

# GAME CHANGING TECHNOLOGIES

Companies have a wide range of tools and methods at their disposal to help them use data profitably: whether the aim is to build IIoT architectures, embed automation processes, or to implement fundamental Industry 4.0 concepts.

But which approaches are best suited to creating long-term value? In this newsletter, we present four exemplar technologies that we believe are absolutely critical to success:

- **S&OP/IBP Digital Cockpit: A Virtual Assistant with AI**
- **Robotic Process Automation (RPA): Digital Assistants for Production**
- **Process Mining: Bringing transparency to 'black box' processes**
- **Digital Twins: virtual mirror images of processes, plants and buildings**

Last but not least, we also take a look at the "veoPipe" research project, a fascinating glimpse into how increasingly complex AI-based systems and functions in vehicle product development can be properly tested and verified.

## S&OP/IBP DIGITAL COCKPIT: A VIRTUAL ASSISTANT WITH AI

With our S&OP (Sales and Operations Planning) /IBP (Integrated Business Planning) Digital Cockpit, companies can automatically prepare, render and visually present key business performance data. This enables employees to make better and faster decisions in capacity and operations planning, whether within their specific workspace or across multiple teams and departments.

Effectively an always-on 'virtual assistant', the Digital Cockpit's AI automatically flags up anomalies, deviations and changes in current business processes, while also creating forecasts and experience-based recommendations for future action.

## ROBOTIC PROCESS AUTOMATION (RPA): DIGITAL ASSISTANTS FOR PRODUCTION

Robotic Process Automation (RPA) solutions can, and are already, taking on many of the most repetitive work tasks in many areas of company operations. For example, they are frequently deployed as chatbots or to control straightforward processes.

But in the production environment, the adoption of digital assistants can also pave the way to much deeper, more complete digital integration and automation.

We have compiled several typical Smart Factory deployment scenarios on our website, along with example RPA tasks as well as tips for successful implementation. Take a look and see how you might be able to benefit by using digital assistants as a bridging technology, eventually leading to a comprehensive digitization of your operations processes.

## PROCESS MINING: BRINGING TRANSPARENCY TO 'BLACK BOX' PROCESSES

A primarily software-based approach, Process Mining enables companies to gain a precise and comprehensive insight into the processes not just within their own organization, but also beyond it, in their extended value networks. We show you how to make a 'digital trace' of those business-critical processes visible in the operations environment, so improving objectivity and transparency.

## DIGITAL TWINS: VIRTUAL MIRROR IMAGES OF PROCESSES, PLANTS AND BUILDINGS

The purpose of the Digital Twin approach is to identify critical process parameters and points where timely intervention and optimization can reap the most substantial productivity and quality gains.

Digital Process Twins, for instance, identify and examine the value creation stations of a company and simulate their processes, incorporating measurement data covering everything from materials purchasing and supplier qualification, to logistics and production, and even addressing customer-specific delivery issues or maintenance planning.

Complementing the Digital Process Twin is the Digital Factory Twin. This is a virtual mirror image of the factory's premises, its physical components (such as plant, machinery and transport vehicles), as well as the associated work processes.

## AI AS A KEY TECHNOLOGY FOR THE VEHICLE OF THE FUTURE

Neural networks can make predictions with high accuracy and so increasingly are being used to handle highly complex tasks, such as autonomous driving and the management of global supply chains, for instance. But, for all the clear benefits, because of its inherently tight 'black box' nature, it can be difficult to test and verify AI decision-making and its results.

That's the issue that the veoPIPE research project seeks to address. Together with partners Fraunhofer IPA and Huber Automotive AG, EFESO is researching and developing methodologies that will allow comprehensible testing and verification of AI-based systems and functions deployed in future automotive product development.

In a video now available on our website, Dr. Sebastian Grundstein, Principal of ROI-EFESO, gives an insight into the ground-breaking work being carried out in the veoPIPE project.

