

CASE STUDY

SICK HUNGARY

Smart Production Logistics Using Open Shuttles and SAP® EWM



Installation
video

Two technology leaders: one solution

The SICK AG, headquartered in Waldkirch im Breisgau, Germany, is a world leader in intelligent sensor solutions for automating factories, logistics and processes. Since its founding in 1946, the company has become a technology leader that now employs over 10,000 people at 63 subsidiaries around the globe. During the 2024 fiscal year, the company recorded 2.1 billion euros in sales.

SICK and KNAPP enjoy a partnership that spans many years. SICK sensors are installed in many of our logistics solutions across the globe and play a part in central tasks such as identification, volume measurement, conveyor control, safety monitoring and condition monitoring, for efficient, safe and automated material flows.

This is also the case at the manufacturing site in Kunsziget, Hungary, where the company has been producing sensors since 1995, and which has become an essential plant in the SICK AG manufacturing network. The site now has around 800 employees with their core competence in operations areas.

In order to lay the groundwork for future growth at the location, SICK significantly increased the Hungarian plant's capacity by adding three new halls: one for goods-in, one for manufacturing (for a total of four manufacturing halls) and one for the small parts warehouse and picking. These additions form the infrastructure SICK can rely on to handle increasing order numbers.

This expansion includes new work stations as well as a fully automatic storage system with a fleet of Open Shuttles as well as the digitization of the internal productions logistics with an end-to-end SAP® EWM solution by KNAPP.

Sector
INDUSTRY

Location
KUNSZIGET, HUNGARY

Business area
SENSOR TECHNOLOGY

Annual turnover
2.1 BILLION (2024)

Employees
**10,000 WORLDWIDE
800 IN KUNSZIGET**

In operation since
2025

Delivery area
EUROPA

Warehousing space
**26,000 M²
(~ 280,000 SQ FT)**

Technical solution
**OPEN SHUTTLES,
AUTOMATED SMALL PARTS
WAREHOUSE WITH STACKER
CRANE,
PICK-IT-EASY WORK STATIONS,
PACK STATIONS,
FLOW RACKS,
CONVEYOR SYSTEM,
SAP® EWM BY KNAPP**

Storage locations
(in automatic storage system)
52,000

Containers
**600 X 400 MM (23.6 X 15.8 IN)
400 X 300 MM (15.8 X 11.8 IN)**



Seamless material flow with maximum flexibility

01

Seamless connection of all production halls

The clever combination of a small parts warehouse, Open Shuttles and conveyors means that all the storage and manufacturing areas are efficiently connected with each other. The mix of technologies ensures a constant end-to-end material flow, from goods-in to manufacturing to goods-out.

02

Just-in-time production logistics

SICK's logistics processes are highly dynamic. In addition to the new automated small parts warehouse, autonomous mobile robots have been implemented for production logistics. Working around the clock, the Open Shuttles are responsible for transporting goods from the small parts warehouse to the production halls.

03

Room for expansion

Since the solution had to be able to grow with future demands, system expandability was another important requirement. The system can be expanded in three ways: in terms of storage locations, performance or number of Open Shuttles. All of this is also supported by the scalable SAP® EWM solution. Furthermore, any new halls can be easily integrated into the logistics concept.

04

Solution with SICK sensors

Thanks to their long-term customer-supplier relationship, SICK sensors are frequently integrated into KNAPP technologies. Here, the entire solution (small parts warehouse, Open Shuttles, conveyor system and flow racks) was equipped with sensors, however, additional components were also installed.

Seamless material flow with maximum flexibility

05

Floorspace optimization

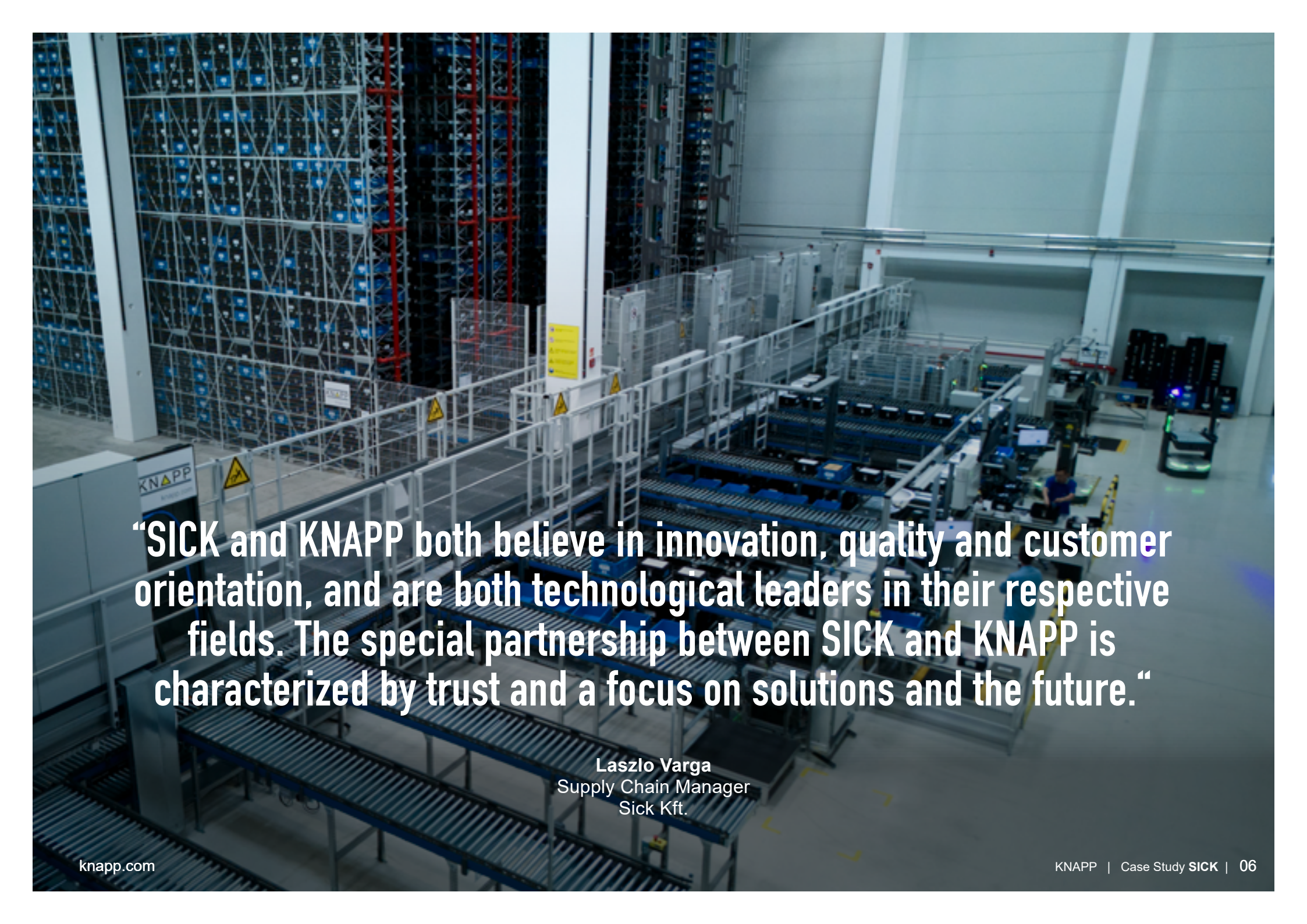
Switching to a central small parts warehouse with goods-to-person picking meant that space in the other halls used for storage and picking was freed up for other purposes. This optimized how the available floorspace was being used. These areas are now flexibly connected by the Open Shuttles – no additional construction required.

06

End-to-end SAP® system environment

SICK uses an SAP® IT strategy, where SAP® EWM by KNAPP functions as the WMS and WCS and integrates the logistical processes and technologies including the Open Shuttles in an end-to-end SAP® system environment. Middleware and additional interfaces are therefore not needed, which raises the overall process stability.

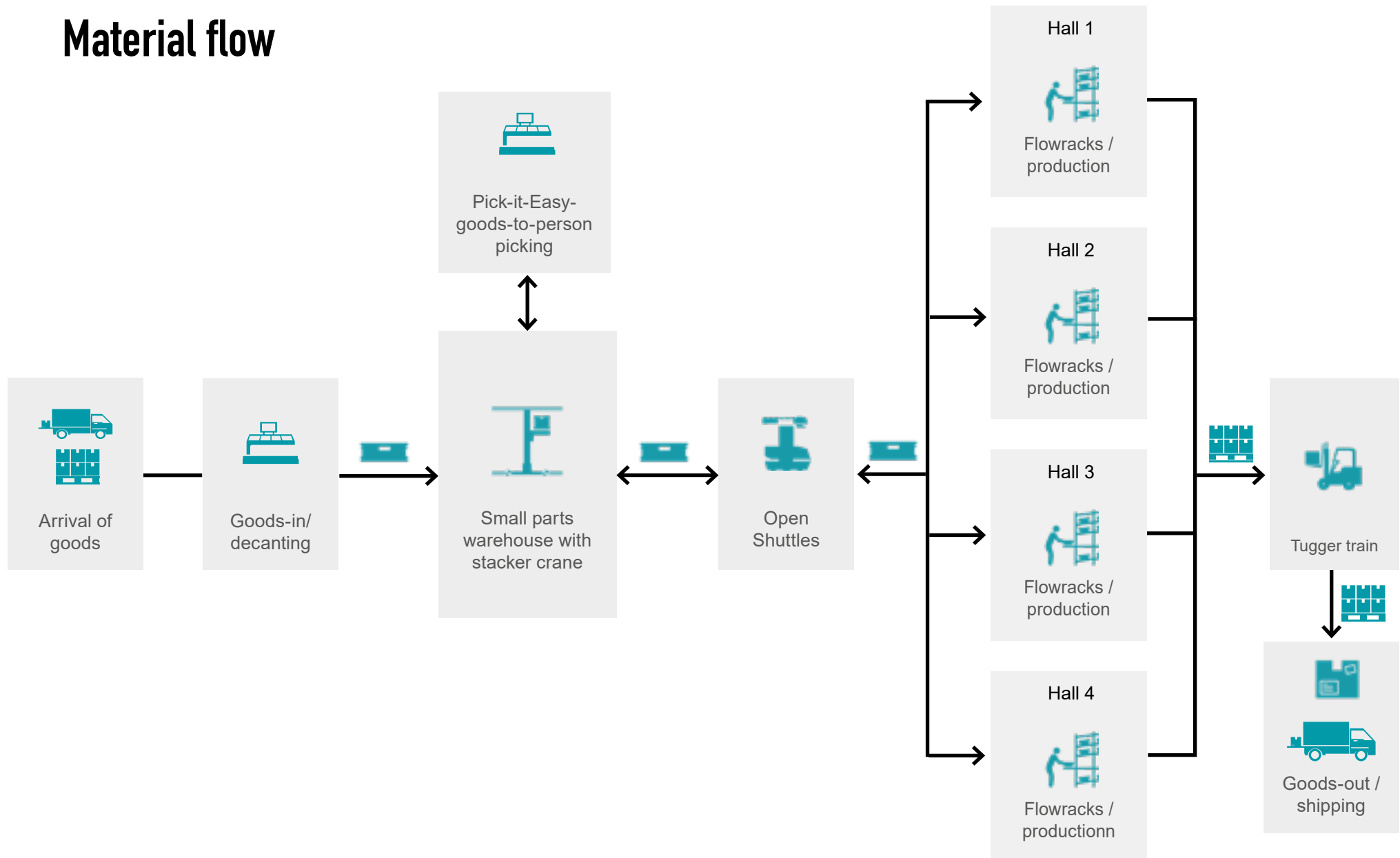




“SICK and KNAPP both believe in innovation, quality and customer orientation, and are both technological leaders in their respective fields. The special partnership between SICK and KNAPP is characterized by trust and a focus on solutions and the future.”

Laszlo Varga
Supply Chain Manager
Sick Kft.

Material flow



Central warehouse processes



Goods-in

Small parts needed for production arrive in cartons or containers on pallets. Most incoming parts are repacked into containers, registered in the system and transferred to the conveyor system by the employees at the two pack stations. Parts that are not repacked are transported away after being registered. An integrated scale checks the weight of the containers. The containers move up a spiral conveyor to the suspended conveyor, which conveys them to the small parts warehouse.



Storage

Raw materials and semi-finished goods are stored via stacker cranes in the automated small parts warehouse. The system holds a total of 52,000 storage locations spread across 4 aisles and 28 levels. Three different container types, with and without lids, are stored in the small parts warehouse. Containers sized 600 x 400 mm (23.6 x 15.7 in) are stored two-deep, those sized 400 x 300 mm (15.7 x 11.8 in) are stored four-deep, with four stacker cranes handling putaway and retrieval. Both the picking stations and the Open Shuttles connect directly to the small parts warehouse, which supplies all the production areas from a central point.



Picking

Goods needed for production are picked at two ergonomic Pick-it-Easy work stations using a goods-to-person procedure. Processes at the work stations are digitally depicted on a screen, guiding the picking of goods and the return to storage via conveyor to the small parts warehouse. Each container holds just one item type, ensuring unmixed picking. About 50 % of the items stored in the small parts warehouse are processed at the picking work stations, the rest are conveyed directly to production by the Open Shuttles.



Production logistics

27 Open Shuttles run between the small parts warehouse and production areas in the four halls. The AMRs pick up the containers from specially designed spur conveyors and transport them to the production area. There, they are transferred to flow racks from which the employees can take the containers as needed. The flow racks are also where semi-finished goods are placed, to be picked up by the Open Shuttles and returned to the small parts warehouse. On their way, the Open Shuttles must pass through rapid action doors. A control module communicates with the Open Shuttle to open and close the doors automatically.

Central warehouse processes



Goods-out

Finished goods are sorted into containers and assembled by order on pallets in the production area. Tugger trains pick up the pallets from production and transport them to goods-out, where they are wrapped in film. The goods undergo final processing in the system and are provided with shipping documents, after which they are shipped out to other SICK subsidiaries.



“The new system has the advantage of fully automated storage and retrieval processes and just-in-time supply to manufacturing, around the clock right when needed.”

Laszlo Varga
Supply Chain Manager
Sick Kft.

OPEN SHUTTLES

27

autonomous mobile robots

30

flowracks

Autonomous, just-in-time transport of goods

The autonomous mobile robots and the stacker cranes in the small parts warehouse work together harmoniously to achieve flexible and efficient production logistics covering all 4 halls at SICK. The Open Shuttles supply material to the manufacturing areas, picking up containers with components from the conveyor system and bringing these to the manufacturing areas. Flow racks serve as the transfer stations. Semi-finished goods are also picked up by the Open Shuttles and brought to the small parts warehouse. The AMRs are able to navigate safely through all four production halls, in one-way as well as two-way traffic, sharing the paths with people and tugger trains. Access between the halls is through rapid action doors, which are autonomously controlled by the Open Shuttles.

Using Open Shuttles comes with the following advantages:

- Easy integration into an existing building without making infrastructure changes
- Paths and processes flexibly adaptable
- Automatic supply to manufacturing
- Maximum safety thanks to signal lights and integrated scanners
- Flexible connection to manufacturing via flow racks

SICK SENSORS
for navigation

End-to-end SAP® system for sustainable growth

The decentralized SAP® EWM on S/4HANA, as WMS and WCS, controls all material flows and covers all the logic for the automation technologies, including:

- Optimal assignment and control of the 4-deep load handling devices for the 4-aisle small parts warehouse
- KiSoft Fleet Control System (FCS) for the Open Shuttles handles transport jobs and is integrated through the REST interfaces directly in SAP® EWM MFS

SAP® EWM with MFS therefore orchestrates all the movements in the warehouse. This also includes different types of production logistics such as planning complex routes for tugger trains to individual urgent transport orders to individual production locations. User-friendly dialogs at the goods-to-person work stations round out the SAP® EWM solution by KNAPP. They are implemented based on SAP Fiori for an optimized handling of the picking process.

The scalable SAP® EWM solution is providing a stable foundation for long term growth for SICK. Future automation expansions, such as adding more Open Shuttles to the fleet, can be implemented through SAP® EWM MFS or also through a separate KNAPP app in the SAP BTP.

SAP® EWM IN
S/4HANA AS WMS
AND WCS

KISOFT FCS DIRECTLY
INTEGRATED IN
SAP® EWM MFS

KISOFT SCADA
VISUALIZATIONS

USER-FRIENDLY
USER INTERFACES

SOFTWARE





All-round service for the highest system availability

At KNAPP, we offer a complete package of reactive and preventative services. With the SAP® EWM service, SICK benefits from a customized all-round service that offers much more than classic support.

Thanks to the 24/7 Service Desk with ITIL®-certified experts, the team on site will always receive rapid, competent support, whether dealing with operational challenges, system adjustments or strategic further developments.

What is really valuable, however, is KNAPP brings to the table not only SAP® expertise, but also comprehensive expertise in logistical processes. Working in close cooperation for upgrades, training and hardware integration ensures that the solution grows with the requirements – flexibly, reliably and geared toward the future.

The online platform e-insight provides SICK access at all times to the relevant information and service requirements of the logistics system.

KNAPP SERVICE DESK

Available Mo-Fr
from 5 a.m. to 7 p.m. for
unexpected incidents

KNAPP IT SERVICES

Monitoring and updates to
ensure a stable IT system
environment

KNAPP TECHNICAL SERVICES

Preventive maintenance to
ensure the system has a long
service life



Benjamin Koller (Lead Account Manager, SICK AG) and Laszlo Varga (Supply Chain Manager, Sick Kft.) know first-hand the advantages the partnership has for both companies and are looking forward to working together on further automation projects.

Sensors and logistics – keeping it moving

SICK and KNAPP have a long, successful history of working together. The many projects shared – including one at the Waldkirch headquarters – show that this partnership is much more than just a classic customer-supplier relationship. The technological as well as strategic partnership is driving innovation forward for both companies.

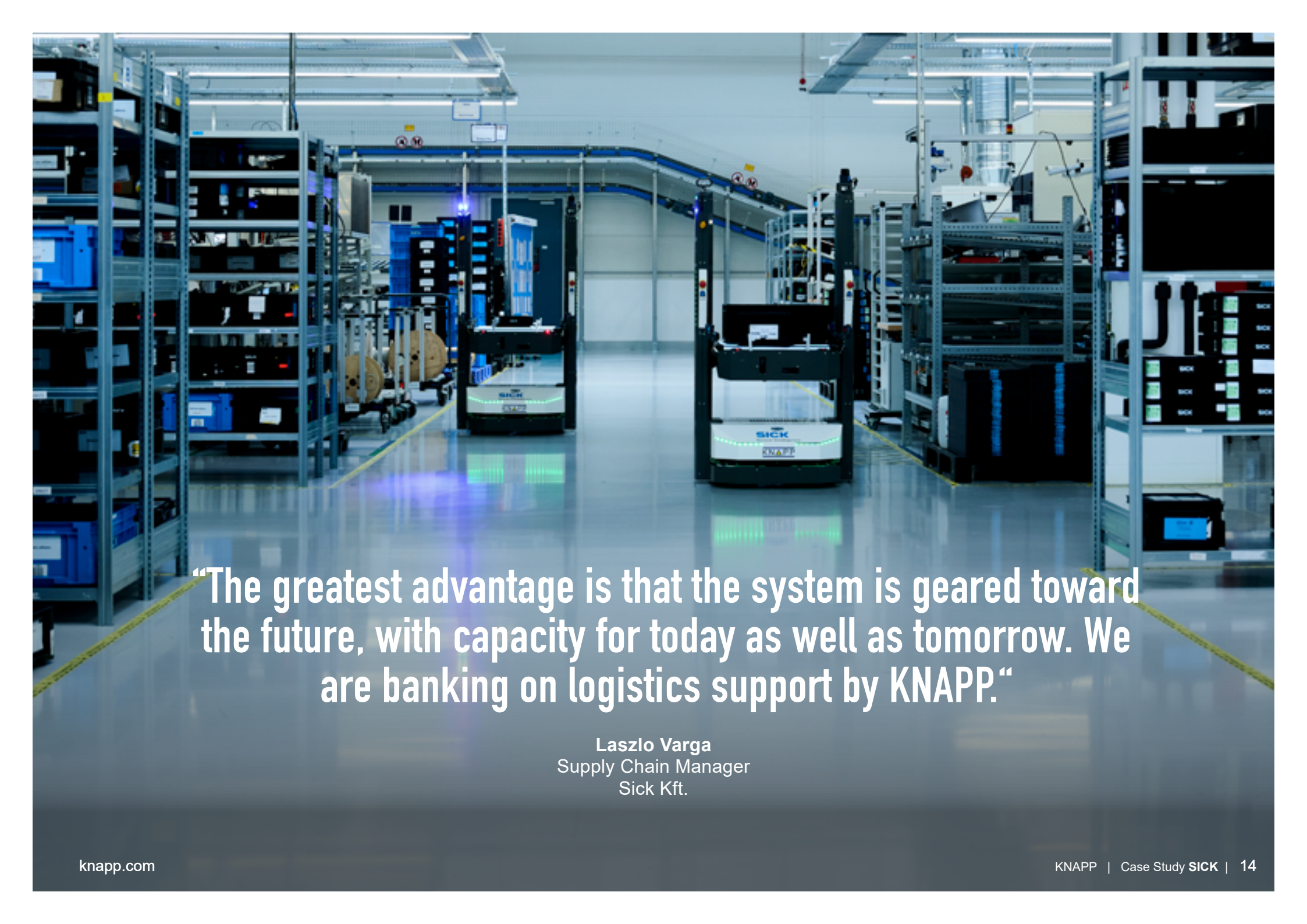
SICK sensors have long been an integral part of KNAPP's automation solutions, adding precision and performance. This makes the latest project in Kunsziget, Hungary, all the more significant: For the first time SICK sensors will be used exclusively. Integrating the Open Shuttles in an SAP® environment represents another milestone.

“We wanted more than just an automated warehouse; we wanted to be able to supply our manufacturing areas automatically and around the clock,” explains Laszlo

Varga, Supply Chain Manager at SICK Kft. The success of the project was boosted in part thanks to the close collaboration between Sales, Project Management and Engineering, but also by the opportunity to obtain the hardware and software from the same company. *“The work we do together is marked by trust, a focus on solutions and preparing for the future,”* continues Varga.

Benjamin Koller, Lead Account Manager at SICK adds: *“This solution is special because it uses the latest SICK components – in navigation, code reading and distance measurement.”*

The highlights show how technical cooperation can result in real partnership, with the shared goal of building a better future.



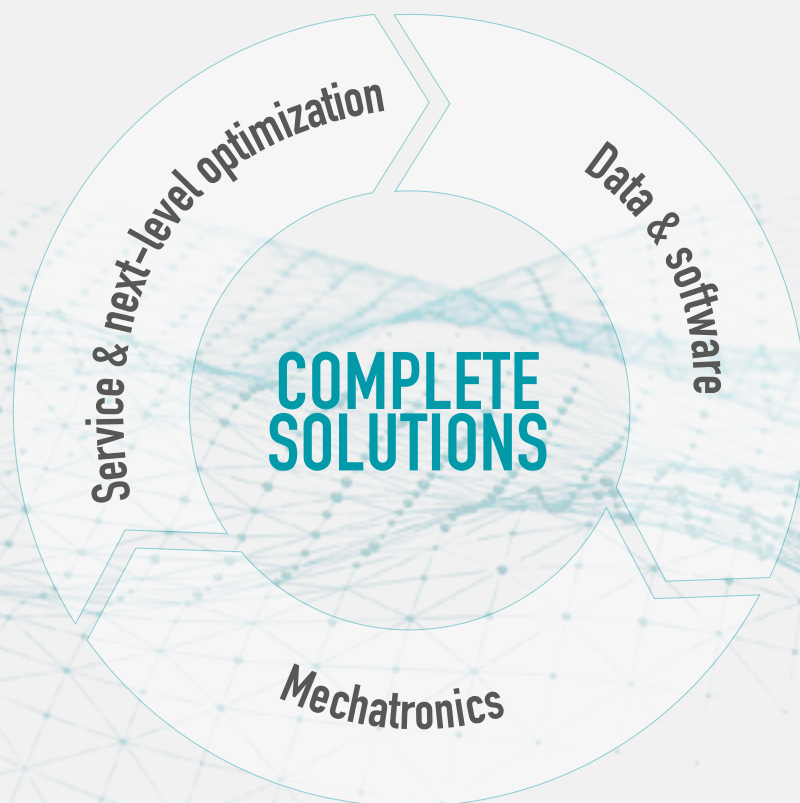
“The greatest advantage is that the system is geared toward the future, with capacity for today as well as tomorrow. We are banking on logistics support by KNAPP.”

Laszlo Varga
Supply Chain Manager
Sick Kft.



The SICK solution:
Flexible, scalable and user-friendly





VALUE CHAIN TECH PARTNER

Expand your competitive advantages

We work together with you to design and build a system tailored to suit your logistics requirements, growth targets and investment strategy.

At KNAPP, we don't deliver systems off the rack; we take the time that's needed to learn about your needs, business model and the challenges in the industry. Whether you want micro or macro, a semi-automatic system to help you get started or a fully automatic distribution center for top performance – we have just the right all-in-one solution for you.



Healthcare



Retail



Fashion



Industry



Food Retail



Wholesale

We look forward to
hearing from you:
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