Press Release – 19 October 2016

Successful implementation of an Industrie 4.0 security framework for intelligent production

DFKI and Wibu-Systems bring "Security for Smart Production" to life in a demonstration at *SmartFactory*^{KL}

Karlsruhe / Kaiserslautern, Germany – **The German Research Center for Artificial Intelligence (DFKI) with its Research Department Innovative Factory Systems and Wibu-Systems have developed a holistic security concept for the protection of industrial manufacturers. The S4SmartPro – "Security for Smart Production" – project was supported by the German Federal Ministry for Economic Affairs and Energy and the German Federal Ministry for Education and Research, and was completed in only 24 months.**

The two teams of experts came together to investigate suitable and effective protection mechanisms for different types of threats and implement a set of system safeguards for the DFKI prototype production line at *SmartFactory*^{KL}. The results can be emulated by any stakeholder who wishes to apply Industrie 4.0 standards and make the switch to intelligent production technologies.

From a technical standpoint, RFID readers were adopted for OPC UA-based communications in the key finder prototype production line of *SmartFactory*^{KL}. All security-critical private keys were stored in CodeMeter dongles equipped with a smart card chip onboard. Even though proprietary technology was used for secure storage, the OPC UA communication is 100% compliant with the open ISO standards of OPC UA. In addition, relevant production data were signed and stored in the RFID tag for a completely tamperproof concept. An app for tablets was used to verify and authenticate the signatures.

The use of open standards, such as OPC UA, symmetric encryption with AES, asymmetric encryption with ECC, ECIES, and RSA, low cost RFID tags with medium memory capacity as well as standard operating

systems for embedded, cyber physical, and cloud-based systems ensures interoperability and enables the implementation of the same set of variables in many different applications.

Professor Dr.-Ing Dr. h.c. Detlef Zuehlke, CEO of *SmartFactory*^{KL} and Director of the Research Department Innovative Factory Systems at DFKI, emphasizes the tremendous importance of security for Industrie 4.0: "With Industrie 4.0, the Internet of Things has arrived in factories. In order to take full advantage of tamper-proof cyber-physical production systems, "Security by Design" needs to take central stage in any design phase. This is an important step towards preventing sabotage and espionage."

Oliver Winzenried, CEO and co-founder of Wibu-Systems, states: "Industrie 4.0 can only take off if holistic and sustainable security architectures are implemented. The increasing number of networked devices is a magnet for cyber-attackers ready to exploit vulnerabilities and manipulate production processes in order to cause massive damage or seize technical know-how. The opportunity to test preventative measures at *SmartFactory*^{KL} delivered great results for all manufacturing vendors."

Further information on the *SmartFactory*^{KL} key finder prototype production line: http://dfki-3036.dfki.de/EN/keyfinder_system.php.

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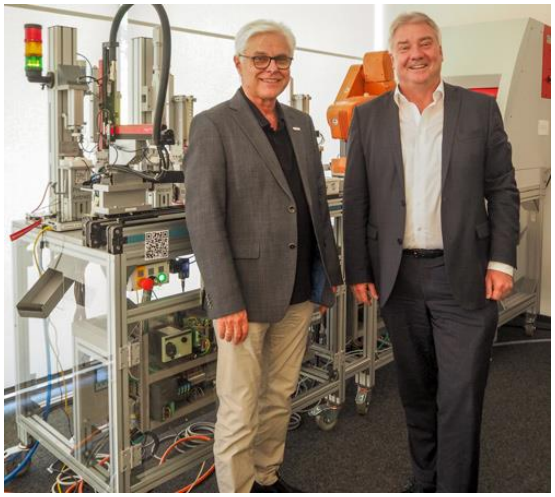

Figure: CodeMeter technology providing strong security for the key finder prototype production line at *SmartFactory*[KL] presented by Prof. Dr. Detlef Zuehlke, CEO of Technologie-Initiative SmartFactory KL e.V. and Director of the Research Department Innovative Factory Systems at DFKI, and Oliver Winzenried, CEO and co-founder of Wibu-Systems.

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WIBU-SYSTEMS AG (WIBU®), a privately held company founded by Oliver Winzenried and Marcellus Buchheit in 1989, is an innovative security technology leader in the global software licensing market. Wibu-Systems' comprehensive and award winning solutions offer unique and internationally patented processes for protection, licensing and security of digital assets and know-how to software publishers and intelligent device manufacturers who distribute their applications through PC-, PLC, embedded-, mobile- and cloud-based models.

Media graphic resources available at: http://www.wibu.com/photo-gallery.html

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The Technologie-Initiative SmartFactory KL e.V., founded in 2005 as a non-profit association, is an Industrie 4.0 network of industrial and research partners who jointly carry out projects regarding the factory of the future. *SmartFactory*[KL] is a manufacturer-independent demonstration and research platform which is unique in the world. Here, innovative information and communications technologies and their application are tested and developed in a realistic, industrial production environment. The technology initiative, supported by the active participation of its members, has already established pragmatic solutions, first products and common standards. *SmartFactory*[KL] intensively cooperates with the German Research Center for Artificial Intelligence (DFKI) in Kaiserslautern and was appointed Mittelstand 4.0-Kompetenzzentrum Kaiserslautern (SME 4.0 Competence Center) by the German Federal Ministry for Economic Affairs and Energy in 2016.

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