



swisslog

INDUSTRY 4.0

IS YOUR LOGISTICS EQUIPPED FOR THE FUTURE?

OPTIMAL PERFORMANCE THANKS TO INDUSTRY 4.0

The world has changed profoundly over the last couple of years. New technologies stride ahead, changing our lifestyle and also evolving many business models. The concept of Industry 4.0 becomes more and more important in intralogistics. Swisslog's Industry 4.0 concept brings transparency and efficiency to your warehouse so you can secure tomorrow's intralogistics processes today.

Over the years, the Internet has evolved into a space of sheer limitless possibilities. Whether granola, notebooks or a new car, there are so many everyday things that we can already customize online. What is more, the Internet is gradually breathing intelligence into commonplace objects in our daily lives. For example, researchers have been working for some time on the development of a smart refrigerator that uses modern camera technology and sensors to monitor consumption habits and independently places an order as soon as an essential item runs low. In addition, cars are being tested that navigate through traffic completely autonomously while the driver, for example, leisurely peruses their e-mail.

THE INTERNET OF THINGS PUTS THE VALUE CHAIN ON TRACK

In recent years the Internet of Things has become more meaningful in industrial processes leading to the wide adoption of terminology like Industry 4.0 and Advanced Manufacturing. The underlying idea is the end-to-end digitalization of intralogistics and production. Machine control systems and sensors are connected with classic production and intralogistic applications like WES or WMS and exchange information, independent of their location, through software services. Thanks to this merge, Industry 4.0 technology optimizes the entire value chain of a company.



"Only companies that remain flexible will succeed against their competitors. Swisslog is offering innovative solutions today that are equipped to handle tomorrow's requirements in an Industry 4.0 environment."

Dr. Christian Baur,
CEO Swisslog Warehouse &
Distribution Solutions

Simply put, Industry 4.0 technologies open the door to creating a digital image of reality that can be used as a basis for optimizing physical processes. This transformation process is often referred to as a "digital shadow." These digital shadows are not only tremendously beneficial for the future of industrial production, they also bring transparency and efficiency into all processes along the value chain. In Swisslog's Industry 4.0 concept, they ensure that warehouse processes run reliably and at optimal performance even under constantly changing conditions. It is unrealistic to expect that warehouse logistics will undergo rapid, radical changes in the age of Industry 4.0. In Swisslog's understanding of Industry 4.0, this change is an ongoing process whose initial steps are to collect and analyze data and optimize individual warehouse components. The next development stage will be devoted to the entire warehouse. After that, more and more boundaries will successively be overcome, allowing optimization to propagate from production to the higher-level supply chain.

THE JOURNEY INTO THE SMART FUTURE HAS BEGUN

As a visionary and pioneer of fully integrated and digitalized logistics processes, Swisslog

is already at the starting gate, ready to offer its customers future proven solutions. To promote economically efficient facility operation, Swisslog focuses on the real-time optimization of all data gathered from the logistics systems. State-of-the-art sensors, data collection methods, and optimization algorithms based on big data analysis are the cornerstones of a new service portfolio that could monitor all Swisslog facilities throughout their entire lifecycle. Because Swisslog places maximum value on the modular structure of its logistics facilities, Industry 4.0 technologies deliver optimal performance even when the requirements in a world driven by ever higher customer demands are constantly changing.

Together with the KUKA Group, Swisslog is developing new solutions that not only help individuals perform difficult and repetitive logistics tasks but also control processes, thus contributing to sustainable business improvement.

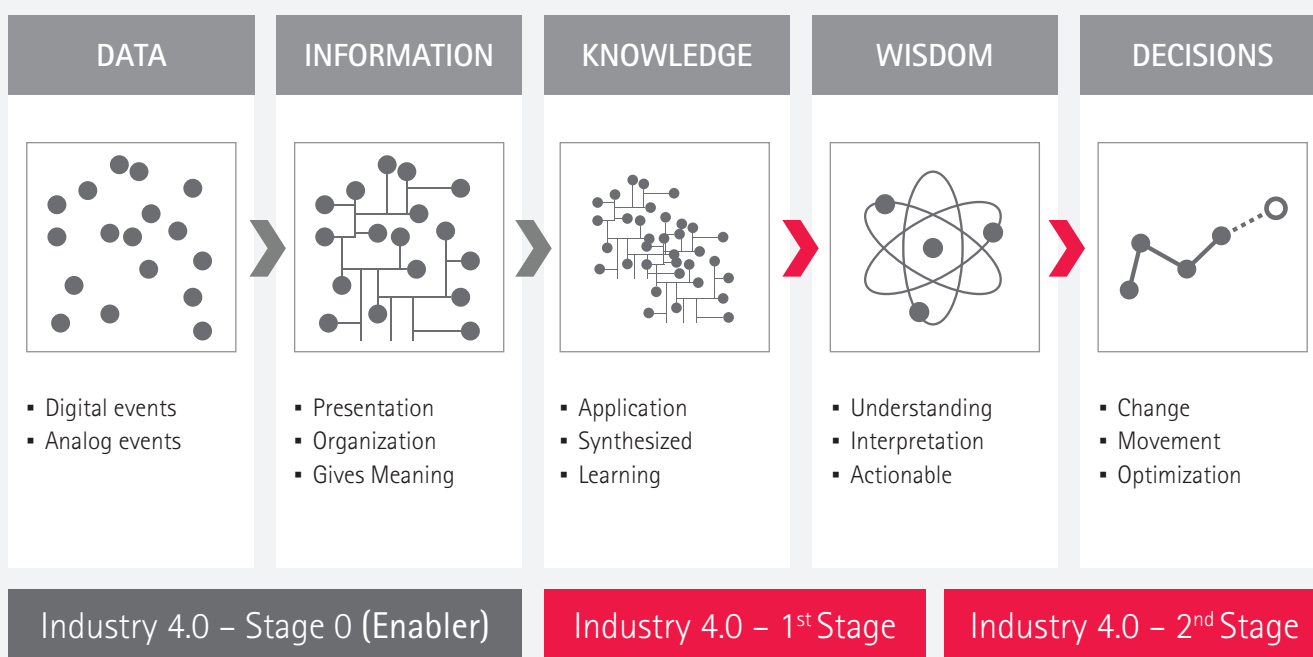
INDUSTRY 4.0 BRINGS EFFICIENCY TO LOGISTICS

Predicting today what will most likely happen tomorrow is of great interest to supply chain and management professionals. Swisslog supports this process with state-

of-the-art methods. It's Smart Logistics approach relies on the analysis of a wealth of historical and future forecast data. The underlying idea is simple: In the age of Industry 4.0, logistics systems themselves are becoming clever organizational talents. Recording all movements in the warehouse, for example, makes it easy to detect risks early on to avoid conducting facility maintenance during peak times. The list of benefits new Industry 4.0 technologies offer for warehouse operations goes on and on. Major events that attract media attention could deliver forecast data relevant for the handling of relevant merchandise. For example, if an underdog team manages to climb towards the top in a sports tournament, this approach makes it possible to respond to changes in demand early on. Many a company can even use the current weather forecast to their advantage – for instance to determine as accurately as possible tomorrow's demand for rainwear or swimsuits.

Through the interplay of latest Industry 4.0 technologies, state-of-the-art software, and many integrated warehouse operation services. Swisslog's Industry 4.0 solution portfolio is already considered a pioneer of flexible, forward-looking, and highly efficient value-added processes.

WAY TO INDUSTRY 4.0



More than anything else, securing a competitive advantage through Industry 4.0 technologies is dependent on choosing the right partner and making the right management decisions. With this in mind, Swisslog is eager to start a dialog with its customers on this very topic. Direct exchange is vital in order to find innovative solution approaches, collaborate on expanding the solution portfolio and fully understand all influencing factors and individual requirements.

ACHIEVE MAXIMUM FLEXIBILITY WITH SWISSLOG SOLUTIONS

Behind every Swisslog Industry 4.0 activity there is a promise: As a provider of leading automation solutions, Swisslog is committed to supporting its logistics facilities over their entire lifecycle with maximum flexibility and future security. This can be through software updates, modular facility expansions or with the help of technological innovations such as add-ons designed to optimize processes. Swisslog also offers alternative financial models that are future-proof and flexible. Changing customer needs are always the main drivers of innovation. This is the approach Swisslog took in developing flexible intralogistics concepts, new robot solutions and its comprehensive portfolio of facility-

related services. Rigid logistics is a thing of the past. Swisslog's Industry 4.0 concept is centered on adaptability. This is the key to making intralogistics processes more efficient, based on individual requirements.

CONDITION MONITORING FOR PREDICTIVE MAINTENANCE

Making warehouse operations more efficient using the means available today starts with collecting and analyzing information. A variety of optimization algorithms gives warehouse operators the ability to make the best decisions possible. Swisslog offers services for the full breadth of warehouse management. Services such as condition monitoring and 3D warehouse visualization provide real-time data. These services make it possible to simulate overall operations in a logistics facility in real time and create a digital shadow of the actual physical processes.

Swisslog's predictive maintenance service, the next component in its Industry 4.0 concept, additionally uses the data supplied by the facility sensors. All automation sensors communicate with and learn from one another, helping to identify service and maintenance times with pinpoint accuracy and to optimize machine operations overall.

The next stage will focus on using forecast data to supply warehouse operators with important information on the future facility situation, performance, and warehouse utilization.



"Rigid logistics is a thing of the past. We are ready for the journey into the future and will start it together with our customers."

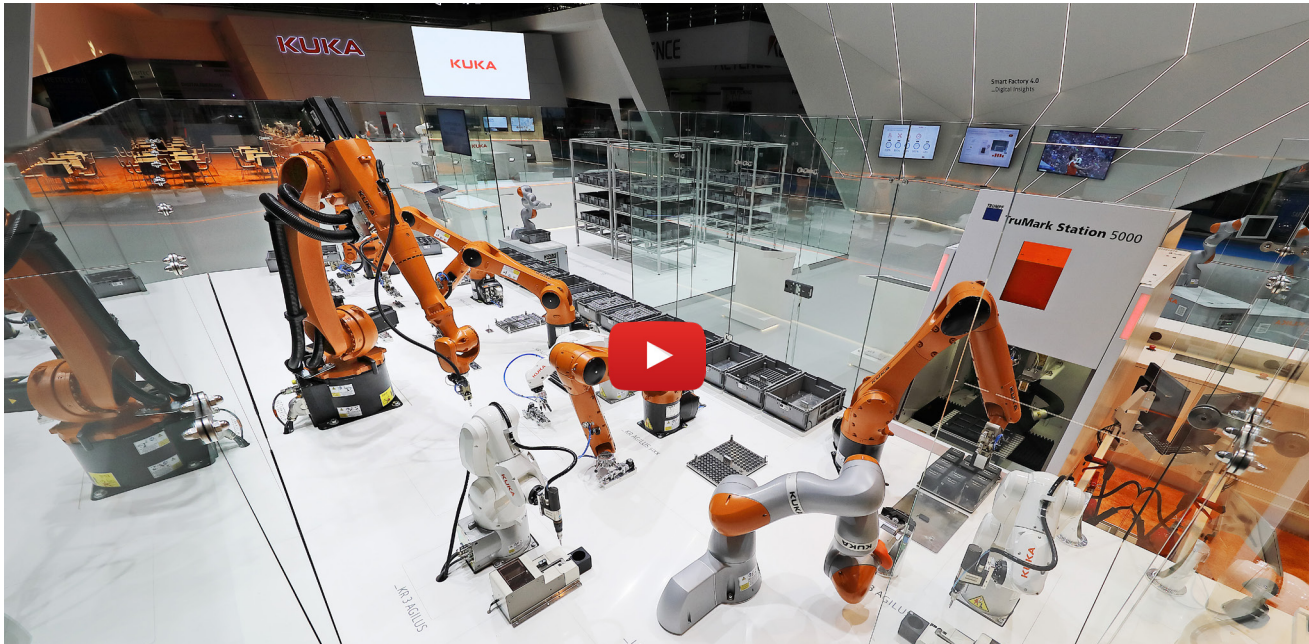
Stuart Dunn, Product Manager CS Software Swisslog Logistics Automation

SWISSLOG'S ADVANCED SMART LOGISTICS APPROACH RELIES ON THE ANALYSIS OF A WEALTH OF HISTORICAL AND FUTURE FORECAST DATA.

THE JOURNEY HAS JUST BEGUN.

THE SMART FACTORY CONCEPT

Here we demonstrate how Swisslog & KUKA can seamlessly connect your manufacturing and warehousing. This example from our recent exhibitions allows total traceability – as customers can track and trace personalized phone cases from beginning to end, in real time.



Under the motto "intelligence 4.0_beyond automation" Swisslog and KUKA presented solutions to digitalization in various industries at the recent HMI and Automatica Fairs.

ABOUT SWISSLOG

In today's competitive world, companies must be able to deliver the right orders to the right customers at the right time. Errors and delays in order fulfilment can have lasting negative impacts on a brand – while maintaining high stock levels ties up capital and affects flexibility.

As a full-service provider of automated intralogistics systems, Swisslog delivers everything companies need to optimize logistics from planning through implementation.

Our order fulfilment and inventory solutions enable companies to achieve the highest throughput at the lowest cost, efficiently handle large catalogs of SKUs, and accurately meet delivery demands and requirements.

DESIGN



Consult



Analyze



Design
Variants



Select the
Solution

DEVELOP



Engineering



Integration



Installation



Ramp Up

DELIVER



Preventive
Maintenance



24/7-Support



Optimization
& Spare Parts



Moderni-
zation &
Expansion

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