# Press release

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# Getting digital engineering right the first time

## Lenze presents new tools and services based on the digital twin at Hannover Messe

**Mechanical engineering is subject to constant time and cost constraints. Meeting deadlines, ensuring compliance with agreed-upon specifications, and making last-minute software adjustments during commissioning with the customer breathing down one's neck. When problems occur, it is often the case that multiple attempts are required before the prototype fully complies with customer requirements. But when this happens, the cost estimate goes out of the window. Digital engineering provides a way out of this dilemma. But while production is already becoming increasingly digitised, the digital transformation is still in its infancy when it comes to engineering and development. Although the digital twin has already become a reality, what is still missing is a continuous tool chain. Lenze is driving forward the adaptation and expansion of its tools and services in order to close this gap. Machine automation is a topic that the experts tackle by working closely with OEMs.**

A digitised development process makes it possible to conduct more precise tests at an earlier phase in the project, provides support for programming the application software, and paves the way towards virtual commissioning. For OEMs, this equates to huge opportunities: Shorter development cycles with lower personnel expenses and a more rapid time-to-market, because customer requirements are satisfied on the first try and the defined specifications have been fully complied with.

**From isolated applications to the tool chain — the digital twin is a good start**

The foundation for this progress is provided by the digital twin. It allows information about components, machines, and systems to be stored and passed on seamlessly and without a loss of information — across the various stages of the development process as well as ongoing operation and maintenance measures, up to the end of the life cycle. But there still exist too many isolated applications in the development process which are unable to exchange data with each other without incurring far too much effort. Without a continuous flow of information, however, the positive effects of digital engineering cannot be achieved.

Hence, it is vital to develop a continuous tool chain based on a standardised digital twin, at least within a closed manufacturer environment. Lenze has decided to pursue this path and get its customers on board early on. The company sees digital engineering as one of the most important innovation drivers for the industry which will determine the topics of the future.

**New and further developments**

The starting point for development at Lenze are the tools which users will be familiar with, such as the Lenze FAST application software toolbox. In addition, there are new applications which are developed specifically with an eye on digital engineering. The basis for this is the "InA" concept. It allows an OEM to configure and parameterise an application using mechatronic machine modules, as well as automatically generate the software. With the aid of VR or HoloLens glasses, this allows a virtual machine to be represented as an augmented reality object in 3D which shows simple workflows in the simulation. In this manner, possible errors or problems are discovered at an early project phase and can be eliminated with less effort and expense than if they were to be noticed later on, during implementation.

The FAST application software toolbox, which makes it extremely easy to develop a modular machine control, will be upgraded to become a software framework that can not only work with the digital twin, but also lay the foundation for automatic code generation. This will be supplemented by features for automatic code testing, which will further simplify processes for

the R&D department. Similar to the popular "Drive Solution Designer" tool, a new application is in the works that not only covers motion control, but also the complete automation of machines.

With the aid of additional tools, machines and/or systems can be simulated at various levels, which have different computing time and calculating capacity requirements: Ranging from the physics of the mechanics, drive technology and motion applications, to automation system processes and entire manufacturing processes — i.e. not just the basic features, but customer-specific engineering with an array of specific details. With sufficient computing power, virtual commissioning can already be done using this method.

All data required for this purpose is in the digital twin. Furthermore, it also provides valuable information for the OEM's new services and business models. With standardised data models and formats, the data of the management shell also simplifies the use of cloud applications, such as for machine learning applications and the use of big data analyses, such as those necessary in the IIoT.

**Closely aligned with the market**

Lenze is presenting at Hannover Messe in hall 14 stand H22 initial tools, prototypes, and concept studies at trade fairs in order to show its partners what R&D departments could be focusing on in the future. Simultaneously, customers are encouraged to provide feedback and formulate their requirements. This allows tools to be developed that are closely aligned with the needs of the market. Lenze is thereby positioning itself as a provider of Industry 4.0 and IIoT solutions and is assuming a leading role in the digitisation of industry.

**About Lenze**

Lenze is a leading automation company for the machine-building industry and a specialist in Motion Centric Automation. As a systems supplier with solutions competence, Lenze works for and with its customers to create high-quality mechatronic products and packages, powerful systems consisting of hardware and software for machine automation, as well as digitalisation services in areas such as big data management, cloud or mobile solutions, and software for the Internet of Things (IoT).

Lenze employs around 3,700 employees worldwide and is represented in more than 60 countries. Lenze's growth strategy will see the company continuing to invest strongly in the areas relating to Industry 4.0 in the coming years – with the aim of increasing sales revenue and profitability.

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