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Press Release

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Bilfinger uses smart software to digitize LANXESS plant documentation

- **Digitalization of piping and instrumentation diagrams**
- **PIDGraph artificial intelligence successfully trained to meet customer-specific requirements in pilot phase**
- **Bilfinger's extensive experience in process engineering ensures high level of quality**
- **Time savings of around 50% compared to manual replication**

With the help of [PIDGraph](#), Bilfinger is digitizing piping and instrumentation diagrams (P&ID) of leading specialty chemicals group [LANXESS](#). The software uses artificial intelligence (AI) to automatically transfer the P&IDs from a LANXESS process plant in Germany to a new CAE system (Computer-Aided Engineering). LANXESS intends to bundle all object-oriented data there in the future. PIDGraph migrates the plant documents from the previous system into a format that is compatible with all commercially available CAE systems.

“With PIDGraph, we enable our customer LANXESS to quickly digitize thousands of P&IDs at a guaranteed level of quality,” says Franz Braun, CEO of Bilfinger Digital Next and Bilfinger's Chief Digital Officer. “Because Bilfinger not only has the digital technology, but also the requisite expertise. As an experienced industrial services provider, we have had the opportunity to become intimately familiar with our customers' plants and processes over the course of decades.”

The challenge LANXESS is facing is the digitization of several thousand P&IDs and the transfer of these documents to Siemens COMOS into their company-specific environment. Through a successful test phase that ran until the end of November 2020, Bilfinger was able to demonstrate PIDGraph's ability to meet both the tight schedule and LANXESS's high quality standards. This is because the P&ID along with the environment in a CAE system contain customer-specific features that PIDGraph's algorithm learns to recognize with the help of artificial intelligence. In the next step, Bilfinger will assume responsibility for the digitization and transfer of several hundred plant documents into the new CAE system.

“Using PIDGraph, we are able to digitize a large volume of P&IDs quickly and efficiently,” says Harald Betteldorf, the Project Manager responsible for rolling out COMOS at LANXESS. “What



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is special about Bilfinger's offer is the quality guarantee: a trained technical draftsman with extensive experience in the process industry reviews the results of the AI. This means we can be sure that there will be no transmission errors.”

PIDGraph uses object recognition methods to convert P&IDs made up entirely of graphics into a fully intelligent format in JSON or XML. As an example, the software recognizes a valve in the P&ID no matter what application or database was used to create the P&ID. This information can then be transferred to a CAE system so that the valve is also stored there.

Another challenge in the digitalization of plant documents is data security: the documents contain highly sensitive and confidential information. Thanks to strict IT security standards, Bilfinger was able to protect this data at all times and implement the project for LANXESS completely by remote access during the Corona pandemic.

Heidelberg-based digital subsidiary [Bilfinger Digital Next](#) first introduced PIDGraph in 2018. Since its introduction, the self-learning system has undergone continuous further development and training. Six leading companies from the chemical and pharmaceutical industries are now successfully using PIDGraph. The more P&IDs the algorithm reads in, the greater its ability to recognize various plant components. PIDGraph also constantly learns from manual follow-up corrections of the files. The software digitalizes P&IDs twice as fast as manually replicating the documents digitally. In addition, the output files can be imported into all commercially available CAE systems, so there is no need to set up a separate software interface for each system.

Bilfinger is a leading international industrial services provider. The Group enhances the efficiency of assets, ensures a high level of availability and reduces maintenance costs. The portfolio covers the entire value chain from consulting, engineering, manufacturing, assembly, maintenance and plant expansion to turnarounds and also includes environmental technologies and digital applications.

The company delivers its services in two service lines: Engineering & Maintenance and Technologies. Bilfinger is primarily active in Europe, North America and the Middle East. Process industry customers come from sectors that include chemicals & petrochemicals, energy & utilities, oil & gas, pharma & biopharma, metallurgy and cement. With its ~ 30,000 employees, Bilfinger upholds the highest standards of safety and quality and generated revenue of €3.5 billion in financial year 2020.

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