

How to start off with “Industry 4.0” now!

How can companies manage the complexity of the host of topics around “Industry 4.0”? And how is it possible to gain financially measurable results?



A dilemma for corporate leaders

“Industry 4.0” is currently on everyone’s lips. At this year’s “Hannover Messe” (a leading international industrial trade fair), the following topics concerning Industry 4.0 were in focus: predictive maintenance, simulation, collaborative robots, augmented reality and many more – the list of relevant technologies is long. Possible applications can be found in all areas of operations, including development, production, assembly, logistics and quality management. So far, actual applications have been mostly realized in laboratories and test environments. Their actual benefits are unknown, and technology evaluation is difficult.

Which topics are just hyped? Which technologies have real value for the operations of your company? How, where and when should you implement them to gain profits in the short and long terms? Although the complexity of the questions is high, it is not advisable to wait. Pioneers can gain significant competitive advantage in the short term by following the right approach.

The right approach is crucial

For CEOs and COOs it is crucial to design a realistic target picture for the future and, at the same time, to start the implementation of topics that fit into the target picture and already create value. The following approach is proven:

- Understand relevant technologies and their maturity levels
- Identify and describe the specific application possibilities of technologies for each operational function
- Determine the value of the technology applications and prioritize them along the transformation path; define the target picture
- Detail the transformation path and start a matching portfolio of specific implementation projects

Relevant technologies can be identified in five different dimensions. Due to the wide range of possible applications available, databases can help.

Technologies & Trends “Future Operations”

1	Data	<ul style="list-style-type: none"> • Virtual manufacturing/simulation • Augmented reality • Predictive analytics
2	Connectivity	<ul style="list-style-type: none"> • Cyber physical systems • Internet of Things • Collaborative robots
3	Equipment	<ul style="list-style-type: none"> • Additive manufacturing • Smart energy systems • Advanced machining
4	Value chains	<ul style="list-style-type: none"> • Converging ecosystems • Decentralized, mobile value-add • Crowd intelligence
5	Products & people	<ul style="list-style-type: none"> • Smart products • Virtual workplace • E-learning

From the technology understanding to the target picture

Arthur D. Little maintains a technology database with hundreds of relevant use cases. They are analyzed individually for each company to find possible application areas for each function in operations. Simultaneously, on the basis of the maturity of the technologies, the best and most realistic starting points are examined. The result is a specific representation of the intended target state and the transformation path towards it for each operations function. The result can contain simple optimization actions or a disruption of the whole function.

Each technology application is checked for its monetary and non-monetary benefits. To this end, a tailor-made allocation of current actual costs and performance indicators is executed for each function in operations. Where there are data gaps, industry models can help. With the now-known maturity of the technologies and the benefits of each action, it is possible to prioritize the actions. The target picture and the transformation path (horizon 0-10 years) result.

Well-measured investment – implementation is crucial

For a successful implementation, momentum and continuity are crucial. For a window of 0-3 years, first pilots are defined based on available technologies. They are implemented in a few months, and afterwards scaled globally across sites and businesses. Depending on the capacity of the organization, the transformation takes place through a well-measured implementation of globally scalable and standardized projects, with an amortization period of up to two years. A continuous process that pays for itself arises after limited start-up funding. In this process, the benefits of successful projects contribute to the start-up funding for the next actions. The transition to Industry 4.0 is therefore a concrete challenge for the project portfolio, and thus controllable with the known management methods.

“Industry 4.0” Technologies: Examples

	Examples	OPEX-Potential*
Planning	<ul style="list-style-type: none"> • Predictive demand planning • Flow simulation • Collaboration with suppliers 	20-40 %
Production and assembly	<ul style="list-style-type: none"> • Shorter cycle times • Shorter assembly • More flexible direct labor 	15-20 %
Plant logistics	<ul style="list-style-type: none"> • Global material transparency • Autonomous material transportation • Lower stocks • Inline process control • Faster troubleshooting • 100% documentation 	35-50 %
Quality	<ul style="list-style-type: none"> • Optimal maintenance intervals • Less indirect personnel • Quicker maintenance 	25-45 %
Maintenance	<ul style="list-style-type: none"> • Optimal maintenance intervals • Less indirect personnel • Quicker maintenance 	15-20 %

Legend * = per function potential, target picture – fully implemented status

Contact:

Bernd Schreiber
 Partner
 +49 175 5806 322
 schreiber.bernd@adlittle.com