Industry 4.0 – Use potential for success today already!

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Summary

There’s no doubt about it: Industry 4.0 – frequently also referred to as the Internet of Things – will become the dominant issue in the next few years. But the issue is full of perils. On the one hand, it is obvious that one must act quickly in order not to be left behind and lose market shares. On the other hand, it is not clear exactly what has to be done. Industry, research and politics are still struggling to find a definition of the subject and the necessary standards. Many companies also fear that the implementation of Industry 4.0 concepts will be accompanied by extremely high investments. Some very pragmatic and low-cost approaches already exist, such as those established in the automotive industry, which already link many thousands of companies to each other. These can be the first step for companies in their approaching this subject and in quickly achieving initial successes in terms of increasing efficiency and cost savings.

Industry 4.0

There has recently been intensive discussion on the subject of Industry 4.0 and the Internet of Things (IoT). A study by Boston Consulting Group forecasts up to 390,000 new jobs [Boston Consulting Group 2015]. Overall, it sees German companies in a good starting position but points out that companies also have to invest heavily in IT and software skills. McKinsey comes to the conclusion that only roughly 60% of German companies are well enough equipped to deal with the pending changes [McKinsey 2015]. Under the headline “the race to catch up is beginning …”, the Handelsblatt reported on an “Industrial Data Space”, “a secure data room for all companies in all industries who comply with common standards” [Handelsblatt 2015]. All studies are united in assuming that it will take some time until standards have been developed. Depending on the study, the range varies from two to three years [Boston Consulting Group 2015] and “not before 2025” [VDE 2013]. Most recent studies are emphatic however in stating that companies must act now in order to remain competitive.

There is therefore a major discrepancy that companies have to deal with today: on the one hand, industry, research and politics are endeavouring to find a definition of Industry 4.0 and the standards that have to be developed. On the other hand, the necessity to act now instead of waiting is obvious for all to see. The following recommendations from McKinsey [McKinsey 2015] describing how companies should actively prepare themselves in five areas of activity represent a pragmatic approach to implementing Industry 4.0 instead of waiting (diagram 1):

- Make better use of data – map the entire value chain digitally
- Enhance skills – find employees with the appropriate skills and win their loyalty
- Ensure access to customers – control of the strategic interfaces between product and customer
- Speed things up – make continuous improvements possible
- Increase data security – put IT security on the board’s agenda

According to this approach, the transition to Industry 4.0 proceeds step-by-step, whereby initiatives within an industry make it easier to use the benefits of Industry 4.0. New
interfaces and data formats are defined from the outset and ensure economies of scale in communication between customers, suppliers as well as service providers (diagram 2). These companies thereby outsource the variety of processes and interfaces to SupplyOn and receive access to all the linked business partners via a single standard route as a result.

A study carried out by the IT industrial association Bitkom has calculated that 72% of those participating are of the opinion that heavy investments hinder the use of Industry 4.0 applications [Bitkom 2015]. SupplyOn’s collaborative solutions are offered solely in the form of software-as-a-service. Investment costs are limited to the technical connection to the SupplyOn platform – an expense that, due to standardisation, is many times lower than comparable installations of proprietary on-premise solutions. Smaller and medium-sized supplier companies typically access the portal via the Internet and are therefore not required to make any investments.

Enhance skills – find employees with the appropriate skills and win their loyalty

In this case, the SaaS approach also constitutes an early use of Industry 4.0 applications. Solution providers already cover important operational activities such as platform operation, 24/7 user support in several languages as well as a continued development of the solutions. Therefore, by-side and supplier companies do not require to cover these functions with additional personnel. All strategic functions associated with Industry 4.0, however, require a continuous increase in specialist staff and an expansion of the skills available in the company. It can be observed that companies that collaborate with others through SupplyOn increase the number of experts in key positions step-by-step.

Ensure access to customers – control of the strategic interfaces

Data and the information derived from this data constitute a valuable asset. It is imperative to simultaneously protect and to share this asset. Customers and suppliers in a B2B environment can make their processes lean and innovative through efficient access to relevant information of the business partner concerned and thereby obtain a competitive advantage for the entire integrated value chain. It is, however, hardly conceivable that companies will sur-

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**SupplyOn**

Since it was established in 2000, SupplyOn has been supporting web-based company-wide collaboration processes via a software-as-a-service (SaaS) solution. In the meantime, more than 12,000 companies are part of this global network connecting purchasing companies, suppliers and logistics service providers with each other. In 2013, SupplyOn, together with the BoostAeroSpace Consortium, already created an Industrial Data Space or secure data room, as the German industrial consortium now wishes to define it, for the German aerospace industry. The industry’s solution, AirSupply, already enables cross-company collaborative process development and communication along the whole value chain. Using the five areas of action identified by McKinsey, the following provides an overview of how SupplyOn has already implemented essential characteristics of the emerging Industry 4.0.

**Make better use of data – model the whole value chain digitally**

All Industry 4.0 scenarios discussed are based on the cross-company exchange of data and information along the value chain. SupplyOn has already made this exchange possible in various industries of discrete manufacturing, such as the automotive industry, the aerospace industry or mechanical and plant engineering. The European railway industry is also increasingly digitalising its value chain. Scenarios to model the product life cycle are currently being developed jointly with representatives of these industries. All the participants’ efforts are directed towards standardisation at several levels: processes as well as in-

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**Fig. 2: Industry-wide use of industry-specific processes along the entire value chain**

Technologies have to be introduced pragmatically and in a way suited to the industry’s production [Boston Consulting Group 2015].
render ownership of data critical to their competitive position. The neutral operation of a platform for the exchange of information by a reliable partner is critical to achieving acceptance of collaborative solutions. Clear rules on access and role concepts as well as secure data exchange and interfaces are basic requirements in the controlled exchange of information in Industry 4.0 (diagram 3). Depending on the company’s own preference and technical possibilities, the data can be located in internal systems or remain segregated in the data center of the collaboration platform.

**Speed things up – make continuous improvements possible**

In addition to the pace in the area of system development, the rapid and pragmatic application of Industry 4.0 solutions is crucial to the competitive advantage that German companies (still) have. Pilot simulation applications must promptly demonstrate that Industry 4.0 components introduce yield and an economically quantifiable advantage [VDI 2014]. A fundamental step in this direction is the digital modelling of the value chain. This is where the large number of users networked through the cooperation platform benefits the focus industries referred to above. Every new participant in this network profits from the fact that a large number of its business partners are already part of this network, since it can quickly connect with these companies.

**Increase data security – put IT security on the board’s agenda**

The importance of protecting competition-critical data has already been described. In order to be able to ensure adequate protection, appropriate security requirements must first be defined and then implemented and monitored. The trust of all companies participating must be obtained, otherwise any type of Industry 4.0 business model will not succeed due to a lack of participants. If a company wishes to take this on alone, the costs of doing so will rapidly become prohibitively high. But these functions, too, can be outsourced to existing operators of SaaS solutions. Their security architecture and processes, regular audits and certifications as well as secure data storage in Germany are already in place and are used by all the companies connected to the platform.
Industry 4.0 Digitalization of the Value Chain

A conference and exhibition focused on the digitalization of the producing industries.

2\textsuperscript{nd} and 3\textsuperscript{rd} November 2016

Conference and Exhibition
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SupplyOn AG posted revenue of 36 million euros with 150 employees in fiscal year 2014.

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Literature

- BoostAeroSpace, The Standard European Cloud providing secure collaboration services and business process integration throughout the extended value chain of the Aerospace and Defense industry, auf http://www.boostaerospace.com (accessed on 12.05.2015).

About SupplyOn

SupplyOn is the supply chain collaboration platform for globally active companies – from Airbus, Bosch and Continental to Yazaki and ZF. They and many other manufacturing firms use SupplyOn as a central online platform to manage business processes with their suppliers and service providers across continents in a structured, transparent and secure manner.

SupplyOn takes up where internal ERP systems leave off, and extends internal business processes seamlessly beyond company borders. The solutions are provided as Software as a Service and aligned with the process requirements of the manufacturing industry. They encompass cross-company processes in supply chain management, supplier risk and performance management, strategic and operational procurement as well as in quality and transport management.

SupplyOn has established a network of companies in the manufacturing industry – with a focus on automotive, aerospace, railway and transport, machine engineering and plant construction, as well as hightech and electronics – that connects some 12,000 companies in 70 countries. Among its customers are Airbus Group, BMW Group, BorgWarner, Bosch, Continental, DEUTZ, ITT, Kautex Textron, Liebherr, Safran, Schaeffler, Schindler, Siemens, Thales, Yazaki and ZF.

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