# Smart Services World –
# Internet-based
# Business Services

# Content

# Smart Services World – Internet-based Business Services

In 2015, some 15 billion devices in the world were hooked up to the internet. By 2020, this number is likely to rise to 30 billion. Highly automated technology allows for the big data streams resulting from this to be analysed, processed and combined in new ways to create innovative smart services. Smart services form the basis for a new class of manufacturing and value networks that open up new possibilities in manufacturing, such as for use in the instant production of batch-size one, tailored sneakers, and for the development and design of new products and services. This also means that they can be used to create new business models. Used in the private home, smart services have the potential to deliver greater levels of security and safety, convenience, and energy efficiency. Smart services are service platforms that bring together developers, operators and users. As such, they are subject to certain legal requirements, not least to data privacy rules.

The Federal Ministry for Economic Affairs and Energy has launched a technology programme entitled 'Smart Services World – Internet-based Business Services', under which it is providing funding for 20 smart-services projects. The programme is to help developers gain access to markets, build a customer base, and ultimately make German businesses more competitive. More specifically, each of the projects is about building a prototype solution that is based on networked smart technical systems and allows for data to be gathered, analysed and used for new services that can be provided via services platforms, app stores and other online market places. Apart from the funding itself, the project developers also benefit from research that is being conducted in the interest of answering important legal questions and addressing challenges related to standardisation, the security of platform architecture, as well as digital business models and the platform economy.

In total, the 'Smart Services World' programme including the funding provided by the project partners themselves is worth some 100 million euros. More than a hundred partners from industry and science have become part of the initiative.

For more information about the technology programme and for detailed outlines of all the projects, please go to
www.smartservicewelt.de

# Projects

## AcRoSS

**Making augmented reality fit for industrial use**

There are many activities within the industrial sector that stand to benefit from the use of augmented reality (AR). Augmented reality is about giving users contextual information that is combined with the reality perceived by the user. For this to work, AR-enabled devices (e.g. data glasses) must work together well with users themselves, IT systems, and the manufacturing environment. AcRoSS wants to make this an option for companies of different sizes and working in different industries. Under the project, a platform is being developed which allows for all the necessary data to be exchanged and different AR services to be provided. The platform is open and expandable, giving third parties a chance to participate in the development of new AR services.

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**Project partners:** Fraunhofer Institute for Draft Technology for Mechatronics, IEM (leader of the consortium), Atos IT Solutions and Services GmbH, DAI Laboratory of the Technical University of Berlin, Kieback & Peter GmbH & Co. KG, Krause-Biagosch GmbH, Ubimax GmbH

**Website:** www.across-ar.de

## CAR-BITS.de

**Using car data in line with data privacy rules**

Modern cars are mobile computers constantly generating, storing and sending data. There are still many questions surrounding the transfer and use of the large amounts of data generated during the operation of the car and its sensors. The CAR-BITS.de project is about developing a services platform that will allow for car data to be used for new services in a way that is compliant with data privacy rules. The data will be protected against misuse and car drivers will have control over their data and the way in which data can be used. Services prototypes are to be developed to show how dynamic entries in digital maps can be used to enhance road safety. Cars will be able to automatically report missing lane markings, and a network will be formed between various car manufacturers and suppliers, all in ways that are in line with the relevant legal requirements.

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**Project partners:** Uniscon GmbH (leader of the consortium), Continental Automotive GmbH, Fraunhofer-Gesellschaft for the Promotion of Applied Research e.V., Hochschule Bonn-Rhein-Sieg

**Website:** www.uniscon.de/carbits-onepager

# ENTOURAGE

**An open eco-system for smart, secure and trusted assistance within the Internet of Things**

All sorts of electronic systems ranging from heating systems to connected cars come with the option of digital control. If these network-enabled "things" are combined with smart algorithms, this can give users powerful functionalities that assist them. So far, however, this type of integration has almost exclusively been delivered via smartphones and platforms associated with these. ENTOURAGE is now developing an innovative open eco-system that will cater to very different devices, platforms, and services and allow them to be used in concert. This technical and organisational architecture will be used to create a market place for trusted assistance, which companies including SMEs can use to market their services.

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**Project partners:** ENX Association (leader of consortium), CONWEAVER GmbH, Fraunhofer IAO Institute, HaCon Ingenieurgesellschaft mbH, Robert Bosch GmbH, Technical University of Darmstadt, University of Kassel

**Website:** www.entourage-projekt.de

## GEISER

**Smart combination of sensors and geodata**

Networked smart systems, such as machinery or petrol pumps, are equipped with sensors that every day capture large amounts of data. The GEISER project is about developing a cloud-based platform that combines this data with geo-positioning data und converts it into a standardised format, so that it can be used to provide innovative smart systems and products. The project looks at three specific use cases in particular: smart navigation to the next free parking space, geoservices that help with deploying service technicians in the most effective way, and marketing based on geodata.

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**Project partners:** USU Software AG (leader of consortium), Fraunhofer-Gesellschaft for the Promotion of Applied Research e.V., metaphacts GmbH, TomTom Development Germany GmbH, University of Leipzig, YellowMap AG

**Website:** www.projekt-geiser.de

## Glass@Service

**Bringing smart glasses to manufacturing**



Smart glasses and augmented reality can be used in manufacturing to enable users to have their hands free and be able to focus entirely on the actual task in hand. Glass@Service wants to combine smart glasses with state-of-the-art interactive technologies (control by eye and gesture command) and with innovative IT services, so that they can be used as personalised information systems. The idea is to allow users to move more freely, thus increasing the efficiency of their work. Particular importance is to be attached to IT security and data privacy.

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**Project partners:** Siemens AG (leader of the consortium), Federal Institute for Occupational Safety and Health, DIOPTIC GmbH, Fraunhofer-Gesellschaft for the Promotion of Applied Research e.V. (Fraunhofer FEP Institute), Senso-Motoric Instruments GmbH (SMI), Ubimax GmbH, UVEX ARBEITSSCHUTZ GmbH

**Website:** www.glass-at-service.de

## Guided Autonomous Locations

**Smart services platform for smart living**

The Guided Autonomous Locations project is about establishing a web-based, systems-neutral services platform that allows for the implementation of smart services within the field of building automation. This involves an assessment of the technical requirements that must be met if existing and new automated solutions and smart devices (smartphones, tablets etc.) are to be used to deploy smart services within a building. The project will see applications for the fields of home living, working, shopping, and healthcare being developed.

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**Project partners:** Scheer GmbH (leader of the consortium), Banbutsu GmbH, German Research Center for Artificial Intelligence GmbH, Dortmund University of Applied Sciences, Hager Electro GmbH & Co. KG

**Website:** www.guided-al.de

## IoT-T

**Innovative testing of devices and software for the Internet of Things**

All devices and applications that are developed for use within the Internet of Things (IoT) must perform very well in terms of their security and interoperatibility. The IoT-T project is about developing a platform that makes it possible for developers and users to subject software and devices designed for the IoT to detailed testing, to help reduce development times.

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**Project partners:** Fraunhofer FOKUS Institute (leader of the consortium), Audi AG, DEKRA, Fraunhofer IPK Institute, relayr GmbH

**Website:** www.iot-t.de

# KOMMUNAL 4.0

**Web-based data and services platform for municipal infrastructure**

The aim of KOMMUNAL 4.0 is to develop a data and services platform for municipal infrastructure, in this case for water management. All of the relevant municipal data available from different authorities and divisions is to be pooled, analysed and used to control the sewage system, rainwater reservoirs and sewage treatment facilities in a way that allows for these to be treated as a single overall system. In addition to this, business models that allow for more effective planning and the efficient operation of municipal infrastructure systems will also be developed.

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**Project partners:** HST Systemtechnik GmbH & Co. KG (leader of the consortium), IEEM gGmbH, ifak – Institut für Automation und Kommunikation e.V. Magdeburg, PEGASYS Gesellschaft für Automation und Datensysteme mbH, SüdWasser GmbH, Cologne University of Applied Sciences

**Website:** www.kommunal4null.de

# MACSS

**Digital communication between doctors and their patients**

The aim of the MACSS project is to give patients with chronic illnesses greater safety and a better quality of life by facilitating more efficient communication between the doctor and the patient and between all of the doctors involved in the patient's treatment. Under the system, chronically ill patients go to a treatment centre several times a year to receive a new therapy plan. In between these visits, an app is used to record all of the patient's relevant vital data, which is passed on to the treatment centre and allows doctors to monitor their patients' health. Data is also exchanged between the patient's general practitioner who provides them with care in between their routine visits to the treatment centre, and the doctors who see them there. This is to ensure that all information is available and that it can be used to adjust the treatment as necessary.

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**Project partners:** Charité – Berlin (leader of the consortium), Berlin Beuth University of Appliances, German Research Center for Artificial Intelligence GmbH (DFKI), Dosing GmbH, SAP SE, SmartPatient GmbH

**Website:** www.macss-projekt.de

## OpenServ4P

**Process control services in manufacturing**

The OpenServ4P project is about creating the technology that will make it possible to upgrade "traditional" manufacturing facilities to enable them to become part of Industrie 4.0. For these facilities to become "smart", they need to be integrated into a network and become able to communicate with other systems. The process control technology required for this and which will also allow manufacturing facilities to respond autonomously to changes in their environment is to be used to create smart online services and test these within existing manufacturing facilities.

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**Project partners:** SALT Solutions GmbH (partner in the consortium), BSH Hausgeräte GmbH, Fraunhofer IGCV, Scheer GmbH, SICK AG, SICK STEGMANN GmbH, software4production GmbH

**Website:** www.openserv4p.de

## OPTIMOS

**Secure identities for mobile services**



The OPTIMOS project is about creating a platform that will bring together identification solutions with other mobile services applications, and testing this platform by creating a national eTicketing system for public transport. The idea is to combine existing services, including electronic payment services, with secure identity solutions and deploy them on mobile devices that can be used in public transport. The findings from the project are then to be used in international standardisation work.

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**Project partners:** VDV eTicket Service GmbH & Co. KG (leader of the consortium), Federal Printing Office (Bundesdruckerei GmbH), Giesecke & Devrient GmbH, KAPRION GmbH, NXP Semiconductors Germany GmbH, Technical University of Dresden, T-Systems International GmbH

**Website:** www.eticket-deutschland.de/optimos

## PASS

**Secure apps for use in cars**

Modern vehicles are increasingly relying on software applications (apps) for controlling features that provide comfort, infotainment and network-based functionalities. Manufacturers must meet their customers' demand for a wide range of features, whilst ensuring compliance with strict security requirements. The aim of the PASS project is to develop an open software platform that will bring a uniform approach to developing apps for use in cars and allow them to be easily and securely deployed. This will involve the implementation of a security concept that will monitor the way in which apps are run and that will limit their access to the car's functionalities in line with pre-defined security guidelines. The system is to be open to applications developed by third parties and provide the basis for a wide range of new services and business models to be developed.

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**Project partners:** TWT GmbH Science & Innovation (leader of the consortium), atsec information security GmbH, fortiss GmbH, SYSGO AG

**Website:** www.pass-projekt.de

## SePiA.Pro

**Smart use of manufacturing data**



The aim of the SePiA.Pro project is to develop a services platform that allows for sensor and ordering data generated within modern manufacturing facilities to be put to smart use. At the heart of this are smart services that make it possible to control, optimise and predict the behaviour of individual components and of entire manufacturing systems. These smart services also help to render manufacturing processes as flexible as is possible.

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**Project partners:** TWT GmbH Science & Innovation (leader of the consortium), Daimler AG, German Research Centre for Artificial Intelligence GmbH (DFKI), TRUMPF Werkzeugmaschinen GmbH + Co. KG, University of Stuttgart

**Website:** www.projekt-sepiapro.de

# SERVICEFACTORY

**Bespoke services**

The aim of the SERVICEFACTORY

**SERVICEFACTORY**

project is to develop, create a prototype of and validate an online platform for the recording, transmission, and analysis of personal data gathered by appliances we use in our everyday lives (e.g. wearables, trainers, smart watches etc.). Once aggregated, this use data is to be used to develop smart health-related and sports services tailored to each individual customer.

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**Project partners:** adidas AG (leader of the consortium), German Research Centre for Artificial Intelligence GmbH (DFKI), Deutsche Telekom AG, Dresden Elektronik Ingenieurtechnik GmbH, Humotion GmbH, RWTH Aachen University, German Association of Engineers (VDI)

## Smart Farming Welt

**Services platform for smart agriculture**

 The Smart Farming Welt project is about creating a technical basis that will allow for farming processes to organised within smart networks that bring together different producers and organisations. It is already the case that agricultural machinery is equipped with a variety of sensors that capture machine and process information. Under the project, this information is to be combined with other information (e.g. from partnering machines in the vicinity, sensor or weather data, planning information, information provided by the manufacturer etc.) and analysed in real time in the field and after the process is finished. As a result, it will be possible to develop services that will help establish optimal machine settings, fertilising and harvesting strategies, and allow for processes to be automated.

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**Project partners:** Logic Way GmbH (leader of the consortium), CLAAS E-Systems KGaA mbH & Co. KG, German Research Centre for Artificial Intelligence GmbH (DFKI), Deutsche Telekom AG, FIR Institute for Rationalisation e. V. at RWTH Aachen University, Grimme Landmaschinenfabrik GmbH & Co. KG

**Website:** www.smart-farming-welt.de

## Smart Orchestra

**Creating a whole band of smart services by bringing various 'soloists' together**

The cloud-based services platform created as part of the Smart Orchestra project will make it possible for smart, networked products and services to be connected up to one another, to be used 'in concert' and to be marketed. For instance, several different waste containers owned by the same private provider but equipped with sensors made by different manufacturers are to be able to communicate their respective filling levels via the platform to ensure that they will be emptied by the municipality when they are actually full. The platform is to be used to establish an open and secure market place for smart services that allows for these to be sold, used and combined in a flexible manner.

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**Project partners:** StoneOne AG (partner in the consortium), Cleopa GmbH, Datenfreunde GmbH, Fraunhofer-Gesellschaft for the Promotion of Applied Research e.V., regio iT gesellschaft für informationstechnologie mbh, University of Stuttgart

**Website:** www.smartorchestra.de

## STEP

**Smart duty rosters for technicians that work in machine maintenance**

The goal of the STEP project is to predict the maintenance needs of machinery and to use these projections to deploy technicians in an automated and efficient way, so that they can be where they are needed. This is achieved by means of collecting all the relevant data, including predictive error messages, machine specifications, and contextual information. A cloud platform allows for this information to be pooled in a central place and in line with data privacy rules. Maintenance slots are organised in a way that takes into account the level of urgency, customer requirements, and the capacity of technicians to take on new assignments. In this way, the STEP project helps improve the quality of service, speed up processes, and prevent unplanned machine downtime.

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**Project partners:** USU Software AG (leader of the consortium), FLS GmbH, Heidelberger Druckmaschinen Aktiengesellschaft, Karlsruhe Institute for Technology (KIT), TRUMPF Werkzeugmaschinen GmbH + Co. KG

**Website:** www.projekt-step.de

## STOREFACTORY

**Turning production into a consumer experience**

STORE-FACTORY **STOREFACTORY** invites consumers to design their own textile products in-store and have them produced on the spot. Therefore, the individual steps of the manufacturing process have been consolidated into one site and digitally linked with one another. This allows consumer needs and requests to be directly translated into the textile production. The STOREFACTORY project also helps to gain new insights into consumers' acceptance of individual shopping experiences shaped by Industry 4.0.

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**Project partners:** adidas AG (leader of the consortium), F.G. Meier GmbH, LGDV at FAU University of Nuremberg-Erlangen LGDV, RWTH Aachen, Uedelhoven Studios Ingolstadt

## StreetProbe

**Map-based road services**

The StreetProbe project is about developing a cloud-based system that will help document and assess the condition of roads. Sensors that are already available in vehicles today are to be used to capture information on road condition, transmit this information to a cloud-based platform, and assess it to ensure that any damage to the road is recognised and recorded early. Furthermore, the data is to be used to underpin smart services such as the automation of shock absorbers or the deployment of precise roadmaps for highly automated car systems.

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**Project partners:** Robert Bosch GmbH (leader of the consortium), Federal Highway Research Institute, Durth Roos Consulting GmbH, Technical University of Berlin, 3D Mapping Solutions GmbH

**Website:** www.streetprobe.de

## Symphony

### Platform for ICT services

The Symphony platform is to become
a digital marketplace for ICT services
targeting small and medium-sized
companies. This online marketplace
will serve as a single platform ena-
bling SMEs to compare, select, com-
bine, purchase, and manage their ICT
services in one place, eliminating the need for them to deal
with each company separately.

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**Project partners:** paluno – The Ruhr Institute for Software-
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consortium), adesso AG, German Institute for Standardiza-
tion e.V. (DIN), IN-telegence GmbH, Telecommunications
and Value-Added Services Association (VATM e.V.)

**Website:** www.ikt-symphony.de

www.bmwi.de