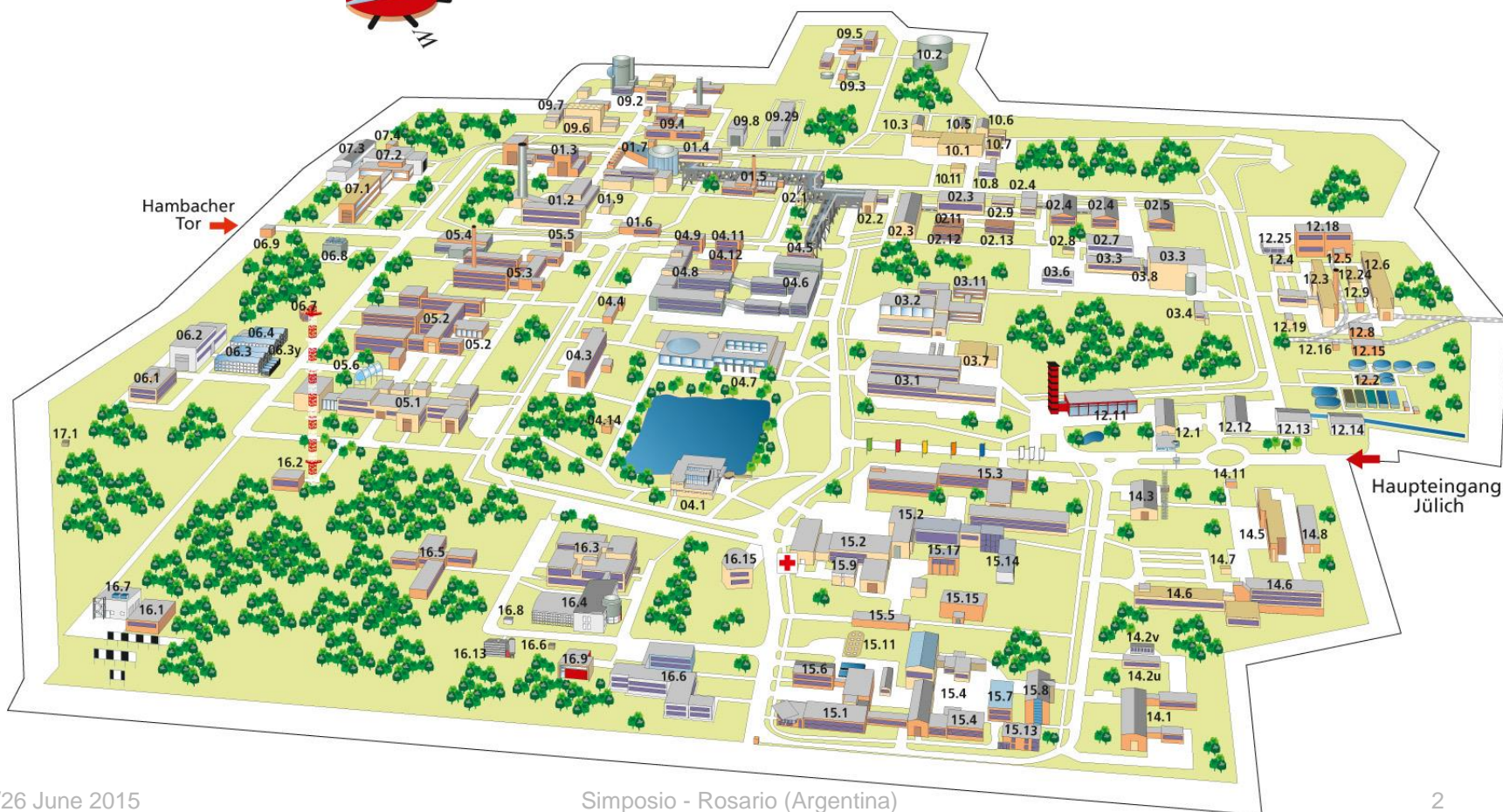


## › **National Research Strategy BioEconomy 2030** **Experiences and Perspectives in Germany and Beyond**

Dr Thomas Assheuer - Project Management Jülich/Germany





## Forschungszentrum Jülich

### › **About Us**

We conduct research to provide comprehensive solutions to the grand challenges facing society in the fields of energy and environment, information and brain research.

### › **51 Scientific Institutes**

### › **Employees** (31 Dec 2013)

- › Total 5,543
- › of which scientists incl. scientific trainees 1,924

### › **Revenue** (2012)

- › 617 million €
- › of which 200 million € are third-party funding

## Project Management Jülich

- › **Subunit** of Forschungszentrum Jülich
- › We manage the funding of research and innovation
- › We combine scientific, structural and administrative competence
- › We are a neutral partner and have no economic interests of our own
- › In the field of Bioeconomy, we work on behalf of the **Federal Ministry of Education and Research (BMBF)**

→ “contracted and authorised service provider”

## Project Management Jülich - Staff 2013

394

Scientific administrators

819

Total

245

Business administrators

180

Others

## 2014: 867 employees – 40th anniversary

394

Scientific administrators

819

Total

245

Business administrators

180

Others

## Our services

- Innovation and technology analyses
- Identification of new funding approaches
- Advice on funding strategy
- Development of funding programmes

**Identifying trends**

**Supporting research and innovation**

- Advice on national and European funding
- Evaluation of applications
- Management of funding projects
- Audit of the use of funds and exploitation of results

**Shaping the future**

- Impact analyses and evaluation processes
- Transferring knowledge to the specialist community and society
- Committee work developing programmes



## Our services

- Innovation and technology analyses
- Identification of new funding approaches
- Advice on funding strategy
- Development of funding programmes

Identifying trends

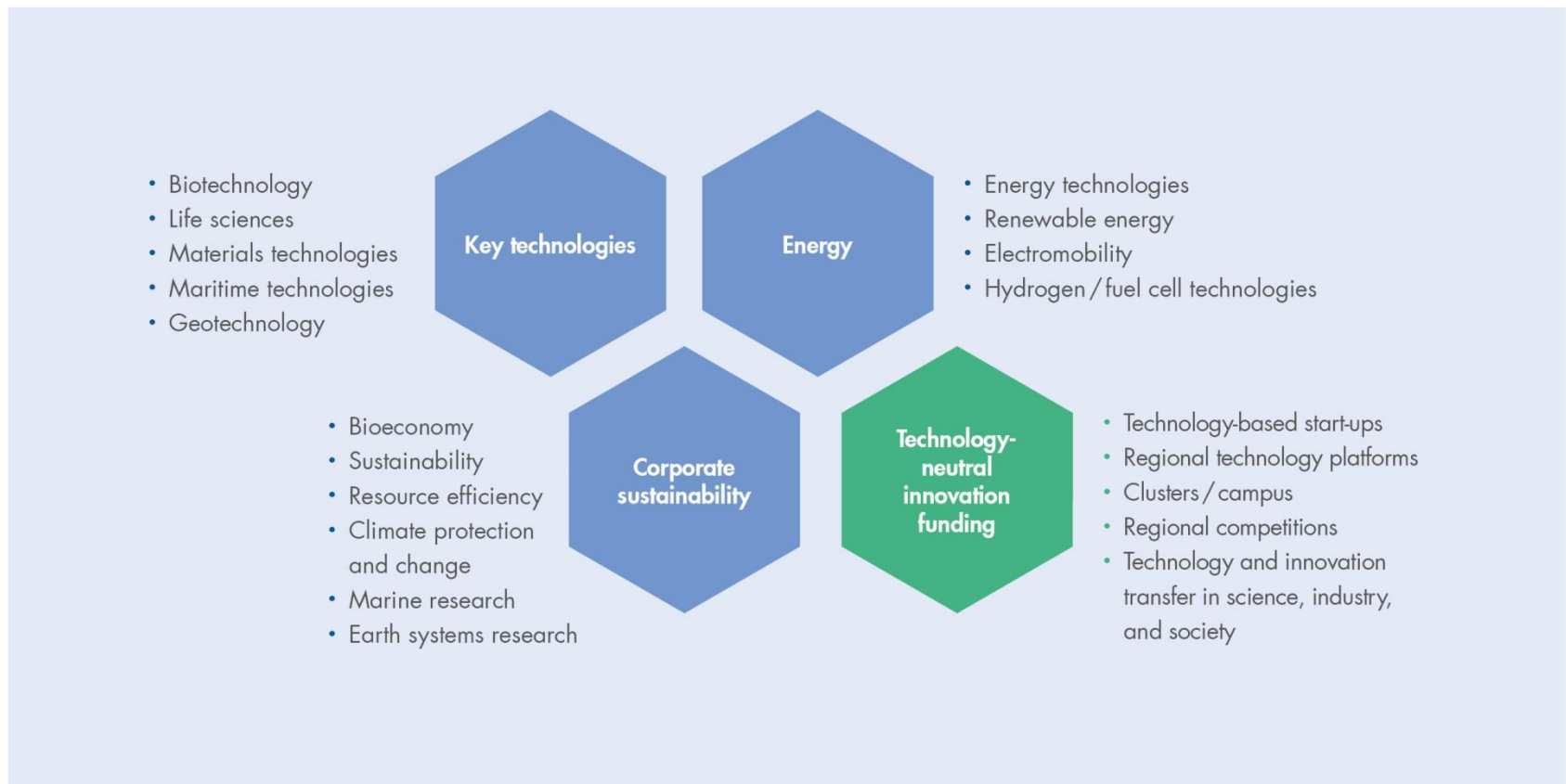
Supporting research and innovation

Shaping the future

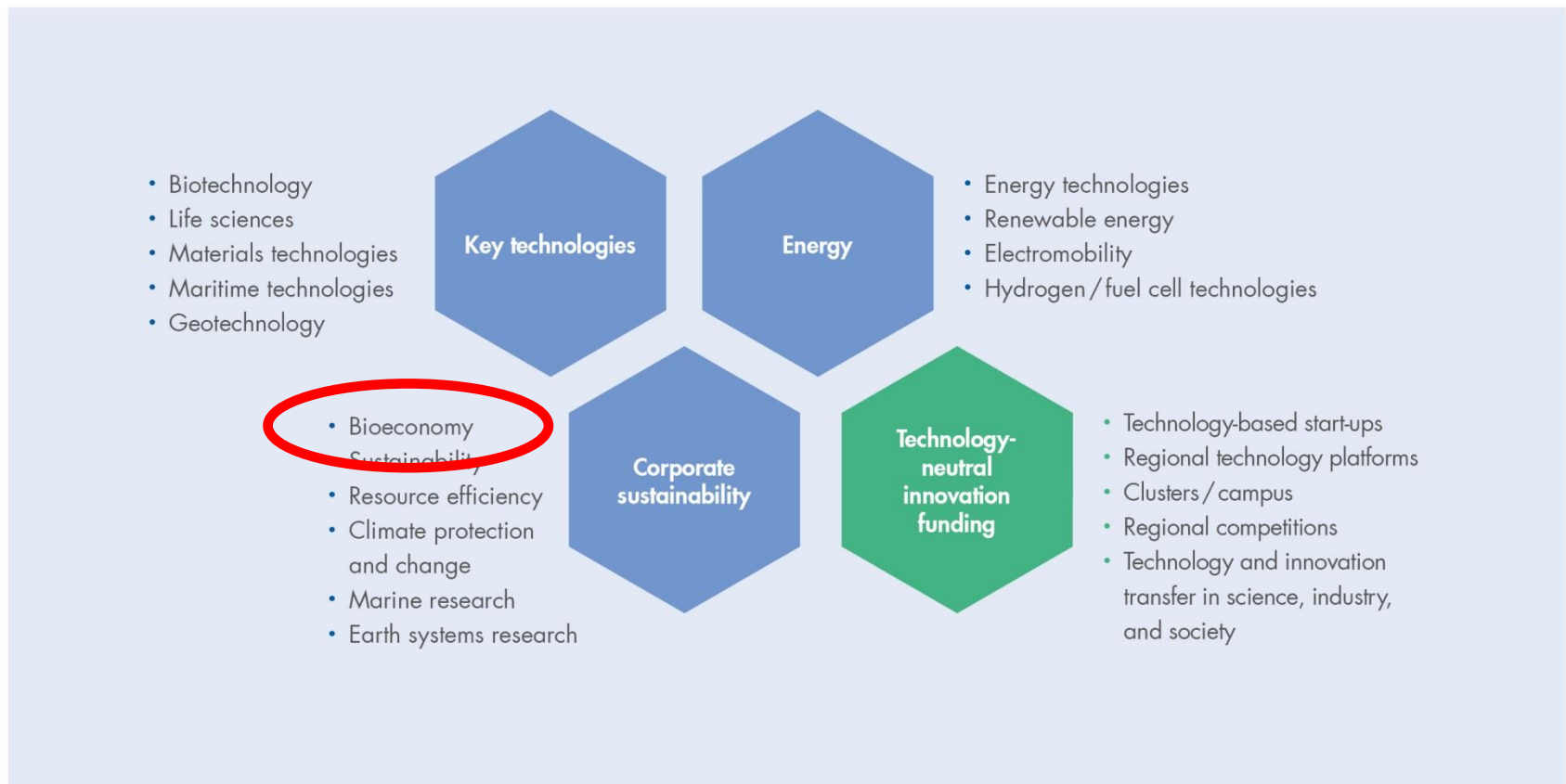
- Impact analysis processes
- Transferring specialist
- Committee programme



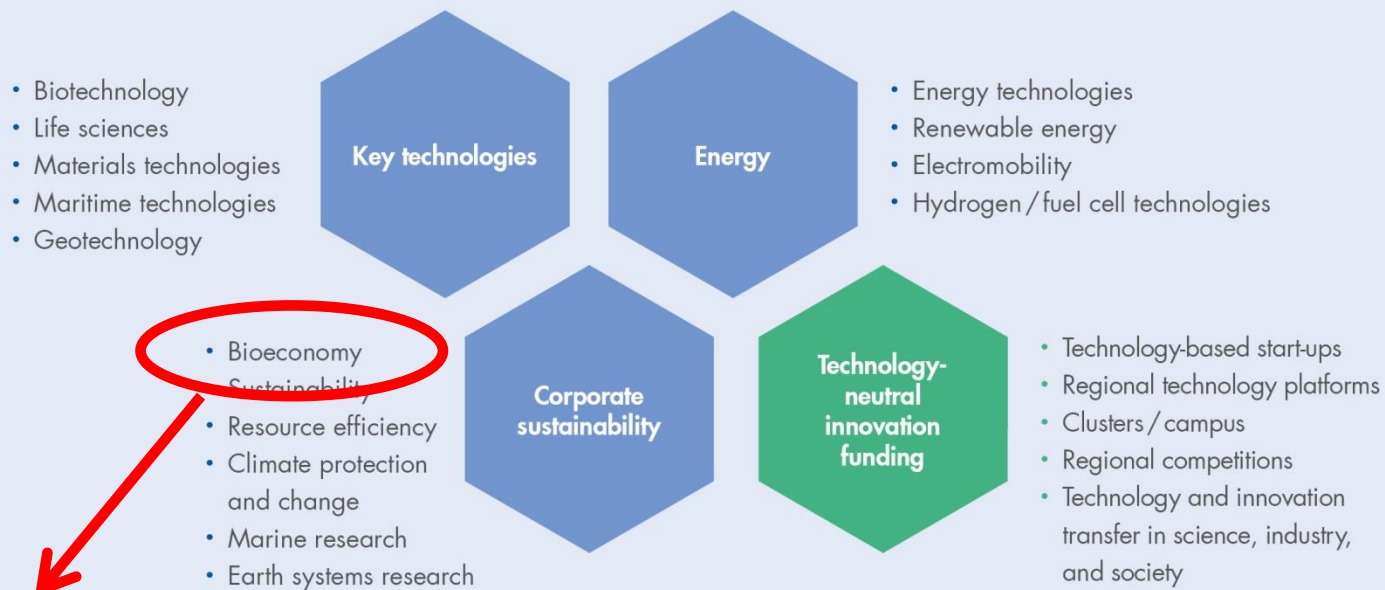
## Our business areas



## Our business areas

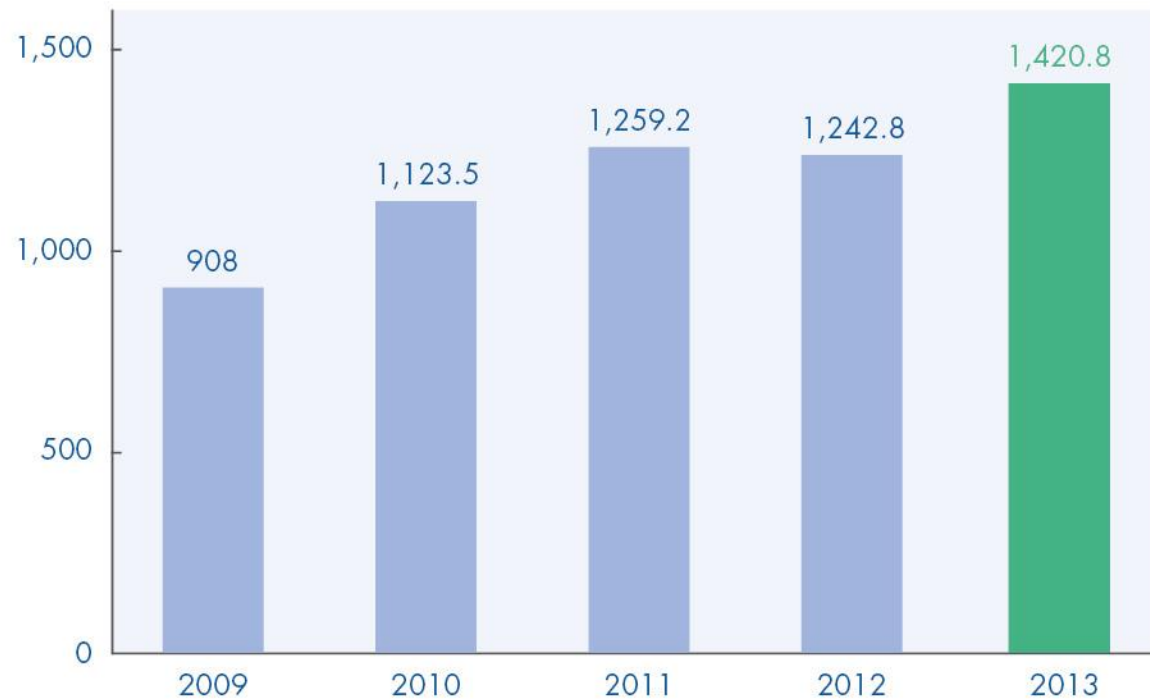


## Our business areas



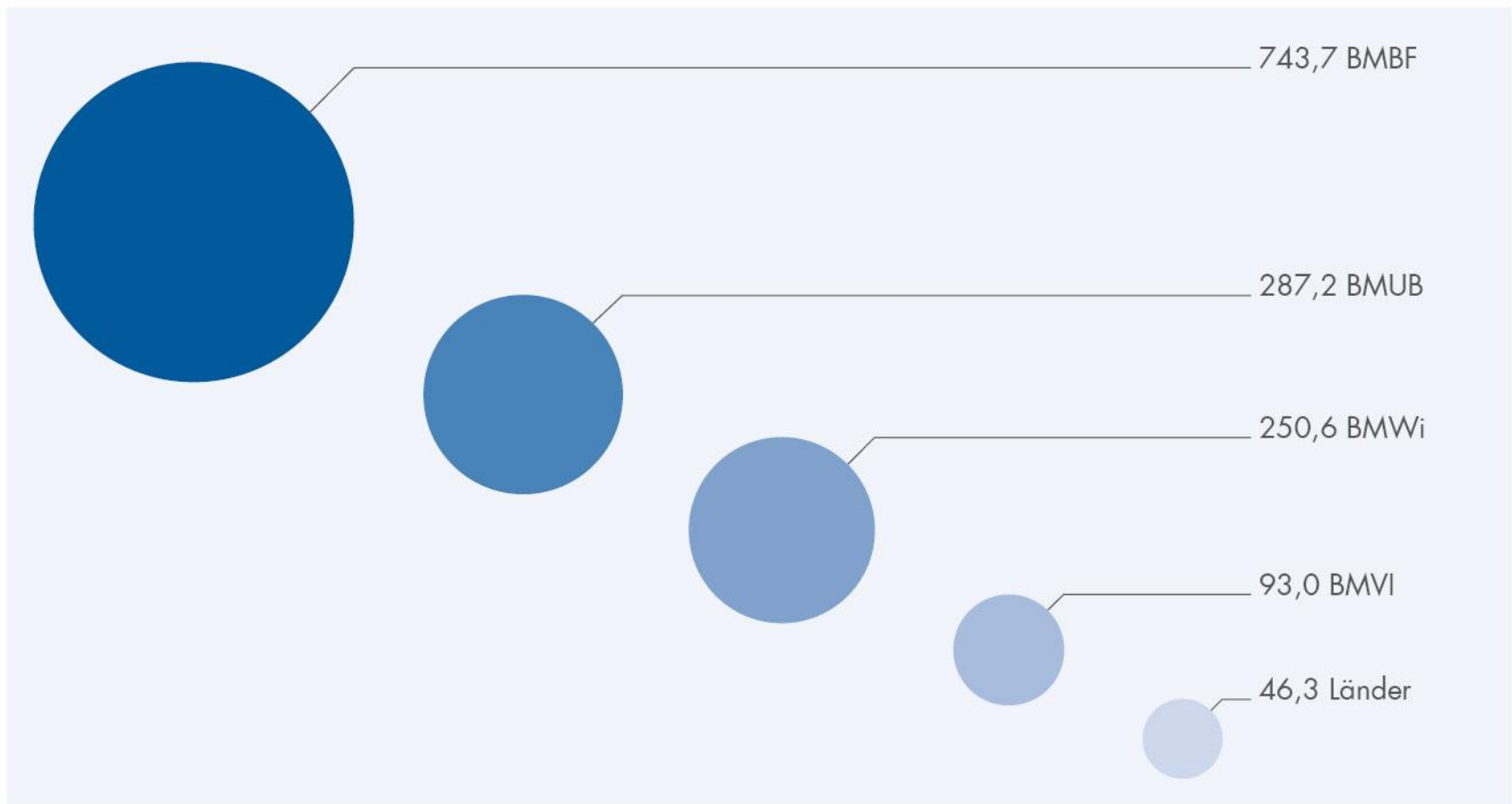
About 100 people

## Development of funding volume

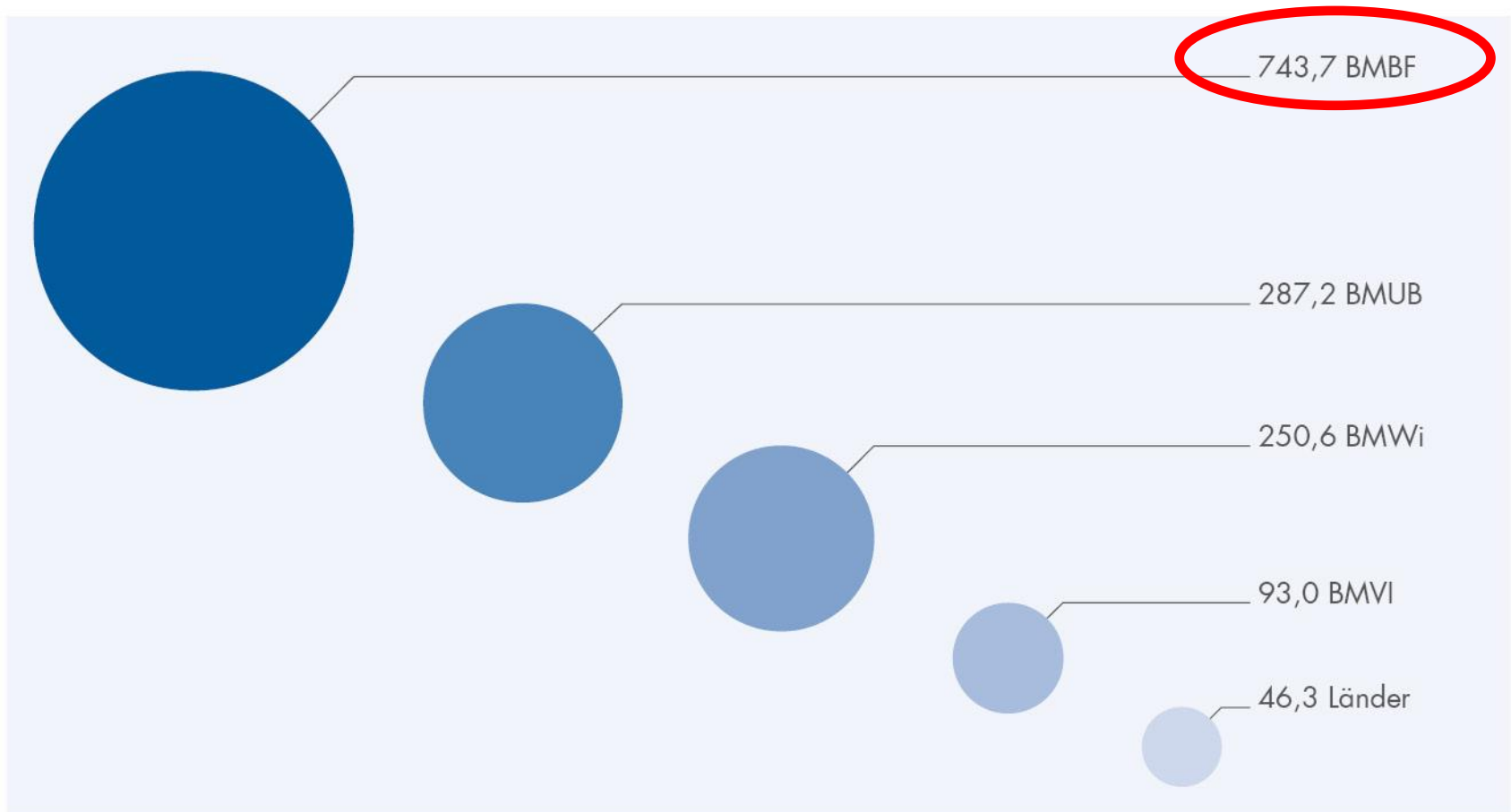


Development of funding volume in millions of euros  
2009 – 2013

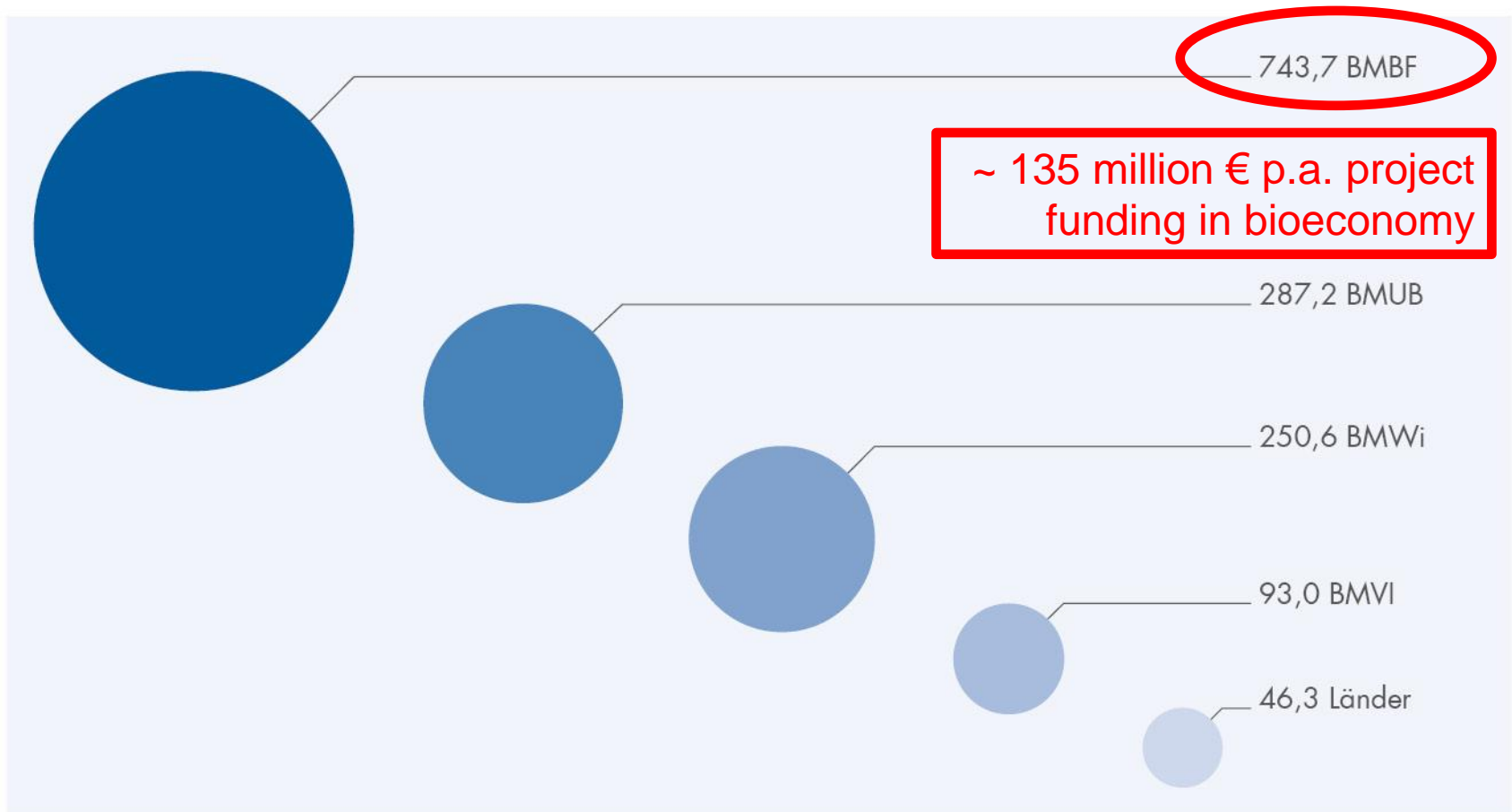
## Funding volume per customer in in Mio. €



## Funding volume per customer in in Mio. €



## Funding volume per customer in in Mio. €







## Why do we need bioeconomy?

→ my personal motivation ...





„Tagebau Hambach“ – coal mine 5 km near Jülich → **the past**

## Biomass - the future ?



**Sugarbeet**

## Biomass - the future ? – YES !



### Sugarbeet

- › **Food**
- › **Feed**
- › **Fuel**
- › **(Fibre)**
- › **(Fun)**

## Sugar refinery Jülich



### Sugarbeet

- › **Food**
- › **Feed**
- › **Fuel**
- › **(Fibre)**
- › **(Fun)**

## The experimental solar power plant Jülich





# National Research Strategy BioEconomy 2030 Experiences and Perspectives in Germany and Beyond



## Societal challenges in the 21st century



- Increasing world population
- Increase of food associated diseases
- Climate change/protection
- Resource conservation/protection
- Sustainable energy production
- Transfer from fossil to bio-based resources

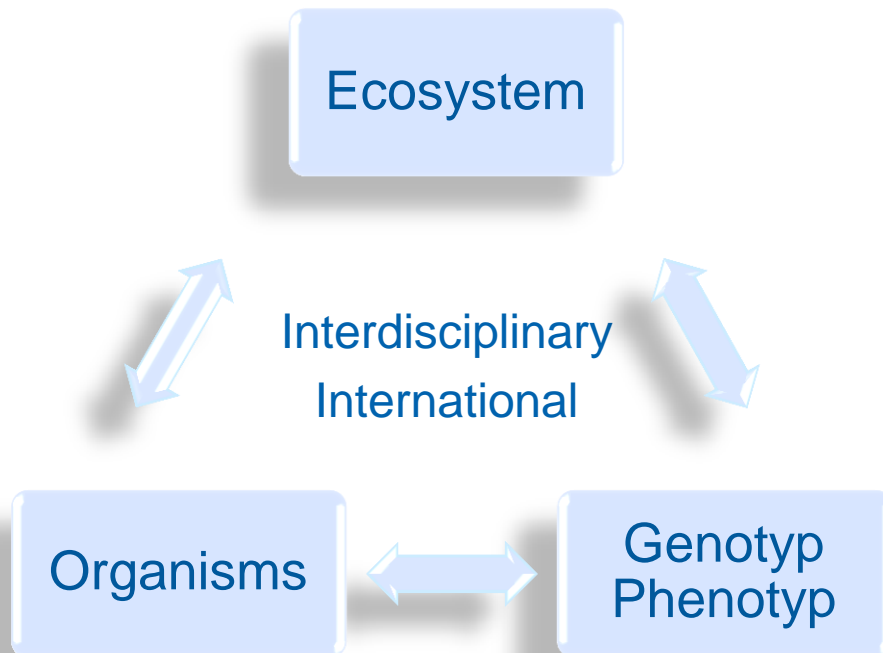
## Knowledge-based BioEconomy



### **Vision of a**

- › **natural,**
  - › **cycle-oriented,**
  - › **sustainable,**
  - › **and biobased**
- economy**

## Knowledge-based BioEconomy - Perspectives



### › Integrating knowledge from...

- Biology
- Chemistry
- Mathematics
- Physics
- Engineering Sciences
- Agricultural and Nutritional Sciences
- Computer Science
- Environmental Science
- Social Sciences, Economics
- **Et cetera!**

## What is a Bio-economy?

### Consumer

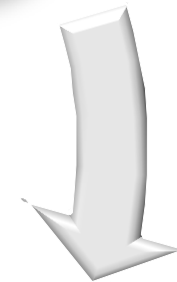
- *socio-economics*
- *logistics*
- *construction*
- *trade*



*Systems  
 analysis*

### Production

- › *agri-tech*
- › *(mol.) biology,*
- › *soil, plant, animal*



*Sustainable?*

### Conversion

- *process tech*
- *biotechnology*



### Valorisation

- *food, feed*
- *fiber,*
- *fuel*

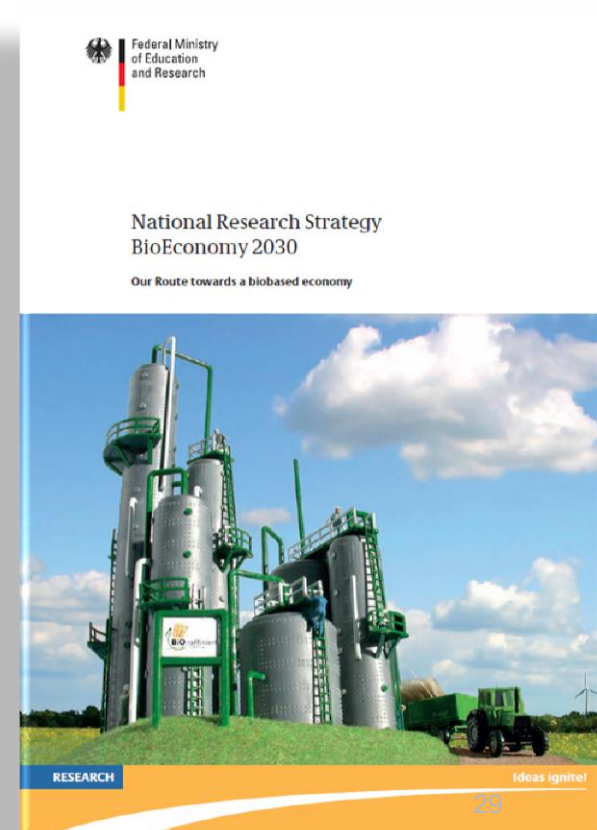


## National Research Strategy BioEconomy 2030

- **BMBF** Federal Ministry of Education and Research (et al.)
- Academia: research institutes & universities
- Industry
- Federal states
- European and International cooperation

starting **November 2010**; duration 6 years

Project funding	1 457.6 Mio €
Institutional funding	976.6 Mio €
Total funding	2 400.0 Mio €



# National Research Strategy BioEconomy 2030

## FIELDS OF ACTION



**Securing  
global nutrition**

**Producing healthy  
and safe foods**



**Using renewable  
resources for  
industry**



**Sustainable  
agricultural  
production**



**Developing  
biomass-based  
energy carriers**



## Bioökonomierat – Bioeconomy Council

Phase I: January 2009 – May 2012

Phase II: since Sept. 2012



- Advising the federal government
- Academia & industry
- Social dialog
- Recommendations for funding in education, research and development.

<http://www.biooekonomierat.de>

## Coherent policy in bio-economy:

### „National Policy Strategy on Bioeconomy (July 2013, BMEL)“

Interservice co-ordination of national concepts and strategies in the context of bioeconomy:





# National Research Strategie BioEconomy 2030 – funding programs

Plant Biotechnology **GlobE** BioIndustry 2021

PLANT-KBBE

Biotechnology 2020+

DPPN - Phenotyping

BonaRes – Soil as a sustainable Resource

Innovative Plant Breeding within the cultivation system

Bioeconomy International

FACCE-JPI

ERANet SUSFOOD

ERANet EMIDA

ERANet ANIHWA

ERANet EuroTransBio

Enabling Technologies/ Research Award: Next Generation biotech. Processes

Innovation initiative ind. Biotechnology

BioEnergy 2021

Cluster BioEconomy

KMU-innovativ

GoBio



# National Research Strategie BioEconomy 2030 – funding programs

Plant Biotechnology GlobE BioIndustry 2021

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GoBio

BioEnergy 2021

**Cluster BioEconomy**

Enabling Technologies/ Research Award: Next Generation biotech. Processes

Innovation initiative ind. Biotechnology



## Example - DPPN German Plant Phenotyping Network

- › **Vision** Closing the phenotyping gap
  - › new concepts and technologies for phenotyping
  - › phenotyping standards
  - › productive and efficient infrastructure
  - › robust portfolio of phenotyping approaches
- › Three partners - five Years for implementation (2012-2017)
- › ~ 35 million € from BMBF



## Example - BonaRes

### Soil as a sustainable Resource for the Bioeconomy

- › **Vision** Enhancing soil fertility
  - › Holistic approach
  - › BonaRes Centre: central database and webportal
  - › 10 interdisciplinary research consortia
  - › Social sciences included
  - › Using a treasure: Long term field experiments
  - › User oriented
- › **Nine** years (2015-2024)
- › > 25 million € for first 3 years



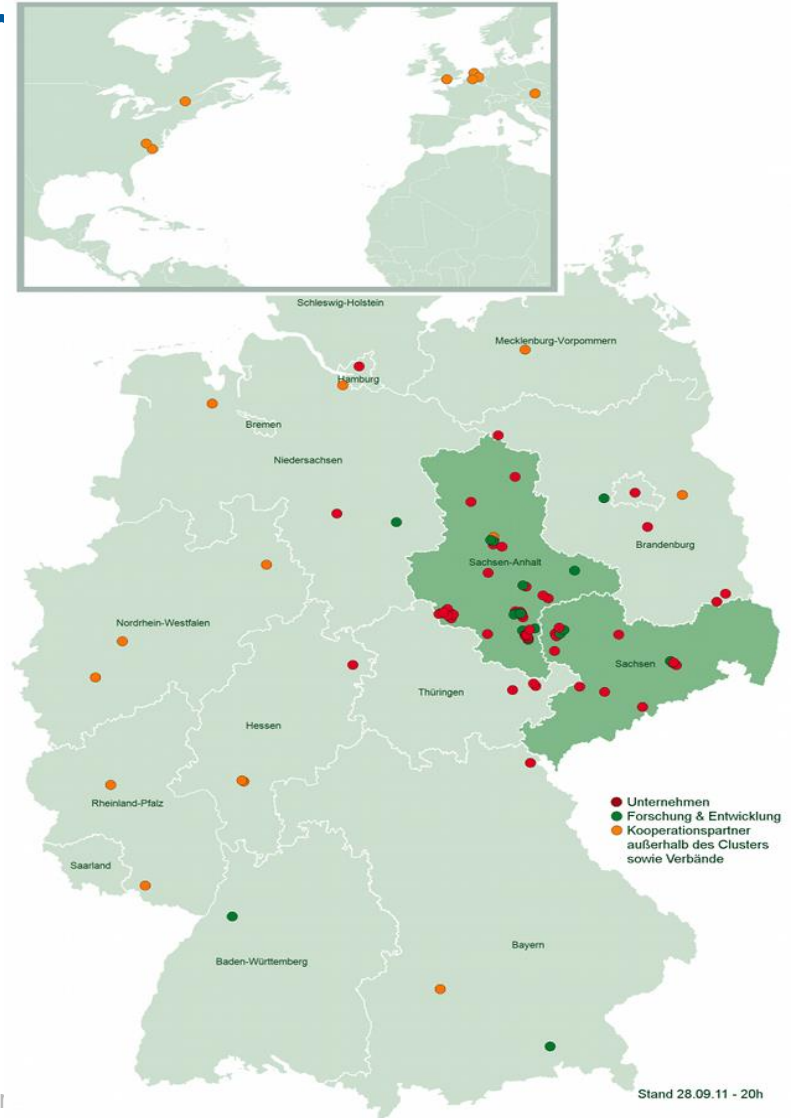
## Example - BioEconomy Cluster

- › **Vison**      Establish the world's first bioeconomy on a regional scale
  - › non-food biomass (forest/beechn)
  - › Real PPP
  - › Strong industry contribution
  
- › Five years (2012-2017)
- › Up to 40 million € project funding





# Example - BioEconomy Cluster



## Example - BioEconomy International

- › **Vison** Implementation of bioeconomy in a global context (beyond EU)
- › R&D projects to relevant subjects in the whole value chain of bioeconomy
- › Composition of consortia entirely flexible
- › Since 2013 one call per year
- › Partner countries: **Argentina**, Brazil, Canada, Chile, Malaysia, India, Russia, Vietnam

## Example - BioEconomy International

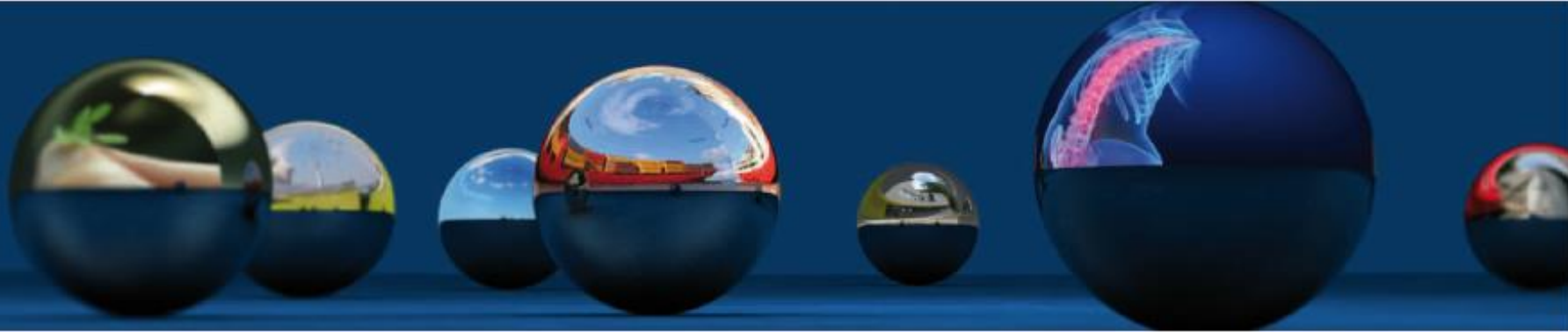
- › **Call 1 & 2**                      Cooperation Argentina – Germany  
Six proposals
  
- › Two running projects
  - › **FLIP**  
Flavodi-ironproteins: Improvement of plant tolerance towards nutrient deficiency abiotic and biotic stresses
  
  - › **PASANOVA**  
Pathways to sustainable land management in Northern Argentina



## Example - BioEconomy International Call 3 – Module 2 (2015) Partner ARGENTINA

- › Technology **Platforms** for bioeconomy – genotyping & phenotyping
- › Valorization of agricultural **waste**
- › Biotechnology products and production technologies for lowering the footprint of agriculture in the environment (**eco-efficiency**)
- › Deadline 3<sup>rd</sup> June 2015
- › Nine Proposals → evaluation has started





**THANK YOU FOR YOUR ATTENTION**

**¡Muchas gracias  
por su  
atención!**

Dr Thomas Assheuer  
Project Management  
Jülich/Germany  
[t.assheuer@fz-juelich.de](mailto:t.assheuer@fz-juelich.de)



# Bioeconomy Cluster and Networks

BioIndustry 2021	Innovation-Initiative Industrial	Biorefinery	Integrated Research Structure
<ul style="list-style-type: none"> <li>• <b>BIOCATALYSIS 2021</b></li> <li>• <b>CIB Frankfurt</b></li> <li>• <b>CLIB 2021</b></li> <li>• <b>The Biopolymers / Biomaterials Cluster</b></li> <li>• <b>BioM WB GmbH</b></li> </ul>	<p>Biotechnology</p> <ul style="list-style-type: none"> <li>• <b>Zero Carbon Footprint</b></li> <li>• <b>FuPol</b></li> <li>• <b>NatLifE</b></li> <li>• <b>TeFuProt</b></li> <li>• <b>Knowledge-based Process Intelligence</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>BioEconomy Leading-Edge Cluster</b></li> <li>• <b>Sunliquid Process</b></li> <li>• <b>Roadmap Biorefinery</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Bioeconomy Science Center Jülich</b></li> <li>• <b>Fraunhofer Center for Chemical-Biotechnological Processes, Leuna</b></li> </ul>

## NFSB 2030 - European Initiatives



Contribution to European KBBE by reducing fragmentation in IB R&D funding and by fostering the exchange of knowledge across borders



Funding instrument for small and medium sized enterprises (SMEs), collaborating in the area of modern biotechnology.



Cooperation and coordination of national research programmes on animal health and welfare of farm animals



Development of food systems aiming at more sustainability from production to consumption.



“FACCE MACSUR” - improving European food security under climate change and enhancing adaptation capacity



Development and Coordination of Synthetic Biology in the European Research Area

PreSto GMO  
ERA-Net

Preparation of an ERA-Net addressing research on the benefits, risks, socio-economic impacts of genetically modified organisms



Contribution to European KBBE by using marine bioresources as the target or source of biotechnological applications in the European Research Area