KNAPP
making complexity simple

Rockin´ Robotics

making complexity simple

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Pick-it-Easy Robot

AI & robotics taking logistics
to the next level.

#integratedintelligence

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Dear ladies and gentlemen
and valued KNAPP partners,

Innovation is our tradition is the best description of our endeavors. For us, *innovation* means developing, installing and operating new, industry-suited solutions for our customers using state-of-the-art technologies. As a family-owned business, *tradition* incorporates our promise to be long-standing partners for our customers, helping to ensure their long-term success.

We are very proud that many of our customers have relied on us for decades, sometimes across multiple areas of the value chain. Together, we not only develop the latest systems, but also modernize and continuously optimize existing systems for the long term.

Besides greater digitalization, the increasing automation of processes is another important trend shaping our efforts as a value chain tech partner. This affects not only manual processes, but also software processes, such as the acquisition and intelligent processing of data and its transformation into information to provide a basis for decisions. Automation is often associated with the old cliché of a robot as a mechanical man made of metal. Today, robots are intelligent machines that come in many forms, looking more like cranes, mobile vehicles or combinations of these. Even our zippy little shuttles that whiz up and down the rack lines are a type of intelligent robot.

Robots work night shifts, pick up heavy weights, sort items intelligently, create sequences, calculate packing patterns and gently place fragile products next to one another, or – as is the case with our RUNPICK – on top of each other. All plugged into the same network, they collect the required product data without the help of humans, and learn from each other through AI.

Let’s talk about the use of these technologies both in the new solutions we tailor to suit your business and in the solutions we develop to complement your existing systems. You’ll be pleasantly surprised to find out how our KiSoft Analytics and redPILOT software can generate added value and boost your performance every single day.

I hope you enjoy this latest issue and look forward to speaking personally with you soon.

Gerald Hofer
Chief Executive Officer
KNAPP AG

Robotics

Subject

Robotics is the conceptualization, design, control, manufacturing and use of robots to perform tasks done traditionally by human beings.

Source: britannica.com/technology/robotics

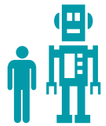
The word *robot* comes from the Czech language, and means *labor*.

Interesting representatives of the robotics family

Industrial robots

= a multipurpose robot with several axes for automated movement, which can be freely programmed with regard to sequence, paths, and angles

The smallest microelectronic robot in the world is as small as a grain of salt, and is driven by a twin-jet engine.*



Cobot

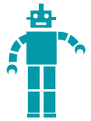
A compound of *collaboration* and *robot* = modern industrial robots working together with us humans step by step towards a common goal, or hand in hand on a common task

Cobots share a work space with people, without safety devices.

Service robots

= responsible for services and assistance of every kind

From vacuum cleaners to cardiac surgeons. Service robots can enter a wide range of professions.



Humanoid robots

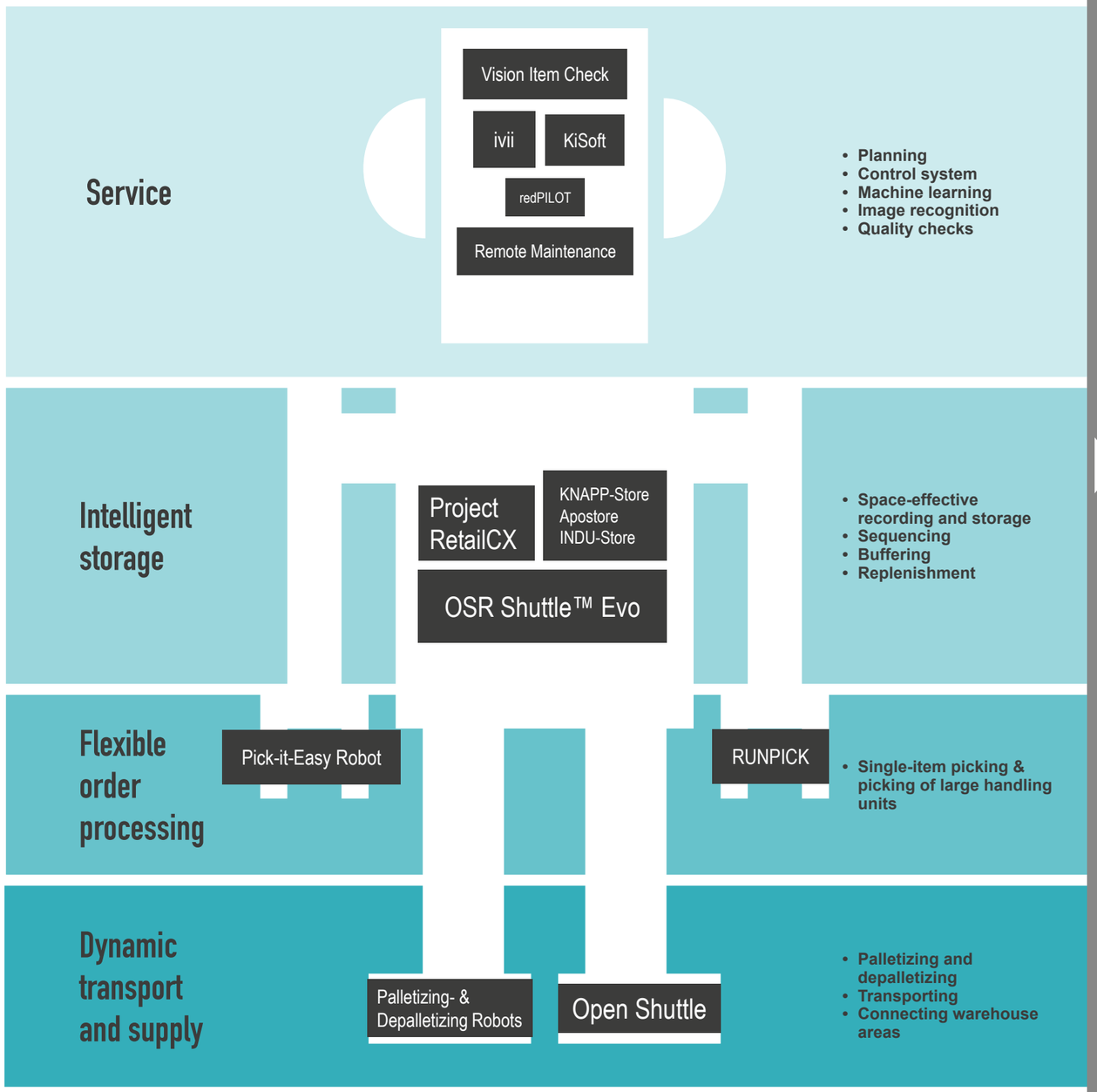
= robots that are like humans

On October 25, 2017, the humanoid robot Sophia was the first robot in the world to be granted Saudi Arabian nationality.

*Source: elektroniknet.de/international/

Robotics along the value chain

Listen to the podcast about our visions on robotic in logistics



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People and technologies form a strong team. You can see how this works in this video.

People and Technology

Perfect interplay brings added value

There's no doubt that the battle between human and machine makes a good story for science fiction films. This is just a cliché, however, that can happily stay in the fantasy world of blockbusters. In real life, people and intelligent technologies make a strong team: such as in manufacturing sequences, in distribution centers, or in service call-outs. Let's take a look at some of the top teams in logistics.

"To relieve the strain on our employees and meet our high-quality requirements, we looked for a system that is as close as you can get to the human eye – and found it in the ivii.smartdesk."

Herbert Jerich Jr.
CEO
Jerich International

Best Product LogiMAT 2021

An artificial eye for full monitoring: the ivii.smartdesk

The state-of-the-art ivii.smartdesk work station allows complete monitoring of the processes in manufacturing companies. Using a powerful image processing system and cutting-edge software, the ivii.smartdesk checks every part and every work step in real time, reliably instructing employees according to the gamification principle. *"The playful instructions motivate the employees and ensure consistently high quality and performance,"* explains Peter Stelzer, managing director of ivii, a company of the KNAPP group.

Jerich International relies on the ivii.smartdesk

Every year, the Austrian OEM components supplier Jerich International delivers 100,000 vehicle body parts to the automotive industry. To maintain their status as an A supplier, they are only allowed three errors. Thanks to the ivii.smartdesk, it was possible to reduce the complex checking process from a six-eye principle to a two-eye principle. Employees can now focus on other activities, such as operating the systems in the right way.

I At the site of our customer Pankl Racing Systems the ivii.smartdesk supports the errorfree assembly of gearboxes for motorbikes.

“The Pick-it-Easy work stations make for a significant improvement in productivity and at the same time take the load off our employees. This is a milestone.”

Stefan Gugerell
Procurator and member of the management team responsible for logistics and internal operations at Würth Handelsges.m.b.H.

1 *The all-in-one Pick-it-Easy Evo work station combines ergonomics, efficiency, performance, and quality to create an ultra-modern industrial work environment.*

2 *Customers, retailers and employees benefit from the digitalized Project RetailCX store. New services using apps or 24/7 checkout counters can be easily integrated.*

3 *Expert support from afar: Over 90 percent of KNAPP's interventions take place remotely in a fast and efficient manner.*

1 The extended arm of the central storage system: Pick-it-Easy

For us here at KNAPP, the starting point for automation is always the human being. In activities such as compiling picking orders, processing returns, or in value-added services that all require precise gripping and spatial vision, humans play to their strengths. To ensure that humans have the ideal workplace in an automated environment, we have developed a state-of-the-art interface between human and machine: our goods-to-person work station from the Pick-it-Easy series. The Pick-it-Easy work stations come in different models to accommodate a range of different requirements: Are the items small and light like medicine cartons, or heavy and bulky like a crate of mineral water? Is there a demand for e-commerce fulfillment, store delivery, or even omni-channel fulfillment? The design of the Pick-it-Easy work stations always reflects the specific requirements and processes they are supposed to meet.

Würth Austria counts on the latest work station generation

In Austria alone, around 55,000 businesses are supplied with goods by Würth, a wholesale specialist for professional fasteners and mounting materials. This is handled from the ultra-modern distribution center in Böheimkirchen. Besides robots and intelligent software, the DC is equipped with the newest generation of the Pick-it-Easy Evo work station.

Pick-it-Easy Evo is an all-in-one work station featuring a space-saving design, optimal quality checks, efficient order processing, and ideal ergonomics and usability. The goods are made available from the automatic storage system. Using LED displays and touch screens with intuitive user interfaces, the work stations offer a unique user experience for the employees and ensure high quality in order fulfillment.

2 Digital experience in brick and mortar retail: Project RetailCX

Digitalization and automation also play a significant role in our everyday lives, such as when we are shopping. In brick and mortar retail, the shopping experience more and more often starts with a mobile end device and an app – users check the availability of products or reserve them online. Intelligent technologies for driving digitalization and store automation forward also help overcome challenges such as the shortage of qualified personnel. Our solution to these challenges is called Project RetailCX.

Digitalization benefits customers, employees, and retailers

Project RetailCX is a fully automatic solution specially designed for brick and mortar retail. The solution allows a wide range of products to be displayed in the store in a secure and space-efficient way. *“With Project RetailCX, retailers can offer their customers a greater assortment and more diverse services such as a 24/7 checkout counter and Click & Reserve. This makes shopping in person much more attractive,”* explains Christian Bauer, Managing Director of KNAPP Smart Solutions, highlighting the advantages of the automatic system. Project RetailCX opens up new sales channels and opportunities for redesigning shop floors. Employees also benefit from the automated system. They can dedicate more time to customer consultation, since they no longer have to spend so much time at the checkout counter or restocking shelves. This makes achieving new highs in sales possible with the same number of employees. The state-of-the-art and digitalized store is a win-win situation for everyone involved.

3 When everything is digital – from data analytics to digital twins

Digital services have proved their worth, especially in the COVID-19 pandemic, as they have made it possible to maintain the supply chains in pharmaceutical wholesaling, for instance. Service experts use what is called *remote services* to support customers and colleagues remotely, and ensure optimal system availability and performance. Analysis tools have been particularly useful, providing structure and vision, even in unpredictable times, as Alessandro Freidl, Director of Onsite Services at KNAPP, explains: *“Thanks to our intelligent application KiSoft Analytics, we were immediately able to analyze the changed business situation of individual industries and customers and to identify appropriate recommendations for action.”*

Better results with digital twins

Goods flow and logistics system processes can be tested with the aid of simulations and emulations. The programming of the machine control system is mapped in a digital twin. *“This allows our technicians to test functions in advance, so that they are perfectly prepared when they reach the installation site. Using digital twins saves time, shortens the startup process and optimizes results”* explains Jörg Bergmann, Vice President of Operations at KNAPP.

The new normal at installation sites

In early 2020, the new fulfillment center of the UK online retailer The Very Group was supposed to begin operation. But the spread of the coronavirus meant that our startup team had to leave the United Kingdom. How could the project continue in the light of these events? To stay on schedule, our team developed – all within a week – the infrastructure and a protocol together with the customer to continue the startup of the complex system. Some technicians were remotely connected while working from home, while the British team worked on site in the warehouse. *“Our colleagues on site were our eyes and ears. We held daily meetings, carried out technical support and organized everything using MS Teams,”* remembers project manager Roman Sunitsch. Even this exceptional challenge could be successfully overcome by the passion and strong teamwork of the people and technology involved.

Automation from 0 to 100

Striking the right balance: from purely manual to fully automatic

Increased efficiency, lower costs and process optimization – the positive features of industrial automation are always accompanied by fear of losing one's job. Which means we must be discriminating in our approach: What degree of automation is sensible and justifiable for my business? We envisage different levels of expansion, from the innovative, manual warehouse, to full automation controlled by artificial intelligence.

The call for automation and what can actually be achieved

The manufacturing industry in Europe is facing increasing challenges such as cost pressure, a shortage of qualified personnel caused by an increasingly ageing population, and rapidly changing demands. This requires flexible and efficient production processes. So it is hardly surprising that manufacturing companies are increasingly looking at automation projects. But what does automation mean for individual companies and what is the impact on employees? Do the economic benefits of automation always come at the expense of jobs? Our answer is no! Automation brings many opportunities. One aim of automation is to pay more attention to employees' skills and make the most of them. Monotonous, physically strenuous, or dangerous tasks can be done by machines instead. This relieves the strain on the individual, who can then be deployed elsewhere to generate value. Automation changes our daily work, but does not replace it. Another aim of automation is to improve efficiency and lower costs. Automation can increase quality, process reliability, and production speed. This in turn helps manufacturing companies stay competitive, and also lets them work and generate value in Europe.

Automation solutions from 0 to 100

What might automation in intralogistics look like? It doesn't always have to be a fully automated high-tech warehouse. Automation can also take the form of intelligent software. Thanks to our comprehensive technology portfolio, we can offer 0–100 percent automation solutions, ranging from manual to fully automated.

A manual warehouse with intelligent software

Automation is usually associated with large warehouse solutions and a lot of technology. For smaller companies, this means too much power, and unacceptably high investment costs. But with innovative software, individual processes or existing production steps can also be designed and optimized efficiently and intelligently.

Optimal management of resources with redPILOT

Process optimization thanks to intelligent redPILOT software

redPILOT optimizes processes in the warehouse, even if no automation technology is being used. The software is modular in design and intended to ensure optimal resource management. Cost- and performance based schedules can be created for all employees at a simple click of a mouse. Planned, current, and ideal performance and costs are evaluated across all processes to identify where there is the room for improvement. As the degree of automation increases, the mechanical resources are integrated into redPILOT via an interface. The software also helps to evaluate when it makes sense to increase the degree of automation in the warehouse.

25 %

A manual warehouse with automated transport processes

Transport processes play an important role in a warehouse and in manufacturing. They safeguard the goods flow and connect the individual locations to one another. It makes sense to automate transport processes: Employees no longer have to drag heavy crates around, required parts are available just in time, and an automated guided vehicle system is easily integrated into existing structures.

Open Shuttles supply work stations flexibly and quickly

At an aircraft manufacturer in Bremen, Germany, our autonomous mobile robots, the Open Shuttles, handle the transport of calibrated tools to the manual work stations in manufacturing. Open Shuttles bring just-in-time automation to material transport, from the tool crib to the work stations, and allow employees to work more efficiently. Thanks to autonomous navigation, our Open Shuttles can also move in mixed traffic between racks, forklift trucks, and carriers.

Autonomous mobile robots bring flexibility to the warehouse

50 %

An automated small parts warehouse with ergonomic work stations

If what matters is high-performance and space-saving storage of small parts, along with supplying work stations quickly and efficiently, then it is worth investing in an automated small parts warehouse. Our technology portfolio offers a range of different options. The storage system for small parts is directly connected to the work stations for picking, kit creation, or assembling. Behind it all is an intelligent software solution. We cover the processes with our KiSoft and SAP® EWM by KNAPP product lines as needed and servicing can also be automated.

Efficient handling of various logistical demands with an OSR Shuttle™ at Terberg

Several processes at Terberg Benshop BV have been centralized in one storage system in order to handle an increasing number of picking orders. The small parts are stored in the OSR Shuttle™, and presented to the ergonomic Pick-it-Easy Flex work stations as needed. Picking is conducted here for manufacturing, the assembly line, or for the shipping of spare parts, according to the order. The KiSoft software is the brain of the solution, and maps all the processes.

Terberg centralizes several processes in one storage system

75 %

An innovative logistics solution that knows all the tricks

When the degree of automation increases, more and more areas and processes are linked together and mapped using innovative technology. At the heart of such technology is an automatic storage system equipped with ergonomic work stations that is directly connected to autonomous mobile robots or tugger trains. The software has a major role to play while assistance and image processing programs make an innovative add-on.

Innovative logistics solution at Pankl

Maximum quality and end-to-end traceability are the basic requirements for implementing Pankl's zero defect strategy. An automated small parts warehouse supplies the assembly work stations. Modern image processing technology checks every work step when assembling transmissions, and ensures error-free assembly as well as end-to-end traceability. A comprehensive KNAPP software solution tops off this mix of technologies.

Logistics solution at Pankl makes the implementation of a zero defect strategy possible

100 %

What full automation might look like in logistics

Full automation does not mean a warehouse without people. On the contrary, it means a warehouse full of technology, where human and machine work closely together. The storage system, work stations, robots, and autonomous mobile robots are directly connected to one another. Everything is coordinated and in tune, and pursues one aim: efficient, fast, and error-free working. It is also important to make the best use of the vast amounts of data that this generates. The intelligent application KiSoft Analytics, which combines the logistical processes with real-time data, derives recommendations for further action.

An automation solution geared to the future helps Würth work more efficiently and productively

Along with a fully automatic carton erector, this includes an OSR Shuttle™ Evo, which is responsible for the storage and sequenced provision of items to the Pick-it-Easy Evo work stations. Completed order containers and cartons are also buffered in the shuttle system, and transferred to the dispatch station as needed. Customer orders are subject to a quality check before shipping. An ivii.photostation checks and documents what is in the container. If the check reveals deviations, our Open Shuttles handle the transport of the container to a check station. The other approved load carriers are then automatically labeled and conveyed to a fully automatic folding and lidding machine. Also in the shipping area, two robots handle the fully automatic palletization of the load carriers. With the aid of KiSoft Analytics, data are stored long-term, trends identified, errors analyzed, and steps for optimization derived with regard to operation and maintenance.

The logistics solution at Würth Austria includes an all-round package of technology and software

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Robotics for food retail

The challenges in the food retail sector are manifold. Shopping behavior is constantly changing. Product variety is increasing, as are pack unit types and sizes. Physical strain and labor shortages also play a role. Each store has different order quantities and order frequencies. And, against a backdrop of increasing quality, efficiency, and performance requirements for delivery.

RUNPICK is the answer to the following challenges:

Shortened delivery intervals and faster order completion

Different store structures

Labor shortage and physical strain

Fully Automatic Full-Case Picking

RUNPICK takes store delivery to a whole new level.

Together with Kroger, we are expanding the Great Lakes Distribution Center in Delaware, Ohio. RUNPICK (Robotic Universal Picker), our latest fully automatic technology for the food retail sector, takes store delivery to a whole new level. The capacity of the innovative DC has more than doubled, as RUNPICK delivers significantly higher performance than the existing systems.

Kroger is modernizing and expanding its Great Lakes Distribution Center in Delaware, Ohio. With RUNPICK as part of the solution, the largest US-American food retailer is banking on our latest technology for brick and mortar food retail. From summer 2021, Kroger will be using our concept to automate order preparation for 115 stores around Ohio, Michigan, and the Ohio River. Two of our innovative technologies, the OSR Shuttle™ Evo and RUNPICK, are involved.

Tony Lucchino, Vice President of Supply Chain and Network Strategy at Kroger, explains: *"Kroger's investment in the latest technology from KNAPP allows the Great Lakes Distribution Center to fill our stores more efficiently. It enables us to quickly deliver fresh food to our customers. The extension of the system is part of the ongoing redesign of our supply chain network. The project will more than double our capacities and at the same time deliver innovation and scalability that can grow along with demand."* He adds: *"This joint project will allow us to provide a better service for our customers in the region."*

The distinguishing feature of RUNPICK is how it perfectly arranges mixed pallets and roll containers fully automatically.

Our solution at Kroger is a combination of the OSR Shuttle™ Evo, our KiSoft Pack Master software, and RUNPICK.

"Kroger's investment allows to fill our stores more efficiently. The project will more than double our capacities and at the same time deliver innovation and scalability that can grow along with demand."

Tony Lucchino
Vice President Supply Chain and Network Strategy
Kroger

Automated systems for store-friendly delivery

RUNPICK processes the entire range of groceries fully automatically. It picks and palletizes large handling units and creates mixed pallets and roll containers. The robot solution is ideal for supplying stores with different structures and is perfectly scalable: It can grow along with the requirements of the customer and as the market develops.

Higher performance thanks to multiple picks

The robot's major advantage over existing systems is its substantially increased performance: The performance of the original Kroger systems can more than double with our solution. This is because RUNPICK handles a variety of pack unit types and picks them using multiple-item picking. In a single cycle, the robot moves several items simultaneously and places them directly on the target load carrier, thereby significantly increasing performance. The key to building mixed layers on the load carrier is to combine the items in a smart way. Items stacked by RUNPICK occupy minimal space and are stable.

Smart combination of technologies for food retail

The order pallets are perfectly tailored to the stores being supplied. This is possible thanks to intelligent packing algorithms and selectable picking criteria, whereby the software and interplay of all components are key. Our OSR Shuttle™ Evo retrieves the load carriers in the correct sequence. The software to calculate the packing pattern – KiSoft Pack Master – calculates the optimal stacking pattern beforehand. This ensures that all the items are conveyed to the robot in the right sequence for stacking. Thanks to KiSoft Pack Master, RUNPICK knows the exact location for every product. This results in order pallets of optimal density, stability, and composition, perfectly tailored to the stores being supplied.

Possible uses of RUNPICK: from omnichannel fulfillment to traditional store delivery

OmniQ*: Fully automatic omnichannel fulfillment

- One solution for all sales channels
- All logistics processes are handled in a single warehouse
- Stores entire item range in one warehouse
- Picking of single items and small pack units
- Degree of automation in line with customer request
- Reduces costs and saves space
- Uses synergies

Fully automatic store delivery

- Efficient store delivery
- Automation that is effective over the long term
- Coverage of the complete item range
- Efficient storage and delivery
- Optimal support of B2B distribution
- Precise sequencing
- Future expansion and possibilities for adaptation

** OmniQ is our new omnichannel concept and combines the logistics processes for store delivery and e-commerce in one warehouse.*

Storage and picking system OSR Shuttle™ EVO

Packing pattern calculation software KiSoft Pack Master

Picking and Palletizing System RUNPICK

RUNPICK at a glance

- Higher performance thanks to multiple-item picking
- Full-case picking for store delivery
- Gentle product handling
- Improves picking quality
- Picks fast-, medium- and slow-moving items
- Weight: up to 50 kg (110 lb.)
- Rapid changeover of load carriers
- Integrated quality checks
- Automatic error handling
- Patent pending

Sustainable Investment in Robotics

Reset Instead of Disposal for Pharmacy Systems

Protecting the climate and environment is one of the major challenges of our time demanding sustainability, efficiency as well as economic sense. In pharmacies, the durable Apostore picking robots are making big contributions towards a sustainable future. The systems can be renewed rather than replaced entirely. They are also energy-efficient thanks to the use of intelligent technology.

Pharmacies can gain a competitive edge through sustainability

Sustainability has become an overriding factor in consumer purchasing behavior. Many customers today are environmentally conscientious: They want to know whether products are made of reusable materials, whether supply chains are socially fair and eco-friendly and how energy-efficient product production and use are.

Against this backdrop, brick-and-mortar pharmacies have many competitive advantages. Customers can reach local pharmacies on foot and the products supplied to the pharmacy cover shorter distances, resulting in fewer emissions compared to the delivery of products ordered online. The experts working in the local pharmacy offer personal advice, helping customers choose and correctly use OTC products and medicine. This lessens the chance of customers making the wrong choice, which in turn reduces harmful waste. The way pharmacies are organized also offers potential for saving resources and energy in a variety of ways.

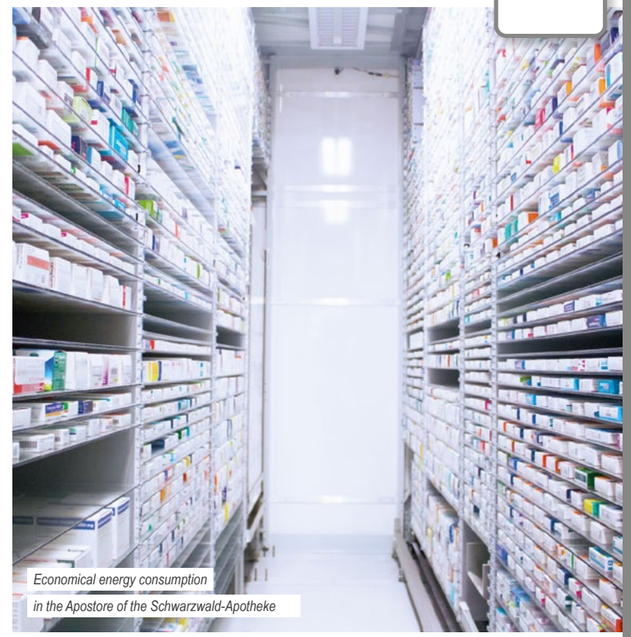
Some examples:

- Energy used for air conditioning, heating, lighting, devices and the picking system
- Using high-quality and durable equipment
- Using consumable goods and paper; cleaning
- Choosing green suppliers such as electric companies who generate electricity from renewable sources
- Green courier services
- Carbon offset payments

“We purchased the picking system ten years ago with resource efficiency and sustainability in mind. It was an investment for the future.”

Beatrix Ullrich
Pharmacy owner Schwarzwald Apotheke
Bad Säckingen

Sustainable and resource-saving:
The order picker switches to stand-by mode between orders



Economical energy consumption
in the Apostore of the Schwarzwald-Apotheke

Environmental awareness means active protection of customer health

Sustainable action is responsible action and can become an integral part of the pharmacists’ corporate profile. Responsibility is indivisible: Mindfulness towards the customer and eco-friendly behavior are two sides of the same coin. What’s more, people’s awareness of how the climate and environmental factors impact their personal health is growing. Sustainability is therefore a fundamental, trust-building opportunity, especially for the healthcare sector.

High-quality materials and intelligent systems mean decades of system operation

Beatrix Ullrich’s decision was a good one. So far, the Apostore A2000 has run reliably and with ease for more than ten years – and will do so for many years to come. She has recently taken the opportunity to overhaul the entire picking system. This alternative is significantly more sustainable than disposing of the old system and buying a new one once the life cycle typical for the sector has come to an end. Many Apostore picking systems installed as early as the beginning of the millennium are still in sound condition today. The Apostore systems are especially durable because they are made from high-quality materials and intelligent technologies that can maintain the picking systems’ condition even during intense operation. For example, the integrated 400-volt system technology reduces wear on the motors. In addition, pharmacists benefit from long-term guarantees for spare parts: Reliable supply of spare parts for the picking robots is ensured for at least 15 years.

From old to gold: complete overhaul of the Schwarzwald pharmacy’s picking robot

Pharmacies can save resources and reduce their ecological footprint in multiple ways by using the appropriate picking robots. They reconcile environmental protection with high performance and availability. The systems consume less energy and are especially robust, which reduces costs over both the medium and long term. Beatrix Ullrich, business owner of the Schwarzwald pharmacy in Bad Säckingen, Germany, has first-hand experience: When she was looking for a picking robot back in 2010, system durability was top priority.

Flexibility allows adaptation to suit specific requirements in the best possible way

Thanks to its great flexibility, the A2000 was easily adapted to suit the special requirements of the Schwarzwald pharmacy. A special solution with an integrated refrigerator was needed in a form only offered by KNAPP Smart Solutions. Overhauling the entire proven system rules out the necessity of purchasing a new system that has to be painstakingly refitted to meet the pharmacy’s requirements. Hint: KNAPP Smart Solutions also offers the *Cube* – a light and flexible picking system – which doesn’t have to be replaced even if the pharmacy relocates: The picking system is simply packed up and moved with the pharmacy.

Standby mode lowers energy consumption

The switch from full operation to standby mode or greenline mode pays off in the long run for the pharmacist. First, the picking system doesn’t idle during the night or after-hours, which wastes large amounts of energy. Second, even during the day there are lulls in operation where it pays to switch to standby mode with the greenline technology. Example calculations show that the system’s standby potential accounts for up to 60 percent and more of the operating hours each day. For pharmacies open for ten hours, Apostore only operates for three hours on average at full capacity. The remaining seven hours include one hour in readiness mode and around six hours in greenline mode. This corresponds to an average power consumption of only 0.45 kW per hour. Not only is less power consumed, but there is less wear and tear on the electrical components. Sustainability is by no means less efficient: Whenever required, the system can be booted quickly to pick the ordered medicine without delay.

The system continues to operate as usual during the overhaul

During the overhaul, there was not a single day of interruption to the system, which took place in steps over the course of four nights. This ensured that the Schwarzwald pharmacy could continue to advise and serve customers with no interruptions.

The patented greenline technology minimizes energy consumption and costs

Along with durability, efficient energy use is another aspect of Apostore sustainability. The A2000 picking system requires 1.2 kW at full capacity. When the system is ready for operation, it uses only 0.3 kW. The patented greenline technology makes it possible to drop energy consumption even more: Consumption is decreased to 0.1 kW thanks to the integrated energy manager, which switches the electrical components of the system to standby mode.

Eco-friendly all-round: The materials can be reused after reaching the end of the life cycle

Act responsibly, build a trusting relationship with the customer, operate efficiently and reduce costs: The Apostore picking systems help the local pharmacy to achieve these goals. Even if these systems reach their twilight years after many years of proven durability, they are sustainable to the very end – 98 percent of the materials are recyclable and have a new life ahead of them in different products.

Robots Rock around the Clock

The many roles of robots in logistics

In 2021, it's no big secret anymore: In the world of warehouse and automation technology, robots are the trend, and are a big help when it comes to meeting the growing demands for performance and efficiency. Projections indicate that by 2025, more than 4 million robots will be working in robotic warehouses[1]. Machine learning and intelligent sensors are the tools robots rely on to handle tasks such as single-item picking, palletizing and even transport, handling a broad range of goods. Read more about the many different applications for robots in logistical processes.

"Pick-it-Easy Robot is one of the solutions we have deployed to reduce repetitive tasks so our employees can focus on more complex parts of the distribution process."

Todd Kleinow
Vice President Strategic Distribution and Operations
McKesson

Safety and efficiency in pharmaceutical wholesaling

Pharmaceutical distribution is marked by its own set of challenges: It requires a rapid turnover of goods within a short delivery window. Pharmacies are receiving deliveries several times a day and patients must receive their home deliveries as quickly as possible. Furthermore, the quality requirements and the legal framework to protect patients, such as the GDP[2] or the DSCSA[3], are very strict. Added to this is a rather tight labor market. Todd Kleinow, Vice President of Strategic Distribution and Operations for the pharmaceutical corporation and Fortune-8 company, McKesson explains, *"Today, people are choosing brains over brawn, which means they would rather work creatively than do physical work. Night shifts are just not popular, but for us they are necessary to uphold our delivery promises. That's why we are turning more and more to robots for our processes."*

At McKesson, our intelligent picking robot, the Pick-it-Easy Robot, is the star of the show. Here, we have the best of both brains and brawn – intelligence and high performance. The robot works reliably, around the clock. Artificial intelligence provides the intelligence the robot needs to recognize different packaging and characteristics on the medicinal products. Orders are processed fully automatically, while fulfilling all the legal requirements. *"US medicine packaging is very complex, posing a great challenge to fully automatic robotic picking. Getting there was not exactly easy, but today we can pick a large part of our range with the Pick-it-Easy Robot,"* says Todd Kleinow.

[1] *Source: https://www.europeanbusinessreview.com/5-warehouse-automation-trends-for-2021-and-beyond/*
[2] *GDP: The Good Distribution Practice, or GDP, describes the standards of the European Commission for the distribution and traceability of medicinal products for human use.*
[3] *DSCSA: The Drug Supply Chain Security Act, or DSCSA. Regulation for end-to-end electronic registration of prescription drugs in the US.*

Robots in kid gloves: Gently handling from luxury items

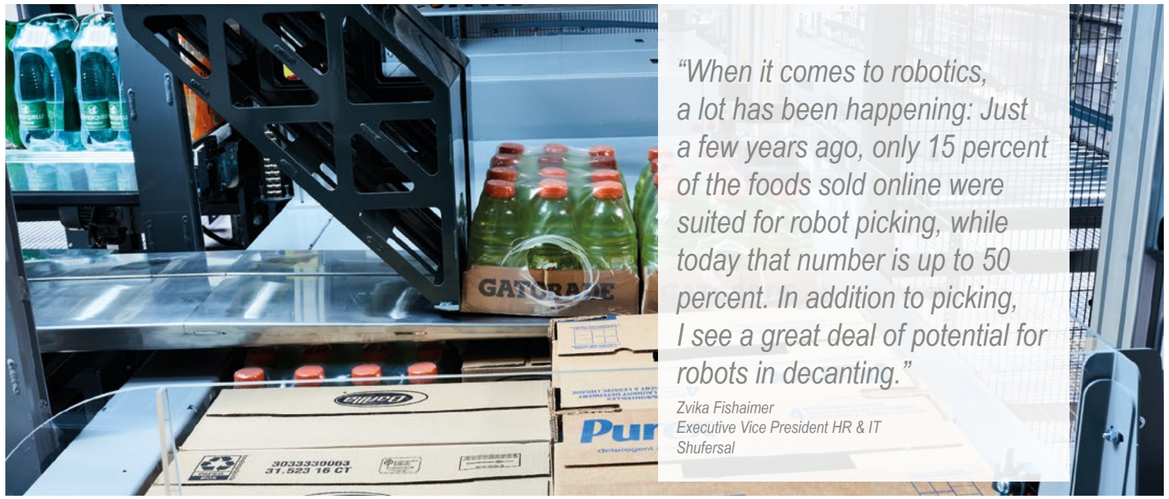
When it comes to handling expensive, high-quality lifestyle products, such as perfumes, cosmetics, designer eyewear or exclusive jewelry, dexterity is needed in each step of the process. In goods-in, high-performance robots can depalletize goods packed in cartons. The OSR Shuttle™ Evo, an automatic storage system, is the perfect place to store the high-quality items. Here, storage robots – our shuttles – handle storage and retrieval. Robotics are also quite handy in single-item storage and picking: Bulgari, an Italian High Jeweller, use Industore to safely store their designer pieces. The robots are completely integrated into the KiSoft software solution, which allows serial numbers to be tracked, for example. Keeping track of inventory and punctual shipping of the expensive goods is a done deal and a very important element in the shopping experience of Bulgari patrons.

For shipping to stores, powerful palletizing robots stack the goods stably on pallets. The key to the perfect, customized stack is the software KiSoft Pack Master. Combining clever software with brawny robots ensures the highest quality and takes the load off the employee. *“Our employees work hand in hand with the latest technology,”* enthuses Olivier Sorbe, Logistics Manager for Europe, the Middle East and Africa (EMEA), Parfums Christian Dior. The company has several robots working in the goods-in and shipping areas.

In vogue: Automatic insertion of fashion items into pockets

Handling fashion and textiles is quite challenging for robots. Why is this? The items are often soft, floppy and wrapped in film. This makes it hard for the robot to determine the perfect grip point to reliably grip the items. Pick-it-Easy Robot masters these challenges with its powerful camera system and AI-based object recognition. Along with picking, the Pick-it-Easy Robot is now able to automatically insert fashion items into pockets. The robot transfers the articles one by one to a chute from which they slide into the pocket. The barcode of the item is read during this process with no loss in performance and allocated to the pocket: Every item in the system can therefore be found and retrieved. This automation solution is suited for handling returns but is also great for loading pockets with super-fast moving or discounted items. Efficiency therefore increases and employees experience less strain, especially during peak periods such as Black Friday.

GXO Logistics, one of the largest logistics service providers in the world, relies on our intelligent Pick-it-Easy Robot and fully automatic pocket loading. Since July this year, the latest generation of the robot station has been up and running at the GXO fulfillment enter.



“When it comes to robotics, a lot has been happening: Just a few years ago, only 15 percent of the foods sold online were suited for robot picking, while today that number is up to 50 percent. In addition to picking, I see a great deal of potential for robots in decanting.”

Zvika Fishaimer
Executive Vice President HR & IT
Shufersal

From click to pick: Robots in online food retail

Handling products gently plays an important role in online retail. Whether it’s a package of potato chips or a beverage bottle – a broad range of goods must be rapidly processed in the best quality. In online food retail, a short window of delivery is vital for optimum product quality and customer satisfaction. Even though online food retail has been continually growing in recent years, it was the COVID-19 pandemic that led an even greater number of consumers to adopt this way of shopping. Intelligent robots like the Pick-it-Easy Robot are a great help when it comes to processing the growing number of online orders in the best quality.

Food retailer Shufersal relies on a particularly high level of automation in their new distribution center, with Pick-it-Easy Robots as part of their plans for the future. Executive Vice President Zvika Fishaimer explains why the company is relying on robotics as part of their automation strategy: *“There was no other way to reach our goals: We want to provide our customers with high quality and a wide selection and make 1–5 percent profit.”*

How it works Pick-it-Easy Robot in food retail

Robots take on full case picking in food retail

For the supply to supermarkets, mixed pallets are built from large handling units at the food distribution centers. Here, full case picking is a particular challenge and moving large handling units by hand onto the pallet is heavy work. The large handling units are mixed and must nevertheless be stacked in a stable manner – heavy work that requires good spatial thinking skills. It’s a strenuous task, but to lighten the load for warehouse employees, as well as to increase efficiency and quality, we developed RUNPICK – the Robotic Universal Picker – specially for the food retail sector. RUNPICK processes the entire assortment of groceries fully automatically, picking and palletizing large handling units and building either mixed pallets or roll containers for brick and mortar retail. Here, its brains meet brawn, where the RUNPICK robot is backed up by the intelligent KiSoft Pack Master software which effortlessly calculates the ideal packing arrangement.

In summer 2021, the first RUNPICK in the US will be put into operation at the food retailer Kroger. Along with the usual supply to stores, RUNPICK is also quite handy in omnichannel applications in food retail.

full case picking with RUNPICK

An intelligent swarm instead of static conveyors: AMRs at work in production

In production, optimizing costs and the use of space is a given high priority. Customization is also a major trend, whether it’s about a car, a transmission or a printed circuit board. These are just some of the reasons why more and more manufacturing businesses are moving towards production islands in manufacturing layouts: With such a layout, production step can be individually and efficiently designed. But how are the islands connected and supplied with materials just in time without a static conveyor system? The answer is simple: Autonomous mobile robots, in short AMRs, which we call the Open Shuttles. The Open Shuttles find their way on their own through the production areas and handle diverse transport jobs. They do not rely on lines or landmarks, instead, they navigate freely across open surfaces. They can be put to work flexibly and are easy to integrate into the existing material flow. Thanks to their sophisticated sensor elements, the Open Shuttles can also make their runs where traffic is mixed: People and objects are safely avoided. The Open Shuttles also have a series of features and add-ons, such as an integrated lifter or special devices to hold things securely.

In Switzerland, the Digmesa company is using the Open Shuttle technology to provide reliable supply to their injection molding machines as well as to optimize production efficiency: The parts that are needed are automatically retrieved from a flow rack.

More about our Open Shuttles

“The flexibility that we gain by using this system is incredibly valuable. We didn’t have to install anything for the Open Shuttle in production. All it needs is the general travel paths and nothing else.”

Dominik Huber
CEO
Digmesa Polyform AG

Intelligent Robot Control

with SAP® EWM by KNAPP

Robots can't exist without software. To enable these two components to interact successfully in logistics, it’s not enough to merely integrate the robotic assistants into the warehouse management system. On the contrary, it’s crucial to consider the role of the robot throughout the goods flow, to make full use of its advantages for logistics.

From correct integration…

“It has always proved worthwhile in projects with our SAP® EWM by KNAPP software solution to integrate robots with a view to maintaining the goods flow. This means not just looking at the directly upstream and downstream processes, but also using an intelligent software control system to achieve continuous stability and workflow optimization,” explains Thomas Furthmayr, Managing Director of KNAPP IT Solutions.

The first thing to do is integrate the robot itself. Whether this should be a direct or indirect connection in SAP® EWM by KNAPP is defined during the specification phase. The decision depends on which area of the warehouse the robot is working in, and which of the sub-components there have the data sovereignty to control it with orders. A direct connection to SAP® EWM is usually organized by the SAP® EWM material flow control system (MFS) module.

More about SAP® EWM by KNAPP

…to a fully automatic control system.

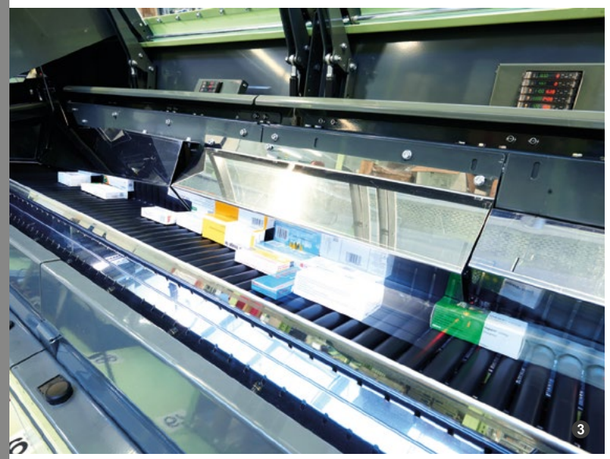
Once the robot is embedded in SAP® EWM by KNAPP, their communication with one another must be established in a way that they are able to cope with every eventuality. The focus is on faultless error handling, because errors present a considerable risk to all subsequent processes. To eliminate this risk, SAP® EWM by KNAPP has stored a variety of conceivable error scenarios and appropriate responses. Although the system logs an error message, the aim is for possible errors or malfunctions to be remedied fully automatically – without human intervention.

If, for example, a palletizing robot cannot complete a picking order according to the predefined packing arrangement because a container is missing, it reports this to SAP® EWM. The warehouse management system automatically routes the incomplete pallet to a manual pack table, where the pallet is completed and then returned to the goods flow. SAP® EWM by KNAPP also provides information about the connection status to the robot, and its past, current, and future order history. These integration processes and solution designs with SAP® EWM by KNAPP ensure an intelligent robot control system, which in turn contributes to maximum automation of the warehouse processes, and consistent maintenance of the overall process.

CONTENTS

Herba Banks on Innovative Technologies

Pharmacies have always been needed, especially in difficult times. This also applies to pharmaceutical wholesalers, with Herba Chemosan Apotheker-AG being a prime example. Herba is the largest pharmaceutical wholesaler in Austria. The company specializes in providing full service to pharmacies and offers not only medicine, cosmetics and dietary supplements, but also the items a pharmacy needs for its daily operation. In 2018, Herba started a comprehensive expansion and restructuring project affecting all its locations. With the goal of increasing efficiency, they invested in a number of new technologies: a KNAPP-Store for returns processing, an Itemizer for automatic final checks and an innovative replenishment concept whereby the right item is retrieved from the shuttle system just in time for replenishing the high-speed A-frame picking system. The new solutions were integrated into SAP® EWM.



Integration in SAP® EWM

One particular challenge was expanding the existing system during on-going operation without affecting daily business. The existing software solution had to stay in place initially while the new components were integrated into the overall SAP® EWM system, which still had to allow communication with the existing software landscape. The integration of the new solutions took place directly in the SAP® EWM using the SAP® material flow computer. The integrated processes were ideally plugged into the existing software landscape while simultaneously using the newest SAP® technologies.

❶ Just-in-time goods replenishment from the OSR Shuttle™

A new concept is being applied for replenishing the central belt system. Refill items are conveyed from the OSR Shuttle™ directly to the A-frame channel in the right sequence. This saves space and time as no racks are needed between the A-frame lines and the walking distances are shorter for refilling personnel. Using speech control, the refilling process is carried out rapidly, easily and without errors.

❷ KNAPP-Store for automatic returns management

Returns used to be processed manually but are now stored in and punctually retrieved from a KNAPP-Store. A pick and place robot takes the items from the container and places them on the KNAPP-Store's storage conveyor. The system records item lot, serial number and date mark and stores the items automatically. Once this data has been recorded, the items are immediately available again for picking. This process helps Herba increase storage capacity and comply with the legal obligations including item tracking and security for these kinds of items. Besides providing these advantages, the KNAPP-Store increases storage density and allows fully automatic returns processing.

❸ A class of its own: the Itemizer for 100 percent checks

With the Itemizer, the final check process for the picked orders can be carried out fully automatically with no manual handling whatsoever: The containers are automatically emptied and the items automatically separated on a conveyor belt, so that they can be read precisely. The items return to the container by sliding down a glass slide that is equipped with cameras to capture all sides of the items. During this process, the items are weighed, their dimensions measured and 1D/2D codes recorded and checked. The Itemizer automatically checks up to 3,000 items per hour.

"For the best processes in our warehouse, I trust the competence of our partner in automation. In the ideal case, my partner already has a solution for my problem even before I start thinking about how to solve it."

Maximilian von Künsberg-Sarre
CFO, COO
Herba Chemosan Apotheker AG

Growing together

What we have in common with Herba Chemosan Apotheker-AG is focusing on customer requirements and striving for innovation. We share a history that began in the 1960s, when the Graz pharmaceutical wholesaler Herba commissioned KNAPP, a new company gaining ground in warehouse automation, to provide belt conveyors. Further Herba locations in Austria and the headquarters in Vienna were gradually equipped with vertical rotating racks and conveyor systems.

This partnership is still strong today. After numerous successful projects, we started the first comprehensive modernization project with Herba in 2014. In 2019, Herba took another step towards the future. All Austrian Herba locations were modernized and expanded with innovative KNAPP technologies during a complete reorganization of Herba's distribution. In 2016, the Herba Chemosan Apotheker-AG, now a member of the McKesson group, celebrated their 100th anniversary.