed. In each case this takes some time. <i>If larger investments are necessary e.g. if expensive apparatus is required to install a production process, the maximum financial support is not sufficient.</i>
7.2 Reasons behind these difficulties	The beneficiaries do not want to disclose their intellectual property and/or their business plan. <i>Subsequent financial support after start up is needed with growing businesses.</i>
7.3 The way these difficulties were tackled by the beneficiaries	Some of the beneficiaries change their mind when they get positive feedback from other beneficiaries. <i>To find investors you have to contact potential investors e.g. Business Angels or request further funding.</i>
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	There is demand for laboratories in combination with technical infrastructure and consultancy. Jobs have been created and/or secured. There are different beneficiaries with different needs.
8.2 Effect of lessons learned on other policies	The partners of chem2biz have been asked for advice by another big company that intends to build up a similar service offer.
8.3 Suggestions for improvement	The regulatory framework should be optimized to cover the needs of

Policy characteristics	Collected data
	company founders and start-up companies and to reduce the barriers for financing. <i>The combination and integration of financial support with the business services provided by the chem2biz partners would lead to a more effective growth of start ups and speed up all business decisions.</i>
9. Transferability to other regions	
9.1 Similar policies in other regions	The public-private-partnership which is the basis of chem2biz is considered unique by the regional authority..
9.2 Region-related factors that make this policy successful	The City of Ludwigshafen am Rhein is called the Chemical City. Chemistry is accepted at Ludwigshafen. The existing infrastructure is excellent. The partners of the initiative have a shared aim: strengthening Ludwigshafen as a chemistry-based location. <i>The BASF supports education(i.e. in the project “Wissensfabrik für Deutschland”) together with a series of industrial companies. Consequently, with the support of the BASF in Ludwigshafen, there is a unique situation for chem2biz who aim to strengthen Ludwigshafen as a chemistry-based location together with the cities of Mannheim and well-known Heidelberg with excellent universities, research institutions and leisure activities.</i>
9.3 Barriers for transferring the policy to other regions	In other regions there should be a combination of partners with shared aims and an existing infrastructure to be able to meet the region’s needs. <i>Hard and soft factors are relevant for the successful implementation of model similar to chem2biz. The industrial and existing infrastructure is very important in convincing potential entrepreneurs to settle and conduct business. However, a modified chem2biz model could be applied in other regions depending on the industrial situation and the infrastructure in that region.</i>

B.1.11. Saxony Anhalt GRW Clustermanagement - Cluster Chemistry Plastics Central Germany

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy	GRW Cluster Management - Cluster Chemistry Plastics Central Germany (Saxony-Anhalt)
1.2 Brief description	The programme “Gemeinschaftsinitiative zur Verbesserung der regionalen Wirtschaftsstruktur” (GRW) or “Joint Initiative for the improvement of regional economic structure” was introduced to support the establishment of cluster managements. The Cluster Chemistry Plastics Central Germany was founded in 2003 by private companies to bring together relevant stakeholders from politics, science and industry. The Cluster has used the funding programme to develop sustainable cluster management structures and implement intensive activities for the promotion of the regional chemical industry. The regional government of Saxony-Anhalt implemented a study in 2008 to identify potential clusters for the further development of economic promotion policy. The chemical cluster was identified as an important industrial core, alongside the automotive, food production and renewable energy industries.
1.3 Policy focus	<ul style="list-style-type: none"> • Develop a strategic approach towards economic crisis; • Support innovation development by using national and international funds; • Develop strategic approaches of post petroleum age by using new feedstock; • Support of investments; • Access to new markets and cooperation potential in Europe and Asia, special focus on Central and Eastern Europe; • Finding answers to challenges of demographic change to ensure qualified labour force; • Adaptation of cluster to new funding framework of EU Structural Funds after 2014 phasing out; • Development of cross regional cooperation between Saxony-Anhalt, Saxony, Brandenburg and Thuringia;

Policy characteristics	Collected data
	<ul style="list-style-type: none"> Further development of communication and marketing platforms; Integration of further stakeholders.
1.4 Policy instruments involved	The Cluster activities are connected to a number of policy instruments: <ul style="list-style-type: none"> Grant of public funding programmes; Regulation or standard; representing interest of chemical industry, e.g. Emission Trade System; Tax incentive; lobbying for Innovation Tax reduction; Training; developing solutions for demographic change; Infrastructure and facilities; improving logistic infrastructure and chemical park infrastructure.
1.5 Policy level	GRW Programme is a national policy implemented at a regional level.
1.6 Policy period (mm/yy - mm/yy or present)	Oct 2007 – Sep 2010 1 st period Oct 2010 – Sep 2013 2 nd period.
2. Rationale and target group	
2.1 The goal of the policy	Developing a new quality of cross regional coordination of existing single activities, networks and projects for the creation and communication of synergy potentials as well as internationally competitive unique selling points of the chemistry plastics cluster. To do so while respecting structural adaptation processes behind the background of the impact of world economic crisis and with the aim of the development of Central Germany as a competitive chemical region with high attractiveness for new investments and improved market position of existing enterprises and institutions.
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	The cluster development has been supported by best-practice solutions from other European Clusters e.g. Upper Austria, North East England or Limburg (Netherlands).
2.3 Policy partners	Ministries of Economic Affairs from the regions Saxony-Anhalt, Brandenburg, Saxony and Thuringia, Federal Ministry of Internal Affairs – responsible for regional development in Eastern Germany, Economic Development Agencies in Central Germany, ZAB, LEG, IMG, GTAI, Chambers of Commerce, Chemical Industry Association North East (VCI).
2.4 Involvement of other regions in the policy	The Cluster is focused on the cooperation between Saxony-Anhalt, Brandenburg, Saxony and Thuringia.
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	Companies from the chemical and plastics industry in Central Germany, Universities and research organisations, policy makers and administration.
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	Chemical Parks, VCI, GKV plastic industry association, Universities and research organisations (e.g. Fraunhofer), large companies, Linde, Dow, BASF, Infraleuna, enterprise networks of plastic industry.
3. Implementation and management	
3.1 Responsible Managing Authority	Infraleuna GmbH, isw GmbH.
3.2 Key tasks of Managing Authority	The Infraleuna GmbH and isw have agreed on the main task of the cluster management in the grant agreement and are responsible for the coordination of stakeholders and implementation of activities.
3.3 Instruments used to monitor the implementation of the policy	The monitoring takes place on the basis of annual reports which are discussed with the Ministry of Science and Economy of Saxony-Anhalt.
3.4 Key difficulties encountered during implementation	Difficulties have been encountered during cooperation across regional and political borders, the integration of different interests of stakeholders and in reaching agreement on a long-term vision with the chemicals industry association.
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	The Cluster has established a Cluster board with about 40 representatives from the regional stakeholders, which agrees on strategic direction and is responsible for monitoring. 4 Cluster Speakers have been appointed, high level representatives from companies and associations to represent the cluster – Chemical Parks / Feedstock – Mr Hilterman MD Infraleuna, Plastic Industry, Dr. Proske, Chemical Industry – Mr Blümel VCI, Former MD of Dow Dr. Mühlhaus is coordinating Cluster speaker.
3.6 Ex-post evaluation of the policy (including time period when it took place)	No ex post evaluation has taken place so far. Evaluation takes place on the basis of an annual progress report. A new study on cluster development in 2012 will support future focus of cluster policy in Saxony-Anhalt.
3.7 KPIs used to measure the outputs	Number of Member companies Number of Research organisations Employees and Turnover of Member companies

Policy characteristics	Collected data
	<p>Attracted funding</p> <p>Initiated R&D projects</p> <p>Initiated investment projects.</p>
3.8 Approach towards evaluation	On the basis of annual progress report.
4 Legal and financial framework	
4.1 Policy-related legislations	GRW is a national legislation, which is implemented at regional level. Ministry of Economic affairs decides about selected cluster projects.
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	<p>Challenge to provide necessary own resources which are increasing in the final three years.</p> <p><i>In the region and in the whole of east Germany, only the production departments are present. However, there are no decision-makers on the subject of innovation present, since they are usually located in other departments. It is very difficult to get the enterprises involved in the research activities of the region. The SMEs need to invest more in R&D themselves, but this is a challenging issue because they are already mainly occupied by their daily business activities. Through the support from the side of the cluster and different initiatives, there is an attempt to solve this problem. In this context the transfer vouchers have been introduced, thanks to which the SMEs were allowed to get advice from research and educational institutions.</i></p>
4.3 Support services offered to the beneficiaries	Regular meetings are used to disseminate information to cluster stakeholders, support for investment activities, creation of PPP, project development, marketing and governmental relations and public affairs. <i>Meetings with the relevant stakeholders, within which it is possible to discuss the aspects of the future cooperation, Big conferences, such as ECRN congress, support at the regional economic conference, Newsletters, etc.</i>
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	Website, newsletter, cluster board meetings, strategy workshops, Public Relations and media appearances, large conferences. <i>Very good public relations, direct contact to cluster board to the politics, international conferences offered for American companies in order to demonstrate the extent of their regional activities.</i>
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	Implementation of activities is according to the application.
4.6 Corrective measures	Correction can be discussed in the course of the annual plan.
4.7 Maximum and minimum total budgets for the policy	2007-2010 €750,000 (75% Funding) 2010-2013 €615,000 (65% Funding).
4.8 Number of projects supported by the policy	The cluster has supported the initiation of about 25 projects.
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	€100,000 to €20 million.
5 Main achievements	
5.1 The extent to which the goals have been attained	<p>The first three years have been used to establish cluster networks and integrate relevant stakeholders, while the ongoing period is focused on the deepening of sustainable cooperation. Furthermore reactions to the impact of economic crisis should be developed. In several areas, goals have been attained with a very good results, for example in chemical logistics cooperation or in the use of new feedstock coal for chemistry and bio-economy applications.</p> <p><i>The policy has developed very well and its external impact is undeniable. Many stakeholders are present on the cluster board. Thanks to the impacts of the policy, further Fraunhofer institutes have been established. Meanwhile another "branch" of the Fraunhofer institute, specialising in silicon Photovoltech, has been established. During the past few years the policy has been strengthened and integrated, and its focus has become future oriented. It targets the future-orientation of the chemical region in the field of chemistry and other branches such as biochemical processes.</i></p>
5.2 Key outcomes of the policy	Integration of chemical companies and universities in innovation networks, initiation of several R&D projects, enabling cross regional cooperation in Central Germany. Implementation of strategy dialogues with politics,

Policy characteristics	Collected data
	<p>industry and academia, integration of interest in several policies at regional, national and European level.</p> <p><i>Establishment of the second Fraunhofer institute, which offers research opportunities to the SMEs and connections and relations to other EU projects; creation of new contacts.</i></p>
5.3 Importance of these outcomes for beneficiaries/region/industry	<p>Strengthening competitiveness, better access to innovation and public support.</p> <p><i>Thanks to the cluster board management, all actors can speak together “in a common language”; nobody has been omitted and a strong community has been developed. Externally and internationally the cluster appears to be a strong chemical region. Many research opportunities have been developed. The beneficiary is tightly connected with the policies, which are very supportive, and is further connected with innovation and education institutions.</i></p>
5.4 Unintended negative changes that can be attributed to the policy (if any)	None
6 Main strengths and weaknesses	
6.1 Key strengths of the policy	<p>Open approach for the integration of stakeholders from politics, industry and science for the promotion of cooperation and agreement on future priorities and identification of innovation areas. <i>The board is open to all players. Everyone can participate and have their place in the community.</i></p>
6.2 Key weaknesses of the policy	<p>Sometimes improvement of framework conditions and soft factors is only visible in the long-term, so it can be difficult to convince companies of the validity of soft activities.</p> <p><i>Locally, the only SMEs that are present are mainly involved and busy with their daily business. The main decision makers are missing in the region. Furthermore, it is difficult to obtain the necessary short-term results. The SMEs do not want to use their funds on R&D and they require support from the government side for their R&D activities.</i></p>
6.3 New opportunities created by the policy (for the region, for industry)	<p>Establish cooperation with other industrial branches for the development of new innovation areas e.g. Automotive, Photovoltaic, Aviation, and Energy etc.</p> <p><i>Mutual cooperation, long-run view of activities - support in order to look forward.</i></p>
6.4 External threats to the policy	<p>Missing headquarters and research units in regional companies, domination of SMEs with little capacities, insecurity about future funding framework in new programming period after 2014, challenges of demographic change.</p> <p><i>The possibility to continue the operation of the currently available facilities, The availability of financial resources in order to be able to make use of the possible emerging opportunities.</i></p>
7 Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	<p>Integration of companies in networking activities apart from day-to-day business.</p> <p><i>To make use of the new/ emerging opportunities from 2014 onwards, and to do a “good job” by EU standards.</i></p>
7.2 Reasons behind these difficulties	Insufficient resources and missing decision making powers.
7.3 The way these difficulties were tackled by the beneficiaries	<p>Developing joint projects with clear added value, personal discussions with decision makers.</p> <p><i>It is crucial to offer good framework conditions to the establishments and to provide the possibility of new product development through research support. Furthermore, good communication with research bodies and policy makers is essential. The beneficiary sees itself as the link between politics and research since it is responsible for the technology transfer. Since 2007 this task has been target-driven through special projects. The beneficiary has 5 supportive projects and 2 EU projects, and establishments and qualifications are supported by Saxony-Anhalt. For the future, it is essential to look to what extent the projects and the work</i></p>

Policy characteristics	Collected data
	<i>can be performed depending on the changed framework conditions. However, the beneficiary is not worried about taking on this challenge, since they have dealt with the previous structural changes successfully.</i>
8 Lessons learned	
8.1 Key learning points from the implementation of the policy	Cluster Chemistry Plastics is best-practice solution and example for other cluster in Central Germany.
8.2 Effect of lessons learned on other policies	Holistic approach with impact on other policies such as Human Resource development, Environmental Policy and Transport Policy.
8.3 Suggestions for improvement	<ul style="list-style-type: none"> Ensuring sustainable finance for continuation of cluster funding in the future; Investigating possibilities for the cluster to take over important public functions of economic promotion; The policy should be maintained. <p><i>It has created a basis for trust. It is essential to focus on cooperation with further chemical regions, especially within the EU. Thanks to these cooperation activities, the region can be even more active internationally. In daily business one should concentrate on private improvements.</i></p>
9 Transferability to other regions	
9.1 Similar policies in other regions	The Cluster was and is active in cooperation projects with other chemical clusters e.g. ECRN, MentorChem (Asturias, Lombardy), ChemSME (North East England and Limburg) or ChemClust (Asturias, Novara, Mazovia, Tees Valley, Cheshire West and Chester, Ústí, Limburg, North Rhine-Westphalia, Brunsbüttel) – Similar policies to support cluster development exist in these regions or ChemLog – chemical logistics in Central and Eastern Europe (development of a European logistic network).
9.2 Region-related factors that make this policy successful	<p>High political priority for the support of chemical industry, strong commitment of leading political representatives, strong commitment of large companies to cluster development, credibility and competence of the cluster board and cluster speakers, professional cluster management.</p> <p><i>The success of the policies depends on the specific players present in the cluster, on their interactions and relations, and on the trust basis that has been developed between them.</i></p>
9.3 Barriers for transferring the policy to other regions	<p>Clusters are informal networks which rely on personal relations and trust; this cooperation and communication culture cannot be copied by other regions and must be established respecting regional frameworks.</p> <p><i>The success of the policy is dependent on the trust basis and thus on the members of the cluster. Of course there are clusters everywhere in the world, though the direct networking of these is not possible. However the concept is indeed transferable.</i></p>

B.1.12. Wallonia networking cluster PLASTIWIN

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy (region)	PLASTIWIN (Wallonia)
1.2 Brief description	Plastiwin is the networking cluster of the plastics industry in Wallonia.
1.3 Policy focus	<ul style="list-style-type: none"> - research, innovation - business development - training - sustainable development
1.4 Policy instruments involved	Grant
1.5 Policy level	Purely regional policy
1.6 Policy period (mm/yy - mm/yy or present)	First period: 12/2008-12/2011 (continued after that, but with less public financing) Second period: 01/2012-12/2014
2. Rationale and target group	
2.1 The goal of the policy	The main mission is to strengthen the economic, technical and commercial potential of the cluster members. The cluster covers the entire value chain, from polymer producers up to mold makers. Its objective is to focus on packaging, recycling, technical & medical

Policy characteristics	Collected data
	<p>parts. The main focus of the cluster organisation is on facilitation, not so much on projects. The contacts between companies are the main desired result (hence the term “networking cluster”). Competitiveness clusters such as GREENWIN have more technological projects.</p> <p>The Walloon Government operates a Cluster strategy, which includes the following clusters in the chemicals industry: PLASTIWIN, BLOWIN (biotech, not base chemistry), GREENWIN (including green chemistry, sustainable materials, but broader than chemistry). The latter is the newest.</p> <p>Wallonia produces 1.3% of European turnover in chemicals. Employment in chemistry is growing faster than other manufacturing industries in Wallonia. Strengths of the industry are (according to external studies): efficiency of capital, good know-how, geography (Antwerp port). Documented weaknesses are: high labour costs, low return on capital, small companies (non-integrated), decision makers are often abroad, limited flexibility in supply chain.</p> <p><i>PLASTIWIN was initiated by the plastic product division of Essenscia, the industry association for the chemicals and life sciences industry in Belgium. The cluster is accredited and supported by the Government of the Walloon Region (see 4.1) Essenscia plastic division discussed the idea of a cluster with the Government of Wallonia, which had been promoting clusters for a decade before, about 3 or 4 years ago. It took about one year to prepare, the cluster was set up in 2008 after examination, by an independent jury .</i></p>
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	Plastiwin is one of 16 Walloon Clusters (10 Business clusters + 6 competitiveness clusters)
2.3 Policy partners	Walloon Administration (Operational Directorate-General for Economy, Employment and Research), AWEX (Walloon Foreign Trade Agency), AST (Technological Stimulation Agency), ASE (Economic Stimulation Agency), CIDE-Socran (Business creation and Support service), Innovatech (Innovation Support), PICarré (Intellectual property support service)
2.4 Involvement of other regions in the policy	Cooperation with the French cluster MAUD (see 6.3)
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	<p>The cluster Plastiwin includes industries which get expertise in the plastic industry. It is a network of professional expertise to professionals</p> <ul style="list-style-type: none"> • Upstream of the chain, the manufacturers of materials (polymers, compounds, master batches, dyes, additives) • Processors that produce finished or semi-finished products. Processing activities are the primary injection, extrusion, blow molding, thermoforming. In the secondary processing activities are found machining, cutting, bending, surface treatment. • Providers of expertise: tool makers, mould makers, engineering and design offices, manufacturers of processing machinery, research centers and university laboratories.
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	Research centres, laboratories, schools, training centres and industry organisations.
3. Implementation and management	
3.1 Responsible Managing Authority	Private body named by the cluster board and approved by the financing regional authority
3.2 Key tasks of Managing Authority	<p>1° A better knowledge of each other between members and with a view to knowing the environment of the concerned area of activity. This includes: plenary meetings, visits to members and prospects, the update of the technical and commercial directory, the organisation of thematic seminars, the relations with different operators of the sector and related sectors.</p> <p>2° strengthening the commercial links between the members or allowing to reach an innovative capacity and a higher competitiveness. This includes: the intensification of the relations principals / sub-contractors, the support to the submission of joint offers, the support to e-business practices, the certification / quality procedures, the transfer of technologies or trainings.</p> <p>3° developing partnerships involving members in the fields of the</p>

Policy characteristics	Collected data
	<p>production of goods and services, research-development or the commercial approach with the creation of new activities. This includes: the support to the search for industrial or scientific partners, the actions dedicated to the stimulation and identification of common projects, the support to the working-out of partnership projects, the support to the integration of Walloon skills in international programmes and networks.</p> <p>4° promoting, on a local and international basis, the Business Cluster with a view to strengthening the appeal of the Walloon Region for foreign investors and its participation in specialized trade fairs. This includes: the presence of the cluster at various fairs and trade fairs, the participation in trade missions, the support to the hosting of prospect foreign investors, communication.</p> <p>5° sharing knowledge and the exchange of good practices between the business clusters, including at the international level. This includes: the identification and analysis of the clustering practices conducted abroad in similar areas of activity, contacts and information exchanges with foreign clusters.</p> <p>6° strengthening the synergy between the activities of the business cluster and those of other forms of enterprises, namely the competitiveness clusters.</p>
3.3 Instruments used to monitor the implementation of the policy	External evaluation (see 3.6 below)
3.4 Key difficulties encountered during implementation	A very careful strategy has been applied regarding financial aspects of the cluster, the initial operational staff had to be enlarged
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	The Board counts: 6 representatives of “plastic converters” industry, 2 representative of raw material producers, 1 representative of research centres, 1 representative of industrial federation (Federplast)
3.6 Ex-post evaluation of the policy (including time period when it took place)	The first three working years of the cluster have been evaluated in December 2011. The external evaluation by “Van Dijk Management Consultants” was commissioned by the Walloon regional administration.
3.7 KPIs used to measure the outputs	<p>Continuity:</p> <ul style="list-style-type: none"> -number of members and part of the members that are companies, - Public/private financial resources ratio <p>Mobilisation:</p> <ul style="list-style-type: none"> -part of members who participated in actions of the cluster - part of members engaged in the working groups <p>Activity:</p> <ul style="list-style-type: none"> - number of visits -number of newsletters editions - number of articles on the website - number of B2B events - number of thematic seminars -number of trainings - number of missions abroad <p>Outputs</p> <ul style="list-style-type: none"> -website hits - B2B contacts - established partnerships Industry-Research institution -number of beneficiaries - submitted proposals to calls - number of formal agreements with other clusters
3.8 Approach towards evaluation	<ul style="list-style-type: none"> -Comparing initial budget and used budget, -Proportion of identified “plastic companies” in the Region that joined the cluster
4. Legal and financial framework	
4.1 Policy-related legislations	The decree of 18 January 2007 relating to the support and the development of the networks of enterprises or Clusters
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	- Managing Authority: had to face employed personnel turn over. This is due to limited time horizon of the funding; it is not permanent and depends on evaluation.

Policy characteristics	Collected data
4.3 Support services offered to the beneficiaries	<ul style="list-style-type: none"> - organized Networking - company visits - information spread (website, newspaper and newsletter) - 4 thematic Working groups (Packaging, Recycling, Technical components, Medical components) - technical watch, informing the cluster members about changes in regulations - watch for project calls, informing the cluster members about calls for proposals for subsidies and grants - local and international promotion of the sector and its members; through a directory, promotional materials, participation on fairs - training opportunities at a very attractive price <p><i>The Walloon Government is subsidising the management team, as well as some of the actions. In addition there are membership fees of course.</i></p>
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	<ul style="list-style-type: none"> - Website, Newsletter - 6 meetings of the members a year
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	The cluster is financed the first 3 years to 100% by the region. By that time it must have found sufficient members that pay fees to cover a part of the cluster budget (50 % from the 7 th year on). In addition the cluster can obtain € 24,000 for specific actions (one shot)
4.6 Corrective measures	None
4.7 Maximum and minimum total budgets for the policy	Max € 480,000 for 3 years + up to € 24,000 for specific projects (one shot)
4.8 Number of projects supported by the policy	number of actions: member visits, new prospects, B2 operations, thematic webinars, information sessions, missions abroad, newsletters, articles on website= 218
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	€ 24,000 (maximum amount)
5. Main achievements	
5.1 The extent to which the goals have been attained	<p>PLASTIWIN has 52 companies, 4 research centres and 5 training centres. The cluster management team consists of only 2 people. It is a networking organisation, so there are not many “hard” outputs.</p> <p>The plastics industry in Wallonia represents over 250 companies and counts more than 19,000 employees and a revenue of 5.6 billion euro. The 52 members of the cluster represent 2.5 billion Sales, 0.6 billion added value, around 7,000 employees.</p> <p>Meetings are attended by about 60% of the members. The frequency of meetings is 2-3 months. Also site visits and visits to exhibitions abroad are organised.</p> <p>The cluster is successful according to reports, because 20% of potential members joined at the start. Members have indicated that they get benefits from the cluster. According to a survey within the members company, the cluster enabled to establish new commercial partnerships, (63%), meet new clients (60%), access to new markets (47%), access to R&D facilities (44%).</p> <p><i>The meetings are successful in the sense that people get to meet each other. This is important because there are many small companies, that are not always used to meeting with other companies and cooperating.</i></p>
5.2 Key outcomes of the policy	No outcomes were specified by the regional authority or the beneficiaries.
5.3 Importance of these outcomes for beneficiaries/region/industry	Not specified
5.4 Unintended negative changes that can be attributed to the policy (if any)	<i>There is sometimes overlap with the “competitiveness clusters” such as GREENWIN (focused on new green products and recycling) and MECATECH (focused on developing new mechanical components and among those technical and medical plastic parts).</i>
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	<p>Plastiwin companies cover the entire value chain of the plastics industry.</p> <p><i>Essenscia appreciates the support to PLASTIWIN and other networking clusters, but</i></p>

Policy characteristics	Collected data
	<i>also emphasises that R&D-based competitiveness clusters such as GREENWIN are much more important for the industry.</i>
6.2 Key weaknesses of the policy	SME's are not always aware on the value that the support provides (e.g watching for project calls)
6.3 New opportunities created by the policy (for the region, for industry)	Plastiwin is in partnerships with the cluster MAUD (Nord Pas de Calais, France) and PLASTIPOLIS (Rhôn-Alpe and Franche-Compté, France) and PLASTIC VISION (Flemish cluster for plastic and rubber)
6.4 External threats to the policy	After the first 3 years the initial public founding to 100% of the cluster is progressively reduced to finally end up to 50% in the 7 th year. If the member fees do not cover the financial needs, the cluster may be closed.
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	Turnover of cluster organisation employees, resulting in less than full-capacity support to the cluster. Cluster organisation has indicated that cluster members do not always appreciate the work required to provide a good quality technical watch and watch for calls. An perceived threat is budget cuts at the regional authority. As a result, the cluster organisation board was very careful with expenses, which resulted in too small a staff being hired. Actually, there is no plan to cut the funding for clusters.
7.2 Reasons behind these difficulties	See above
7.3 The way these difficulties were tackled by the beneficiaries	Conservative planning and staffing by the cluster organisation
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	None specified
8.2 Effect of lessons learned on other policies	None specified
8.3 Suggestions for improvement	The cluster should increase and stabilise its operational staff. Since "plastic applications" is a transsectoral matter, the collaborations with potential partnerships like the Walloon cluster "Greenwin", Val+, Materia Nova should be deepened.
9. Transferability to other regions	
9.1 Similar policies in other regions	Networking clusters
9.2 Region-related factors that make this policy successful	History: Plastic was an very important industry sector for Wallonia until the 1970s (e.g. Isobelec employed 900 people).
9.3 Barriers for transferring the policy to other regions	Depends on the industrial structure of the region; there must be sufficient plastics companies.

B.1.13. Yorkshire and The Humber Sector Development

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy (region)	Cluster Development later known as Sector Development (Yorkshire and The Humber)
1.2 Brief description	Regional Development Agency Yorkshire Forward (YF) established detailed cluster development policy which later was known as sector development for a range of industrial /business sectors in the Yorkshire & Humber region of England. YF approved funds for priority sectors that were used for various programmes, such as the networking groups like Humber Chemical Focus (HCF) and Yorkshire Chemical Focus (YCF). Chemicals Contributes around 10% of the region's economy. HCF already existed, supported by the local authorities before this network programme in YF. Relatively recently YF also supported the sister organisation YCF in West Yorkshire. West Yorkshire has a different demographic, more small and speciality chemical companies. YF provided HCF with a sector manager and a Strategic Sector Champion – who were responsible for supporting the networking groups in a specific sector. The

Policy characteristics	Collected data
	sector manager provided the financial and admin duty, while the Strategic Sector Champion helped HCF develop a business plan and sat on their board to provide advice. The Strategic Sector Champion was also responsible for YCF. The industry is still very strong, with renewables now contributing to growth.
1.3 Policy focus	The main focus for sector development was: jobs and growth in the sector, business support in the sector, research and development, skills needs, innovation and encouragement of inward investment.
1.4 Policy instruments involved	Business support funding – contracts for sector support initiatives such as HCF to draw down funding against meeting jobs/growth/business support outcomes. These RDA funds were often matched with ERDF funds so ERDF type outputs could also be met such as SMEs assisted.
1.5 Policy level	Regional – Yorkshire & Humber
1.6 Policy period (mm/yy - mm/yy or present)	Approximately 2000-2011
2. Rationale and target group	
2.1 The goal of the policy	Support for clusters/ sectors in the region, supply chain collaboration, inward investment, jobs and skills development
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	Some examples of similar policy exists in other UK regions such as north east and north west, also Scotland.
2.3 Policy partners	Various depending on sector – universities, businesses, local authorities – these are the case with HCF. Also UK government (not monetary).
2.4 Involvement of other regions in the policy	Limited direct involvement from other regions, focus was RDA funds to support regional business (the RDAs were deliberately set up independently, liaisons with other regions were set up by the groups at their own initiative)
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	Industry sectors such as chemicals and others for example food, communications. Particularly to support growth of small and large businesses.
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	Cluster organisations such as HCF, local authorities, UK government (BIS).
3. Implementation and management	
3.1 Responsible Managing Authority	Yorkshire Forward RDA
3.2 Key tasks of Managing Authority	Contract management of range of funds targeting business growth and support in the region (existing businesses and to attract new)
3.3 Instruments used to monitor the implementation of the policy	Contract manager to review progress of project through quarterly meetings and reports, YF reps on HCF board etc
3.4 Key difficulties encountered during implementation	No serious difficulties to report
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	HCF board and YF audit and project evaluation process 7 steps from project commissioning through to final evaluation
3.6 Ex-post evaluation of the policy (including time period when it took place)	RDA wind-up occurred in 2012, simultaneously with the final payments to HCF, Hence evaluation has only taken place so far during the 'project'. The European Regional Development Fund might conduct an ex-post evaluation, as it provided matching funds to the RDAs. The national government is not expected do this.
3.7 KPIs used to measure the outputs	Businesses supported (intervention varies from 2 hours to 2 days) Jobs created in the supported businesses Jobs safeguarded in businesses that were at threat of closure Events attendances, skills and training attendances. Soft targets included: Inward investments and R&D collaborations.
3.8 Approach towards	A business plan was written by HCF and YCF, approved by YF prior to contract. Each

Policy characteristics	Collected data
evaluation	claim monitored and final project results compared with planned target, potential for claims to be withheld or withdrawn if failure to meet targets. Business plans were renewed approx. every 3 years and reapproved.
4. Legal and financial framework	
4.1 Policy-related legislations	None but active interest from UK government, requiring to know critical issues (eg potential loss of critical chemicals such as chlorine), support on attraction of large companies into UK and input to government on sector jobs and growth issues and needs.
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	None severe.
4.3 Support services offered to the beneficiaries	Advertising, liaison with local authorities, liaison with government and other agencies of support. Access to business team at YF.
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	Advertising, awards events, press articles.
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	Requirement only to meet agreed business plan.
4.6 Corrective measures	None severe, a few from time to time amendments.
4.7 Maximum and minimum total budgets for the policy	Unknown over the period. It will be difficult to get this information as the RDA does not exist anymore. Total budget of YF was about 300 million GBP. This was used to finance hundreds of programmes at any time. About 100 million would go to support for businesses, the remainder would go to logistics, planning and redevelopment of land and adult education etc. For the business directorate: business parks, collaboration with universities would be a major part. Sector work (network groups) was a small part of it. About 15 people working on sector work (5 sectors).
4.8 Number of projects supported by the policy	Sectors supported included, chemicals, bioscience, food, advanced materials, IT, water, creative industries, construction, environment.
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	April 2009-March 2012 £493,000 ≈ € 595,366 April 2006-March 2009 £580,000 ≈ € 859,823 April 2003-March 2006 £630,000 ≈ € 928,058 Pre-2003: unknown Based on the information above, the estimated total amount of funding from YF to HCF should be between € 2.5 million and € 3 million for the 2000-2011 period.
5. Main achievements	
5.1 The extent to which the goals have been attained	<i>HCF has been very successful throughout the period, gaining over 100 members and providing support to these and many other businesses. They are well established in the region and a first point of call for local authorities and UK government regarding inward investment, issues and challenges for the sector.</i>
5.2 Key outcomes of the policy	Business support, jobs, skills, raising awareness of capability and attractiveness of the region.
5.3 Importance of these outcomes for beneficiaries/region/industry	<i>HCF remains a strong and valued organisation for its members, stakeholders.</i>
5.4 Unintended negative changes that can be attributed to the policy (if any)	None known
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	<i>Creating a sense of togetherness, of capability and support for beneficiaries large and small. Creating a strong brand awareness of HCF.</i>
6.2 Key weaknesses of the policy	<i>This is a small negative, turned into a positive by those involved ie it encouraged them to work together with other regions, in that there is a degree of competition with other regions, for example with regard to acquiring foreign investments.</i>

Policy characteristics	Collected data
6.3 New opportunities created by the policy (for the region, for industry)	The creation of CATCH (an apprentice training centre at the same location).
6.4 External threats to the policy	<i>HCF is successfully shifting from the traditional chemical industry to embrace the new opportunities created by the drive to renewables energy and chemicals. This was potentially a threat, grabbed well as a significant opportunity for the future.</i>
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	<p><i>More financial support would have helped to give HCF a larger role taking on some tasks that YF chose to manage itself.</i></p> <p><i>The 3-year period that determined YF's funding did not allow them to enter long-term commitments, hence all HCF projects were necessarily short term.</i></p> <p><i>In delivering the contracts there were no significant problems.</i></p>
7.2 Reasons behind these difficulties	See 7.1 above.
7.3 The way these difficulties were tackled by the beneficiaries	<p><i>YF was quick to talk about new contracts toward the end of any 3-year period and thus show their commitment to continuing the type of projects that HCF was working on. Learning to "read" these signals remedied the difficulties for HCF to some extent.</i></p> <p><i>HCF had to deal with the challenge to keep staff toward the end of a 3-year contract period, because the staff members new that the funding would end and would start looking for other jobs. Smaller amounts of funding from other sources, such as the skills agencies, allowed to balance against the 3-year rhythm.</i></p>
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	<i>The benefits of networking, collaboration. The importance of having a good team in charge. Good research to start with, as there is a significant chemical industry, still with growth and development opportunities which could be supported. The collaborative development of business plans to deliver the actions. All of these have resulted in the beneficiary being successful in achieving businesses, jobs and skills growth for the region.</i>
8.2 Effect of lessons learned on other policies	<i>The fact that we have a strong HCF (and other sector network organisations) meant that other programmes like supporting innovation and R&D in renewables, environmental sustainability, inward investment a) could be justified and b) were more successful that they might have been.</i>
8.3 Suggestions for improvement	<i>Additional support from UK government ie a) including income for support provided and b) more encouragement to work with other regions. Also for the government to have taken over the role of the regional authorities after their demise or to have mandated (and provided money) to local authorities to take on this role. In other words to continue to support success consistently, non-politically.</i>
9. Transferability to other regions	
9.1 Similar policies in other regions	In North East with NEPIC and in Scotland.
9.2 Region-related factors that make this policy successful	The reasons these are successful are similar (given in Q8.1 above) i.e. particularly the geography and the existence of a strong, established industry presence (large and small companies) as well as good future growth opportunities.
9.3 Barriers for transferring the policy to other regions	<p>Existing infrastructure.</p> <p>Some aspects are easily transferred: skills academies, events on new legislation etc. In The Humber however there is an existing infrastructure of companies, installations, ports (import-export), and active municipalities. In West Yorkshire there used to be dyes industry on which the current innovative companies are building.</p> <p><i>The key requirement for the policy to work would be the capability for economic growth. This is a prerequisite for a credible business plan produced by the sector.</i></p>

B.1.14. PACA Pôles Régionaux d'Innovation et de Développement Economique Solidaire (PRIDES)

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy	PRIDES (For "Pôles Régionaux d'Innovation et de Développement Economique Solidaire", which means "Regional Poles for Innovation and Economic and Solidarity-based Development")
1.2 Brief description	<p>Since 2006, the Region Provence-Alpes-Côte d'Azur, has been developing a cluster policy within the framework of the Regional Economy Development Plan ("schema regional de développement économique").</p> <p>This policy, which was subsequently reinforced in the Regional Innovation Strategy, fosters the development of a new concept of cluster: PRIDES for Regional Poles for Innovation and Economic and Solidarity-based Development.</p> <p>To date some 29 clusters are supported by this regional policy, including some competitiveness poles (Pôles de Compétitivité, State level policy), and including NOVACHIM (a PRIDES in the Chemistry field). The PRIDES policy, focused on SME's, is based on 5 main aspects: innovation, ICT, education/training for enterprises' employees, Environment and Social Responsibility of the enterprises, and international, with a common goal: employment.</p>
1.3 Policy focus	<ul style="list-style-type: none"> • Employment; • SME's competitiveness • Innovation; • SME's internationalisation • Education & skills for enterprises employees; • Environment and Social Responsibility of the enterprises • ICT development in the SME's • No focus on a specific field; PRIDES exist for industries, services, green economy, economy link to culture.
1.4 Policy instruments involved	<ul style="list-style-type: none"> • Direct subsidies (grants) for cluster organisation • Training; • For companies and lab's member of a cluster: <ul style="list-style-type: none"> ◦ Grant ◦ loan
1.5 Policy level	<ul style="list-style-type: none"> • Purely regional policy; • With coordination with national policy for clusters (Pôle de Compétitivité and "grappes").
1.6 Policy period (mm/yy - mm/yy or present)	<p>Started in 2006.</p> <p>First Period : 2007 – 2010</p> <p>Second Period : 2011 - 2013</p>
2. Rationale and target group	
2.1 The goal of the policy	Structuring the Regional economy for its development to create employment. Organising networks for SME's
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	<p>Based on regional cluster policies from other European regions, particularly Basque Country.</p> <p>Intends to be specific and complementary compared to national policy (Pôle de compétitivité) :</p> <ul style="list-style-type: none"> - not only technology innovation but innovation in a wider way (user innovation, organisational innovation, etc.); - Regional dimension; - Enterprises network in an economic field not only industry or technology based.
2.3 Policy partners	European Union (ERDF) and Ministry of industry (e.g., Ministry of Economic Affairs, Chamber of Commerce, industry associations etc.)
2.4 Involvement of other regions in the policy	Not directly, but coordination when a PRIDES is extended on another regional territory, mainly Languedoc Roussillon or Rhône-Alpes.
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the	Cluster organisation.

Policy characteristics	Collected data
policy)	
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	Foremost: SME's, Also: all type of Enterprises, public laboratories, and technology platforms or technology centers.
3. Implementation and management	
3.1 Responsible Managing Authority	<ul style="list-style-type: none"> Regional authority : Région Provence-Alpes-Côte d'Azur (Conseil Régional, in short Region PACA)
3.2 Key tasks of Managing Authority	<ul style="list-style-type: none"> At the start of the policy implementation: fostering the creation of clusters with bottom up approach. Creating of a framework with the goals of the PRIDES policy Finance the policy with its own budget and in coordination with European Regional Policy- ERDF (PACA Region has a delegate responsibility to manage a part of ERDF in the innovation field, including PRIDES policy).
3.3 Instruments used to monitor the implementation of the policy	<ul style="list-style-type: none"> For 1st period : ex-post evaluation For the on-going period, continuous evaluation with indicators. <p>From the 1st period followed a number of figures. After three years, the region asked a consultant (CMI) to evaluate. The evaluation was rather similar to that of a pole de competitive evaluation and it included a lot of documents for each cluster.</p> <p>This year there have been several meetings with a team of 5 clusters. 2 pole de competitive, NOVACHIM (non-pole de competitive) and 2 others ("grape de entreprise"). The latter one is not based on technology, and is very local.</p> <p>The instruments also concern territorial policy at a national level. Pole de Competitive is industrial policy at national level. Five clusters of different size and some of them being something else at national level. This process is now finished. There is only one form left to be filled in by each cluster. This is to facilitate on-going monitoring.</p> <p>For the next period, this will be even more precise. For instance, information will be collected on how many contacts companies have (not just how many companies went abroad); how did that activity move over time? Did they have more or less employees? Etc. The region is trying to have a measure of the value added of the policy.</p>
3.4 Key difficulties encountered during implementation	<ul style="list-style-type: none"> - Economic model; - State aid regulations; - ERDF – takes a long time to pay out, only possible to apply for this EU aid for something new. Experimentation. - Cash problems. <p>Concerning State Aid regulations:</p> <p>In the past, up to 80% State Aid could be provided to some companies. With new regulation, this is now a maximum of 50%.</p>
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	<p>A monitoring committee directed by the Vice-President for Employment, Economy development, research and universities, innovation and elected representatives of the regional council (one member of the Regional Council appointed for each PRIDES). Assisted by the General Director For Employment, Innovation and Training.</p> <p>Key task :</p> <ul style="list-style-type: none"> - Orientation of the regional policy; - Follow up of policy implementation; - Reporting on evaluation, difficulties and success; - Proposition of evolution submitted to the Regional Council.
3.6 Ex-post evaluation of the policy (including time period when it took place)	In 2010, set up by CMI International.
3.7 KPIs used to measure the outputs	<ul style="list-style-type: none"> - Number of members; - Number of meetings; - Number of collective actions for SME's / Number of SME's that participate; - Number of R&D projects, number of partners / budget; - Number of trade shows abroad / Number of SME's that participate.

Policy characteristics	Collected data
3.8 Approach towards evaluation	<ul style="list-style-type: none"> - Continuous evaluation with a steering committee; - Railing of indicators for the follow up; - Analysing evolution and position with regard to the average; - Evaluation subjects to be defined by a specific monitoring committee.
4. Legal and financial framework	
4.1 Policy-related legislations	Framework voted by the Regional Council (it's not a law in French regions)
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	<ul style="list-style-type: none"> - State Aid restriction; - ERDF expenditure certification.
4.3 Support services offered to the beneficiaries	<ul style="list-style-type: none"> - Inside the Regional Council Directorate for Economy Development, Innovation, and high education, a special team dedicated to this policy has been created at the end of 2010 (12 persons); - Trainings are organised for PRIDES employees; - Intercluster cooperation among PRIDES are encouraged by organising common working groups (on social and environmental responsibility for example).
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	<p>This needs to be developed.</p> <p>There is a focus on best practices and key projects</p>
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	<p>First period : 2007-2010 Second period : 2011-2013</p> <p>The first period was initially 2007 – 2009, but was extended by 1 year to have time for an in-depth evaluation.</p>
4.6 Corrective measures	Probably end of some PRIDES soon (5 out of 29 concerned)
4.7 Maximum and minimum total budgets for the policy	<p>Total policy budget (period 2007 - 2011). Region + ERDF : 100 M EUR :</p> <ul style="list-style-type: none"> - 26 M EUR for governance; - 22 M EUR for collective actions; - 27 M EUR for R&D collective projects of SMEs and laboratories; - 27 M EUR loans for SMEs.
4.8 Number of projects supported by the policy	The PRIDES “label” has been given to 29 clusters organisations. (all of them are associations).
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	<ul style="list-style-type: none"> - Average annual budget for a PRIDES (regional funding) : 283,000 EUR - Minimum annual budget: 75,000 EUR - Maximum annual budget : 650,000 EUR
5. Main achievements	
5.1 The extent to which the goals have been attained	Real existence of enterprise regional network with common activities and services
5.2 Key outcomes of the policy	<ul style="list-style-type: none"> - “Clusterisation” of the regional economy; - Increase of the collaborations between SME’s, big companies and laboratories; - Identification of strategic projects for the territory.
5.3 Importance of these outcomes for beneficiaries/region/industry	<ul style="list-style-type: none"> - Innovation - Competitiveness
5.4 Unintended negative changes that can be attributed to the policy (if any)	Competition with existing structures (e.g. that stimulate cooperation)
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	Specifically a regional approach
6.2 Key weaknesses of the policy	Clusters depend too much on public funding
6.3 New opportunities	Investments in strategic fields and projects

Policy characteristics	Collected data
created by the policy (for the region, for industry)	
6.4 External threats to the policy	- Budget cuts, in particular the national budget for “Pôles de Compétitivité” - High dependency on public funding
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	- Cash problem, and a need for working capital for the organisation (e.g. as it took a long time for the ERDF funding to come in, capital was needed to bridge that gap) - Economic model
7.2 Reasons behind these difficulties	- Cash problem : due to their legal status (association), they did not have sufficient start-up capital / working capital to adequately respond; - Economic model: too dependent on public funding.
7.3 The way these difficulties were tackled by the beneficiaries	- Cash problem : bank support, public grant partially paid in advance - Economic model : search for new members, offer new services to members (i.e. to become self-sustainable)
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	- Governance lead by the entrepreneurs is highly important - The quality of the strategy and its appreciation by the cluster’s members
8.2 Effect of lessons learned on other policies	They now have a dynamic process in place to have thematic calls for projects
8.3 Suggestions for improvement	Monitoring process defined ex ante instead of ex post
9. Transferability to other regions	
9.1 Similar policies in other regions	This specific regional cluster policy is the only one in France. In the other French regions, cluster support is either a direct complement of State cluster policy, or a support for less cluster organisation (Rhône Alpes, Aquitaine...). There are, however, 29 PRIDES in place. In Europe, there are of course many regions with regional cluster policies. PACA region mainly has links to other Mediterranean regions in the EU, particularly with the regions that are partners of the IC-Med project. This is a project of the European MED Programme (ex. Interreg B) and PACA Region is the lead partner of this project focused on Intercluster cooperation.
9.2 Region-related factors that make this policy successful	- Cooperation of the regional partners - Common Regional framework (SRDE) with PRIDES as a common tool for SME’s and partners
9.3 Barriers for transferring the policy to other regions	Political support and budget (both factors are key for successful transferability)

B.2. RDI policies

B.2.1. Brandenburg Technology Transfer Office Chemistry/Plastics

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy	Technology Transfer Office Chemistry/Plastics (BTS) [Brandenburg]
1.2 Brief description	The Policy has created a point of contact between entrepreneurs and scientists in all cases of sector-specific technology transfer. As an interface between science and economy BTS assists companies in the chemical and the plastics sector. BTS initiates personal contact with industry experts. It supports the search for partners and helps by preparing R&D projects.
1.3 Policy focus	<ul style="list-style-type: none"> • Research & Development; • Innovation and Entrepreneurship; • Training for SMEs.

Policy characteristics	Collected data
1.4 Policy instruments involved	<ul style="list-style-type: none"> Grant/loan /R&D, Innovations, Network etc.; Training; special events & workshops; Group Exhibit at Trade fairs ; Networking, cooperation, initiation; Knowledge transfer; Newsletter.
1.5 Policy level	<ul style="list-style-type: none"> Purely regional policy.
1.6 Policy period (mm/yy - mm/yy or present)	09/2009 – 08/2012.
2. Rationale and target group	
2.1 The goal of the policy	Improving the competitiveness of SMEs through knowledge and technology transfer. <i>Supporting the strength of innovation and competitiveness of SMEs.</i>
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	None reported
2.3 Policy partners	Ministry of Economy and European Affairs, Ministry of Science, Research and Culture, Chamber of Commerce, Brandenburg Economic Development Board GmbH, industry associations (VDI, VCE, entrepreneurs etc.).
2.4 Involvement of other regions in the policy	Information exchange with Berlin and neighbouring states
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	SMEs Chemistry/Plastics
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	Research institutions, universities and colleges, Plastics Association Berlin Brandenburg.
3. Implementation and management	
3.1 Responsible Managing Authority	<ul style="list-style-type: none"> Ministry of Economy and European Affairs. Brandenburg Economic Development Board GmbH. Regional economic development agencies, Fraunhofer-Institute for Applied Polymer Research as Promoter.
3.2 Key tasks of Managing Authority	Administration, controlling.
3.3 Instruments used to monitor the implementation of the policy	Cross-reference, property reports.
3.4 Key difficulties encountered during implementation	<ul style="list-style-type: none"> Insufficient R & D capacity in SMEs; Mainly in the plastics processing requests. SMEs are reluctant to cooperate with research institutions. Long administrative and approval procedures.
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	Yes. MWE and ZAB for Compliance with Directive, ILB for correct use of funds.
3.6 Ex-post evaluation of the policy (including time period when it took place)	Regular annual evaluation (last 31.12.2011).
3.7 KPIs used to measure the outputs	<ul style="list-style-type: none"> Number of Discussions with SMEs Brandenburg, Number of R&D projects, Cooperation with other transfer stations/project mediation between the transfer sites, Working with industry-related networks, Fairs/exhibitions/presentations/events for technology transfer, Activity on the network in Brandenburg, Compliance with the approved cost plan.
3.8 Approach towards evaluation	Point system for documented increased volume of activity (Leaflet for the MWE policy to promote business-related technology transfer).
4. Legal and financial framework	
4.1 Policy-related legislations	Promotion of business-related technology transfer.
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	Great administrative expense for funding applicants. Long approval process. <i>Proving that the company is able to finance its own part of the development.</i>
4.3 Support services offered to the	<ul style="list-style-type: none"> Briefing and requisition in SME ,

Policy characteristics	Collected data
beneficiaries	<ul style="list-style-type: none"> • Project initiation and project preparation to support the application, • Knowledge and personnel transfer (innovation assistants, students, trainees), • Procurement of professionals from research institutions, companies and networks, • Special/expert events <p><i>Administrators can be contacted easily by telephone or email. The beneficiary was provided with help with finding right partners.</i></p>
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	Internet, newsletter, flyer, events, workshops.
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	Time limit for 3 years Annual reporting.
4.6 Corrective measures	No.
4.7 Maximum and minimum total budgets for the policy	€60,000 p.a. minimum budget €120,000 p.a. maximum budget.
4.8 Number of projects supported by the policy	9 R&D projects (2009-2011).
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	Average budget €29,222, Max. Budget €80,000, Min. Budget €1,500.
5. Main achievements	
5.1 The extent to which the goals have been attained	<p>The transfer agent industry began its work in September 2009 at the Fraunhofer IAP. Measures planned for the period of implementation have been implemented on time.</p> <p>This applies in particular to:</p> <ul style="list-style-type: none"> • Ensuring internal and external communications, • The establishment of an online presentation for the BTS, • The creation of a newsletter, • The creation of flyers, and recording of conference proceedings, • Participation in trade fairs, • The implementation of workshops and symposia, • Company visits, • A company survey. <p><i>The goals have been fully attained, but the timeline was not held.</i></p>
5.2 Key outcomes of the policy	9 R&D projects. More than 100 corporate contacts. 14 trade fairs/exhibitions/presentations/events for technology transfer. <i>Beneficiary was able to roll-out new product.</i>
5.3 Importance of these outcomes for beneficiaries/region/industry	Strengthening competitiveness through better networking. <i>Shortening of the time needed for development.</i>
5.4 Unintended negative changes that can be attributed to the policy (if any)	No.
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	Strong industry orientation; Improvement of knowledge in SMEs about the latest developments in Research and technology. <i>Relatively low administrative work.</i>
6.2 Key weaknesses of the policy	<ul style="list-style-type: none"> • Not sales orientated, • Efficiency problems and confusion encountered by many small units, • Too little acceptance of the policy among scientists, • Insufficient incentives for scientists, • Insufficient awareness of the policy, • Limited funding period.
6.3 New opportunities created by the policy (for the region, for industry)	Improvement of the competitiveness of SMEs. <i>New and broader market.</i>
6.4 External threats to the policy	Rising commodity and energy prices, effects of the financial crisis in 2009/2010.
7. Difficulties encountered	
7.1 Difficulties encountered by the key	No sufficient continuity for long-term cooperation initiations due to time

Policy characteristics	Collected data
beneficiaries of the policy	constraints as a result of the limited funding period.
7.2 Reasons behind these difficulties	Change in policy within the funding period.
7.3 The way these difficulties were tackled by the beneficiaries	Communication with policymakers
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	Relationship of trust with entrepreneurs is the basis for successful cooperation initiation.
8.2 Effect of lessons learned on other policies	None reported
8.3 Suggestions for improvement	Pooling expertise in order to get the best results from the policy. Strengthen R & D capacity in companies benefitting from the policy.
9. Transferability to other regions	
9.1 Similar policies in other regions	None reported
9.2 Region-related factors that make this policy successful	None reported
9.3 Barriers for transferring the policy to other regions	None reported

B.2.2. Catalonia Technological Innovation Strategy

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy (region)	Technological innovation strategy (Catalonia)
1.2 Brief description	<p>Expenditure on R+D in Catalonia, as well as in Spain, is below the EU average (2009 R&D expenditure as % GDP: EU27: 2.01. Catalonia: 1.68). This situation has to be addressed in order to improve the Catalan economy competitiveness.</p> <p>One of the main problems to address is private R&D expenditure, which is also below EU average (2009 Companies R&D expenditure as % GDP. EU27: 1.23. Catalonia: 0.98), although some sectors, like chemicals, are in fact doing well in R&D. Nevertheless chemicals industry was included in this specific policy because cross-industry cooperation can help to spread their success (one example of which could be developing a new type of plastic for application in automotive industry). There is a need to increase this process. 99% of industrial companies are SMEs and most of them do not have the capability to undertake R&D projects themselves or target international markets together. There is lot of research going on in the academic sector, such as in the area of biomedicine.</p> <p>These problems are not specific to Catalonia, but common to all industrial areas in Spain (2009 Companies R&D expenditure as % GDP in Spain was 0.72).</p> <p>Hence 3 targets:</p> <ul style="list-style-type: none"> • Increase R&D expenditure • Increase cooperation between companies • Increase technology transfer <p>Therefore, since 1990 the Catalan Government has been implementing a set of actions aimed at improving technological transfer efficiency, promoting private investment on R+D+I and enhancing cooperation between SMEs. In order to adapt these programs to the new scenario characterised by strong budgetary restrictions and reduction of expenditure, all the actions have been reviewed and integrated under a Industrial Policy Plan for 2012-2014.</p> <p>The specific program analysed below is included in this plan as an structural policy aimed at promoting R&D. It deals with the promotion of cooperative R&D projects that involve the participation of at least 4 unrelated companies.</p> <p>The projects are evaluated according to the following criteria:</p> <ul style="list-style-type: none"> - Scientific and technological value - Organization of participants - Potential impact of the results - Participation of Technological Centres

Policy characteristics	Collected data
	<p>– Potential to be submitted to international R&D programs or tenders</p> <p>Each of the evaluators has to fill in a complete grid of scoring criteria for each application.</p> <p>There is a similar programme carried out by the Spanish central government. However, projects for that programme are larger and they are always led by one big company. The Catalan regional government wants Catalan companies to also submit applications to this larger programme.</p> <p><i>The policies of the Catalan government are mainly focused on SMEs, while Technological/R&D Centres as well as large companies can hardly benefit. The responsible government agency Accio indicated that the budgets have been very much reduced. Basically at present, the Catalan Government does not have sufficient budget any more to provide any significant support to large companies in the chemicals industry. The key support required by large companies is in the areas of investment support and infrastructure. The latter area is of particular importance, as railway connections with other European countries are hampered as the rail track width in Spain and Portugal differs from the rest of Europe.</i></p>
1.3 Policy focus	Research & Development Innovation and Entrepreneurship
1.4 Policy instruments involved	Grant
1.5 Policy level	Purely regional policy
1.6 Policy period (mm/yy - mm/yy or present)	2007-present
2. Rationale and target group	
2.1 The goal of the policy	Achieve an R+D expenditure of 1.9% GDP by 2014 (1.48% 2007, 1.68% 2009), as well as 10,000 companies performing R&D projects on a regular basis (7,000 in 2009). There are also other policies aimed at this target, so achieving the goals will be the combined result of multiple policies.
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	National programme on R&D
2.3 Policy partners	Chambers of Commerce and other business associations assist in promoting the policy.
2.4 Involvement of other regions in the policy	-
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	Industries, in particular SMEs, and technological centres
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	Researchers and cluster organisations
3. Implementation and management	
3.1 Responsible Managing Authority	Regional authority
3.2 Key tasks of Managing Authority	Managing the whole procedure from previous evaluation to monitoring of projects
3.3 Instruments used to monitor the implementation of the policy	Each project is individually monitored, sometimes this is performed by external experts
3.4 Key difficulties encountered during implementation	The advantages of cooperating in order to carry out R&D projects are not well understood by companies, specially SMEs.
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	An steering committee (council board) gives advice during the design of policies and monitors their implementation. This steering committee is composed of representatives from government, industry associations, researchers, trade unions and chambers of commerce
3.6 Ex-post evaluation of the	The program is called once a year, when the regional budget is approved. Then a set of

Policy characteristics	Collected data
policy (including time period when it took place)	targets is established for this specific call. Evaluation is performed when the funded projects are completed.
3.7 KPIs used to measure the outputs	Amount spent on R&D Total public funding Number of companies involved in the projects financed Number of companies clients of technological centres
3.8 Approach towards evaluation	Every year, a set of targets is established for each specific program and are compared with the results.
4. Legal and financial framework	
4.1 Policy-related legislations	European, Spanish and Catalan regulations dealing with grants
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	Combine simplification of administrative procedures with accurate monitoring of projects within regulations <i>SMEs find it challenging to apply for subsidies which have very detailed and complicated requirements, both at the regional, national and EU level.</i> <i>Large firms (such as petrochemical companies, of which many are located in Taragona) are not eligible for subsidy under the current programme.</i>
4.3 Support services offered to the beneficiaries	Help desk: answers questions about the policy by phone and e-mail or if necessary in meetings to clarify whether certain activities or projects are eligible or how to approach the cooperation.
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	Seminars taking place in Barcelona as well as in the most important Catalan cities
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	The budgetary restrictions and the uncertainty concerning short term availability of funds could lead to a rethink of the program and the time needed to achieve the goals could also be reviewed.
4.6 Corrective measures	If current situation of lack of funds continues, focusing on specific sectors or technologies could be considered. It is uncertain whether the € 4 million budget can be maintained in 2013. If this is the case, we may need to exclude some sectors such as chemicals.
4.7 Maximum and minimum total budgets for the policy	€ 12 million (2010) – € 4 million (2012)
4.8 Number of projects supported by the policy	20-40. On average 2.4 companies are involved in each project. Participation of chemical industries in this program accounts for some 10% of all industries.
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	Minimum budget: 750.000 € Average budget: 1,2 M€
5. Main achievements	
5.1 The extent to which the goals have been attained	The goals for this program are in the mid and long term. Firsts signs are good in the sense that a number of projects are submitted to every call. Therefore it can be followed that cooperation between companies begins to be a common occurrence.
5.2 Key outcomes of the policy	100 M€ spent on R&D
5.3 Importance of these outcomes for beneficiaries/region/industry	The outcome of the policy is a significant part of the overall expenditure made by Catalan companies in 2009 (some 2000 M€). Enhancement of the competitiveness of the companies involved due to the acquisition of news technologies or knowledge or development of new products. Enhancement of the competitiveness of technological centres due to the involvement with “real world” projects
5.4 Unintended negative changes that can be attributed to the policy (if any)	-
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	It tackles to fundamental problems of the Catalan economy. Lack of investment on R&D and reluctance from SMEs to cooperate in order to carry out cooperative projects.
6.2 Key weaknesses of the policy	Technological centres can be sometimes the promoters of projects in order to get additional funds from the Government. On the contrary, the strength of the program is to have projects generated by companies. Although the involvement of technological centres is encouraged, their role should not be leaders or promoters of projects.

Policy characteristics	Collected data
6.3 New opportunities created by the policy (for the region, for industry)	It is too early to draw some conclusions concerning the achievement of mid term goals (access to international programs, achieve the European R&D expenditure average), but the industry clearly benefits from the public support in order to carry out R&D projects that, otherwise, could be unfeasible due to the lack of private investment.
6.4 External threats to the policy	Further reductions on allocated budget. In 2011 the program was not called because there was no available budget allocated to this policy. In fact, during 2012 this will be the only program aimed at promoting R&D projects from companies that will be carried out.
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	Difficulties to finance the part of the project that is not subsidized
7.2 Reasons behind these difficulties	Current economic situation
7.3 The way these difficulties were tackled by the beneficiaries	In several cases the difficulties to access private investment or finance appear to be insurmountable. This not only makes difficult the accomplishment of goals, but threatens the viability of companies.
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	See 6.2
8.2 Effect of lessons learned on other policies	R&D investment and cooperation between companies should be enhanced as long as indicators don not catch up with EU average.
8.3 Suggestions for improvement	The Catalanian government a lot of contact with technological centres (Catalonian government has seats on their boards) and tried to change their strategy. It also approached CoCs and industry associations to promote the programme more intensively to companies.
9. Transferability to other regions	
9.1 Similar policies in other regions	This program can be implemented by any industrialised region, provide there are technological centres or research groups with potential to cooperate
9.2 Region-related factors that make this policy successful	Strong basis of technological centres and research groups that can transfer the results of their projects to companies. It may be necessary to focus additional resources on knowledge transfer.
9.3 Barriers for transferring the policy to other regions	Industrial structure

B.2.3. Limburg Venture fund II II (LV II)

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy	Limburg Ventures venture capital fund (Limburg)
1.2 Brief description	<p>Chemelot Campus Master Plan 2011</p> <p>The three pillars of the master plan are:</p> <ol style="list-style-type: none"> 1. Marketing & business development (acquisition & clustering) 2. Real estate 3. Venture Capital Fund
1.3 Policy focus	<p>Start-ups/SMEs need equity for their growth. Equity is hard to get in an early phase of the life cycle of a company (past the phase of a proven concept product). Since 2005, the regional development agency LIOF and DSM have had a Venture Capital fund (Limburg Ventures) of approx. € 13 million.</p> <p>This fund has been very successful. In 2004 the Limburg Ventures fund was raised by the regional development agency LIOF together with one of the main chemical companies in Limburg, DSM. Over the past 7-8 years</p>

Policy characteristics	Collected data
	<p>Limburg Ventures has invested more than € 10 mln in 14 companies. Only 1 company failed and 2 successful exits have taken place. The total number of FTEs at the companies the make up the portfolio of Limburg Ventures is more than 300.</p> <p>Since VC is the pillar in acquiring companies to the campus the province aims at raising a Venture Capital fund of € 80 million. At the moment € 50 million has been secured. The partners are both public and private.</p>
1.4 Policy instruments involved	Participation seed money
1.5 Policy level	Regional policy
1.6 Policy period (mm/yy - mm/yy or present)	2011 - 2020
2. Rationale and target group	
2.1 The goal of the policy	<p>Substantial growth in employment, attractive location climate, strong chematerials cluster, through the funding of interesting start-ups and SMEs and bring them to Limburg and Chemelot. These companies need to be focused at one of the key themes of the provincial policy:</p> <ul style="list-style-type: none"> - performance materials - bio-based materials - biomedical materials - biotechnology / biosynthesis - analytical support
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	LIOF (Limburg Investment Support Agency) and DSM have a long tradition in Venturing. They bring in their own expertise.
2.3 Policy partners	DSM, LIOF and 2 other private partners
2.4 Involvement of other regions in the policy	No other regions are involved. The province strives to cooperate with the Dutch national government and the European Investment Fund.
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	Start-ups, SMEs
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	See 2.3
3. Implementation and management	
3.1 Responsible Managing Authority	There is a new company to be established, which will be named Chemelot Campus Venture Fund.
3.2 Key tasks of Managing Authority	<p>Communicate to the stakeholders</p> <p>Select / judge projects</p> <p>Provide participations</p> <p>Act in the shareholder meetings</p> <p>Evaluations of projects</p>
3.3 Instruments used to monitor the implementation of the policy	KPIs of the participation company, see 3.7
3.4 Key difficulties encountered during implementation	<ul style="list-style-type: none"> - State aid rules - Cooperation between privately held companies and public sector
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	No committee
3.6 Ex-post evaluation of the policy (including time period when it took place)	No evaluation has taken place, as the fund is still being established.
3.7 KPIs used to measure the outputs	<p>These KPIs are defined in the Chemelot Campus Venture Fund:</p> <ul style="list-style-type: none"> - Return on investment - Number of participations - FTEs working at the companies
3.8 Approach towards evaluation	Not reported
4. Legal and financial framework	
4.1 Policy-related legislations	<p>State aid rules</p> <p>Participating interests</p> <p>(Environment, safety) Permits</p>

Policy characteristics	Collected data
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	Transparency of the governance structure (i.e. tasks, competences and responsibilities). This is very important for the current shareholders and also for a potential shareholder, the European Investment Fund.
4.3 Support services offered to the beneficiaries	Advice on all important issues of a fast growing young company like financial, market, intellectual property, etc.
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	Basic reports (2 times per year) to the Provincial Parliament.
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	None (other than the overall policy period)
4.6 Corrective measures	None (other than the overall policy period)
4.7 Maximum and minimum total budgets for the policy	The Province of Limburg will participate with € 10 million.
4.8 Number of projects supported by the policy	As yet unknown
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	As yet unknown
5. Main achievements	
5.1 The extent to which the goals have been attained	Not measurable yet, still in process
5.2 Key outcomes of the policy	Not measurable yet, still in process
5.3 Importance of these outcomes for beneficiaries/region/industry	Not reported
5.4 Unintended negative changes that can be attributed to the policy (if any)	As yet unknown
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	Strong link to the growth of the Chemelot Campus community
6.2 Key weaknesses of the policy	Geographically limited focus. This means that it is relatively hard to find partners since the geographical scope is relatively small.
6.3 New opportunities created by the policy (for the region, for industry)	Multiplier effect on equity capital available to the industry, since the Chemelot Campus Venture fund is the main investor, which is expected to bring in more investors.
6.4 External threats to the policy	<i>The chemicals industry has been very attractive to investors for some period, but its attractiveness has now decreased somewhat, which makes it challenging to attract capital to the VC fund.</i>
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	As yet unknown
7.2 Reasons behind these difficulties	As yet unknown
7.3 The way these difficulties were tackled by the beneficiaries	As yet unknown
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	<ul style="list-style-type: none"> - Invest in trust between the key partners at both high level and working level - Track record = trust in Return on Investment
8.2 Effect of lessons learned on other policies	None
8.3 Suggestions for improvement	None
9. Transferability to other regions	
9.1 Similar policies in other regions	Several regions have their own VC fund but often only public partners are in or regional development agencies.
9.2 Region-related factors that make this policy successful	(Strong) Chemical industry already present in region; The synergy between the various pillars of the Chemelot Campus Concept <i>Total package of location policy;</i> <i>The Province of Limburg itself is a key success factor, because of its constructive and committed attitude.</i>
9.3 Barriers for transferring the policy to other regions	None reported <i>Involvement of the Province.</i>

B.2.4. Lombardy Innovation & Research Policy

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy	Innovation & Research Policy (Lombardy)
1.2 Brief description	<p>The chemicals industry plays a key role for the EU. It is a major industry in its own right, as well as being an enabling industry that provides necessary materials for other industrial sectors. SMEs in the EU's chemical industry account for 30% of sales and 37% of employment, and among European chemical regions, Lombardy ranks first in number of companies, and in the top-3 in number of employees. The Lombardy Region has always recognised a strong research and innovation engine in the chemical industrial sector. The policy for research and innovation is extremely complex and difficult to demarcate. It arises from the combined action of numerous players: citizens, businesses, financial institutions, research and university bodies and public administration. Such complexity implies that the policy for research and innovation does not develop in a vacuum but interacts with the activities of a considerable number of players.</p> <p>Below some policy initiatives are highlighted:</p> <ul style="list-style-type: none"> • ATP 2009; Call to support competitiveness of SMEs in collaboration with big enterprises and Research Centres to promote innovation projects in the meta-cluster areas: Design, Fashion, New Materials, Biotechnologies and ICT for a value of €50 million; • New innovative financial instruments (Jeremie FESR, FRIM FESR, Made in Lombardy Funds) to facilitate credit lending to enterprises, and to support their competitive growth by promoting investments on competitive development, research, innovation, and modernisation, in order to process innovation and company development projects to an overall value of €88 million; • Agreement with the Ministry of Education, University and Research (MIUR): In 2010, the Lombardy Region entered into a three-year agreement with the MIUR, to the value of €118 million, to promote research in strategic sectors: Agro-food, Aerospace, Sustainable Building, Automotive and Energy, renewable and similar sources, Biotechnologies, ICT and New Materials; • Project TREND: Contesting the European Climate Action; TREND aims at promoting innovation and the rational use of energy among small and medium-sized enterprises of the Lombardy Region through an integrated approach. The project supports companies from the analysis of their energy consumptions to the realization of interventions, involving qualified specialists, technology suppliers and other relevant stakeholders to a value of €7.5 million. • Furthermore, the Lombardy Region is one of the sponsors of the NIC (Nanotechnology in Chemical Industry) Program launched by Ferderchimica. • In the past, the Lombardy Region (following REACH regulation requirements), launched a call for the co-financing of the expenditures for specific services that could improve the knowledge and management of REACH. Lombardy SMEs that duly completed the pre-registration procedures stated in the REACH Regulation, and that fulfilled the obligation concerning safe and security on work, could have access to the €2 million call, applying for a contribution to finance the following services: <ul style="list-style-type: none"> - Training courses on specific topics: REACH Regulation; legislation regarding safety of products; - The use of IT instruments to manage relations with the authorities, the transmission of information, and the updating of safety data and exposure scenarios; - Services aimed at bettering communication with suppliers and/or users, with particular reference to the Substance Information Exchange Forum-SIEF, and to the

Policy characteristics	Collected data
	<p>relations with national and European authorities included in the regulation;</p> <ul style="list-style-type: none"> - Services dealing with the classification of substances, the analysis and/or the research of information on topics related to REACH. - Furthermore a Chemical Risk Lab has been established at the Lombardy Region with the involvement of Industrial and Trade Unions associations with the aim to define guidelines for the regional auditing system according to REACH and CLP requirements.
1.3 Policy focus	<ul style="list-style-type: none"> • Environment; • Competition; • Research & Development; • Innovation and Entrepreneurship.
1.4 Policy instruments involved	<ul style="list-style-type: none"> • Grant; • Loan; • Co-financing <p>In some cases applicants are represented by networks among SMEs, large enterprise and research centres and in some other cases by single enterprises.</p>
1.5 Policy level	Purely regional policy
1.6 Policy period (mm/yy - mm/yy or present)	2007-2013
2. Rationale and target group	
2.1 The goal of the policy	<p>On the basis of the strategy and objectives outlined in Europe 2020 and in view of the drawing up of the future framework program for Research and Innovation, the European Commission initiated a debate on the Green Paper, "Turning challenges into opportunities: towards a strategic joint framework for the funding of research and innovation in the European Union". Their objective, shared by Lombardy Region, is the sustainable growth of the European system through the creation of a consistent series of support instruments along the entire length of the "innovation chain", from the basic research to the placing of innovative products and services on the market.</p> <p><i>The idea is to fund R&D projects in thematic priority areas for the Lombardy region fostering collaboration within SMEs, and university and research centres.</i></p>
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	EU 2007-13 cohesion policy.
2.3 Policy partners	Ministry of Economic Affairs, industry associations
2.4 Involvement of other regions in the policy	N/A
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	SMEs, big enterprises, Universities, Research Centres.
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	Researchers, cluster organisations, non-governmental organisations.
3 Implementation and management	
3.1 Responsible Managing Authority	Regional authority
3.2 Key tasks of Managing Authority	Define and approve policy, and monitor and control policy outputs
3.3 Instruments used to monitor the implementation of the policy	Audits Evaluations
3.4 Key difficulties encountered during implementation	Mainly the effects of the economic crisis, which has limited access to credit.
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its	Regional authority

Policy characteristics	Collected data
key tasks and stakeholders that were represented)	
3.6 Ex-post evaluation of the policy (including time period when it took place)	Not available yet because projects are still ongoing.
3.7 KPIs used to measure the outputs	Specific KPIs have been set up e.g. related to employment, innovation players involved, patents, type and number of projects etc.
3.8 Approach towards evaluation	Comparing the results with financial target set in the start.
4 Legal and financial framework	
4.1 Policy-related legislations	The Community Guidelines on Cohesion 2007-2013; the General Regulation; the European Cohesion Fund; and the National Strategic Reference Framework and Operational Programmes.
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	Regulation restriction, market globalisation. <i>The procedure of claiming costs every two months is very difficult for SMEs.</i>
4.3 Support services offered to the beneficiaries	Internet sites, help desks, training, and seminars. <i>A good web based system for managing the project was set up.</i>
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	Regional events, web sites, seminars. <i>Newsletter, events.</i>
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	Overall, for the different initiatives, specific deadlines have been set for key milestones.
4.6 Corrective measures	Calls for project proposals have been designed by considering learning from the past.
4.7 Maximum and minimum total budgets for the policy	6 year budget of € 262 million
4.8 Number of projects supported by the policy	So far within innovation area, 277 projects have been supported. 27% of these projects take place in the chemicals industry.
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	Min €20,000; Max €2 million. The size of the budget is dependent on the individual innovation project.
5 Main achievements	
5.1 The extent to which the goals have been attained	For most of the initiatives, the main objectives have been achieved thus far. To get a full picture we need to wait for the completion of the program as some actions are still ongoing. A large number of companies and research centres applied to gain the benefits from the policy. These instruments have been appreciated by them.
5.2 Key outcomes of the policy	For 2007-2013 financed projects it is too early to run an evaluation on outcomes.
5.3 Importance of these outcomes for beneficiaries/region/industry	See above <i>To have new products, services to launch in the market.</i>
5.4 Unintended negative changes that can be attributed to the policy (if any)	See above
6 Main strengths and weaknesses	
6.1 Key strengths of the policy	-Focused on key priority areas such as the Innovation and Knowledge Economy, Energy, Sustainable Mobility, Protection and Enhancement of Cultural and Natural Heritage. -Driven by the needs of SMEs -Promoting and strengthening the human capital -Promoting collaboration among SMEs , big enterprises and Research Centres <i>To oblige SMEs and RTD to collaborate.</i>
6.2 Key weaknesses of the policy	It should have explored new modes of action. New types of instruments such as the use of business angels are more widely used in the UK but haven't been explored in Italy. The authority is trying to work with universities in order to create better modes. <i>The lack of a governance system.</i>
6.3 New opportunities created by the policy	Better link between Region and Industry in order to understand regulation

Policy characteristics	Collected data
(for the region, for industry)	requirements; Facilitate access to credit for industry; Sharing and transfer of knowledge between industry and Research Centre. <i>To increase the number of SMEs that work in innovation related projects.</i>
6.4 External threats to the policy	Mainly economic crisis related.
7 Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	In some cases due to some EU/National regulation restrictions, the Region has to limit access to enterprises which are operating in some sectors or because they are not complying with the terms of dimension. <i>The requirement to claim costs every two months and issue bank guarantees.</i>
7.2 Reasons behind these difficulties	EU/National regulation restrictions. <i>It is a policy structure. Also , banks have no liquidity due to the economic crisis, hence they require guarantees.</i>
7.3 The way these difficulties were tackled by the beneficiaries	None in particular <i>1. More organisation – The beneficiary kept day to day records of activity every two months. Closely monitored timesheet of people who worked in the lab. In addition, appointed one person for audit of the companies; 2. Working with the bank system.</i>
8 Lessons learned	
8.1 Key learning points from the implementation of the policy	Listen to the territory needs; Build up network with other Authorities; Explore new instruments; Drive the change.
8.2 Effect of lessons learned on other policies	Launch of other initiatives.
8.3 Suggestions for improvement	A bigger focus on external orientation. <i>Related to the bank guarantees, a good practice is the guaranteed fund implemented by EU in 7PQ for eliminating these bank guarantees.</i>
9 Transferability to other regions	
9.1 Similar policies in other regions	None. <i>Tech districts, public and private labs.</i>
9.2 Region-related factors that make this policy successful	Regional competences, institutional framework, existing infrastructure and industry composition, existing initiative, support service, available financial resources, regulation. <i>Industry compositions, the focus on ATP.</i>
9.3 Barriers for transferring the policy to other regions	Existing infrastructure, industrial structure, regulation.

B.2.5. Lower Saxony Innovation development program

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy	Innovationsförderprogramm (Innovation develop program) [Lower Saxony]
1.2 Brief description	The objective of the region Niedersachsen is to support economic growth and employment. It is without question that there is no alternative to the permanent strategy of innovation for the business location Niedersachsen since jobs occur primarily in the new fields of technology. Die "Richtlinie über die Gewährung von Zuwendungen im Rahmen des Niedersächsischen Innovationsförderprogramms" allows financial support for projects of research and development. This program is opened to support all economic sectors in Lower Saxony, and hence also for the chemical industry.
1.3 Policy focus	Companies in Niedersachsen shall get incentives to fasten innovative developments and processes. Objective is to support the companies in their research & development for new products, production processes or business services. The realisation of innovative projects shall contribute the business

Policy characteristics	Collected data
	opportunities especially of SME, the innovation support, the marketing and the technology transfer between industry and science. As a special topic projects of industrial and experimental development, which have the function to show solutions for power generation, renewable energy e.g. wind- and solar energy, hydropower and energy saving will be supported. The result of the project furthermore has to be new in Germany, it has to be implemented in Niedersachsen and there also has to be a technological and economic risk for the project.
1.4 Policy instruments involved	The grant is given fundamental as a not repayable subsidy. The grant is to 35% for SME in relation to the amount of the recognized costs of the project. Small companies, who are younger than 5 years can get 45%, others 25%.
1.5 Policy level	The “Innovationsförderprogramm” is a regional initiative by the State of Niedersachsen.
1.6 Policy period (mm/yy - mm/yy or present)	01.01.2009-31.12.2015.
2. Rationale and target group	
2.1 The goal of the policy	The program is designed to increase research and development by supporting especially SME, and to increase their competitiveness. <i>Development of new combinations of materials and process technology.</i>
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	This program exists about fifteen years. During these years it has been modified several times. It has always been opened for all industrial sectors in Niedersachsen.
2.3 Policy partners	Policy partners are the Ministry of Economics, Labour and Transport Niedersachsen, the Ministry of Environment Niedersachsen, the “Innovationszentrum Niedersachsen Strategie und Ansiedlung GmbH” and the “Innovations- und Förderbank Niedersachsen (NBank)”.
2.4 Involvement of other regions in the policy	It is a program of the State of Niedersachsen.
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	The program is designed to provide special benefits for SMEs. Companies of the chemical industry have already had and will have benefits of this program.
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	---
3. Implementation and management	
3.1 Responsible Managing Authority	Responsible managing authorities are the Ministry of Economics, Labour and Transport Niedersachsen, the Ministry of Environment Niedersachsen, the “Innovationszentrum Niedersachsen Strategie und Ansiedlung GmbH” and the “Innovations- und Förderbank Niedersachsen (NBank)”.
3.2 Key tasks of Managing Authority	Give advice and assistance to the applicants, control the applications and make expert reports.
3.3 Instruments used to monitor the implementation of the policy	The success of all steps of the project is controlled every time before the applicant gets a part of the grant. The program itself is monitored after every period by the Landesrechnungshof (audit office of Niedersachsen).
3.4 Key difficulties encountered during implementation	As it is fundamental immanent to R&D, projects can failure, cannot reach the achievable target. If in such a situation a part of the grant has been paid, it could be lost for the state. There are some rules in which cases grant has to be paid back (Ermessensentscheidung / decision of discretion).
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	See 3.1
3.6 Ex-post evaluation of the policy (including time period when it took place)	For the whole project there is an ex-post evaluation. The company has to write a report about the results of the project. The results are proved by the NBank. The program itself is analysed annual (number of projects). For an extension of the program there have to be given reasons.
3.7 KPIs used to measure the outputs	-
3.8 Approach towards evaluation	See 3.3 and 3.6
4. Legal and financial framework	
4.1 Policy-related legislations	The program is designed by Ministry of Economics, Labour and Transport Niedersachsen and the Ministry of Environment Niedersachsen.

Policy characteristics	Collected data
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	The financial situation of the States generally and hence also in Niedersachsen shortens the amount of money which can be used for such programs. <i>Stayed within a simple frame.</i>
4.3 Support services offered to the beneficiaries	See 3.2 The companies are also supported by the offices of the “Landesinitiativen”. <i>The NBank supported the beneficiary very well regarding realisation of application and also during the project phase.</i>
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	<i>So far only in market range in direct conversations with customers due to the recently closed project.</i>
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	See 3.6
4.6 Corrective measures	-
4.7 Maximum and minimum total budgets for the policy	-
4.8 Number of projects supported by the policy	-
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	-
5. Main achievements	
5.1 The extent to which the goals have been attained	The program has been successful for about fifteen years.
5.2 Key outcomes of the policy	See dimension 1 and 2. <i>Implementation of new technologies and thereby clearly improved products with less environmental pollution. Creation of new jobs.</i>
5.3 Importance of these outcomes for beneficiaries/region/industry	See dimension 1 and 2. The program is successful about fifteen years, for the region and the industry. <i>Strengthening of competitiveness in this market segment.</i>
5.4 Unintended negative changes that can be attributed to the policy (if any)	-
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	The program is modified for its period due to the latest technological requests. <i>Support of developmental work from economical point of view. Without this sponsorship this would not have been possible within the mentioned timeframe und extent.</i>
6.2 Key weaknesses of the policy	The program has to be combined with money from the European Commission (EFRE). For that the subvention guidelines of the EU-Commission have to be observed. That means a lot of bureaucratic processes for the companies and the involved institutions.
6.3 New opportunities created by the policy (for the region, for industry)	<i>Creation respectively expansion of a new system network for electrical components (material, tools, handling, lacquering and testing competence).</i>
6.4 External threats to the policy	See 4.2.
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	<i>Extensive accounting of personnel costs and extensive preparations of offers also for smaller investments.</i>
7.2 Reasons behind these difficulties	<i>Funding guideline.</i>
7.3 The way these difficulties were tackled by the beneficiaries	<i>With increased personnel expenditure.</i>
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	See 6.1
8.2 Effect of lessons learned on other policies	-
8.3 Suggestions for improvement	<i>Realisation of sponsorship-program according to approved budget allocation. No company wants to spent more money than necessary because in spite of the sponsorship it still has to pay the major amount.</i>
9. Transferability to other regions	
9.1 Similar policies in other regions	-
9.2 Region-related factors that make this	-

Policy characteristics	Collected data
policy successful	
9.3 Barriers for transferring the policy to other regions	<i>Difficulties to integrate affiliates into this program.</i>

Additional information:

In Niedersachsen (Lower Saxony), there are some support possibilities specially focused on the chemicals industry.

ChemCoast is a private organisation of the chemicals industry in Niedersachsen. The State of Niedersachsen is a founding member (2005). At the present, Lower Saxony is with its “Innovationszentrum Niedersachsen Strategie und Ansiedlung GmbH” member of ChemCoast. ChemCoast is an initiative of the chemicals industry and economic development agencies in Lower Saxony and Schleswig-Holstein to strengthen and consolidate the chemicals industry and its economic growth in the north of Germany.

Government Commission of the State of Lower Saxony – Working group European Chemical Politics (Arbeitskreis europäische Chemikalienpolitik): The “European Chemical Politics” working group started in the 5th Government Commission (2003). It finished its work in the 6th Government Commission in 2011. The 7th Government Commission has just started again with a working group “European Chemical Politics”. The working group’s purpose is to support the implementation and development of the European REACH-directive in Lower Saxony. Members in the working group are e.g., from the economy (industry, trade, association), sciences, unions and ministries of Lower Saxony.

The region has several opportunities for all branches of the industry - not only for the chemical industry - to engage and participate. Objective is to support economic growth and development for all industry in Niedersachsen with good framework and structures.

Landesinitiativen: New jobs occur primarily in new fields of technology. One objective of Niedersachsen is to support technological development and transfer. Therefore Lower Saxony has so called “Landesinitiativen” in such fields of technology and topics, which are very important and promising for the industry and its future. With establishing “Landesinitiativen” is connected the objective to unite enterprises, relevant scientific institutions and politics to networks. Enterprises and scientific institutions should work together in projects to develop new products and to increase their innovation know-how. Financed is an office in each “Landesinitiative” which shall support and connect the activities of all participants, especially in networking and project-realization. One focal point is the support of small- and medium-sized business along the entire process chain. A special “Landesinitiative” for the chemical industry has not been founded, because all branches shall have the opportunity to engage and to co-operate.

Landesinitiative Nano-und Materialinnovation: Among the greatest challenges of our time are the increase in mobility and the efficiency of resources. This is where nano and material innovations can provide a considerable contribution. Among the primary benefits for the partners are valuable services as well as access to new technologies and markets. The chemical industry of Niedersachsen takes actively part in this network.

Landesinitiative Brennstoffzelle und Elektromobilität: climatic change, increase in efficiency and renewable energy are in the political discussion. To form these challenges is to ask for the future. One objective of this “Landesinitiative” is to develop the specific advantages of the fuel cell and battery technology. Companies of the chemicals industry of Lower Saxony are actively engaged in this “Landesinitiative”.

Regionale Wachstumsprojekte: With a special financial support program the Ministry of Economics, Labour and Transport of Niedersachsen tries to strengthen regional networks, clusters, co-operations and initiatives. Main intention is to strengthen the regional economic structure and bind private and public participants to

achieve common objectives for all successful economic and employment policy. This program is opened for all economic sectors in the region Lower Saxony, and hence also for the chemical industry.

In 2006 there was a financial support for a project of the chemical industry, a so called “Dienstleistungsagentur Chemie”. The objective of this agency is to support companies in a special region of Niedersachsen in advice and assistance with the REACH-guideline.

B.2.6. Mazovia Regional Innovation Strategy

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy	Regional Innovation Strategy for Mazovia Region 2007 -2015 (Mazovia)
1.2 Brief description	<p>In Mazovia Region there is no established specific policy for supporting chemical industry. The Regional Innovation Strategy (RIS) for Mazovia is a document defining the execution methods for innovation support policy focused on regional development. The first part of the document – diagnosis – presents both the potential and conditions for innovation development in the region. It is the starting point for preparation of an innovation SWOT analysis for the region. The second part of the document presents the Innovative Mazovia Vision and the objectives of the Regional Innovation Strategy, including their execution methods.</p> <p>The RIS currently contains four main projects:</p> <ol style="list-style-type: none"> 1. Setting up six information points: helpdesks for all innovation stakeholders in the major cities in the region, as well as regular seminars at these six locations where stakeholders can receive information and exchange experiences about such topics as cooperation and commercialisation strategies. 2. Developing a system for measuring innovative performance at the regional level, including criteria and monitoring approach. 3. Training for staff of the Office of the Marshal of Mazowieckie Voivodeship responsible for implementation of RIS. 4. Grant programme to encourage cooperation between companies and universities. The total budget of 300,000 PLN (\approx 71,700 EUR) allows for 20 grants. Companies from all industries may apply starting 1 January 2013, hence the share of the chemicals industry in this total budget has yet to be established.
1.3 Policy focus	<ul style="list-style-type: none"> • Competition; • Research & Development; • Innovation and Entrepreneurship
1.4 Policy instruments involved	<ul style="list-style-type: none"> • Grant/loan; • Regulation or standard
1.5 Policy level	Purely regional policy
1.6 Policy period (mm/yy - mm/yy or present)	2007 – 2015 (the policy is currently under revision, after updating the policy period will be 2007 – 2020)
2. Rationale and target group	
2.1 The goal of the policy	<ol style="list-style-type: none"> 1. Strengthening of cooperation in innovation development processes. 2. Increase of internationalization of Mazovian enterprises. 3. Increase of measures and effectiveness of innovative activity financing in the region. 4. Development and promotion of pro-innovative and pro-enterprising attitudes in the region.
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	<p>The concept of RIS was created without a role model. RIS was created in framework of Sixth Framework Programme:</p> <ul style="list-style-type: none"> • Title: Regional innovation and development strategy for Mazovia region - RIS Mazovia • Partners: Office of the Marshal of the Mazowieckie Voivodeship, WARSAW UNIVERSITY OF TECHNOLOGY, INNOVATION RELAY CENTRE CENTRAL POLAND, ZUKUNFTSAGENTUR BRANDENBURG GMBH. FRANKFURT, META GROUP S.R.L ITALY.
2.3 Policy partners	None
2.4 Involvement of other regions in the	None

Policy characteristics	Collected data
policy	
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	Companies in Mazovia Region, focus on SME (all industries).
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	R&D units (i.e. public-funded centres for applied research, which do not have an education task), universities, local administrations, business environment institutions.
3. Implementation and management	
3.1 Responsible Managing Authority	Regional authority
3.2 Key tasks of Managing Authority	Monitoring the progress of the strategy, defining subject and scope of evaluation analysis, implementation and monitoring of programmes, actions and projects, servicing of works of the Mazovian Innovation Council.
3.3 Instruments used to monitor the implementation of the policy	EU Project: Monitoring and evaluation of the implementation of the RIS. Financed by Human Capital Operational Programme.
3.4 Key difficulties encountered during implementation	None reported
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	Mazovian Innovation Council tasks: assessment of innovation policy of the region based on RSI Mazovia, assessment of status of strategy execution on the basis of data from monitoring system and evaluation strategy, taking decisions on directions of evaluation analysis. Approx. 30 representatives: universities, public administration, business.
3.6 Ex-post evaluation of the policy (including time period when it took place)	Policy is currently under evaluation (to be finished in 2013). Work has started on updating the policy in the context of future policy strategy for Europe 2020.
3.7 KPIs used to measure the outputs	<p>The system of monitoring the Regional Innovation Strategy for Mazovia concerns two levels: strategy implementation and region innovativeness. Monitoring the region innovativeness level is planned using two jointly considered synthetic indicators: <i>integrated benchmarking indicator</i> and <i>synthetic indicator of the regional innovativeness level</i>.</p> <p>Both indicators consist of many components, which i to enable relatively simple measurement of region innovativeness and, at the same time, analyse the level of implementation of the Regional Innovation Strategy for Mazovia.</p> <p>Integrated benchmarking indicator The integrated indicator reflects the situation in the region against other regions in a synthetic manner and is applicable at the level of strategic assessment, thus allowing for control over achieving the basic objectives of the Regional Innovation Strategy.</p> <p>Synthetic indicator of innovativeness level The synthetic indicator of region innovativeness level illustrates the innovation level and the research and development potential of Mazowieckie Voivodship compared to the average Polish value. The synthetic indicator is determined on the basis of standardised values of diagnostic characteristics and the absolute and relative information value of each characteristic. The original values of variables have been standardised. The synthetic indicator achieves non-standardised positive and negative values, which can be transformed in order to move the indicator scale from 0 to 1. High values of the indicator demonstrate high R&D potential and relatively high innovation effects in the light of adopted diagnostic characteristics.</p>
3.8 Approach towards evaluation	Evaluation is performed based on appropriate indicators
4. Legal and financial framework	
4.1 Policy-related legislations	Numerous resolutions of the Management Board of Mazovia Region
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	At this point the greatest challenge is to build mutual trust and cooperation between the public sector, business and R&D. Note: this challenge refers only to the policy of strengthening innovativeness, not any specific policy of supporting the chemicals industry.

Policy characteristics	Collected data
	<p>The primary purpose of innovation policy is to improve competitiveness of regional economy. Therefore, the effects of innovation policy should be measured first and foremost through competitive performance.</p> <p>The issue of key importance is to determine the effects of innovativeness on development. The preliminary assumption is that it has significant impact on development, that effects such as increased number of innovative businesses, patents, technology transfer infrastructure development, etc. result in increased competitiveness of a given region.</p> <p>In general, research shows that the relationship between the level of economic development and the level of innovativeness is significant and that it takes the form of positive feedback.</p> <p>Literature mentions a “vicious circle” that poorly developed regions are caught up in. Due to low level of economic development, they allocate fewer funds for research and innovation implementation, hence their rate of economic growth is lower. Low growth rate results in lower investment resources – and so on.</p> <p>Thus, high values of innovativeness indicators are the consequence of other measures which have led to the region’s increased prosperity. However, they fail to measure the influence of individual actions under innovation policy on the growth of regional wealth. So far, there is no single perfect tool which would provide all necessary information on diverse aspects of the functioning of innovation policy, in particular with respect to regional innovation systems.</p>
4.3 Support services offered to the beneficiaries	Numerous EU projects e.g. Mazovian Innovation Network (Regional Innovation Centres) -promotion of innovation - seminars, trainings for for entrepreneurs, local administration etc.
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	Seminars, conferences, publications
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	Due to new EU strategy – Europe 2020 – regional authorities are obligated to prepare innovative strategies for smart specialisation in order to use EU structural funds in more effective way. To update knowledge on the implementation of RIS in 2012 is expected to prepare research on the implementation of RIS. Review of policy is expected in 2013.
4.6 Corrective measures	None so far
4.7 Maximum and minimum total budgets for the policy	<p>The Office of the Marshal of Mazowieckie Voivodeship is currently implementing four projects (co-financed by EU), see 1.2 above. Project budgets range from 60,000 EUR (for the training of staff of the regional authority) to 3,250,000 EUR (for the innovation measurement project).</p> <p>The policy is mainly financed by EU funds (85% of the total), which are complemented by equal national and regional shares (7,5% of the total amount each).</p>
4.8 Number of projects supported by the policy	N/A
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	For the business-university cooperation grants, 15,000 PLN (\approx 3,580 EUR) each will be awarded based on applications to support new cooperations between companies and universities.
5. Main achievements	
5.1 The extent to which the goals have been attained	Regional Innovation Strategy covers the whole region’s economy. RIS is in the process of implementation. Consequently, results or outcomes of the RIS implementation have not yet been evaluated.
5.2 Key outcomes of the policy	Not yet known
5.3 Importance of these outcomes for beneficiaries/region/industry	Not yet known
5.4 Unintended negative changes that can be attributed to the policy (if any)	Not yet known
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	A wide range of actions, programs and projects are implemented in the context of the RIS.

Policy characteristics	Collected data
6.2 Key weaknesses of the policy	The policy is new to the region and therefore it will have to be seen how effective it is.
6.3 New opportunities created by the policy (for the region, for industry)	The policy places a strong emphasis on stimulating collaboration between science and business and cluster development (Strategic Objective No. 1 Strengthening of cooperation in innovation development process: development of cooperation forms in the business – science – environment relations), which ensure measurable benefits for business. Furthermore, it supports the establishment and development of entrepreneurship groups and other network structures.
6.4 External threats to the policy	Poor innovation awareness by the representatives of public administration, significant slow-down in economic prosperity, limited flexibility in allocation of EU structural funds for innovation activity.
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	Low tendency to cooperate between science and business, in particular within SMEs. Poor knowledge about innovation and clustering by business and public administration.
7.2 Reasons behind these difficulties	Lack of knowledge about innovation, lack of knowledge about financing innovation activity, low percentage of GDP spend on R&D (by state), companies do not have money for R&D.
7.3 The way these difficulties were tackled by the beneficiaries	Applying for European funds and taking part in EU projects.
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	Stronger links between science – business – public institutions must be created.
8.2 Effect of lessons learned on other policies	<p>Nowadays the Regional Innovation Strategy (RIS) for Mazovia is being actualized to incorporate the European Commission proposals for the 2014-2020 programming period.</p> <p>Number of practical steps to design a national/regional RIS³, are to be taken namely:</p> <ol style="list-style-type: none"> 1. the analysis of the regional context and potential for innovation, 2. the selection of a limited number of priorities for national/regional development, 3. the integration of monitoring and evaluation mechanisms.
8.3 Suggestions for improvement	<p>Suggestions for improving the RIS monitoring system for Mazowieckie Voivodship are necessary, in order to improve the implementation of research recommendations. This solution improves the usefulness of monitoring and evaluation research through increased utility and use of research recommendations</p> <p>The only resource necessary to introduce this good practice is adoption of adequate procedures enabling implementation of the mechanisms.</p> <p>Introduction of these suggestions will result in a higher number of recommendations adapted to the needs of institutions and, indeed, a higher number of implemented recommendations.</p>
9. Transferability to other regions	
9.1 Similar policies in other regions	All regions in Poland are obligated by law to adopt an RIS (there are 16 RISs in Poland).
9.2 Region-related factors that make this policy successful	In Mazovia the following factors have helped to make the policy successful: the greatest private expenditures allocated for innovation in Poland as per enterprise conducting innovative activity, a higher number of innovations by both small and large enterprises compared to the country's average, location of strong business entities in the region, the greatest share of high-tech enterprises in Poland, a strong academic centre, high level of intellectual capital, the best economically developed region in Poland, and a relatively high productivity of the enterprises located in Mazovia.
9.3 Barriers for transferring the policy to other regions	No obstacles however specific socio-economic conditions of Mazovia need to be taken in to account (e.g. national capital is located in Mazovia).

B.2.7. Scotland R&D Grant Support

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy	R & D Grant Support (Scotland)
1.2 Brief description	Grant support to assist companies undertaking research & technological development in Scotland leading to new/enhanced products or processes offering a leading edge. Initially, the policy was developed due to a demand from the chemical sector. It was targeted at SMEs in the chemical industry of the region. Later, the Scottish Government and Scottish Enterprise found that the policy is a success. Hence, Scottish Government decided to open the policy to other sectors. Scottish government wanted to increase the competitiveness of the region in the field of Research, Technology, Development and Innovation (RTDI). However, there were no such grants available for non-SMEs to undertake work in these fields. Hence, the government expanded the target group to include non- SMEs.
1.3 Policy focus	Research & Development
1.4 Policy instruments involved	Grant
1.5 Policy level	EU policy implemented at Scottish level
1.6 Policy period (mm/yy - mm/yy or present)	Current
2. Rationale and target group	
2.1 The goal of the policy	To attract new R & TD to Scotland, to retain more where it exists or attract new front end R & TD to an existing manufacturing process
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	The policy is available across all sectors in Scotland.
2.3 Policy partners	Scottish Government; EU
2.4 Involvement of other regions in the policy	No
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	SME and non-SME. Was initially focussed on non-SME group. Non-SMEs such as BASF, Fujifilm have accessed the grant.
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	None reported
3. Implementation and management	
3.1 Responsible Managing Authority	Scottish Enterprise
3.2 Key tasks of Managing Authority	Encourage applications, assess applications and level of support, contract with company, monitor process and milestones and ensure outputs reflect the objectives of the initial project
3.3 Instruments used to monitor the implementation of the policy	Project objectives, milestones, regular audit
3.4 Key difficulties encountered during implementation	Timeline for initiation; as policy has been so popular, in the past a waiting list has emerged. i.e. more projects than money available
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	Monitoring committee: company, technical expert, SE
3.6 Ex-post evaluation of the policy (including time period when it took place)	Generally within 2 months of the final grant drawdown being sought
3.7 KPIs used to measure the outputs	Products developed and people employed, if the R & D was successful (which it was not in all cases). If the R&D turns out to be unsuccessful, SE does not ask the beneficiary to return the money.
3.8 Approach towards evaluation	Comparison with the initial objectives of the project
4. Legal and financial framework	
4.1 Policy-related legislations	EU State Aid rules
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	The administrative process is relatively easy. <i>Anybody will find some challenges, the paperwork was one. Helping Scottish Enterprise gain an understanding of the benefits of the projects. The first application was rejected, but after appealing the decision it was allowed to resubmit it. "Learning the language" in presenting the project</i>

Policy characteristics	Collected data
	<i>required a high-level dedicated resource (an outside consultant) to present it and to lobby for the resubmission, as well as for ensuring sufficient quality.</i>
4.3 Support services offered to the beneficiaries	SE also helps beneficiaries to take R&D to the next level – manufacturing by assisting them in finding a suitable grant or within the same grant. <i>The beneficiary reported that they received training support. SE has a client manager model, allowing them to very well understand our needs.</i>
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	Scottish enterprise communicates outcomes.
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	No deadlines. Flexibility available. There are milestone payments to the beneficiaries. The payments are paid in proportion to the expense incurred by beneficiaries.
4.6 Corrective measures	Regular dialogue enables corrective measures to be put in place.
4.7 Maximum and minimum total budgets for the policy	The budget is released on an annual basis.
4.8 Number of projects supported by the policy	In last year Scottish Enterprise has granted circa 100 grants. Normally the chemical sector would achieve approximately 30% of these. This has declined rapidly over the last 24 months. This decline could be attributed to the economic downturn which lowered the product demand in the last couple of years.
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	Project dependent. Min. circa £25K grant. Max circa £5M grant. The grant covers up to 25 percent of the eligible expenditure. It is same for SMEs and non-SMEs. There is a due-diligence process to identify eligible and non-eligible expenditure.
5. Main achievements	
5.1 The extent to which the goals have been attained	Generally achieved what was sought. The grant has been in demand. There are more grant applications than money available. <i>The beneficiary has received two R&D+ grants, in 2005 and a follow-up in 2009 (which is being finalised this year). The follow-up related to additional projects. The first one was a grant of GBP 1.5 million, the second one amounted to GBP 300,000. Also acquired a regional support assistance (RSA) grant from Scottish Enterprise as well as a training project (of GBP 100,000, possibly to be extended up to GPB 125,000), that were the result of capital investment that came out of the R&D projects. These projects were significant in keeping the site in business.</i> <i>Projects concerned development of new products for coatings and specialty inks for new markets. At the time, the beneficiary's company was threatened in the large-volume/low-margin segment by companies from China and India. At the time they were in doubt of the continuance of our site by the parent company at the time, CIBA. The R&D projects also allowed us to intensify our process, thus making it faster and more resource-efficient. As a result of this project the company realised new products and more efficient processes in its portfolio that significantly reduced the risk of the site being closed down.</i> <i>The second project took place after site had been taken over by BASF, who initially expressed intentions to close the site down. Through discussion the site management was invited to compete internally with other sites and to re-allocate production from other sites to Paisley. Its bid for this included the R&D Grant from Scottish Enterprise, which helped with the investment for the restructuring.</i> <i>After acquiring three additional sites from CIBA to add to the existing two sites, BASF decided to close two of five. As well as Paisley the other two sites still in operation are in Korea and China, making it the "last man standing" in the West, at the expense of production sites in America and</i>

Policy characteristics	Collected data
	<p><i>Germany. Its restructuring programme and bid are part of a ten-year strategy approved by the board of BASF. In the interviewee's 11 years in charge of the site this is the first time it has had a ten-year strategy for the site. Without the first (larger) grant, it would not have been able to retain and extend the high-level experienced people that were in the company in 2005 and proved to be essential for its survival in 2009.</i></p>
5.2 Key outcomes of the policy	<p>More R & TD taking place in Scotland, leading to further demo plants and full scale manufacturing.</p> <p><i>The policy works for those companies that understand how to work with the grant and successfully implemented their projects. There are also examples of companies that were not awarded the grant or did not apply due to the administrative challenges addressed under 3.1.</i></p> <p><i>Also, the reputation of the Paisley site within the company is much better than it has been for a long time. This brings other benefits to Scotland for example, the company has been able to attract the attention of BASF when it comes to working with university spin-offs.</i></p>
5.3 Importance of these outcomes for beneficiaries/region/industry	<p>Extremely important for this sector and the country.</p> <p><i>The company is still here. 90% of what it makes goes out of the UK, most of the specialty chemical raw materials it uses come from Asia. However, our base chemicals as well as services (security, safety, engineering, cleaning) mostly come from Scotland and the rest of the UK.</i></p>
5.4 Unintended negative changes that can be attributed to the policy (if any)	<p>None reported</p> <p><i>None</i></p>
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	<p>Attracts new investment; also new R & TD to a manufacturing cost centre.</p> <p><i>The grant means that companies can share the risk of R&D projects, which are inherently uncertain in terms of their outcomes.</i></p> <p><i>The requirement to report regularly brings a discipline to the project that we might not have had otherwise. Monthly meetings took place at senior level to be able to report to SE. The site manager was "drawn into the project" as a result.</i></p> <p><i>Another strength of the policy is its flexibility to change the milestones during the implementation. SE recognised the fact that an R&D project cannot be fully mapped out at the start.</i></p>
6.2 Key weaknesses of the policy	<p>Many potential beneficiaries may not find the grant attractive. It may take a couple of months from submitting an application to getting a grant. It is more of a procedural challenge.</p> <p><i>Bureaucracy of the approval process, combined with the fact that SE hired an external auditor after the project ended to review the reports, thus leading to additional unnecessary expenditure.</i></p> <p><i>The relationship with SE extended largely to the client manager, not further into the organisation.</i></p>
6.3 New opportunities created by the policy (for the region, for industry)	<p>None reported</p> <p><i>The site has remained in the region and now the attention of BASF has been drawn to university spin-off projects.</i></p>
6.4 External threats to the policy	<p>The external threats are mainly the changes in the state aid rules, and changes in Scottish Enterprise and the Scottish Government's approach to attraction or retention of investment in research and technology projects. However, at this moment the Scottish Government has clearly stated that it will continue the policy.</p>

Policy characteristics	Collected data
	<p>Regulatory, such as state aid rules. Also, budget cuts of SE might threaten it, either due to economic pressures or a change in political priorities. There are no technological challenges, as the definition of R&D used in the policy is very broad.</p>
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	<p>None reported</p> <p><i>Bureaucracy and “having to speak the language”, requiring to hire a dedicated resource.</i></p>
7.2 Reasons behind these difficulties	<p>None reported</p> <p><i>See 3.1</i></p>
7.3 The way these difficulties were tackled by the beneficiaries	<p>None reported</p> <p><i>A significant amount of personal time of the site manager went into the relationship with SE. As a spin-off, the site manager now is a member of several SE-related committees. The benefits of the grants helped justify this time spend with the company.</i></p>
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	<p>That this is as important to non-SMEs as to SMEs.</p>
8.2 Effect of lessons learned on other policies	<p>None reported</p>
8.3 Suggestions for improvement	<p>None reported</p> <p><i>If a senior company representative had been allowed to present the proposal directly to the SE board, that would have reduced the administrative burden significantly.</i></p> <p><i>SE might have signed off on the project without the help of an external auditor.</i></p>
9. Transferability to other regions	
9.1 Similar policies in other regions	<p>None reported</p>
9.2 Region-related factors that make this policy successful	<p>Scottish Enterprise run this throughout the whole of Scotland. One administering body.</p> <p><i>SE is an agency with strong local intimacy and strong connections to the local industry, which is no longer the case in other UK regions. A similar policy could not be implemented at national level. SE selects sectors where they can add the most value, which requires a thorough understanding of the economics.</i></p>
9.3 Barriers for transferring the policy to other regions	<p>Administrative barriers, the state aid from EU, manpower to administer the policy and the budget</p> <p><i>Business ethics are relatively strong in the UK. If we agree on a project, we will deliver it. Hence, the administrative costs to ensure good governance of public funding may be lower in the UK, thus raising a barrier for transfer.</i></p> <p><i>The implementing agency needs sufficient capability (knowledge and experience on the working of R&D) to implement it. SE has a reputation of being competent, professional and independent, allowing them to successfully implement this type of policy.</i></p>

B.3. Environment & sustainability policies

B.3.1. Hesse Environmental Alliance

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy (region)	Environmental Alliance (EA) (Hesse)
1.2 Brief description	<p>In the federal state of Hesse a voluntary “Environmental Alliance of Hesse” was formed in 2000. The initiative has two goals a) to achieve environmental protection and conservation of resources on a high level and b) to improve the overall conditions for economic development. More than 1,000 companies and trade associations are members of the alliance so far.</p> <p>The traditional industrial base has undergone a rapid structural change in Hesse. Today the majority of Hesse's companies operate in the services sector. One of the largest industrial sector in terms of revenue and employment is the chemical industry (this includes the pharmaceutical industry which is very strong in Hesse). Another aspect of Hesse is that the quality of living is very good, which makes it attractive for investments. Hence, the acceptance by the general public is very important for industry, especially chemicals.</p> <p>The industrial park of Hoechst started only after the company Hoechst AG was separated into 80 companies, which are still situated there. The emissions issue in this special area was addressed by the Environmental Alliance, which was started by the Ministry for the Environment, with involvement of local administrators. The policy is for all industries, also SMEs. The chemical industry is explicitly represented in the Alliance.</p> <p>The alliance also serves as a “clearing area” for practical issues. The last issue that came up was in chemical industry (a question from a pharma company at the end of last year).</p> <p><i>During the 90s there had been some problems in this relationship due different philosophies in governing (Joschka Fischer was environment minister in Hessen then). Also difficulties between communication of industry directors and the government. The intention was shared by all partners.</i></p> <p><i>VCI Hessen (the chemical industry association of the region) takes part in the routine meetings of the EA, where all sectors are represented, including automotive, banking, electricity companies and others, as well as local, regional and state government representatives. The Steering Committee meets twice a year. In addition there are various working groups that specialise in specific topics, such as reducing administrative burdens and the granting period for permits etc. The EA organisation mediates between public and private sector in case of differences in opinion. The meetings were more frequent in the beginning, due to more communication challenges. Now there is more understanding between all partners and most partners work well together, even without mentioning the EA in conversations.</i></p> <p><i>The EA policy started out with only one or two companies per sector as partners, now its 15 for chemical and pharma industry. VCI Hessen has to organise the representation. Merck has 9,000 employees and is a very prominent.</i></p> <p><i>There are still some problems left. Problems and misunderstandings are still to be expected. As industry association, VCI Hessen has the task to mediate.</i></p> <p><i>Industry tries to harmonise its overall point of view in VHU, the Hessian cross-industry association, before discussing in the EA with governments. Normally it is no problem to come to a common decision in VHU, as the EA concerns mainly energy-intensive industry. This becomes more important, as many developments take place in the area of energy policy at both the Hessian, German federal and EU levels of government.</i></p>
1.3 Policy focus	Environment
1.4 Policy instruments involved	Voluntary Agreement

Policy characteristics	Collected data
1.5 Policy level	Purely regional policy
1.6 Policy period (mm/yy - mm/yy or present)	from 2000 ongoing
2. Rationale and target group	
2.1 The goal of the policy	Voluntary agreement as an Addition to the regulatory law, acceptance of autonomy/responsibility, to improve the high standard of environmental protection
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	The Bavarian environmental pact
2.3 Policy partners	the Prime Minister of Hessen the Hessian Minister for the Environment the President of the Federation of the Hessian Business Associations the President of the Consortium of Hessian Chambers of Commerce and Industry the President of the Hessian Chamber of Crafts
2.4 Involvement of other regions in the policy	No
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	Hessian industry of all kinds
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	Local authority of districts/communities An important aspect is the acceptance by companies, the general public, but also officials and authorities. The approach of working together around environmental matters was a new philosophy. It has been Challenging for NGOs, authorities and companies to cooperate rather than be in conflict. Originally the EA was a partnership with government and companies, to which NGOs responded by demanding a larger role. The state government responded by keeping NGOs involved in legislative process. The alliance started between companies and authority.
3. Implementation and management	
3.1 Responsible Managing Authority	Regional Ministry
3.2 Key tasks of Managing Authority	Support of steering committee, contact with members.
3.3 Instruments used to monitor the implementation of the policy	No monitoring required
3.4 Key difficulties encountered during implementation	Overall acceptance
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	No
3.6 Ex-post evaluation of the policy (including time period when it took place)	None
3.7 KPIs used to measure the outputs	number of members
3.8 Approach towards evaluation	N/A
4. Legal and financial framework	
4.1 Policy-related legislations	Environmental acquis (all laws and directives for member states of the EU, which basically includes every law, bylaw and procedure). Hence all areas (water, air etc.) are covered. In Germany almost all of these laws are under the legislation of the federal government in Berlin, which is bound by EU Directives. However, there are a few exceptions. For example, when REACH was first launched, the Alliance was used as a platform for discussion. Companies identified impracticalities in REACH, especially for

Policy characteristics	Collected data
	downstream users and SMEs. Both the authorities and the companies discussed these in several sessions. Based on these discussions, the industry took the discussion to Brussels. The ministry is responsible for enforcement of REACH in its state, this is going well.
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	Improved cooperation between supervisory state authorities and companies. <i>Test new procedures of communication between administration and private sector ; enterprises have to accept more responsibility.</i>
4.3 Support services offered to the beneficiaries	Internet sites; Trainings/Hospitation between industry and administration
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	Internet, Journal "Ecosphäre" A large share of the available money was also used for information campaigns. Costs of personnel and projects are now decreasing, because the EA has completed the stage of developing the website and setting up the meetings and structures. There are some smaller projects when clarifications are necessary, but no more public campaigns such in the beginning. The annual costs are expected to be € 100-200,000 from now on.
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	Ongoing project without deadlines
4.6 Corrective measures	None
4.7 Maximum and minimum total budgets for the policy	415.000 €/year 200.000 €/year
4.8 Number of projects supported by the policy	6
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	average 25.000 € max. 100.000 € min. 1.000 €
5. Main achievements	
5.1 The extent to which the goals have been attained	High When a company has trouble getting a permit, it can go to court, which results in uncertainties and costs. The Environmental Alliance prevents these costs and thus solves problems, improves chemical companies' profit&loss account as it eliminates some major costs of compliance. Main achievement is the fact that a good cooperation exists now, better than before. The local authorities are now included in the alliance, which is appreciated especially by SMEs and the small crafts companies. Also different topics come up, which may not be related to environmental matters but are dealt with in the alliance anyway. For example geological heat energy will be on the table, to discuss a possible procedure for making this accessible to households, both in technical terms and with financial support. The alliance is a good discussion platform for new developments. <i>50-60% (beneficiary's estimate)</i> <i>Some areas are running better than others, due to the persons responsible. Examples of areas in which EA works well are waste management and substance management (e.g. REACH). Areas such as water are different, because the people responsible on the government side are not used to the EA approach and stick to the more traditional "top-down" approach to administration.</i> <i>Certain divisions in the regional government have lower attendance rates at EA meetings than others. These lower attendance rates correlate with the policy areas in which the government approach is mainly top-down. Even though we do not need so many EA meetings overall, this could be useful for these more difficult sectors.</i> <i>Another reason for lower attainment of goals was the industry's expectation that the process of EA could be used more efficiently to reduce bureaucracy. 50-60% of the reasons for this are external to the Hesse region. Even if a bureaucracy reduction could be reduced at the regional level, the German federal government and the EU still dictate certain bureaucratic requirements. A positive point is that the EA creates a</i>

Policy characteristics	Collected data
	<p><i>cooperative spirit also in discussions in Brussels and Berlin.</i></p> <p><i>The philosophy behind new policies such as REACH is to share responsibilities between government and industry. SMEs still have to learn how to deal with this and not wait for government to give them authorisation and tell them what to do.</i></p> <p><i>The EA also allows for other topics to be discussed than it was originally intended for, this is an important unintended benefit of the policy.</i></p>
5.2 Key outcomes of the policy	<p>Continuous improvement of the environmental situation Enhancement of the attractiveness of Hessen as an industrial location Deregulation, simplification of approval/permitting procedures</p> <p>Ecostep system was one of the projects that were developed by the environmental alliance of Hesse. It is a standard for quality, like ISO 9001, ISO 14001 but then for smaller companies on a lower level. There is cooperation with the state of Bremen on this system, but it was developed by Hesse. Other states prefer to have other systems and/or only want to accept ISO 14001-certified companies in their environmental alliances.</p> <p><i>Atmosphere between administration and enterprises has improved.</i></p>
5.3 Importance of these outcomes for beneficiaries/region/industry	<p>High</p> <p><i>Key importance for production and research in the region Hessen.</i></p>
5.4 Unintended negative changes that can be attributed to the policy (if any)	<p>None</p> <p><i>Regional Parliament (Hessischer Landtag) with lower profile.</i></p>
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	<p>Cooperation and deregulation Bundling of supervision measures Corporate management systems/environmental management systems Consulting and information Clarification Centers for specific subjects (e.g. waste, plant safety, preservation of raw materials supply)</p> <p><i>More importance of Self – Management; Platform of partnership between administration and industry; Corporate identity in the region strengthened.</i></p>
6.2 Key weaknesses of the policy	<p>Required benefit for the members</p> <p><i>Expectations sometimes higher than results achieved</i></p>
6.3 New opportunities created by the policy (for the region, for industry)	<p>The State Government is working on a much younger strategy, concerning sustainability of Hessen as a state. The existing Environmental Alliance could be a good platform for companies who want to go one step further.</p> <p><i>Platform to share expertise; common spirit administration/industry</i></p>
6.4 External threats to the policy	<p><i>EU – (over-) regulation</i></p>
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	<p>Acceptance by NGOs</p> <p><i>No “common spirit” in the administration; certain divisions do not share the enthusiasm concerning the environmental alliance and stick to their traditional role.</i></p>
7.2 Reasons behind these difficulties	<p>NGOs, do not have a role in the Alliance.</p>
7.3 The way these difficulties were tackled by the beneficiaries	<p>None for the NGOs.</p> <p><i>Communication of difficulties in meetings of steering committee and towards Hessen Government and Parliament. This has not yet resulted in a solution.</i></p>
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	<ul style="list-style-type: none"> • Presentation of the benefits, win-win situation • The people in charge of the projects must “breathe” the spirit of cooperation! • Involvement of all participants • Information in administration and business entities and consequently:

Policy characteristics	Collected data
	<p>increase of acceptance</p> <ul style="list-style-type: none"> Public relations
8.2 Effect of lessons learned on other policies	
8.3 Suggestions for improvement	<p>Enhancement with sustainability</p> <p><i>Aim: Improving Communication: the Environmental Alliance should be a way to de-regulation</i></p>
9. Transferability to other regions	
9.1 Similar policies in other regions	<p>Umweltpakt Bayern Umweltpartnerschaft Brandenburg Partnerschaft Umwelt Unternehmen Bremen UmweltPartnerschaft Hamburg Umweltallianz Mecklenburg-Vorpommern Umweltpakt Saar Umweltallianz Sachsen Umweltallianz Sachsen-Anhalt Umweltinitiative für die Thüringer Wirtschaft</p> <p>The alliances are different in other states, but for example Bavaria has many more companies as members of their “pact”. Bavaria was one of the first states to start a similar policy in the 1990s. Many more German states have a similar policy since then.</p> <p><i>Not alle states use the same names for the same policies. The matter of cooperation depends also on the states’ history. VCI does not have coverage of each specific state, depending on the presence of chemicals industry.</i></p>
9.2 Region-related factors that make this policy successful	<p><i>Strong Industry / Science / Research Network in the region</i> <i>Estimated by majority of stakeholders</i></p>
9.3 Barriers for transferring the policy to other regions	<p>None</p> <p><i>Even though the policies are alike and political structures may match, the specifics of a policy cannot be copied from one state to another without adapting to the regional tradition.</i></p> <p><i>Possible barriers: different mix of industry / economy sectors; infrastructure different strategies by regional policy and trade unions</i></p>

B.3.2. Ústí Cooperation Contract

No beneficiary has been found willing to comment on this policy..

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy	Contract about mutual cooperation between Ústí region and important companies in the region (Ústí)
1.2 Brief description	Ústí region has set the acquisition of important companies in the region as its priority and is trying to find a form of cooperation which that is beneficial to the citizens of Ústí region as well as companies. Both sides note that their common goal is close cooperation in the field of environmental improvements, employment, health and social services, education, sport, culture and business support. Ústí region is committed to integrating sustainability into its internal operations. The region has assessed its current practices against several sustainability criteria and, in cooperation with its partners (companies), will develop a Corporate Sustainability Action Plan to establish specific sustainability goals for the Region.
1.3 Policy focus	Environment, education and skills, support of research & development, employment.
1.4 Policy instruments involved	Grants, regulation, infrastructure and facilities.
1.5 Policy level	Purely regional policy.
1.6 Policy period (mm/yy - mm/yy or	Continuously. Since 2003, contracts have been signed.

Policy characteristics	Collected data
present)	
2. Rationale and target group	
2.1 The goal of the policy	Sustainable development, corporate social responsibility
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	None reported
2.3 Policy partners	Chamber of Commerce, industry associations.
2.4 Involvement of other regions in the policy	None reported
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	Ústí region citizens, SMEs
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	Researchers, regional university
3. Implementation and management	
3.1 Responsible Managing Authority	Regional authority.
3.2 Key tasks of Managing Authority	Managing authority of Ústí region is committed to sustainability through its operations and the services its delivers to its citizens. As part of this commitment, the region collaborates with its local municipal partners and the key stakeholders and shareholders to advance sustainability and provide leadership on sustainability matters.
3.3 Instruments used to monitor the implementation of the policy	Monitoring was undertaken in response to the requirement of the Regional Council to assess the performance of the Cooperation agreement. The objective of the evaluation was to assess the extent of which work carried out under the Agreement succeeded in achieving its intended goals.
3.4 Key difficulties encountered during implementation	Changes in company management and political changes
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	No official monitoring committee
3.6 Ex-post evaluation of the policy (including time period when it took place)	Yearly
3.7 KPIs used to measure the outputs	Responsible care, new jobs, improvement of the environment.
3.8 Approach towards evaluation	Benchmarking against other policies etc.
4. Legal and financial framework	
4.1 Policy-related legislations	Shared rule (national); Act on support of regional development; Act on regions (Establishment of Regions); Act on integrated pollution prevention and control; Act on the protection of nature and landscape; Regulation on the waste management plan of the Czech republic; Construction Law; Self-rule (regional)-regional assembly resolution
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	Administrative and legal obstacles
4.3 Support services offered to the beneficiaries	Better infrastructure
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	Seminars, conferences, mass media, Facebook, Internet
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	That all long term activities usually limited within election period
4.6 Corrective measures	Corrective actions depend on mutual agreement of both sides. Causes of deviation can range from unrealistic objectives to the wrong strategy being selected.
4.7 Maximum and minimum total budgets for the policy	Approximately 40,000 EUR/year specifically for the chemicals industry
4.8 Number of projects supported by the policy	Not specified – continuous process

Policy characteristics	Collected data
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	See 4.8 Budget size varies widely depending on several different factors.
5. Main achievements	
5.1 The extent to which the goals have been attained	Sustainable development in all areas of life
5.2 Key outcomes of the policy	Better life for the Ústí region citizens
5.3 Importance of these outcomes for beneficiaries/region/industry	Essential
5.4 Unintended negative changes that can be attributed to the policy (if any)	None reported
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	Common concern of bigger players in the field of regional development cooperation
6.2 Key weaknesses of the policy	Lack of financial means
6.3 New opportunities created by the policy (for the region, for industry)	None reported
6.4 External threats to the policy	Economic development
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	Unwillingness to cooperate
7.2 Reasons behind these difficulties	Unrealistic expectations
7.3 The way these difficulties were tackled by the beneficiaries	Information about politics and available training was provided. Beneficiaries were looking for information that they may be able to incorporate into this policy.
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	More information - campaign continuously provides information to citizens
8.2 Effect of lessons learned on other policies	Launch of other initiatives
8.3 Suggestions for improvement	None reported
9. Transferability to other regions	
9.1 Similar policies in other regions	None reported
9.2 Region-related factors that make this policy successful	Existing infrastructure and industry composition, existing initiative/support services/partners, available financial resources, etc.).
9.3 Barriers for transferring the policy to other regions	None

B.3.3. Program Agreement for Chemistry in Porto Marghera

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy	Program Agreement for Chemistry in Porto Marghera.
1.2 Brief description	The Program Agreement for Chemistry in Porto Marghera has the objective to establish and maintain the optimal conditions of coexistence between the protection of the environment and the productive development in the chemical sector.
1.3 Policy focus	<p>The two main objectives of the policy are:</p> <ul style="list-style-type: none"> • Environment: to restore and protect the environment through actions of pollution remediation, reclamation or assurance of safety of the sites, reduction of emissions into the atmosphere and into the Lagoon and the prevention of risks of relevant accident (SIMAGE); • Innovation, competition, employment: to induce adequate industrial investment, with the aim to equip existing installations with the best environmental technologies. <p><i>In 1998, the first Programme Agreement was signed. It involved all of the local chemicals industry. It concerned security systems for environmental matters. However, after the signing of the agreement, the remediation was started, but never completed.</i></p> <p><i>In 2002, the second Programme Agreement, this time involving also other industries in the area. This agreement (which was an amendment to the</i></p>

Policy characteristics	Collected data
	<p><i>first agreement) was focused on developing and creating new employment, but did not reach its results due to 1) bureaucracy and 2) lack of investments due to economic crisis.</i></p> <p><i>The current (third) agreement is different, because the industry (Confindustria and individual firms) is no longer included amongst the signatories; only public entities are involved. The current agreement states timelines for performing the tasks of the public bodies involved. These timelines are already part of Italian law, hence the agreement implies the commitment of public bodies, including Regione Veneto, to respect the legal terms, which has not been done since 1998, the time of signing of the first agreement.</i></p>
1.4 Policy instruments involved	<ul style="list-style-type: none"> • Investments and employment protection: the companies that respected the resulting commitments were guaranteed operational certainty throughout the period of economic amortization of investments; <ul style="list-style-type: none"> - Included in the agreement was the requirement to reduce all macro and micro pollutants; - Investments aimed at reducing the industrial risks: the objective is to reduce the chance that accidents that can produce serious consequences beyond the limits of the industrial area. - Preservation of the employment: A "permanent board" for consultation between local authorities and social partners that signed the agreement was constituted, intended to ensure the preservation of jobs in the process of production transformations of the area, through the design, the adoption and the financing of: <ul style="list-style-type: none"> ▪ measures of retraining and re-employment of workers; ▪ initiatives designed to re-employment of workers affected by company closures or production cycles. In the implementation of the investments proposed by the companies that have signed the agreement, the trade union agreements on quality of labour contracts must be respected. • Grants & subsidies: <ul style="list-style-type: none"> - Establishment of a revolving fund with an initial budget of €20 million for small and medium sized enterprises. - Financing of the works of completion of the infrastructures of the macro-islands of Porto Marghera for a total amount of €10.7 million. - Standard: the Agreement allowed to concentrate the activities of storage and movement, using equipment with high safety standards. - Master Plan for the reclamation of contaminated sites: <ul style="list-style-type: none"> ▪ Reconstruction of a precise knowledge framework about the level and quality of the contamination; ▪ Definition of the objectives of reclamation corresponding with a series of intervention strategies; ▪ Time schedule of activities; ▪ Evaluation of the maximum costs; ▪ Recovery of the polluted areas.
1.5 Policy level	National Policy Implemented at a regional level
1.6 Policy period (mm/yy - mm/yy or present)	02/12/1999 . 04/16/2012 (valid for 10 years), continued in the third programme agreement, which has no expiration date
2. Rationale and target group	
2.1 The goal of the policy	<ul style="list-style-type: none"> • Simplification of preliminary procedures for the risk analysis and the reclamation interventions; • Validation of environmental data by The Ministry and the Veneto Region; • Companies have the obligation to contribute to the costs of working on the infrastructural edges, and to the costs of management and treatment of drained groundwater (PIF); • Consistency with building safety regulations;

Policy characteristics	Collected data
	<ul style="list-style-type: none"> Updating of the urban planning instruments in relation to the environmental <i>status</i> of the individual sites, to keep in line with guidelines. Establishment of a revolving fund with an initial budget of €20 million <i>for small</i> and medium enterprises, in order to encourage the reclamation interventions of their sites. Financing of the work on the infrastructure of macro-islands in Porto Marghera for a total amount of €10.7 million.
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	Decree of the Ministry of Economic Development of May 5, 2011
2.3 Policy partners	Signatories of the Agreement for Chemistry: Ministry of Industry, Ministry of Environment, Ministry of Public Works, Veneto Region, UNINDUSTRIA Venezia, FEDERCHIMICA, Trade Unions Organizations (national, regional and provincial), as well as a number of companies from the region.
2.4 Involvement of other regions in the policy	Other areas have not been involved.
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	Companies signatories of the Agreement: Enichem corporation, EVC European Vinyls Corporation, Edison Termoelettrica, Elf Atochem, Crion, Sapiro, Agip Petroli, Esso Italiana, Api, Ausimont, Montefibre, San Marco Petroli, Decal, Agipgas, Ambiente corporation, Railway Crossings Body.
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	Ministry of Environment and Sea and Land Protection, Ministry of Infrastructures (Water Authority of Venice), Veneto Region, UNINDUSTRIA Venezia, FEDERCHIMICA, Trade Unions, Railway Crossings Body, Authority of the Industrial Area of Porte Marghera.
3. Implementation and management	
3.1 Responsible Managing Authority	<ul style="list-style-type: none"> National Ministries: Ministry of Industry, Ministry of Environment and Sea and Land Protection, Ministry of Infrastructures, Ministry of Public Works; Regional Authority: Veneto Region; Provincial Authority: Province of Venice; Municipal Authority: Municipality of Venice; Managing body of the port of Venice: Port Authority of Venice.
3.2 Key tasks of Managing Authority	Reclamation interventions within the SIN are managed through the Conferences of Services chaired by the Ministry for the Environment and Sea and Land Protection.
3.3 Instruments used to monitor the implementation of the policy	A Technical Secretariat at the Ministry of Environment, General Department of Protection of Land and Water Resources, which are attended by one representative from each of the signatories' bodies, designated by the Public Bodies themselves. A voluntary agreement was signed committing every company to an audit assessing the environmental certification of the chemical industries.
3.4 Key difficulties encountered during implementation	<ul style="list-style-type: none"> Bureaucratic delays; Limited resources of the Public Administration (subject to continuing cuts to staff and structures); Substantial charges arising primarily from the management of waste from remediation activities;
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	<p>Monitoring Committee: appointed to monitor the Program Agreement concerning its implementation.</p> <p>Audit Commission: Commission "for the verification of operations on plants, services and infrastructure provided for by the Program Agreement for Chemistry of Porto Marghera, part of the commitments of the companies that have signed the Agreement."</p> <p>Permanent Board: in addition to a function of direction and coordination of policies, it performs the task of monitoring their implementation</p>
3.6 Ex-post evaluation of the policy (including time period when it took place)	The evaluations were carried out "in itinere" (ongoing evaluations) in accordance with the Master Plan for the reclamation of polluted sites in Porto Marghera. The process is in progress and has led to the signing of the new agreement of Chemistry on April 16, 2012.
3.7 KPIs used to measure the outputs	The Area Environmental Report is based on several environmental indicators that allow the evaluation of the environmental policy of the Agreement. The evolution of a series of chemical parameters in water and in

Policy characteristics	Collected data
3.8 Approach towards evaluation	the atmosphere was taken into account, representative of the effectiveness of the steps taken.
3.8 Approach towards evaluation	Not reported
4. Legal and financial framework – Quadro giuridico e finanziario	
4.1 Policy-related legislations	Various laws and decrees on environmental issues.
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	<p>In the Program Agreement signed on April 16, 2012 the main challenges are:</p> <ol style="list-style-type: none"> 1. Simplifying the procedures for risk analysis and reclamation interventions, through the use of online procedures for the managing of the process itself; 2. Creating a new Memorandum for the predisposition and implementation of the plans of Characterization; 3. Request for certain timings regarding the national and regional administrations. 4. Proposal for instruments able to guarantee re-employment and professional requalification. <p><i>The Program Agreement dated April 16th, 2012 is not addressed only to chemical industry, it includes all different productions and activities insisting on the area of Porto Marghera, even if sustainable chemistry is one of the strategic areas the authorities select for future development of the site.</i></p> <p><i>The Agreement intends to guarantee:</i></p> <ul style="list-style-type: none"> - simplified procedures for remediation projects approval - certain timing for administrative procedures - creation of an ecological area able to attract new investments <p><i>Positive aspects:</i></p> <ul style="list-style-type: none"> - new approach and efficiency of Ministry of environment and Veneto Region <p><i>Critical aspects:</i></p> <ul style="list-style-type: none"> - the timing (3 months) for the definition of the simplified procedures is expired and the Ministry of Environment and Regione Veneto have not, by now, adopted any new official standard; - the certain timing for administrative procedures is not different, neither reduced from what is defined by national law, even if, when the law would be effectively applied, the timing will be much reduced from the normal practice of administrative approval experimented so far; - the ecological area is defined, even if not yet ruled in terms of costs and access procedures.
4.3 Support services offered to the beneficiaries	<p>Simplification of the inquiry for the risk analysis and the reclamation interventions, also through the use of online procedures for the managing of the process itself.</p> <p>Mapping of the free areas and those areas affected by activities with different degrees of incompatibility in relation to new settlements. Towards the Fusina multipurpose centre (water lines) the following wastewater flows are sent separately:</p> <ul style="list-style-type: none"> • Type "A" wastewaters, civil waters, parasitic waters, pre-treated in the biological depuration centre of Fusina; • Type "Bo" and "B1" wastewaters: Porto Marghera Area's industrial effluents, respectively raw and pre-treated in the plants of origin and subsequently conveyed to Fusina; • Type "B2" wastewaters: rainwater resulting from the leaching of potentially contaminated sites in the industrial area of Porto Marghera; • Type "B3" wastewaters: polluted groundwater; • Reduction of pollution generated in the Drainage Basin and spilled into the Lagoon of Venice; • Creation of the final discharge into the Adriatic Sea, freeing up important water resources derived from the River Sile to be allocated to the poorer areas in southern Veneto.

Policy characteristics	Collected data
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	Each Body and institution has its own website with specific references to the interventions in the industrial area of Porto Marghera.
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	<ul style="list-style-type: none"> • The Ministry and the Veneto Region will establish, a new agreement for the Chemistry of Porto Marghera, through which it's possible to ensure immediate feedback to the enterprises about characterisations and reclamations; • The reclamations interventions shall begin within six months from the project approval and more attention will be put to the time schedule of reclamation activities themselves; • Immediate restitution to legitimate uses of portions of the Site of National Interest found "not contaminated" for all environmental matrixes, still with the obligation of reclamation for the contaminated portion of the site;
4.6 Corrective measures	The "Memorandum for the Sharing of the strategic lines for the requalification and development of Porto Marghera" highlighted the lines and actions for the restoration process and implemented a close examination of priorities compared to that previously defined by other Agreements.
4.7 Maximum and minimum total budgets for the policy	<p>For the reclamation interventions, funding has been derived from other programs and Laws of national relevance:</p> <ul style="list-style-type: none"> • The Law of December 9, 1998, on "New measures in the environmental field" includes public financial participation in the implementation of interventions of reclamation and environmental restoration of polluted sites, • The Ministry of Environment has adopted the "National Program for reclamation and environmental restoration of contaminated sites which establishes the criteria for identifying beneficiaries and financing individual interventions; • The total financial available is approximately €1.6 billion arising from the special legislation for Venice and approximately €7.3 billion from the reclamation national program.
4.8 Number of projects supported by the policy	<p>Restoration actions for the protection of the environment:</p> <ul style="list-style-type: none"> • Excavation of channels; • Dismantling of facilities in disposal, securing the sites and/or site reclamation; • Guidelines for the definition of the security plan in port areas; • Reduction of risks in movement of goods; • Rationalisation and development of the FF.SS yard in the port area; • Remote control of movement; • Voluntary agreement for the environmental certification of the chemical industries; • The integrated system for environmental monitoring and industrial risk and emergency management; <p>Private sector projects: 11 projects for 9 companies.</p>
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	Not reported
5 Main achievements principali risultati	
5.1 The extent to which the goals have been attained	<p>The objectives have been partially achieved and updated in accordance with the needs for improvement emerged over time.</p> <p><i>The goals are known but the simplified procedures, as well as on-line and telematic ways of inquiries are not implemented so far. The Fusina ecological area is not operating yet and the its regulations and costs are not known.</i></p> <p><i>Subsequent to the signing of the third agreement, the industry was asked to propose ways for sustainable remediation. The industry replied that remediation in itself is not a goal, but should be linked to future activities</i></p>

Policy characteristics	Collected data
	<p><i>in the regions. Currently, the industry is working with the Regione Veneto to develop protocols describing the necessary activities to remediate specific types of pollution. However, the protocols have not yet been approved (the interview took place on 30 October 2012) since their submission to the regional authority in May 2012, although the timeline for this is sixty days. Also, inspections are supposed to take place within 45 days of a request by the industry, but this timeline is not respected either.</i></p>
5.2 Key outcomes of the policy	<p>Regarding the implementation of the Program, the coverage for the environmental characterization of the area is almost entirely complete. 50% of the industrial area is affected by reclamation projects or safety measures approved definitely (and therefore immediately executable) or already carried out. Over 90% of the industrial area has already activated an environmental process aimed at reclamation.</p> <p><i>The policy aiming to simplify and accelerate procedures has been creating new expectations and hopes for development among the firms now operating in Porto Marghera, because it seems to accept:</i></p> <ul style="list-style-type: none"> - <i>the possibility to adopt remediation activities in the context of building or re –building actions;</i> - <i>the possibility of reindustrialization only by adopting safety measures to enclose polluting substances.</i>
5.3 Importance of these outcomes for beneficiaries/region/industry	<p>The results achieved have enabled the beneficiaries to keep their activities within the area of Porto Marghera, but also highlights some issues, represented by the difficulty in completing the reclamation procedures of some areas.</p> <p><i>The outcomes of the policy, if implemented according to the project, are expected to create the basis for development and employment in the area by the creation of new plants and by improvement of the existing ones.</i></p> <p><i>Porto Marghera site has 300 companies, of which 10-12 companies are large, international firms. The smaller firms all act as suppliers to the larger companies. In recent years, two major international companies (Dow Polimeri and Polimeri Europa) left Porto Marghera because of the limits imposed on investment as a result of the subsequent Programme Agreements and the slow decision making by the regional authority. The only new investments that have been done concern takeovers of existing sites that were abandoned when companies left. No new sites have been built and no expansion of existing sites has taken place since 1998.</i></p>
5.4 Unintended negative changes that can be attributed to the policy (if any)	<p>The reclamation of the contaminated sites within the SIN in some cases threatened to upset the management of production facilities with particular reference to maintenance affecting the basement (laying of conduits, underground pipes, fiber optics, sewer): to curb this problem in 2003 the procedures for running the sub-services, of works related to road public service for mobility, primary urbanization works were approved.</p> <p>The slowness of the authorization processes and the high costs of interventions, which has led to some multinational companies leaving the area.</p> <p><i>The policy introduced by the Agreement of April opens to the possibility for Veneto Region of mapping free areas for new activities; this includes the possibility to shift some existing plants because of their incompatibility with the area: the risk is that some existing plants may be obliged to move from an area declared incompatible with the specific production to another more compatible may cause alienation of investments and uncertainty for the future until these areas are defined.</i></p>
6 Main strengths and weaknesses	
6.1 Key strengths of the policy	<p>The strengths of the agreement is represented by the joint desire for environmental requalification of the site of Porto Marghera and by the subsequent attempts to make the area attractive for new investments, thus focusing the attention on the potential investment and job creation in the area.</p> <p><i>The key strength of the policy lays in the new attitude of the public bodies which seem determined to enable new investments encouraging activities</i></p>

Policy characteristics	Collected data
	<i>of sustainable permanence in the area.</i>
6.2 Key weaknesses of the policy	<p>Length of the bureaucratic and authorization processes.</p> <p><i>The key weakness of the policy lays in the length of the bureaucratic decisions: the adoptions of the simplifying procedures would have been adopted within 3 months since the subscription of the agreement, but up to now nothing has been stated and the risk is to turn expectation into delusion on the productive side.</i></p>
6.3 New opportunities created by the policy (for the region, for industry)	<p>Requalification of the SIN of Porto Marghera and process of re-industrialisation of the area and availability of open spaces suitable for building.</p> <p><i>If the goals are fulfilled, it is sure that for industry there will be new opportunities of development, employment and market; Veneto Region will obtain remediation of sites now abandoned, requalification of urban areas and development of the local economy.</i></p>
6.4 External threats to the policy	<p>Industrial crisis at a global level, displacement of enterprises as a result of incentives offered by other nations and the Kyoto Protocol. Implementation of increasingly restrictive EU directives.</p> <p><i>The new approach towards the problem of Porto Marghera is finding obstacles from central bureaucracy which does not share the same logic which brought Ministry of Environment and Veneto Region to the Agreement. The main obstacles derive from the institutional Bodies which have to control and state the fulfilment of remediation or the lack of risk for the areas where safety measures are adopted.</i></p>
7 Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	<p>Length of the bureaucratic and authorisation processes.</p> <p><i>By now the difficulties for the industry of Porto Marghera lays in the uncertainty of the results and of the timing of the expected simplifications</i></p>
7.2 Reasons behind these difficulties	<p>The authorisation system is cumbersome and the economic situation makes some projects and investments unattractive.</p> <p><i>The reasons are mainly in the apparent stop of the development of the simplifying procedures.</i></p>
7.3 The way these difficulties were tackled by the beneficiaries	<p>Request for streamlining of the bureaucratic processes</p> <p><i>At the moment the plants in Porto Marghera are waiting for the promised simplifications; yet they are still operating according to projects and prescriptions already adopted before the Agreement of April.</i></p>
8 Lessons learned	
8.1 Key learning points from the implementation of the policy	None reported
8.2 Effect of lessons learned on other policies	Establishment of the Board for chemistry of Porto Marghera, which gathered organizations, companies and social partners in drafting the new Agreement.
8.3 Suggestions for improvement	<p>The Program Agreement for the Reclamation and Environmental Restoration of Porto Marghera indicates the possibility of referring to the regional offices to start a more direct relationship between the companies and the Public Administration.</p> <p><i>Industry needs local authorities and Ministry to understand that no remediation activity can now be economically justified if new investments and development is possible. So if local and national policy aims to improve the welfare in an area such as Porto Marghera, remediation must be accepted in the contextual plan of development. There can never be remediation without a new project of development.</i></p>
9 Transferability to other regions	
9.1 Similar policies in other regions	None reported

Policy characteristics	Collected data
	<i>Agreements are being signed in Italy in almost all sites of national interest for remediation, but the simplified procedures are peculiar of Porto Marghera. It seems that after the third agreement in Porto Marghera also an agreement was signed in Trieste and that something similar was planned in Livorno.</i>
9.2 Region-related factors that make this policy successful	<p>Other sites of national interest in Italy, which may incorporate the presence of an important industrial activity related to chemical production, the concomitant need for environmental requalification and the presence of an economic and employment crisis.</p> <p><i>One positive factor that makes possible a positive simplification and consequently swift application of new procedure is the existence of the infrastructure for the depuration of groundwater. It is a collective system to remediate to polluted groundwater which excludes local and individual remediation with a very good cut on the expenses.</i></p>
9.3 Barriers for transferring the policy to other regions	<p>The Agreement depends on the area involved, its size, the many companies settled there, the type of activities historically carried out and the time of crisis experienced by the chemical industry. The implemented policy, therefore, cannot be replicated in all the cases but only with the concomitant presence of such factors.</p> <p><i>The policy, in its philosophy, can easily be transferred to other regions where there are similar conditions, but some peculiar characteristics, such as the presence of a collective depurative system of groundwater and an area almost totally characterised, cannot be found in other area where historical pollution may be similarly present.</i></p>

B.3.4. Wallonie REACH Implementation Programme

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy (region)	WALRIP (Wallonia)
1.2 Brief description	Wallonie REACH Implementation Programme
1.3 Policy focus	Helping SMEs to know if they are concerned by REACH, and if so, how to proceed to the Implementation of REACH.
1.4 Policy instruments involved	Trainings and exchange sessions
1.5 Policy level	Purely regional policy;
1.6 Policy period (mm/yy - mm/yy or present)	10/2007-11/2008 (WALRIP 2 planned to support SMEs for 2013 deadline)
2. Rationale and target group	
2.1 The goal of the policy	Helping SMEs to know if they are concerned by REACH, and if so, how to proceed to the Implementation of REACH.
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	None
2.3 Policy partners	Essencia Wallonia
2.4 Involvement of other regions in the policy	None
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	SMEs, particular industries – producing, transforming or consuming chemical substances
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	SMEs

Policy characteristics	Collected data
3. Implementation and management	
3.1 Responsible Managing Authority	Private body named and approved by the regional authority (Essenscia)
3.2 Key tasks of Managing Authority	Organising and promoting the sessions
3.3 Instruments used to monitor the implementation of the policy	Report presented by the Managing body to the Steering Committee
3.4 Key difficulties encountered during implementation	None reported
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	None.
3.6 Ex-post evaluation of the policy (including time period when it took place)	None.
3.7 KPIs used to measure the outputs	Number of enterprises that came to the sessions Feedback provided by participants about various aspects of the quality (response rate 62%)
3.8 Approach towards evaluation	N/A
4. Legal and financial framework	
4.1 Policy-related legislations	REACH, which created the need for the policy
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	None reported
4.3 Support services offered to the beneficiaries	- sensibilisation seminars to REACH -specific training on how to implement REACH - specific trainings on CLP (Classification Labelling & Packaging) - Experiences Exchange Groups
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	None reported
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	Regional authority reports deadline of November 2008 (related to deadline for pre-registration under REACH). <i>Beneficiary claims that activities are ongoing until early 2013 (related to second registration deadline under REACH).</i>
4.6 Corrective measures	None reported
4.7 Maximum and minimum total budgets for the policy	110 k € (Essenscia paid € 6K themselves)
4.8 Number of projects supported by the policy	- sensibilisation seminars to REACH : 10 sessions -specific training on how to implement REACH: 10 sessions - specific trainings on CLP (Classification Labelling & Packaging): 10 sessions - Experiences Exchange Groups: 20 sessions
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	Not applicable
5. Main achievements	
5.1 The extent to which the goals have been attained	Seen as a success, because of numbers of participants were in line with expectations and participants responded positively in evaluation survey. <i>Essenscia informed about 300 companies (chemicals industry and downstream users) about the importance of REACH (phase 1), then about registration (phase 2) and classification (phase3). Phase 4 still continues until mid-2013 and allows companies to discuss their experiences with REACH.</i>

Policy characteristics	Collected data
	<i>Essenscia expects to ask for new support in 2017 with regard to the new 2018 REACH deadline.</i>
5.2 Key outcomes of the policy	477 people have benefited from the actions (coming from 282 companies). Not entirely clear whether only SMEs participated as intended or that also large companies joined the meetings.
5.3 Importance of these outcomes for beneficiaries/region/industry	Not reported
5.4 Unintended negative changes that can be attributed to the policy (if any)	None reported
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	<i>Essenscia is happy with the support from Walloon Government, which subsidises the significant manpower required by the programme.</i>
6.2 Key weaknesses of the policy	None reported
6.3 New opportunities created by the policy (for the region, for industry)	None reported
6.4 External threats to the policy	None reported
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	None reported
7.2 Reasons behind these difficulties	N/A
7.3 The way these difficulties were tackled by the beneficiaries	N/A
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	None reported
8.2 Effect of lessons learned on other policies	None reported
8.3 Suggestions for improvement	None reported
9. Transferability to other regions	
9.1 Similar policies in other regions	None reported, but many other regions in the study have referred to REACH compliance support in one way or another. Such appears to be commonly implemented by the national or regional chemicals industry association (i.e. equivalent to Essenscia).
9.2 Region-related factors that make this policy successful	None.
9.3 Barriers for transferring the policy to other regions	None.

B.4. Education & skills policies

B.4.1. Flanders Sectoral Covenants

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy (region)	Sectoral covenants, specifically the “Samenwerkingsprotocol tussen de Vlaamse Overheid en de sociale partners van de chemiesector” (Flanders)
1.2 Brief description	Sectoral covenants are protocols of cooperation between industries, labour unions (i.e. sectoral social partners) and the Flemish Government on current topics, such as: <ul style="list-style-type: none"> improving the connection between education and the job market,

Policy characteristics	Collected data
	<ul style="list-style-type: none"> • support for the development of new competences, and • increasing diversity in the labour market. <p>There is a clear challenge in matching the processes of the chemicals industry to the workforce that is available. One aspect of this is the governments diversity policy, aimed at securing employment for women and immigrants. Specific aspects of the chemicals industry include the 24/7 production process, the industry's capital intensity and resulting requirement for significant technical skills even in blue-collar jobs and other aspects of complexity and security.</p> <p>The sectoral covenants are a powerful instrument in achieving a sectoral policy that reinforces the Government's employment policy. Through the sectoral covenants the industries contribute to the priorities of the labour market policy and attempt to increase the number of people employed by recognising, developing and utilising talent.</p> <p>Currently sectoral covenants have been signed with 32 industries. The implementation of the activities in the sectoral covenants is done by 115 sectoral consultants, who work at the paritary sectoral organisations. The sectoral consultants are subsidised by the Flemish Government. In principle, the covenants have a duration of 2 years.</p> <p>One such agreement was made with the chemicals sector for the first time for the period 1 September 2004 until 31 August 2006. During that period, four sectoral consultants were awarded to the sector. The covenant has been repeatedly extended and is still in place today.</p>
1.3 Policy focus	<ul style="list-style-type: none"> • improving the connection between education and the job market, • support for the development of new competences, and • increasing diversity in the labour market
1.4 Policy instruments involved	<p>Depending on its size and the agreements made, a sector receives a certain amount of subsidies that are to be used to hire consultants who implement the activities of the sectoral covenant.</p> <p>The policy consists of long-term agreements on (professional) education, traineeships and investments in training facilities. The latter are used to allow newcomers to the chemicals industry to gain experience in working with the technology that is specific to this capital-intensive sector. The covenants are industry-specific and are negotiated between the industry representatives and the government to create a match between the policy goals for employment and the industry requirements for skilled workers.</p> <p>The chemicals sector was impacted less by the economic crisis than the metals sector. It is Flanders' third industrial sector. As 22% of employees are over 55, the demand for skilled workers in this industry is expected to continue to be significant.</p> <p>Together with the chemicals and other sectors, the Flemish government negotiated education and training programmes on such topics as Dutch as a second language, driving forklifts, skills required for the plastics sector and the certificate for truck drivers that is required for the transportation of hazardous substances. Most programmes are co-financed by the government and the industry together, but as of 2012 the last programme mentioned above is fully industry-financed (although some of industry's funds may have been acquired through an ESF subsidy).</p> <p>The Flemish Service for Job Placement and Professional Education (VDAB) has traditionally been oriented towards employment for the relatively lowly educated, but in the case of the chemicals industry it is involved up to the level of process managers. There is a specific education programme to become qualified as a process manager, provided by ACTA (the Education Centre for Technology and Automation).</p>
1.5 Policy level	Purely regional policy;
1.6 Policy period (mm/yy - mm/yy or present)	2001-present (availability of the policy; chemicals sector started in 2004)
2. Rationale and target group	
2.1 The goal of the policy	The industries play an important role in the Flemish labour market policy. Examples of this are policy actions directed at specific worker groups in the context of diversity, education of workers and the assistance for the unemployed in getting new jobs. The sector covenants engage the sectoral social partners in implementing the priorities of the labour market policy. In doing so, the sectoral policy supports the Flemish labour market policy.

Policy characteristics	Collected data
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	None
2.3 Policy partners	<p>The following partners are directly involved in the process through a government working group:</p> <ul style="list-style-type: none"> • Ministry of Labour • Department for Work and Social Economy • Ministry of Education • Department of Education, Training and Work • Flemish Labour Mediation Service • Syntra (Flemish entrepreneurship support centre) • SERV (Social-Economic Council of Flanders, which provides the platform for discussion and cooperation between employers' and workers' organisations) • VLOR (Strategic Council for Education and Training) • The network of Regional Technological Centres <p>Note: This working group did not exist during the period 2004-2006. Note2: An important role is played by the Flemish Social-Economic Committee (VESOC), which approves the framework for each generation of sectoral covenants from a cross-industry perspective and also monitors the progress and evaluations of the policy instrument.</p>
2.4 Involvement of other regions in the policy	None
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	The beneficiary varies for each sector. The instrument demands that it is managed by employers and workers in an equal representation. Management organisations are often education funds or associations.
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	Through the nature if the actions taken the instrument targets students, job seekers, workers and employers in a specific industry.
3. Implementation and management	
3.1 Responsible Managing Authority	<ul style="list-style-type: none"> • Regional authority;
3.2 Key tasks of Managing Authority	<ul style="list-style-type: none"> • Negotiating the contents of the sectoral covenant with the industry, as well following up its actions and evaluating together with the industry • Functioning as a point of contact for the industry • Monitoring and evaluating the instrument as a whole
3.3 Instruments used to monitor the implementation of the policy	<ol style="list-style-type: none"> 1. Within SERV the sectoral consultants meet to exchange experiences and information, testing policies and proposals etc. The networks meet four times a year. There are three networks: <ul style="list-style-type: none"> • connection education – labour market; • life-long learning and competence policies; • diversity and specific groups of workers. 2. All sectoral covenants are monitored and evaluated annually by the Flemish government. At the end of the year and at the end of the covenant, the industry is required to submit a progress report or a final evaluation report respectively to the Flemish Government, based on a template provided by the Department of Work and Social Economy. The Government regularly provides a report to VESOC. 3. In order to be able to follow-up and optimise the impact of the labour market policy within the industries, the Department of WSE has developed “sectoral pictures” since 2010, which provide a detailed view of the labour and education markets.
3.4 Key difficulties encountered during implementation	The covenants demand activities from the industries. Therefore, the industries have to show that they undertook sufficient activities to realise the required actions. It would be easier to monitor and evaluate if we would agree on results rather than activities.
3.5 Presence of the monitoring committee for the implementation of the policy	During 2005-2006 the representatives of the ministries and working group members involved were also invited to discuss the evaluation reports with the industries.

Policy characteristics	Collected data
(if yes, its key tasks and stakeholders that were represented)	
3.6 Ex-post evaluation of the policy (including time period when it took place)	Idea Consult drafted an Annual and Evaluation report in 2007 about the sectoral covenants 2005-2006.
3.7 KPIs used to measure the outputs	The Evaluation was focussed on content and quality.
3.8 Approach towards evaluation	As mentioned above the evaluations focus on actions and activities. Industries have to demonstrate that they undertook sufficient action.
4. Legal and financial framework	
4.1 Policy-related legislations	The Flemish Parliament approved the decree on sectoral covenants on 4 March 2009. The decree provides a legal basis for signing covenants between the Flemish Government and the industries. Among other things, it governs the industry-specific measures that can be included in covenants.
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	<p>The administrative burden for the industries are in drafting the covenants and the monitoring and evaluation reports, as well as the accounts related to the covenant activities.</p> <p>For the Government the signing of the covenant and the attached administrative procedures, as well as the evaluations and the advice to the Minister are important tasks.</p> <p>Challenges are mainly to arrive at a shared point of view for the industry involved in the covenant (supported by social partners and the government) and the evaluation. On the one hand, we want to evaluate the resources used, but on the other hand there is great benefit in capturing policy signals. The latter benefit can only be achieved if the industry is willing to share its concerns, which is a challenge.</p> <p><i>Sectoral covenants are relatively simple in terms of administrative procedures. E.g. a lot easier than EU subsidies. All burdens are with the educational funds, not with individual companies.</i></p>
4.3 Support services offered to the beneficiaries	<p>The following support is provided during the negotiations:</p> <ul style="list-style-type: none"> • An event during which the framework for the programme is launched, with workshops • Additional networks to further explore specific themes under the framework • Coaching sessions for new industries or industries who request this • A point of contact in the Government • Website: www.werk.be/infopaginasectoren <p>During the implementation and evaluation of the covenant the industry can also approach this point of contact.</p> <p><i>For the chemicals industry this support is no longer very important, due to long experiences with the covenants.</i></p>
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	<ul style="list-style-type: none"> • Every other year an event for the launch of the new framework • Policy briefs or reports after the evaluation • Website
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	The timing of the covenants was changed during the years. Covenants used to differ in terms of their duration. They were subsequently synchronised to start on 1 January and end on 31 December two years later. Depending on the context, this duration can be used in a flexible manner. The current covenants 2010-2011 were extended to include the year 2012 in order to be able to incorporate the new "career contract" in the next covenants.
4.6 Corrective measures	None reported
4.7 Maximum and minimum total budgets for the policy	<p>This depends on the number of industries that participate in covenants. The budget has increased during the last years.</p> <p><i>The chemicals industry is awarded five consultants, at € 255,000 per year.</i></p>
4.8 Number of projects supported by the policy	At this time there are covenants with 32 industries
4.9 Average budget size of projects within the policy;	<p>Minimum: 1 consultant/51,000 euro/year</p> <p>Maximum: 10 consultants/510,000 euro/year</p>

Policy characteristics	Collected data
maximum and minimum size of projects	
5. Main achievements	
5.1 The extent to which the goals have been attained	<p>A study conducted in 2008 by HIVA showed that the covenants have assisted in translating the overall social policy into specific industries. The chemicals industry has always received a positive evaluation of its efforts.</p> <p><i>Since 2005 (respondent's perspective) the policy is successful in bridging the gap between education and industry. There is hardly any education left that does not fit the needs of the industry.</i></p>
5.2 Key outcomes of the policy	<p>A clear dynamism has been established in the industries around the 3 covenant themes:</p> <ul style="list-style-type: none"> • connection education – labour market; • life-long learning and competence policies; • diversity and specific groups of workers. <p><i>More attention for competence approach as a result of government attention for this. Especially for SMEs the awareness of the importance of competences has increased. Also, the studies that are of key importance to the industry are well known now. Essenscia works together with the education centres and provides a good fit by well-connecting on the job training in companies. We also promote these studies and see the number of students increase strongly.</i></p>
5.3 Importance of these outcomes for beneficiaries/region/industry	<p>The latest generation of covenants (2010-2012) has explicitly asks about challenges in the industries and the link between the actions proposed. The outcome of the covenant actions have a direct impact on the challenges that the industries concerned are faced with. The covenants and the networks within SERV have improved the cooperation between industries, but also between Government services, such as the VDAB.</p> <p><i>Very important as Flanders has an ageing problem, the workforce gets older and starting in 2017 a lot of workers in the chemicals industry will retire. We cannot do the work with fewer people, hence we need to ensure replacement.</i></p> <p><i>As most Flemish companies are mostly domestically-oriented, companies look towards education to remedy the gap between supply and demand. Also Flanders has strong labour unions and the industry requires relatively much specialisation, so looking abroad for e.g. process operators is not common. There are movements beginning in this area, but still very small.</i></p>
5.4 Unintended negative changes that can be attributed to the policy (if any)	<p><i>In addition to sectoral covenants there are also educational covenants, which makes the policy complex. This was caused by the split between the Ministries of Work and Education.</i></p>
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	<ul style="list-style-type: none"> • Covenants are a good instrument to translate Flemish labour market policy to the industry context. Especially the last generation of covenants departs from the industries' individual positions. • The use of consultants creates a dynamism in the industries. • Communication between industries and Government have improved in this policy domain. <p><i>Most important is that the industry is forced to address topics that otherwise would not be considered. We become more creative in addressing these topics.</i></p> <p><i>The covenants also helped us to develop our role as one of the social partner. Our natural tendency used to be to go it alone, now we work together with unions more often.</i></p>
6.2 Key weaknesses of the policy	<p>Monitoring of results is difficult due to the activity-oriented covenants.</p> <ul style="list-style-type: none"> • <i>Large firms are more easily reached than SMEs, because they have professional HR departments.</i> • <i>Financing does not cover all costs associated with actions from the sector, only extends to 65% of the salary costs of the consultants, no other costs of the actions.</i> • <i>The chemicals industry would like to have more sectoral consultants. There is a total of 116 consultants available, but more industries enter into a covenant every year. We are planning to finance a sixth consultant of our own, but that will take place outside of the covenant.</i>

Policy characteristics	Collected data
6.3 New opportunities created by the policy (for the region, for industry)	<p>During the economic crisis addenda were added to the sectoral covenants to award additional financial support to specific industries, thus maintaining educational participation.</p> <p><i>Sectoral covenants can be said to be well-anchored, will not disappear when a new government takes office. The themes of the covenants live strongly in the chemicals industry.</i></p>
6.4 External threats to the policy	<p><i>Agreement between industry and the labour unions is required for the policy to work. This comes easy when it comes to connection education to the labour market, as industry and the unions have a shared interest. However, it is more difficult with regard to competence profiles and retirement age. The Flemish government wants to introduce these themes in the sectoral covenants, this will lead to difficulties.</i></p> <p><i>Also, the Government has sometimes too high expectations of what a sectoral covenants can do. Diversity remains a challenge, which is not solved by a sectoral covenant. E.g. women do not choose the relevant studies and the handicapped cannot always work in chemical installations. More flexibility would be good, more input from the industry on sector-specific topics.</i></p>
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	<ul style="list-style-type: none"> • Administrative burden • Partnership and cooperation are key success factors for many activities, which requires much efforts from all parties involved • Internal support with employers and workers is required <p><i>No good way to engage SMEs. We do not have a solution for this, except for visiting all individual companies, which is very time-intensive.</i></p>
7.2 Reasons behind these difficulties	See 7.1
7.3 The way these difficulties were tackled by the beneficiaries	The Government has continuous attention for reducing the administrative burden. The other challenges are met by each industry in a different manner.
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	<p>Each industry has its own challenges, way of working and agenda. In order to successfully implement our agreements, the Government needs to take the industry's reality into account. Positive cooperation emerges when the Flemish policy is translated into the sectoral reality.</p> <p><i>The suggestion is made to give the industry sufficient room to maneuver. Currently the structure is the same for all sectors. Sector-specific elements would make it possible to connect the actions under the covenants even more to the actual problems faced by the industry. This applies mainly in the negative sense. Example "workable work" will lead to discussions with the labour unions on topics such as taking older employees out of night shifts that we can hardly resolve.</i></p>
8.2 Effect of lessons learned on other policies	None reported
8.3 Suggestions for improvement	The lessons learned described above inspired the changes way of working for the 2010 covenants. The industries now first prepare a vision and set priorities, to which they attach the proposed actions.
9. Transferability to other regions	
9.1 Similar policies in other regions	None known
9.2 Region-related factors that make this policy successful	<p>Other government actors (i.e. VDAB, Syntra, the education sector, RTC and others) use the sectoral covenants as a basis for agreements with the industries. This relates strongly to the way the agencies are organised in Flanders.</p> <p><i>The long experience with this policy makes it work well, but does not provide an obstacle to transfer to other regions.</i></p>
9.3 Barriers for transferring the policy to other regions	<p>This policy instrument has strong roots in the way the agencies are organised in Flanders.</p> <p><i>Regions that are not competent in the area of education and labour market. Doing this at the national level, especially in large countries, would be more difficult.</i></p>

B.4.2. Schleswig-Holstein Chemistry Campus

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy	Chemistry Campus SH (Schleswig-Holstein)
1.2 Brief description	This policy / project is aimed at the implementation and furthering of continuing education programs. These programs will be carried out by the Volkshochschule Brunsbüttel (VHS), which is the regional institution for professional training at the west coast of Schleswig-Holstein, and the University of Applied Science in Lübeck (Fachhochschule Lübeck, FHL) with its centre for competence in plastics engineering. The target group is the chemical industry and their suppliers.
1.3 Policy focus	Continuing education and qualification for SME; Furthering and securing of skills.
1.4 Policy instruments involved	Training
1.5 Policy level	National policy implemented at a regional level (federal)
1.6 Policy period (mm/yy - mm/yy or present)	01/2011 – 12/2012
2. Rationale and target group	
2.1 The goal of the policy	1 st : Furthering of the skills in plastics engineering at SMEs to strengthen their competitiveness and ability to innovative; 2 nd : Building up of a chemical knowledge base for subcontractors and service companies in the VHS and FHL.
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	The idea behind developing new qualification modules is based on improving the qualifications of the EU workforce. Online training is not new, but improving competence in plastics by online studies is possible for the first time in Germany. The same program in Brunsbüttel aims to qualify workers of subcontractor companies to work in chemical plants. No role models were used.
2.3 Policy partners	Business Development Agency Brunsbüttel, Ministry for employment
2.4 Involvement of other regions in the policy	No involvement
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	SMEs, service companies, University of Applied Science Lübeck, Volkshochschule Brunsbüttel
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	Chemical industry, Chemical associations, unions, job centres (e.g., researchers, cluster organisations, non-governmental organisations etc.)
3. Implementation and management	
3.1 Responsible Managing Authority	Business Development Agency Brunsbüttel as a publicly owned agency (public body).
3.2 Key tasks of Managing Authority	Administration, accountancy
3.3 Instruments used to monitor the implementation of the policy	Evaluation after the first two years of the project.
3.4 Key difficulties encountered during implementation	The challenge was to bring together the different cultures of university and technical education, to convince the company partners to support new qualification programs and to set up the cooperation of institutions in regions which are far apart geographically. Dissemination of the companies in the region has proved more difficult than expected. The public body has close contact with chemical businesses, but it is difficult to maintain contact with service industry due to a lack of interaction channels. For instance, there is no database listing such companies.. Nonetheless, regional business development agencies are working on reaching these companies through networks and public relations.
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	No monitoring committee.
3.6 Ex-post evaluation of the policy (including time period when it took place)	Yes, in 2013
3.7 KPIs used to measure the outputs	<ul style="list-style-type: none"> • Number of new qualification modules • Number of participants in implementation phase • Number of staff trained
3.8 Approach towards evaluation	Comparing the number (and quality) of the established programmes / lectures with the targeted results.

Policy characteristics	Collected data
4. Legal and financial framework	
4.1 Policy-related legislations	None
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	The financial management, the reports and the explanation for costs are very time consuming. Coordination of two very different partners is more challenging than expected.
4.3 Support services offered to the beneficiaries	Financial management, reports and public relations. <i>Regional authority helped a bit in marketing the courses.</i>
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	Public relations: press releases and brochure. <i>Send a report every half a year to the regional authority. Occasionally, project meeting with the policy partners is conducted.</i>
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	Implementation of activities is according to the application
4.6 Corrective measures	None
4.7 Maximum and minimum total budgets for the policy	€240,560 in total
4.8 Number of projects supported by the policy	2
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	€240,650
5. Main achievements	
5.1 The extent to which the goals have been attained	The first year was used to develop and design the training modules, which are now mostly finished. The implementation phase has started, and training schedules have been established.
5.2 Key outcomes of the policy	More local companies are able to do services in chemical plants, large companies have become more flexible in choosing qualified subcontractors for their plant revision, making this work more efficient. The plastic knowledge from the online-education will help to develop advanced techniques in using special materials in products. <i>The strengthening of the knowledge base of technical workers in companies, mainly SMEs.</i>
5.3 Importance of these outcomes for beneficiaries/region/industry	<ul style="list-style-type: none"> Beneficiaries: Extension of qualification range; Region: Increased competitiveness of regional companies (SME); Industry: better supply of qualified workforce in the region. <i>Improve quality of products developed reducing failure. This, in turn, will lead to economic benefits.</i>
5.4 Unintended negative changes that can be attributed to the policy (if any)	<i>Companies have to be careful with the implementation. Workers may take advantage by being absent from work by using training as an excuse.</i>
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	Policy leads to more qualification of workforce in the region. The chemical industry gets more into the focus as an important sector for employment. <i>Building knowledge base of companies, imparting knowledge about the whole value chain rather than only a specialised area to workers.</i>
6.2 Key weaknesses of the policy	A small group of very specialised experts. There are a few companies and therefore a few hundred participants. Use of online training for plastics field in the region is less-widely used. Technical education is needed in the region.
6.3 New opportunities created by the policy (for the region, for industry)	<i>Possibility to transfer and to develop other courses. Courses can be used in existing teaching, and can be exchanged with other institutions in other parts of the world.</i>
6.4 External threats to the policy	No headquarters and research units in large regional companies, domination of SME with little capacities. <i>Competitors develop better courses; FHL is the only supplier of such courses at the moment, successful companies may develop these courses, dependent on economic environment of the region.</i>
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	No additional difficulties to the above mentioned
7.2 Reasons behind these difficulties	N/A
7.3 The way these difficulties were tackled by the beneficiaries	N/A

Policy characteristics	Collected data
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	To convince companies to support the program, a clear description and a defined benefit is important. Strong support of managing authorities helps to disseminate results to the public.
8.2 Effect of lessons learned on other policies	Other programs follow the same procedure, challenges and difficulties.
8.3 Suggestions for improvement	None reported
9. Transferability to other regions	
9.1 Similar policies in other regions	We intend to promote the program throughout Europe with help of the ECRN European Chemical Regions Network. <i>Other regions offer face-to-face courses but not the same course.</i>
9.2 Region-related factors that make this policy successful	Density of chemical companies in the ChemCoast Park Brunsbüttel and its vicinity. A large number of service companies are located in the region. <i>The FHL has close relations with the company partners in the strong processing polymers field, which mainly consists of SMEs who need the supports offered by the policy. The support can thus be tailor-made to the needs of SMEs in the region.</i>
9.3 Barriers for transferring the policy to other regions	The online module is very interesting. It is easy to transfer. <i>Plan to expand these courses to the whole of Germany first, thinking about translating courses to exchange partners; development project team is more regional.</i> <i>Courses can be transferred to other regions. However, there are a few barriers - Infrastructure consisting of hardware/software demands million of investments. Moreover, the courses are as per the needs of the region. Nevertheless, the framework can be applied in other regions.</i>

B.4.3. Ústí Stipends for secondary school pupils

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy	Stipends for secondary school pupils – chemistry. (Ústí)
1.2 Brief description	This policy is part of the Motivation programs for secondary school pupils. The programs are realised from September 2011 and is meant for pupils who have started their education in school years 2009/2010, 2010/2011 and 2011/2012 and are the citizens of Ústí region. Important is to motivate pupils of last grades in primary schools to choose and start their secondary education in branches demanded by labour market. Among 10 branches supported by Ústí Region are mostly handcraft ones (vocational training). The only one (applied chemistry) is a branch finished by graduation exams (A Levels/Matura).
1.3 Policy focus	The policy focuses on sufficient offer of skilled young people who can meet the demand of chemical industries in the region. <ul style="list-style-type: none"> • Employment; • Education & skills.
1.4 Policy instruments involved	Stipend for secondary school pupils of an Applied Chemistry branch.
1.5 Policy level	Purely regional policy.
1.6 Policy period (mm/yy - mm/yy or present)	The motivation program is realised from September 2011.
2. Rationale and target group	
2.1 The goal of the policy	The aim of the policy is to help to meet the supply and demand on the labour market.
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	None
2.3 Policy partners	Secondary schools founded by Ústí Region who offers the supported branches.
2.4 Involvement of other regions in the policy	None
2.5 Key beneficiaries of the policy	- pupils

Policy characteristics	Collected data
(beneficiaries here refer to groups that are directly targeted by the policy)	- secondary schools - enterprises demanding the supported branches
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	- regional authority - municipalities - secondary schools - primary schools - job agencies - enterprises - Council for HR development - Committee for Education.
3. Implementation and management	
3.1 Responsible Managing Authority	Regional Authority (Ústí Region).
3.2 Key tasks of Managing Authority	- setting of conditions - administration - communication - payment unit - Control and audit.
3.3 Instruments used to monitor the implementation of the policy	- Control and audit.
3.4 Key difficulties encountered during implementation	- Administrative demands.
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	No
3.6 Ex-post evaluation of the policy (including time period when it took place)	The motivation programs assure not ending of some educational branches demanded from enterprises. Even the Applied Chemistry would be threatening by lack of pupils if the stipend program would not exist. And according to this the local enterprises could not find enough skilled workers in the region.
3.7 KPIs used to measure the outputs	Number of pupils starting the branch.
3.8 Approach towards evaluation	Comparing the number of pupils in school years.
4. Legal and financial framework	
4.1 Policy-related legislations	None
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	Keeping the program in the next years. <i>To overcome public verdict of chemistry as an obsolete heavy industry with negative influences on ecology and low possibility of employment of qualified workers.</i>
4.3 Support services offered to the beneficiaries	- information in the internet (<i>website of the regional authority</i>) - Technical support from the regional authority and from secondary school.
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	- Cooperation with Council for HR development and Committee for Education. <i>Advertising in the press</i>
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	None reported
4.6 Corrective measures	None reported
4.7 Maximum and minimum total budgets for the policy	A stipend for a pupil is: 1 st grade ... 300 CZK (\approx € 11.84) monthly 2 nd grade ... 400 CZK (\approx € 15.78) monthly 3 rd grade ... 500 CZK (\approx € 19.73) monthly 4 th grade ... 500 CZK (\approx € 19.73) monthly (there is a higher support if the pupil has good school results) Almost 1 million CZK (\approx € 39,460) for stipends to secondary school pupils per year.
4.8 Number of projects supported by the policy	In Applied Chemistry it is about 20 new pupils in a school year.
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	See 4.7.
5. Main achievements	
5.1 The extent to which the goals have been attained	Sufficiency of young skilled workers. <i>The descending trend of number of pupils of applied chemistry stopped.</i>

Policy characteristics	Collected data
5.2 Key outcomes of the policy	Assurance of opening an Applied Chemistry class every year. <i>Industry can employ new qualified workers.</i>
5.3 Importance of these outcomes for beneficiaries/region/industry	It is important mainly for industry and the region. It helps to solve negative impacts of demographic changes.
5.4 Unintended negative changes that can be attributed to the policy (if any)	<i>None</i>
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	- assurance of sufficiency of skilled young people - reduction of young people migration from the region - stopping of migration of chemistry enterprises. <i>The target of stopping the decline in pupils of applied chemistry has been achieved.</i>
6.2 Key weaknesses of the policy	- financial demands - Linkage to political decisions.
6.3 New opportunities created by the policy (for the region, for industry)	- potential of young chemical experts - New research potential for chemical enterprises.
6.4 External threats to the policy	- political changes - economic development (<i>Economical aspects in chemical, construction and energetic industry in Czech Republic and abroad.</i>) - public budget conditions
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	Higher administration for supported secondary schools. <i>None</i>
7.2 Reasons behind these difficulties	Not reported
7.3 The way these difficulties were tackled by the beneficiaries	Ústí Region assures good communication and technical support.
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	Without the motivation programs some of the branches could not be opened (even the Applied Chemistry).
8.2 Effect of lessons learned on other policies	This policy is one of the good praxis for the Regional Employment Policy.
8.3 Suggestions for improvement	<i>None</i>
9. Transferability to other regions	
9.1 Similar policies in other regions	None reported
9.2 Region-related factors that make this policy successful	- industry composition - Available financial resources. <i>Dense coverage of region with existing chemical enterprises.</i>
9.3 Barriers for transferring the policy to other regions	- industrial structure - Different regional conditions.

B.4.4. Wallonia CEFOCHIM

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy	CEFOCHIM
1.2 Brief description	Cefochim (www.cefochim.be) is a sector training centre that aims to train production labour force as well as maintenance personal, on reduced scale equipment in close to reality conditions. Cefochim covers the fields of chemistry as well as bio-technology. In 2006 the Region recognized the training centre as "Competence Centre". The region finances training programmes over its competitiveness clusters GREENWIN and BIOWIN. <i>The training centre welcomes workers in the chemicals industry, unemployed, but also students from secondary technical schools as well as higher education and universities. The centre is equipped with training devices that are exact replicas of those in actual chemical plants (but on a smaller scale).</i> <i>The training centre was built in 2003 by an external company, specifically for the sector, without support from the government. In 2006 the</i>

Policy characteristics	Collected data
	<p><i>competitive poles were started by the government and Cefochim was added to the BIOWIN pole, but also continued to provide training to the chemicals industry. In 2006 FOREM bought the centre and has been financing it ever since.</i></p> <p><i>50% of training is to workers and students and the other 50% to unemployed. The centre is supported by the authorities at € 2.5 million.</i></p>
1.3 Policy focus	Education & skills
1.4 Policy instruments involved	<ul style="list-style-type: none"> • Training; • Infrastructure and facilities;
1.5 Policy level	Regional policy
1.6 Policy period (mm/yy - mm/yy or present)	2006 – 2014 (and possibly ongoing after that)
2. Rationale and target group	
2.1 The goal of the policy	<ul style="list-style-type: none"> • providing trainings that match industrial needs • offering consulting services to set up specific training policies to demanding corporate entities • having a training centre geographically close to the industrial plants and easy accessible • providing complete and up to date training infrastructure • offering specialised trainings at attractive prices
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	None reported
2.3 Policy partners	<ul style="list-style-type: none"> • FOREM (regional managing body for training and employment) www.leforem.be • Essenscia (industry association) • Fondschem (sector-based fund) www.fondschem.be
2.4 Involvement of other regions in the policy	None
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	<ul style="list-style-type: none"> • SMEs and large companies • job seeker • teachers • students
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	<ul style="list-style-type: none"> • BIOWIN (competiveness pole) • GREENWIN (competiveness pole) • Secondary tech schools, universities and higher-education institutes
3. Implementation and management	
3.1 Responsible Managing Authority	<p>The Managing body is equally composed by 3 parts</p> <ul style="list-style-type: none"> • Essenscia Wallonie (sector representatives) and company representatives • Workers unions • FOREM (regional managing body for training and employment)
3.2 Key tasks of Managing Authority	<ul style="list-style-type: none"> • organising the trainings offer (more then 100, of 1 day to 6 months) • validation of competences • technical watch of job/trade requirements • consulting services regarding training issues • organising the training offer for job-seekers • providing e-learning programs • organising case-study based final thesis programs for students • promoting chemistry and life sciences towards children and teenagers (project: Sciences adventures)
3.3 Instruments used to monitor the implementation of the policy	None reported
3.4 Key difficulties encountered during implementation	None .
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	No
3.6 Ex-post evaluation of the policy	No information reported

Policy characteristics	Collected data
(including time period when it took place)	
3.7 KPIs used to measure the outputs	<ul style="list-style-type: none"> • hours/man of lessons • beneficiaries count • % of unemployed persons that found a job after the trainings
3.8 Approach towards evaluation	No information reported
4. Legal and financial framework	
4.1 Policy-related legislations	The training centre contributes to the regional economical growth plan “Marshal Plan 2.Green” trough the competiveness poles Greenwin and Biowin.
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	<p><i>Procedures are reported as somewhat heavy. There are a lot of forms to complete, which requires Cefochim to have 5 FTEs only for administration.</i></p> <p><i>The financing of the project is output-based (on manhours of training). However, the administrative costs are not all related to the number of manhours, Essenscia would prefer partially a fixed allocation and partially a variable one.</i></p>
4.3 Support services offered to the beneficiaries	At the end of the trainings, job-seekers are put in contact with enterprises looking for highly skilled workforce.
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	<i>Communication mainly goes through FOREM and the companies. The centre itself does not have an important role in communication.</i>
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	The major funding has been committed in the Marshall Plan 2 Green until 2014 with some projects extending beyond.
4.6 Corrective measures	None reported
4.7 Maximum and minimum total budgets for the policy	<p><i>Cefochim is funded by around € 2,5 million by the Wallonia Government.</i></p> <p><i>The funds have several origins:</i></p> <ul style="list-style-type: none"> • <i>FOREM: € 300,000-400,000 per year for the training; as well as the cost of the building which should be around € 300,000-400,000 per year</i> • <i>BIOWIN: € 1.6 million per year</i> • <i>Walloon Region and French community: € 100,000 (for training of students)</i> • <i>ESF: € 200,000 in 2005</i> • <i>Companies and training funds of the sector: € 500,000</i>
4.8 Number of projects supported by the policy	N/A (the centre and training courses are supported)
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	N/A
5 Main achievements	
5.1 The extent to which the goals have been attained	<i>High</i>
5.2 Key outcomes of the policy	Cefochim sector training centre, which now provides 110,000 manhours of training annually to industry workers and unemployed people for the chemicals & life sciences industry in Wallonia. About 80% of the unemployed people trained receive employment. About 50 % of the trainings capacities are oriented to employed people (half of it has been realised trough BIOWIN). Cefochim organises each year 10 long training programs for 120 job seekers.
5.3 Importance of these outcomes for beneficiaries/region/industry	<i>Key importance (see also 6.3)</i>
5.4 Unintended negative changes that can be attributed to the policy (if any)	None reported.
6 Main strengths and weaknesses	
6.1 Key strengths of the policy	<ul style="list-style-type: none"> • training matches industrial needs • training staff with industrial experience • availability of consulting services on training issues • facilities close to the industrial plants and easy accessible • complete and up to date training infrastructure • attractive prices • strengths of e-learning (time saving, individual speed, individual

Policy characteristics	Collected data
	level) <ul style="list-style-type: none"> decrease of unemployment increasing the awareness of opportunities in the chemistry and life sciences field among young people <p><i>It is a very good tool for the sector, 80% of the people trained have a job in the next year. The companies are happy with the quality of the training and the capabilities of the people trained.</i></p>
6.2 Key weaknesses of the policy	<i>None reported.</i>
6.3 New opportunities created by the policy (for the region, for industry)	<p><i>Cefochim develops a lot of training courses for the biopharmaceutical industry that are not available from any of the schools.</i></p> <p><i>Also new trainings are being developed for the green chemistry in the region.</i></p>
6.4 External threats to the policy	<i>Cefochim depends on government funding (80% of the funding). Hence, a threat would be that in the future the funding would go down, although there are currently no indications of a funding decrease. The current budgets are until 2014 with a part beyond, Essenscia hopes these will be continued.</i>
7 Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	None reported
7.2 Reasons behind these difficulties	N/A
7.3 The way these difficulties were tackled by the beneficiaries	N/A
8 Lessons learned	
8.1 Key learning points from the implementation of the policy	<i>The sector has to be the leader of the centre, at least for the technical part. In Walloon region, there are two types of training centres: those set up by the sectors and those set up by FOREM. The quality and efficiency of the training centres set up by the industries themselves are higher than those of FOREM.</i>
8.2 Effect of lessons learned on other policies	None reported
8.3 Suggestions for improvement	<ul style="list-style-type: none"> recognizing the competence centres to deliver qualification certificates equivalent to European system levels 5-6-7-8 rewarding companies with tax incentives for sending workers to the trainings <p>(see white book Essenscia 2009)</p>
9 Transferability to other regions	
9.1 Similar policies in other regions	<i>There are big training centres for the chemicals industry in France, but they are financed to a lesser extent by the government.</i>
9.2 Region-related factors that make this policy successful	<i>No special reasons, other than a relatively high concentration of chemicals industry.</i>
9.3 Barriers for transferring the policy to other regions	<i>Sufficient importance of the chemicals industry for the government to provide the funding.</i>

B.5. Logistics & infrastructure

B.5.1. Bayern Ethylen-Pipeline-Süd

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy	Ethylen-Pipeline-Süd (EPS)
1.2 Brief description	<p>EPS is to run over 370 km from Münchsmünster in Bavaria across Baden-Wuerttemberg to Ludwigshafen in Rhineland-Palatinate and will link the Bavarian chemical triangle in Gendorf/Burghausen/Münchsmünster with the chemical industry in northwest Europe.</p> <p>The realisation of the EPS will provide the infrastructure needed for the safe</p>

Policy characteristics	Collected data
	and economical transportation of ethylene between important southern German chemical sites. Pipeline transport is safer and environmentally friendlier than transportation by rail, waterway or road. The pipeline will incorporate all necessary technical components manufactured to the highest technical standard.
1.3 Policy focus	<p>The operation of the EPS will help to maintain and expand the sites of the chemical and petrochemical industries in southern Germany. This will serve to secure existing jobs, create new ones and promote the settlement of more enterprises along the pipeline.</p> <p>The EPS will connect up with already existing pipeline systems in Germany and thus with the ethylene network in northwest Europe. Further steps in the expansion of the European network will then become possible, including connections to eastern Europe.</p> <p>The EPS will help to compensate for the competitive disadvantages of the European petrochemical industry in comparison to that in the US and the Middle East and to enhance the competitive strength of the European industry in the global market.</p>
1.4 Policy instruments involved	<p>In the light of the considerable significance described above, the State of Bavaria made the decision to support the project. Germany informed the EU Commission of this decision in December 2003 and submitted a grant application to the EU in Brussels in January 2005. Following the assessment process, approval was given by the EU Commission on 12 October 2006, and Bavaria provided a subsidy of about 45 M EUR.</p> <p><i>EPS Ethylen-Pipeline-Süd GmbH & Co. KG had to negotiate directly with about 10.000 land owners along the pipeline route in order to get the rights of way. In few cases the land owners refused to sign an agreement. For these cases the Bavarian legislature enacted an expropriation law for EPS (Bayerisches Rohrleitungs-Enteignungsgesetz). A corresponding law was enacted by the legislature of Baden-Wuerttemberg.</i></p>
1.5 Policy level	The Bavarian state government (for the subsidy) and the Bavarian parliament (for the expropriation law)
1.6 Policy period (mm/yy - mm/yy or present)	Realisation of the EPS between October 2006 and July 2012
2. Rationale and target group	
2.1 The goal of the policy	<p>The Bavarian grant decision provided the shareholders of EPS Ethylen-Pipeline-Süd GmbH & Co. KG with the planning security they needed. The shareholders gave the starting signal for the project in October 2006 with their approval of the financing concept for the EPS project. The EPS project started with a planned commissioning of the pipeline in 2008.</p> <p>Enacting the expropriation laws in Bavaria in 2008 and in Baden-Wuerttemberg in 2009 for the EPS-pipeline was based on the considerable significance for the public good described above (1.3.). The considerable significance for the public good could be realised by the EPS consortium.</p>
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	The positive effects on the settlement of chemical industry along the ARG-Pipeline (formerly Aethylen-Rohrleitungs-Gesellschaft) from Antwerp to Cologne and the Ruhr area, which has grown along the pipeline route for over 40 years.
2.3 Policy partners	The Ministries of Economic Affairs; The Chambers of Commerce and Industry; Associations of the Chemical Industry; Industrial Union coal mining, chemical industry, energy; Farmers' Unions; the German Government, National Governments, State Parliaments and County Councils of Bavaria, Baden-Wuerttemberg, Rhineland-Palatinate.
2.4 Involvement of other regions in the	The EPS-pipeline runs over 370 km through Bavaria, Baden-Wuerttemberg

Policy characteristics	Collected data
policy	and Rhineland-Palatinate. The policy focus described above has positive effects on the chemical and processing chemical industry also in these states. The governments and political institutions of Baden-Württemberg and Rhineland-Palatinate supported the EPS project in order to also benefit from these positive effects.
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	EPS Ethylen-Pipeline-Süd GmbH & Co. KG, a consortium of BASF, Borealis Polymere GmbH, Clariant Produkte (Deutschland) GmbH, OMV Deutschland GmbH, Basell Polyolefine GmbH; Vinnolit GmbH & Co. KG and Wacker Chemie AG;
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	The chemical and petrochemical continuing chemical industries in Bavaria, Baden-Württemberg and Rhineland-Palatinate. Also companies producing products on the basis of ethylene, such as plastics for the automobile industry. Furthermore, the pipeline construction industry in Germany and the employees of EPS Ethylen-Pipeline-Süd GmbH & Co. KG.
3. Implementation and management	
3.1 Responsible Managing Authority	EPS Ethylen-Pipeline-Süd GmbH & Co. KG
3.2 Key tasks of Managing Authority	<i>Planning, construction and operation of the EPS-pipeline</i>
3.3 Instruments used to monitor the implementation of the policy	<i>Periodic meetings of shareholders; periodic meetings of the advisory board; periodic project audits; talks and discussions with ministries</i>
3.4 Key difficulties encountered during implementation	<p><i>Most of the negotiations between EPS Ethylen-Pipeline-Süd GmbH & Co. KG with the land owners were complex because some of the land owners were lost, lived overseas, had excessive claims for compensation or completely refused to sign an agreement.</i></p> <p><i>In many cases an agreement between EPS Ethylen-Pipeline-Süd GmbH & Co. KG and the land owners wasn't possible, EPS Ethylene-Pipeline-Süd GmbH & Co. KG had to find alternative pipeline-roots. In the cases this was impossible, EPS had to manage long lasting expropriation procedures at the expropriation authorities.</i></p> <p><i>EPS Ethylen-Pipeline-Süd GmbH & Co. KG had to implement expensive engineering changes requested by the technical inspection agencies and the authorities of planning approval.</i></p> <p><i>The reasons mentioned above delayed the commissioning of the pipeline from 2008 to 2012(i.e. 4 years) and caused an increase in the project costs of EPS Ethylen-Pipeline-Süd GmbH & Co. KG.</i></p>
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	<i>The meetings of shareholders regularly take place four times a year; the meetings of the advisory board regularly take place two times a year; the Project audits take place once a year.</i>
3.6 Ex-post evaluation of the policy (including time period when it took place)	<i>Evaluation will take place after the pipeline has been commissioned</i>
3.7 KPIs used to measure the outputs	See 3.6
3.8 Approach towards evaluation	See 3.6
4. Legal and financial framework	
4.1 Policy-related legislations	<i>The subsidy of Bavaria of about EUR 45 million and the Bavarian expropriation law for the EPS-pipeline</i>
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	<p><i>The complex negotiations with the land owners and the long lasting procedures for expropriation at the expropriation authority.</i></p> <p>To built the pipeline across Germany, they had to negotiate with about 10 thousand land owners. This proved to be challenging in a number of cases. For instance, sometimes the land owners died or sometimes they were lost</p>

Policy characteristics	Collected data
	or lived overseas. It was therefore difficult to identify all the land owners to start negotiating in the first place. Moreover, there were also a few who had excessive claims for compensation or simply refused to negotiate. Almost all people were convinced, but a few were expropriated by the expropriation authorities. They had approximately 200 cases for which the expropriating authority worked as a mediator. For about 80 of these this resulted in a positive outcome and the remaining 120 were expropriated by the expropriation authorities.
4.3 Support services offered to the beneficiaries	<i>The Ministry of Economic Affairs offered talks and discussions with other ministries in order to solve superregional problems.</i>
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	<i>Cooperation with the state governments of Baden-Wuerttemberg and Rhineland-Palatinate as well as other cooperation (see 2.3 above) in order to convince the public of the necessity and importance of the EPS. Periodic press releases by the state government of Bavaria and by EPS Ethylen-Pipeline-Süd GmbH & Co. KG</i>
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	<i>The official notification of the State of Bavaria contains terms and conditions which ensure that the subsidy is used appropriate to the purpose of the subsidy (co-financing of the eligible costs for EPS Ethylen-Pipeline-Süd GmbH & Co. KG building the EPS pipeline)</i> <i>The Bavarian expropriation law contains terms and conditions which ensure that expropriation is in favour of EPS, considering the principles of the Bavarian constitution.</i>
4.6 Corrective measures	-
4.7 Maximum and minimum total budgets for the policy	Maximum subsidy 44.85 M EUR
4.8 Number of projects supported by the policy	The EPS-Project
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	The budget they originally planned was approximately 154 million EUR. Due to difficulties explained below, the total realised costs equalled approximately 220 million EUR.
5. Main achievements	
5.1 The extent to which the goals have been attained	<i>Planned commissioning of the EPS-pipeline in July 2012</i>
5.2 Key outcomes of the policy	<i>Evaluation possible after commissioning the EPS-pipeline in July 2012</i>
5.3 Importance of these outcomes for beneficiaries/region/industry	See 1.3 above
5.4 Unintended negative changes that can be attributed to the policy (if any)	Expropriation of a small percentage, approximately 1%, of the landowners.
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	<i>Effective and excellent cooperation between politics, ministries and industry</i>
6.2 Key weaknesses of the policy	<i>The complex negotiations with the land owners and the long lasting procedures for expropriation at the expropriation authorities because of court proceedings of land owners</i>
6.3 New opportunities created by the policy (for the region, for industry)	See 1.3 above
6.4 External threats to the policy	<ul style="list-style-type: none"> • Long lasting administrative procedures, e.g. the procedures of planning approval notices and expropriation procedures at the expropriation authorities; • Court proceedings of land owners against the planning approval notices of EPS Ethylen-Pipeline-Süd GmbH & Co. KG and the resolutions of expropriation of the expropriation authorities.
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	The delay of the commissioning of the pipeline from 2008 to 2012 (i.e. 4 years) and the increase in the project costs because of the reasons mentioned above (3.4.)

Policy characteristics	Collected data
7.2 Reasons behind these difficulties	See 3.4 above.
7.3 The way these difficulties were tackled by the beneficiaries	<p>Public Relations, by e.g. issuing press releases to help people understand the project and convince them of the benefits. Moreover, they negotiated with the landowners and tried redirecting the route of the EPS.</p> <p><i>Almost all people were convinced, but a few were expropriated by the expropriation authorities. The beneficiary had approximately 200 cases for which the expropriating authority worked as a mediator. For about 80 of these this resulted in a positive outcome and the remaining 120 were expropriated by the expropriation authorities.</i></p>
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	Regarding the enormous costs for the EPS Ethylen-Pipeline-Süd GmbH & Co. KG due to the reasons mentioned above (3.4.), future pipeline projects should only be realised only if all needed rights of way are granted and legally guaranteed. The beneficiary's experience shows that a lack of this may have a serious effect on the budget.
8.2 Effect of lessons learned on other policies	-
8.3 Suggestions for improvement	Obtain all rights of way before starting construction of the pipeline.
9. Transferability to other regions	
9.1 Similar policies in other regions	-
9.2 Region-related factors that make this policy successful	<i>Effective and excellent cooperation between politics, ministries and industry.</i>
9.3 Barriers for transferring the policy to other regions	<p>Transferability to other regions is in some respects a little complicated. For instance, legislation in Germany concerning the rights of way of infrastructure projects is different compared to legislation in e.g. France or Italy. Therefore particular laws, such as expropriation laws, can differ among these countries and may vary a lot. Stakeholders could not give an example of how long the process might have taken in e.g. France, but they thought that that regulation in for instance France is somewhat faster.</p> <p><i>Nonetheless, one would still need to do the negotiations with the land owners. Other pipelines in Europe can of course be built and as a "lesson learned", the beneficiary advised that the first step should be to finish all negotiations with all land owners. As a next step, one should not start the project or invest a lot of money in such a project if not all the rights of way are secured. In short, this means a lot of work in the first phase of the project. Only when that has finished, investments should be made in the construction companies.</i></p>

B.5.2. Novara Act of Goods, Traffic and Logistics

Policy characteristics	Collected data
1. General information	
1.1 Name of the policy	<p>Act of regulation of North Eastern Piedmont region for the territorial system of goods traffic and logistics in the area of Novara-Piedmont region (Novara)</p> <p>It is a document of agreement between the following partners: National Ministry for Infrastructures and logistics, CIM Spa (company managing the intermodal centre of Novara), Piedmont region, Province of Novara, Municipalities of Novara of Galliate and of San Pietro Mosezzo.</p> <p><i>The Intermodal Centre is managed by Eurogateway, of which CIM is one of the main shareholders.</i></p>

Policy characteristics	Collected data
	<i>In the Act, every partner is given their own tasks and is responsible for supporting the growth.</i>
1.2 Brief description	Agreement to combine interventions on Novara area related to infrastructures and services for a better organisation of intermodal transport, affecting a relevant percentage of transported dangerous goods (mainly chemicals), with a specific intervention for petrochemical goods.
1.3 Policy focus	Transport
1.4 Policy instruments involved	Infrastructures and facilities
1.5 Policy level	Regional policy, combined with national interventions and completed with European project results
1.6 Policy period (mm/yy - mm/yy or present)	January 2011 – December 2019
2. Rationale and target group	
2.1 The goal of the policy	<p>Better effectiveness of interventions to improve infrastructures for intermodal transports through a synergetic combination of initiatives carried out at different levels (municipal, provincial, regional, governmental and of private companies)</p> <p><i>The Act is designed to make administrative burdens as smooth as possible, for both CIM and the local governments in the area. It defines the actions and initiatives necessary for each actor to take, in order to promote the development of goods traffic and logistics in the area.</i></p> <p>Shared goals of the act are:</p> <ul style="list-style-type: none"> • <i>one great intermodal terminal (Terminale Intermodale Unico - T.I.U.) to connect all freight terminals in the area, as well as the Ligurian Ports and Malpensa airport;</i> • <i>development of integrated services to support the activities of the intermodal terminal;</i> • <i>to increase intermodal transportation, taking into account the opening of 2 new tunnels to Switzerland (Gotthard and Loetschberg) , which will increase rail traffic, as well as traffic from France and Ligurian ports and Malpensa airports by 162.% and total intermodal traffic by 200%. (figures taken from the Development Plan of the Intermodal Centre)</i> <p><i>Strategic development plan 2011-2015-2019 is centred around growth. The plan was developed as required by the Goods Traffic and Logistics act.</i></p> <p><i>One aspect related specifically to the chemicals industry is a cleaning station that allows cleaning tankers and containers that have contained hazardous product. The structure will occupy about 9,000 sqm and will also be used by local chemical companies.</i></p> <p><i>Storage of chemicals and other products is a small part of the intermodal centre's business and takes place on its site. About 5,000 sqm (out of 152,000 sqm of storage area) are used for the handling of chemicals.</i></p>
2.2 Policies from other sectors, regions or MS that have been used as a role model/reference	<p>Lombardy region</p> <p>Lombardy has a great problem to deal with congestion of road and rail transportation around Milan. This limits transport to the eastern part of Northern Italy and Slovenia.</p>
2.3 Policy partners	<p>National Ministry for Infrastructures and logistics, CIM Spa, Piedmont region, Province of Novara, Municipalities of Novara of Galliate and of San Pietro Mosezzo</p> <p>CIM is a company of coordination, which provides some special services in Novara. CIM is competent for infrastructures but only in its own area. Around the place, at provincial or regional territorial dimension, public authorities must intervene because CIM has not such a general task or power. It gets money from the government to construct buildings, roads and railways. Subcompanies also have tasks to manage roads etc. CIM is a private company, with various shareholders. The majority of the shares are owned by public entities.</p>
2.4 Involvement of other regions in the policy	<p>Lombardy region</p> <p>There are contacts with Lombardy and the committees involved. There is no common governing board of both regions. Hence, decisions can be different</p>

Policy characteristics	Collected data
	and ongoing discussions take place.
2.5 Key beneficiaries of the policy (beneficiaries here refer to groups that are directly targeted by the policy)	CIM, companies transporting goods and companies dispatching goods (most of them are SMEs and a relevant number are chemical companies)
2.6 Key stakeholders of the policy (stakeholders here refer to groups that are not directly targeted by the policy, but that have a direct interest in the policy)	Municipalities surrounding the area (for environmental and employment effects)
3. Implementation and management	
3.1 Responsible Managing Authority	Province of Novara
3.2 Key tasks of Managing Authority	Coordination of all actions and elaboration of the implementing master plan of the act of regulation
3.3 Instruments used to monitor the implementation of the policy	Constant monitoring through stakeholder meetings and periodic expert reviews
3.4 Key difficulties encountered during implementation	The difficulties are related to the certainty of national financing for infrastructures and to local opposition due to expected negative environmental impacts.
3.5 Presence of the monitoring committee for the implementation of the policy (if yes, its key tasks and stakeholders that were represented)	The signing authorities constituted a committee to steer the implementation of the agreement.
3.6 Ex-post evaluation of the policy (including time period when it took place)	No evaluation has taken place thus far.
3.7 KPIs used to measure the outputs	Increase of transported goods (+3% each year for 5 years after 2019) is expected by the regions. It is also expected that two new tunnels currently being built in Switzerland will contribute to this goal. Better organisation of intermodal transports, i.e. more railways and more effective roads. Plans include that the railway company will build additional railways and that traffic will ease on the roads around the town. Forecast effects for industry settlement and for employment until 2025. Coming up with exact numbers is a challenge, but the region operates on the assumption that 5 to 10% of new industry should result from the policy by 2025.
3.8 Approach towards evaluation	Traffic statistics
4. Legal and financial framework	
4.1 Policy-related legislations	The Act is based on the national law No 241, which was approved in 1989.
4.2 Challenges related to administrative procedures (for both Managing Authority and beneficiaries)	The national financing for intermodal centre infrastructures is not always sure, depending on other uses (i.e. earthquakes) or necessities linked to economic crisis. <i>Signing the agreement took three months after CIM's Managing Director proposed it.</i>
4.3 Support services offered to the beneficiaries	New logistics platforms, better road and rail systems, specific services like cleaning stations (elaborated through ChemLog European project)
4.4 Key activities undertaken to disseminate information about the progress and outcomes of the policy	The central coordination includes a constant collection of information on intervention advancement.
4.5 Assignment of fixed deadlines to the policy and room for flexibility in terms of time needed to meet policy targets	9 years to complete infrastructure plans and 3 further years of possible extension
4.6 Corrective measures	None.
4.7 Maximum and minimum total budgets for the policy	There is a prevision of a EUR 25 million investment in the area for logistics infrastructures and services.
4.8 Number of projects supported by the policy	4 new logistics platforms, one enlargement of an existing platform, 1 new road, 2 new railways, 3 new intermodal services
4.9 Average budget size of projects within the policy; maximum and minimum size of projects	From 500,000 to 3 million Euros.
5. Main achievements	
5.1 The extent to which the goals have been attained	The agreement has only been signed and the first implementation actions have just begun (Steering Committee and master plan elaboration). <i>2013: new terminal and new bridge cranes will be installed.</i>

Policy characteristics	Collected data
	<i>Over the next 8 years, more expansion is planned.</i>
5.2 Key outcomes of the policy	<p>None thus far. See 3.7 for expected and intended outcomes.</p> <p><i>The Development Plan has been respected so far and the main goal attained is the building of a new intermodal terminal (which will be finished by 2013) and the instalment of 2 gantry cranes to reach the goal of doubling the movements of UTI.</i></p> <p><i>Another important goal achieved, together with Comune di Novara and The Chamber of Commerce, is the contest called “Porta di Novara” through which we asked architects, engineers and designers to outline possible landscapes for the development of this area so that the future logistic area could be respectful of the territorial features.</i></p> <p><i>All projects are currently being judged by professionals and will be shown to citizens who will have the chance to examine the projects and give their opinions.</i></p>
5.3 Importance of these outcomes for beneficiaries/region/industry	<p>Reduction of costs related to transports for companies, expectation of new companies settled and new employment</p> <p><i>The development is needed because in 2015, with the opening of the Swiss tunnels, Novara must be prepared to handle all the goods from and to Switzerland via rail (+80% in 2020), plus the goods from and to the Frejus tunnel (+ 280% in 2020), plus the goods from and to the Ligurian Ports (+220% in 2020), plus the goods from and to Malpensa (+58% in 2020). Being prepared to handle this increase of goods will avoid the transfer of goods via the ports of northern Europe. This will translate in an increase of services , incomes and occupation opportunities.</i></p>
5.4 Unintended negative changes that can be attributed to the policy (if any)	<p>Some environmental and landscape negative impacts are expected, due the public works necessary to implement the changes. In the area where enlargement of the intermodal centre is foreseen a high-speed railway was built some years ago, which led to much objections from the local population. The economic benefits of the policy will have to be demonstrated to convince the population. Also the noise impact of the new intermodal centre will have to be addressed, which may lead to additional costs.</p> <p><i>There are no negative changes. The cooperation and the agreement between all these territorial bodies, both public and private, can only accelerate the redevelopment of the area and the creation of new services and opportunities for citizens, both from an economical and occupational point of view. All interventions are also very respectful and careful to increase the quality of life for people living in the nearby areas.</i></p>
6. Main strengths and weaknesses	
6.1 Key strengths of the policy	<p>Achievement of a greater effectiveness in the goods transport and in intermodality</p> <p><i>All partners are interested in investing in the new possibilities. More than 3,000 additional jobs are expected (none-chemicals). Sharing a common goal makes things much easier than doing them alone.</i></p>
6.2 Key weaknesses of the policy	<p>Many different actors to coordinate and uncertainties of national financing. The province has the task to steer the actions of all participants, even though some of them have higher authority than the province. Region has the authority to decide about financing, companies have to cooperate, municipalities have their own roles. The greatest challenge is that the national financing is budgeted under the general chapter, which means that the money can be awarded to national emergencies. An example of this was the support to the victims of the earthquakes that took place in the spring of 2012.</p> <p><i>So far, none were encountered.</i></p>
6.3 New opportunities created by the policy (for the region, for industry)	<p>Better transports and cost reduction, new jobs and further economic development.</p> <p><i>More than 3,000 additional jobs are expected (none-chemicals).</i></p>

Policy characteristics	Collected data
6.4 External threats to the policy	National investment reduction due to economic crisis <i>None perceived by the beneficiary, the recession has not presented any problems.</i>
7. Difficulties encountered	
7.1 Difficulties encountered by the key beneficiaries of the policy	<i>None</i>
7.2 Reasons behind these difficulties	<i>N/A</i>
7.3 The way these difficulties were tackled by the beneficiaries	<i>N/A</i>
8. Lessons learned	
8.1 Key learning points from the implementation of the policy	Higher level of collaboration among different public administrations and between public authorities and private companies
8.2 Effect of lessons learned on other policies	Not yet measurable
8.3 Suggestions for improvement	Not yet measurable <i>Similar policies for further development (another policy is being discussed)</i>
9. Transferability to other regions	
9.1 Similar policies in other regions	There are similar experiences in other ECRN regions. There are policies on transport and logistics of chemicals in other regions, such as roads, railways and pipelines. Some policies are more complicated or cover a larger geographical area. Novara representatives have been in touch with 5 other regions, some of which have much more advanced systems. Novara is working on leading a new network on logistics policies. <i>The beneficiary is not aware of similar policies.</i>
9.2 Region-related factors that make this policy successful	The province has the necessary expertise and experience in the field, also achieved through European projects.
9.3 Barriers for transferring the policy to other regions	It is hard to find a similar possibility to combine such different levels of interventions. In the case those exist this policy can be a good example.