Industrie 4.0 and Lean: a contradiction?

"Industrie 4.0" the fourth industrial revolution? It is supposed to revolutionise production following mechanisation by steam engines, mass production on a conveyor belt and the digital revolution.

What is there behind the term Industrie 4.0? Basically it is a question of production and Internet growing together. This does not mean the Internet of the 1990’s, in which functions such as engines and e-mail greatly changed sequences. Instead, an “Internet of things” is meant here. In practice, we experience this new Internet in the form of “smart” gardens. Examples are our smart phones or wearables which measure body functions and drive us on, e.g. to sport. The computers become small decentralised units which are to understand reality with the help of the Internet.

In a factory, this means that technologies also grow together here and find their way into the Internet. Examples are semi-finished parts which “know” the next work steps themselves, move to the next processing station and inform it of the necessary processing. Or the intelligent Kanban container which “observes” its contents through micro-cameras and gives a report when it is to be filled up again.

These solutions are to be lead to the production processes controlling themselves and thus control and logistic expenditure being saved. Flexibility increases, as a result of which even small quantities or even unique articles can be manufactured under the conditions of large series production.

Alongside smart aids in the factory, it is also a question of collecting the vast quantities of data which occur and purposefully evaluating them. A mastery of data mining, which Google, Facebook and co. demonstrate to us, becomes an essential success factor. On the other hand, the security questions connected with it are simultaneously a risk for a failure of the new developments and must be controlled.

Do the concepts of Industrie 4.0 now replace the successful approaches which have led to a low-waste, lean-organised factory? Lean had and has the objective of optimising value-adding activities, reducing supporting activities and avoiding waste. But these are also endeavours of the IT-driven approach Industrie 4.0.

However, the definition of value-adding will move. If, for example, value-adding activities can be carried out during transport times, transport defined as unnecessary up to now is given a new meaning. The method of making waste visible via a value flow analysis must be adapted accordingly.

GEPRO has integrated these additional requirements into the value flow analysis and can thus portray Industrie 4.0-compatible nominal processes, in this way, future-secure “smart lean concepts” can be drawn up. A necessity continues to be inclusion of human beings in the factory in the design of future processes.

Even if “Industrie 4.0” appears highly technically orientated as a result of the quite fascinating solutions currently being described, “lean” provides the basis. Here, the foundations for the reduction of waste and for the worker-orientated path to continuous improvement are laid. The Industrie 4.0 approaches then build on this with their technical solutions. Only the use of engineering alone would be a re-vamp of the “CIM” of the 1980’s, which in the end did not lead to lasting improvements. “SMART LEAN”, as we call our approach to mingling of lean and Industrie 4.0, becomes the new success concept.