

Measurement and Control Technology in the "Networked Industry"

What does Industry 4.0 – the fourth industrial revolution – mean for manufacturers of measurement, control, and automation technology? What opportunities and risks are encountered on the road to the digital factory? The fact is that more and more plants and processes are being controlled and monitored completely automatically. The turnover in the German automation industry totaled almost 50 billion euro in 2016 and has been increasing consistently for years. Germany ranks third in the world in terms of both users and manufacturers of automation technology. In the course of Industry 4.0 this trend will accelerate even more.

Three starting points are available for manufacturers of measurement and control technology. Companies can set new standards in regards to "horizontal integration", "vertical integration", and "new business models". The main focus in "horizontal integration" is on improving communication at the fieldbus level. Sensors have to become smart and be able to do far more than just reliably acquire and forward measured values. Electronics that are integrated in the sensor not only simplify the startup and calibration on site, they also enable the acquisition and evaluation of the sensor's entire lifecycle. Acquiring and calibrating all this data in an industrial cloud can provide important findings for future sensor development in the next step. JUMO took an initial step in this direction by introducing the digiLine system for liquid analysis and with new sensors featuring an IO-Link interface.

In the field of "vertical integration" the main focus is on improving communication from the fieldbus level to the control level. "Classical" control technology is rapidly reaching its limits with the continually increasing number of sensors. This is why automation solutions that ideally support simple operation and generous scalability are in demand. The result is that users have the ability to develop tailored and future-proof applications for their problems – without needing advanced programming skills. The demand for simple, modular automation systems such as the JUMO mTRON T system has been growing across all industry borders for years.

The area of "new business models" is particularly interesting. Here, the objective is growth towards the hybrid company. This term refers to companies which give their customers comprehensive support during the entire product lifecycle. This process already begins with joint product development. But further services have to be offered, even after delivery or startup of the turnkey customer solutions. They include training and comprehensive maintenance concepts. This is why JUMO launched its own Engineering department with a comprehensive portfolio. The result is that JUMO can provide customers with even better support.

Despite all the opportunities that increasing digitalization offers for the manufacturers of measurement and control technology one must not forget the challenges that this development involves. For one thing standardization presents a problem. As long as each company concocts its own "Industry 4.0" recipe, the dream of the digital factory can never become reality.

The second critical point relates to security. After all, there is an enormous difference between controlling a private heating system in a home and managing the control system of an entire production facility with an app. This makes it all the more important to handle opportunities and risks in a responsible manner.

We are at the start of a journey to a new world. A start that is just as spectacular as the one into the railway or the computer age was. Back then as well as today the cautious and the critics seek to prevent this journey. And like then, they will fail. After all, new technologies are like rivers – they can be controlled or routed, but never stopped.



"Digitalization offers huge opportunities to medium-sized companies that can quickly and creatively respond to market requirements."

Michael Juchheim, Managing Partner, JUMO