

Influences of Industry 4.0 on Intralogistics

We notice that due to a combination of technological and socio-economic trends, characterising Industry 4.0, or also referred to as the 4th industrial revolution, companies are forced to revise their current business model in order to stay competitive. It's a sure fact that the impact is not to be underestimated, and the ways companies react on these new trends and how they implement new technologies accompanying industry 4.0 will become an important qualifier to compete.

Compared to the previous industrial revolutions where breakthroughs had a huge impact mainly on production areas of the industry, the impact of industry 4.0 influences the entire value creation chain. Driven by increasingly individualised customer wishes and a continuous rise in market complexity, your company's intralogistics will play a key role to survive in this digitizing and rapidly changing world. This paper will give some food for thought in how to benefit from new technologies and stay on top of the highly competitive market by making your intralogistics more efficient, agile and customer-focused.

Due to this new digital culture, with a rapidly growing e-commerce business as a leading example, customers have the ability to compare products easier, expect more transparency and are getting more impatient. They want more customized products at the lowest price and rather receive it yesterday than tomorrow at the highest quality with full transparency. As a result your company's (intra)logistics not only need to become enormously flexible and efficient, but also need to become fully transparent in order to fulfil customer-service expectations.

Industry 4.0 was born by the rising of new technologies as the Internet of Things (IoT), Big Data Analytics, Artificial Intelligence (AI), Augmented Reality (AR), 3D printing and many more. Where, for example, the IoT has the potential to connect anything to the internet and Big Data Analytics assists in interpreting large amounts of gathered data it already enables Intralogistics to benefit by real-time resource monitoring and optimizing asset utilization. Indeed, in today's intralogistics we see data mining being used for planning optimization, machine sensors to decide when maintenance is needed and robots assisting the workforce in repetitive, standardised tasks.

Although these implementations already have a substantial impact on the speed and accuracy in the field of intralogistics today, the real breakthrough gain in intralogistics is hidden in the combination of all these new technologies interacting together via complex algorithms using all gathered data with the creativeness of people's minds. Let us give an example to illustrate the possibilities and influences on intralogistics by combining new technologies.

Starting from the point that your business aims to fulfil customer-service expectations in all aspects, together with today's highly demanding customers, numerous unique sets of expectations need to be fulfilled in order to compete in the market. A company can maybe face this increasing challenge towards customer satisfaction by defining and optimizing different levels of service, a breakthrough gain in competitive advantage will be retrieved out of combining new technologies to enable your company to, not solely optimize, but also customize service levels.

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We can customize service levels through a combination of machine and human performance data in combination with customer and product data. Via Big Data Analytics, complex algorithms and the availability of large amounts of external customer data, different service levels can be defined for

different customers. Internal intralogistics analysis of data about machines' & people's individual performances can let your company optimize picking routes not only based on, for example, speed, but also enables high quality demanding orders to be picked and packed by the best performing machines/people. Where 'best performing' can be measured in real-time by using new technologies enabling to detect and adjust for, for example, an employee losing focus due to fatigue or a machine close to overheating.

To reach this level of customization, your company's intralogistics needs to be organized to become a smart system where the limits of the human brain, capacity to process data, and the limits of the artificial brain, creativity, reach a perfect balance. In the first place, for your company to provide this high-level of service and to optimize across the entire chain while measuring, controlling and real-time modifying of the chain accordingly, the design of your business model is the most important. Secondly, in conjunction with your company's business model, there are a few principal conditions to be fulfilled simultaneously:

- all people, objects & devices are to be connected
- these three should be able to communicate and interact
- these three should be able to generate, gather and analyse data

And thirdly, one needs to understand that there is no secret 'Industry 4.0 – one size fits all – recipe' that is for sale on the market which can instantly separate your company from the pack. Industry 4.0 is to be considered as an exponentially growing ingredient store from which the ingredients to be bought are to be aligned with your company's business model, in order to truly create value for your company.

If you have questions on the discussed topic or when you're struggling with e.g. finally using that condition based maintenance data of your installed base to benefit your company's service levels, please feel welcome to contact us.

About Van Looy Group

Van Looy Group is a multidisciplinary consultancy and engineering bureau for logistics, technical utilities and civil engineering. Starting with a profound logistics analysis and feasibility study, Van Looy Group supports its customers from the first conceptual design to successful go-live.

www.vanlooy.com
+32 (0)3 235 35 08
Noordersingel 19 | 2140 Antwerpen (B)

About the author



Frederic Boeckx is Project Engineer at Van Looy Group and specializes in formulating business cases for supply chain designs and intralogistics concepts.

Contact:
frederic.boeckx@vanlooy.com

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