

News Release

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Gerresheimer and Merck KGaA, Darmstadt, Germany, Transform Primary Packaging into Digital Twins

- **Proof of Concept (PoC) successfully provides primary packaging with a unique ID to access its own trustworthy digital twin**
- **Users gain immediate access to quality and process data of products at the item level**
- **Digital authenticity and trust are ensured through patented crypto anchors and digital certificates**

Darmstadt, Germany, October 27, 2022– Merck KGaA, Darmstadt, Germany, a leading science and technology company, and [Gerresheimer](#) AG, Duesseldorf, Germany, a leading provider of healthcare solutions and drug delivery systems for pharma, biotech and cosmetics, jointly developed a digital twin solution to further ensure traceability and trust in crucial steps along the pharmaceutical supply chain. The proof of concept aims to transform the pharma supply chain by creating digital twins for primary packaging. Through a single interconnected network, participants will benefit from full traceability and digital trust, resulting in cost savings, improved quality and even new business models, thanks to process automation.

“We are convinced that our primary packaging will become the key to enable supply networks across organizations and lead to faster process operations and data-informed decision making,” said Daniel Diezi, Vice President, Digitalization & New Business Models at Gerresheimer.

“At our company, we develop innovative digital solutions to help companies exploit the exciting advantages of the Industrial Internet of Things (IIoT) and create digital twins they can really trust. We are proud to be a digital sparring partner to help



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Gerresheimer realize this by putting our patented digital technologies at their service,” said Thomas Endress, Executive Director of EMD Digital at Merck KGaA, Darmstadt, Germany.

With the jointly developed solution, Gerresheimer’s physical primary packaging is provided with a trusted “key”, enabling access to its digital twin. Primary packaging, such as syringes or vials, “travel” through the whole supply chain, from production to the point of care, connecting and collecting information that will be linked to their unique ID. They become the key to unlocking data coming from numerous digital ecosystems, enabling more efficient collaboration among various organizations in the supply network. The new solution implemented on Gerresheimer products uses blockchain-based platform and multi-patented authentication technologies developed by Merck KGaA, Darmstadt, Germany, to anchor physical objects securely in the digital world. In combination with Industry 4.0 standards, this makes it highly trustworthy and reliable. As a science and technology company that operates across different business sectors, Merck KGaA, Darmstadt, Germany, also develops forward-looking digital solutions for customers that can be applied in a wide variety of industries.

The joint PoC of Merck KGaA, Darmstadt, Germany, and Gerresheimer comprises physical syringes with a secure unique ID, a smartphone application, and access to the digital platform of Merck KGaA, Darmstadt, Germany, in order to unlock the digital twin features. The smartphone app is accessible to authorized stakeholders such as brand owners (marketing authorization holders) and quality assurance officers of the manufacturer. After authenticating the syringe and reading the unique ID, the authorized user can access features such as quality data on demand, root-cause analysis data, and customer complaint handling:

- Quality data on demand: retrieving the machine-readable certificate of analysis as well as cosmetic and dimensional inspection data
- Customer complaint handling: streamlined complaint handling from brand owner to manufacturer and dashboard-like overview
- Root cause analysis: product-related data such as specifications and aggregation across different packaging levels in combination with quality-related data make it possible to examine errors and spot potential sources for mistakes at the container level.

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In this particular case, as in pharmaceutical supply chains where many specialists contribute to overall success, Gerresheimer and Merck KGaA, Darmstadt, Germany, intend to onboard further parties to build additional seamless multiparty solutions and exploit the full potential of traceability from production to the point of care. As soon as additional parties, such as contract manufacturing organizations, logistics providers and regulatory bodies, adopt the solution, the potential for automated business logic grows for use cases such as automated machine-to-machine generation of certificates and its exchange across different parties.

More information about the digital solution by Merck KGaA, Darmstadt, Germany to build digital trust in supply chains can be found [here](#).

More information about Gerresheimer's solution for traceable primary packaging can be found [here](#).

About Gerresheimer

Gerresheimer is the global partner for pharmaceuticals, biotech, healthcare, and cosmetics with a very broad product range for pharmaceutical and cosmetic packaging solutions and drug delivery systems. The company is an innovative solution provider from concept to delivery of the end product. Gerresheimer achieves its ambitious goals through a high level of innovative strength, industrial competence and concentration on quality and customer focus. In developing innovative and sustainable solutions, Gerresheimer relies on a comprehensive international network with numerous innovation and production centers in Europe, America and Asia. Gerresheimer produces close to its customers worldwide with around 11,000 employees and generated annual revenues in 2021 of around EUR 1.5b. With its products and solutions, Gerresheimer plays an essential role in people's health and well-being.

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About Merck KGaA, Darmstadt, Germany

Merck KGaA, Darmstadt, Germany, a leading science and technology company, operates across life science, healthcare and electronics. More than 60,000 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 providing products and services that accelerate drug development and manufacturing as well as discovering unique ways to treat the most challenging diseases to enabling the intelligence of devices – the company is everywhere. In 2021, Merck KGaA, Darmstadt, Germany, generated sales of € 19.7 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 MilliporeSigma in life science, EMD Serono in healthcare and EMD Electronics in 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.