The Technology-Network:
Intelligent Technical Systems OstWestfalenLippe . Germany

it´s owl

The German Leading-Edge Cluster it's OWL:
Regionally embedded and globally linked, 18 January 2016

SPONSORED BY THE

Federal Ministry of Education and Research

INVENTED IN GERMANY

MANAGED BY

PTKA
Project Management Agency Karlsruhe
Karlsruhe Institute of Technology

THE CLUSTERMANAGEMENT IS SUPPORTED BY:

Ministry of Economic Affairs, Energy and Industry of the State of North Rhine-Westphalia

Ministry of Innovation, Science and Research of the German State of North Rhine-Westphalia

EUROPEAN UNION
Investing in our Future
European Regional Development Fund

The BBC Success-Story of CLAAS and topocare
From innovation to transfer: brand film 2

The BBC Success-Story of CLAAS and topocare
From innovation to transfer

- **The GTAI-Campaign on BBC World News:**
  - In September 2015, the strategic marketing director of German Trade & Invest called us from Berlin
  - He asked us for the storyboard of a success story within our cluster for 2 brand films to be broadcasted between November 2015 and January 2016 on BBC World News
  - Campaign (supported by the Federal Ministry of Economic Affairs and Energy): „Smart up your Business"
  - Campaign goal : to show the high performance of the German so-called „Mittelstand" to get interested foreign SME's to invest in Germany
  - As a result, the Claas-topocare-Story was born
  - 3 shooting days with a film-team from London for two 60 second brand films

GERMANY
TRADE & INVEST

BBC
WORLD
NEWS

The BBC Success-Story of CLAAS and topocare
From innovation to transfer

- **CLAAS:**
  - A family business founded in 1913
  - One of the world's leading manufacturers of agricultural engineering equipment
  - Corporate Headquarters in Harsewinkel, OstWestfalenLippe
  - European market leader in combine harvesters and world leader in self-propelled forage harvesters
  - Top performer in world-wide agricultural engineering with tractors, agricultural balers and green harvesting machinery
  - It's product portfolio also includes state-of-the-art farming information technology
  - 11,000 employees worldwide and a turnover of 3.8 billion euros in 2013
  - Core-Member of it's OWL since 2012
  - 2 Innovation Projects together with the private University of Applied Sciences FHDW Paderborn and the Cluster of Excellence Cognitive Interaction Technology (CITEC) at Bielefeld University.

The BBC Success-Story of CLAAS and topocare
From innovation to transfer

topocare®
simply innovative

- **topocare:**
  - A young start-up company located in Gütersloh, OWL (founded in 2012)
  - Construction of an innovative dike construction machine
  - In October 2014, they started a Transfer Project together with our technology network it's OWL (project duration: 6 months)
  - Scientific Partners:
    - FHDW Paderborn (a private University of Applied Sciences focussing on Business Administration and Information Science)
    - Fraunhofer Institute for Production Technology, Project Group Mechatronic Systems Design, Paderborn
  - Success Story: from the construction of a dike construction machine to smart logistic applications (a complete new business model)

Innovation Project:
Intelligent adaption and networking
of agricultural machinery for optimum harvests

- **Initial situation**
  - Purchasing agricultural machinery involves large investment
  - Much of this machinery is used only a short period of the year (e.g. combine harvesters are used on average 22 days a year)
  - It is important to bring in an optimum harvest quickly and efficiently
  - Machinery operators must take into consideration the conditions of each field (e.g. crip ripeness or soil conditions)
  - Individual processes such as harvesting, transport and storage must be optimally coordinated
  - Until now, this has been a manual process based on experience

Innovation Project:
Intelligent adaption and networking of agricultural machinery for optimum harvests

- **Requirements:**
  - To increase the qualitiy and efficiency of the entire harvesting process
  - Agricultural machinery must autonomously adapt to the conditions of each individual field
  - The individual processes have to be optimally coordinated: involvement of all participants in the harvesting process

Innovation Project:
Intelligent adaption and networking
of agricultural machinery for optimum harvests

- **Aim of this Innovation Project:**
  - To develop a software that allows different agricultural machinery to autonomously adapt to the current harvesting conditions and intelligently links individual processes and participants

Innovation Project:
Intelligent adaption and networking
of agricultural machinery for optimum harvests

- **Proceeding:**
    - Analyzing field properties (e.g. ripeness and soil condition) and inidivual processes (e.g. mowing, transport and storage)
    - Defining the requirements for optimum use of the agricultural machinery and intelligent networking between the partcipants
    - Field properties are recorded and analyzed for different machinery and situations
    - The project draws on the results of cross-sectional projects in self-optimization, intelligent networking and systems engineering
    - The intelligent software is supplemented with simulation technology

Innovation Project:
Intelligent adaption and networking
of agricultural machinery for optimum harvests

- **Results:**
  - Increase the utilization of agricultural machinery by at least 10 %
  - Making better use of resources
  - Improving the quality of harvesting process
  - Autonomous adaption makes the machinery easier for drivers to use
  - They are no longer required to manual changes during the harvesting process

- The Software including the simulation technology can be transferred to other applications where smart logistic is needed (e.g. snow clearance, construction site operations and transport logistics)

topocare GmbH
Intelligent flood protection by smart logistics

Innovation Project:
Intelligent adaption and networking
of agricultural machinery for optimum harvests

Transfer Project: Intelligent Flood Protection
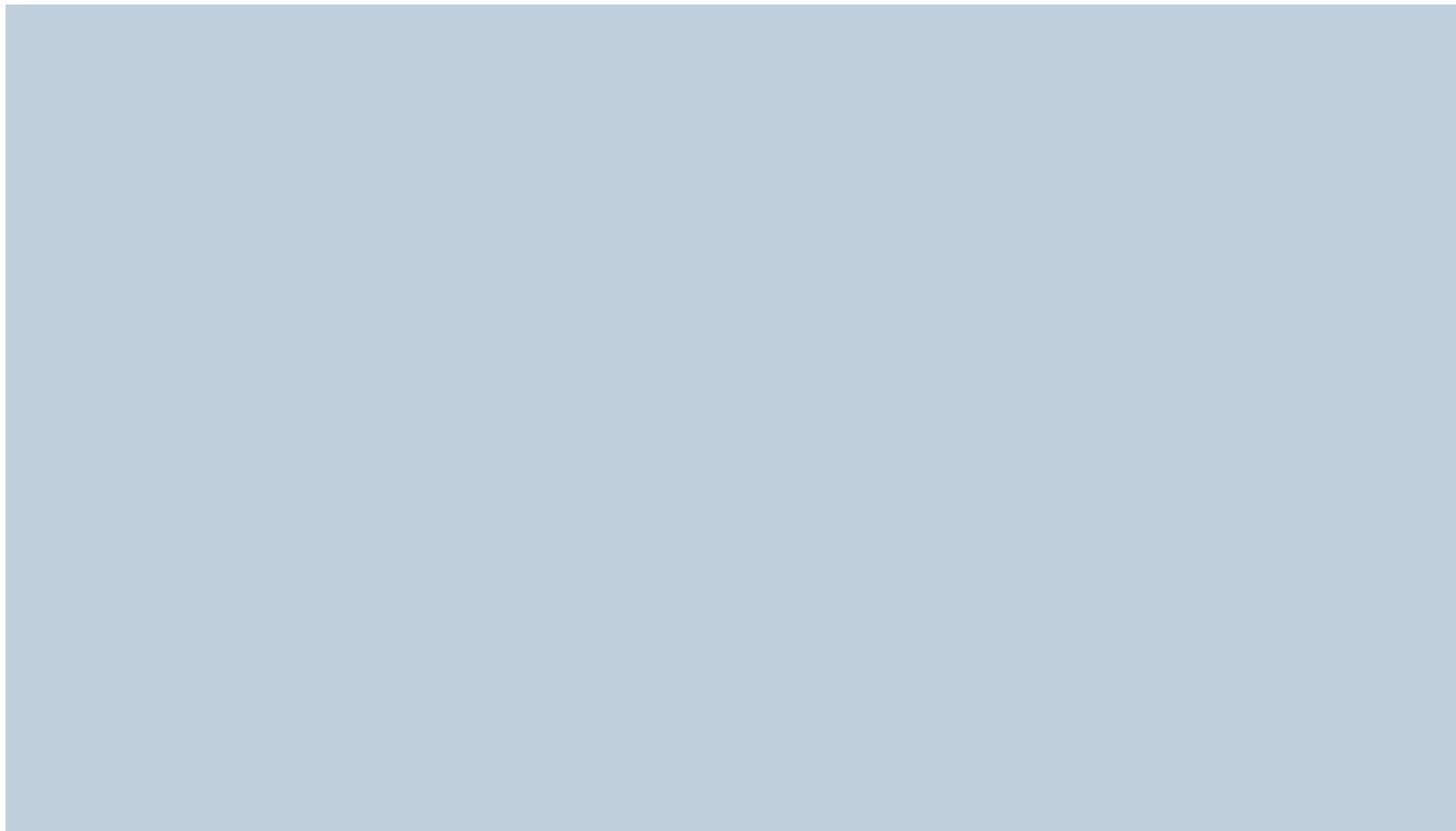

topocare GmbH
Intelligent Flood Protection

Transfer Project:
Intelligent flood protection

- topocare is a young start-up company (since 2012)
- As a first step, they developed an innovative and intelligent dike construction machine, called "topomover", producing sand-filled tubes directly where they are needed, for example in case of temporary flood protection caused by floods
- Recent exemple: The weather disaster "Desmond" in the U.K. in December 2015
- With the help of the software and the simulation tool developed within the innovation project of CLAAS , topocare created a smart logistic chain resulting in a smartphone application to create when needed as quick as possible a smoothly functioning network between the process participants in case of flood disaster
- The network in case of flood: the driver of the dike construction machine itself, the truck drivers who deliver the sand and the tubes, the driver of the frontloader to load the sand into the machine, the emergency stuff and the volunteers

Transfer Project:
Intelligent flood protection
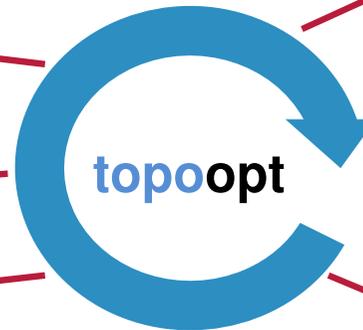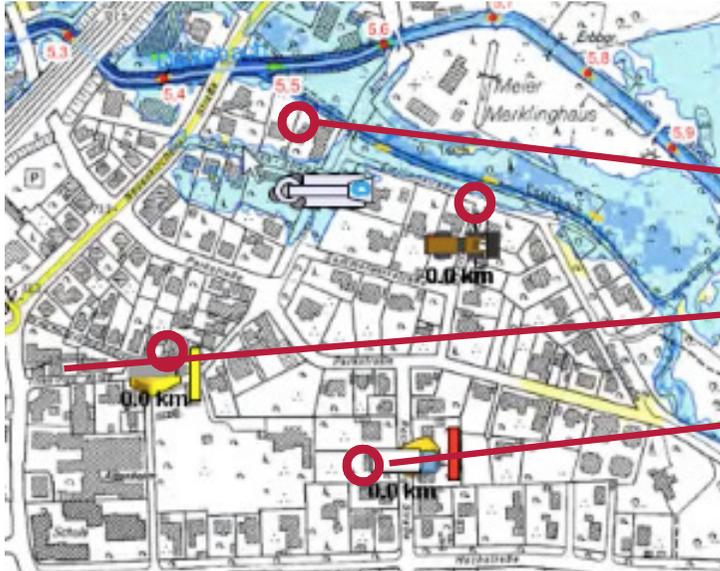
With **topoopt** one can create a network between the different processes of flood control. This allows for better optimization, control and interaction with the various process participants.

#Tracking & Tracing #Internet of thi...

Application:
Process support & -control

Coming soon
Under construction

How everything got started with it's OWL:
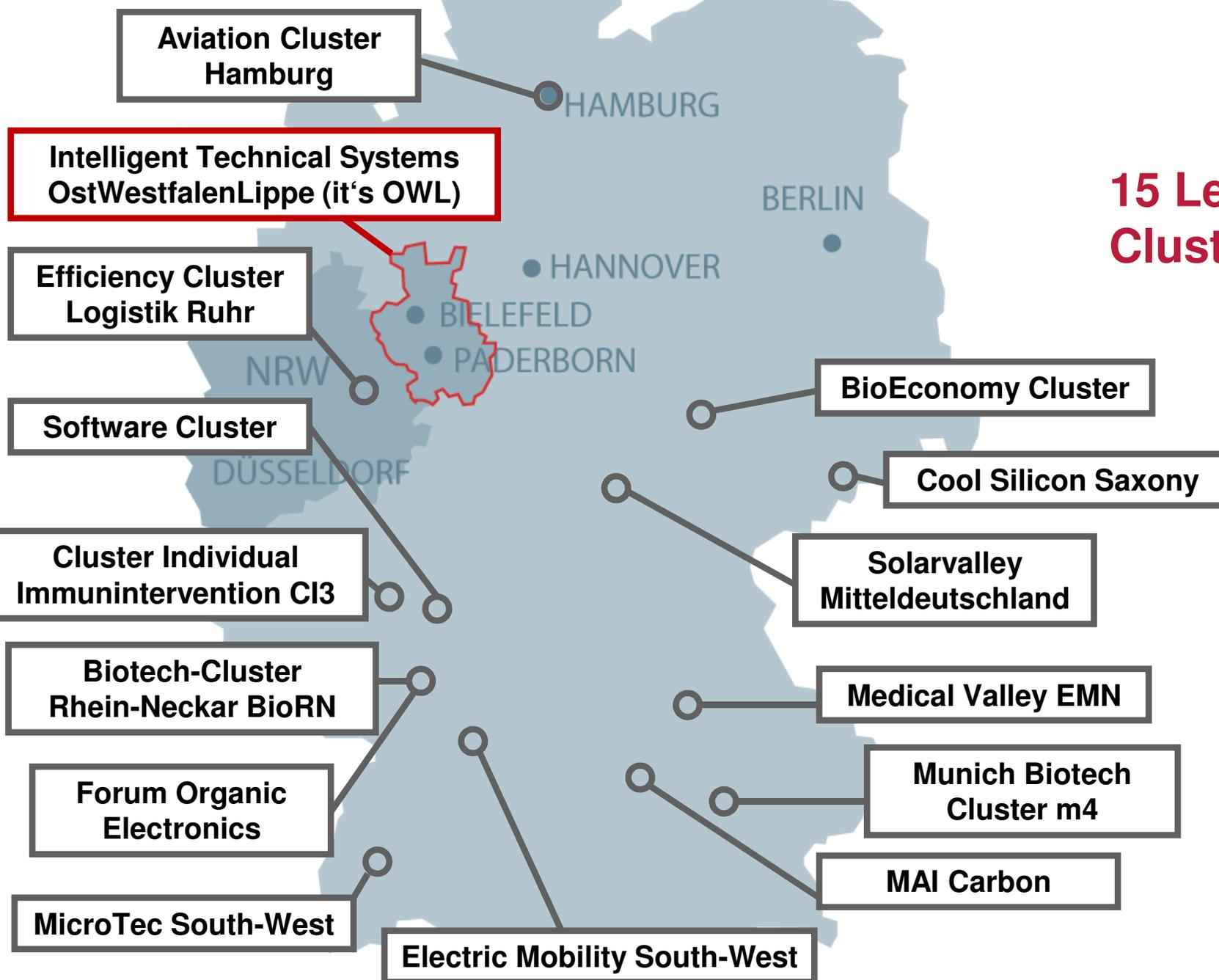## The BMBF Leading-Edge Cluster Competition

- Flagship of the high-tech strategy of our Federal Government

- Main idea: Regional pooling of economy and science along the value chain

- 3 rounds of competition (2007 to 2012)

- 15 leading-edge cluster represent high-tech competence ensuring growth and employment

- Focus: Solutions for future areas (intelligent technical systems; climate/energy, health/nutrition, mobility, security, communication)

- Funding: €40m over 5 years for each cluster

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Aviation Cluster Hamburg

HAMBURG

BERLIN

Intelligent Technical Systems OstWestfalenLippe (it's OWL)

15 Leading-Edge Cluster in Germany

Efficiency Cluster Logistik Ruhr

HANNOVER

BIELEFELD

PADERBORN

NRW

Software Cluster

DÜSSELDORF

BioEconomy Cluster

Cool Silicon Saxony

Cluster Individual Immunintervention CI3

Solarvalley Mitteldeutschland

Biotech-Cluster Rhein-Neckar BioRN

Medical Valley EMN

Forum Organic Electronics

Munich Biotech Cluster m4

MAI Carbon

MicroTec South-West

Electric Mobility South-West

INVENTED IN GERMANY

A strong technology and industry network
Our recipe for success: industry and science work closely together
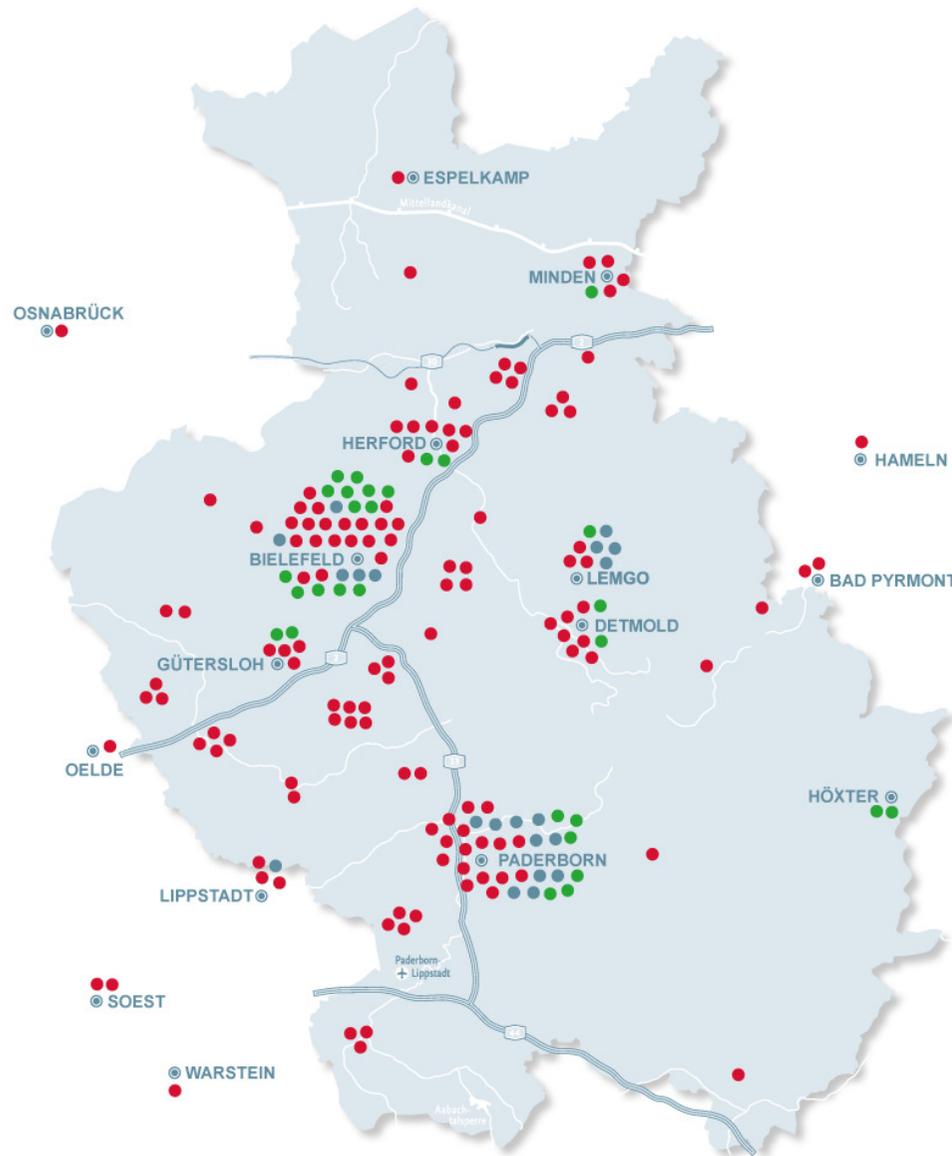
140 Businesses
24 main industry partners,
92 associated companies,
24 engineering- & consulting businesses

15 Universities and Research Institutes
6 universities
9 competence centers

31 Economy-related Institutions
9 industry initiatives
22 economy-oriented institutions

OWL – Outstanding Region for Innovation, Added Value and Employment 1/2

Vibrant industries

Mechanical engineering, electrical/electronic and automotive supply industries

Strong brands, hidden champions, independent family-owned companies
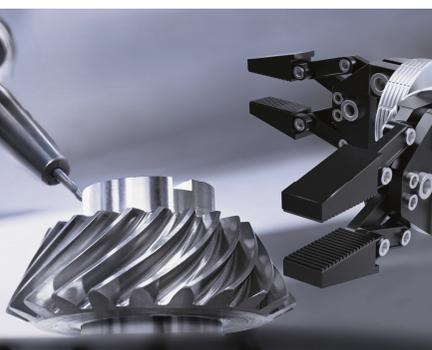
OWL – Outstanding Region for Innovation, Added Value and Employment 2/2
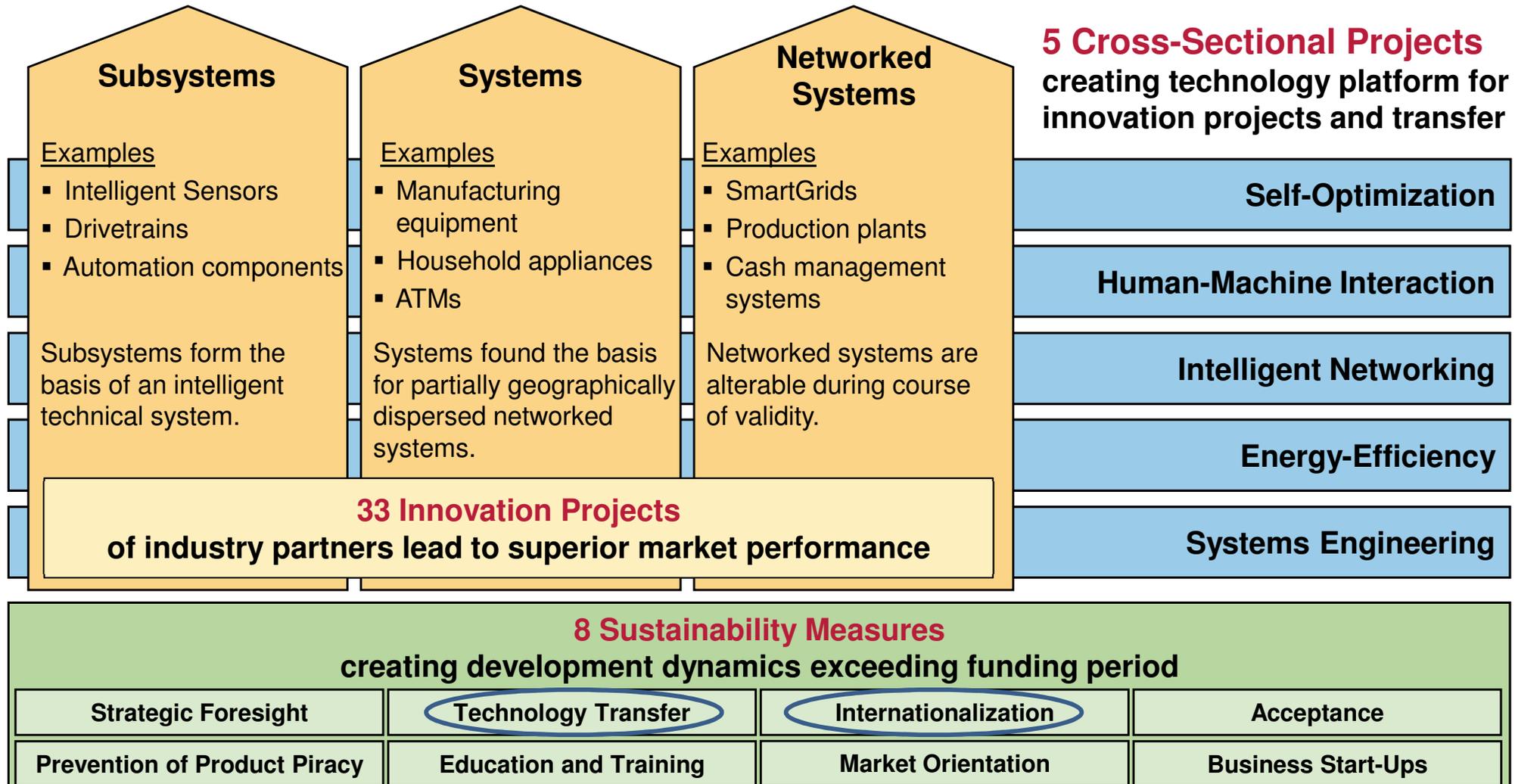
High-Performance Research

Strength: symbiosis of informatics and engineering sciences

Operationalization by Projects
Clear strategy ensures international success
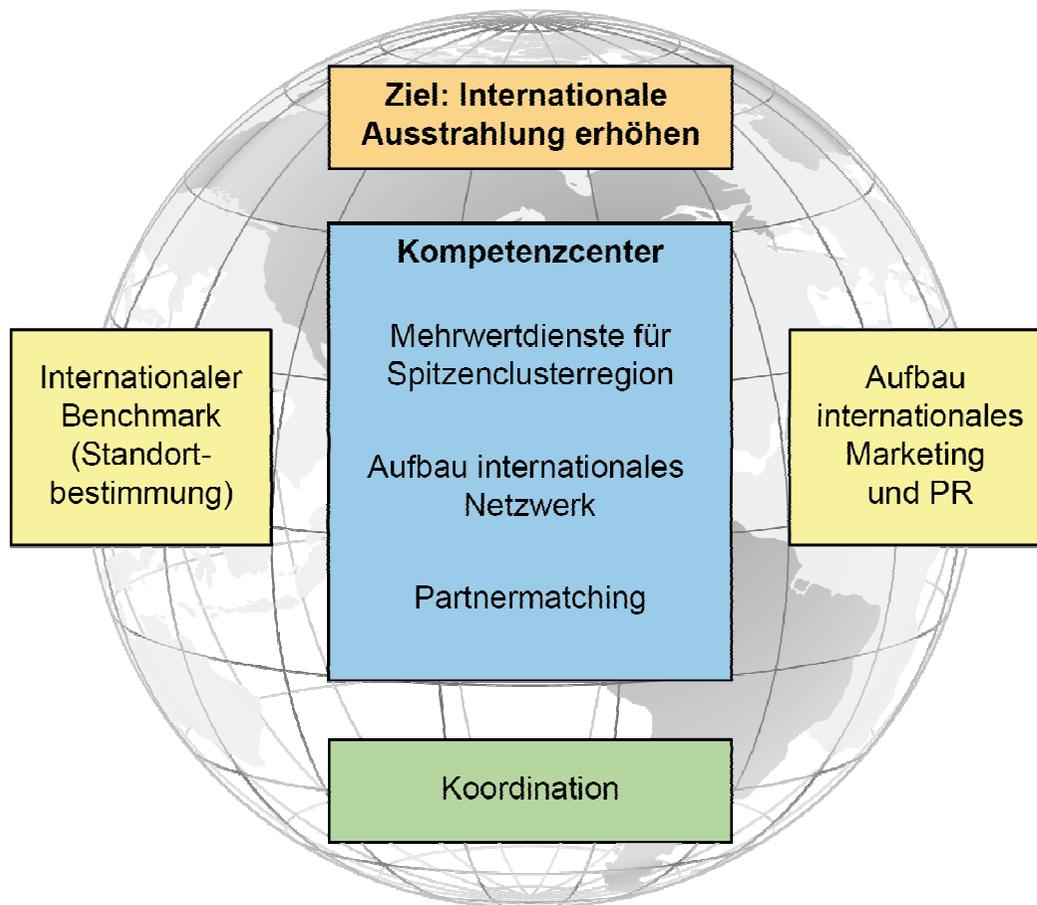
Global Market for Intelligent Technical Systems

Subsystems

Examples
- Intelligent Sensors
- Drivetrains
- Automation components

Subsystems form the basis of an intelligent technical system.

Systems

Examples
- Manufacturing equipment
- Household appliances
- ATMs

Systems found the basis for partially geographically dispersed networked systems.

Networked Systems

Examples
- SmartGrids
- Production plants
- Cash management systems

Networked systems are alterable during course of validity.

33 Innovation Projects
of industry partners lead to superior market performance

5 Cross-Sectional Projects
creating technology platform for innovation projects and transfer

| **Self-Optimization** |
| **Human-Machine Interaction** |
| **Intelligent Networking** |
| **Energy-Efficiency** |
| **Systems Engineering** |

8 Sustainability Measures
creating development dynamics exceeding funding period

Strategic Foresight	Technology Transfer	Internationalization	Acceptance
Prevention of Product Piracy	Education and Training	Market Orientation	Business Start-Ups

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Sustainability Measure: Internationalization of our Cluster
Regionally embedded and globally linked

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Ziel: Internationale Ausstrahlung erhöhen

Kompetenzcenter

Mehrwertdienste für Spitzenclusterregion

Aufbau internationales Netzwerk

Partnermatching

Internationaler Benchmark (Standort-bestimmung)

Aufbau internationales Marketing und PR

Koordination

- Challenge: improvement of the international awareness of it's OWL
- Partial Projects:
  - International Benchmark to identify our potential international partners as a question of complementarity
  - Partner-Matching and creation of an international network (currently under construction)
  - Development of an international marketing strategy
  - Development of an internal competence center focussing on value-added-services for our regional SME (e.g. advisory services, workshops, information events focussing on a special countries)

International Awareness of it's OWL in 2015: Examples

Our joint booth at Hannover Fair 2015

Press Conference SPS IPC Drives 2015 in Nuremberg

Business-Lunch North Rhine Westfalia meets the Netherlands FMB 2015

Chinese Delegation

Austrian Delegation

Dutch Delegation
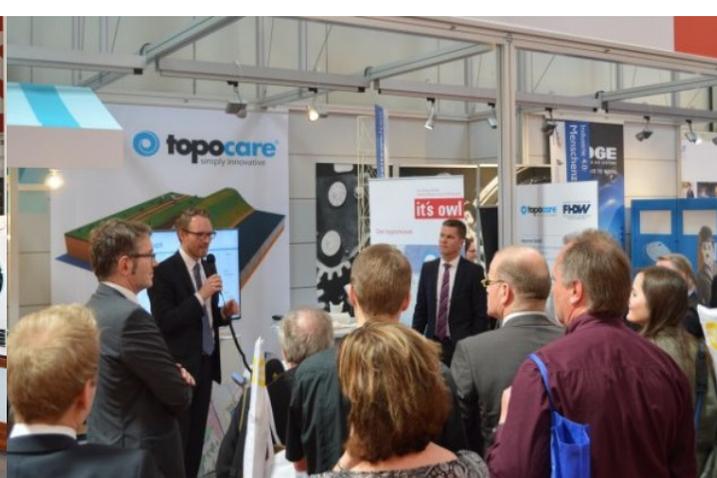
Welcome to our joint booth in
Hall 16/A04 at the Hannover Fair 2016

Learn more online
www.its-owl.com

On the road (flight) to Industry 4.0:
Welcome to OstWestfalenLippe

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We are looking forward to your visit in OWL in May 2016