SIEMENS

Hannover Messe 2019, Hall 9, Booth D35

Siemens leads industry to the next level of digital transformation

- **This year's trade fair slogan "Digital Enterprise – Thinking industry further!"**
- **Roadmap for the factory and process automation of the future**
- **Scalable concept up to the MindSphere IoT operating system leads to renaissance on the shopfloor**
- **Enhanced portfolio: cutting-edge technologies such as artificial intelligence and Edge computing increase productivity and flexibility**

At Hannover Messe, Siemens is presenting numerous additions to its Digital Enterprise portfolio for the next level of digital transformation in the discrete and process industries: "Through the integration of cutting-edge technologies into our portfolio, we can help industrial companies to benefit from rapidly growing data volumes in new, wide-ranging ways. With the use of technologies such as artificial intelligence, Edge computing and additive manufacturing, we are paving the way for the future of industry. We are also rethinking process control technology and introducing the innovative web-based Simatic PCS neo process control system," Klaus Helmrich, Member of the Managing Board of Siemens AG and CEO of Digital Industries, explains at the press conference for the Hannover Messe on April 1. Under the slogan "Digital Enterprise – Thinking industry further!" Siemens demonstrates how companies of any size can use industry-specific solutions to increase their flexibility and productivity and to develop new business models. "Innovation partnerships between large companies and SMEs are just as essential as cooperation between business, science and politics," Klaus Helmrich notes.

The basis for these cutting-edge technologies is the availability of data. Through digital twins, which map and link together all the steps of industrial manufacturing in a virtual world, comprehensive data pools can be created. "The crucial factor is

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using the data from the digital twin of the product, production and performance in an innovative way that creates new potential for productivity. When automation, software, hardware and cloud platforms as well as cutting-edge technologies are integrated and combined seamlessly, the data can be converted into valuable knowledge – increasing performance and flexibility. This is the next step of digital transformation," Klaus Helmrich explains. One example is a new module with an integrated AI-capable chip for the Simatic S7-1500 controller: through the use of machine learning algorithms, robot-based handling processes can be optimized, for example. For the learning process, artificial intelligence (AI) requires large volumes of data. And this data is only available if processes have been digitalized and linked together seamlessly. With Industrial Edge, Siemens has extended its Digital Enterprise automation platforms – Simatic and Sinumerik – to include a data processing solution on the shopfloor. With its scalable concept from the shopfloor to the MindSphere open, cloud-based IoT operating system, Siemens is creating a renaissance on the shopfloor.

At the booth, Siemens uses a showcase from automotive manufacturing to demonstrate how the use of cloud and Edge-based data analysis together with other cutting-edge technologies such as additive manufacturing or autonomous manufacturing systems create new opportunities for the efficient and flexible production of electric cars and batteries. "Siemens is supporting the automotive industry with software and automation systems for the transformation to e-mobility," Klaus Helmrich explains. This helps companies to meet today's challenges such as growing demand for increasingly customized products and alternative drive concepts.

Digitalization cannot be implemented without protecting industrial plants from cyber attacks. In future, AI and Edge computing will also improve security, since data analysis can be used to detect cyber attacks far more quickly and reliably.

With Blockchain, Siemens is presenting another future technology for industrial applications: in industry there is considerable potential for improvement, for example in traceability for foodstuffs. In the food supply chain, information is documented in a digital and tamper-proof format, and stored in Blockchain on every step of the journey, including details such as the farm location, batch number, processing data,

factory information, expiration dates, storage temperatures and shipping details. Relevant information is provided to users via the MindSphere-based app.

For process automation, Siemens is breaking new ground at the Hannover Messe and introducing a new innovative process control system. With Simatic PCS neo, Siemens is presenting a brand new system software package, which offers companies in the process industry new opportunities in the age of digitalization. This includes global web-based cooperation in engineering and operations as well as unique usability with a seamless object-oriented data model and an open system architecture. In addition, the system offers the option of scalability from small process modules through to the largest process plants in the world. Simatic PCS neo uses the recently developed hardware portfolio and application architecture of the powerful, comprehensive Simatic PCS 7 V9.0 process control system. In this way, Siemens can provide its customers with investment and know-how protection combined with the advantages of the new system.

Visitors to the "Future Area" of the booth can discover where the integration of these cutting-edge technologies is leading - to a much stronger link between Operational Technology (OT) and Information Technology (IT). Through the convergence of these technology areas, increasing volumes of data from industrial development and manufacturing will be linked in future with other data from areas such as logistics or purchasing. As a result, a large amount of information will be transferred from the central level to the control level.

In order to provide cross-sector data transfer and to increase flexibility and productivity, a wide-ranging, powerful communication infrastructure is required. The new 5G communication standard creates exciting prospects here. High data rates, reliable high-performance broadband transmission and ultra-short latency periods support considerable increases in efficiency and flexibility in industrial value creation – especially for Industrie 4.0 applications. Siemens has used this new communication standard from the outset and is supporting standardization and industrial implementation through the development of an appropriate portfolio. Siemens is also running its own research projects for Industrial 5G and establishing several 5G interoperability test centers under actual OT conditions. This includes the evaluation and testing of available industrial standards such as Profinet or TSN (Time Sensitive Networking).

Siemens supports digital transformation with a range of services from consulting through to implementation. "We support our customers on the path to digitalization – from consulting on strategies for industrial digitalization through to supporting in the implementation and optimization of digital solutions," notes Klaus Helmrich. Consulting is based on a thorough evaluation of the digital readiness of the company, which is carried out by digitalization experts together with the customer. "Together we determine the existing level of digitalization at the relevant company and from there we develop a tailored digitalization strategy for the customer together with a roadmap."

This press release is available at www.siemens.com/press/PR2019040201COEN

For further information on Siemens at the Hannover Messe 2019, please see www.siemens.com/press/hm19 and www.siemens.com/hannovermesse

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Siemens Digital Industries (DI) is an innovation leader in automation and digitalization. Closely collaborating with partners and customers, DI drives the digital transformation in the process and discrete industries. With its Digital Enterprise portfolio, DI provides companies of all sizes with an end-to-end set of products, solutions and services to integrate and digitalize the entire value chain. Optimized for the specific needs of each industry, DI's unique portfolio supports customers to achieve greater productivity and flexibility. DI is constantly adding innovations to its portfolio to integrate cutting-edge future technologies. Siemens Digital Industries has its global headquarters in Nuremberg, Germany, and has around 75,000 employees internationally.

Siemens AG (Berlin and Munich) is a global technology powerhouse that has stood for engineering excellence, innovation, quality, reliability and internationality for more than 170 years. The company is active around the globe, focusing on the areas of power generation and distribution, intelligent infrastructure for buildings and distributed energy systems, and automation and digitalization in the process and manufacturing industries. Through the separately managed company Siemens Mobility, a leading supplier of smart mobility solutions for rail and road transport, Siemens is shaping the world market for passenger and freight services. Due to its majority stakes in the publicly listed companies Siemens Healthineers AG and Siemens Gamesa Renewable Energy, Siemens is also a

world-leading supplier of medical technology and digital healthcare services as well as environmentally friendly solutions for onshore and offshore wind power generation. In fiscal 2018, which ended on September 30, 2018, Siemens generated revenue of €83.0 billion and net income of €6.1 billion. At the end of September 2018, the company had around 379,000 employees worldwide. Further information is available on the Internet at www.siemens.com.