

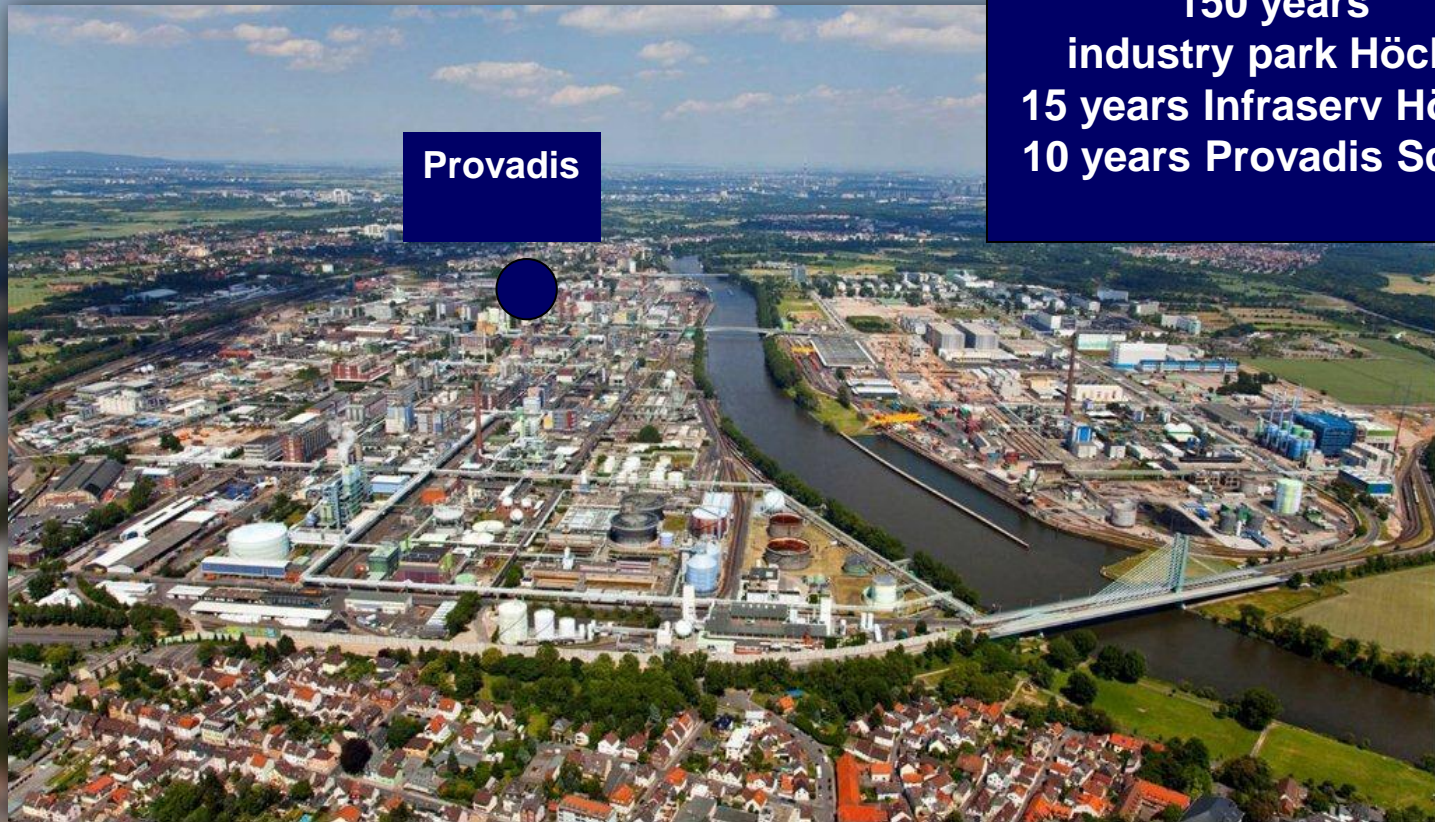
The Future of the Chemical Industry: Megatrends and their implications for the chemical industry and chemical parks

Frankfurt, June 17, 2015

Prof. Dr. Hannes Utikal

1. rhein-main-cluster chemie & pharma
2. Chemical and pharmaceutical industry:
From megatrends to business excellence
3. Implications for chemical parks
4. Summary

Provadis – a successor of Hoechst corporation



Provadis

**150 years
industry park Höchst
15 years Infraserp Höchst
10 years Provadis School**

Industrial park Höchst: 90 companies, 22.000 employees

Quick Facts

Rhein-Main-Cluster Chemicals & Pharmaceuticals

- Founded by Provadis School of International Management and Technology and leading chemical and pharmaceutical companies at Industriepark Höchst
- Successful pitch at 1. Cluster-Competition of the State of Hesse
- Supported by leading chemical and pharmaceutical companies of the Rhein-Main region and TU Darmstadt
- Objectives:
To enhance efficiency and effectiveness of chemical and pharmaceutical activities in the Rhein-Main region.

To position the chemical and pharmaceutical industry as overall relevant economic sectors in the public opinion.
- Coordination:
Provadis School of International Management and Technology

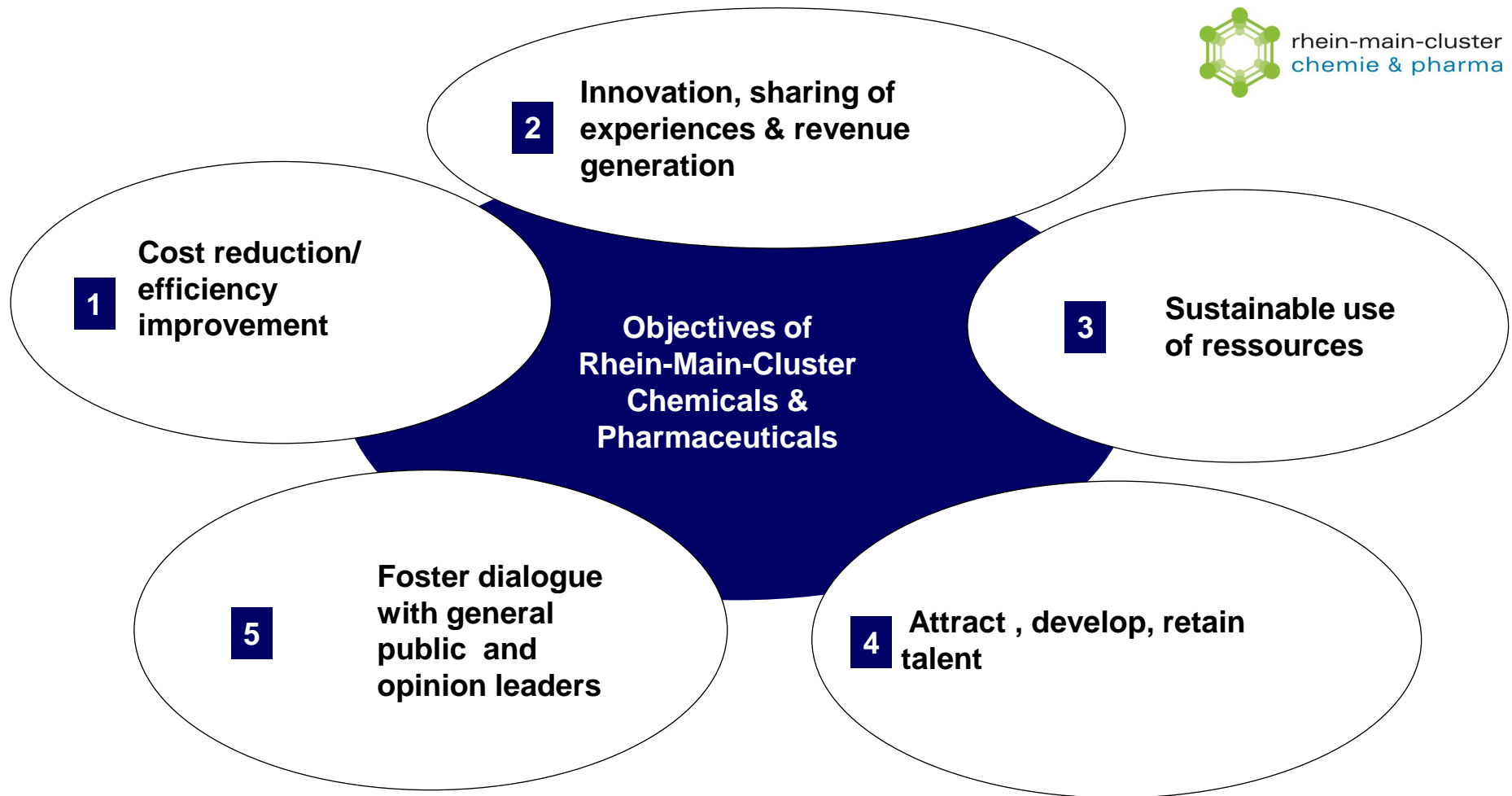


Founders:



University Partners:





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Recent Study: From Megatrends to Business Excellence



Von den Megatrends zum **Geschäftserfolg**

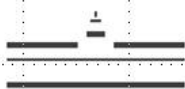
Managementimplikationen der Megatrends für die chemische und pharmazeutische Industrie in Deutschland

Frankfurt, Januar 2015

Kooperationspartner:



VCI
Verband der
Chemischen
Industrie e.V.



WESTFÄLISCHE
WILHELMS-UNIVERSITÄT
MÜNSTER

provadis strategy&
Hochschule Formerly Booz & Company

Medienpartner: **CHEManager**

Netzwerkpartner:



rhein-main-cluster
chemie & pharma

Gefördert durch:



Europäische Union
„Investition in Ihre Zukunft“
Europäischer Fonds für
regionale Entwicklung

- Multi-Methods, Multi-Source Approach: online-survey and expert interviews
- N = 141
- High-level participants

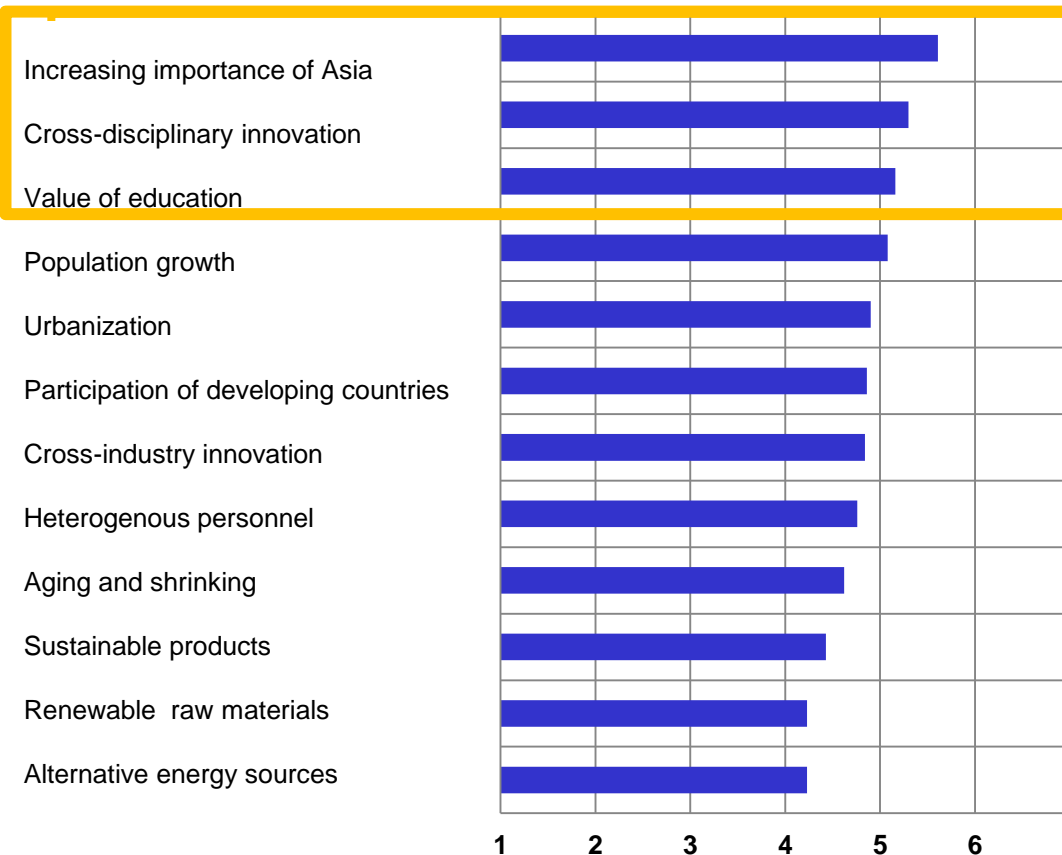
German version:
www.chempharmtrends.de

English summary (published June 2015):
<http://businesschemistry.org/article/?article=205>

Top 3 Trends

The increasing importance of Asia, cross-disciplinary innovation and increasing value of education are the top 3 megatrends.

Ranking of Megatrends 2014: All segments



Top 3 Topics

GLOBALIZATION

INNOVATION AND TECHNOLOGY

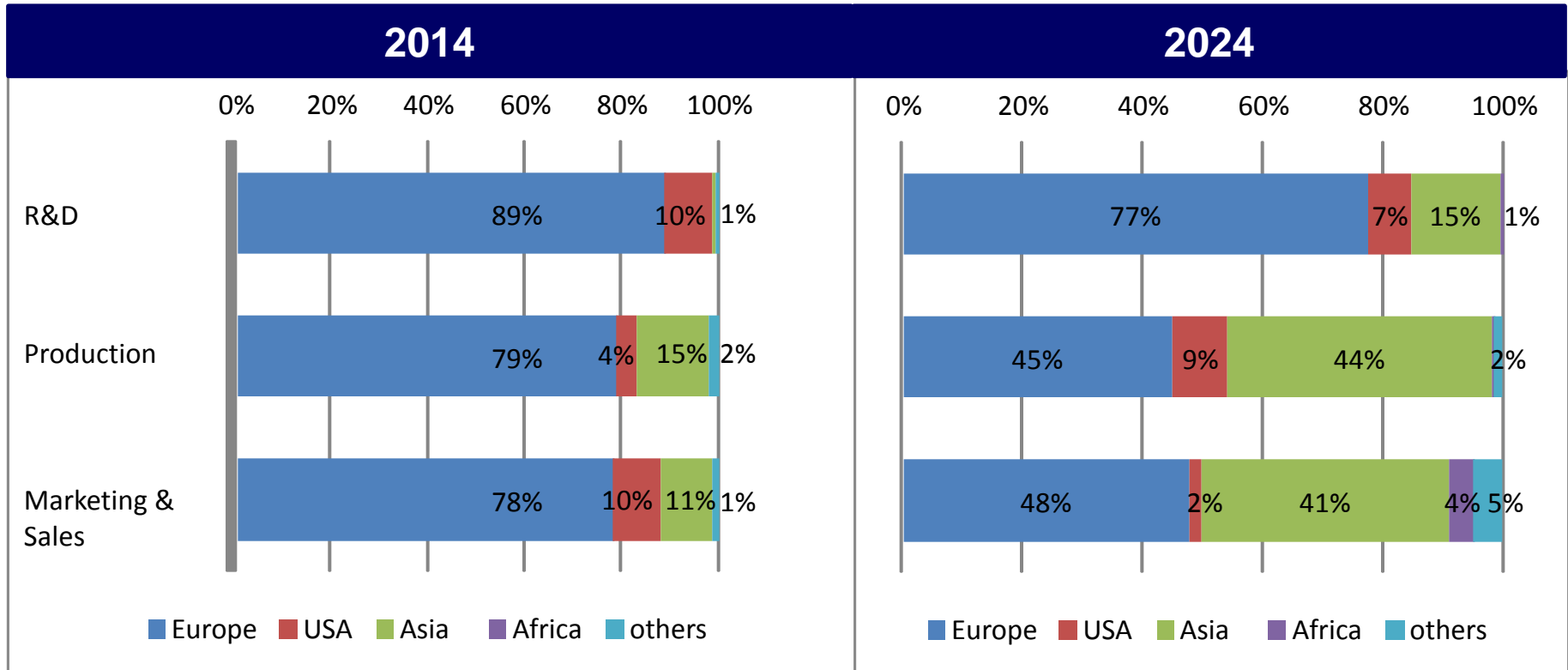
WORKING ENVIRONMENT

Scale: 7 = strongly agree
1 = strongly disagree

Question: In your opinion, how relevant are the following topics for the activities of your company in 2014?

Megatrend 1: Globalization

The relative importance of Europe will decrease in all business functions until the year 2024.



**Challenge: secure Europe's competitive advantages (product/process quality)
steer global value chains**

Globalization leads to growing markets abroad and the need for continuous improvement in Europe.

“ The strengths of the European chemical and pharmaceutical industry are process quality, rapid innovations and compliance. “

(Dr. Matthias Braun, member of the board sanofi-aventis Deutschland GmbH)

Challenges

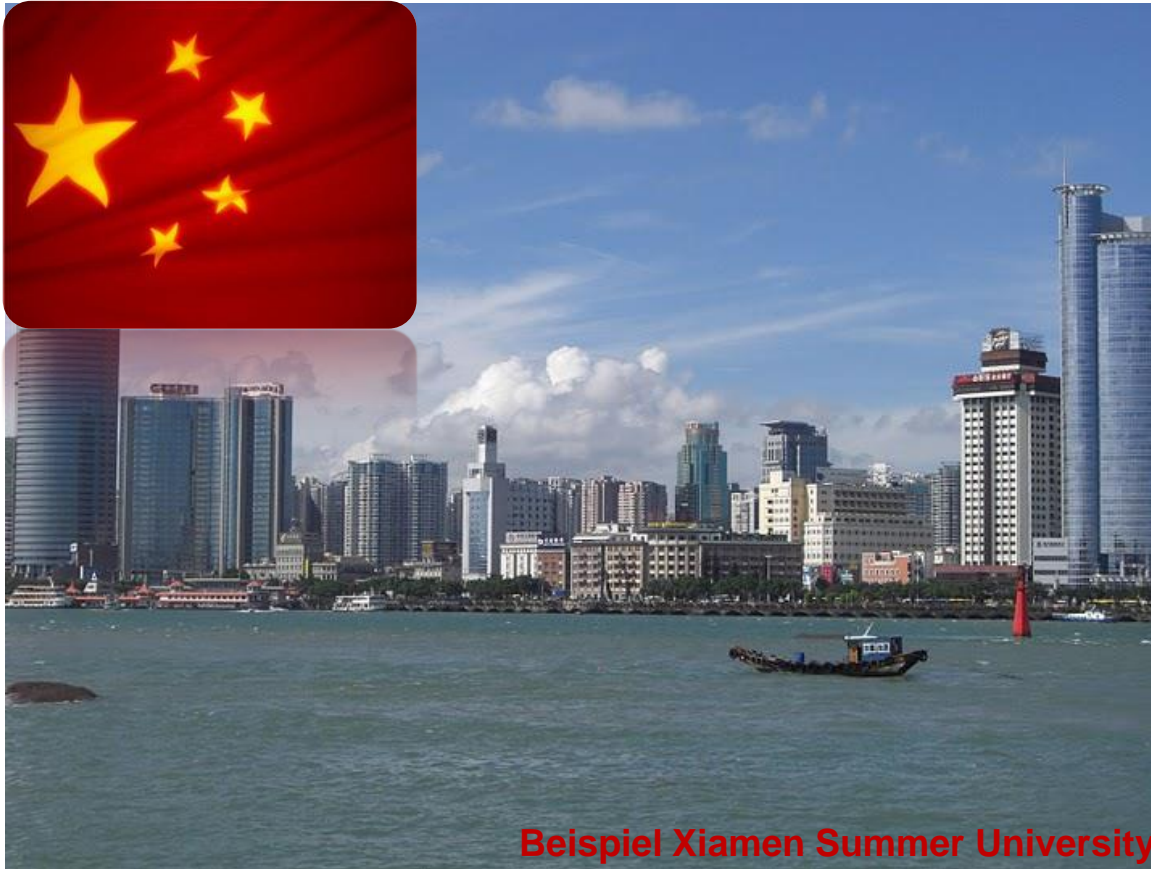
Sustain European competitive advantages
Production, process, innovation capabilities; compliance

International competencies:
language skills; intercultural skills



Challenges: Optimize global footprint
Steerglobal activities

Spotlight: Globalization of Human Resource Activities



international
projects for
apprentices

Study abroad

International
Summer Schools

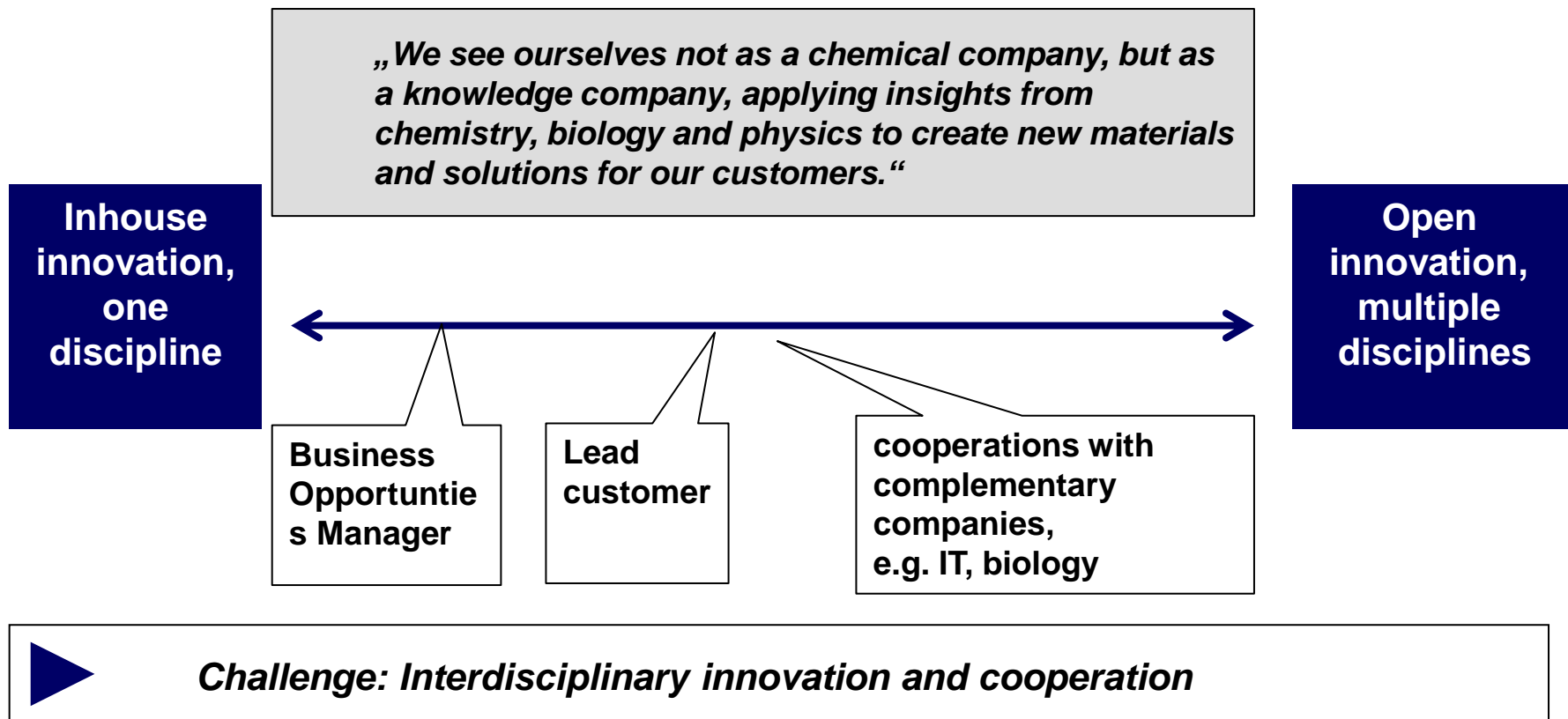
International
Job Rotation



Globalization: *implications for all business functions and
on all hierarchical levels*

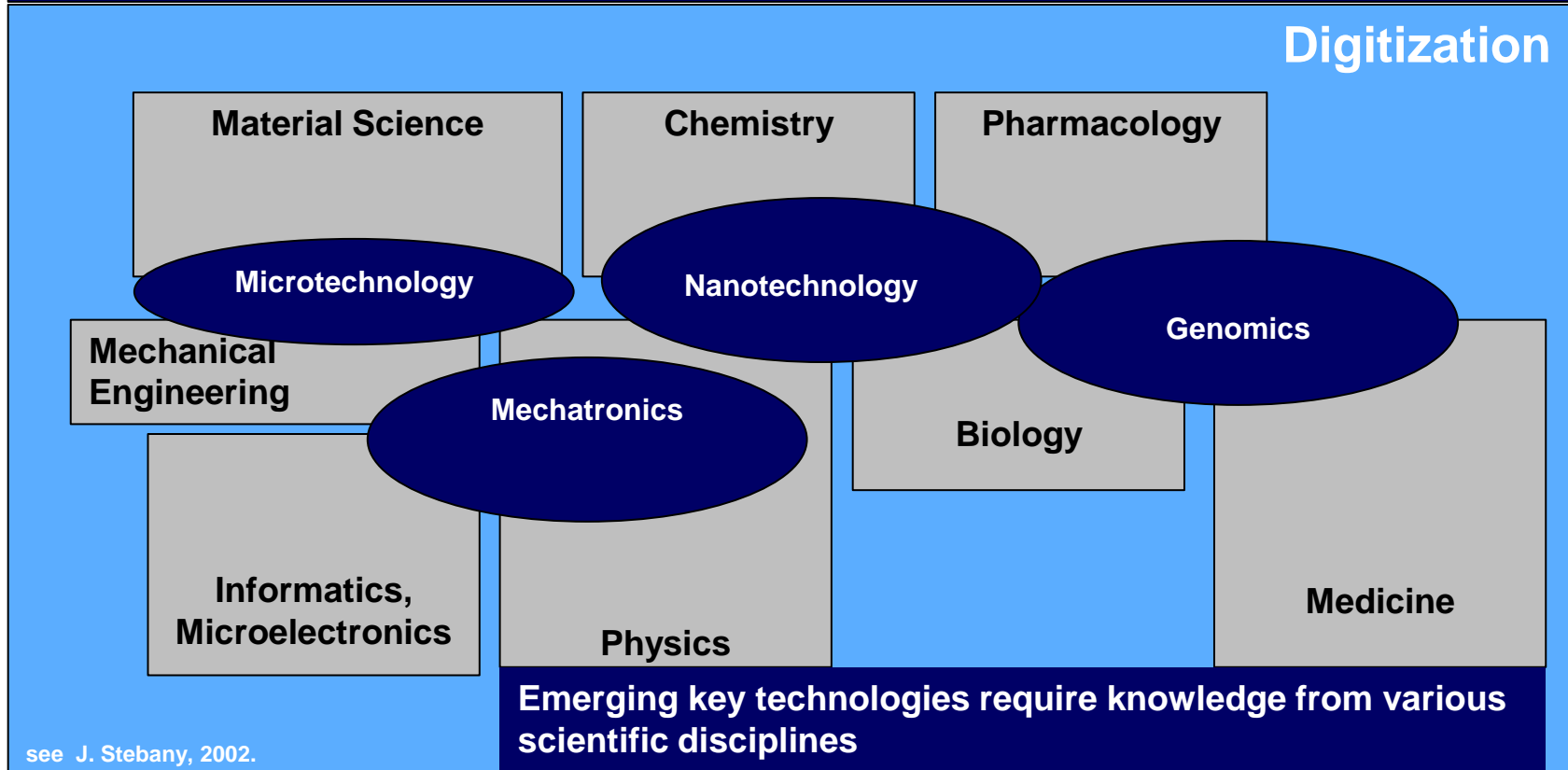
Megatrend 2: Interdisciplinary and cross-industry innovation

Chemical companies focus their R&D activities on the development of new solutions and not on „new-to-the world“ innovations. All companies think about optimizing their innovation processes.



Megatrend 2: Interdisciplinary and cross-industry innovation

Trends towards increasing interdisciplinarity and complexity



Challenge: Develop cooperation skills

Spotlight: Increasing diversity in companies



one gender

one generation

one
qualification

one social
background

Challenge: Increase diversity for better cooperation skills

Megatrend 3: Increasing value attributed to education

The changes within the working environment can be outlined as follows:

Yesterday

- working for one employer during the entire lifetime...
- stable office locations and working hours
- defined career paths
- homogenous personnel

Tomorrow

- employers as temporary partners
- varied differentiation
- increasing differentiation
- increasing diversity

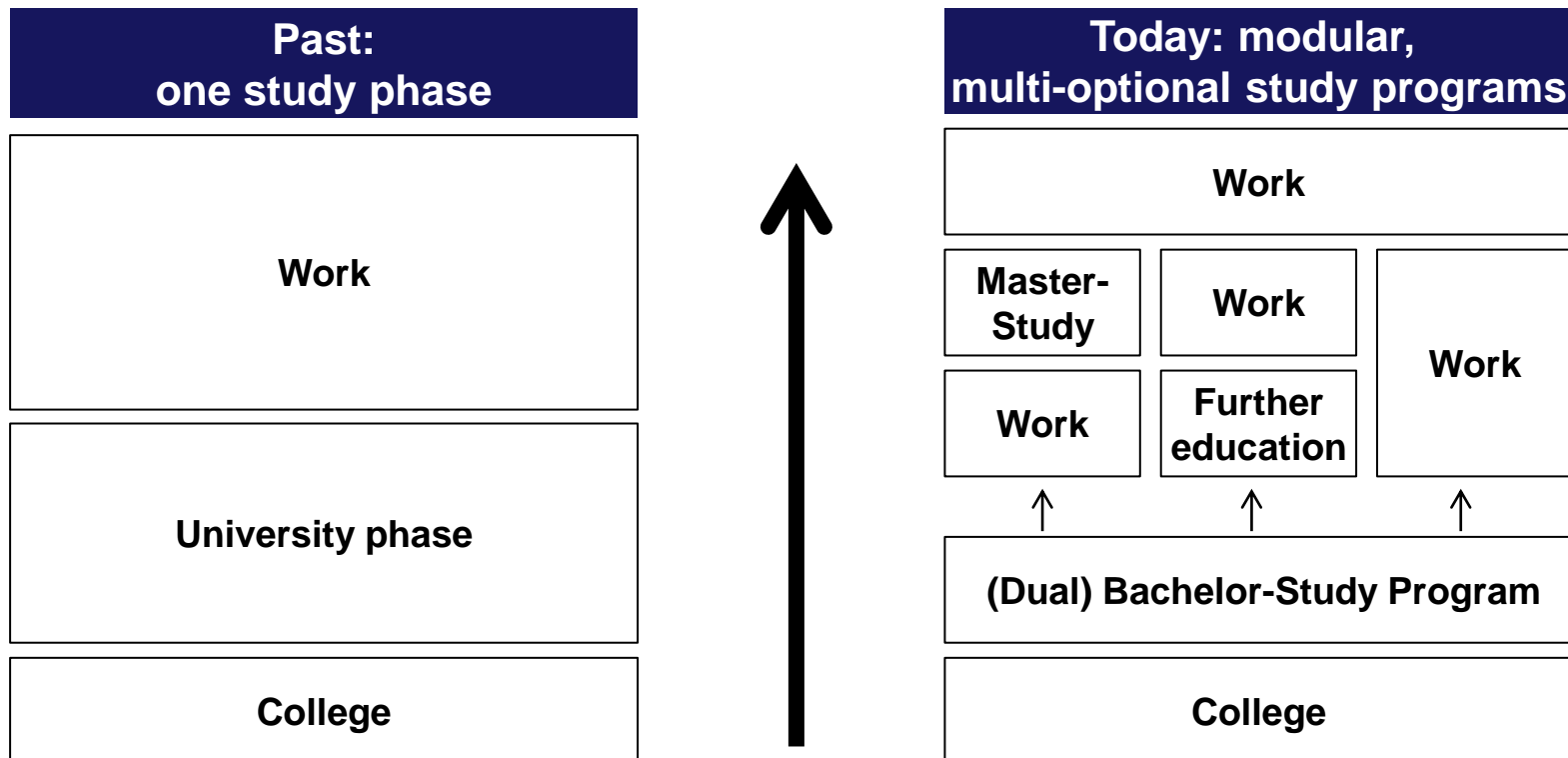


The challenge: Manage growing complexity

Implications

Transform talent management

The „Bologna reform“ created options for modular, multi-optional study programs. Companies can more easily create tailor-made programs and attract talents.



Source: Based on Telekom 2011

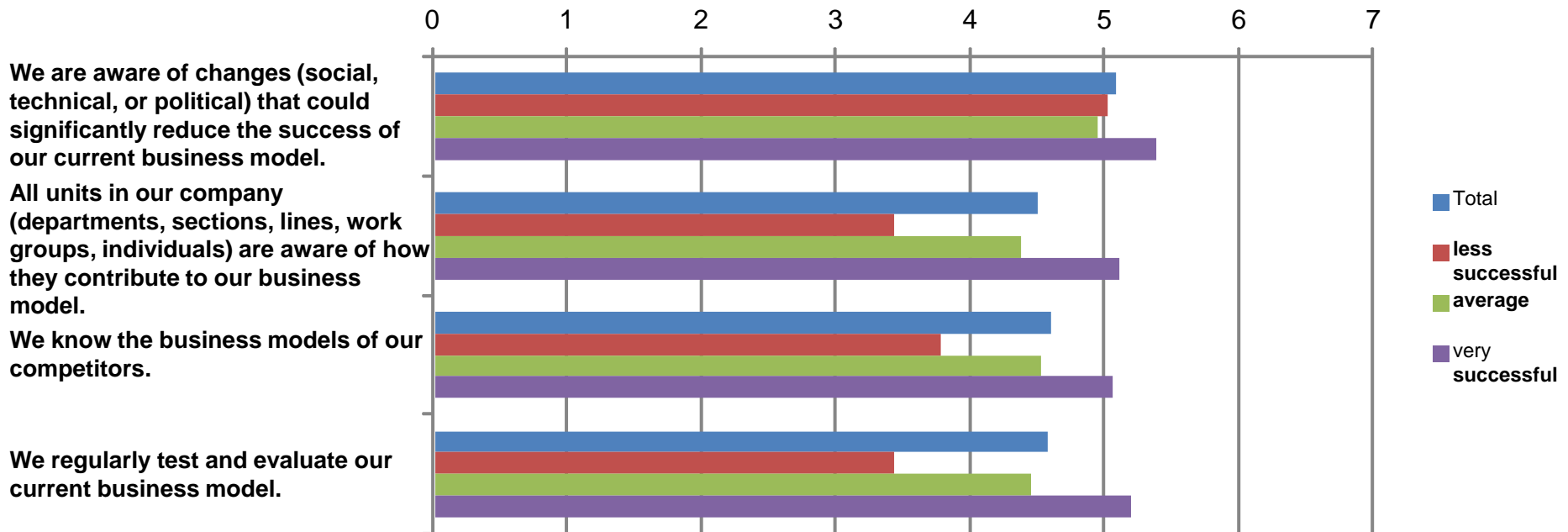


Challenge: Make use of Bologna reform

Success factor: Knowledge of business models

Successful companies have better knowledge about business models.

Perception of own business model



Source: Industry Study „From Megatrends to Business Excellence“, 2014.

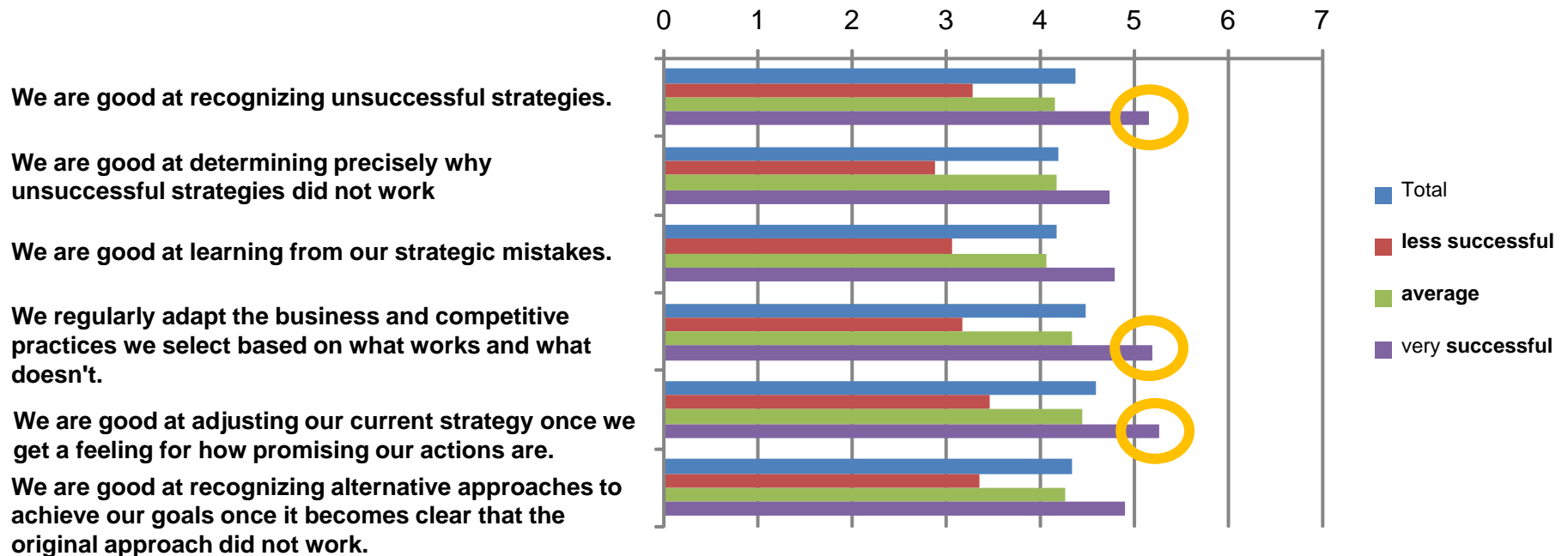
Question: To what extent do the following statement apply to your company? (1 = does not apply at all – 7 = applies completely)

n = 141

Shown is the statistical mean of the answers.

Success factor: Strategic learning capability

Successful companies are characterized by a better strategic learning capability.



Source: Study: „From Megatrends to business excellence“, 2014

Question: To what extent do the following statements apply to your company? (1 = does not apply at all – 7 = applies completely)

n = 141

Success factor: Implementation

Successful compaies have changed their activities within the last five years.

Profit formula

Question:

In the last five years we have significantly ...

changed our pricing and sales strategy.

changed our commercialization strategy (e.g. change from sales to leasing or licensing models).

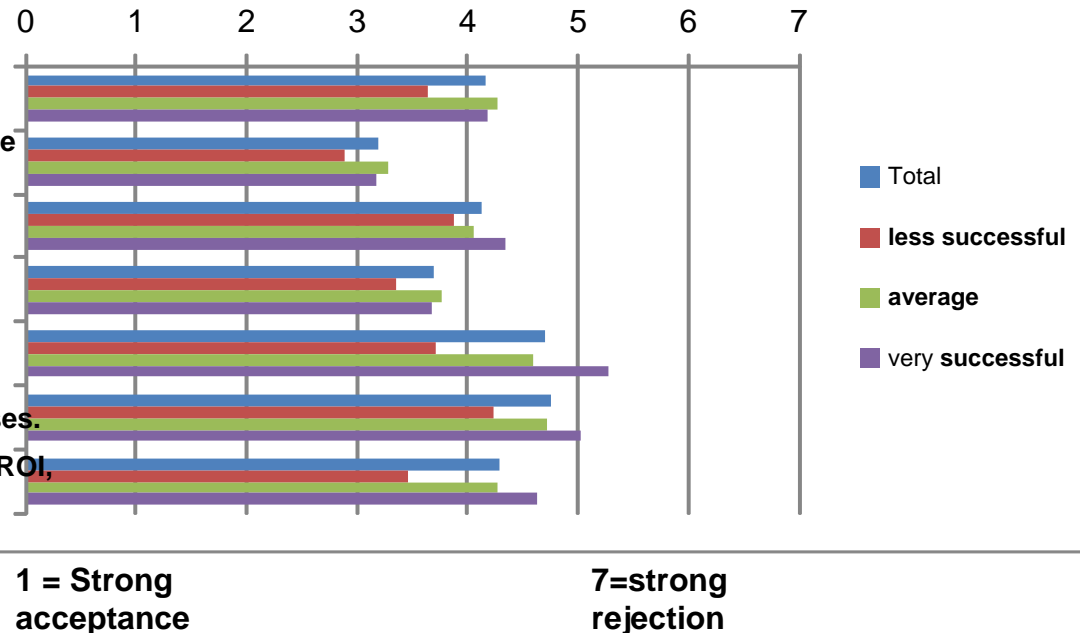
changed the cost structure of our products or services.

changed the calculation of strategically relevant costs.

changed our production / operative strategy (e.g. through projects for production excellence such as Six Sigma).

changed the cost structure of our operative processes.

changed KPIs (key performance indicators such as ROI, ROA, or lead times).



Source: Study „From megatrends to business success“, 2014

Question: In the last five years we have significantly ... (1 = does not apply at all – 7 = applies completely)

n = 141

Shown is the statistical mean of the answers.

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Megatrends	Implication for chemical and pharmaceutical industry	Industrial parks: Action
Globalization	<ul style="list-style-type: none"> International growth Increased competition 	<ul style="list-style-type: none"> Export of expertise Further process excellence in the region (sharing of best practices) Qualification
Innovation	<ul style="list-style-type: none"> Cross-industry and cross-disciplinary innovation process 	<ul style="list-style-type: none"> Organize exchanges Joint activities on selected topics (e.g. energy transition)
Higher qualification	<ul style="list-style-type: none"> Interdisciplinary qualification; individual qualification offers 	<ul style="list-style-type: none"> Individual offers Interdisciplinary courses

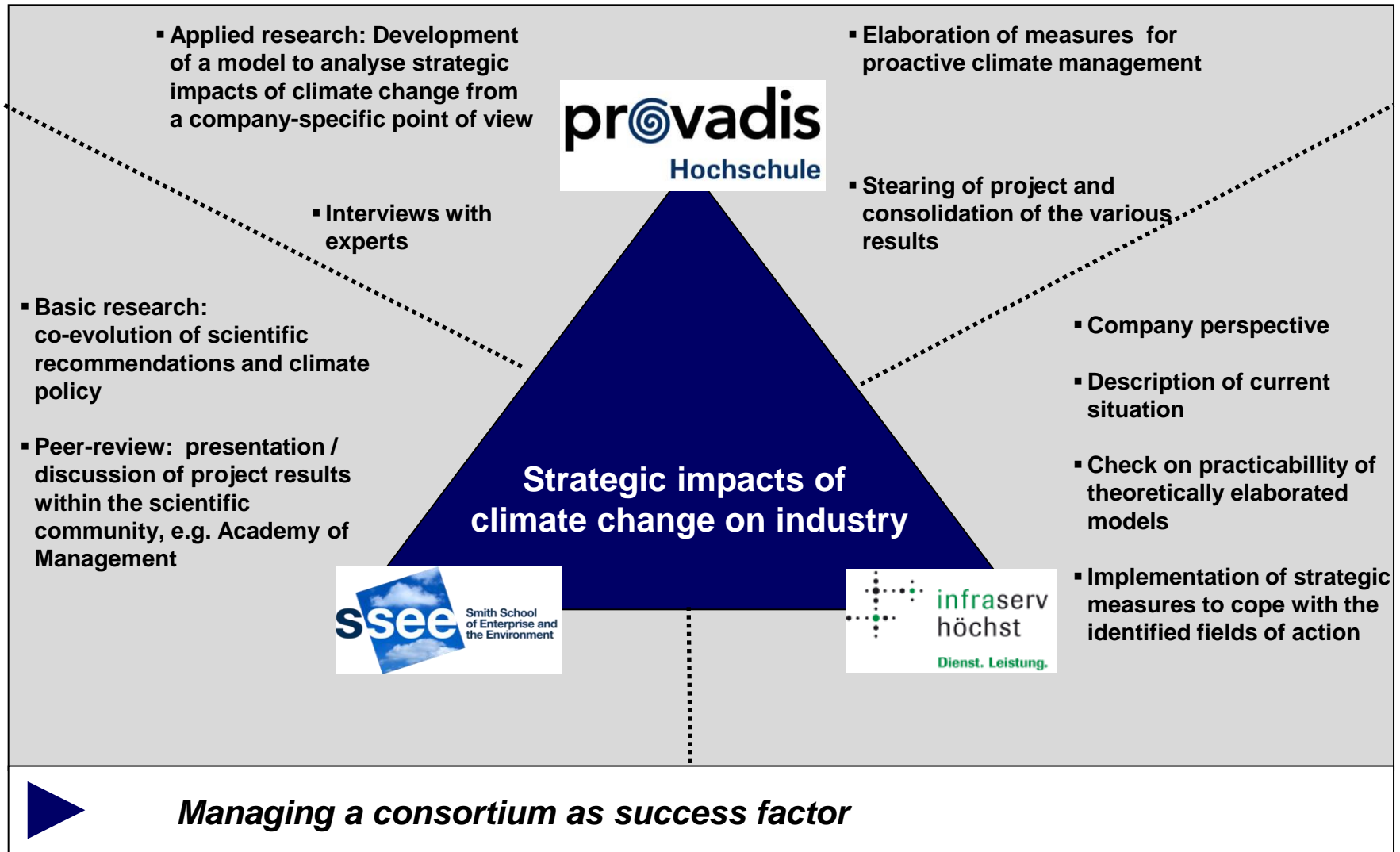
Additional challenges:
engage in a public dialogue about the future of chemistry
form strong partnerships and secure public support

Megatrends and Implications for industrial parks



Example 1:

Develop a sustainability strategy



Example 2: Work on climate/green strategies



CLIMACTIO

Sustainability in the Chemical Industry

The Practical Implementation of
State of the Art Knowledge

Hannes Utikal; Julia Woth



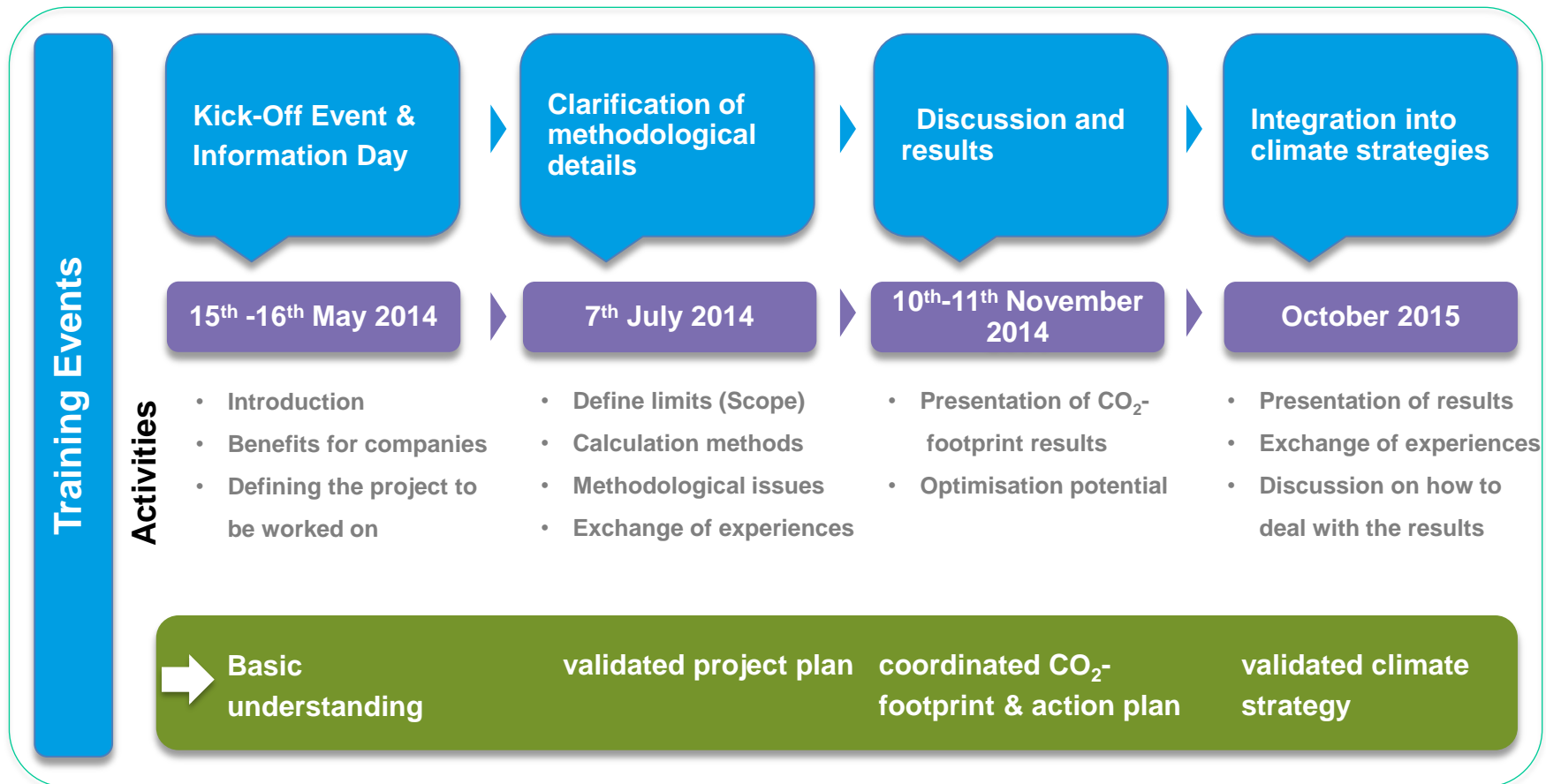
pro©vadis
Hochschule

cdc
climat
recherche



UPMC
SORBONNE UNIVERSITÉS

OVERVIEW: 18-MONTHS EDUCATIONAL PROGRAMME



Example 3: Cooperate with the city and region



**Climate-KIC
PHD Summer School 2013**

**„TRANSFORM FRANKFURT'S
ENERGY SYSTEM“**

16.09.2013 – 27.09.2013 | Frankfurt am Main

In Cooperation with:

provadis Hochschule  **STADT FRANKFURT AM MAIN**
Energieforum • Die kommunale Klimaschutzagentur

 **GOETHE UNIVERSITÄT
FRANKFURT AM MAIN**  **TECHNISCHE
UNIVERSITÄT
DARMSTADT**

Case study:

How to turn the Energiewende in Frankfurt into a success?

- multidisciplinary approach through project work
- 40 PhD students from 20 European universities
- 20 speakers from academia, industry, public administration and politics

EU approach: Innovation depends on systemic changes (energy, mobility, etc.)



Innovation emerges not only within one discipline, but also through cooperation

Example 4: Dialogue with Society

With its book „Future Chemistry. Glimpses at the world of tomorrow“ and the discussion format of „Industry 2030“ the rhein-main cluster invests in an intense dialogue about its role for prosperity and its responsibility.



Industrial parks have to handle the relations to neighbours and society with care.

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Megatrends shape the chemical and pharmaceutical industry's future. Their exact implications have to be analyzed on a per company, per business unit and regional basis.

Across all segments of the chemical industry, globalization, organizing cross-industry and interdisciplinary innovation processes and better staff qualifications, are the predominant drivers.

Companies in the chemical industry expect evolutionary – not revolutionary changes.

Successful companies have a better

- **understanding of business models**
- **strategic learning capability**
- **strategic flexibility.**

Chemical parks may internationalize with their expertise. On site they can improve companies' competitive position and should organize effective learning processes.



Academic institutions on site can improve your competitive position

Thank you for your attention



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