

Research goals and funding opportunities Unit Development of Digital Technologies BMW i VI B5

Celtic Next Proposers Day

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We

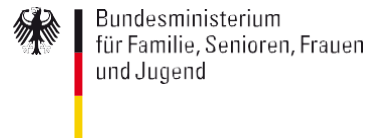
- » drive research, innovation and education
- » support policies, programmes and projects
- » operate nationally, across Europe and internationally
- » network disciplines, industries and stakeholders
- » stand for dedication and professionalism

CONSULTING
 EVALUATIONS
 ANALYSES
TRAINING
 INFORMATION,
 COMMUNICATION, DIALOGUES
FUNDING MANAGEMENT
 RESEARCH AND INNOVATION
 MANAGEMENT



Our Clients

- » Federal ministries, state ministries, public authorities
- » Foundations, associations, research organisations
- » European Commission, foreign government bodies



Ministerium für Innovation,
Wissenschaft und Forschung
des Landes Nordrhein-Westfalen



Our Unit „Information Technologies / Electric Mobility”

works on behalf of the



- » responsible for the “Development of Digital Technologies”
- » promotion of research and development at the precompetitive stage.

The aim of our work is to pick up on key trends at an early stage and to accelerate the process of transferring scientific findings into the development of marketable high-tech technologies with high-level potential for practical applications.



New Challenges for Applying ICT

The MEGA Trends



Production Systems
(„Industrie 4.0“)



Energy Systems
(„Energiewende“)



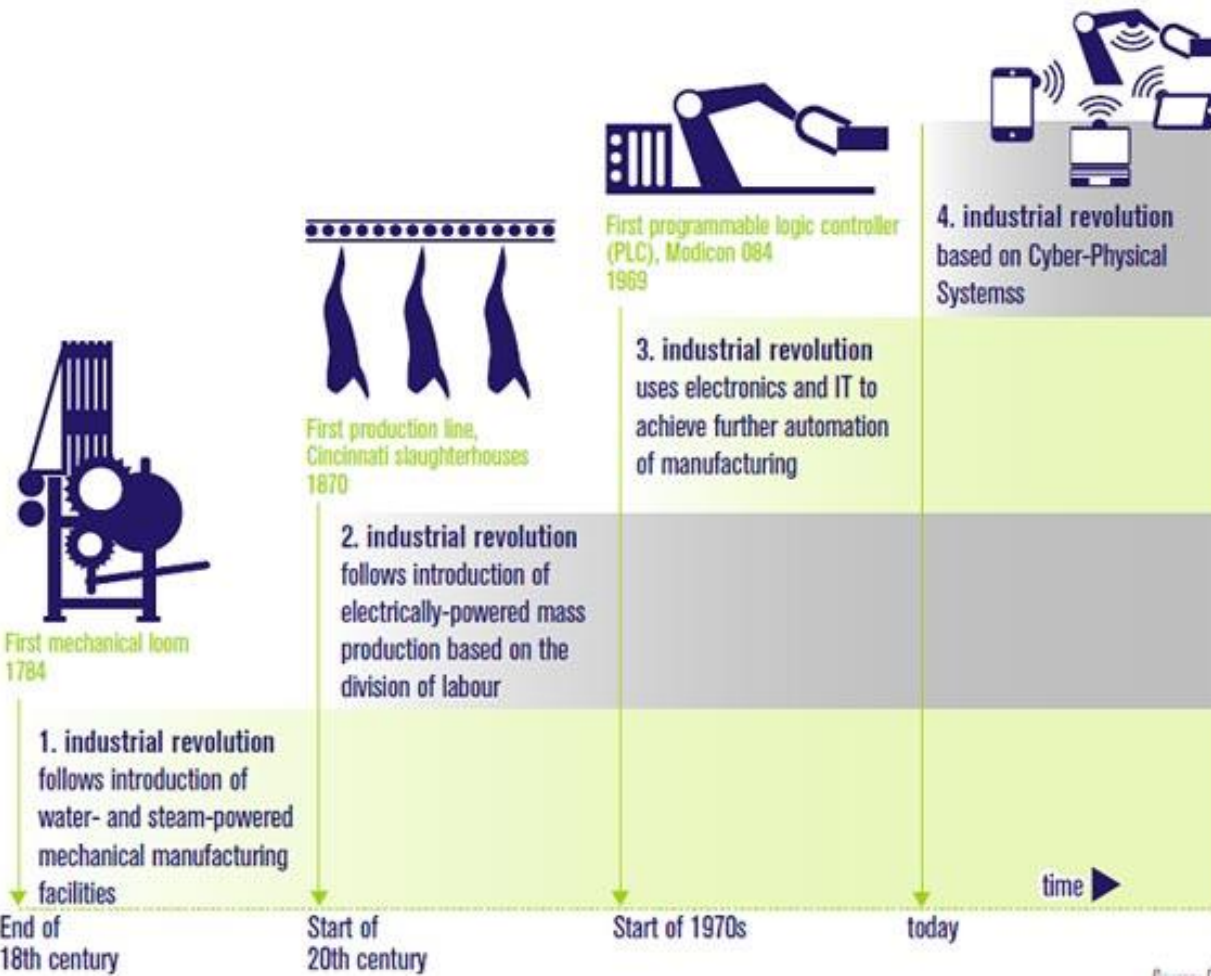
Social Systems
(„Demographischer Wandel“)

→ ICT connects complex systems and transforms businesses and society



Effects and impacts on businesses and the society

Industrie 4.0



Cyber Physical Systems allow for a high grade of automation and self organization in production.

„Smart components“ regulate the process

▲ complexity
Lot 1 Production: Individual customer preferences and data

From value chains to flexible value networks:
New forms of logistics



Effects and impacts on businesses and the society

Industrie 4.0 – Example „SpeedFactory“

- Manufacturing is the backbone of Germany's prosperity:

15 mio. jobs affected

→ Automation allows to bring back production to where the customers are.

→ Intelligent robot technology will produce better Products e.g. Shoes according to individual customer needs and customer foot measures

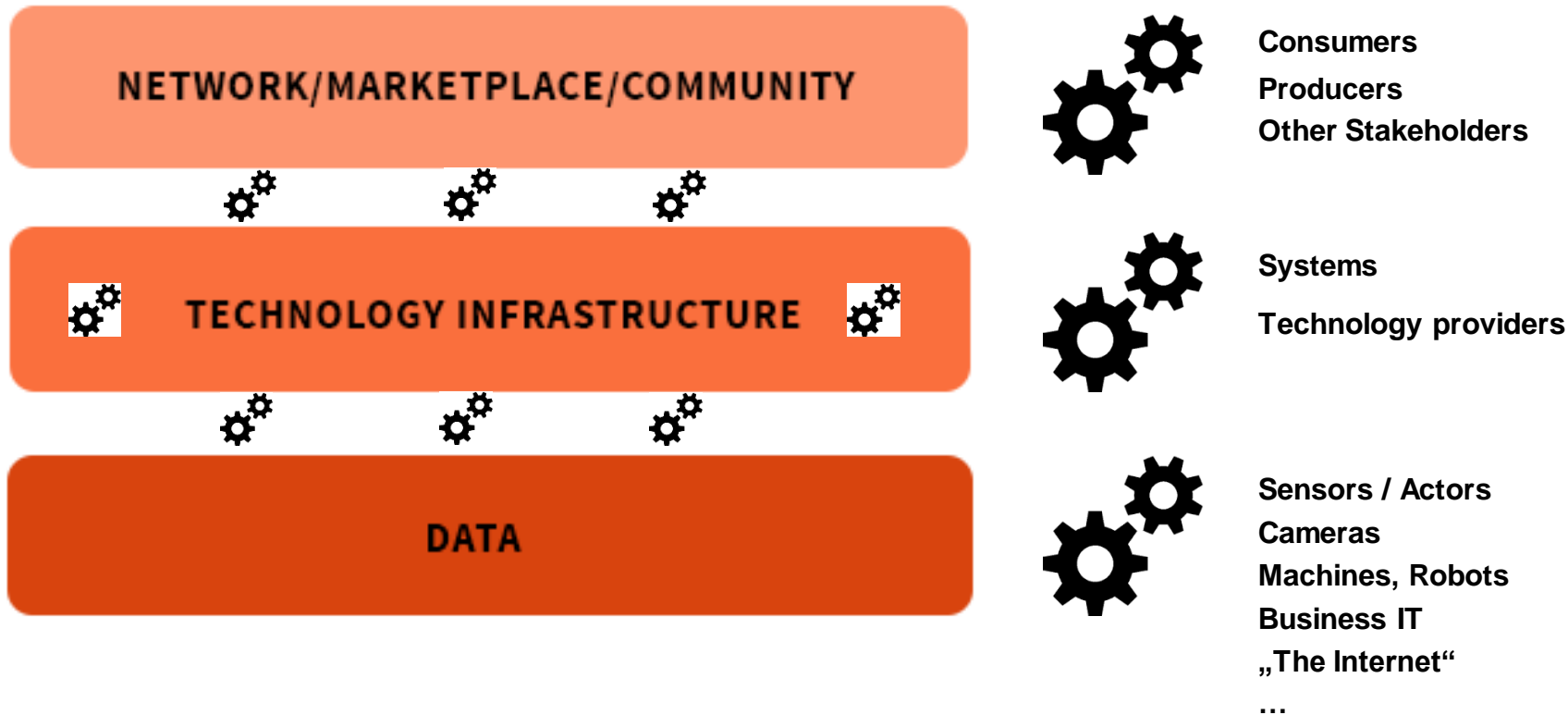
→ Industrie 4.0 will modernize and individualize the classical mass production.



Effects and impacts on businesses and the society

Service platforms – Basic technology concept

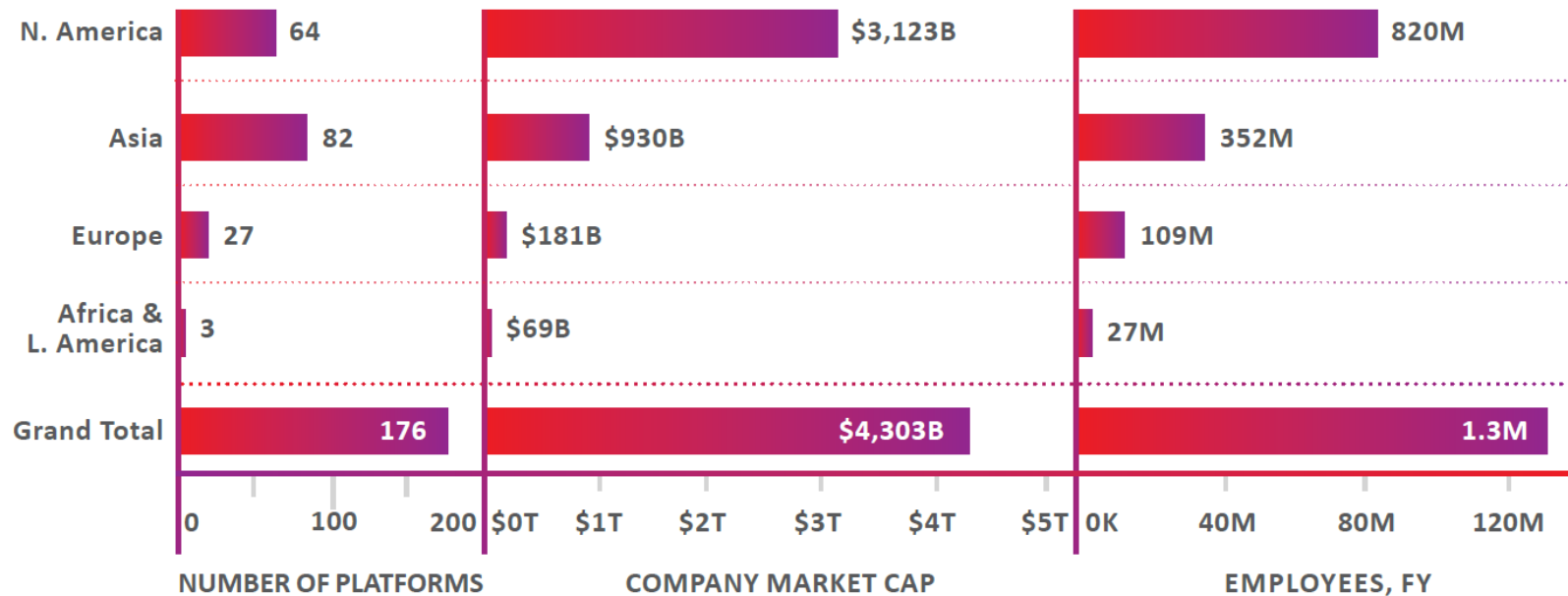
Data-driven business models



The Digital Platform Revolution

How competitive is Europe?

PLATFORM COMPANIES BY REGION



- Only 27 or 15 percent of the platforms come from Europe and collectively they represent a little over 4 percent by market value.
- → For many traditional companies this is still virgin soil (Neuland)



(How) to govern / influence the digital revolution ?

1. Digital Transformation is on the German political agenda

- National Digital Summit: the central cooperation platform for politics, science, economy and society for designing the digital change.
- The current coalition agreement addresses important topics of the digital revolution (Industrie 4.0, AI, Blockchain)
- Political strategies have been worked out
 - a) New Hightech Strategy 2025: Ministry of Research and Education
 - b) Digital Agenda (2014-2017): Ministry of Economy + Energy, Ministry of the Interior and Ministry of Traffic and Infrastructure
 - c) Digital Strategy 2025 (BMWi): „funding programs and lighthouse projects will be specifically set up in innovative technology and application areas“



(How) to govern / influence the digital revolution?

2) Investments in applied research to promote a faster adoption

Currently, most of the funding is devoted to the following programs

- **Smart Data:** to develop and test new technologies that enable big data to be used in both the private sector and by the public in a secure and legally compliant manner; *2014-2017, 13 projects, 30 m€*
- **Smart Service Welt:** to connect digital user areas using a targeted, secure combination of open service platforms, data management technologies, and Internet of Things; *2015-2019, 16 projects, 50m€ ; 2018-2021, 15 projects, 50m€*
- **Digital technologies for business – PAiCE** in which pioneering technology fields such as product engineering, agile logistics, service robotics, industrial 3D applications and industrial communication as well as their interconnectivity are addressed, which are particularly relevant for the digitization of the economy; *2016-2020, 16 projects, 50 m€*
- **ICT for Electric Mobility:** focusing on the key areas of logistics, mobility and energy infrastructure; Phase 3 (Commercial e-vehicles) 2015-2019, approx. 30 m€



(How) to govern / influence the digital revolution?

2) Investments in applied research to promote a faster adoption

Currently, a call for the following program is open:

Smart Data Economy - learning from data



A BMWi technology program focusing on artificial intelligence, semantics, and sovereignty.

We are looking for collaborative projects in the pre-competitive area with the following focal points

- Digital data management,
- AI-based systems.
- data technologies or methods for the secure use of data in distributed systems (e.g. using Distributed Ledger Technology - DLT)

The selection procedure is two-staged. In the preliminary ideas competition, project outlines can be submitted until 27 September 2018, 12:00 noon.



(How) to govern / influence the digital revolution ?

3) Fostering competence centres; business platforms & initiatives

- **Platform Industrie 4.0:** Under the lead of Ministers Altmaier and Karliczek, a broad alliance of associations, scientific organisations and trade unions has been created. 6 Working groups are driving the relevant topics
- **22 'Mittelstand 4.0 Centres of Excellence':** 18 regional Centres plus 6 thematic ones (eg. **Digital Skilled Crafts Centre of Excellence**): SMEs can test their own technical developments and interfaces with products and clients before they invest in customised systems
- **4 'Mittelstand 4.0' agencies** on relevant topics for SME („Cloud“, „Processes“, „Communication“, „Trade“) and take care for a broad knowledge transfer
- **Big Data Centres (Berlin, Dresden/Leipzig):** BMWi and BMBF cooperate in funding two centres / labs for cutting-edge research



(How) to govern / influence the digital revolution ?

4) Fostering innovative SME and Start-ups in the digital Sector

- The **Central Innovation Program SME (ZIM)** offers
 - Multiple funding variants for custom-fit funding
 - Possibility for continuous application for all kind of topics (ICT= #4)
 - Easy application and quick decision processes
 - About 400 Mio. Euro SME funding in ICT topics since 2008
 - More at <http://www.zim-bmwi.de/zim-overview>
- **EXIST program** for start-up businesses out of university
 - Supports students and researches in high-tech areas
 - Recently published new guidelines to improve funding and provide higher lump sums for material costs (November 2014)
 - More info at: <http://www.exist.de>



(How) to govern / influence the digital revolution ?

4) Fostering innovative SME and Start-ups in the digital Sector

Founder's Contest „Innovative ICT“

- A contest for Founding ideas in ICT funded by BMWi
- Prizes up to 30.000 € plus extensive coaching (expert network)
- Winners are announced and honoured at CeBIT

INVEST - Improved financing of start-ups via Business Angels:

- BMWi offers investment grants up to 20% on venture capital;
has recently been set free of income tax liabilities



Objectives of the R&D&I-Funding

Accelerate the introduction of German Digital Technology innovations to the market

Drive the Digital Transformation of the German Economy through the development of prototypical solutions

All the research programs that receive funding involve model users who pilot the developments in order to establish their technical and economic viability. The results are then used as a starting point for the creation of market-ready products, solutions, and business models, particularly for SMEs.

Strategic individual projects serve to advance selected cutting-edge, forward-looking technology solutions, which the Economics Ministry sees as potential game-changers within the ICT sector.



More info and examples:



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