Future by Networking
together to new technologies and innovation
innovation and open innovation
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 Nobel price 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:

The five long-term economic cycles (Kondratiev waves)

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

From 100 development projects...

...57 are technically successful

...31 are introduced to the market

...12 are successful
5 Process Steps to Innovation

Initiation – Generation of ideas
Selection of projects – making concepts
Development
Prototypes, pre-series, testing
Production - Market Introduction

According to:
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
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.

# Involving Customers into Innovation

## Advantages

<table>
<thead>
<tr>
<th>Customer informations</th>
<th>Consistent orientation on customer demands</th>
<th>Disadvantages</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>High demand of time and money</td>
<td></td>
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<tr>
<td></td>
<td>Validation of technological implications and reduced risk of failure</td>
<td>Reliability of conclusions not validated</td>
</tr>
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### Conclusion

> 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

Research vs. Development over Time
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-Funding
Crowd-Sourcing
Crowd-Intelligence
Networks
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)
Developing Sustainable Networks

Identifying development trends
research, technologies, markets

Platforms for Open Innovation
conception, organisation, marketing

Knowledge transfer –
multimedia, communication
EVENTS
Conferences I Workshops I Partnering-Events

COOPERATIONS
Network Management I Joint Projects I Working groups I Partner matching I Consortia formation

MARKET ACCESS
Joint booths and trade fairs I Market intelligence I 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
Briefly

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

**TOPICS**

**NETWORK**

**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
Innovation Booster

New Materials

- Raw Materials and processing
- Automotive
- Electronics
- MST
- Machine Construction
- Aerospace
- Medical technology
- Energy technology
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.
Materials Technology in Bavaria.
Cluster New Materials

briefly

Network Numbers
470 Actors with 350 Companies and 120 Institutes
64 Cluster-Partners
18 Events with 1,350 Participants

Cluster Spokesmen

Cluster Partners

20 Advisory Board from Industry and Science
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. €

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Cluster New Materials – Structure

Cluster-Partner
64

Neue Werkstoffe

ca. 200

Advisory Board
Spokesmen
Management

Core Stakeholders

Gesamtes Netzwerk
400 Firmen, 110 Institute

02.06.2015
Cluster-Partner
What’s „new“ about New Materials?

Novel physico-chemical Properties

LED-cooler made from boron nitride compound

Known material with new applications

Interdependance of processes and materials properties

Anisotropic aluminum micro structures through bar extrusion

Wooden composites für car body structures

F.W.Broekelmann

RF Plast

Fritz Becker
Common basis for cooperation

Technology platforms

Solutions

Application

Requirements of the industry

Design/Simulation

Research

Materials

Production
Innovation Drivers

High Demand for Innovation
Innovation Drivers

- Emotion
- Legislation
- Customers
- Competition

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
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

High tech fibre reinforced composite slab with outstanding haptic and mechanic properties
- CG Tec,
- Kraiburg Composites Application
- creaholics
Questions?

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