

Digitalization initiatives in Bavaria

Examples

1. Bavarian Digitalization Masterplan I and II
2. Zentrum Digitalisierung. Bayern (ZD.B)
3. Cyber Defence Research Center and Cyber Cluster
4. Mittelstand 4.0 Kompetenzzentrum Augsburg
5. RLS-Sciences Expert Dialogue on Digitization

1. BAVARIAN DIGITALIZATION MASTERPLAN (2015, 2017)

Digitisation will fundamentally change the way we live and work in our society. To succeed in the future and create attractive new jobs, substantial investments are required. In May 2017, Bavaria therefore launched the BAYERN DIGITAL II master plan - a comprehensive package of measures from the entire state government that will have a lasting effect. The 10-point master plan contains proposals for measures amounting to around 3 billion euros in the years 2018-2021. The projects focus on digital infrastructure as a prerequisite for the gigabit society of tomorrow as well as on digital software and hardware. In addition, the Bavarian government wants to effectively support the economy in its task of developing innovations, technical progress and new business models and to drive forward the underlying research and development in a targeted manner. We start where the hubs of value creation are located - i. e. in areas such as artificial intelligence, for example - with the widest range of possible applications



BAYERN DIGITAL II is the second iteration of Bavaria's master planning to take advantage of the digital transformation. It builds upon the first digitisation programme from the Bavarian state government, which was initially launched in 2015. Over the course of both programmes, a total of 5.5 billion euros will be invested until 2022, with 3 billion belonging to BAYERN DIGITAL II. Further, 2 000 additional jobs have been generated in this second iteration of the plan.

As part of the BAYERN DIGITAL II master plan, the Bavarian Ministry of Economic Affairs is expanding its activities in important future-oriented fields such as **artificial intelligence, 3D printing, 5G mobile communications, autonomous driving, cybersecurity, microsystems technology, e-health and assistance robotics.**

The BAYERN DIGITAL II master plan includes the following initiatives, among others:

1) The plan is creating the digital infrastructure for the gigabit society.

Fiber optics initiative to create a gigabit-capable infrastructure throughout Bavaria by 2025.

BayernWLAN initiative: 20,000 WLAN hotspots by 2020, a further 20,000 hotspots at Bavarian schools.

5G initiative, in particular 5G test centre at the Fraunhofer Institute for Integrated Circuits Erlangen, 5G test environments and test installations, 5G research and development projects.

2) Bavaria becomes a European stronghold for security in and with IT.

Establishment of the State Office for Information Security (LSI) with up to 200 employees by 2020; creation of a central contact point for IT security of critical infrastructures, e. g. airports.

Strengthening the fight against cybercrime, in particular the central office of Cybercrime in Bamberg and the main public prosecutor's offices as well as the specialized investigation units of the Bavarian police. Equipping the Bavarian police force with state-of-the-art mobile IT (e.g. smartphones, tablets and in patrol cars).

Strengthening of research for IT security (e.g. Fraunhofer's national centre of excellence "Secure Networked Systems" in Munich; research and development cooperation projects for critical infrastructures of private providers).

3) Bavaria sets new standards in digital education.

Introduction of the digital classroom in all schools, including a multi-year support programme.

Computer science/information technology becomes a compulsory subject at all secondary schools, secondary schools and grammar schools.

Further training offensive, including a qualification offensive for teachers of computer science.

Expansion of digital courses at universities, e.g. for cooperation with in-company training and continuing education.

4) Bavaria is strengthening young academics in digital core disciplines.

Training offensive software engineering (analysis of requirements and Bavarian-wide competition for necessary new chairs).

New courses of study to strengthen IT skills in various disciplines, e. g. medical engineering and data science, human-centric engineering and agricultural research.

5) Bavaria is strengthening the digital competences of Bavarian SMEs.

Increase of the successful promotion program Digital Bonus Bavaria.

Transformation Offensive Digitisation "for small and medium-sized enterprises together with the Bavarian business associations.

Modernisation of vocational training for the digitalised working world (e. g. e-commerce clerks).

Promotion of further training for the working world 4.0.

6) The government is supporting key fields of digital technologies and applications.

Future initiative "Artificial Intelligence".

Future initiative "Assistance robotics".

Future initiative "3D printing".

Hardware initiative "Smart Innovations Bavaria" for the development of intelligent electronic components.

Establishment of a Bavarian Internet Institute

Offensive "Agriculture and Forestry 4.0".

Digital climate protection and water management.

Further development of the Center for Digitization. Bavaria (ZD. B), including new thematic platforms such as "Smart City/Bau", "Arbeitswelt 4.0", "Landmanagement," Verbraucher ").

7) Bavaria becomes the leading region for intelligent digital mobility concepts.

Future initiative "Autonomous Driving".

Digitization of road infrastructure.

New ways to network transport systems, e.g. expansion of dynamic traffic information or eTicketing.

8) Bavaria will become the world's leading location for digital medicine and care.

Future initiative "Digital Medicine", e. g. the Bavarian University Hospital's Science Association in the field of digital medicine (focus on Munich and Würzburg, Augsburg). Future initiative "High-tech in nursing care", e. g. demonstration projects for the intelligent conversion of an apartment for life at home to old age.

9) eGovernment puts Bavaria at the forefront of modern and digital administration.

Continuous digital management until 2030.

Establishment of a staff unit for digitization in the State Chancellery for monitoring of all digitization processes.

Launch of an innovation fund for flagship projects in the field of digital administration (state administration and municipalities).

E-Justice lighthouse project (e.g. opening of electronic legal transactions and introduction of the electronic court file).

10) Putting people at the heart of the digital world.

Support for the elderly (e.g. promotion of model housing for environment supported living; training in the use of digital media).

Barrier-free design of all procedures of the Bavarian ministries and their departments.

Improvement of services provided by consumer associations, including Smart Services.

Digitization at your fingertips: Establishment of a total of 13 BayernLabs in rural areas to make digitization a tangible experience.

To sum-up:

- "Artificial Intelligence Initiative for the Future", which bundles the activities of industry and science in this area. The main topics are Autonomous Mobility and Big Data
- a 5G initiative, with which a user and competence center for Bavarian companies at the Fraunhofer Institute for Integrated Circuits (Fraunhofer IIS) is being set up. This also includes 5G test environments in Munich and Nuremberg as well as in rural regions;
- Further projects in the field of assistance robotics in cooperation with the Technical University of Munich and the German Aerospace Center. As a first step, the application possibilities of assistance robots in health and geriatric care are evaluated in Garmisch-Partenkirchen.
- In addition to promoting specific projects, the Bavarian government will pay particular importance to further sensitisation, information and qualification in small and medium-sized enterprises in order to fully exploit the potential available there.

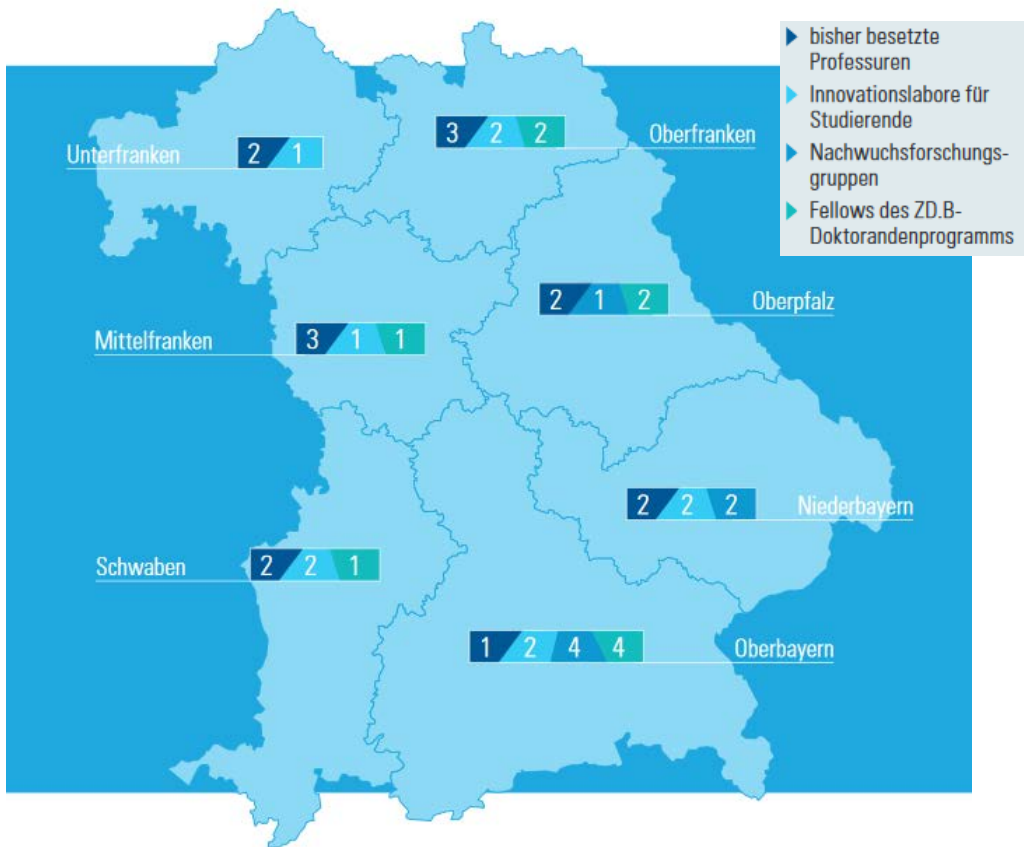
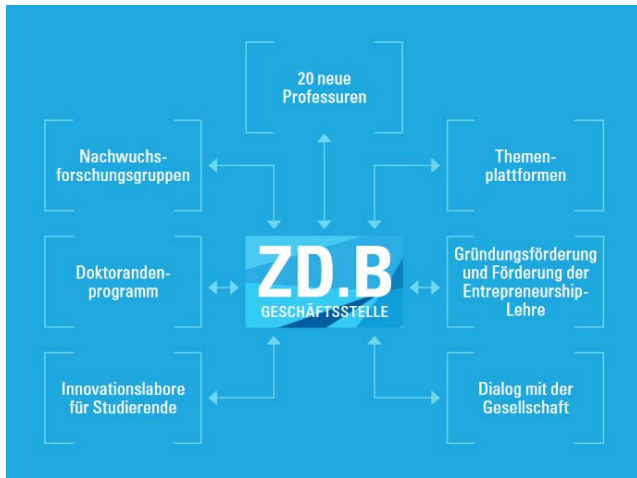
Digitalization is part of the newly created state chancellery ministry (Minister Eisenreich).

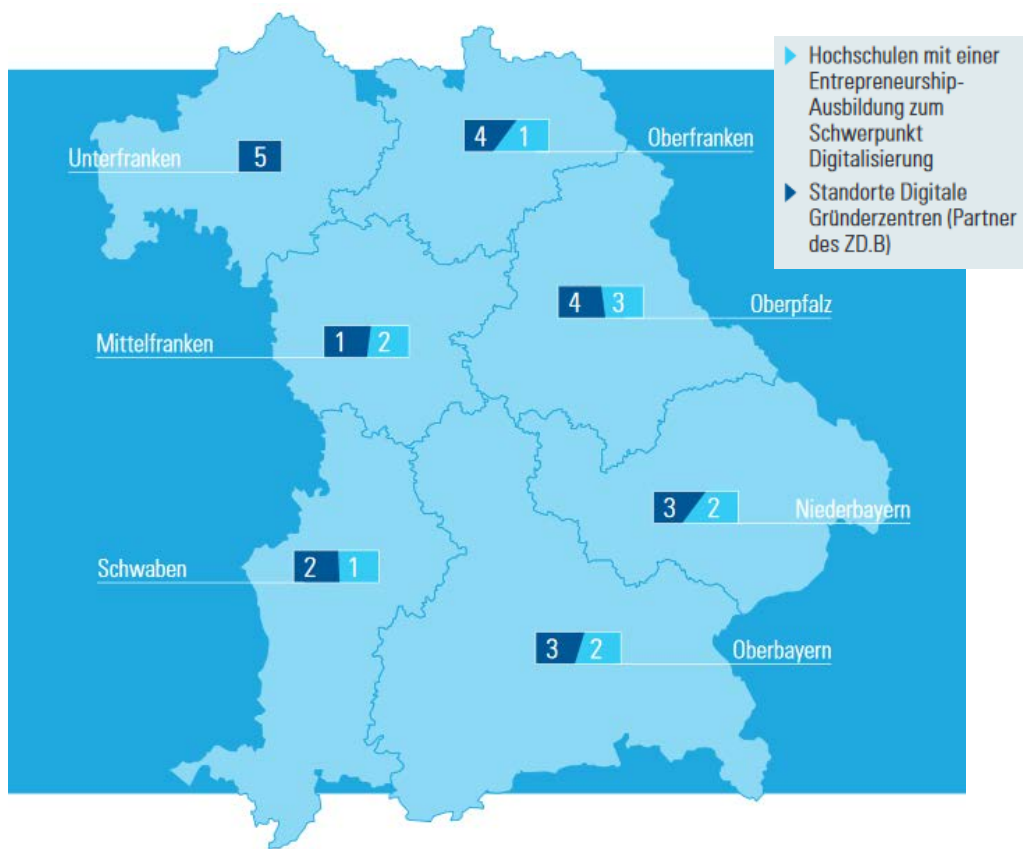
2. ZENTRUM DIGITALISIERUNG. BAYERN



Creation in 2016

Instrumental in designing and implementing the Bavarian digitalization plan, the ZD.B now has 15 of the 20 new professors recruited, a high-level doctoral programme with 10 fellows already selected, 7 young researchers research groups, and an ongoing dialogue series for businesses, as well as a number of other supporting infrastructures (10 innovation labs with students) [see flyer]





3. CYBER DEFENCE AND CYBER DEFENCE CLUSTER at UniBW M

Cyber Defence and Smart Data Research Centre (CODE) at the Federal University of the German Forces in Munich (2013), Cyber Security master initiative, and new German Cyber Cluster (2017)

CODE (Fr. Prof. Dreo): new approaches in ICT to the crucial questions of the future in the field of "Security in Technology and Society": Technical solutions and concepts to protect data, software and systems

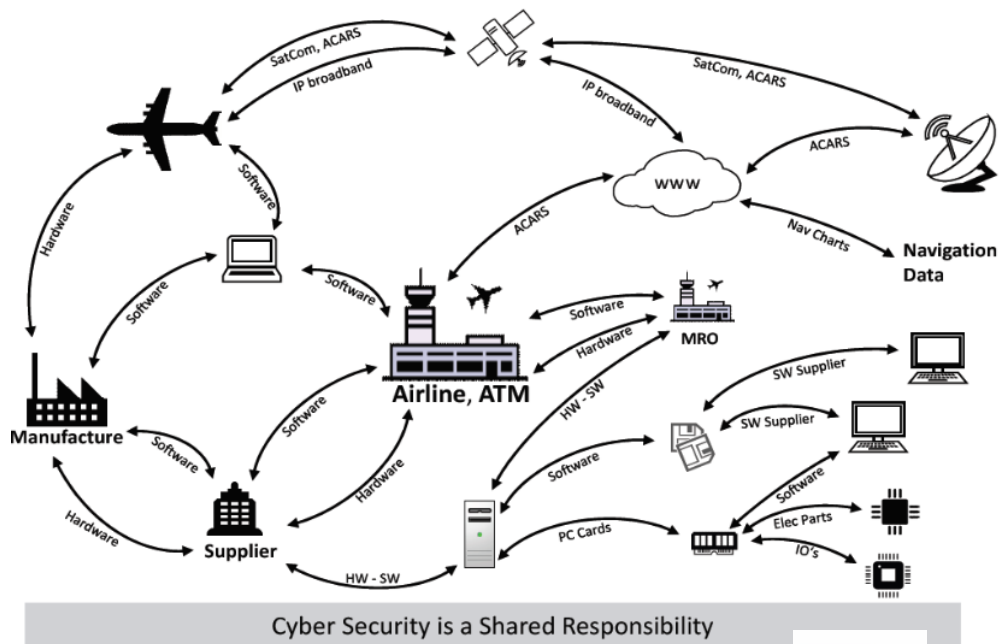
| Cyber Defence | Smart Data | Mobile Security | e-Health | Critical infrastructures |
|---------------|------------|-----------------|----------|--------------------------|
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| Risk management |
| Knowledge-Management |
| Network, Cyber and Big Data as Enabling Technology |

Current projects:

[ARIEL: Air traffic resilience](#) 

ARIEL seeks to conduct holistic risk assessments of critical infrastructure components of aviation, which can pose new potential threats to public security through highly developed cyber attacks.



[fit4sec: Stärkung der zivilen Sicherheitsforschung in Deutschland](#)

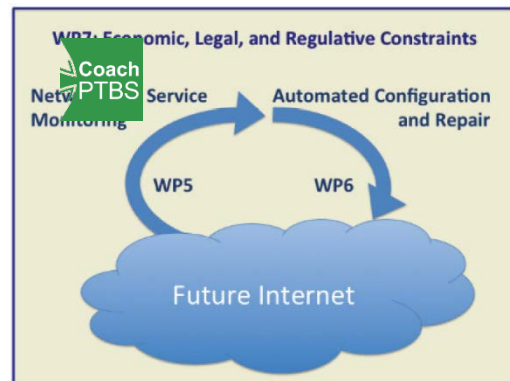
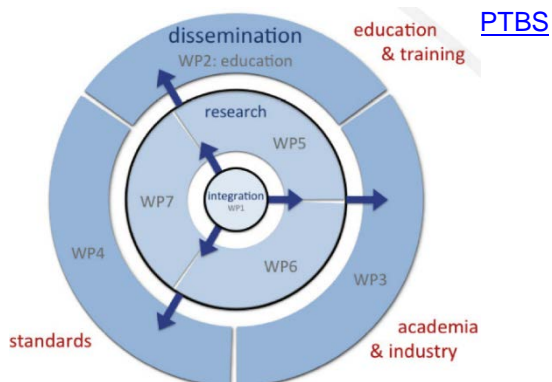
The goal of fit4sec is to bundle competences in the German security industry in order to form German-European research alliances together with academic partners and end users. The aim is to significantly improve the starting position of German companies for participation in European security research projects.



[Management of the Future Internet \(FLAMINGO\)](#)



Flamingo is a European (ICT-FP7 Network of Excellence) Project focussing on Network and Service Management. The goals are to strongly integrate the research of leading European research groups in the area of network and service management, to strengthen the European and worldwide research in this area, and to bridge the gap between scientific research and industrial application.



[Coach: eHealth Anwendung für PTBS Patienten](#)

In cooperation with the University Hospital Dresden, the CODE research centre at the University of the German Federal Armed Forces in Munich is investigating the implementation of a mobile application (app) with the aim of providing persons affected with PTSD (post traumatic stress disorder) with low-threshold access to information and offers of assistance. E-health procedures are now considered proven to reduce the threshold for seeking help in the case of psychological trauma after-effects. Research is being carried out into how a highly secure data connection and data storage can be implemented.

[Streitkräftegemeinsame verbundfähige Funkausstattung \(SVFuA\)](#)



To better manage and deploy armed forces, reliable and powerful IT systems are needed. To support this, the concept of Networked Operations Management is used to connect all relevant persons, positions, and units (as well as sensors and effectors). In order to ensure reliable communication between the armed forces and command levels in this type of environment, a new tactical radio device is needed, and the creation of this device is the aim of this research project. This radio will be scalable, modular, programmable, and reconfigurable, thus creating the basic prerequisite for the implementation of Networked Operations Management.

[Wissensmanagement für das Sanitätsamt der Bundeswehr \(RAAPIT\)](#)



This project is developing a prototype of a knowledge management system (WMS) in cooperation with the Bundeswehr Medical Office. This prototype is currently being tested under real conditions by the Medical Intelligence department, and aims to increase the effectiveness and availability of medical intelligence, increase the quality of medical intelligence products, standardise the decision making process, and safeguard processes through comprehensible documentation, among other goals.

Past projects (selection):

- Coalition Wideband Networking Waveform (COALWNW)

- European Network of Excellence for the Management of Internet Technologies and Complex Services (EMANICS)
- Design and Implementation of a secure information platform for Military Engineering (MilEngCoE)
- Blueprint Designing and Related Services for FRONTEX
- Security Management Infrastructure (SMI)
- Integrated Management and Accounting System to Maintain Reputed Public WLAN-based Hot-spots

Academic programs

- [Cyber Security \(M.Sc.\)](#)
- [Electrotechnics and Informationtechnology \(B.Sc. und M.Sc.\)](#)
- [Informatics \(B.Sc. und M.Sc.\)](#)
- Intelligence and Security Studies (M.A. oder M.Sc.) - ab Januar 2019
- [Aerospace technology \(B.Sc. und M.Sc.\)](#)

4. MITTELSTAND 4.0 INITIATIVE COMPETENCE CENTER AUGSBURG



Dedicated initiative to support the digital transformation in SMEs.

Series of information sessions, workshops, training opportunities on site. The objectives are to:

- Inform about what digitalization is and can
- Support implementation in SMEs
- Train SMEs to take advantage of it in their businesses
- Monitor progress

Similar to ADRIQ's mission in Québec.

5. RLS- Sciences Proposal “Best practices in digitalisation”



Digitalisation is a global trend that has a strong impact on all aspects of economy and society. For companies in all sectors, digital transformations are strongly affecting their business models. All RLS partner regions are equally concerned by these digital challenges, but each region has experienced this trend very differently. This variety of experiences among the regions enables a broader and more comprehensive analysis of the challenges all regions are facing.

The objective of the 2016 “Beyond Industry 4.0” Expert Dialogue was to provide companies with the components of a practical toolbox to better understand and take on the digital challenges of Industry 4.0. Technologies are changing at great pace and companies, especially SMEs, can be reluctant to invest in their modernisation, due to risks or prohibitive costs.

In this light, we would like to propose that all RLS-partner regions contribute to a “Best Practices” Dialogue on Industry 4.0 ahead of the 2018 Summit. Based on their various experiences, ambitions, and concerns, this dialogue would map out existing digitisation programmes and measures in all RLS partner regions. By providing a complete inventory of existing measures, it would help regions learn from each other’s experiences, and provide benchmarks. As a key example of practical use, this work would draw options to reduce uncertainties for SMEs investing in digitisation, and allow them to do so in a more efficient way. In addition to the priority of supporting SMEs, this dialogue would bring the regional policies on start-ups, clouds, artificial intelligence, and data analytics into focus.

This dialogue would also represent a great opportunity to address the important societal issues that digitisation entails. It should serve as a practical tool to overcome some of the worries that are often expressed when it comes to Industry 4.0 and digitisation.

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