DIMOFAC

SmartFactoryKL DIMOFAC Demonstrator

smartFactory KL

SmartFactoryKL IN A NUTSHELL

Founded: 2005
Location: Germany, Kaiserslautern
Technology: Plug-and-Produce
Industry: Industry 4.0
Website: https://smartfactory.de/en/

Promo Video:
https://youtu.be/ME7CNbMSqZ0

ABOUT SMARTFACTORYKL

As a pioneer and forerunner, the non-profit SME SmartFactoryKL addresses and presents the paradigms and ICT innovations in manufacturing-related processes, right from its foundation in 2005. SmartFactoryKL works in close cooperation with the Innovative Factory Systems (IFS) at the German Research Center for Artificial Intelligence (DFKI), which is one of the largest non-profit contract research institutes in the field of innovative software technology based on Artificial Intelligence (AI) methods. The IFS department has been active since 1998 in the field of ambient intelligence systems and ICT-based manufacturing. It investigates technologies and standards in automation engineering and human-machine-interaction.

SMARTFACTORYKL PILOT LINE

Innovative key technologies are tested and further developed in realistic industrial production environments. Keywords are Gaia-X (research project smartMA-X), multi-agent systems, artificial intelligence, 5G, system architecture, autonomous systems, module exchange, human-machine interaction, etc. The goal is a flexible, more efficient and sustainable production concept. With this in mind, we have further developed Industry 4.0. We call this update *Production Level 4*.

The demonstrator shows different production and logistics processes in the form of encapsulated capabilities and described by Asset Administration Shells (AAS) following the DIMOFAC common information model (e.g. 3D printer or armrobot). To achieve Plug-and-Produce capability, several modular production resources are accessible via the DIMOFAC platform, where the corresponding AAS are registered and describes the interaction for production agents.

SmartFactoryKL owning a technology-initiative Industry 4.0 production laboratory for mass customisation and Plug-and-Produce for future smart factories. Its strength lies in its open network of modules, which can be continuously expanded by new research projects. In this way, different research questions can be explored on the basis of the exemplary process and implemented with industry-realistic hardware.

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SERVICES OFFERED

1. Practical Demonstration of the use of AAS, Middleware and hardware
2. Research on AAS models to be used and improved in research projects
3. Close exchange with industry partners and development of joint use cases
4. Demonstration of the testbed on fairs, open days and interest groups

BENEFITS

Solving challenges of industry 4.0 like Plug and Produce scenarios, skill-based engineering, digital twins. The main benefit is the possibility of pre-industrial testing and validation to show possible and realistic scenarios.

VALUE PER SERVICE

- SmartFactory*KL* is non-profit and does not sell services
- All results and activities are organised with the industrial partners and through research projects

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Technologie-Initiative SmartFactory KL e.V.
Trippstadter Strasse 122, 67663 Kaiserslautern, Germany
https://smartfactory.de/en/ | ruediger.dabelow@dfki.de | +49 631 20575 3404