

press release

Inaugural meeting for DigitalTWIN research project

Gersthofen, 19 June 2018. In a project due for completion in 2021, renowned partners from industry and research will develop digital tools and methods further in order to bring together and automate services, processes and procedures along the construction value-creation chain. In the DigitalTWIN (Digital Tools and Workflow Integration for Building Lifecycles) project, the priority is to gain a full understanding of interdependent, interactive systems, which is why the research partners have been drawn from very different industries and fields of activity. DigitalTWIN is being funded within the scope of the "Smart Services World II" programme of the German Federal Ministry for Economic Affairs & Energy. Securing Germany's position as an efficient location for production and innovation and expanding digital services for small and mid-size enterprises are the key aims of this government funding.

The challenges for the building industry are the changing responsibilities throughout a building's lifecycle, different national standards and regulations and partners that change constantly during planning, construction and operation. In DigitalTWIN the aim is that an open platform architecture, more advanced broadband communication systems and computer vision technologies should simplify planning, production and coordination with the building site and provide users with a reliable, flexible and upgradable communication and management infrastructure.

Interdisciplinarity across all industries

Planners, manufacturing companies and service providers for the construction industry, but also communications and IT companies, will benefit from this research project. The research partners see commerce GmbH (a seele group company), the Heinrich Hertz Institute of the Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V., Telegärtner Karl Gärtner GmbH, Carl Zeiss 3D Automation GmbH, planen-bauen 4.0 and Werner Sobek Stuttgart AG have conceived the DigitalTWIN research project. Their work to develop a digital platform for various applications will focus on the automated, network linking of processes and the use of forward-looking technologies such as VR/AR, smart data services, BIM and machine learning.

The fields of research cover the following:

- **Planning** Algorithms to automate routines
- **Interaction** Networked content and operation of VR/AR headsets
- **Communication** Infrastructure for planning, production and building site
- **Data security** Data structures and fast exchange
- **System integration** New standards for networking hardware and software solutions
- **Demo structure** Application and evaluation

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Tested research findings

DigitalTWIN addresses the convergence of process organisation, communications, IT technologies and automation aspects that are vital for future BIM and Industry 4.0 applications. This research project aims at a modular approach so that the individual IT system landscapes particular to each company can be integrated as flexibly and reliably as possible. Key technologies from the areas of 5G, multi-access edge computing (MEC), cloud computing, virtualisation, CAD/CAM, BIM and data analytics will be employed. The results will be tested using the demo structure, then evaluated and incorporated into (inter)national standardisation processes.

The consortium

With its global partners, DigitalTWIN will encourage a discussion about the boundary conditions in the different markets and an investigation into how, in the future, the building process in Germany and the structure of the German economy can be used to advantage and expanded in the fiercely contested global IT market. Accordingly, the consortium is made up of leading service providers and industrial companies from the construction, IT, communication and automation sectors plus leading research establishments. The consortium partners cover a wide range of skills to provide the expertise necessary for this interdisciplinary project. By focusing the competences of eminent participants, DigitalTWIN creates added value for the realisation of ICT solutions and enables direct, critical testing of whether the concepts and approaches can be implemented in practice. Expert reports on data security, IT security and the method-based optimisation of corporate processes will complement the project to guarantee that the results can be applied in very diverse business structures and user markets.

The project partners

see commerce GmbH

see commerce GmbH is the lead partner in this research project. This IT company, a member of the seele group, creates the hardware and software infrastructure for seele, the façade construction specialist with global activities, and carries out ongoing development for existing software solutions. seele's specific requirements are quickly and skilfully integrated into the ERP system by the software development team. One priority is to combine different data processing applications to form one fully interlinked system landscape. This broad portfolio guarantees the fast and optimum implementation of IT requirements while complying with the valid regulations regarding data protection and data security. seele is interested in improving coordination within the building industry in order to achieve more reliable planning, costing and scheduling for customers' specific projects. "For example, the site crew in California is already connected to our engineers in Gersthofen via a VPN tunnel," explains project manager Dr. Fabian

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Schmid. In his view, “supporting communication by using terminals such as VR/AR headsets and improving project management by using digital methods – in order to coordinate problems and find solutions jointly in real-time – would simplify daily workloads enormously”.

Heinrich Hertz Institute of the Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.

R&D work at the Fraunhofer Institute for Telecommunications, the Heinrich Hertz Institute (HHI), focuses on innovations for the digital society. Fraunhofer HHI is the world leader in research into mobile and optical communication networks and systems as well as the coding of video signals and data processing. Working together with international partners from research and industry, Fraunhofer HHI covers the entire digital infrastructure spectrum – from fundamental research right up to the development of prototypes and solutions. The institute helps to develop standards for information and communication technologies and creates new applications in its role as a partner to industry. One priority is optical wireless communication, which enables high-speed data connections for users with special requirements regarding safety and electromagnetic compatibility. The institute’s research also focuses on video coding and transmission. Fraunhofer HHI makes an important contribution to research in the areas of efficient compression methods, computer vision, machine learning and the integration of real and virtual worlds for immersive multimedia applications.

Telegärtner Karl Gärtner GmbH

Telegärtner Karl Gärtner GmbH is a telecommunications company that was founded in 1945 and, since 1948, has been based in Stuttgart. The Telegärtner Group is a family-owned enterprise that has become a global specialist in the field of data communication and telecommunications, with special expertise in connection and interface technologies. The product range covers RF components for mobile communications applications, network solutions for structured building cabling and modular products for industrial and FO applications. Telegärtner is currently combining the content of data network technology and mobile communications to comply with the convergence required by communication networks; in future, services such as planning and commissioning will be added. Other priorities are solutions for establishing a flexible broadband network infrastructure in the short-term with the option of permanent usage. Telegärtner wishes to acquire a better detailed understanding of the user’s view of the complex relationships in large infrastructure projects and the latest strategies of global players for efficient ways of dealing with unavoidable disruptions to procedures. The Telegärtner Group has 650 employees worldwide and generates an annual turnover exceeding €100 million.

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Carl Zeiss 3D Automation GmbH

Carl Zeiss 3D Automation GmbH (a subsidiary of Carl Zeiss Industrielle Messtechnik GmbH, part of Carl Zeiss AG) develops, produces and supplies accessories and automation solutions for industrial measuring and testing equipment. The products range from (micro)styli, stylus systems and sensor systems right up to air-conditioning monitoring and pallet systems with temperature sensors as well as manual or automatic jigs for clamping workpieces. In the course of activities concerning Industry 4.0, work is being carried out on digital measuring labs and equipping complete production buildings with sensor networks. That work led to the company being selected for an award in 2017 within the scope of a competition to find "100 locations for Industry 4.0 in Baden-Württemberg". Zeiss 3DA intends to use the DigitalTWIN technologies investigated for the planning, equipping, operation and maintenance of digital measuring labs and to use the results to derive a solution for the metrology sector.

planen-bauen 4.0 – Gesellschaft zur Digitalisierung des Planens, Bauens und Betriebens mbH

This company – known as PB40 for short – is a non-profit platform enterprise that unites the planning, building and operation value-creation chain within its corporate structure. The company's aim is to digitalise the construction sector in Germany by way of diverse activities connected with network establishment, knowledge transfer, national and European standardisation and the creation of boundary conditions for the consistent use of digital methods to support the building industry, which is characterised by small and mid-size businesses. For this work, the company can call on the skills of its pool of experts. Other principal activities are all kinds of certification plus the provision of tools and resources for supporting and promoting digital working methods. PB40 was heavily involved in the development of the "Road Map for Digital Design & Construction" produced by the German Federal Ministry of Transport & Digital Infrastructure. The company provides advice and support for all the government's current BIM pilot projects for buildings, roads, railways and waterways. Furthermore, PB40 is involved in numerous national and international projects covering the standardisation and implementation of model-based working methods.

Werner Sobek Stuttgart AG

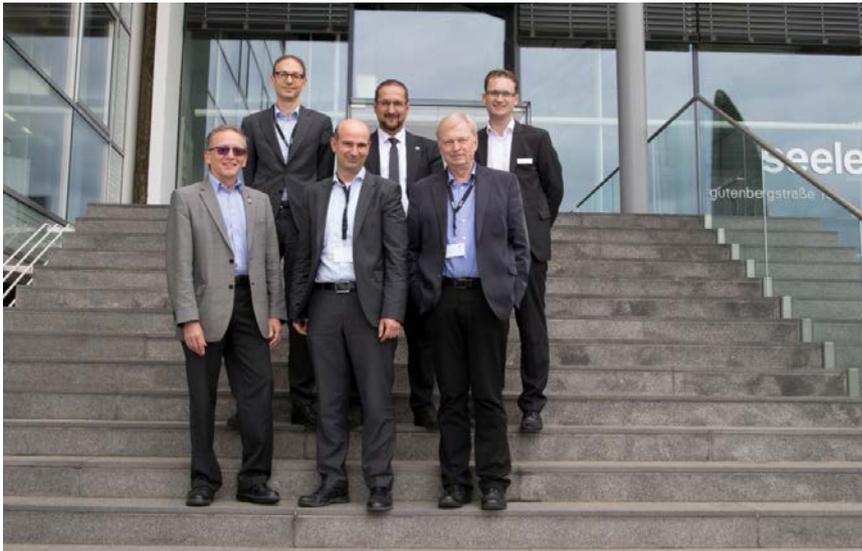
This company is a member of the Werner Sobek Group, which is known worldwide for its engineering, design and sustainability concepts. The group maintains offices in Stuttgart, Dubai, Frankfurt, Istanbul, London, Moscow and New York. The work of this group of companies is characterised by its high-quality design based on outstanding engineering and ingenious concepts to minimise the consumption of energy and materials. Founded in 1992, the company now has

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more than 300 employees and works with all kinds of structures and materials. The main priorities are buildings and structures, façade design and sustainability consulting. Werner Sobek Stuttgart was awarded a special prize as part of the BIM Award 2016.

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press photos



Group photo: Representatives from project partners se commerce (Dr. Fabian Schmid), the Heinrich Hertz Institute (Dr. Ralf Schäfer), Telegärtner (Felix Klein), Carl Zeiss 3D Automation (Dr. Arnd Menschig), planen-bauen 4.0 (Michael Kluge) and Werner Sobek (Dr. Lucio Blandini) attended the DigitalTWIN inaugural meeting at seele's headquarters in Gersthofen. © se commerce



The inaugural meeting for the DigitalTWIN research project was held at seele's headquarters in Gersthofen and included workshops for all project and associate partners. © se commerce