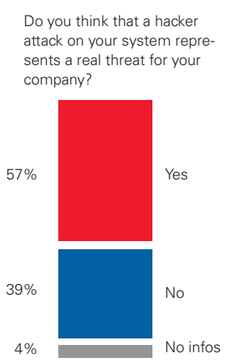
Trends in factory automation

Trends in automation technology are a key driver of growth and competitiveness. What trends ought a manufacturer of automation technology or an end customer to follow? Implementing or studying a trend technology requires an increase in investments. The ARC Advisory Group cooperates closely with companies from the production industry and especially with automation manufacturers in order to identify and analyze technical trends and assess their future importance.

Industry 4.0 everywhere

The Industry 4.0 concept, sponsored by the German government, has been a topic of discussion for a long time and was also the main topic of various trade fairs, such as Hanover Fair 2011. The objective of Industry 4.0 is the intelligent or self-organizing factory. In the USA, there is a parallel initiative under the name "Smart Manufacturing Leadership Coalition". Both concepts are based on cyber-physical systems and the Internet of Things (IoT). In order to make these concepts a reality, users and solution providers face many challenges. One of these is the collection and analysis of the big data that is sent via the networked system architecture. Furthermore, Industry 4.0 factories are no longer isolated plants but are mostly connected via the Internet so that data can be retrieved flexibly and at any time.



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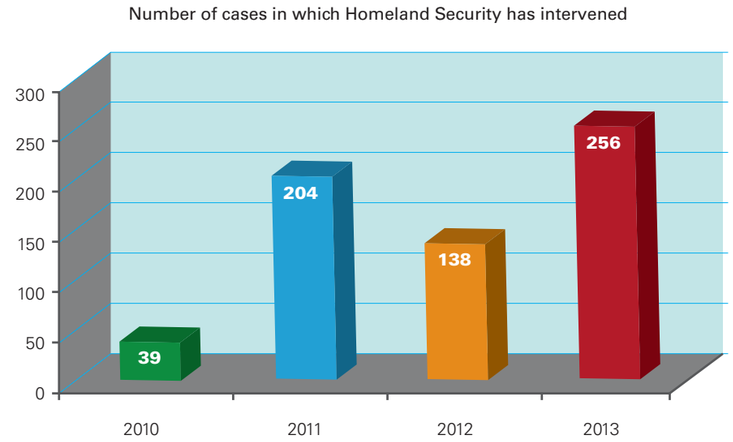
Industrial Cyber Security

Collecting and sending data harbors risks in the field of industrial cyber security (ICS). Many companies are not sufficiently aware of the threat of cyber attacks (see image, left). The number of such attacks has increased considerably in the last few years. During that time, the US Department of Homeland Security has been engaged ever more frequently after a company had reported a cyber attack (see image, on the right).

With the stronger connection between production plants, the number of cyber-physical attacks will also increase significantly. Users and manufacturers of automation technology must be aware of this and take corresponding preventive measures.



Source: US Department of Homeland Security

Engineering in the Cloud

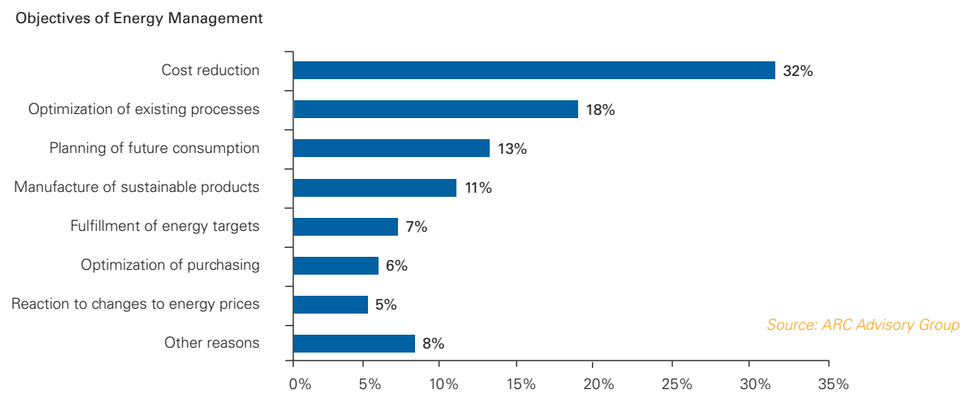
An additional trend that has not necessarily emerged as a result of Industry 4.0 but goes hand-in-hand with it is "Engineering in the Cloud". Here, a virtual engineering platform (VEP) is installed on internal or external servers.

From now on, the engineers can access the VEP from anywhere in the world, which enables a simple, team-oriented, place and time-independent engineering process. In the end, the results are forwarded to the production plant in real-time, whereupon the production plant starts the production process in self-configured fashion - Industry 4.0 at its very best.

Energy Management

Another trend of the last few years is energy management. The ARC Advisory Group estimates the savings potential of energy-intensive production plants at between 30 and 40 percent. In a survey conducted by ARC on the topic of energy management (see image below), one third of those surveyed said that they would like to reduce costs. Moreover, existing processes are to be optimized and future energy consumption planned. Measures to reduce energy consumption are not necessarily linked to high investments. Savings can be achieved through behavioral guidelines in the production plants alone.

There are a handful of other trends that impact production and development in various industries. However, ARC believes that the above trends will exert a major influence in the next few years.



Source: ARC Advisory Group