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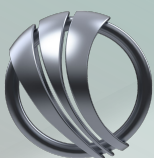
FROM RAW DATA

TO SMART MANUFACTURING

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AIMES



**ADVANCED
MANUFACTURING
CENTER**

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“The significance of big data analytics-powered Artificial Intelligence has grown in recent years and it has the ability to enhance supply chain performance.”

Manufacturing organisations are now able to easily accumulate large amounts of shopfloor and environmental data due to advances in data collection, communication technology, and use of standards. The challenge has shifted from collection of data to analysing and decision-making technologies. The actual value of this huge amount of data can only be revealed once it is processed and visualised in an appropriate way. Manufacturing Analytics (MA) can help understand and gain insights into the collected data and in turn help advance towards the vision of smart manufacturing. MA includes a large range of methods, functions, and applications to analyse data and derive information or even real knowledge. The more complex these analyses become, the more important innovative technologies like Artificial Intelligence (AI), Machine Learning or Deep Learning are.

AIMES

The significance of big data analytics-powered Artificial Intelligence has grown in recent years, and it has the ability to enhance supply chain performance. With the help of Artificial Intelligence, large amounts of data can be processed in real time, and advanced planning and scheduling can be done automatically. Ideally, the insights gained are used to derive predictions for the future. To respond to this, the companies PerfectPattern and MPDV founded AIMES. AIMES (Artificial Intelligence for Manufacturing Excellence Solutions) has the objective to develop and provide software components for Artificial Intelligence (AI) for the manufacturing sector. Furthermore, AIMES will offer services for AI-based solutions in the manufacturing environment.

“With AIMES, we are adding a pivotal component to our product portfolio. After all, AI-based solutions are an essential factor in the manufacturing IT of the future,” says Thorsten Strebel, CTO at MPDV and now also Managing Director of AIMES.

The combination of PerfectPattern’s solutions in the field of AI and MPDV’s product understanding for IT solutions for companies worldwide, creates new business and growth opportunities for both partners, for the launch of new products for manufacturing analytics, planning, scheduling, and Predictive Quality. Predictive Quality is an advanced Industrial Artificial Intelligence process that is able to reveal the hidden causes of production losses that are faced by manufacturers on a daily basis. Examples can be any loss caused by process inefficiencies, like quality, yield, waste, throughput, energy efficiency and emissions. Driven by algorithms and uniquely trained processes, automated instructions and alerts can be generated to inform about an imminent problem, which can be prevented before it happens.

“Subjects like Predictive Analytics, Artificial Intelligence and Machine Learning are cutting-edge. By working with PerfectPattern and our joint subsidiary AIMES, we are strengthening our position in these fields and opening up completely new opportunities for manufacturing companies on the way to the Smart Factory,” says Nathalie Kletti, CEO at MPDV.

About MPDV

MPDV headquartered in Mosbach, Germany, is the market leader of IT solutions for the manufacturing sector. With more than 40 years of project experience in the manufacturing environment, MPDV has extensive expertise and supports companies of all sizes on their way to the Smart Factory. MPDV Products such as the Manufacturing Execution System (MES) HYDRA, the Advanced Planning and Scheduling System

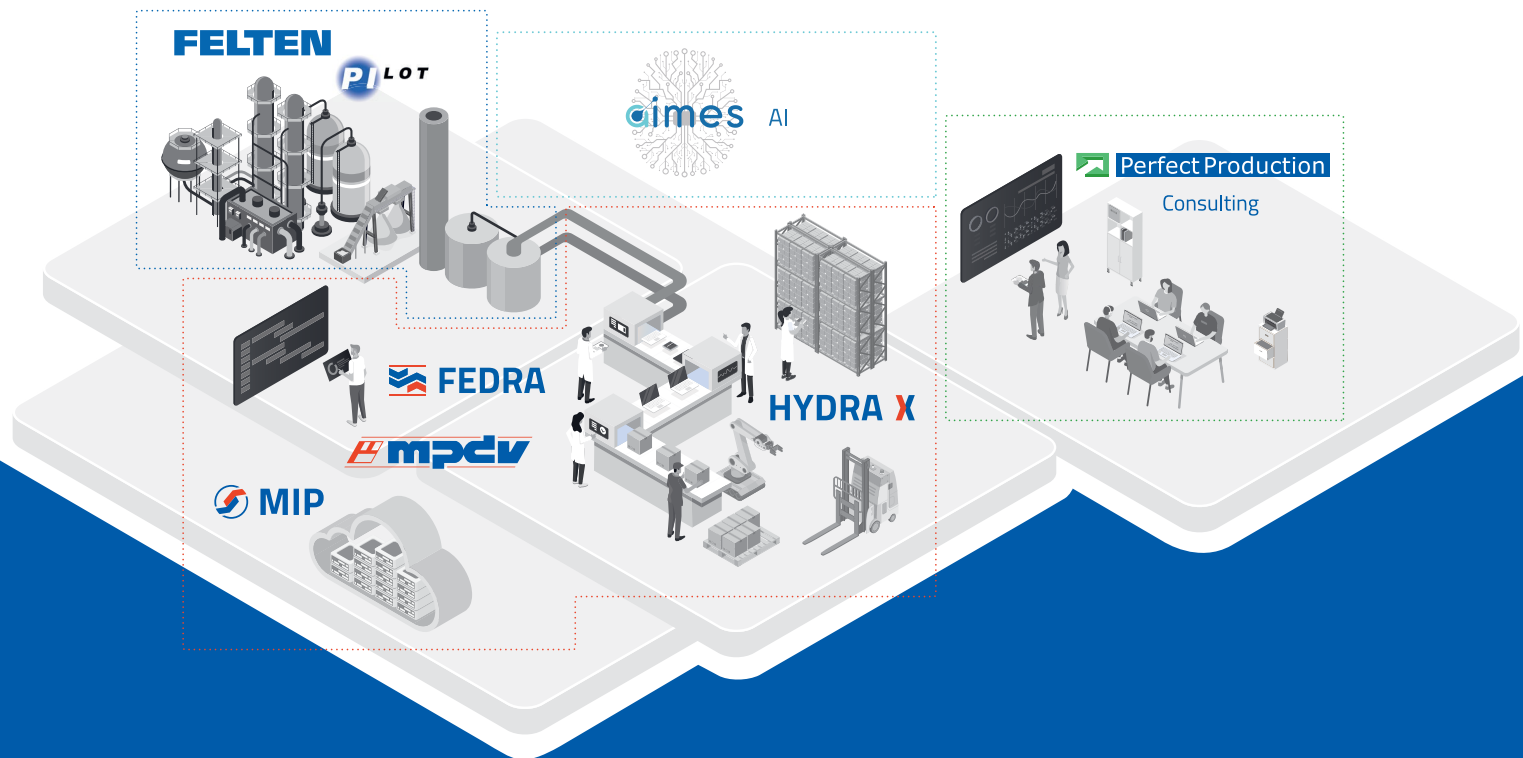
(APS) FEDRA or the Manufacturing Integration Platform (MIP) enable manufacturing companies to streamline their production processes and stay one step ahead of the competition. The systems can be deployed to record and evaluate manufacturing-related data along the entire value chain in real time. If the production process is delayed, employees can immediately detect the problem and take proactive measures. More than 900,000 people in over 1,400 manufacturing companies worldwide use MPDV’s innovative software solutions every day. These include renowned companies from all industries. MPDV currently employs 500 people at 13 locations in China, Germany, Luxembourg, Malaysia, Singapore, Switzerland, and the USA.

About PerfectPattern

PerfectPattern, the technology and software company based in Munich, was founded in 2012. The company develops software solutions that combine mathematical algorithms for process optimisations with Artificial Intelligence. This combination enables an automatic planning of any production process in real time - the Smart Factory is now reality. Three basic objectives are pursued: Flexibility, on-time delivery, and reduction of production costs.

PerfectPattern has developed with PYTHIA and CORTEX two revolutionary AI technologies. PYTHIA is a platform product for pattern recognition, time-series prediction, and anomaly detection in real-time data streams. Through the innovative combination of methods, including deep learning, stochastics, and quantum field theory, it independently finds even the most hidden patterns. CORTEX is a decision-making technology, which makes decisions based on the global objective functions by means of reinforcement learning.

PerfectPattern maintains relevant strategic partnerships with, among others Cimpres, Kodak, Sappi Europe and Voith.



MPDV

We Create Smart Factories

MPDV is the market leader for IT solutions in production. We offer products, solutions and services based on a broad expertise. MPDV supports companies from all industries and of all sizes on their way to the Smart Factory.

“We” stands for around 500 employees of MPDV. After all, it is the people who define a company. Every day, MPDV's teams develop smart manufacturing solutions. They have made MPDV what we are today with their passion for high-quality products, their knowledge and their team spirit: the market leader for IT solutions in manufacturing with more than 40 years of experience in the production environment.

“Create” stands for what MPDV is doing. We drive digitization in manufacturing and make companies competitive. We always have the finger on the pulse and know the needs of our customers very well. We operate competence centers, are in constant exchange with our users and further develop our solutions ac-

ording to requirements. To do so, we focus on the essentials and thus stand out from the crowd.

„Smart Factories“ is the vision of a self-regulating factory of the future where machines and logistics systems organize themselves as independently as possible. MPDV supports companies in turning this vision into reality. We make a key contribution with our products to ensure that factories evolve into true Smart Factories and stay at the cutting edge of technology. The focus continues to be on people as an integral part of creating value.

The MPDV Group is made up of the following companies:

- MPDV Mikrolab GmbH and MPDV subsidiaries in China, Malaysia, Singapore, Switzerland and the USA.
- AIMES GmbH
- FELTEN Group
- Perfect Production GmbH



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