

Experience the production of tomorrow today: The Siemens DigiLab

- **Basis for further strengthening of Austria as an industrial location**
- **DigiLab illustrates the future of industrial production**
- **Showcases such as edge computing, artificial intelligence or digital twins of production are made tangible**

Siemens has set up the DigiLab, a Digital Experience Center, in Vienna, where all the technologies for the digital future of production will become tangible for the first time. These technologies of the future give companies the opportunity to stand out in international competition – and strengthen Austria as a business location. The Siemens DigiLab in Vienna is a platform for knowledge transfer between customers, research and industry experts from Siemens. Joint solutions are worked out at eye level, and the foundations for new services and business models are developed. With the knowledge of future technologies, such as artificial intelligence or edge computing, industrial production is being reshaped.

Siemens is sharpening its profile in these technology areas and implementing digital projects not only at customers' sites but also in-house. To demonstrate the digital transformation, the DigiLab in Siemens City will be connected to the digital image of the SIMEA electronics plant in Vienna to optimize production processes with the knowledge of data and increase efficiency.

Showcases for the future of the industry

Various showcases and solutions are explored and illustrated in the DigiLab. The entire digital image of production is shown on a demo system - starting with digital twins of the products and ending with digital twins of the entire production. The engineering and the concept of production are created and tested on the PC. With digital simulations of a production plant, more than 90% of the possible errors can already be solved in the digital world before the production plant is built in reality. This shortens commissioning times enormously and creates great flexibility when upgrading or converting an existing production facility.

An integral part of modern automation technology is energy management right down to the subsections of machines and systems. To be able to operate sustainably, the reduction of CO2 emissions through transparency about energy flows in production is a key factor. These integrated digitization functions can be demonstrated using the assembly line in the DigiLab and with real production data from the SIMEA plant.

The production of tomorrow already today

At the SIMEA plant itself, self-organized manufacturing cells - so-called cyber physical production systems (CPPS) - were transferred from basic research to real production, on a packaging line. The machines have specific skills and the product to be produced searches for its next work step independently. Each part of the plant and also the products are fully digitally represented, so it can be traced exactly which production steps are performed on which device. A peer-to-peer approach is pursued in order to be able to expand systems flexibly and to guarantee high reliability. This means that there is no master computer, but only equivalent stations, which organize themselves. Individual machines can be removed or connected at any time without configuration. Since the DigiLab is connected online to the SIMEA plant, the data from production is preprocessed on site - i.e. "on edge" - and then transmitted to the DigiLab in bundled form. There, in the digital world, the processes can be analyzed and optimizations derived.

Artificial intelligence ensures less programming effort

Artificial intelligence (AI) will make a significant contribution, particularly in industry, to reducing the conventional programming and engineering effort for automation solutions, making control logic more agile, and making production processes more flexible and precise. For this purpose, it is necessary - especially in industry due to the real-time requirements - to execute the AI "on edge", i.e. at the machine. In the DigiLab, image-controlled robot systems react much more flexibly to unforeseen situations with the help of machine learning algorithms, since they can be automated at runtime. Artificial Intelligence intervenes and modifies the workflow while the machine is running.

With DigiLab Vienna, Siemens completes its infrastructure for working on real-life application examples together with customers from the manufacturing industry (DigiLab) and from the process industry (LivingLab) on site. Siemens offers digitization at all levels, from the store floor for individual plants to edge and cloud solutions for networking plants and even entire factories. The interaction of all these technologies becomes tangible at DigiLab Vienna.

Press contact Austria:

Siemens AG Österreich

Barbara Holzbauer Tel.: +43 664 8855 3680

E-Mail: barbara.holzbauer@siemens.comFollow us on twitter: https://twitter.com/Siemens_Austria**About Siemens Austria**

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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, helping them 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 2021, which ended on September 30, 2021, the Siemens Group generated revenue of €62.3 billion and net income of €6.7 billion. As of September 30, 2021, the company had around 303,000 employees worldwide. Further information is available on the www.siemens.com.

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 76,000 employees internationally.