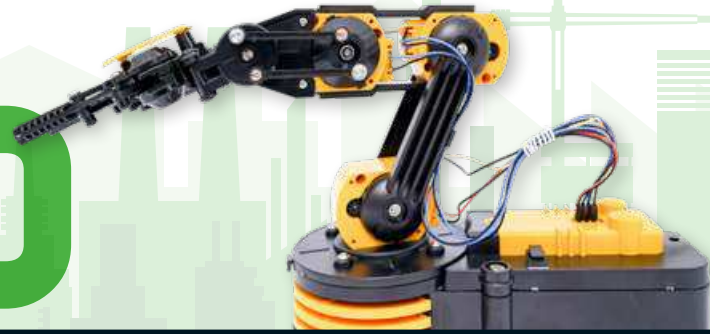


4.0



How Integrative IT Adds Value

Only a freely expendable IT architecture is able to support manufacturing companies in finding their way back to profitability. All projects should be focused on adding value to production.

By Andrea Rösinger, Forcam



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Industry 4.0 is the central term for the impending digital disruption in manufacturing and trading. This column dissects recent and upcoming developments, trends, and strategies regarding Industrial IoT (IIoT).

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Digital transformation is not an end in itself. In the Industrial IoT (IIoT) era, digital transformation in factories aims to ensure business continuity and secure competitiveness. The main goals are sustainably higher efficiency in production and planning as well as sustainable profitability. 2020 has been a year like no other with shutdowns, stay-at-home regulations, and a steep slump in sales, and manufacturing companies are feeling the pressure. Managers have to tackle two challenges: cut down costs in the short term and make sure that companies stay profitable and competitive in the long term.

Digital transformation is managers' best shot at successfully tackling these challenges. It is therefore more crucial than ever before to leverage the technological possibilities of Industrial IoT. Connecting products, machines, systems, processes, and factories is the foundation for future-proof manufacturing and the factory of the future.

The focus on digital in the 21st century has shown that how factories operate can add significant value to overall operations. The McKinsey study 'Industry 4.0 – Capturing Value at Scale in Discrete Manufacturing' has identified three key principles guiding the capture of value through Industry 4.0 at scale: focus on adding value, focus on people, establish a new integrative infrastructure.

The third principle is prerequisite for the success of the other two, as companies are only really able to focus on adding value if investments in existing IT systems remain secure while new necessary systems can still be integrated. Furthermore, only an integrative IT solution guarantees that companies are equipping their teams with state-of-the-art tools to enable them to act autonomously.

Companies can only be truly successful if they focus on people instead of tools. Employees need to be able to fulfill their value-adding tasks autonomously and responsibly. Companies therefore need to focus their Industry 4.0 transformations on capability building and pursue them as strategic organizational endeavors. A digital transformation

is about factory work 4.0, enabling new and motivating manufacturing experience.

An integrative IT architecture enables factory teams to use common apps they know and feel comfortable with in their daily routines – be it Microsoft Teams, Trello, or Twitter. This development enables them to create new real-time workflows regarding immediate troubleshooting through the apps they know how to use. This is a huge step towards zero-mistakes factories and could mean a new era for smart factory initiatives.

Integrative IT architectures are defined by three key characteristics that complement each other. The first is transparency through connectivity. In the factory of the future, transparency is prerequisite for efficient processes, necessitating comprehensive horizontal and vertical connectivity. It is crucial to connect industrial machines (no matter the manufacturer or the age) as well as devices, sensors, manual data entries, and requests from the top floor in one digital platform where all the data can be collected and sorted.

The second characteristic concerns increasing efficiency through digital twins in production. The factory of the future works with a central data platform accessible by all systems. A layer of intelligence is added to create a consistent production data model in real time based on the collected data. This digital twin can be seen as the 'single source of truth' for the whole company. All IT systems, whether shop floor or top floor (ERP), base analyses and plans on this production data model.

The third characteristic is flexibility through free expansion and collaboration. Being smart means being open. The factory of the future enables companies to create their individual IT architecture. An IIoT solution has to offer open interfaces (Open API) to give companies the freedom of expanding existing and required IT systems and let them collaborate with each other. Only technological openness gives companies the freedom to create their own individual IT architecture.