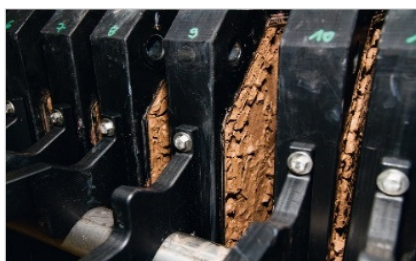




## Where Wood meets Chemistry

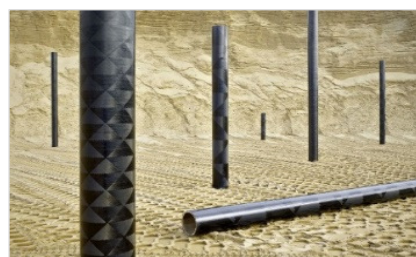
Leading Edge Cluster BioEconomy – Network  
for a Biobased Economy in Central Germany

# What is bioeconomy?



„The bioeconomy comprises all economic sectors and **all industries that produce, manage or otherwise use biological resources** including bio-waste.“

Source: German Bioeconomy Council



Pictures: Imagebrochure Bioeconomy Council, Fraunhofer CBP, TU Dresden, C3 Technologies, Linde AG, ThyssenKrupp Industrial Solutions, DBFZ

## Global Challenges

Growth of population | Limited Resources | Climate change

### Europe 2020 + UN

- Sustainable Growth
- Resource efficiency
- Competitiveness



- High-Tech Strategy
- National Research Strategy Bioeconomy 2030
- Political Strategy Bioeconomy
- Forest Strategy 2020

## BioEconomy Cluster

Development and implementation of new processes & products  
from sustainable resources

# BioEconomy Cluster – Goals and actions



A **cross-industry value-adding** cluster  
with **availability of raw materials** and **integrated chemical sites**

## Goals

- **Sustainable use** of non-food biomass (e.g. beech wood)
- **Long-term alternatives** to fossil based raw materials

## Actions

- Providing **cost-efficient environment** for **R&D investments**
- Development of **innovative products**
- Building of **new markets**
- **Extension** of existing value chains
- Cascading & coupled production

# European Centre for biobased economy

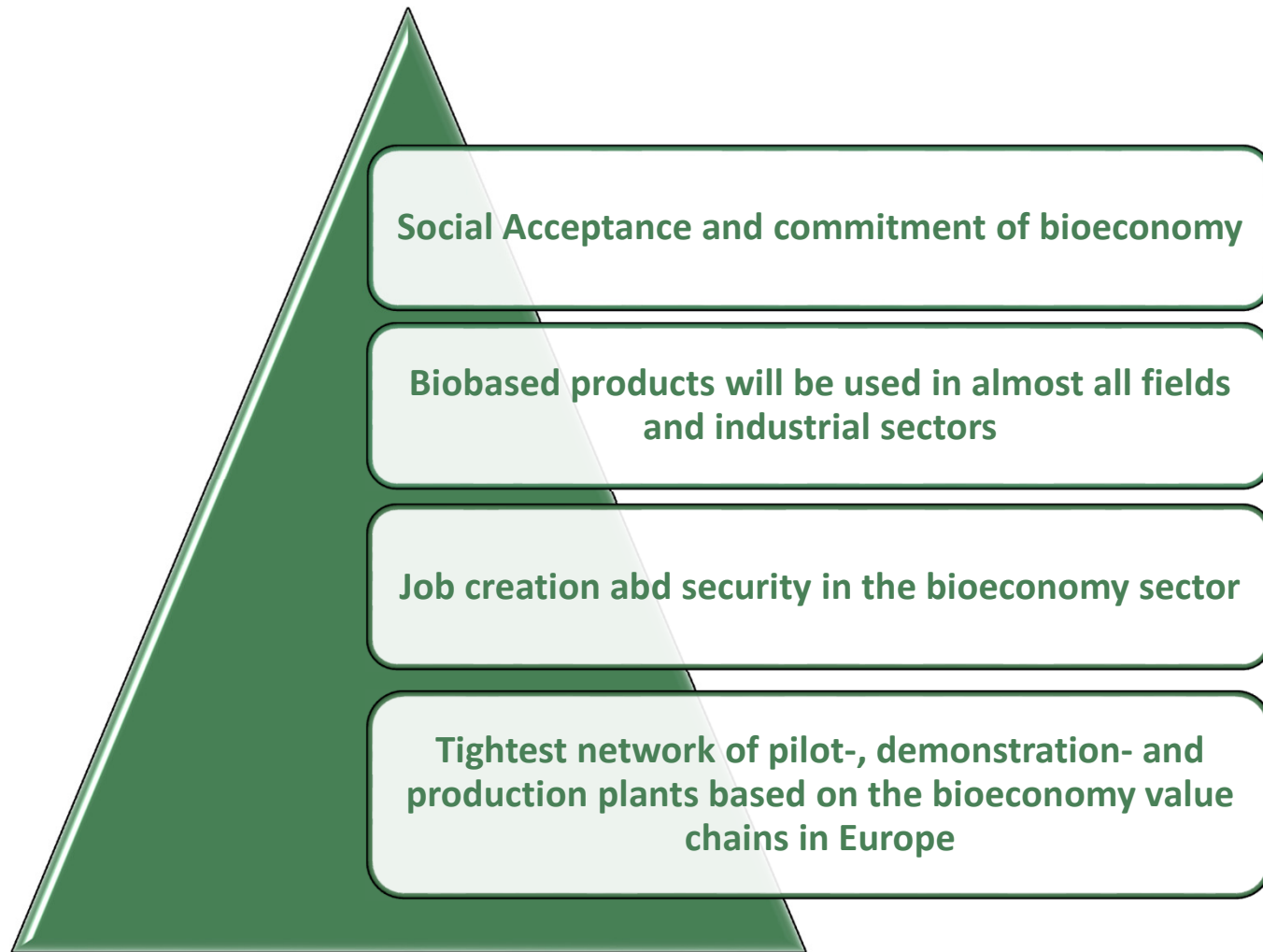


- Input on National Research- and mainstream strategy of bioeconomy and involvement in guidelines chemistry and bioeconomy in Saxony-Anhalt
- Unique cross-linking of the core industries Timber, Chemicals and Plastics
- Important sites of the chemical and the woodworking industry
- Leading research institutes with pilot facilities
- 30 % of the German beech forest (wood cluster Rottleberode)
- High density of universities and educational institutions (professionals potential)



# Strategic Vision

„One of the European centres for wood-based integrated bioeconomy“



# Facts/ numbers of BioEconomy Cluster



- Founded by 23 members in 2012 and organized
- as a **regional network** (BioEconomy e.V.)
- Since 2012 Leading Edge Cluster of the German Federal Ministry of Research and Education (BMBF)
- with 45 joint- and 145 subprojects (Budget: 80 MM Euro)
- Supported by the Ministry of Sciences and Economic Affairs of the Federal State Saxony-Anhalt
- Core region: **Saxony-Anhalt and Saxony** (with Thuringia, Brandenburg and Lower Saxony)



SME	Large-Scale Enterprises	Research-Institutions	Universities/ Education	Networks	Total
63	16	18	7	5	109



# Why Beech wood?

- Beech is the most abundant hardwood species in Germany and other European countries (up to 16%)
- Only limited use as construction timber due to unsatisfying durability
- Difficult process ability
- Markets for Industrial applications (furniture, flooring, railway sleepers etc.) have become very unfavourable
- Annual surplus of > 5 MM tons of beech wood in Europe



# Overview of cluster stakeholders

## Companies

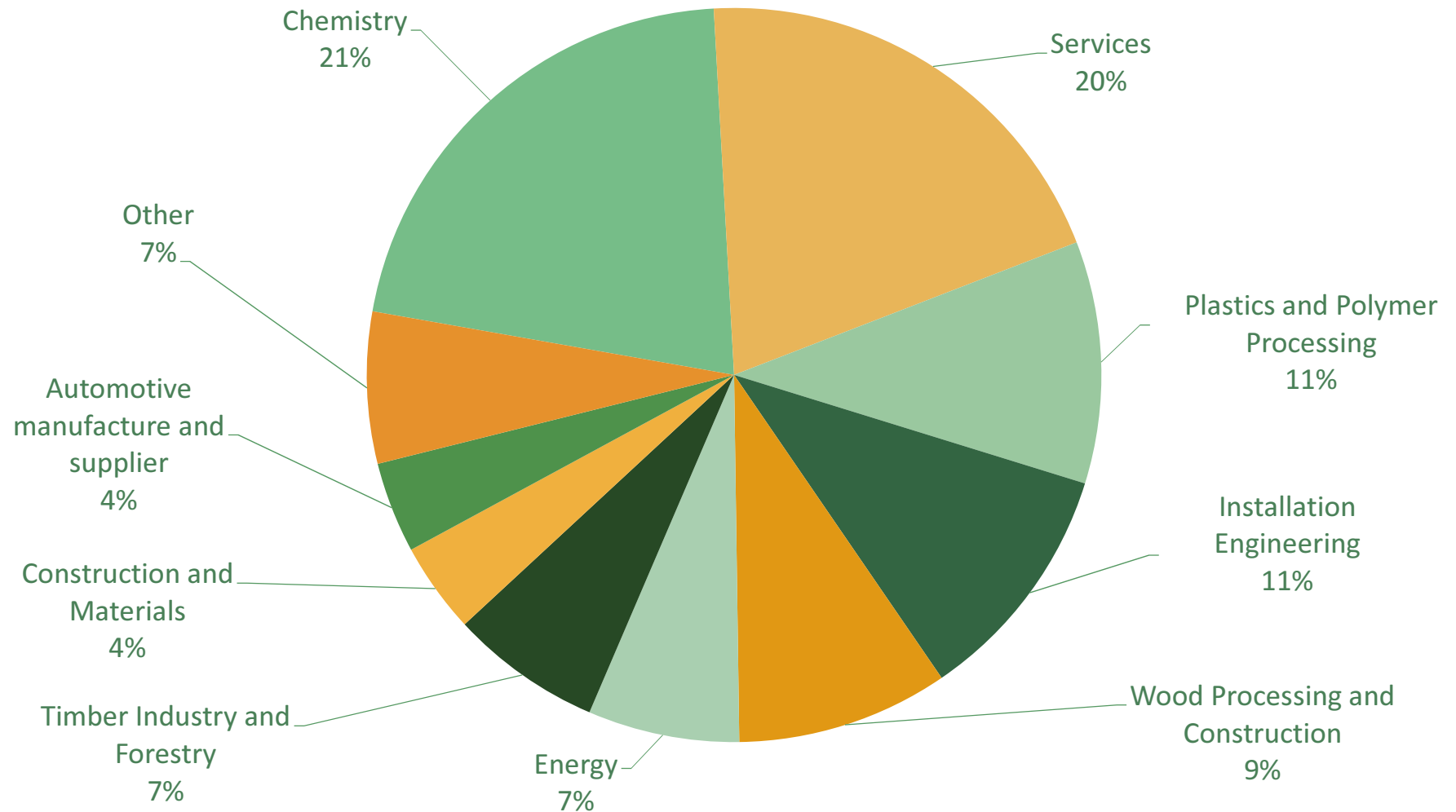


## Research/Education

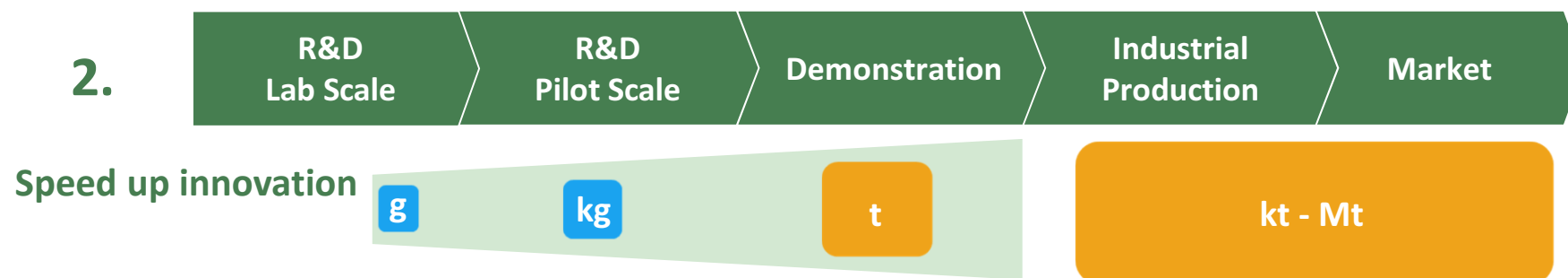
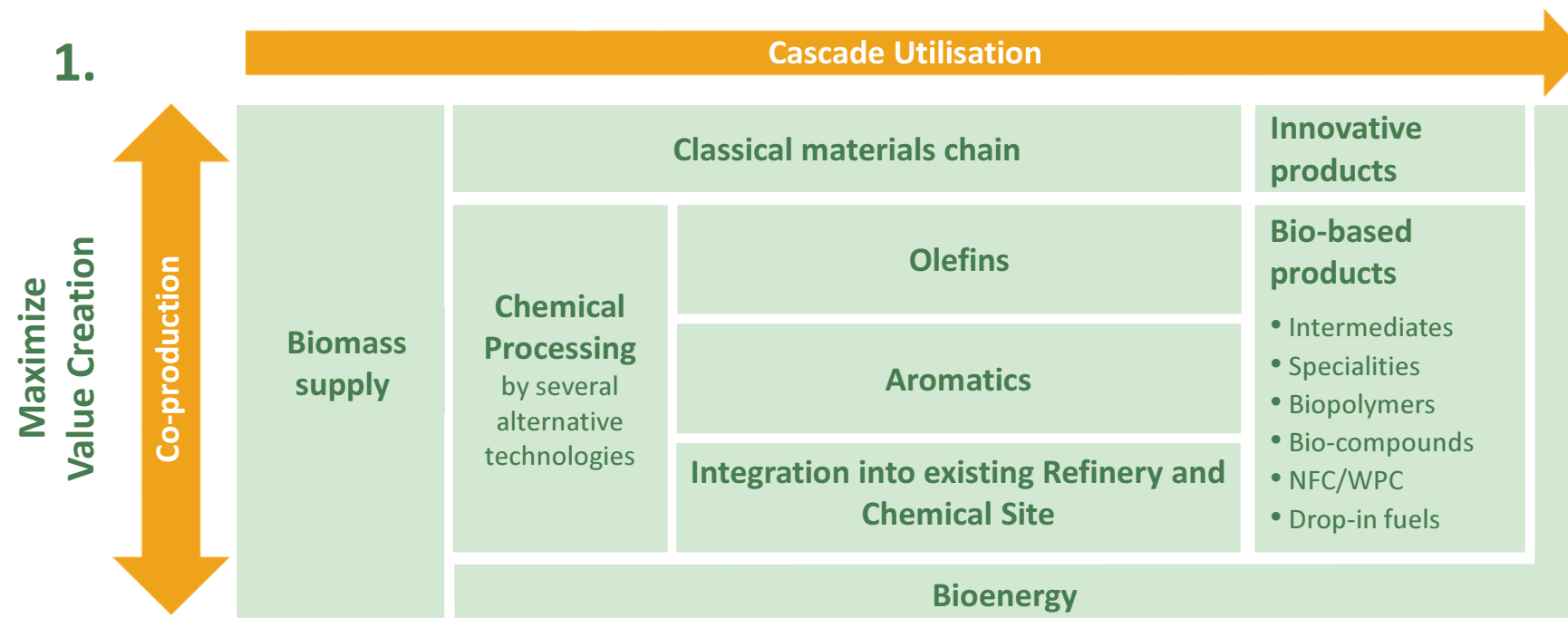




# Sectors of the Cluster members



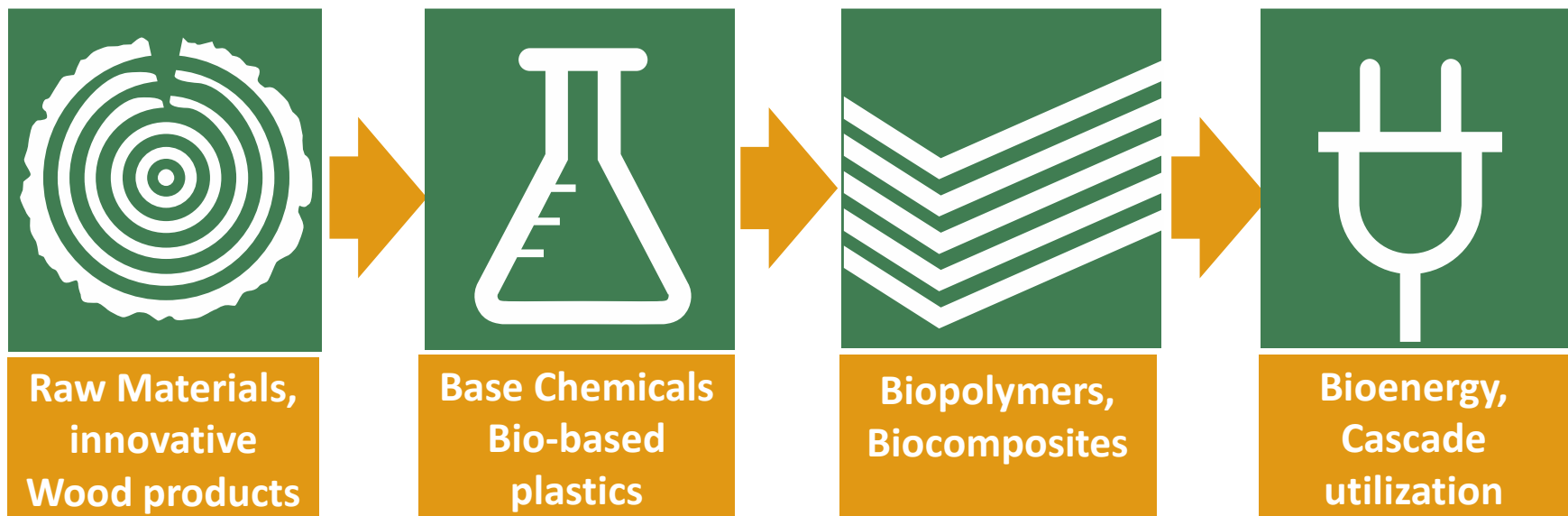
# Strategic Approach



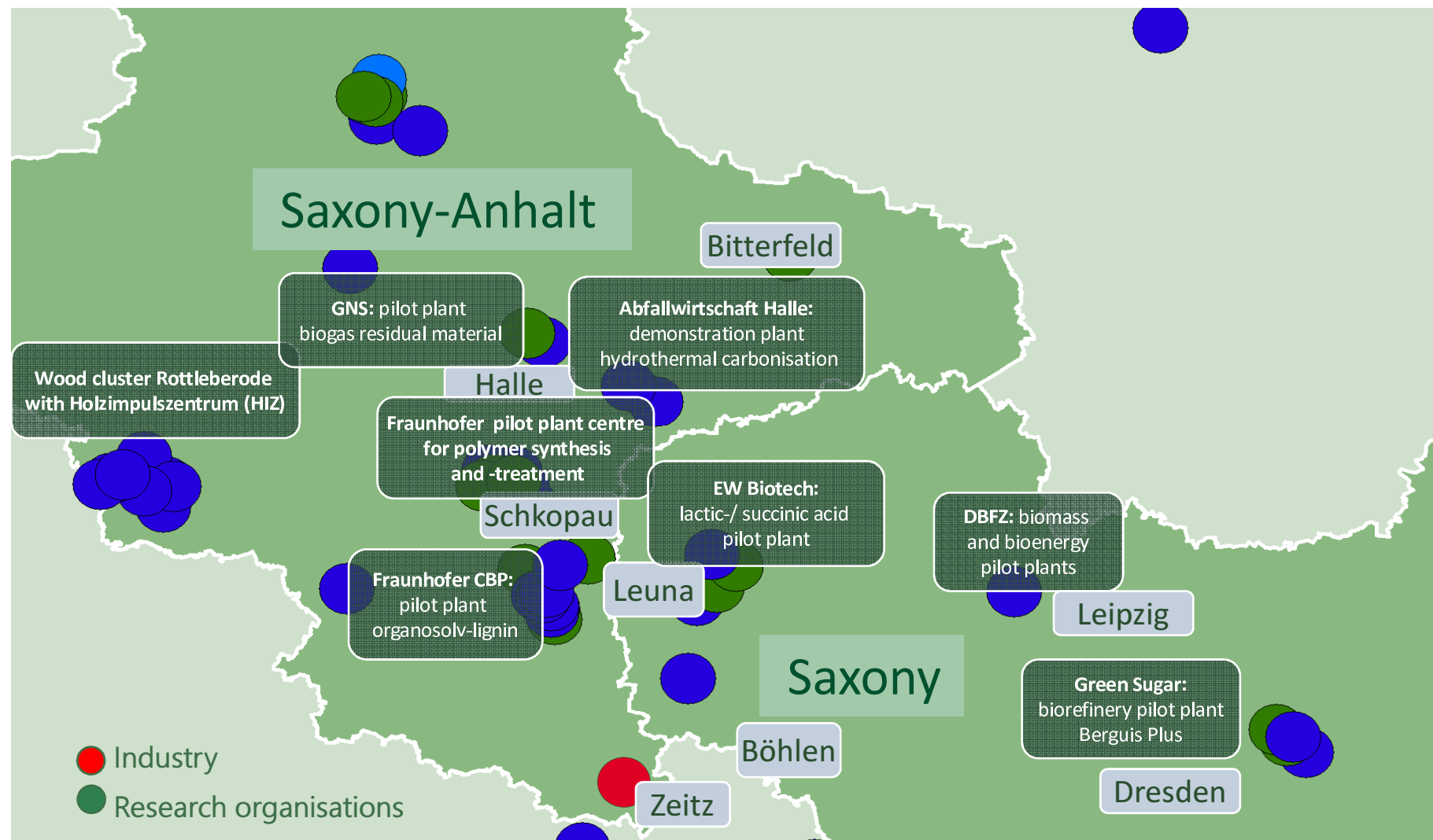
# The German BioEconomy Cluster working on a biobased economy



**Central Germany**  
**Where Wood meets Chemistry**  
**in 45 Joint (145 individual) R&D Projects**



# Overview Pilot- and Demo plants





# Our Success Stories

Supply Chain for 500.000 t/a beech wood



Wood products based log grading and handling



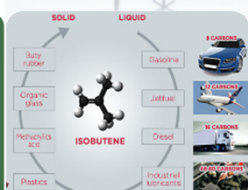
System for wood frame houses developed



Beechpole pilot scale



Isobutene fermentation demo scale upcoming



Organosolv extraction demo scale upcoming



Integrated biorefinery for PLA (from lignocellulose)



Phytosterol



Demo plant for lactic and succinic acid



Pilot plant center for polymer synthesis and processing



# Practical examples



**Biobased Chemicals**



**„carrying pillars“ from moulded wood**



**Bio-Foams**



**Timber Construction System for Zero Energy Houses**



**Hydrothermal Carbonisation**



**100% Bio-based Wood-Plastic-Composites**



**Adhesives from Lignin**



**Construction Materials from Green Composites**

# BioEconomy Cluster goes International



## Regional: Innovation Cluster



SACHSEN-ANHALT

Ministerium für Wirtschaft,  
Wissenschaft und Digitalisierung

## National: Leading Edge Cluster



GEFÖRDERT VOM



Bundesministerium  
für Bildung  
und Forschung

## International: Strategic Cluster Partner





# Political and international networking



- Seat in the German Bioeconomy Council
- Participating in the development of the strategy for the leading market Chemistry and Bioeconomy of the Federal State Saxony-Anhalt
- Networking to relevant committees of the European Union
- Intercluster Cooperation with national and European Cluster networks
- European Strategic Cluster Partner ESCP-4i of EU DG Growth
- Full member in the PPP Bio-based Industries Consortium (BIC): Partner for communication, dissemination, exploitation



# International networking 3Bi



## Objectives to boost Bio-Based Innovations:

- ✓ Develop Technological partnerships between our respective members
- ✓ Support the development of the European Bio-Based industries value chain
- ✓ Develop R&D projects driven by industries





# With joint forces and expertise to a bio-based economy

- **Cross-industry expertise** within the Cluster network in the fields of wood, chemistry, materials and energy  
→ **Find strong partners!**
- **Extensive** project work in the Leading Edge Cluster offers several points for further R&D and product developments  
→ **Place your projects and ideas!**
- **Best conditions in Saxony-Anhalt** and Central Germany for a European centre of a biobased economy  
→ **Participate on emerging value chains!**

Knowledge Transfer

Scientific Coordination

Networking

Cost Sharing in R&D

Assistance in Fund Raising and Acquiring Investments

Guaranteeing the Future for Companies



# Leading Edge Cluster BioEconomy



The 7<sup>th</sup> international bioeconomy conference will take place  
6<sup>th</sup> - 7<sup>th</sup> June 2018 in Halle.



[www.bioeconomy-conference.de](http://www.bioeconomy-conference.de)

## Your Contact to the BCM BioEconomy Cluster Management GmbH:

Prof. Dr. Matthias Zscheile  
Managing Director  
[matthias.zscheile@bioeconomy.de](mailto:matthias.zscheile@bioeconomy.de)  
Phone: +49 345 / 1314 2730

Anne-Karen Beck  
Communicator  
[anne-k.beck@bioeconomy.de](mailto:anne-k.beck@bioeconomy.de)  
Phone: +49 345 / 1314 2731

## Internationalisation – Next steps

- Drafting and signing of a Cooperation Agreement
  - Drafting of the internationalisation concept with all partners
  - Workshops with international partners
  - Definition of 3 international R&I projects
  - Finalisation and submission of the internationalisation concept
    - expansion of the competence profiles
    - sustainable and positive development of the location Germany
    - Strengthening of management skills
    - Development and Implementation of innovative management processes for international projects
- Use this event to tie Dutch and German strengths by efficient networking.
  - Create and exchange your project idea.
  - Address either BioEconomy Cluster or Biobased Delta on a confidential level.
  - Benefit from cost sharing and national German Funding.