

Future by Networking

together to new technologies and innovation



Bayern Innovativ

LÖSUNGEN. FÜR DIE ZUKUNFT.



Basics

innovation and open innovation

BACKGROUND | KNOWLEDGE | THEORY

Innovation

. . . is the commercialization of newly developed systems, products, processes or services.

... comprises building brands and the image of the company

How innovation happens

Basic research –
technology transfer for application

Physic Nobelprice 2010 for Graphen
Dr. Kostya Novoselov and Dr. Andre Geim

Development by chance

post-it:
Spencer Silver and Arthur Fry, 3M

How innovation are developed

Within defined user groups

- e.g. advancement of the paraglider by integrating lead-users and creating customer communities

Cross-linking of different creative potentials
to achieve cross-branch innovations

Reasons for innovation

Dynamics in the increase of knowledge

Rapid growth of knowledge worldwide

- On average every minute a new chemical compound is successfully synthesized
- On average every three minutes an explanation for a new scientific correlation in physics is found

Rapid sharing of Information and knowledge by means of telecommunication

Business Significance of Innovation

Consumer Products

- Ca. 30 – 40 % of the products are younger than 3-4 years
- 35-60% of innovations fail

High-tech products, e.g. Automotive

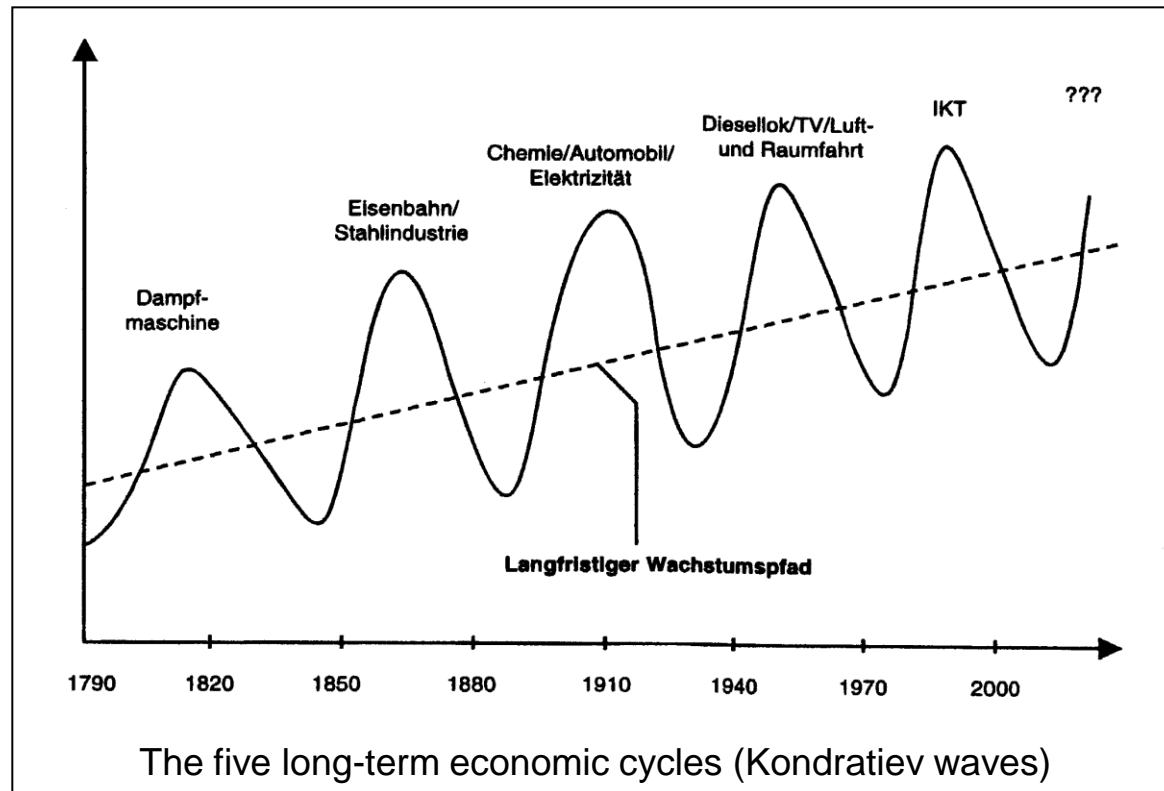
- New model approx. every 5 years
- But every 2 – 3 years at least one new model in the portfolio of an OEM

→ Innovation is a perpetual task

Significance of Innovation in the long term

➔ Innovation is driving economical development

➔ Impact on economics:



Source: Vahs, D., Burmester, R., (2002): Innovationsmanagement – Von der Produktidee zur erfolgreichen Vermarktung –, 2. Aufl., Stuttgart

Objectives of Innovation

To stay ahead of competition

To remain competitive

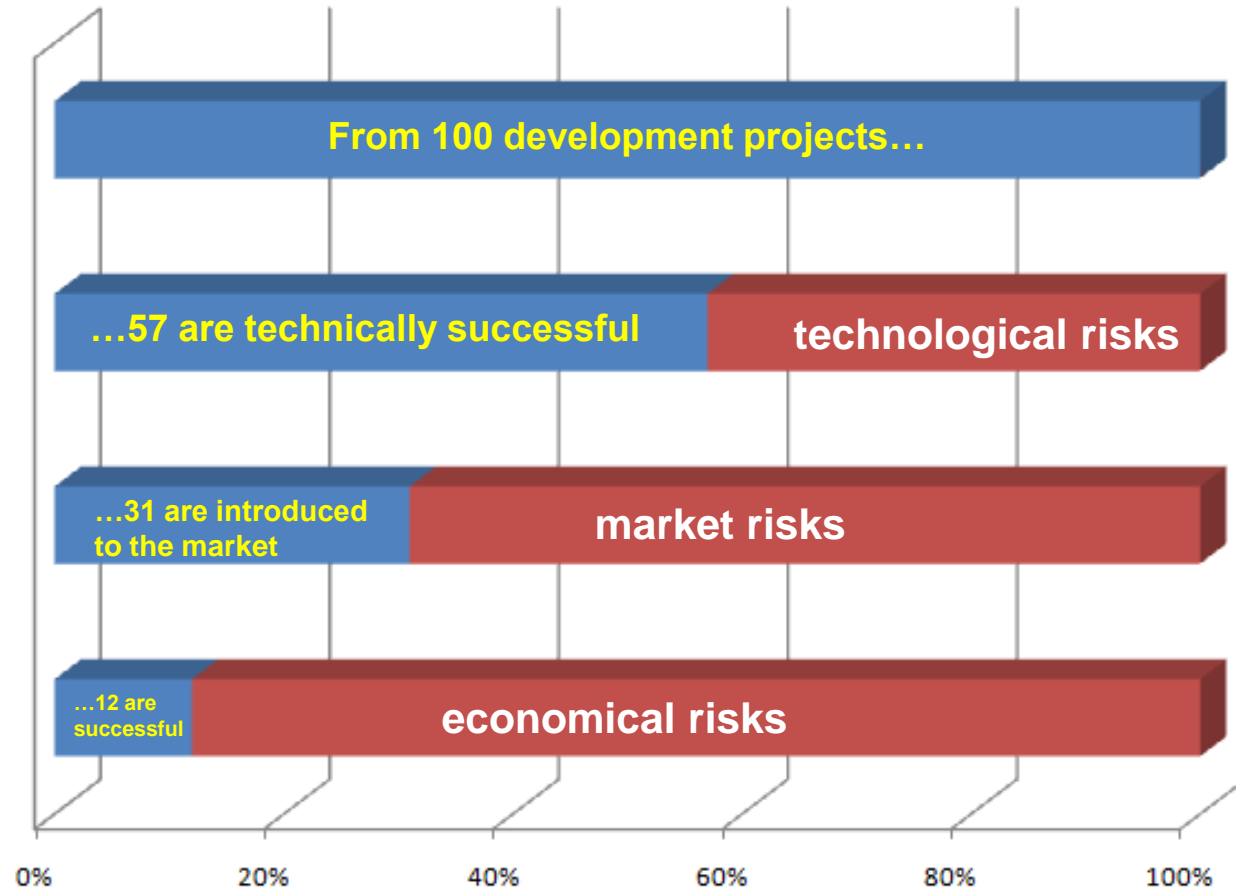
Types of Innovation

Disruptive = Business-model /
Market-logics related

Radical = Technology-related

Sustaining = keeps existing
business „up-to-date“

Statistics of the Success of Innovation



5 Process Steps to Innovation

**Initiation –
Generation of
ideas**

**Selection of
projects –
making
concepts**

Development

**Prototypes,
pre-series,
testing**

**Production -
Market
Introduction**

According to:
Herstatt, C., 1999. Theorie und Praxis der frühen Phasen des Innovationsprozesses. *io Management*, 68(10), pp. 72-81.

Initiation

Ways of generating innovative ideas

- Own creativity and experience
- Fairs and congresses
- Monitoring of market and competitors
- Transfer of ideas by working in interdisciplinary teams
- Suggestions from the operations
- Suggestions from the marketing
- Suggestions from suppliers
- Information from customers

Consideration of Global Megatrends

Sustainability

Healthcare

Globalized demands

Simplicity

Differentiation

Lifestyle & Emotions

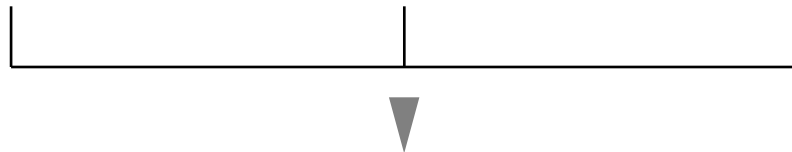
Details of Sustainability

Sustainability

ecological

economical

social



recyclable

energy saving

simple & functional

use of renewable
resources

taking energy and material costs
into account

<<It is estimated that over 80% of all product-related environmental impacts are determined during the product design phase. Integrating environmental considerations as early as possible into the product development process is therefore the most effective way of introducing changes and improvements to products.>>

European Commission Proposal for Directive on Eco-design requirements for Energy-Using Products, Brussels, 1st Aug 2003

Involving Customers into Innovation

	Advantages	Disadvantages
Customer informations	Consistent orientation on customer demands	High demand of time and money
	Validation of technological implications and reduced risk of failure	Reliability of conclusions not validated

→ Conclusion: customers are valuable sources for ideas and innovations. Validated processes for the involvement are necessary for reliable results.

Open Innovation – Important Parameters

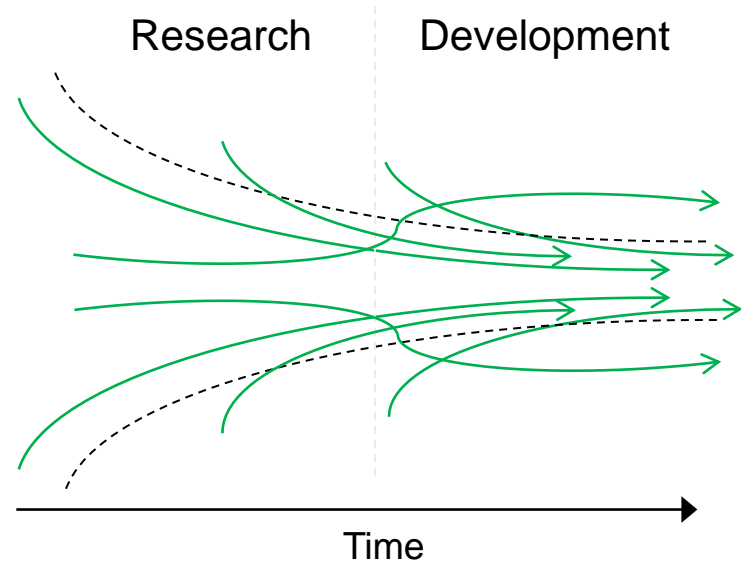
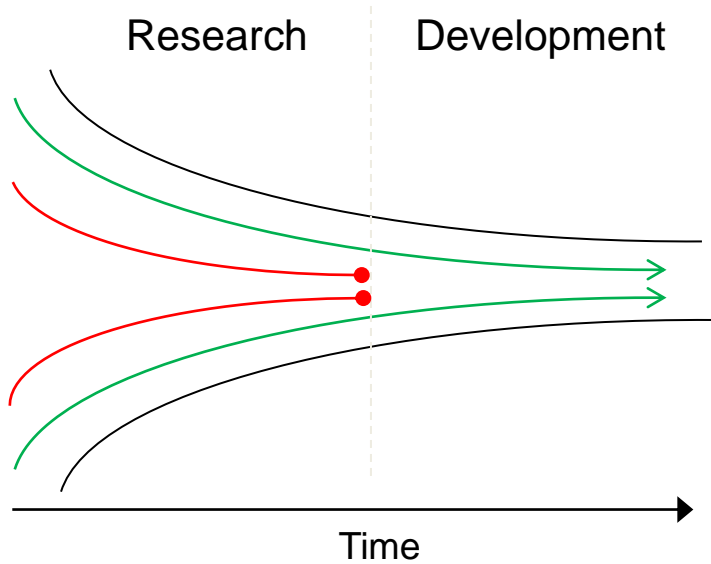
The concept of “Open Innovation” is related to user innovation, cumulative innovation, Know-How Trading, mass innovation and distributed innovation.

The paradigm of Closed innovation says that successful innovation requires control.

Throughout the years several factors emerged that paved the way for open innovation paradigms:

- The increasing availability and mobility of skilled workers
- The growth of the venture capital market
- External options for ideas sitting on the shelf
- The increasing capability of external suppliers

Closed vs. Open Innovation



Key Processes in Open Innovation

1. The **outside-in-process**: ideas and knowledge are generated outside of the enterprise and are integrated e.g. via trend scouting or customer and supplier involvement
2. The **inside-out-process**: internal ideas and technology developments are commercialized externally by licensing, spin-offs or knowledge transfer
3. **Coupled processes**: use of both ways outside-in and inside-out for joint development, e.g. in strategic cooperation or via networking

Collaborative Processes for Open Innovation

**Strategic
partnerships**

Crowd-Intelligence

Networks

Crowd-Funding

Crowd-Sourcing



Networks for Open Innovation

bayern innovativ

COOPERATION | COLLABORATION | TOOLS

BAYERN INNOVATIV
AT A GLANCE

80.000
CUSTOMERS
IN 50
COUNTRIES

116
EMPLOYEES

ANNUAL
TURNOVER
16 MILLION €

FOUNDED IN
1995

CHAIRMAN OF THE
SUPERVISORY BOARD
STATE SECRETARY



FRANZ
JOSEF
PSCHIERER

CEO

Dr. MARKUS EDER



SHAREHOLDER

LfA
FÖRDERBANK
BAYERN

INITIATION and
SPEEDING
UP of
INNOVATION

INCREASE of
TECHNOLOGY
TRANSFER
between industry and science as well
as within industry

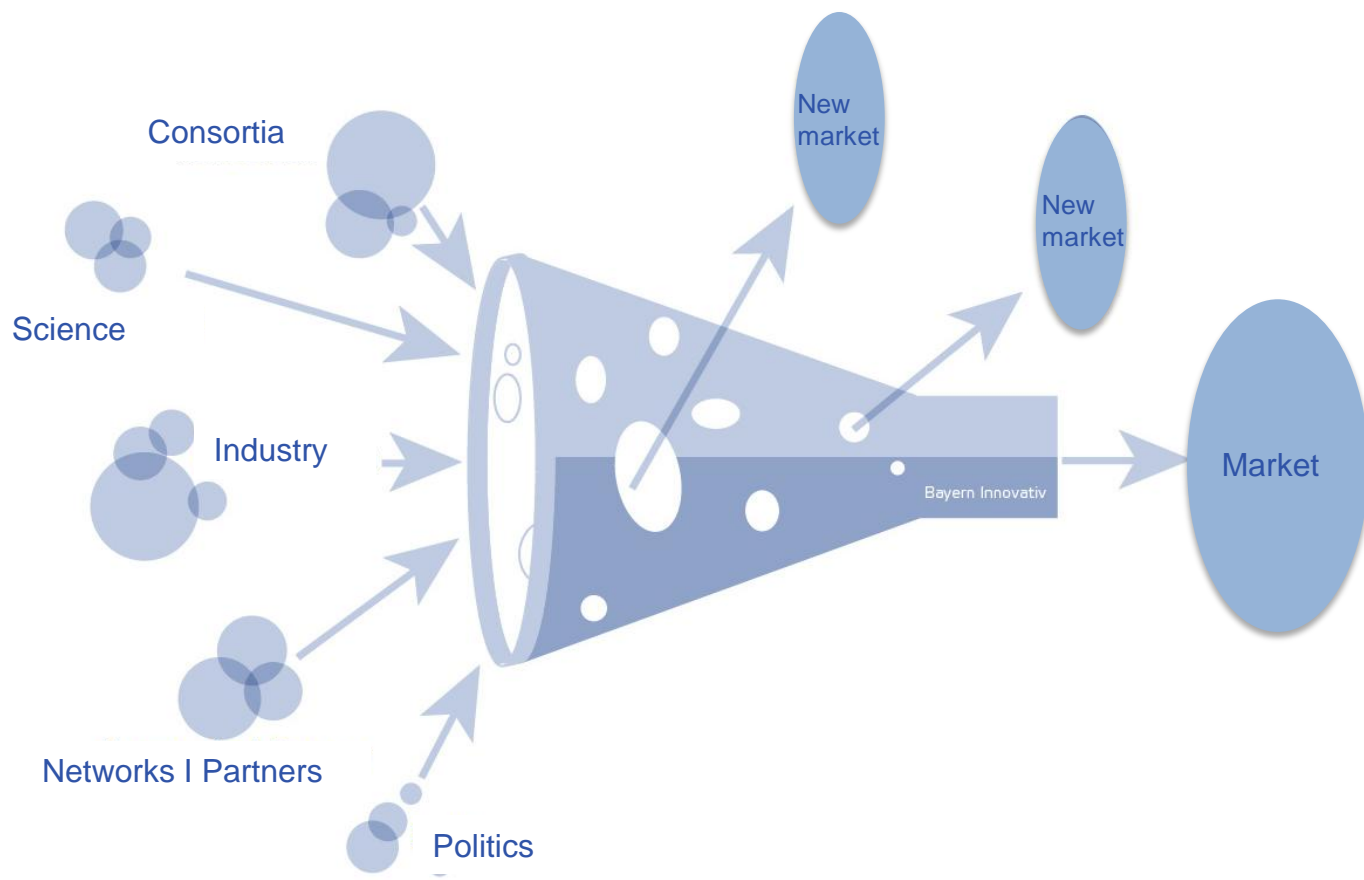
PLATFORMS
for TECHNOLOGY
SCOUTING and
INITIATION of
COOPERATION

BOARD OF
TRUSTEES
Representatives from
SCIENCE, TECHNOLOGY
TRANSFER and
INDUSTRY

COOPERATIVE INNOVATION?

„Open Innovation is the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively.“

Henry Chesbrough, Open Innovation: Researching a New Paradigm



Open Innovation at Bayern Innovativ

B2B platforms for Networking between
experts across technologies and branches
with potential partners as well as customers
Technology Scouting and Open Innovation

→ new cooperation for future innovations

Integration of technology partners
and end consumers B2C

Designing Open Innovation platforms

- Because 80% of all innovations are made from combinations of things already known, it is important to get input from outside
- Market surveys should be accompanied by trend surveys
- The innovation management process should be opened for inside-out, outside-in or coupled strategies
- IP-management is very important
- Make use of customer and supplier knowledge, even from different branches
- Strategic cooperation and networking are suitable forms of collaboration
- The biggest hindrance in open innovation is not the strategic process, but the non-acceptance due to the new ways of thinking

Set of Activities – Open Innovation

Broad and interdisciplinary congresses

More specific cooperation platforms

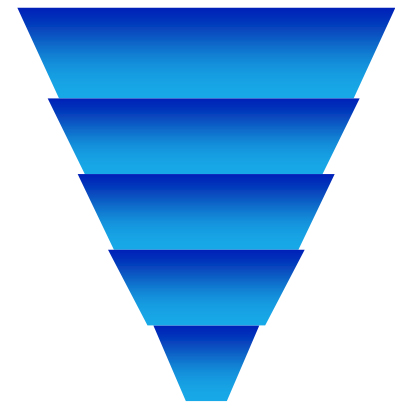
Group meetings in innovative companies and institutes

Management of project circles

Structuring projects and project teams from industry and science

Navigation to public research funds (Bavaria – Germany – EU)

Condensing
innovation ideas



Developing Sustainable Networks

Identifying development trends
research, technologies, markets



Platforms for Open Innovation
conception, organisation, marketing



Knowledge transfer –
multimedia, communication

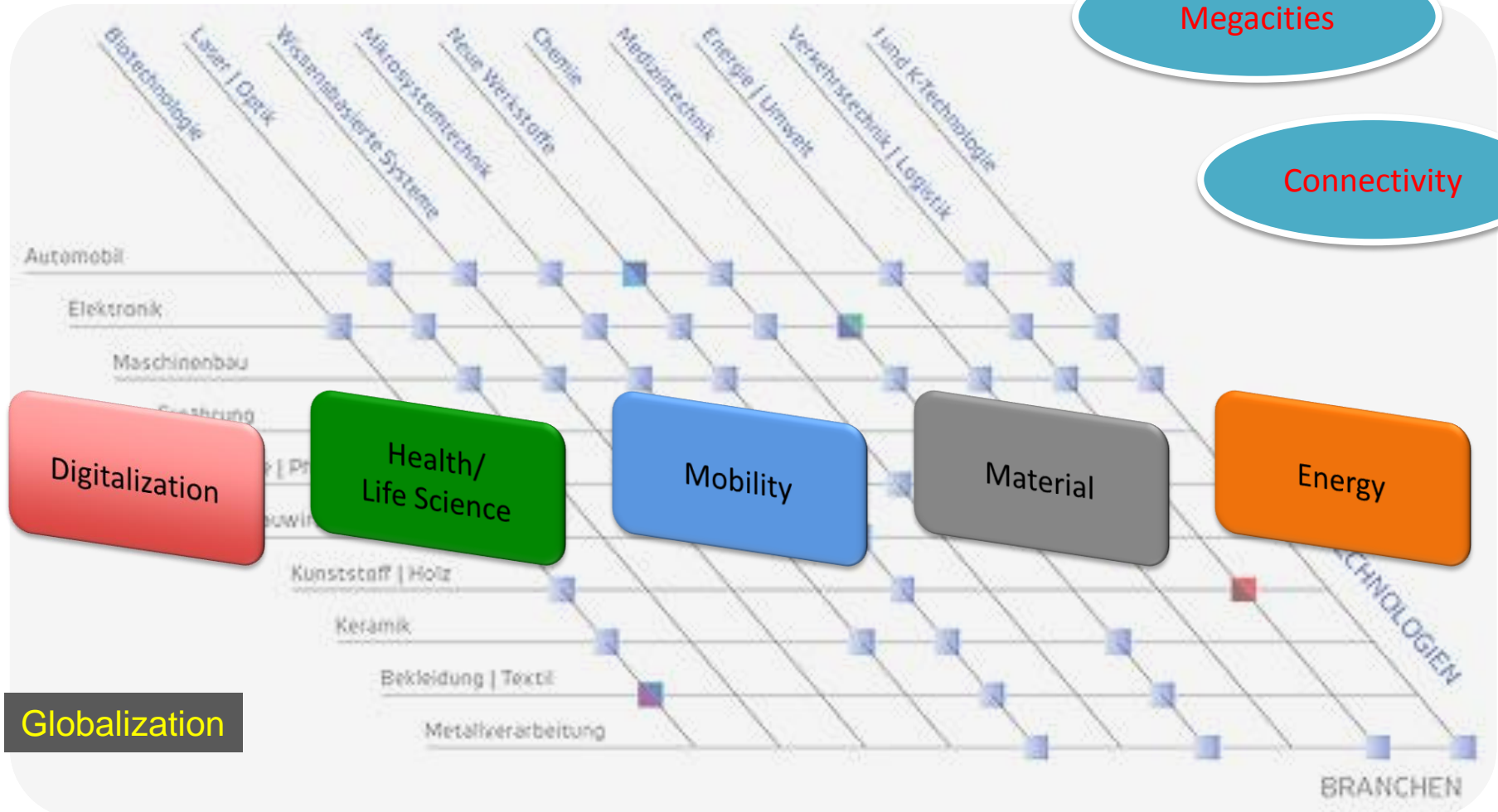
Individualization

Demography

Health & Environment

Megacities

Connectivity



Digitalization

Health/
Life Science

Mobility

Material

Energy

Globalization

EVENTS

Conferences | Workshops | Partnering-Events

COOPERATIONS

Network Management | Joint Projects | Working groups | Partner matching | Consortia formation

MARKET ACCESS

Joint booths and trade fairs | Market intelligence | Key contacts

FUNDING

Introduction to public funding

KNOWLEDGE

Extensive knowledge pool and transfer via various communication channels

KEY ACTIVITIES – SERVICES

Our services to support innovation



Topic

Material

COOPERATION | COLLABORATION | TOOLS

Topic

material

Briefly

**New Materials
Textil,
Wood,
Bionic,
Biopolymers**

TOPICS

**Events
Project finding
Trend scouting
Network Management
Contact sharing**

NETWORK

Cluster
Neue Werkstoffe



bionik
vorbild natur

k messwerk

WiProNa
Wir produzieren Nachhaltigkeit



biopolymere.
ROHSTOFFE - TECHNOLOGIEN - PRODUKTE

NETWORKS AND AREA OF EXPERTISE



TEAM

Example of an Open Innovation platform managed by Bayern Innovativ



www.cluster-neuwerkstoffe.de

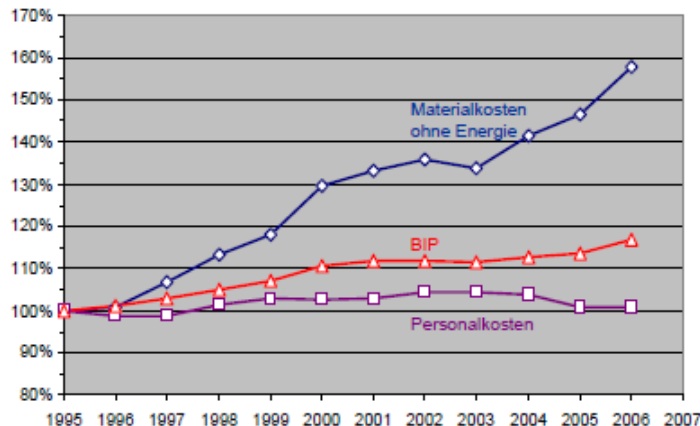

Cluster
New Materials

Sustainable Network in
the field of New Materials

Example for cluster prerequisites in Bavaria

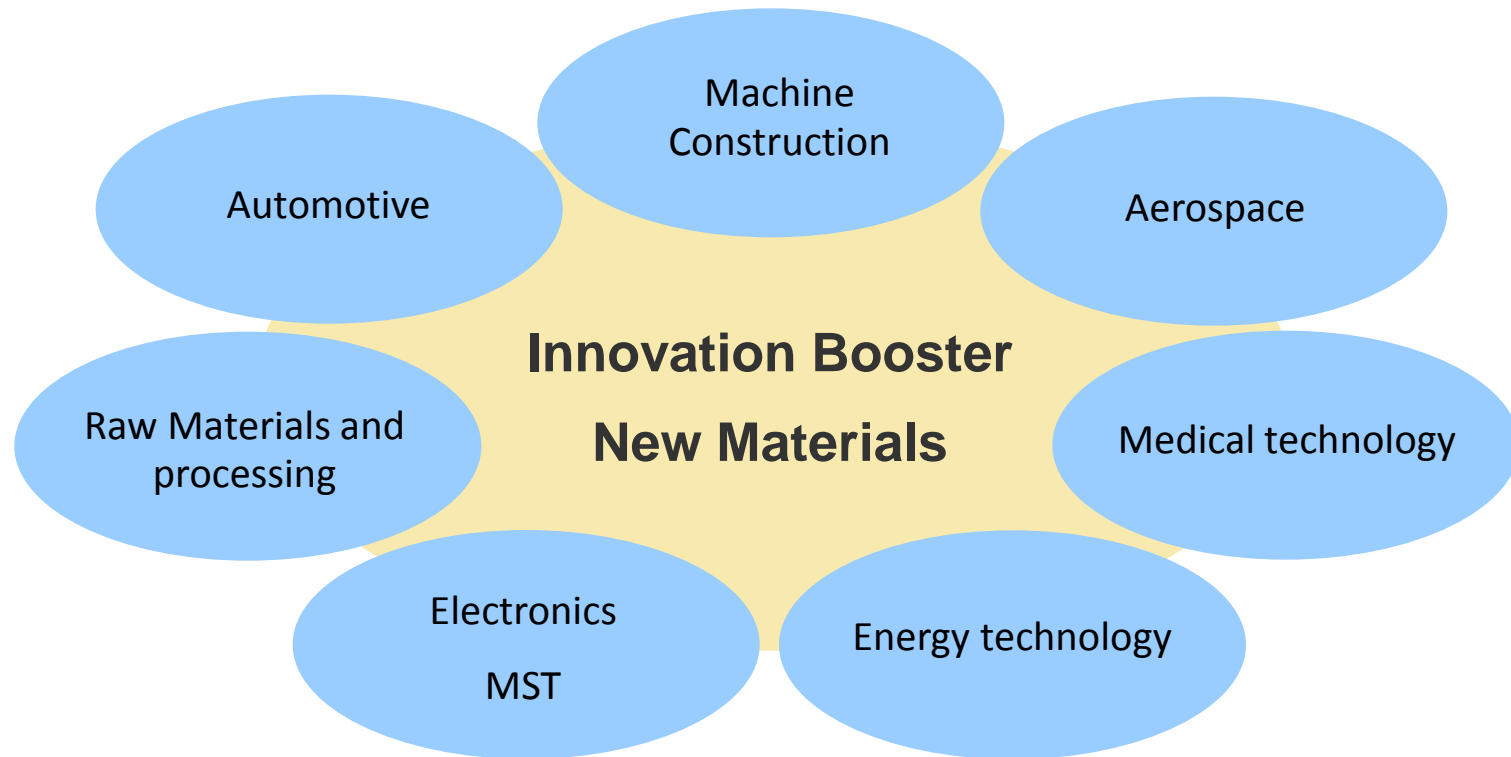
Key economic figures concerning materials dominated businesses

- Two thirds of technological innovations are based of materials (*Source: VDI-Gesellschaft Werkstofftechnik*).
- Materials based industries in Germany (excluding building & construction) produce an annual turnover of approximately 1 billion Euro and have about 5 million employees (*Quelle: BMBF, Werkstoffwelten, 2005*).
- The cost of materials in the German industry is approximately 40% of the gross production costs (*Source: Arthur D. Little*).

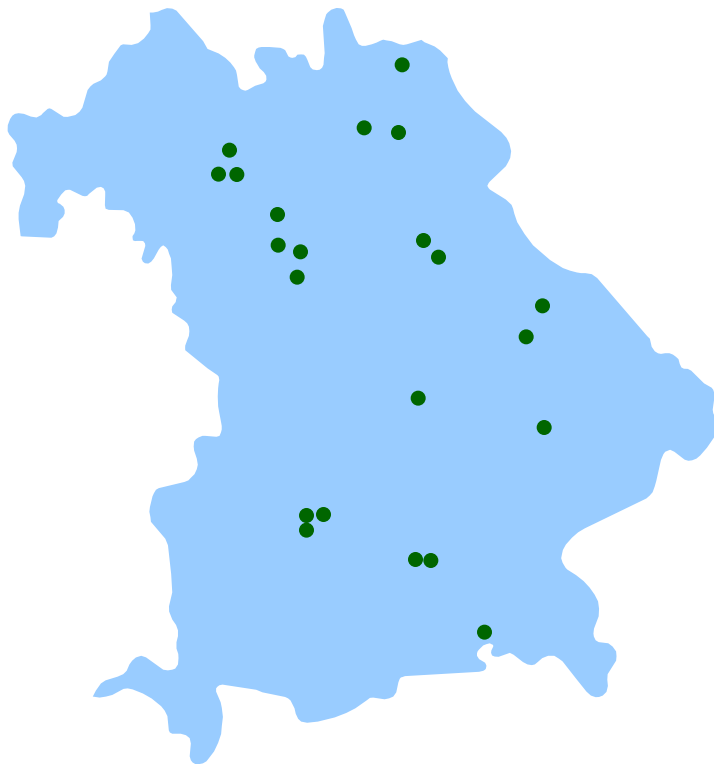


Since the 1990ies material costs have been continuously rising

Source: „Rohstoffe für Zukunftstechnologien“
FhG ISI + IZT, 2009

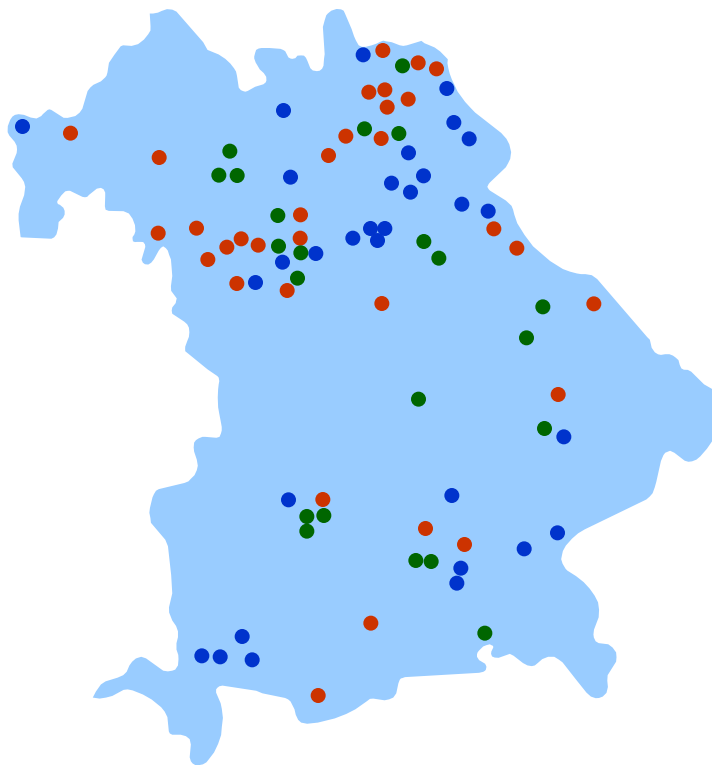


Materials Technology in Bavaria.



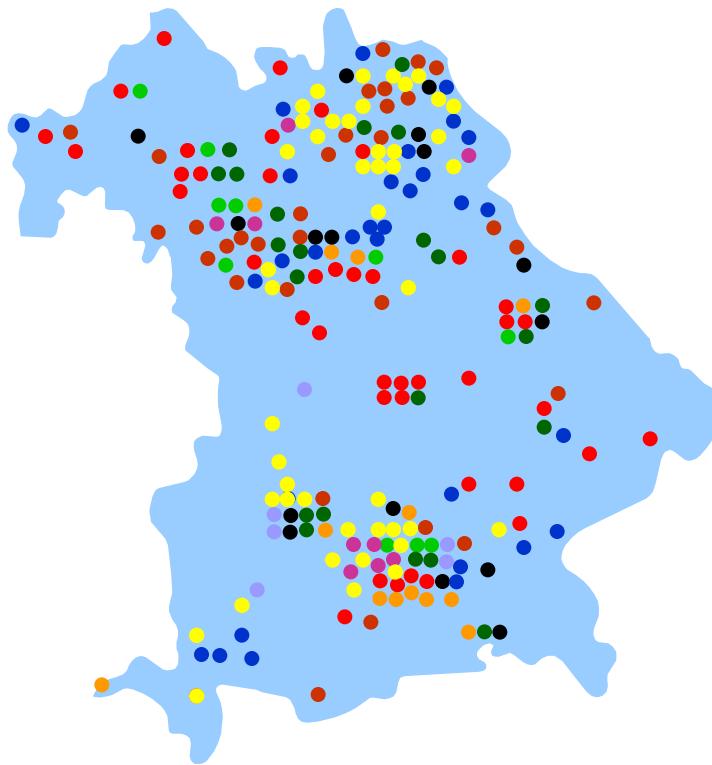
- Materials Research
- Raw Material Production
- Materials Processing
- Automotive
- Aerospace
- Energy Technology
- Mechanical Engineering
- Medical Technology
- Electronics
- Textile Industry

Materials Technology in Bavaria.



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Cluster New Materials

briefly

Network Numbers

470 Actors with
350 Companies and
120 Instituts
64 Cluster-Partners
18 Events with
1.350 Participants

Light Weight Design,
Additive
Manufacturing, Multi
Material Prozess Chain

CROSS TOPICS

Sustainability
Demographic Change
Globalisation
Ressource Effizienz

MEGATRENDS

Cluster
Neue Werkstoffe

 kmesswerk

 WiProNa
Wir produzieren Nachhaltigkeit

Cluster Spokesmen



TOPIC FIELDS

Materials for printed electronics Technical ceramics and glass

Polymers – properties and processing Technical textiles

Fiber reinforced materials Functionalised surfaces

Lightweight materials

20

Advisory Board from
Industry and Scienzen

64 Cluster Partners

Services

Networking
Project Support
Events
Information
Marketing
Services on Demand

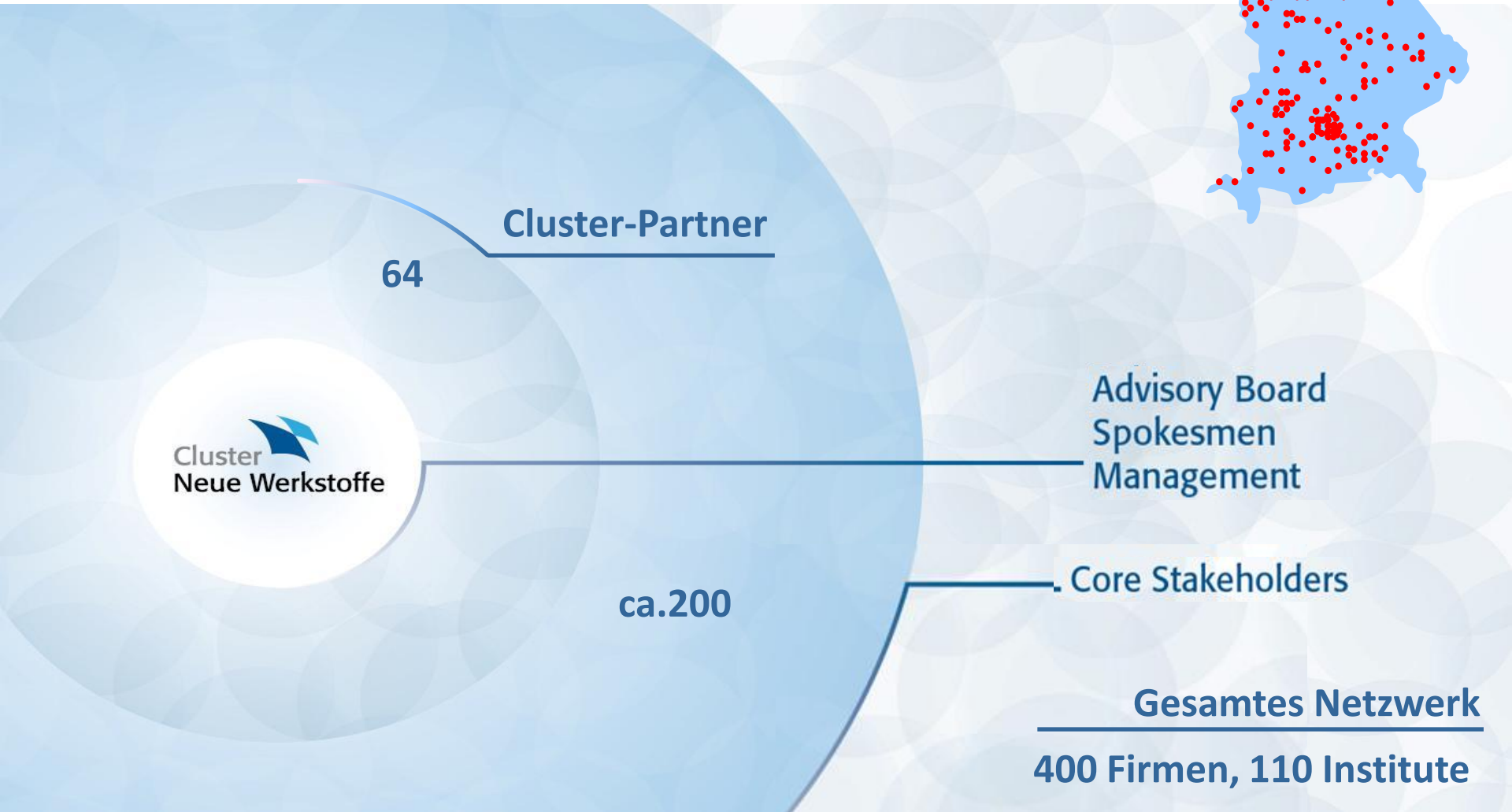
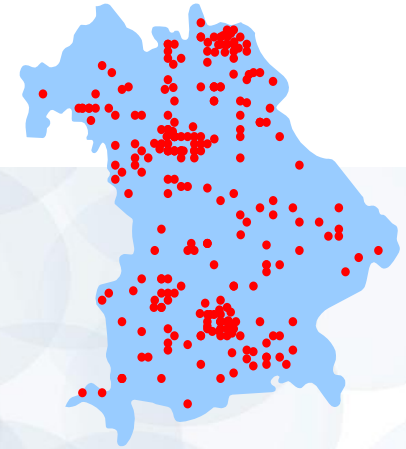
CLUSTER MANAGEMENT



Projects

More than **30** Projects
performing an overall
budget of more than
37 Mio. €

Cluster New Materials – Structure



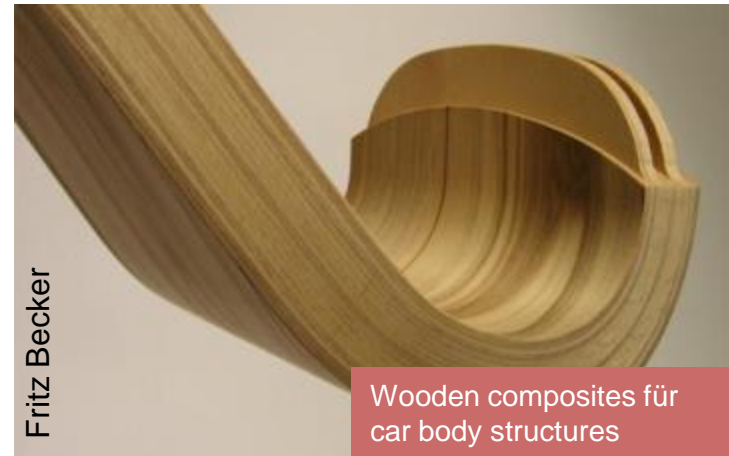
Cluster-Partner



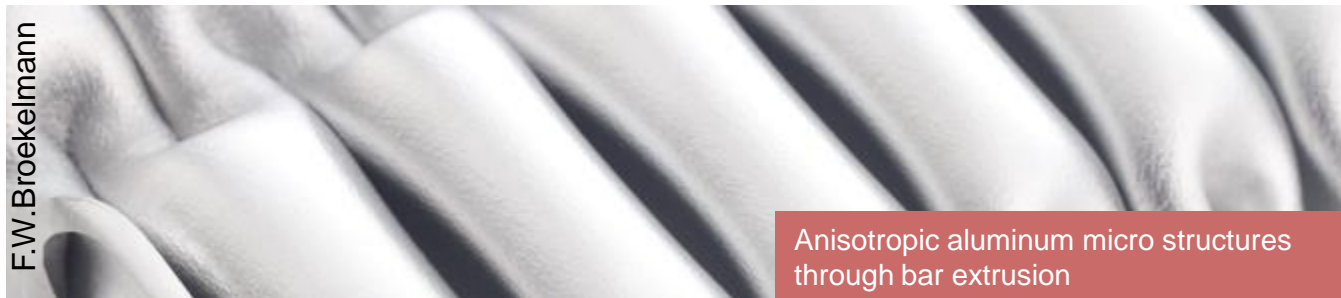
What's „new“ about New Materials?



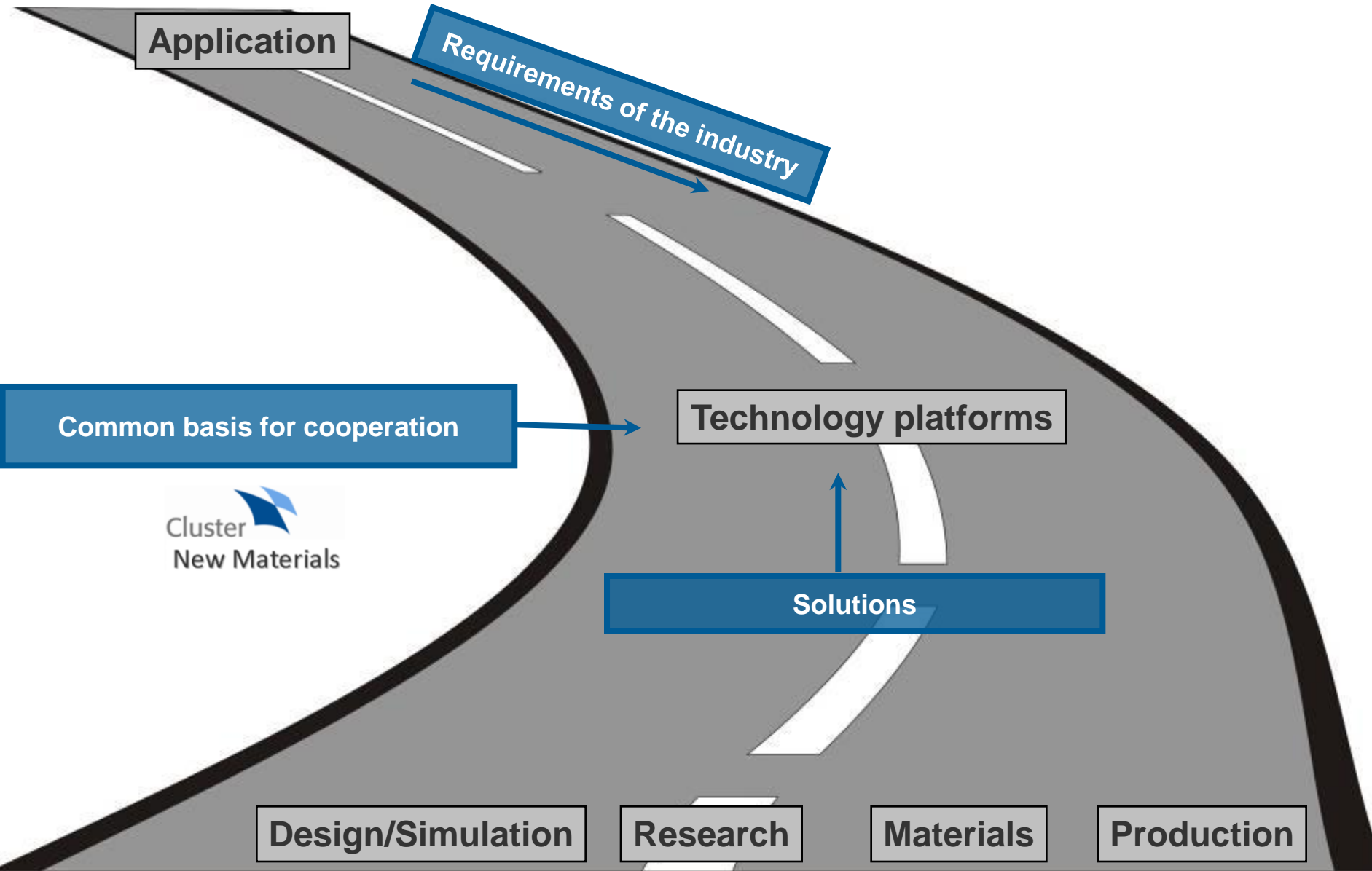
Novel physico-chemical Properties

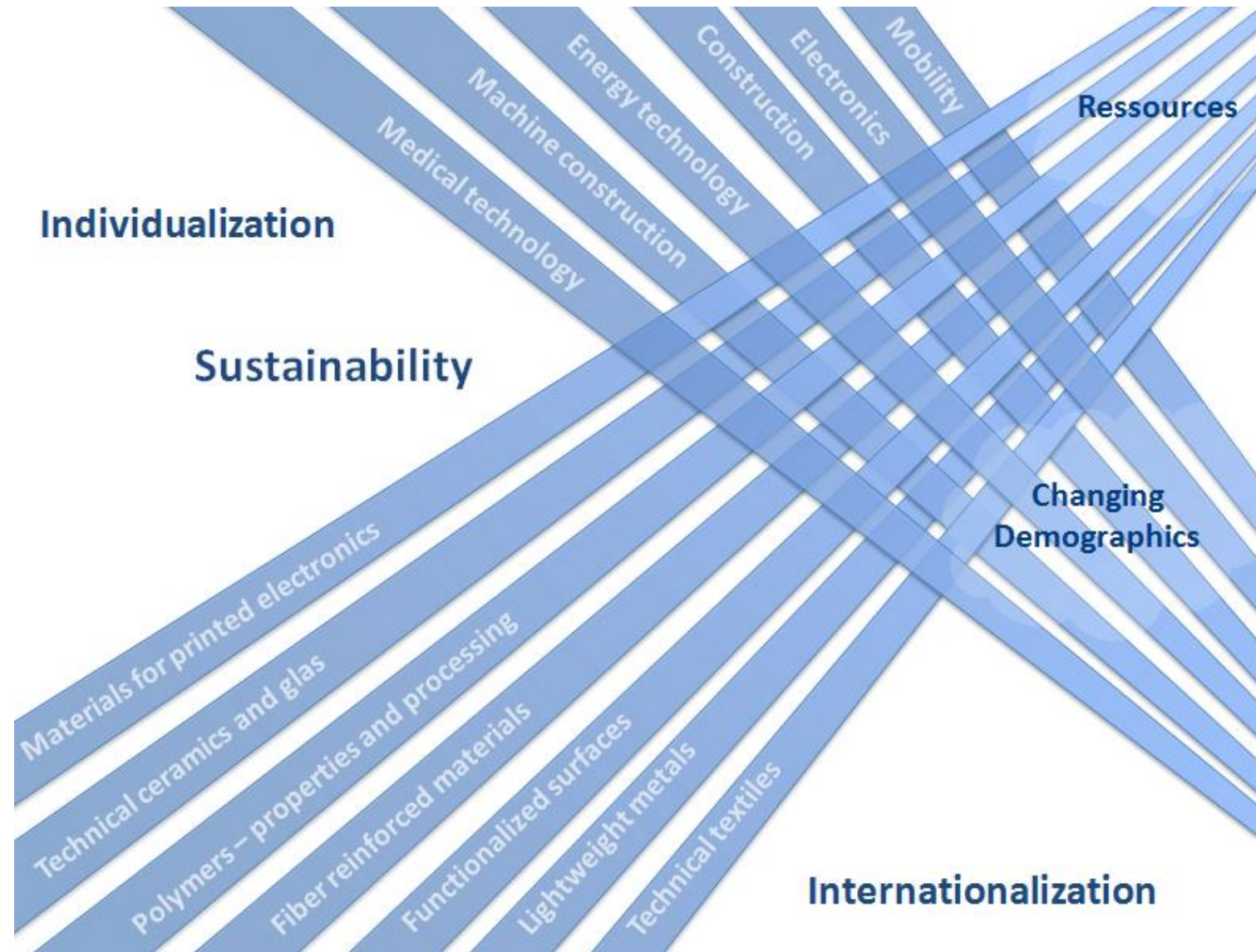


Known material with new applications

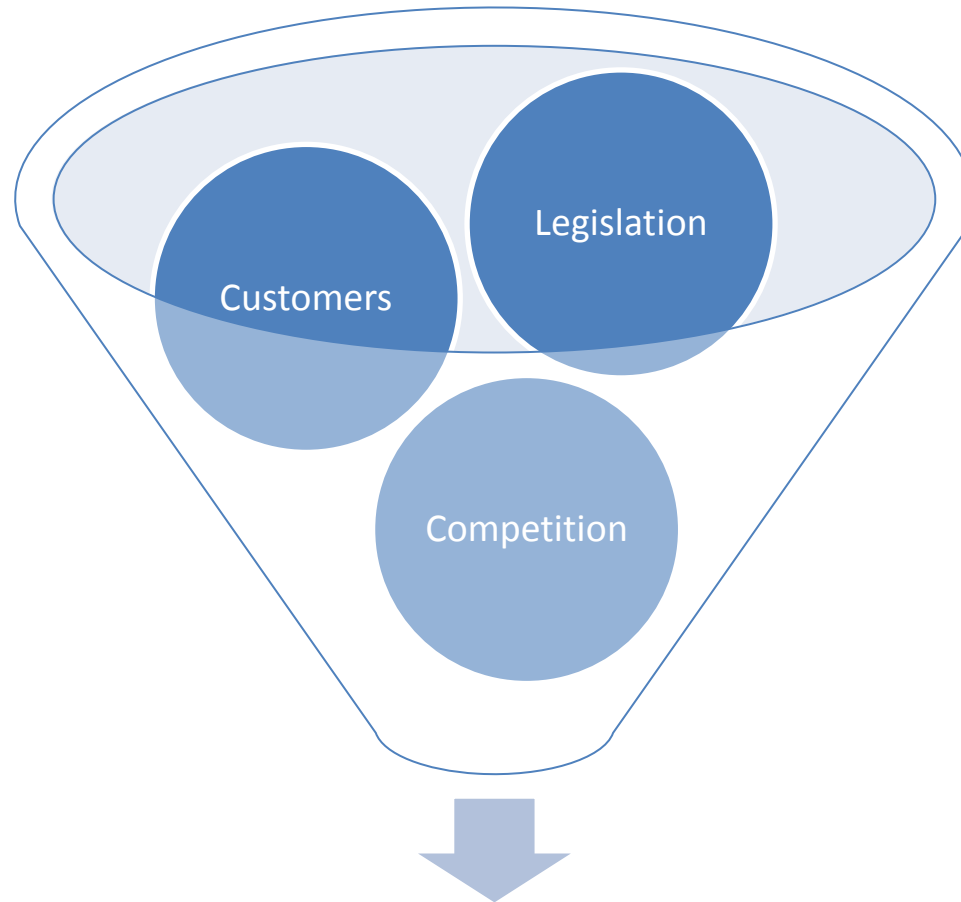


Interdependance of processes and materials properties



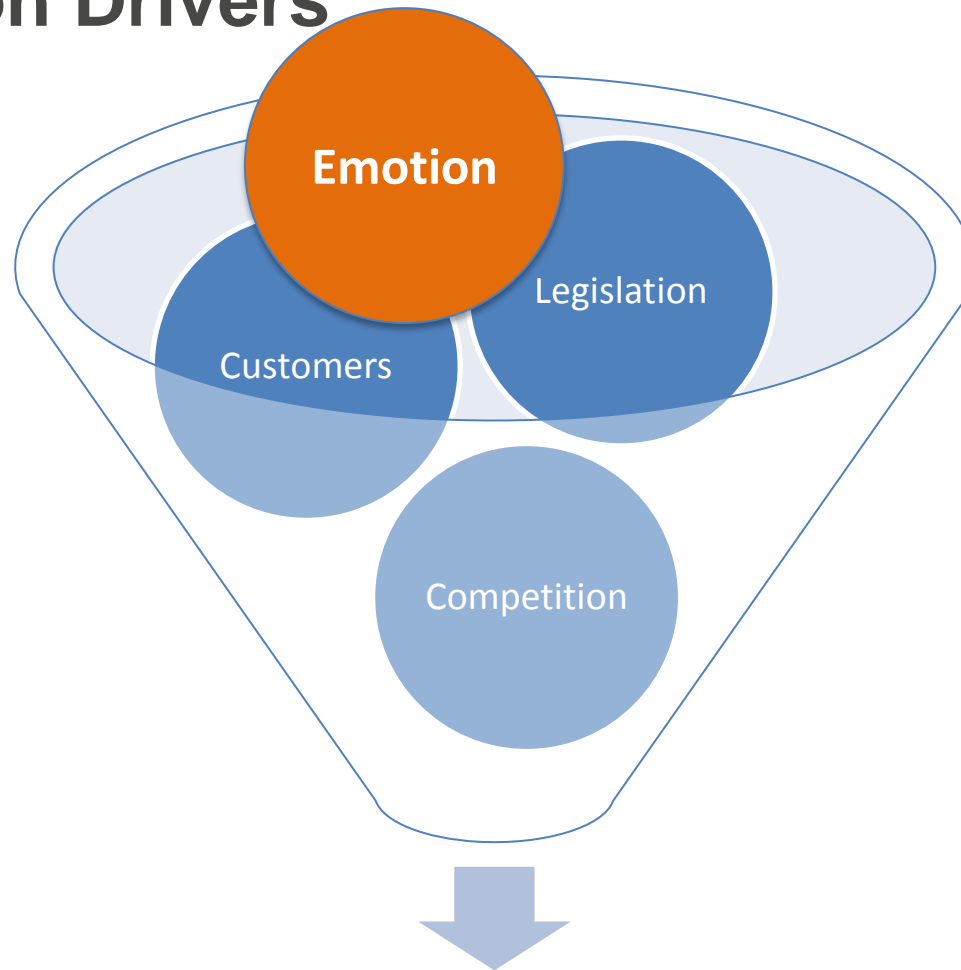


Innovation Drivers



High Demand for Innovation

Innovation Drivers



High Demand for Innovation

Network Development

Basic needs:

Information transfer

Knowledge transfer

Fast meeting of needs within the network

Stimulation of innovation

Access to experts

Exploitation of cooperation partners

Valorization of funding

Professional network management

WiProNa “We are producing sustainability”

ZIM-Cooperation Network

Funding by the Federal Ministry for Economic Affairs and Energy of Germany in the frame of the funding program ZIM (central innovation programme for SMEs)

Duration first funding period: 01.10.2014 – 30.09.2015

Network management by Bayern Innovativ / Cluster New Materials

Network partners:



Associated partners:

www.wiprona.de



Institut für Wasserbau und Wasserwirtschaft,
Fachgebiet Wasserbau und Hydraulik

Network Goals WiProNa

Communication and establishing sustainability
in the companies

Realization of sustainable processes and products
along the value chain, e.g.

- Waste avoidance/recycling
- Use of secondary materials
- Eco-Design and marketing of new products
- Cost efficiency

Set-up competences in sustainability

Build up a basis for

- Cooperation
- New added value partnerships

Initiation and realization of R&D projects in order to strengthen technology,
innovation and market position



WiProNa

Technology fields

Construction/flood protection

Construction/Green Buildings

Logistics/packing

Technical textiles

Clothing

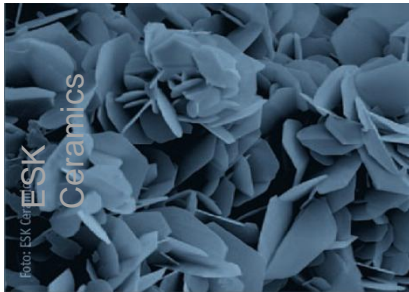
Medical engineering



Cooperativ Innovation

Thermal Management

Cooperativ Innovation



2008: Cluster-Meeting „Ceramic fillers for thermal management in plastic products“ at ESK Ceramics

2008 - 2009: Cluster-Circle „Fillers for plastic products“



2012: FAKUMA Presentation of an LED cooling body with boronitride as filler from RF Plast

Cooperativ Innovation

Haptics and Comfort

Cooperativ Innovation



ZIM Project „damped construction equipment“

- Vogt Baugeräte
- CG Tec
- Kraiburg Composites Application



know-how.at

High tech fibre reinforced composite slab with outstanding haptic and mechanic properties

- CG Tec,
- Kraiburg Composites Application
- creaholics

Questions?

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Materials

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