

# healthcare



Dear partners of the industry,

For decades, KNAPP has been the technology partner at your side helping you optimize the processes of your value chains on all levels. What actually makes us a long-standing partner for so many successful companies?

At KNAPP, we follow one mission: your success. As a provider of automation technology, we are known for our extensive portfolio comprising efficient warehouse technology, autonomous mobile robots, innovative sorting systems, special logistics software, ergonomic picking systems, fully automatic separation and more.

*However, what's the point of having all these technologies if you don't know how to use them effectively and combine them into a high-performing system that meets customer requirements?*

We have known for a long time that it is vital to have extensive industry knowledge, to understand the requirements and yes, to have a real passion for (all) our industries. Only by linking intelligent core technologies with intelligent processes and material flows can you ultimately create an intelligent system solution. With every solution, our goal is to reflect your business' distinctive features and create a platform for future growth.

We turn your ideal system solution into reality and make sure that it stays productive and profitable for many years to come. We are very proud of our strong and forward-looking organization as it enables us to manage highly complex

projects around the globe, ensure the availability of systems and continuously optimize processes.

Along with extensive experience, our daily work demands courage and creativity: For instance, when we want to transfer our knowledge and technological approaches from one industry to another. This was the case when we took our decades of experience in single-item handling and end-to-end traceability in the healthcare sector and applied it to the requirements of production and online retail.

Our innovative power and ability to think outside the box help us take on the challenges of the future.

*What does the future hold for us?*

We can already see that the path into the future is a digital one. The winners of the future will be those who connect flows of goods and data smartly across all value chains and extract relevant information to have all the necessary resources available for optimum operation. For your business to be as successful in future, we offer innovative solutions today: Our KiSoft Analytics software, the latest CMMS systems and our redPILOT package for optimal resource allocation, just to mention a few, are waiting to boost your business. All this makes us who we are: the value chain tech partner you can count on.

We hope you enjoy reading this special issue of the Industry Brochure.

**Gerald Hofer**  
Chief Executive Officer  
KNAPP AG

**Heimo Robosch**  
Executive Vice President  
KNAPP AG



**PUBLISHED BY:**  
KNAPP AG  
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Ladies and gentlemen,

Companies of different sizes from various sectors find themselves today in an environment that is more competitive than ever before. Technological advances make it possible for us to plan and build more quickly and efficiently, to act in multiple sales channels and to immediately respond to changes in the needs of our customers. It is crucial for us to achieve a competitive advantage over our competitors by supplying additional value at comparable or lower costs. This additional value then transforms the conventional supply chain into a value chain.

With the pharmaceutical supply chain as an example, it is clear that rising cost pressure, a growing variety of products and the additional legal requirements with respect to patient safety (including serial number tracking and lot tracking) pose a significant challenge for the value chain. Additionally, the

urban environment is reaching its limits in terms of moving goods and transport logistics. Added to this are customer demands for customized goods, personalized medicines and the need for day-to-day availability of goods.

We at KNAPP are working together with our customers to meet these requirements. This involves closely examining the idea of the “last mile,” as well as supplying our customers with key technologies such as KiSoft Vision, the KNAPP-Store and the OSR Shuttle™ Evo. We are proud of our contribution to safety and to strengthening a value chain which our customers and patients can rely upon. Our responsibility does not stop in the shipping department of a distribution warehouse but extends through the entire value chain to the point of sale, where we can significantly improve the efficiency of pharmacies using our Apostore autopicker.

**Bernd Angerer**  
Vice President Healthcare Solutions  
KNAPP AG

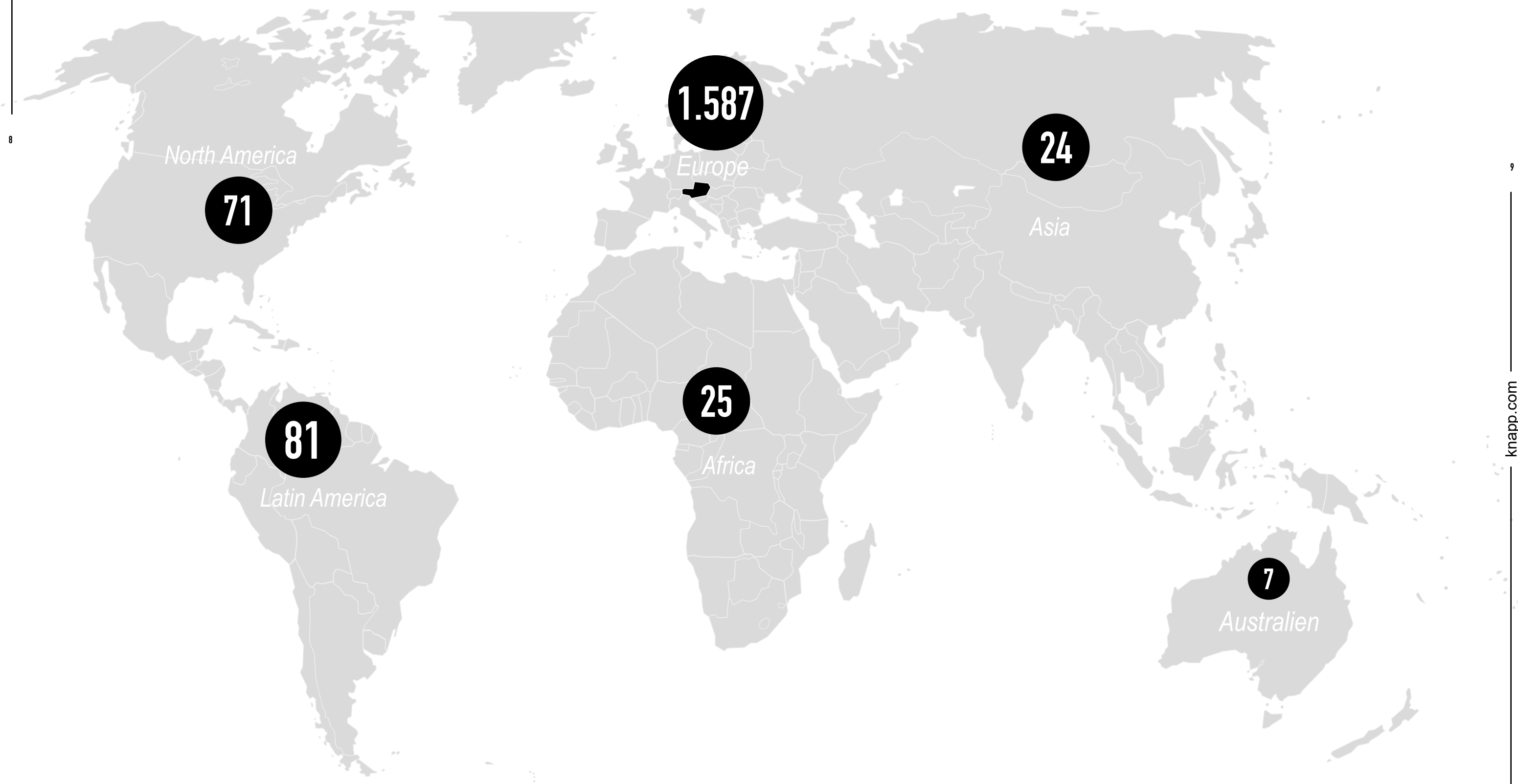
**Matthias Dalkner**  
Vice President Healthcare Solutions  
KNAPP AG

**Martin Steiner**  
Vice President Healthcare Solutions  
KNAPP AG

# #wearepartners

around 1,800 references worldwide  
in pharmacy and wholesale

From pallet to pill: As a strong technology partner, we support healthcare companies worldwide along all steps of the healthcare value chain.





# Setting Trends through Visions

Every day, our passion for logistics and the requirements of our customers motivate us to surpass our achievements. This is the unique KNAPP spirit that spurs us on when it comes to developing new solutions for your requirements. We never shy away from new ideas or from questioning the way things have always been done. We are driving the trends in logistics instead of trying to just keep up with developments. We say: Change? Bring it on! Because our success gives us the courage to keep breaking fresh ground, thus ensuring your success.







# From Vision to Partnership

A complete overview of the project from start to go-live, pooled expertise, the latest methods, network-based working and plenty of our KNAPP spirit: these are our ingredients for making your project a success. We take the time to understand your requirements and to transform them into highly available solutions that last – all in keeping with our motto, making complexity simple. Our designs not only fulfill the highest demands for safety and quality, we also ensure that operating your system is as easy as driving a car.

## A multi-perspective approach for achieving success

We look at a project from every angle to get a complete overview. That's why every project team includes specialists whose different skills and personalities complement one another: the design wizard, the number cruncher, the tech nerd and the service aficionado all work together for the success of your project. So, what might a typical project team look like? And how are the individual phases of a project connected to each other? Our colleagues bring us up to speed, offering insight into their daily routines and their fascination and passion for the healthcare sector.

## The right strategy

In a world full of change, deciding on the right path is crucial for long-term success. That's why we always ask ourselves: How we can contribute to the security and strength of the value chain that our customers and patients rely on? Our responsibility does not end in the shipping area of the wholesale warehouse – it extends through the entire value chain up to the point of sale.



*"Change is the only constant in a world full of new customer requirements and the new processes and business models that arise from them. We work hard on future scenarios so we can fully support you in your future business success."*

**Bernd Angerer**  
Vice President Healthcare Solutions  
KNAPP AG

## The right start

A logistics project is a bit like a Formula 1 race: a good start is critical. In the start phase, we form the right team – your personal crew. Your experts and our experts connect and we provide you with contact persons in your region.



*"Working on a project is exciting right from the start. We begin with a data analysis, compare concepts, and get a technical solution on paper. We manufacture the components that are needed and finally put them into operation. Finally, the system is up and running before our very eyes! Seeing this is one of the great privileges of our work. With our commitment and team spirit, we pool our know-how to create efficient, cutting-edge automation solutions. This is how we ensure that you are successful and have a competitive edge in the market."*

**Matthias Dalkner**  
Vice President Healthcare Solutions  
KNAPP AG

### *The right design and fine-tuning*

Our customers' logistical goals and requirements are individual, and so are our solutions. We use an intelligent system of modular technological building blocks in combination with our experience in the industry and passion for your project. Step by step, starting in workshops and 3D simulation models and using the latest methods, we create the right processes and design layout for your system.



*"The fascinating part about developing our customer-specific logistics concepts is the wide range of possibilities. That's why it's all the more important to meet with our customers to develop not only a suitable solution, but to create a solution that is the best possible solution without a doubt. Along with creativity and a professional, solution-oriented approach, this process requires passion, good collaboration, and perseverance. Once you see the new warehouse system up and running, it makes you really proud to have been part of a great success story that is only just beginning. Lighthouse projects are not developed all alone in an office – this requires the close collaboration with our customers and a partnership based on trust."*

**Martin Steiner**  
Vice President Healthcare Solutions  
KNAPP AG

### *The right project management*

Someone has to keep their eye on everything – in our case, the project manager. The project manager is the interface between all individuals involved in the project, and is responsible for keeping deadlines, coordinating the team, monitoring the costs, and much more. Fast reaction is essential: Bundled competencies, fast access to experts, and uniform methods support our project managers in the efficient implementation of your project up to the startup of your system.



*"The key to successful projects is open communication throughout the entire project. By pooling expertise in the business units, we create the basis for this communication. Our industry focus enables us to incorporate new insights from the business areas of our customers into each phase of project management. Collaborative partnership starts with the first meeting and continues through implementation, system startup and on to optimized warehouse operation with the entire system running at full production."*

**Andreas Winkler**  
Director Project Management  
KNAPP AG

### *A glimpse of the future*

The comprehensive view of the project includes looking into the future. No crystal ball is needed; instead, we use the latest analytic tools and plenty of hands-on spirit. That's how we make a smooth transition into service support. While the requirements of the market and logistical challenges are constantly changing, our account management stays on the ball with you. New challenges? We can quickly respond.



*"We live and breathe service: Passion and customer service must go hand-in-hand – and we want to accompany our customers as they move into the future. As our customers' business grows, their needs constantly change and develop as well. Our customers in the healthcare sector in particular have to juggle many different demands, such as increasing cost pressure, legal requirements for end-to-end transparency and documentation, or new business models such as online pharmacies. To overcome these challenges together, we listen, we understand, and we advise, so that success is the outcome. We lay the foundation for this success by individually adapting, expanding and modernizing existing warehouses."*

**Simon Schulz**  
Service Manager Healthcare Solutions  
KNAPP AG

### *Central knowledge management*

We see ourselves as innovators, progressive thinkers and shapers of the future. That's why we work closely together with universities and industry associations. Furthermore, we established a special task force for our business units that is dedicated to global knowledge management. This enables our experts from all around the globe to learn from each other.



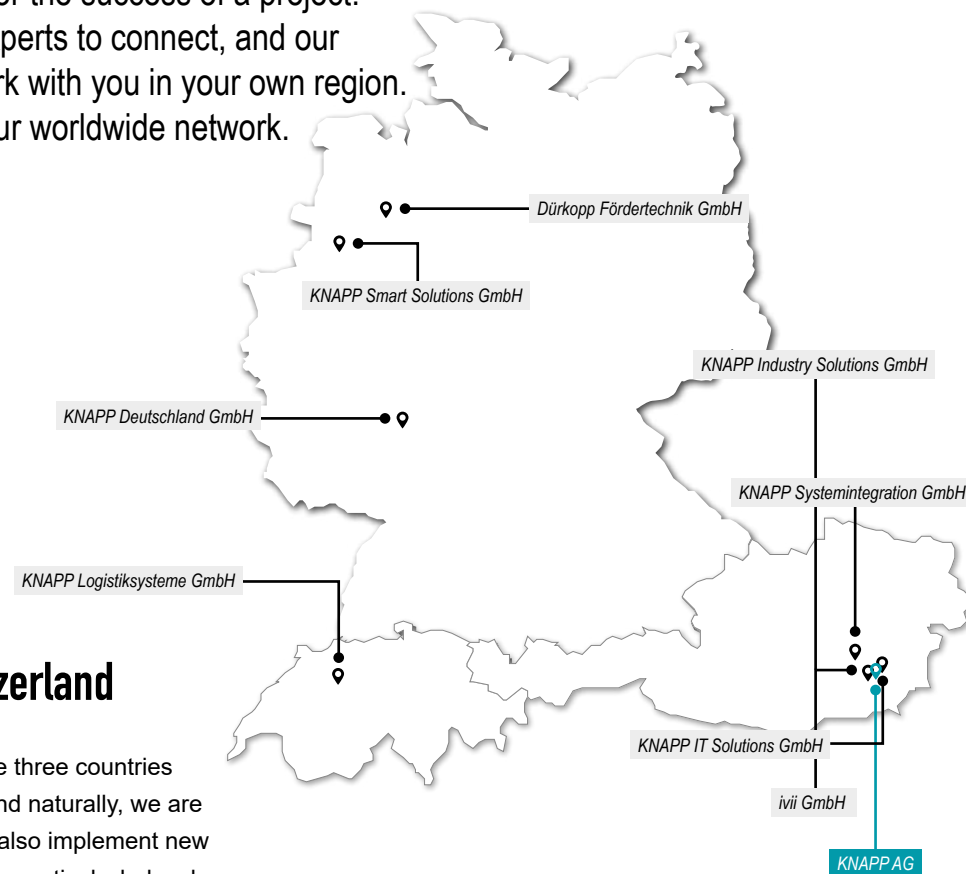
*"We constantly strive for improvement. We learn every day, yet as we grow, we must continue to strive for excellence in all areas of our business. Our mission is to provide excellent service to our customers, so that they in turn can offer the same to their customers."*

**Eva Kramer**  
Managing System Design Engineer  
KNAPP AG



# A Strong Team. All Around the Globe.

Having the right team is crucial for the success of a project. We help your experts and our experts to connect, and our representatives are happy to work with you in your own region. Here are a few examples from our worldwide network.



## Germany, Austria and Switzerland

We have many regular customers in these three countries who have been loyal to us for decades, and naturally, we are extremely proud of this. Furthermore, we also implement new and innovative concepts outside of pharmaceutical wholesale, for example, in e-commerce, pharmacies or automation solutions for hospitals.

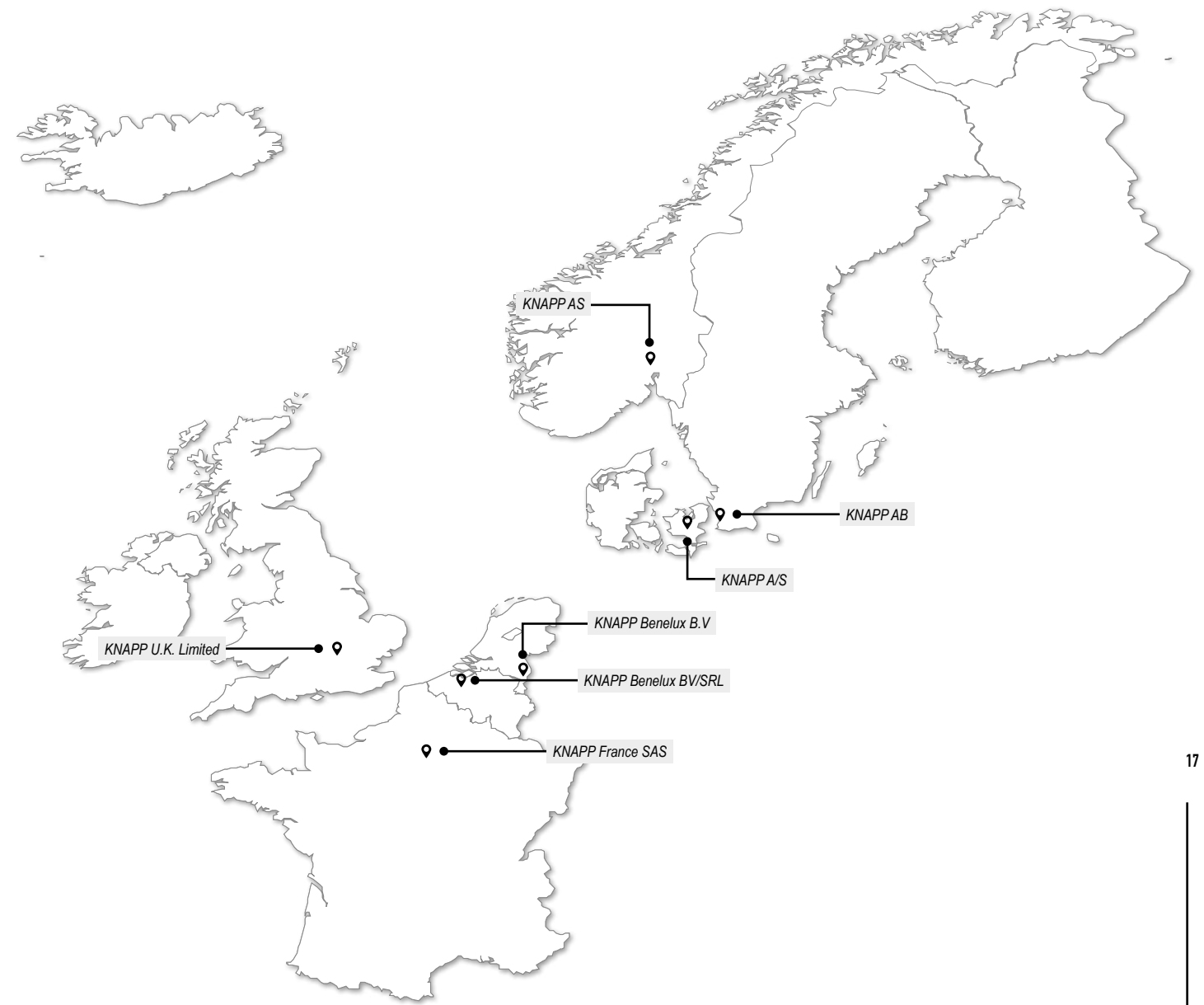
*“When working together, it’s important to know exactly what the challenges of the market are, to provide expert services on time and as promised and, should any difficulties arise, to solve them without fuss and red tape. Our subsidiary in Germany is a great support to us – they excel in customer service as well as in the upkeep of our systems. Centrally located in Heusenstamm bei Frankfurt, they are available very quickly to all our customers. To me, being in touch with customers means having helpful advice for them, knowing what needs to be done, developing together and never stagnating.”*

**Harald Gaulhofer**  
Team Lead, Sales Europe DACH Healthcare Solutions  
KNAPP AG

### *ProServ, Germany:* *KNAPP Hospital Campus*

*“The KNAPP Hospital Campus is our innovative solution that completely redesigns hospital tertiary services. An OSR Shuttle™ Evo is central to the concept, which can be flexibly integrated into various business models, such as food service for risk groups, central sterilization, or medication and ward supply. It comes with numerous advantages, such as reducing the floor space needed, providing complete traceability or warmer working temperatures for employees. With this solution, hospitals can become better, faster and more economical in all areas”*

**Johannes Kompek**  
Sales Manager DACH Healthcare Solutions  
KNAPP AG



## Northern and Western Europe

Improved internet access, the e-commerce boom, as well as the ageing population are all driving the healthcare market in Northern and Western Europe. However, growth in the sector is also slowed down by strict legal requirements as well as illegally operated online pharmacies. We expanded our portfolio with new technologies to help our customers overcome these challenges.

*“At KNAPP France, we have an experienced team that is in touch with the customers and steadily growing. Rapid response to customer inquiries, an understanding of the local requirements and local support are important to customers when they make long-term decisions. We also offer greater efficiency, which is thanks to our many years of working closely with headquarters.”*

**Brice Gaujard**  
Sales Director France  
KNAPP France

### *Mediq, Netherlands:* *Omni-channel distribution hub*

*“Mediq offers medical products for chronic patients, breathing devices and infusion therapy, medical nutrition and products needed every day in hospitals and healthcare institutions. It takes reliable logistics to provide these products precisely when and where they are required. Mediq’s new European hub, implemented with KNAPP technologies, is an omni-channel distribution center built to provide the necessary precision and reliability.”*

**Andreas Klamming**  
Head of Sales Europe North West Healthcare Solutions  
KNAPP AG



## USA and Canada

The North American market is a particular challenge because of its size and the number of different types of customers and projects. Furthermore, our solutions are used for the different sales channels, from wholesale to patient services to in-store pharmacies.

*"New approaches and innovative products are needed to fulfil legal requirements such as the DSCSA (Drug Supply Chain Security Act). Solutions such as the Vision Central Belt, Vision Item Check, the Itemizer or UV-C tunnels need to perfectly mesh with the stock systems. We need rollout programs to get these adaptations done on time by the end of 2023."*

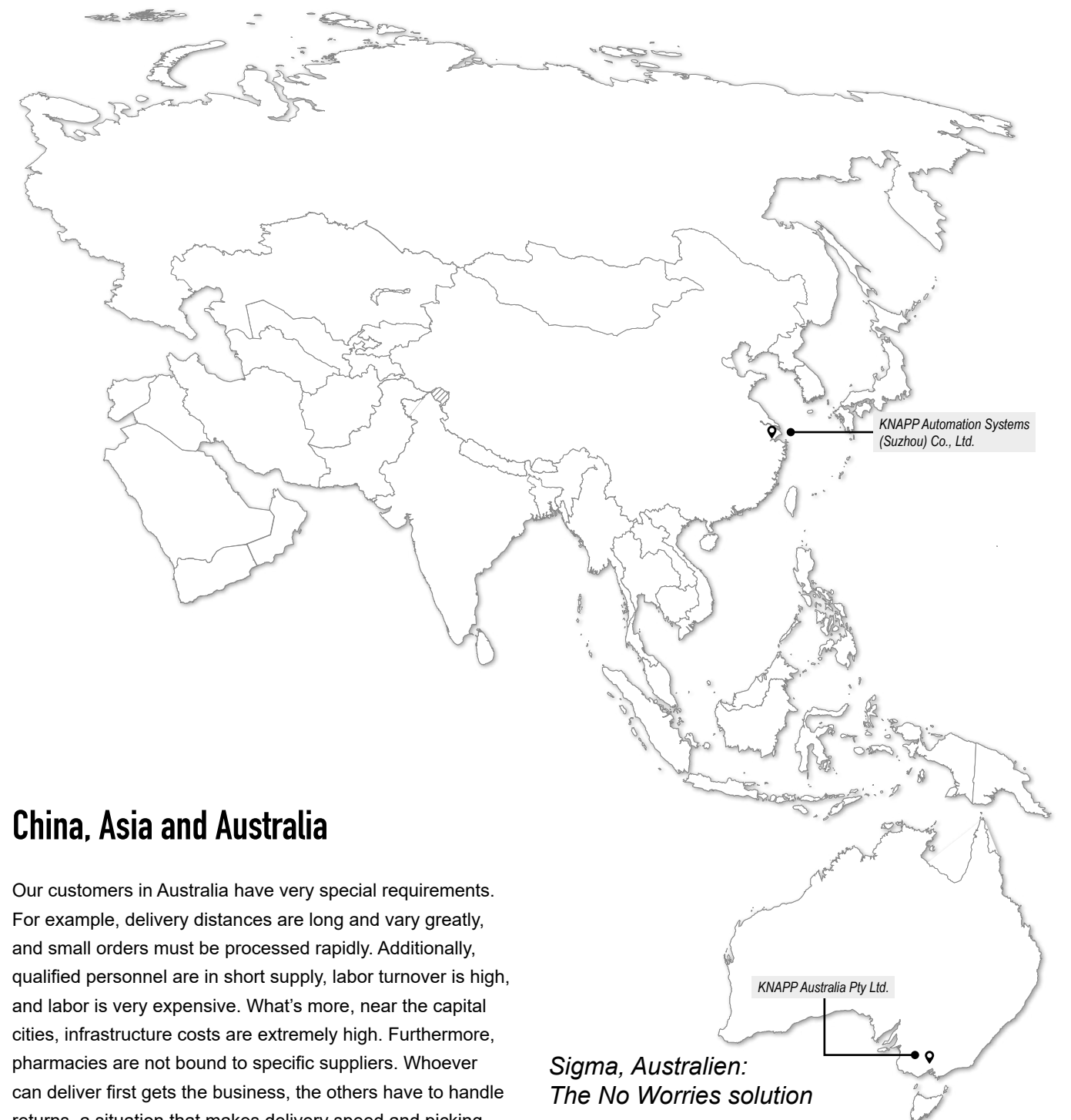
*"We just opened our new headquarters in Georgia. We have been building up our competence in sales, system engineering, planning and project management, so we are now equipped to handle large projects from this office. With the help of our international teams – experts from the subsidiaries and from the headquarters in Graz – not only do we bring our know-how to the local market, but also our philosophy and corporate culture."*

**Robert Hammer**  
Director Sales USA and Canada Healthcare Solutions  
KNAPP AG

### Louisiana Wholesale Drug, USA: Innovative solution with Vision technology

*"One of the major challenges in the North American market is the serialization and security along the whole supply chain. Louisiana Wholesale Drugs, headquartered in Sunset, Louisiana, is using state-of-the-art image recognition and processing technologies to achieve this. Along with the proven Central Belt System for fast-moving products, Vision Item Check processes and checks the products."*

**Michael Wurm**  
Systems Sales Manager  
KNAPP Inc.



## China, Asia and Australia

Our customers in Australia have very special requirements. For example, delivery distances are long and vary greatly, and small orders must be processed rapidly. Additionally, qualified personnel are in short supply, labor turnover is high, and labor is very expensive. What's more, near the capital cities, infrastructure costs are extremely high. Furthermore, pharmacies are not bound to specific suppliers. Whoever can deliver first gets the business, the others have to handle returns, a situation that makes delivery speed and picking precision vitally important.

*"In China, the top 10 players dominate 70 percent of the pharmaceutical wholesale market. The challenges our customers face include complying with the guidelines for pharmaceutical product research and production according to international standards, monitoring of pharmaceutical codes and providing punctual service in B2B- and B2C channels. The KNAPP China team has a profound understanding of the market, a reliable network and is geographically close to the important actors in the industry."*

**James Li**  
Managing Director  
KNAPP China

### Sigma, Australien: The No Worries solution

*"The strengths of KNAPP Australia lie in their close proximity to the customers and their rapid response times. We may be smaller than our competitors, but we have a very strong customer orientation. With SIGMA in Sydney, our business relationship closely resembles partnership. We call it the "No Worries" solution, because the customer doesn't have to worry about anything. All their products are stored in a large OSR Shuttle™. Processes such as product allocation, conducting inventory and internal storage movements are all handled by the system. It's also the first system in Australia to use robot picking – two Pick-it-Easy Robots are part of the solution."*

**Michael Kemeny**  
Managing Director  
KNAPP Australia



## Southern and Eastern Europe

In Southern and Eastern Europe, we are established partners of the industry for everything from wholesale to point-of-sale. In Italy alone, we have more than 90 references in pharmaceutical wholesale and this number is steadily growing – from the mountains in Trentino down to Sicily.

*“Since the growth rate is slowing down and the government and the insurers are increasing the price pressure on the market, cost reduction takes top priority in our customers’ supply chains. Healthcare companies must constantly improve their logistical processes. What we are observing is that logistical processes are being concentrated, resulting in fewer physical warehouses. At the same time, order fulfillment is becoming more and more automated. We have been actively working with our customers throughout this phase, supporting them with an innovative portfolio for the development of new solutions and implementing further improvements.”*

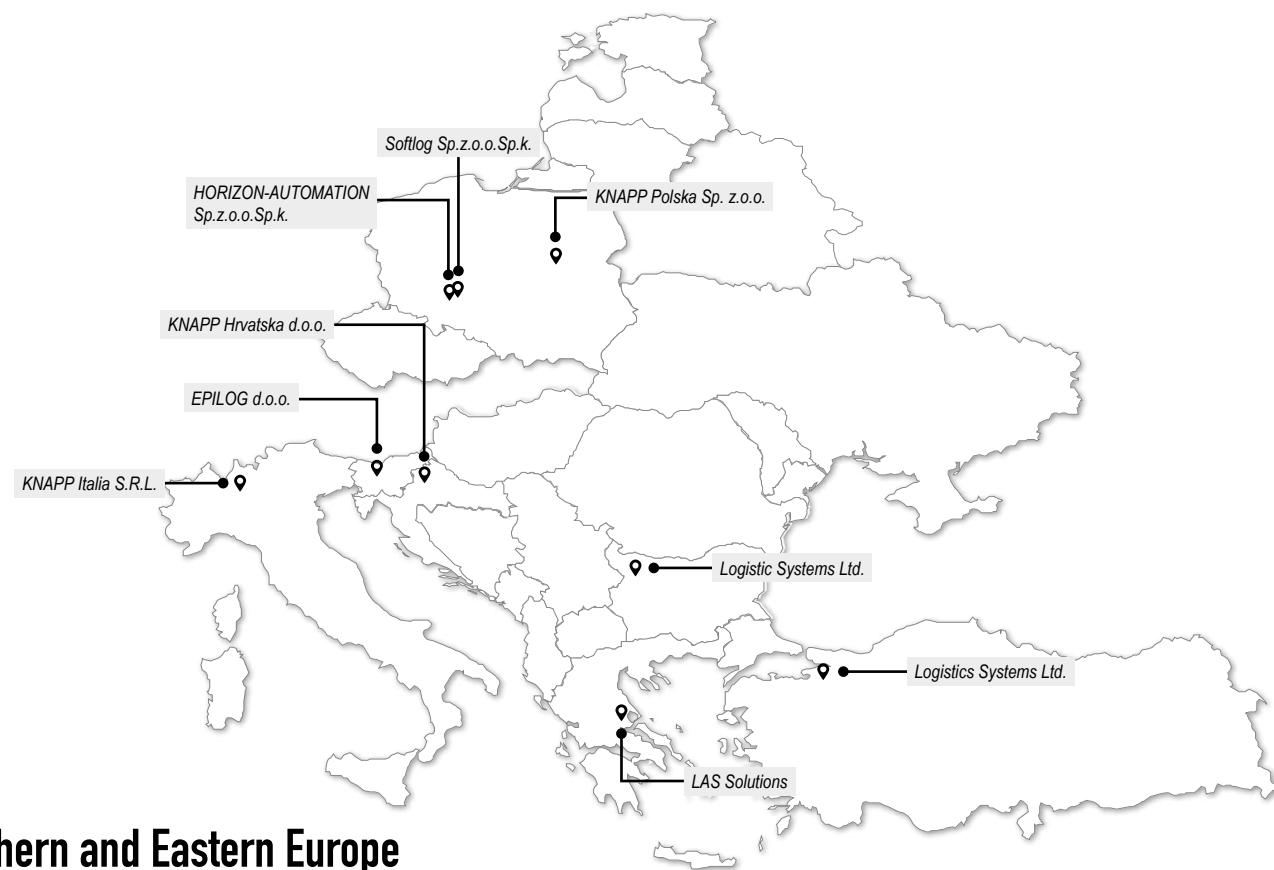
*“KNAPP Italia in Milan plays an important role in many aspects, where close daily contact with our customers takes top priority in particular. Furthermore, we are familiar with the local requirements and regulations and, combined with our professional solutions, this has earned the trust of our customers. Dedicated teams at the KNAPP headquarters are also involved in work for the Italian healthcare market and, thanks to the efforts of KNAPP Italia, are a step closer to our customers. Working as a team this way makes us particularly strong.”*

**Dieter Hochörtler**  
Head of Sales Europe South East  
KNAPP AG

### GUACCI, Italy: Leading the Italian market

*“GUACCI in Naples processes more than 120,000 order lines a day, supplying pharmaceutical articles to pharmacies. The KNAPP solution allows the company to increase their market share in the region and, through further acquisitions, to expand their influence in Southern Italy. A Central Belt System forms the backbone of the solution, and a goods-to-person system based on OSR Shuttle™ technology significantly increases the efficiency of daily operations. GUACCI and KNAPP are connected by a partnership of many years. KNAPP regularly improves, expands and updates the system to keep on top of new requirements.”*

**Stefano Novaresi**  
Managing Director  
KNAPP Italia

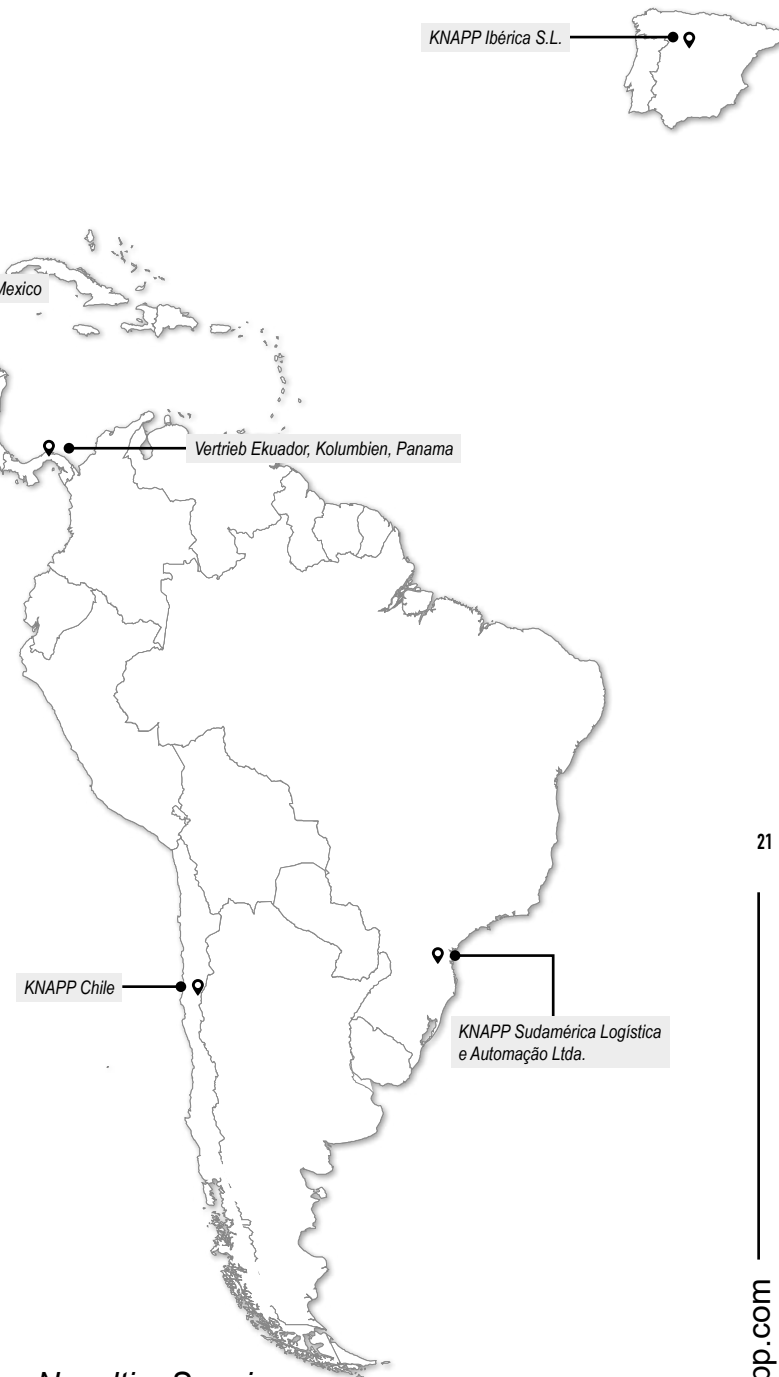


## Spain, Portugal and Latin America

In Spain, Portugal and Latin America, we are an established industry partner. In Spain, we see a growing healthcare market and have more than 80 references. Therefore, we have reinforced our subsidiary in Madrid. “Our subsidiary in Spain provides the best service for our customers in Spain and Portugal and continues to develop alongside of them. KNAPP Ibérica has grown tremendously and already has more than 100 employees. In addition to project engineering and services, we also offer Resident Engineer services that provide on-site support to our customers,” says Hannes Engelberger, Head of Sales, Spain, Portugal and Latin America. In Latin America, the KNAPP network spans from Mexico across Panama to Brazil. KNAPP Sudamérica Logística e Automação is located near Curitiba. Along with sales, engineering, installation and software startup, there are production areas for the assembly of container and carton conveyor systems, providing a faster, more cost-effective supply to our customers in Latin America.

*“With KNAPP Sudamérica, we can offer high availability to our customers by employing a local workforce to service the local systems. We speak the same language as our customers and combine their requirements with our ultra-modern automation solutions. We understand the culture and the local requirements and implement projects accordingly. Furthermore, we send a clear message: KNAPP’s commitment to the region lends us credibility and gives our customers the confidence to invest in both large and highly automated projects. We are a global company with a local focus, and this is what sets us apart. It’s no surprise that we’re the market leader in the region, with more than 150 installations. An outstanding and close cooperation with headquarters makes a significant contribution to the success of our work with customers.”*

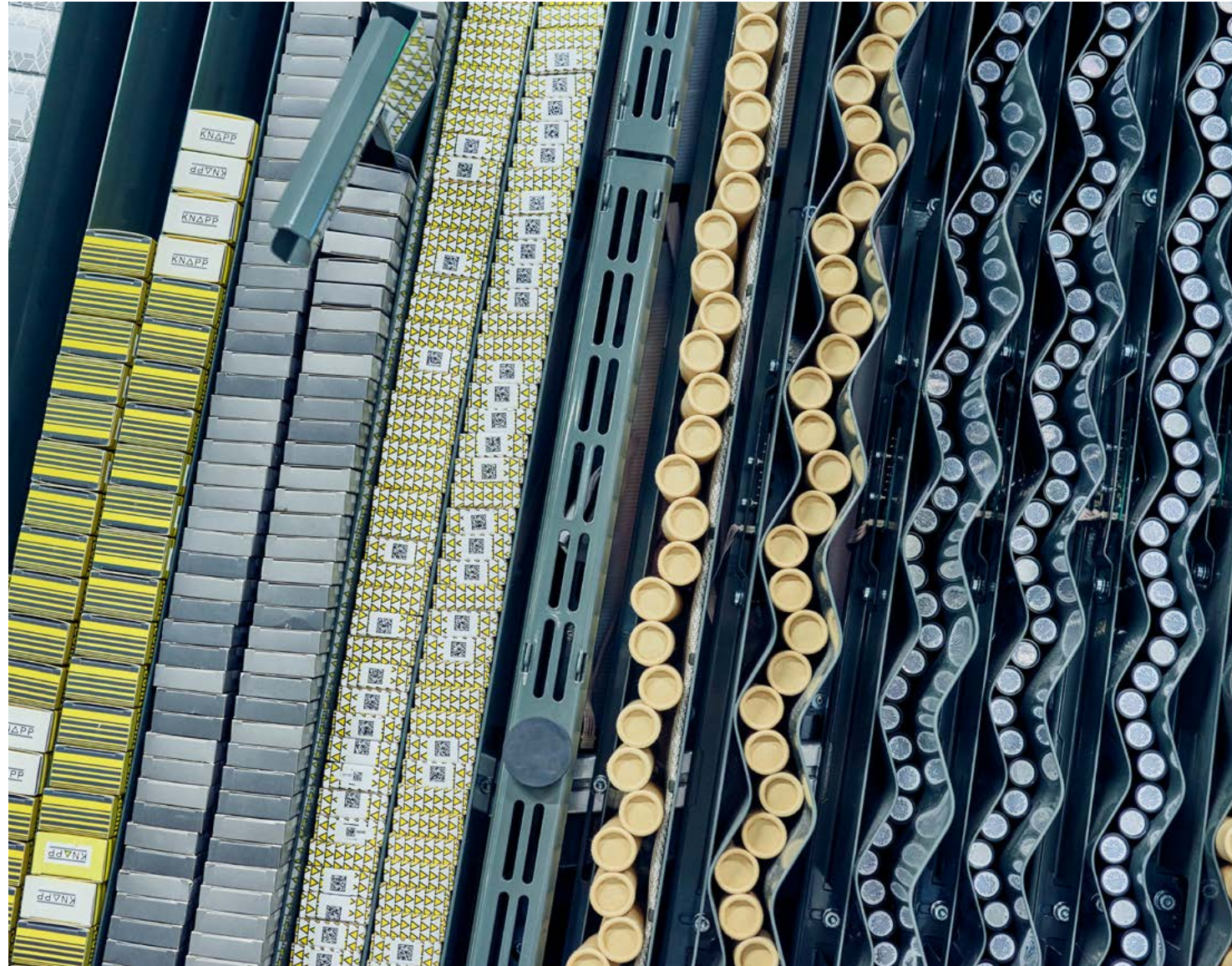
**Marcio Schilling**  
Head of Sales  
KNAPP Sudamérica



### Novaltia, Spanien: All-in shuttle solution

*“Many years of successful partnership allies us with the Spanish pharmaceutical wholesaler Novaltia. Novaltia operates four distribution centers and delivers to more than 1,000 pharmacies – up to five times daily. A new warehouse featuring an all-in shuttle solution is currently under construction in Bilbao. An OSR Shuttle™ is used to safely and efficiently process the tremendous volume of orders, handling all the central processes. Thanks to the shuttle technology, which is combined with a goods-to-person concept and RF picking, Novaltia was able to significantly decrease costs and increase productivity.”*

**Hannes Engelberger**  
Head of Sales  
Spain, Portugal & Latin America



# A Closer Look at Patient Safety

Being a strong partner. This is what we are focussed on. As a technology partner of the healthcare sector, we tackle the issues head on with practical solutions. Our contribution to securing and strengthening the supply chain creates a value chain that customers and patients can rely on. Our solutions also provide the foundation for compliance with regulations aimed at improving patient protection – from the manufacture of a medicine to its acceptance by the patient. Along the value chain, this means providing end-to-end traceability for every medicine – from its producer to its consumer.

## Zero defect solutions for an error-free supply chain

Today, there is no question about the importance of product availability. Service is therefore the focus of our attention: Punctuality, accuracy, traceability and costs are now the decisive factors for customer satisfaction and therefore, for success. Fulfilling these demands requires flexible, economical and error-free logistics. All the processes along the supply chain need to be streamlined and made transparent. The zero defect philosophy is our answer to these requirements.

In the balancing act between quality, efficiency and performance, KNAPP relies on a mix of established technologies, such as:



**Reliable central belt systems**  
for high-performance order picking



**Innovative Vision systems** with  
image recognition technology for  
quality assurance and checks



**Smart shuttle solutions** for central,  
secure and space-effective storage



**The latest work station design**  
Intelligent picking robots and ergonomic  
goods-to-person work stations for  
optimal use of resources



**Versatile KNAPP-Stores** for efficient  
picking, automated goods-in handling,  
and easy returns processing



**Completely integrated warehouse  
management and warehouse  
control software** for controlling and  
optimizing all processes.

By combining these intelligent technologies into tailored solutions for the demands of the healthcare sector, error-free workflows in the warehouse become a reality, ultimately creating lasting added value for patients.





*"For us, this solution raises the bar in quality. This is even more important in mail-order pharmacies than in pharmaceutical wholesale, since there, the pharmacy will notice an incorrect delivery and correct it. If the same error happens with us, the patient will receive the wrong medication, which can lead to serious consequences. For these reasons, zero defect is tremendously important to us!"*

**Henning Fichter**  
Procurator  
Bad Apotheke

### ***Full transparency all the way to the patient***

The zero defect warehouse provides the foundation for legal conformity for improving patient protection as required by the Drug and Supply Chain Security Act (DSCSA) of the FDA in the US, and, in Europe, by the Falsified Medicines Directive (FMD). Coupled with this are new restrictions that apply from the manufacture of a medicine to the acceptance by the patient at the point of sale. All prescription drugs and certain non-prescription drugs must be marked with security features by the manufacturer. This includes machine-readable 2D Data Matrix codes that hold information about the item in addition to a unique serial number. The manufacturer saves this serial number in a database, and, as long as the item does not leave the secure supply chain of authorized partners, is checked again at the point of sale when given to the patient, usually at the pharmacy. This ensures end-to-end traceability.

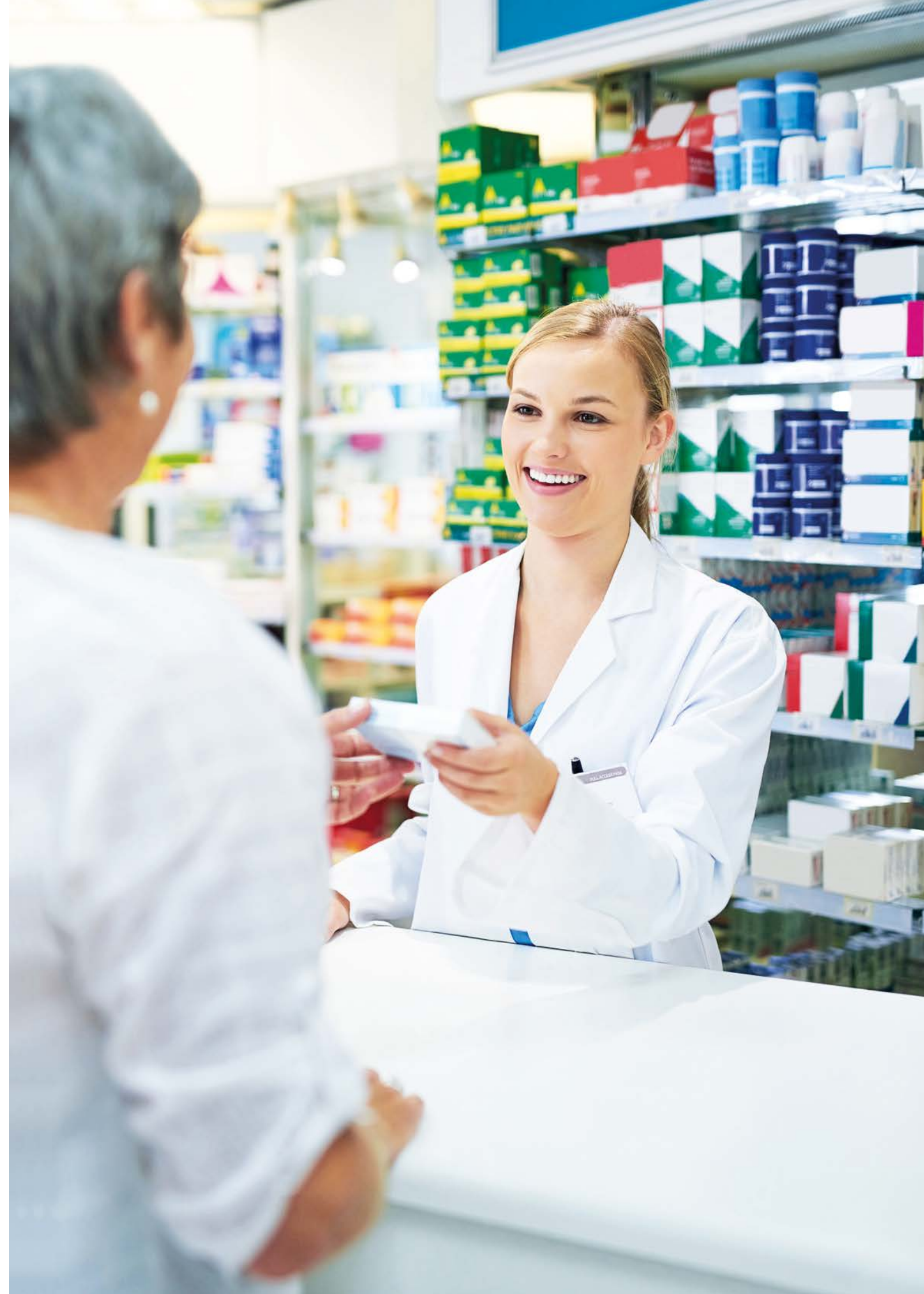
### ***Security features and the duty of documentation***

Under the FMD, in force in all countries of the EU since February 2019, the Good Distribution Practice (GDP) has become even more significant. In addition to the regulations

applying to warehouse processes with respect to storage, temperature or protection from light, these guidelines lay out a duty of documentation for all medicines that have a security feature. Date marks, the name of the medicine, quantity, supplier, customer and the lot number of the medicine must all be recorded.

### ***Seamless tracking throughout the entire warehouse and on to the patient***

Item data is registered during goods-in and autopicker replenishment and picking by KNAPP systems are all completely guided by the system, which guarantees seamless lot tracking throughout the warehouse. Track & Trace can also be used as the system for tracking picked orders from the moment the orders leave the warehouse to the moment they are handed over to the patient. With the right mix of smart technologies and software, KNAPP can fulfil all the needs with respect to serialisation and lot documentation for small manual warehouses as well as for fully automatic warehouses, without the customer suffering any loss of system performance. Ultimately, freedom from errors in the warehouse also creates sustained added value for patients.



# Out of the Blister, into the Blister

The D<sup>3</sup> Daily Dose Dispenser is a complete system solution for producing patient-specific blister packaging fully automatically. This innovative system fills the patient blister card with tablets directly from the original packaging.

## Meeting challenges in healthcare with innovation

Overall, the current population is aging and more and more people are taking maintenance medication. At the same time, the healthcare and nursing systems are suffering from chronic personnel shortages. So we asked ourselves: What if there was an easy-to-use, sure-fire solution that not only helped our customers deal with the labor shortage, but also opened up the opportunity for them to enter a new business model?

Our D<sup>3</sup> technology has what it takes to make this a reality. The blister packing machine allows pharmaceutical wholesalers, pharmacies, hospitals and other care providers to create patient-specific blister cards with pre-dosed medication fully automatically. The machine creates patient blister cards directly from original blister packs and is the first technology on the market to do so. The blister cards are tailored to each patient's individual needs, allowing them to take their medication safely and conveniently while keeping track of what they've already taken.



## How the D<sup>3</sup> system packs blister cards

Unlike other solutions on the market, the D<sup>3</sup> system only has one manual step. The blister packing machine performs all other steps in the process fully automatically:

**1/ Transfer:** The original blister packs are placed in special blister carriers with no need for previous deblistering or clean room conditions, which means the medications' expiration dates remain unchanged. The carriers stabilize the original blister packs for the automated process and provide unique identification of the original blister, ensuring traceability of contents, lots, process parameters and the current quantity.

**2/ Storage:** Tablets in their original blister packs are held in the blister carriers, which are stored in the automatic magazine until they are needed. Integrated special blister carriers can even be filled with halved tablets. Up to 820 of the carriers can be used per blister production module. Ten square meters (110 ft<sup>2</sup>) provide enough storage space for 7,000 blister carriers of each type. The magazine also enables seamless traceability of lot and serial numbers.

**3/ Deblistering:** The D<sup>3</sup> system deblisters tablets fully automatically, safely and individually – one tablet at a time. Thanks to the extremely low drop height, the tablets are ejected gently into the blisters, ensuring precise and reliable dispensing. Additionally, each tablet ejection is completely monitored and cross-contamination is prevented.

**4/ Blister cards:** Finally, patient-specific blister cards are produced. Each blister card receives a seal and a cover sheet. These sheets contain information specific to each patient, such as instructions on how to take the medication or additional explanations. The cards also make it easier to see which medications have already been taken.



„Out of the blister, into the blister. Our D<sup>3</sup> system is the first fully automatic solution in the world that creates patient blister packs from original blister packs.“

**Michael Muhr**  
Product Manager  
KNAPP AG

## Advantages of the D<sup>3</sup> system at a glance



**Out of the blister, into the blister:**  
No more manual deblistering of medicines



**The D<sup>3</sup> system is the only fully automated technology for producing blister cards**



**Cross-contamination is a thing of the past**

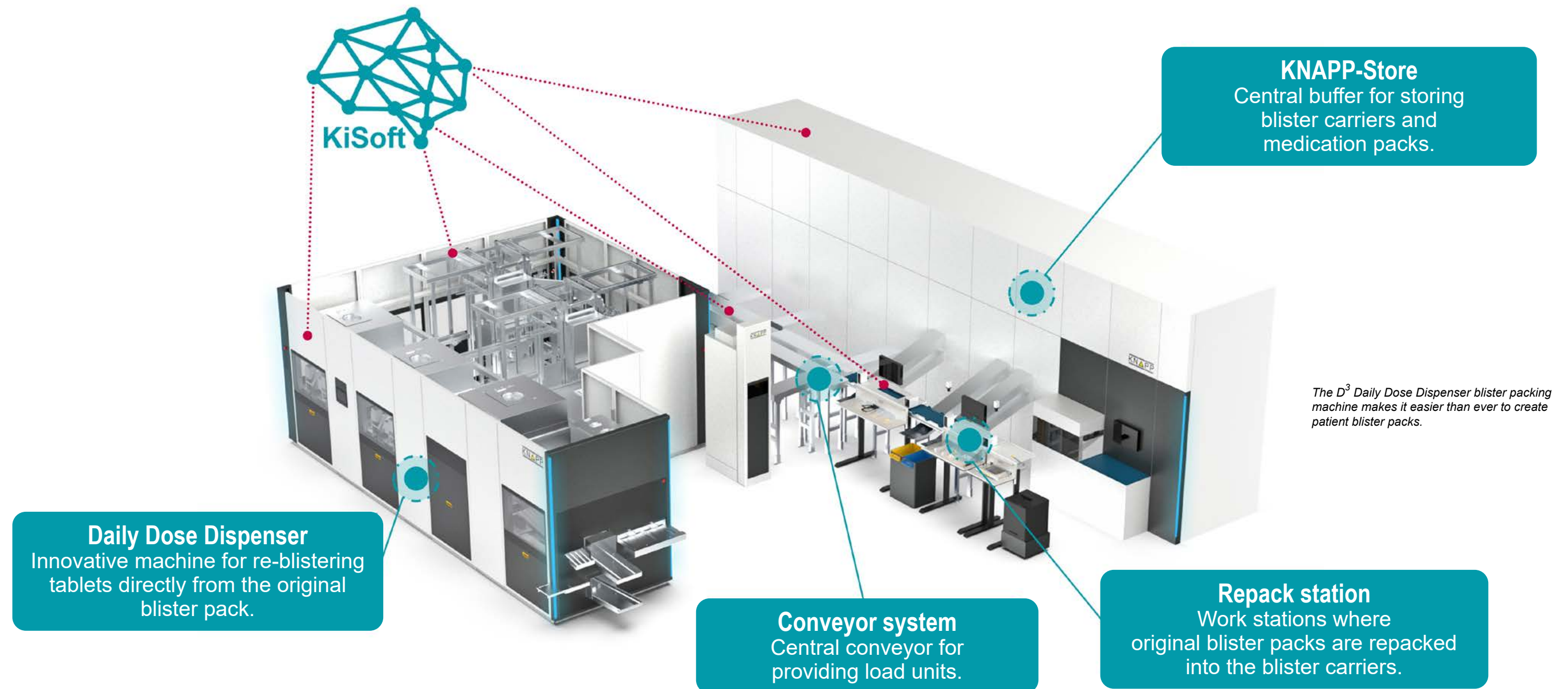


**New in-process checks come with automatic error correction**

The D<sup>3</sup> system is a promising solution for the healthcare sector, which is currently facing challenges such as an acute shortage of healthcare workers and demographic changes in the world's population. In particular, valuable resources can be saved by streamlining checking and finishing processes.

Patients also benefit from fully automatic, patient-specific blister packaging, which helps improve their medication adherence and therefore their quality of life. The pioneering D<sup>3</sup> technology helps to ensure reliable medication management and successfully tackles the challenges facing the healthcare sector.





The first, groundbreaking implementation of the D<sup>3</sup> system was at MicuraPharm, a renowned German company specializing in medical technologies and pharmaceutical products and located near Mainz, Germany. MicuraPharm's use of the D<sup>3</sup> system opens new opportunities for medication management by taking the efficiency and quality of this important task to a completely new level. In hospitals and nursing facilities, patients and personnel both benefit from the advantages of this innovative approach.



Unlike other solutions on the market, the D<sup>3</sup> system only has one manual step. All other steps of the process are performed fully automatically in the blister packing machine.



Original blister packs are being loaded into the blister carrier.



The D<sup>3</sup> system deblisters tablets fully automatically, safely and individually – one tablet at a time.



A smiling female healthcare worker with dark hair tied back, wearing blue scrubs and a stethoscope, is interacting with a patient whose back is to the camera. The background is a bright, out-of-focus clinical setting.

# “ The Best Medical Supply Means Having the Best Logistics Solution

From the vision to live operation. From the process map to tangible success. Intelligent technologies form a dynamic network, connecting information, people, goods, raw materials, locations and processes. This secure and fully integrated network could span from the warehouse across several locations and even include the entire value chain, providing resilience in the face of logistical challenges. This is only possible with a solution that can connect all the processes, ensuring that are perfectly integrated with each other.





# Digital Tools for Success

## Intelligent data for the healthcare value chain

Our software is the central intelligent link between all the processes in the healthcare value chain. It breathes life into machines, connects people and technologies, and creates intelligent processes. In our data-driven world, software is the key to success. Here are three of our different software solutions.

## Monitoring with KiSoft Analytics

Every supply chain generates colossal amounts of data with every passing millisecond. This data is valuable and demands collection, analysis, comparison and structuring. To make the most of it, the data must be prepared in a way to help you make the right strategic decisions for your business. KiSoft Analytics is the ideal business intelligence tool for providing a clear overview of your system's processes and of your entire supply chain. Using easy-to-understand visualizations and the right KPIs, you have the information you need at your

fingertips. By intelligently connecting logistical processes with real-time data, KiSoft Analytics makes it possible to recognize changes in business early on, allowing you to make the right tactical and strategic decisions. The software can be seamlessly integrated into your existing system environment and our mobile app lets you access your data anywhere, any time. Since KiSoft Analytics is a software as a service (SaaS) solution, your data is flexible and secure.

## Optimal servicing and availability with KiSoft CMMS

The innovative software solution KiSoft CMMS puts your maintenance management firmly under your control and increases your team's productivity. By simplifying processes, automating tasks and centralizing information, the software optimizes your system's availability. KiSoft CMMS uses intelligent algorithms and data-driven decision-making to optimize servicing cycles and minimize downtimes and automatically plans servicing tasks based on operational requirements and real data. KiSoft CMMS makes warehouse operation efficient by structuring processes and prioritizing

tasks, as well as by providing spare parts management and being available as an app for technicians. Thanks to the app, technicians can focus all their energy on their servicing tasks. The software provides real-time KPIs and clear dashboards for data-driven decision support. Additionally, KiSoft CMMS is modular in design and can be adapted to meet your specific requirements. It can be integrated seamlessly into existing system environments and is offered as a cloud service to keep IT complexity to a minimum.

## Boost performance and optimize processes with redPILOT

The all-in-one software solution from redPILOT supports logistics companies in mastering the challenges they face in intralogistics. Regardless of your company's size, redPILOT manages resources while taking into account changing order structures and complex system designs. The software identifies inefficiencies and provides the support you need to make the right decisions. Special algorithms recognize bottlenecks and overcapacity and then provide alternative courses of action to increase overall performance. This type of proactive resource planning will optimize your operation on all levels. The main modules of redPILOT offer holistic

operations scheduling and continuous improvement. Another important advantage: Machine learning allows the system to continuously improve and optimize your work processes. The software seamlessly integrates into your existing system environment no matter what you use as a WMS, WES or WCS. redPILOT helps your logistics system run optimally and is geared toward environmental, social and economic sustainability. Companies from different sectors all over the world are already using redPILOT software in their distribution centers.



A full-page background image showing two people in red and green jackets climbing a very tall, narrow, and jagged rock spire. They are near the top, with ropes visible. The background features a vast mountain range with snow-capped peaks under a clear blue sky.

# — “ — Thriving Through Partnership

How can quality and performance be perfectly balanced across all processes? What do your employees need to work with motivation, efficiency and precision? What does an attractive work environment look like? Our solutions provide you with answers to these questions. We translate technologies and data for people to turn your requirements into the best solutions.





# Proven Reliability and Innovative Robot Technology

## Vision Central Belt

As the inventor of the autopicker, KNAPP has over 25 years' experience in the field of central belt technology. With the Central Belt System, we offer a modern, comprehensive solution for automatic picking in high-performance applications. A wide range of articles can be processed automatically by using different types of autopickers such as the SDA. Thanks to Vision Central Belt, an add-on from the Vision product series, a 100 percent check is even possible in automated picking areas.

Vision Central Belt eliminates the manual recording of serial and lot numbers. They are acquired using a six-sided reading directly at the transfer station of the autopicker. A 100% check is also carried out. While legal requirements are easily and reliably fulfilled, quality and throughput are raised across the entire process.

When the items are transferred from the central belt to the load carrier, Vision Central Belt records the security and quality features of every item, including serial numbers, lot information and dates of minimum durability. Existing systems can be modernized with a Vision Central Belt retrofit. The Central Belt System is therefore central to attaining a zero defect warehouse.

The zero defect warehouse achieves Sigma level 6, which is considered error-free: In every process step, from goods-in to goods-out, measures to ensure and enhance quality are put into place using the KiSoft Vision image recognition and processing technology, which lowers error costs and raises efficiency.



## Pick-it-Easy Robot

High performance with high quality for long periods of time or in shift operation? McKesson, the world's largest healthcare company, has a site in Clear Lake, Iowa, where a Pick-it-Easy Robot has been on the job since 2019. Where people reach the limits of their capabilities, the picking robot takes over. Equipped with an algorithm for machine learning and state-of-the-art image recognition technology, the Pick-it-Easy Robot is the epitome of flexibility, reliability and high performance. The robot is particularly well-suited for picking the slow- to medium-moving range of products that make up a large portion of the SKUs in the warehouse.

The Pick-it-Easy Robot reliably grips items of various sizes, weights and shapes, as well as items with different types of surface and packaging. This wide range includes cubical, round and cylindrical items, bottles and polybags as well as items with transparent surfaces or reflective packaging. Depending on the order, the Pick-it-Easy Robot can neatly or randomly arrange the items in the container.

### What are the benefits of artificial intelligence in a logistical environment?

It saves a great deal of time and effort, and quite simply, it provides far more flexibility. If you applied a conventional robot programming principle, you would have to record vast amounts of master data for every article and every variant. This is an incredible amount of effort, as several employees would have to spend the entire day doing nothing but feeding the robot with data. Since this would be unreasonably laborious, the robot simply learns all the item-related information on its own.





*"Really good solutions support us in providing our own services and give us a competitive edge. We can then concentrate fully on our business, which is to provide the best for our own customers. 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

# 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 and is therefore part of the country's critical infrastructure. 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.

### *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.



### *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.

### *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.

### *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 celebrated their 100th anniversary.



# Fully Rejuvenated

## Retrofitting for a successful future

Nothing lasts forever, not even automation technology. In the early 2000s, the introduction of our shuttle technology, among other solutions, revolutionized the logistics processes of pharmaceutical wholesalers. Today, shuttle systems continue to form the heart and soul of modern warehouse processes in the healthcare industry. What is truly amazing is that our first shuttle systems have now been in operation for 20 years.

You might think that they have fulfilled their purpose and that it's time for something new – but is that really the case? We at KNAPP say “No”. Thanks to our forward-thinking approach, even our oldest systems still have a great future ahead of them. As a reliable business partner, it is important to us to continue providing support to our partners in the healthcare sector and their systems even after their product life cycle has come to an end. This is why we created our retrofit and revitalization program for your shuttle systems, conveyor systems and entire software landscape.

### RETROFIT

Along with upgrading mechatronic, electrical and mechanical components, a retrofit requires rethinking the entire system design. Retrofitting takes your current and future business requirements into account to provide maximum business continuity and performance.

### REVITALIZATION

Revitalizing a system means only replacing individual components, such as parts of conveyor systems, to ensure the warehouse continues to operate over the short or medium term.





# Revitalization, retrofit or a brand new system – what’s right for you?

To make the right decision, you need to consider a few things. Let’s go through it step by step.

## 1. Looking ahead together

The whole process starts with your system’s roadmap, which you can find in the service portal e-insight. The roadmap allows you to immediately see in which life cycle phase your KNAPP products are, whether it’s your software, shuttle system, conveyor system or automated picking system. Based on this roadmap, our account managers will get in touch with you, for example, while your products are in limited support – five years before the end of the product life cycle – to discuss your plans for the coming years with you.

## 2. Analysis

Our service experts analyze which products have critical effects on on-going system operation and check whether supplied products are still available on the market. If they are no longer available, we will find a solution for you.

## 3. Design phase

What is your current and future business model? What’s changed since the system started operating? Are there bottlenecks in the warehouse? Do you need higher throughput or more space? Our experts will help you answer these questions in a meeting with our design engineering team and your designated account manager. After this phase, it will be clear what your optimal logistics solution should look like. It might be “just” a software upgrade, a revitalization of a few individual components, or even a complete system retrofit.

## 4. Detailed planning

As soon as all the open issues have been clarified and the offer confirmed, it’s time to start with scheduling and detailed planning.

## 5. On-site inspection

To make sure everything is optimally prepared for the retrofit, our engineering team carefully examines the system in advance. They check if there is enough space for modifications and take stock of the condition of the individual components of your system.

## 6. Planning and production

Using the collected data, we plan out the modernization in detail and manufacture/order all the parts for your revitalization or retrofit project.

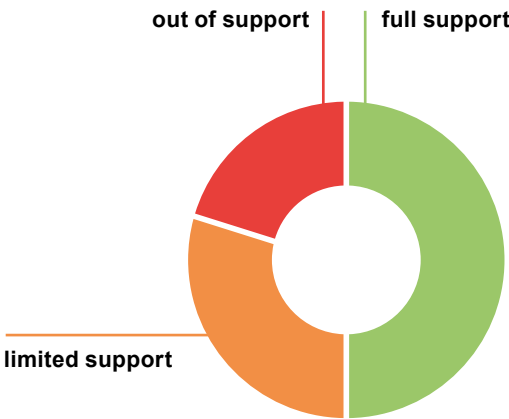
## 7. Implementation

Now it’s time for “open heart surgery”: Our experienced service technicians implement the project with as little disturbance to your daily business as possible. Depending on whether you decided on a revitalization or a retrofit, the implementation consists of one or more projects. The first step of a complete retrofit would be, for example, making sure that the latest versions of each software and hardware are running smoothly. This eliminates any security risks and ensures the availability of the system. The last step involves implementing the retrofit for the shuttle system and conveyor system.

## 8. Fit for the next 10 years in full support

State-of-the-art technology: After a retrofit, we provide full support for all system components for the next ten years, and an additional five years of limited support. This extension of your product life cycle is displayed on your roadmap.

Example:  
Support status of a system



## The advantages of retrofitting at a glance

The goal of a revitalization or retrofit project is to make your system fit for the future. They not only extend the life of your products, but also cement our partnership with you.

★

**ECONOMICAL**  
Investment significantly lower compared to purchasing a new installation  
Reduced operational costs, such as for maintenance and repair

★

**RELIABLE**  
Implementation of the latest hardware and electrical and mechatronic components, use of our KNAPP Lock safety system  
Cybersecurity: Secure protection thanks to the latest software versions

★

**SUSTAINABLE**  
Reduced energy consumption and emissions during implementation  
Normal operation continues, only planned system standstills

★

**PROACTIVE**  
Full support for the next 10 years provided by KNAPP International Customer Service, plus 5 more years of limited support  
Ensured supply of original spare parts

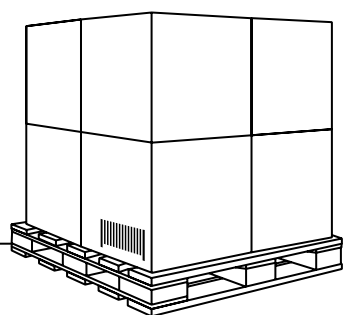


# Zero Defect Warehouse

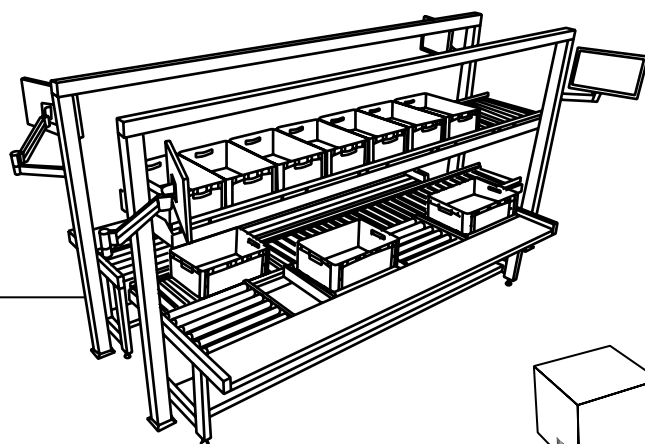
With our zero-defect approach, we use a mix of smart technologies such as the Central Belt System, shuttle solutions, Pick-it-Easy Robot or KNAPP-Store along with our KiSoft software package. This combination results in a zero-defect warehouse that unites the highest quality and process reliability with the greatest efficiency. A zero-defect warehouse can fulfill all the requirements related to serialization and lot documentation.

## Multipharma: End-to-end tracking throughout the entire warehouse

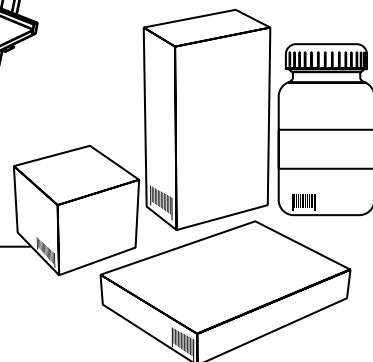
At pharmaceutical wholesaler Multipharma in Brussels, product lots can be tracked end-to-end throughout the entire warehouse thanks to the registration of product data in goods-in, the system-guided replenishment of the autopickers and picking guided completely by KNAPP systems. Picked orders can be completely traced from the moment they leave the warehouse to the moment they are handed to the patient using our module for track and trace, KiSoft Pick-Up-And-Delivery.



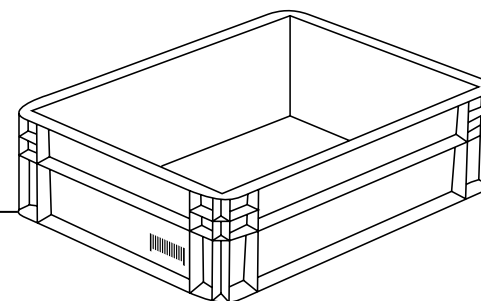
The **warehouse management software KiSoft** records all inbound deliveries and integrates them into the warehouse stock. The first check for quality and completeness is made at this point.



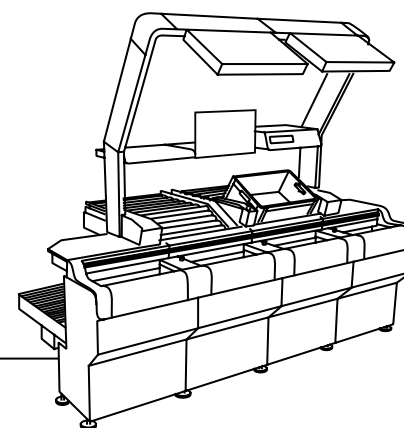
Product features such as date mark and lot are registered during goods-in at the **Pick-it-Easy Decant** stations, and the products are repacked from pallets or cartons to storage containers.



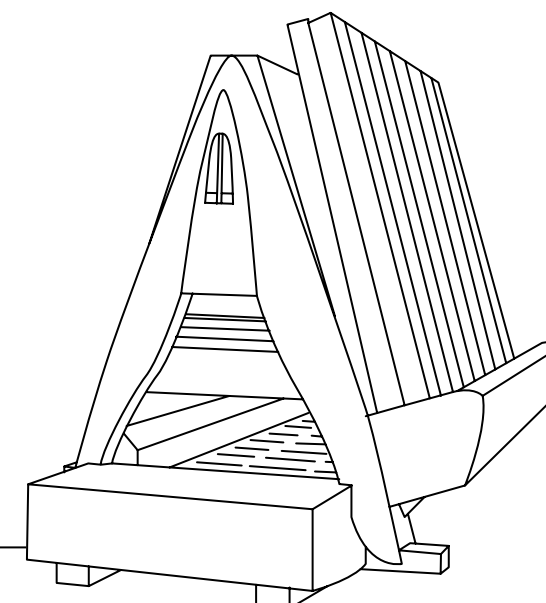
Only **one variant of the product** with respect to **type, lot and date mark** is stored in the storage container.



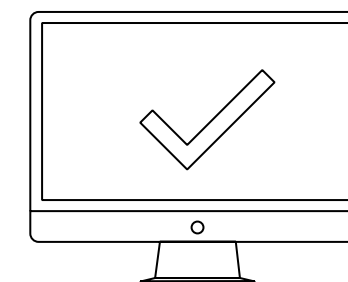
Since every storage container in the system can be uniquely identified, from this point on, the tracking of the article in the warehouse is assured.



During picking at the **Pick-it-Easy Evo work stations** or during manual picking using **RF terminals**, the warehouse worker assigns the recorded product information to a customer order.



For the **A-frame picking machines**, a **lot change** is recognized by the **RF terminals** during **guided replenishment of the channels** from storage containers. For fully automatic picking, the lot used is therefore recorded in the customer order.

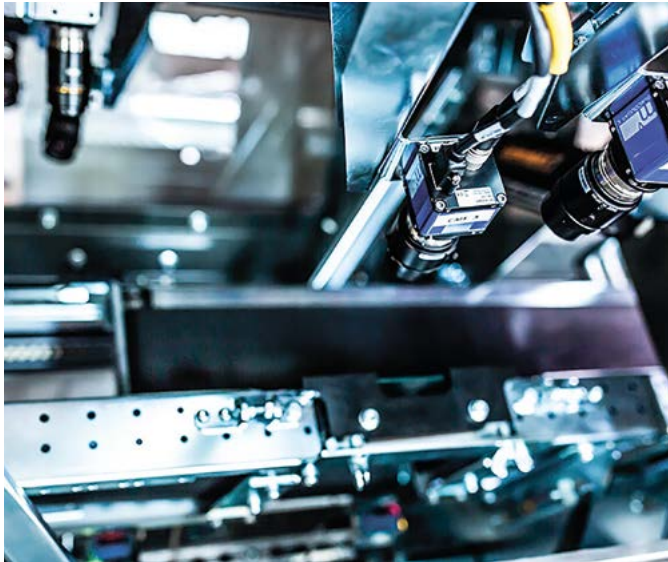


All quality assurance processes in the warehouse, such as error correction or quality controls, also offer the opportunity to check product information and to correct it if necessary.



# Louisiana Wholesale Drug: Innovative solution with Vision technology

Louisiana Wholesale Drug (LWD) is headquartered in Sunset, Louisiana in the USA. In the warehouse, proven central belt technology with SDA ejectors is ideally suited for picking the fast-moving products of the pharmaceutical and healthcare sector and is combined with the latest image recognition and processing technology, Vision Item Check for further quality assurance.



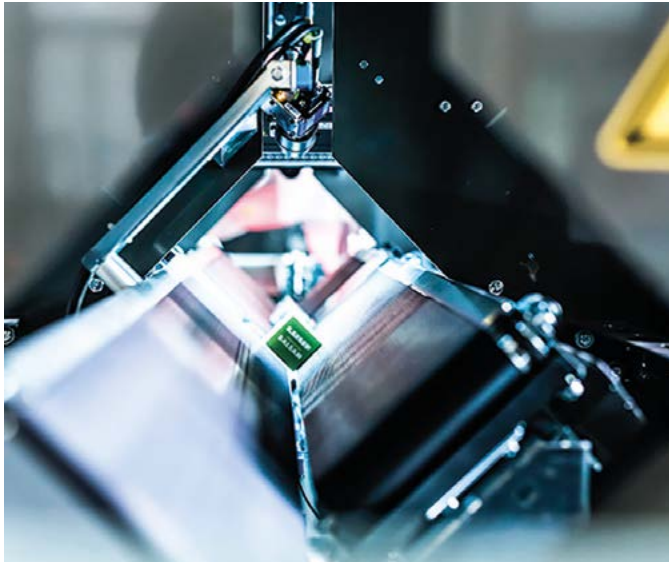
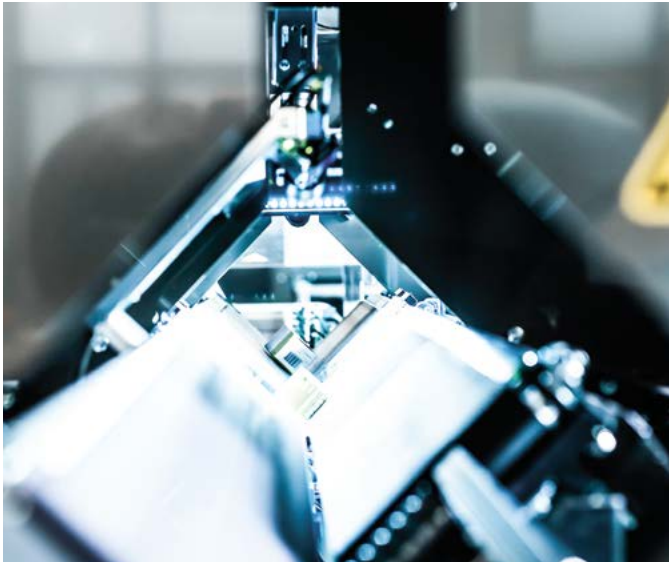
- **Software:** KiSoft WCS – controls, monitors and optimizes all processes in the warehouse.
- **Paperless picking** of prescription medicines (RX) and over the counter (OTC) medicines in manual stations using RF terminals.
- **Central Belt System with SDA ejectors** picks fast-moving products automatically. 980 stock units can be processed with the 1,100 autopicker channels. The Central Belt System was enhanced with the image recognition and processing technology Vision Central Belt in order to implement 100 % checks for all products picked automatically. The control software ACS ensures that articles are ejected precisely onto the central belt conveyor. The ACS user interfaces come in the easyUse design and can be operated easily and intuitively using touch screens. The fill level Light

Guided Indicator is also used to help ensure speedy replenishment of the autopicker channels.

- **Handling systems:** Fully automatic dispatch preparation, automatic stackers and destackers, automatic document insert station, automatic label insert station, container closing machine, strapping machine.
- **Vision Technology:** Vision Item Check ensures that single items are checked quickly and reliably and records safety features such as lot information and date marks using high-performance camera systems reading one-dimensional and two-dimensional codes. Vision Item Check thereby combines performance and quality, ensuring that medicines can be traced along the entire length of the supply chain.

*"Thanks to Vision Item Check, we can now fulfill the legal requirements for tracking medications (note: for improved patient protection). That being said, it will also greatly improve our goods-in procedure, enabling it to keep up with our growth."*

**Ricky D. Ducote**  
CFO & V.P. of Operations  
Louisiana Wholesale Drug



## Shipshape orders with Vision Item Check

High demands for quality require time and are usually achieved at the cost of throughput. However, using modern image recognition and processing technologies, Vision Item Check increases efficiency for checking processes, while at the same time fulfilling the demands for quality. Vision Item Check complements KNAPP's palette of Vision products as a perfect innovation for processing and checking single items. Vision Item Check can be used versatily for data acquisition from one-dimensional and two-dimensional codes and for 100% checks, for instance, in the goods-in area, in the area around the Central Belt System or in returns. It also forms part of special solutions such as the Pack 2 Patient Solution, for reliable and seamless preparation of patient orders. What's more, Vision Item Check is the perfect retrofit solution and can be integrated into an existing system quickly and simply with a reasonable investment.





# New Patient Services Open Up New Paths in Medicine Distribution

How can patients receive their ordered medicines automatically, efficiently and without errors? Different models are capable of picking medicines exactly as prescribed, including in the prescribed quantities, for the patient: Since ensuring patient safety is paramount, the focus is on process reliability and quality during preparation.

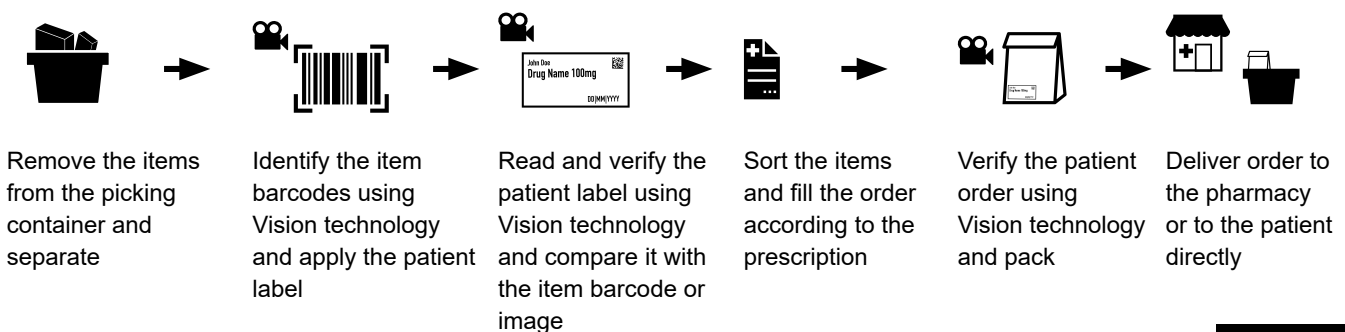
## Hub and spoke

Central dispensaries and hub-and-spoke systems provide the answer to today's customer behavior, market conditions and legal requirements. In automated distribution centers, prescriptions and orders arrive from doctors or pharmacies in electronic form and are filled for each patient individually. Central dispensaries and hub-and-spoke systems are highly suitable for filling prescriptions for long-term medication.

### Safe single-item handling with Pack2Patient

Orders in electronic form and patient-based fulfillment have led to the emergence of one requirement in particular: handling single items intelligently and efficiently. Pack2Patient is perfect for handling this challenge. Our solution is perfectly in step with the use of central dispensaries and hub-and-spoke systems to fulfill patient orders. Patient-based orders are automatically and reliably prepared, with the highest efficiency. What's more, Pack2Patient offers fast order processing while also ensuring top delivery quality and end-to-end traceability. Pack2Patient is flexible and can be scaled according to the requirements of each customer.

At the heart of the solution is our intelligent KiSoft software, which ensures that all processes run smoothly. Furthermore, the software supports employees with intuitive user guidance provided on easyUse user interfaces. KiSoft SCADA offers a clear overview of all system components on various end devices.



Video tip





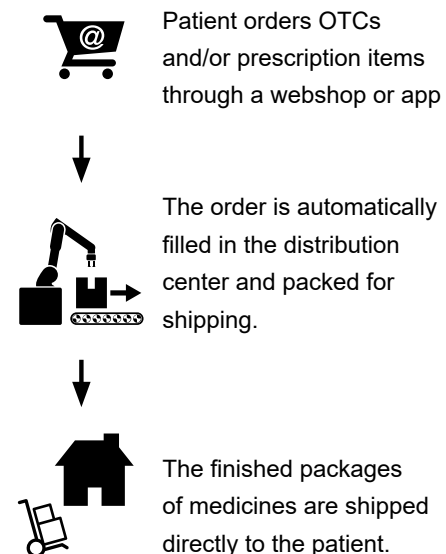
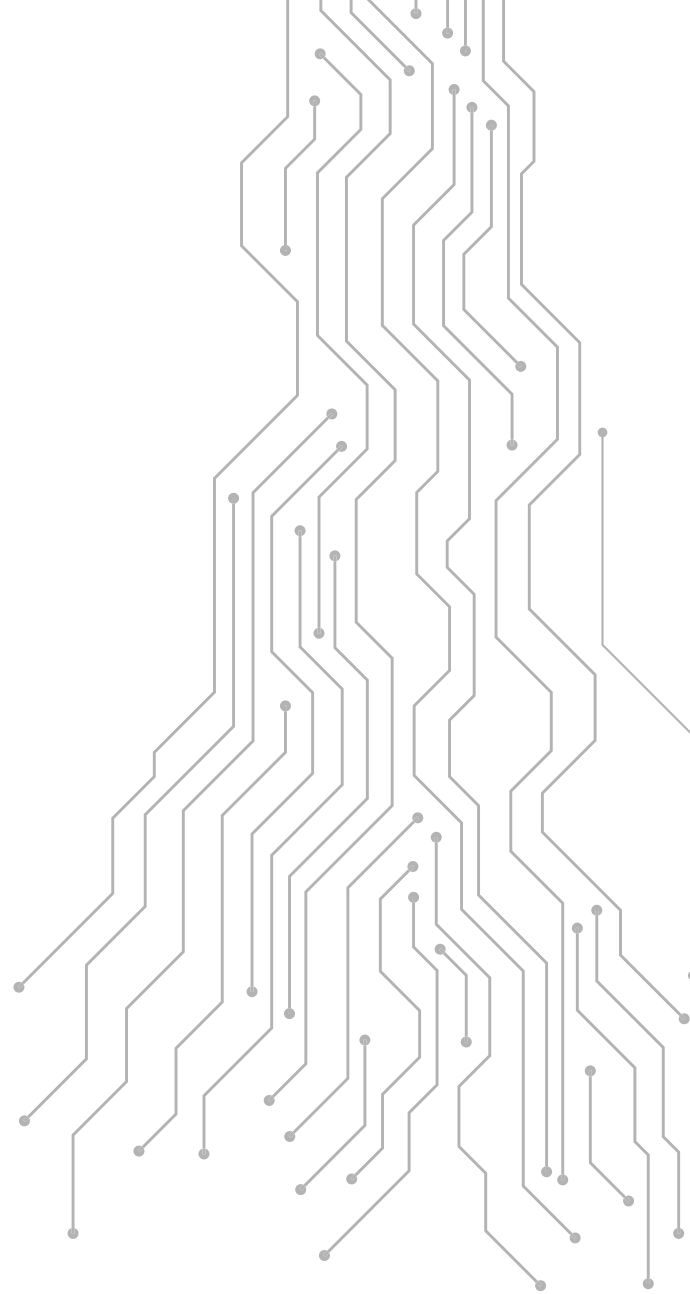
## Online pharmacies

Is e-commerce your core business? For online pharmacies with most of their orders coming in through the Internet and who then deliver to the patients directly, the future-oriented B2C solution with the KNAPP-Store as its core technology delivers a real plus in quality.

Online pharmacies are a growing business area. In e-commerce business, which is characterized by large numbers of small-quantity orders, the advantages of the KNAPP-Store are especially apparent because it can process orders faster, with less effort and practically error-free. The heart of the solution is KNAPP's Central Belt System, which is connected directly to the SDAA-frame picking machine for fast-movers and the KNAPP-Store for the medium and slow-moving range. The integrated warehouse management and warehouse control system software, KiSoft, manages stock and organizes the flow of material within the warehouse.

The straight-forward storage process requires little manual effort: An employee positions the items on the goods-in conveyor. The articles are then automatically scanned, registered and stored.

Since the KNAPP-Store has a much higher storage density than typical pull-out bins, the space required for storage is significantly reduced. What's more, it supports lot and serial number tracking. By precisely monitoring article characteristics, articles with a specific lot or serial number, or with a specific date mark can be retrieved at the push of a button so they can be picked in due time.



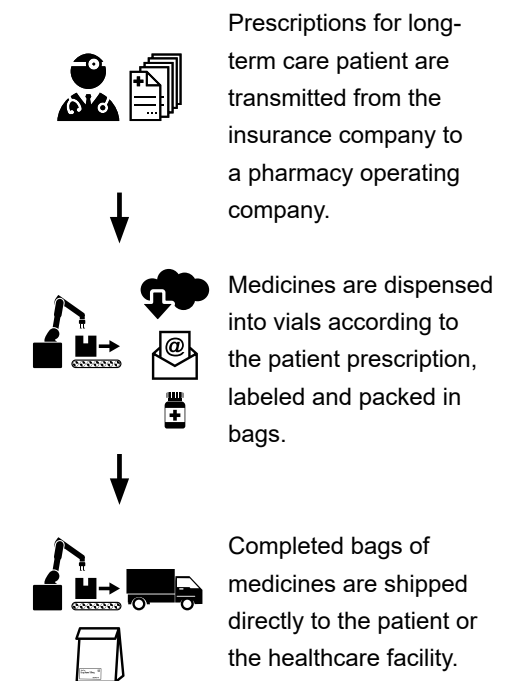
## Mail Order Central Fill

The Automatic Tablet Dispenser (ATD) and the KNAPP Medication Dispenser (KMeD) are both reliable solutions for fast- to slow-moving medicines that allow safe and efficient picking of individual tablets for patient orders in vials. The vials are automatically labeled for each patient and conveyed on a puck conveyor, held securely upright, before being either automatically or semi-automatically packed.

Again, process reliability and quality are top priority. The reliable replenishment process allows transparent and continuous traceability. A stream of air ensures that the vials are filled with medicines accurately – the system also identifies broken pills and capsules. All materials that come into contact with the medication have been certified by the FDA (Food and Drug Administration).

### Advantages:

- Reduced and efficient use of resources
- Flexible and scalable solution with a short pay-off time
- Light- and moisture-proof storage
- Easy maintenance
- High safety standards
- Optimal hygienic conditions
- FDA-certified materials
- Suitable for 99 percent of the NDCs (National Drug Code Directory)







### What does it take to digitalize a brick and mortar pharmacy?

- Digitalizing a pharmacy means integrating individual processes.
- Established processes are mapped digitally or automated to save work steps.
- Integrating the workflow makes optimal use of resources and provides all employees with the data they need immediately.
- Daily tasks such as managing expiry dates, stock differences and returns are simplified.
- Considerably higher storage capacity and digital touch points save space and therefore rental costs.

# Changing Pharmacies

Over the years, pharmacies have undergone constant gradual change. Until recently, pharmacy automation had been all about efficient warehouse management, human resources and saving time. Today, however, more and more pharmacies are taking the first steps towards digitalization.

To make omnichannel business in healthcare a reality and meet the demands of a new generation of customers, modern pharmacies are offering digital prescriptions, e-commerce in brick and mortar stores as well as 24-hour telepharmacy terminals. In addition, the expected shortage of qualified pharmaceutical sales assistants and technical assistants is prompting pharmacies to take another step into the future.

### Pharmacies viewed and aligned holistically

For pharmacies, the holistic approach provided in the solution portfolio of KNAPP Smart Solutions is just what the doctor ordered. An optimized stockroom, motivated employees, efficient and integrated processes in both back and front office as well as digital solutions and opportunities for interaction with the customer are all important contributors to customer satisfaction.

Continuing to develop and refine pharmaceutical service and supply of medicine round the clock is very important to us, which is why we developed a 24/7 terminal connected to an ApoStore dispensing robot. This unique system allows patients to order their medication at any time and to receive video consultation to boot, combining maximum convenience and comfort to increase patient satisfaction. Even prescription medicines can be picked up after hours thanks to independent round-the-clock consultation, offering exciting new options for providing pharmaceutical care and strengthening the positioning of pharmacies as a reliable partner in healthcare.

The pharmacy team is additionally freed from storage tasks that involve a lot of detail and time, meaning they have much more time to advise customers. All of KNAPP Smart Solutions' digital solutions can be controlled through a uniform software suite and can be implemented according to the pharmacy's specific needs:

- Interactive shelves and self-serve terminals allow customers to decide how much service they need when they are at the pharmacy.
- More space for customers to browse and hygienic, theft-proof storage of medicines thanks to the use of automatic picking machines.
- A 24/7 terminal provides freedom, flexibility and top service independently of the pharmacy's opening hours.

### Máxima hospital in Veldhoven backs the 24/7 terminal

The Dutch after-hours pharmacy owned by Nick van der Zanden has already put the innovative solution into action in the after-hours department at Máxima hospital in Veldhoven. An ApoStore with an integrated 24/7 terminal serves the 45,000 residents of Veldhoven and the region of de Kempen. Patients receive care from the main pharmacy team in nearby Eindhoven via secure video connection. "This solution saves patients a lot of time. They can pick up their medication at the 24/7 terminal immediately after being diagnosed by an after-hours physician. That's a huge step forward for patient service," reports van der Zanden. Each package of medicine is reliably dispensed and is completely documented. A video recording ensures that all medicines that are dispensed, along with the automatic labels including dosage instructions, can be traced. Demand for the 24/7 terminal is high. During the week, an average of ten to 15 patients visit the emergency pharmacy each night. This number climbs to 80 on holidays and reaches 100 on weekends.

### Hospital pharmacy run by robot technology

A high-tech automated picking system at the hospital pharmacy of the University Hospital Graz (LKH Graz) in Austria makes sure that all patients receive their medication on time. Gone are the days when employees had to run through aisles with lists of orders to fetch and prepare medicines for patients or delivery orders. Today, pharmacy logistics is completely automated with cutting-edge robot technology, which forms the crucial link between material management and transport services. "The many advantages of the high-tech system include less walking for personnel and space-saving storage of medicine as well as more organization and clarity through lot traceability.", says Mag. Dr. Marianne Leitner, Krankenhausapotheke LKH Graz.





# KNAPP Hospital Campus Automates Hospital Logistics

Numerous processes in a healthcare facility need to run like clockwork to ensure optimal care for patients. In addition to comprehensive first care, counselling and providing care in the facility, serving patients the correct food punctually and providing the right surgical instruments are also very important. Precisely these so-called tertiary healthcare services hold great potential for process optimization. But what does this exactly mean? Process optimization can be achieved with an intelligent logistics solution forming the physical link between the disciplines and simultaneously generating added value for patients.

## Health sector on the move

The health sector is on the move. While the length of stay in hospitals and in-patient healthcare facilities is decreasing, the number of patients is growing disproportionately with the increasing life expectancy. As a consequence, the demand for personnel is growing along with cost pressure. The highest level of hygiene and requirements such as end-to-end traceability both ensure the well-being of the patients and are also among the central requirements in the health sector. These developments and requirements are placing greater demands on caring for patients individually and, economically, resulting in many new questions such as :

- How can an increasing number of patients and healthcare and nursing facilities be efficiently supplied?
- How can the legal requirements such as continuous traceability be best implemented?
- How can we ensure the highest level of hygiene?
- How should we design the tertiary supply processes so that they are profitable and at the same time create the maximum added value for patients?

*"At the center of the approach is the re-designing of the tertiary supply processes with the goal of: professionalization through centralization. Medicines, ward supplies, food, sterile surgical instruments and much more are all needed in a single healthcare facility. So, why not bundle the various logistical processes of the supply chain and supply healthcare facilities centrally from one location? This is precisely what we achieve with the KNAPP Hospital Campus, raising tertiary supply to an all new level,"* says Johannes Kompek, Healthcare Solutions, KNAPP AG.

*„Wir haben mit der Shuttle-Technologie im Bereich der Medikalprodukteversorgung herausragende Ergebnisse im Bereich Effizienz und der Qualität erzielt. Deshalb konnten wir uns sehr gut vorstellen, diese Technologie auch im Bereich der Sterilgutversorgung und der Speisenversorgung zu etablieren.“*

**Michael Dohmann**  
Geschäftsführer ProServ

## Simple. Flexible. Completely traceable.

The heart of the solution is a combination of automatic storage system with different temperature zones and fast buffer towers for sequencing. With the OSR Shuttle™ Evo functioning as the central storage solution, all the goods are stored space-effectively in one location, allowing access at all times. The OSR Shuttle™ Evo supplies the various other areas in the KNAPP Hospital Campus with the necessary goods, be it a commercial kitchen, the sterilization area or work areas where medications are dispensed. The Fastbox Evo forms buffer towers for the system and creates the correct sequence; for example, food trays are sequenced according to patient room number.

Simple, flexible and completely traceable – these qualities are the three pillars supporting the KNAPP Hospital Campus. By handling tertiary supply from a central location, the processes are streamlined and simplified. By using common resources, such as a vehicle pool, additional synergistic effects are achieved. What's more, supply to the decentralized healthcare facilities is on time, flexible and as needed, furthermore saving valuable space at the healthcare facilities. The focus always remains on the patients, their safety and their individual needs because thanks to central handling, all the steps in the process are transparent and traceable. This is how the KNAPP Hospital Campus becomes the intelligent logistics link between the various requirements of the healthcare sector. The KNAPP Hospital Campus creates added value for both patients and healthcare facilities.





In the goods receiving department, article data is recorded and the articles are repacked into a special container system



Sterilized surgical containers are provided by high-performance fastboxes in the required sequence



Highly efficient series production of patient menus



Formation of single-variety container stacks with up to 6 patient menus

## ProServ sets new standards in healthcare logistics

As a complete supplier to healthcare facilities, German company ProServ is setting new standards in healthcare logistics with the KNAPP Hospital Campus. Since starting operation in December 2018, ProServ has been supplying their hospital patients with complete meals on trays. Every day, 6,000 trays leave the facility, sorted by the OSR Shuttle Evo Fastboxes. Furthermore, the healthcare logistics center processes surgical instruments for 10 hospitals. For more than 20 years, ProServ has been supplying consumable goods to a total of 28 hospitals and 50 long-term care facilities as well as a multitude of other organizations in the healthcare and social services sector. The ProServ organization has been relying on KNAPP technologies since 2012. Their focus has always been on proximity to customers and understanding their needs. This

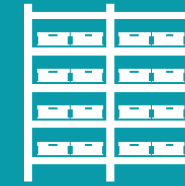
innovative service concept is based on the expertise gained from many years of experience in the healthcare sector. Michael Dohmann, Managing Director of ProServ, explains the significance and advantages of such a logistics center for the future of healthcare: "Hospitals focus on providing cost-effective services with quality assurance. Hospitals can only survive if the quality standards they provide are accompanied by optimal cost structures. This requires optimal processes, not only when working directly with patients, but in all the overall supply processes. The healthcare logistics center, in collaboration with an outstanding logistics provider such as KNAPP and an expert in clinical structures and processes such as ProServ, offers promising competitive prospects."

## How the KNAPP Hospital Campus works



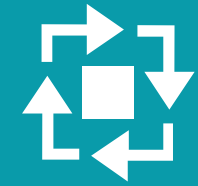
### Incoming goods

During inbound deliveries, all the relevant data is captured and saved in the KiSoft software system. Food, surgical instruments or swabs – every article can be immediately located at any time.



### Storage

The goods are stored in the OSR Shuttle™ automatically. Every article is assigned to the right temperature zone by the software.



### Supply

As needed, the raw materials and components are retrieved from storage and conveyed to the work areas, for example, the commercial kitchen.



### Buffering

Assembled meals on trays or recently sterilized surgical kits are temporarily stored in the OSR Shuttle™ Evo until they are needed.



### Sorting

Fast buffer towers create a precise sequence; for example, meal trays are put into the sequence in which they are served to the patients.



### Assembly

The meal trays arrive at a work station already in the right sequence and need only be placed into the ward food cart. Every patient then receives the correct meal and work at the healthcare facility is simplified.

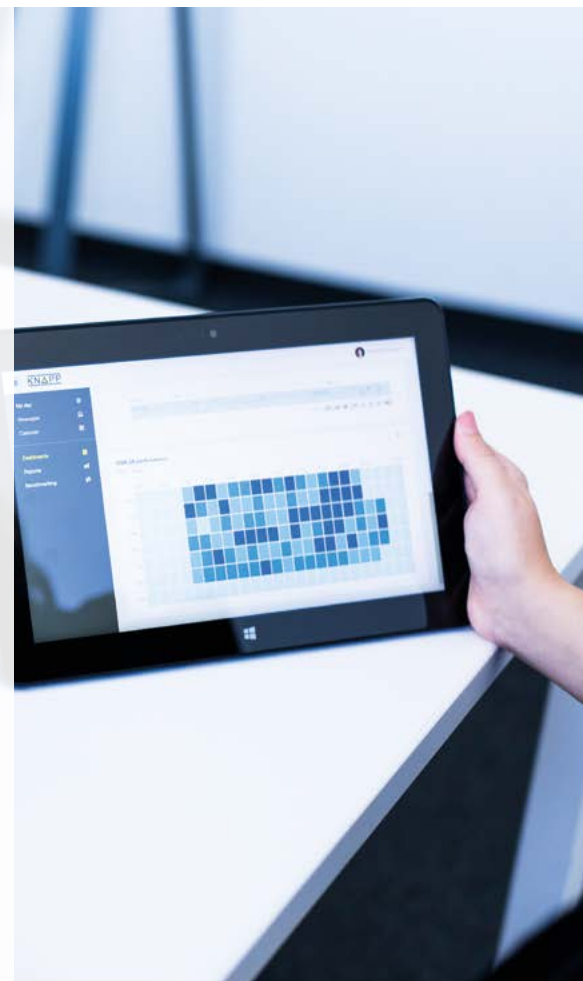
Video tip





# What are the Benefits of Intelligent Logistics Software?

Software is the invisible force and central intelligence in a warehouse. Software enables optimized, individual and transparent processes both in the warehouse and along the entire value chain. In our data-driven world, the right software is the basis for success. With our software product lines KiSoft and SAP® EWM by KNAPP, we offer our customers the best of both software worlds.



## Making software tangible



### We listen and visualize

The concepts of logistics processes and procedures are especially vague in the initial phase of a project. That's why we take the time to get to know you and your business in depth. We create system solutions that are not only tailored to your business, but that also leave room for individuality and future growth. We accompany you on the journey from the initial designs to the finished concept, which forms the foundation of the real solution – and this has visible results.



### Design and implementation

The KNAPP method for analyzing and modelling business processes allows our experts to shape the essential framework for your individual solution and make the necessary software configurations transparent and easily grasped. This approach minimizes the risks and therefore the costs over the course of the entire project.



### Virtual startup

We use simulation and emulation models to immerse ourselves in virtual software worlds and build 2D or 3D models with a detailed representation of the system. The warehouse comes alive before installation work has even begun, revealing the system's capacity. This course of action considerably increases efficiency over the course of the project and fits KNAPP's *zero defect philosophy*.

## KiSoft WMS

Plan, control, monitor and optimize – KiSoft WMS manages and connects all processes from goods-in to goods-out and provides all of the necessary functions with their combined strengths in manual and highly-automated warehouses.

### High level of standardization

Our comprehensive KiSoft portfolio has proven itself in thousands of applications; it combines experience with innovation and offers maximum performance, availability and state-of-the-art communication. We continue to develop our software portfolio, calling on its years of experience, industry know-how and expertise.

### Modular system architecture

KiSoft WMS has a clearly sub-divided, modular system architecture that guarantees the highest degree of flexibility and scalability. On average, the wide scope of functions of the KiSoft WMS standard package covers 90 percent of requirements. In addition, you have the freedom to carry out extensive customization. A software solution tailored to individual requirements makes up a relatively small proportion of the investment volume of a logistics system, but makes a disproportionately large contribution to the success of a business, often decisively differentiating customers from the competition.



*"Since the supply chain is facing major challenges, investing in high quality solutions is key. Choosing KNAPP as our partner was the right decision."*

**Dimitar Dimitrov**  
CEO  
Sopharma Trading Group

We have combined swift and efficient implementation with simple integration in diverse Host systems with the all-in-one KiSoft WMS software solution. Individual lifecycle support ensures maximum investment security.

*"Since the supply chain is facing major challenges, investing in high quality solutions is key. Choosing KNAPP as our partner was the right decision. The automated systems for warehouse management and the distribution of medicines that have been implemented in our logistics centers in Sofia and Varna, Bulgaria, are unrivalled not only in the Bulgarian healthcare sector, but also across the Balkans. KiSoft WMS controls all our warehouse processes – from receiving products in the goods-in area and managing all storage locations to guided picking processes and goods replenishment. As the central control system, the software enables us to switch the entire warehouse on and off. In addition, we can also detect bottlenecks early on, making it possible to identify potential for improvement. The software merges and accumulates information independently of on-going operation through continuous data collection in the background. The warehouse's key performance indicators (KPI) are updated continuously on the web interface without time-consuming preparation or delays and clearly displayed for the user. KiSoft takes into account all long-term statistics as well as performance- and quality-related statistics. Based on the statistics, the Management can make decisions to enhance performance,"* says Dimitar Dimitrov, CEO of the Sopharma Trading Group.

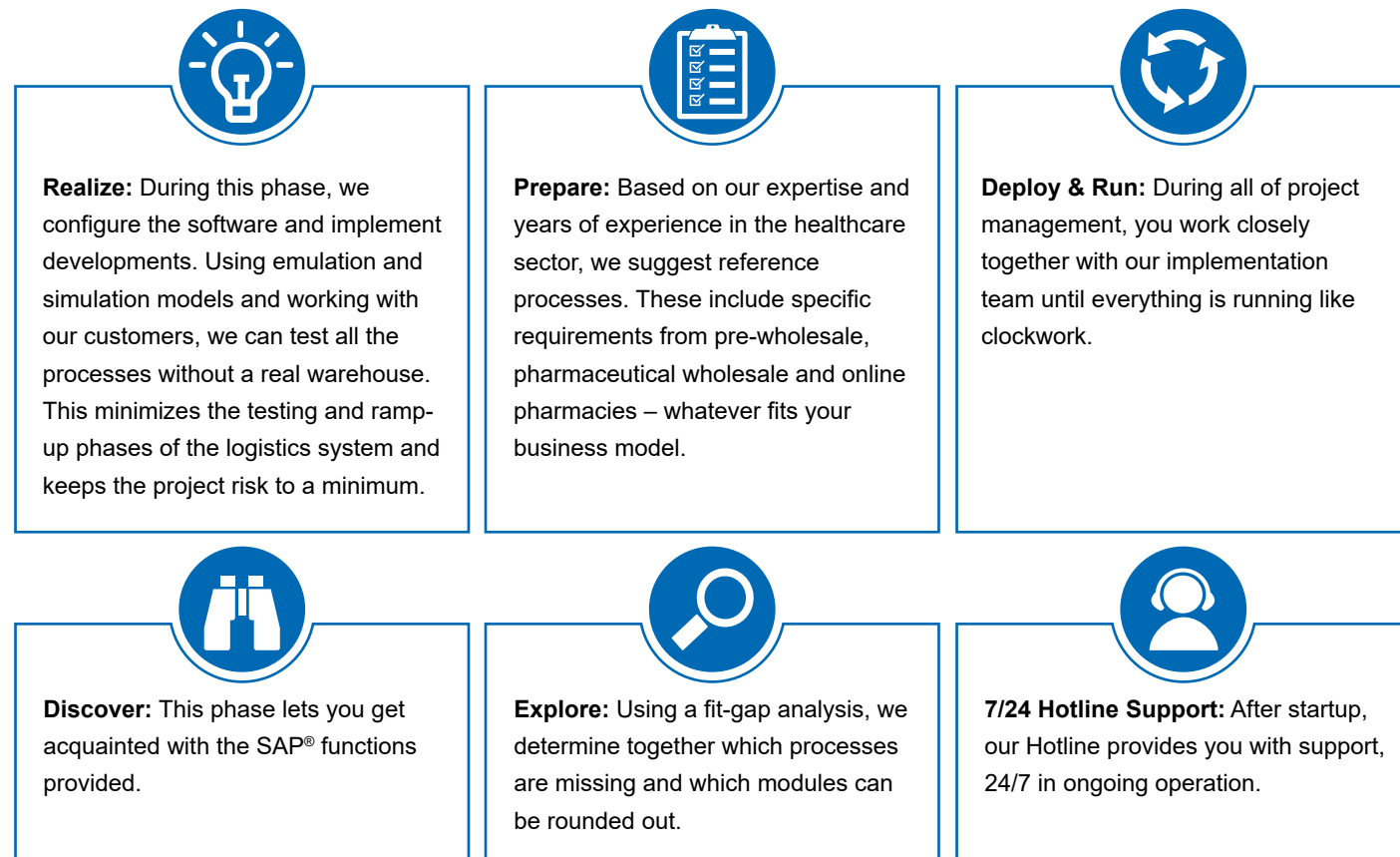


## The KNAPP Healthcare Model Company – your quick and efficient way to an SAP® EWM solution

Have you decided on an SAP® IT strategy but are feeling less than enthusiastic about a long specifications phase? If so, you're in the right place. With our Healthcare Model Company, we offer preconfigured, installation-ready and end-to-end software modules that broaden the SAP® standard and are tailored to the special requirements of the healthcare sector. Your benefit? Take advantage of our detailed process know-how, honed and perfected through long-term customer partnerships in the healthcare sector. This includes more than 700 installations across the globe, including large companies such as Alliance Healthcare, McKesson, ABCD, Phoenix, Noweda or Sanacorp as well as local healthcare specialists.

*"With our Healthcare Model Company, we have a framework that already includes your processes. Working together, we find out what you need beyond the framework and then implement these requirements rapidly. Through this joint effort, your key users get their hands on the EWM system early on. This saves you time and costs, reducing the risk from the start," says Gerald Lassau, Managing Director of KNAPP IT Solutions GmbH.*

*Project management according to the SAP® ACTIVATE principle:*



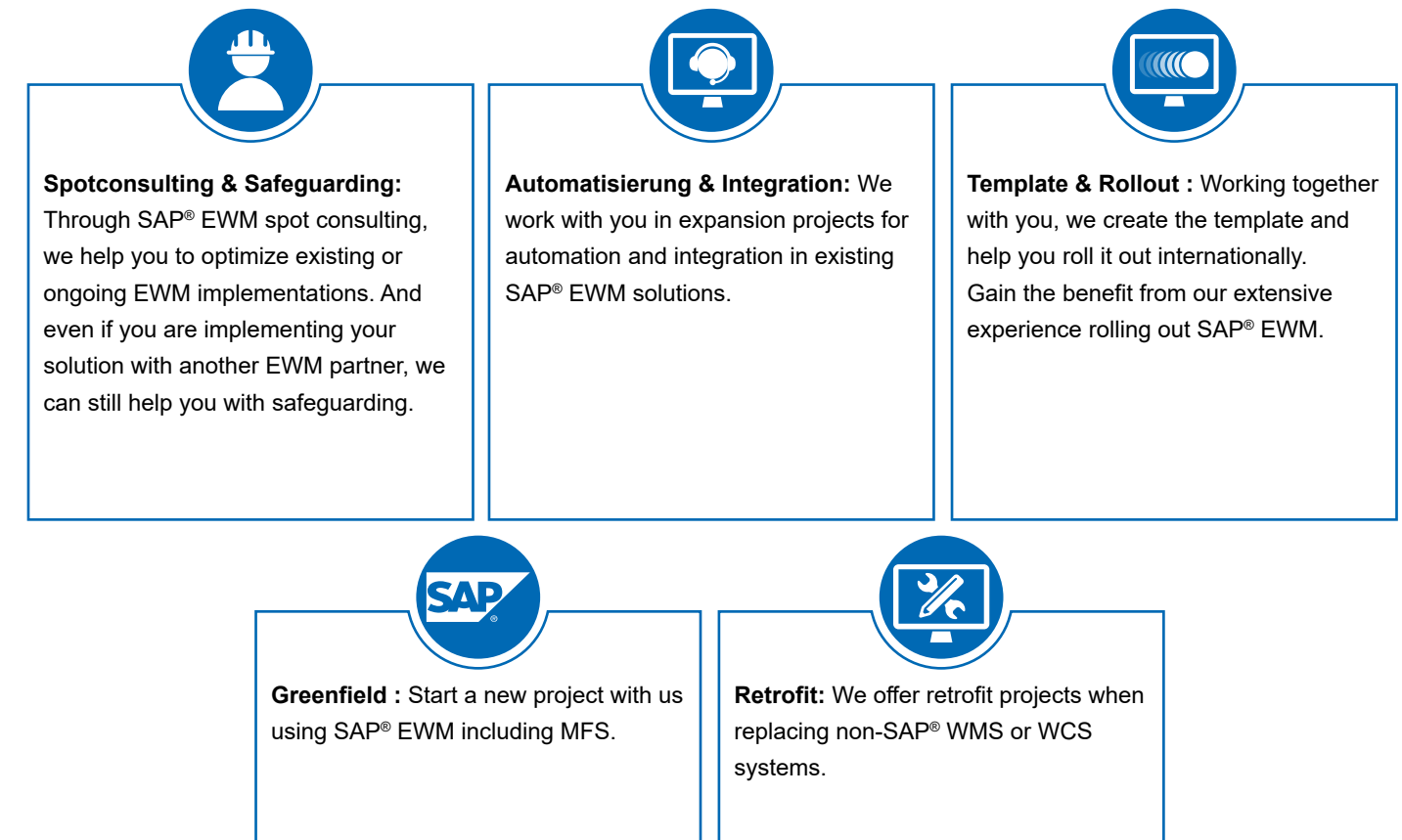
*"As our implementation partner, KNAPP has optimally mapped all processes according to our requirements, including the sub-systems in use. The intensive support and sharing of knowledge ranging from the development phases through to the test phases and successful startup were crucial for us."*

**Lukas Röbl**  
Head of Process Management and Project Manager  
SAP® EWM Voigt

## End-to-end SAP® solution

Our customers benefit from an end-to-end SAP® solution with direct integration of the subordinate systems and use of KNAPP building blocks – proven software modules in SAP® technology.

*Your opportunities beyond the KNAPP Healthcare Model Company in an SAP® EWM environment:*







**The world is changing.  
So is logistics.  
Partnerships are built to last.**



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