

Siemens and Merck KGaA, Darmstadt, Germany, Collaborate to Boost Machine-to-Machine Trust in Industrial Value Chains

- **Both companies kick off developments to ensure quality and trust in a machine-to-machine (M2M) connected world**
- **The aim is to provide instant accessibility to quality and safety information with a single source of truth to enable disruptive business models**
- **Anchoring physical products in the digital world using smart contracts, blockchain and industrial edge**

Merck KGaA, Darmstadt, Germany, a leading science and technology company, and Siemens, an innovation leader in automation and digitalization, Germany, plan to develop and implement solutions that offer unprecedented levels of digital trust in M2M connected industrial value chains. This would help industrial customers to comply with stricter regulations in the value chain in different countries and enable disruptive business models in a variety of industrial sectors, ranging from the food and beverage, pharmaceuticals and electronics industries to the automotive industry.

“We have been guardians of quality for centuries and now, we aim to transfer this value proposition to the digital machine-to-machine connected world,” said Laura Matz, Chief Science and Technology Officer of Merck KGaA, Darmstadt, Germany. “Our collaboration with Siemens has clear potential to disrupt quality control and assurance operations across all kinds of industries. Enabled by an unprecedented level of digital trust, certified machine-to-machine cyber-physical communication will not only boost quality, transparency and traceability of products along value chains but will also enable new business models.”

“Value chains and product lifecycles must become more transparent and sustainable. That is why together with our partner we will develop a completely new digital solution that enables "trustworthy" communication between machines, for example, for the exchange of production data and laboratory data. Our customers will be able to produce more efficiently while ensuring sustainability and quality of their products in a wide range of areas – from personalized medicine to food and beverages to high-tech electronics,” said Cedrik Neike, Managing Board Member of Siemens AG and CEO of Digital Industries.

Due to the increasing complexity of value chains, the current traceability, transparency and quality control requirements are growing exponentially. To drive forward the Industrial Internet of Things (IIoT), which is rapidly transforming value chains and manufacturing across all industries, there is a pressing need for effective and secure data and information exchange. Nevertheless, within the current IIoT context, there is a lack of M2M communication regarding the quality status of many products. Consequently, the targeted solution aims to provide a framework for an efficient M2M interaction.

The targeted solution would provide all parties involved in the value chain with an immediate single-source-of-truth access point to trusted data and enable new levels of traceability, transparency, safety, and quality of industrial products. This could eventually allow customers to generate disruptive business models such as pay-per-part or pay-per-performance, which would be driven by machines in the IIoT.

Cutting-edge technologies such as smart contracts, tokens, blockchain, and industrial edge computing can anchor physical objects to a digital identity and thus ensure transparency and authenticity of information and physical objects. This promotes originality and helps prevent the creation of counterfeit products.

Merck KGaA, Darmstadt, Germany, and Siemens are envisioning an end-to-end solution that will enable customers to rely on one immutable single source of truth between production and laboratory quality control. Within the scope of the collaboration, Siemens plans to build an object-centric IIoT data ecosystem in which objects can communicate by sharing data within a trusted environment. Both companies also plan to combine the crypto anchor technology portfolio of Merck KGaA, Darmstadt, Germany, with Siemens' trusted traceability system (an end-to-

end genealogy system for products) to make them interoperable based on blockchain technology.

The solution is planned to be scalable across the entire value chain. Stakeholders are to have access to all data across the entire lifecycle of a product – from product design to use by the end consumer. This would simplify processes and significantly increase efficiency across industries.

More information on current capabilities of Merck KGaA, Darmstadt, Germany, to anchor physical objects to a digital identity can be found [here](#).

More information on current offerings of Siemens on Trusted Traceability can be found here [here](#)

This press release and a press picture are available <https://sie.ag/2Zlaqm1>

Contact for journalists

Simon Krause

Phone: +49 (172) 8413539

E-Mail: krause.simon@siemens.com

David Petry

Phone: +49 (173) 5371050

E-Mail: david.petry@siemens.com

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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 72,000 employees internationally.

Siemens AG (Berlin and Munich) is a technology company focused on industry, infrastructure, transport, and healthcare. From more resource-efficient factories, resilient supply chains, and smarter buildings and grids, to cleaner and more comfortable transportation as well as advanced healthcare, the company creates technology with purpose adding real value for customers. By combining the real and the digital worlds, Siemens empowers its customers to transform their industries and markets, to transform the everyday for billions of people. Siemens also owns a majority stake in the publicly listed company Siemens Healthineers, a globally leading medical technology provider shaping the future of healthcare. In addition, Siemens holds a minority stake in Siemens Energy, a global leader in the transmission and generation of electrical power.

In fiscal 2020, which ended on September 30, 2020, the Siemens Group generated revenue of €55.3 billion and net income of €4.2 billion. As of September 30, 2020, the company had around 293,000 employees worldwide. Further information is available on the Internet at www.siemens.com.

About Merck KGaA, Darmstadt, Germany

Merck KGaA, Darmstadt, Germany, a leading science and technology company, operates across healthcare, life science and electronics. Around 58,000 employees work to make a positive difference to millions of people's lives every day by creating more joyful and sustainable ways to live. From advancing gene editing technologies and discovering unique ways to treat the most challenging diseases to enabling the intelligence of devices – the company is everywhere. In 2020, Merck KGaA, Darmstadt, Germany, generated sales of € 17.5 billion in 66 countries.

The company holds the global rights to the name and trademark "Merck" internationally. The only exceptions are the United States and Canada, where the business sectors of Merck KGaA, Darmstadt, Germany operate as EMD Serono in healthcare, MilliporeSigma in life science, and EMD Electronics. Since its founding in 1668, scientific exploration and responsible entrepreneurship have been key to the company's technological and scientific advances. To this day, the founding family remains the majority owner of the publicly listed company.