

Intelligent Urban Networks

making complexity simple

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Intelligent Urban Networks



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on shaping the value chains of tomorrow*

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SAP® EWM expertise*

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**Ladies and gentlemen,
valued business partners!**

We look back on an eventful year. We have struggled and faced uncertainty, and there is no doubt that a time of growing challenges lies ahead of us. The pandemic and its effects on the global value chains, and the resulting trends are on our minds every day. However, we believe the changes induced by COVID-19 are really just an acceleration of already existing trends, such as getting closer to customers despite social distancing, responding flexibly to rapid changes, offering more convenience to customers on different channels, keeping promises regarding quality and delivery time and including the returns process efficiently. All these topics were already extremely important before the pandemic – now, they are decisive for the future survival of a business model.

Especially in urban areas, this high demand on supply chains becomes apparent in light of the current situation. Items that previously have never been ordered online, are now sold online and new groups of people and age groups who had never ordered anything from the internet now use online shopping or click and collect.

Still, we are convinced that brick and mortar retail will continue to play an important role in the consumer's shopping behavior. Humans are social animals – when we shop, we enjoy interacting with others, meeting others, and we want to talk about our choices and get advice from real people.

All current approaches to these requirements such as delivery through several channels, regional hubs and micro and nano-fulfillment solutions are important elements of future logistics in cities. None of these elements, however, is a panacea on its own. The future is not about omitting individual models, but about connecting them and other models in an intelligent way all along the value chain to create what we call an Intelligent Urban Network. We summarize our solutions for this intelligent network under the term New Urban Logistics.

The right technical solutions make existing options more efficient and enable us to tread unknown paths. Our intelligent software connects different models within the value chain and supplies the right information.

In this issue, you will read more about interesting approaches and successful examples of how our customers use KNAPP warehouse solutions and KNAPP software on their path towards a successful future – the proof that we are a resilient, growth-oriented and innovative company despite the pandemic and that we are always available as your reliable partner.

Enjoy reading and stay healthy! We look forward to seeing you again soon and in person.

Heimo Robosch

Omni-channel is the new standard



What do international customers expect when they shop?

39 %

of customers are unlikely or extremely unlikely to go to a store if they cannot check online for product availability. (Forrester)

55 %

of online shoppers say free shipping is the most important checkout option. (Pixel Union)

60 %

of millennials expect a consistent brand experience. In-store, online, and on a smartphone. (SDL)

64 %

of customers who changed their shopping behavior due to the COVID-19 pandemic express a high intent to switch towards online retail in the future. (McKinsey)

72 %

of adults prefer digital forms of communication with companies. (MarketingSherpa)

85 %

of customers say that they are more likely to buy from brands they follow on social media. (Think with Google)

Omni-channel – the supreme challenge



51 % of companies use at least eight channels to interact with customers. (AberdeenGroup)



56 Cent of every dollar spent in a store is influenced by a digital interaction. (Deloitte)



Customer satisfaction is **23 times greater** in businesses using an omni-channel strategy. (Aberdeen Group)



On average, customers who conduct research online beforehand spend **13 % more** on their purchases. (Shopify)

Estimates suggest that **95 % of all purchases will be made online by 2040** (Nasdaq)

Omnichannel services are already integrated into our everyday lives.



Contactless payment



Virtual consultation



Curbside pick-up



Local delivery



Click and reserve



Social commerce

K.I.S.S.

Keep it Simple and Seamless



Convenience



Variety



Experience



Speed

Discover more about the 4 most important factors in omni-channel business on page 9.

Which digital services do customers want to see in stores?

Wi-Fi in stores is the tip of the iceberg when it comes to digital services in stores. Many customers are open to other digital services. How about real-time information on the current stock in the shop or a navigation application that shows the customer where to find the desired items? [bitkom-research.de](https://www.bitkom-research.de)



Navigation applications guiding customers to the desired products



Product information through tablets, smartphones or QR codes



Individual special offers in applications



Real-time information about the stock in a store



In store Wi-Fi



Today, many shopping trips actually start online. Services such as click and collect or 24/7 pick-up are booming.

Creating intelligent networks

New approaches to customer proximity and profitability

Currently, we have considerable challenges to overcome. End customers want more and more services and smooth shopping experiences. However, the fulfilment of these wishes carries a big price tag. Furthermore, COVID-19 has fundamentally changed the basic conditions. How can these demands be satisfied, and how can we create added value at the same time? Let's begin thinking end-to-end: In the future, it will be increasingly important to create linked value chains that include production, distribution and the end customer. Smart technologies and processes will be the critical factors that will make this success possible. What are the benefits that result from having digitally driven value chains and what role do agile networks play in urban areas? The following article provides answers to these questions.

Omni-channel: All roads lead to the customer

Today, the happy customer is an omni-channel customer. That's why with omni-channel retail, it all begins and ends with the end customer and their needs. These customer needs run the scale from *I want to check the availability of my items in the store*, to *I need flexible options such as home delivery or click and collect*, or *I'd really like to consult with an expert and I can send this back at no additional cost, right?* An intelligent supply chain network into which the customer is woven is necessary to fulfill these desires, while remaining profitable. Nowadays, the customer's journey and experience often start digitally. Studies show that 39 percent of customers do not go to a store if they cannot check ahead of time whether the goods are available at the store (Forrester). That's why it's all the more important to have an overview of the data along the entire value chain and to use the data in the best possible way.

Combining the best of both worlds

The developments associated with COVID-19 have also driven the omni-channel trend forward. Due to lockdowns and social distancing, more people have switched to online shopping, including older people. They are now also shopping for goods that they would otherwise buy at the store, such as do-it-yourself materials. At the same time, consumers need or want some goods immediately, such as food, medicine or sanitary products. Consumers have learned to appreciate the different new omni-channel services that combine the best of online and offline. These include contactless payment, virtual consultation, home delivery, click and collect (*curbside pick-up*, *BOPIS*), click and reserve and 24/7 pick-up. These requirements can be met using different approaches to fulfillment: The key is to link them intelligently so that costs are reduced, and the service level is increased.

What motivates customers

4 important factors in omni-channel retail

To meet these requirements, we use different approaches in fulfillment.



Convenience

I want it to be simple and convenient to shop and receive my products.



Variety

Do you have these shoes in black?



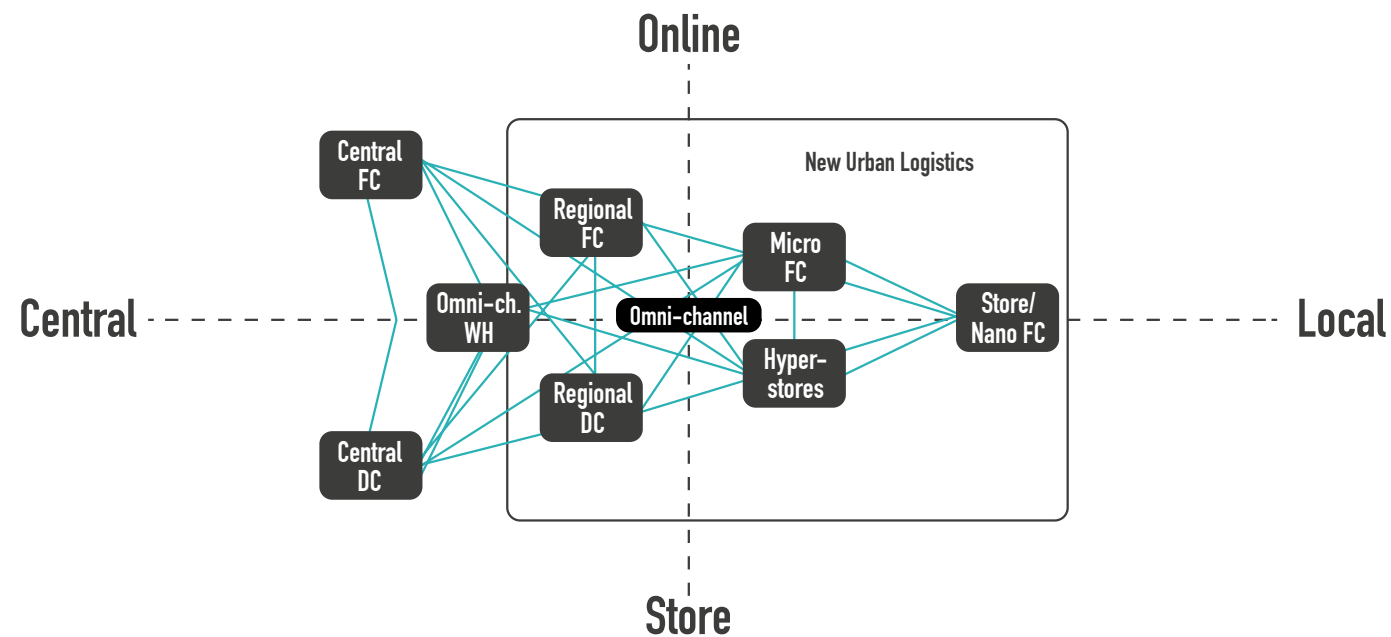
Experience

I need competent advice and want to test the goods before buying.



Speed

I need something for my headache right now!



An intelligent network is made up of different nodes. Added value arises across the entire value chain.

In the network approach, the fulfillment costs including the transport are optimized and controlled end-to-end right up to the end customer.

Central-Fulfillment, Micro-Fulfillment, Nano-Fulfillment, In-Store-Fulfillment

What is the best strategy?

An excellent question that has no general answer. It always depends on the individual supply chain network, the business models and the services to be offered. Usually, it's not just a question of either/or. In truth, the solution is to create an intelligent overall network using the right measures, technologies and processes. Here, the end-to-end costs are decisive. The entire process must be scrutinized to determine where and how added value can be created along the value chain.

A good mix leads to success

From our experience, we know that a good mix provides resilience, efficiency and sufficient flexibility in the supply chain network, making it possible to fulfil the various customer demands. A **Central Fulfillment Center (CFC)** is the backbone of the supply chain network: Many tasks can be carried out centrally, which reduces costs. Moreover, a CFC can supply a large geographic area, or even several countries. However, central fulfillment has its limits, one of which is agility. Next day delivery is certainly possible with the right logistics processes, but requirements such as click and collect within 30 minutes cannot be realized. In this case, **Micro Fulfillment Centers (MFC)** or even **in-store fulfillment** become the optimal solution. These approaches make new services and levels of flexibility

possible. The goods are immediately available to customers and can be quickly picked up or delivered, maybe even in an environmentally friendly way by a bike courier. However, the product range is usually limited and only a small geographical radius is served.



Watch this video to see how MFC works.

Adding new nodes to the network

When designing the **value chain networks of the future**, the prime objectives are to add nodes at the optimal locations, to use synergies and to create new potentials. It's now becoming apparent that nodes pointing towards the end customer and last mile gain in importance in the overall context and also lead to synergies with brick and mortar retail. This is why we are launching the initiative **New Urban Logistics** with an exhaustive solution portfolio.

Creating intelligent urban networks

Our New Urban Logistics initiative equips retailers with the tools they need to tailor their urban omni-channel networks to their needs. What does such an urban network look like and how can goods flows, people, processes and information be linked and coordinated in an intelligent way?

An intelligent urban network generally involves **two elements**:

- **Physical network:** This contains all forms of urban distribution, fulfillment centers and stores including all the possible ways to transport the order to the final customer.
- **Digital platform:** Software is the link in a widespread network. It creates the necessary transparency to correctly design and operate the network. In this way, each order can be fulfilled according to the available stock, workload, existing resources and at the right service level while simultaneously optimizing costs.



The design, technologies and solutions are always individual and tailored to the actual requirements.

Convenience and efficiency for the last mile

Not only is the last mile one of the most cost-intensive processes, it's also the source of the most frustration for customers, as when deliveries are inflexible or late. A **Micro Fulfillment Center (MFC)** increases efficiency, reduces costs and makes it possible to offer a higher service level. Thanks to fast processing in the MFC, which is directly connected to a store, the desired items are available for pick-up or delivery only 30 minutes after being ordered. With the integrated software solution, the product availability is always in view.

Software keeps it dynamic

Speed, dynamics and transparency play a major role in intelligent networks. As the central link, software shapes the digital experience and is a major tool for planning and processing orders as well as for optimizing processes. KiSoft is exactly this type of smart, all-in-one **software solution**: **KiSoft** controls every optical sensor in the warehouse, keeps an overview of the warehouse stock across several locations and allows the dynamic planning of delivery vehicles. The general overview of the conditions and data of the value chain allows systematic and proactive action as well as real-time responses. This makes it possible to lower the costs for the entire fulfillment process, introduce new service levels, and increase delivery quality.

Increased customer experience, reduced space requirements

Customers go to stores for different reasons. Some know exactly what they want. The items must be available and they do not want to wait at the checkout. Others expect expert advice, a large choice and inspiration. The **in-store system Project RetailCX** combines these needs: Thanks to a fully integrated digitalization solution, customers can go on a digital journey through the store using touch screens or an application. Contactless payment or shopping 24/7 can also be implemented. Staff is relieved of point of sale duties and can focus on providing advice. The system can additionally be used in various ways such as with local e-com fulfillment or a pop-up store.



Do you want to learn more?
Are there any questions? We'd love to talk with you about your value chain and your visions. Let's shape the future together.





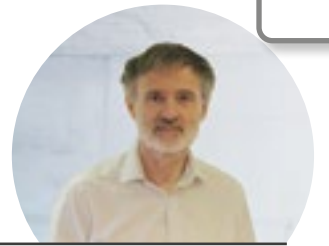
Boots' automated warehouse in Burton-upon-Trent fulfills the online orders for boots.com.

The solution scooped many supply chain and logistics award like the Grocer Gold Award or the Supply Chain Excellence Award.

A partnership of innovation

Boots UK and KNAPP work together on shaping the value chains of tomorrow

We at KNAPP strongly believe that long-term success is based on long-term partnerships. For more than two decades, Boots UK and KNAPP have developed a strong partnership. It's fair to say that during these years we have grown together, mastered new challenges, and celebrated great success together. In this interview Andrew Blundell, Walgreens Boots Alliance, Andreas Miller and Bernd Stöger, both KNAPP, share insights into this long-term collaboration and what it really takes what it really takes to innovate together. Furthermore, they talk about the impacts of the 2020 pandemic and what kind of services the future retail store could offer in a post-COVID-19 world.



"We started thinking about working together outside the traditional supply chain and moving into retail. This clearly marked a milestone."

Andrew Blundell
Head of Strategy
Walgreens Boots Alliance, Inc

What were milestones of the partnership between Boots UK and KNAPP from your perspective so far?

Andrew Blundell:

When we began *boots.com*, over 10 years ago, we outsourced its fulfillment, which made sense for that stage of its development. As the business grew, we decided to bring it in-house and to build an automated facility in Burton-upon-Trent. This project became the heart of our *boots.com* fulfilment capability, which has been further expanded to meet growing demand. We also chose KNAPP when we built our automated pharmacy in Preston, co-located with our pharmacy distribution partner *Alliance Healthcare, who have been long-standing KNAPP customers, and in automating our dispensing warehouse on the Beeston site 20 years ago. So, if you go further back down this road the partnership has been going on for probably more than 20 years as Alliance Healthcare had been using KNAPP technologies for many years before the Alliance Boots merger.

Andreas Miller:

In fact, Boots was my first customer when I started working for KNAPP and that alone makes this partnership very special to me. What I also find remarkable, considering the long run of the project is that the teams have stayed quite stable on both sides. This kind of continuity is very helpful to form one global team and mindset, and it puts us in the position to address issues openly, work out solutions together and create a common perspective of the future.

Andrew Blundell:

Talking about the future, on one of Andreas' regular visits we started a conversation on the potential of using automation within our stores. So, we started thinking how we could work together outside the traditional supply chain and moving into retail. This clearly marked a milestone.

Bernd Stöger:

From the solution's point of view, it was an exciting journey. Due to the transformations within the organization of Boots there were also

existing networks that needed to be merged. In my opinion, it is always the right approach to look at the existing network and ask yourself: *How can we build on that to optimize the network?* This is exactly the path we are now following with the store automation concept we work on together.

How has the business changed over the past 10 years and how is this reflected in the logistics solution?

Andrew Blundell:

When I first joined Boots, supply chain meant getting stuff to the shops. So, the biggest change of the past 10 years of course has been the growth of the online business. This has only been accelerated through COVID-19. When more of your business becomes delivery to end customers rather than to shops that does indeed change how the logistics solution must operate and you need to start thinking about the full end-to-end cost, not only about warehouse efficiency anymore. For example,

*In 2006, Boots the Chemist and Alliance UniChem merged to form the Alliance Boots group which was followed by the merger with Walgreens to form Walgreens Boots Alliance in 2015. WBA has recently announced that it will sell Alliance Healthcare to its associate AmerisourceBergen Inc to create a global wholesale company. Boots and Alliance Healthcare will continue to work in partnership once this transaction is completed.



“COVID-19 showed us that resilience and flexibility are major factors in an omni-channel network.”

Bernd Stöger
Executive Product Manager
KNAPP AG

one of the things that drove our shift to single pick was store efficiency, so the benefits were not realized in the warehouse but in the stores. Similarly, thinking about delivery costs has to be an important part of the solution. Also, with the growth of e-com and omni-channel, supply chains become a part of your customer offer, as the value proposition has to include how customers receive their goods, for example home delivery or collect from store in an hour. On the one hand, you need a supply chain that can do this and on the other hand you have to make the data visible so that the customer can make the choices that they want to make. Although we have around 2,500 shops, where most of our sales and customer interactions take place, we see most transactions starting digitally today – that might be finding out if the shop is open or ordering a product on your mobile to collect it from the store later, etc. So, you have to merge all of those channels and mobile sits at the heart of it, which again is a change of the past 4-5 years. Mobile phones are an important front door to your business and a potential tool for shoppers while they are in your shop. All this means

that we need to be more flexible. Even before COVID-19 struck, we started to think about how to meet omni-channel customers' expectations with a range of solutions from central fulfillment to micro and in-store fulfillment. With the experience of the pandemic in mind, we also need to consider what kind of flexibility and resilience our future supply chain network would need.

In 2020, COVID-19 added new challenges for supply chains. How was the situation for Boots and how was the fulfillment handled?

Andrew Blundell:

The first challenge was clearly the first lockdown. Our shops were able to stay open because they are pharmacies, and so classed as *essential retail*. However, customers stayed at home, especially in city centres where we have our largest shops. Instead we saw a big switch into our online business. We had to modify our delivery promises and manage our inventory quite carefully to ensure that we had the important products for our

customers immediately available. Our supply chain folks had to find new ways of doing things, in-store picking and manual micro fulfillment centers, were solutions that we were able to implement quickly. Within the warehouse as well as within the shops, we had to adapt the ways people were working as well, practicing social distancing and increased hygiene, which of course had an impact on capacity. Using in-store picking for click & collect and home delivery let us share the load of work and make social distancing easier. As further lockdowns followed, it was interesting to see how every time the boots.com business responded more quickly with more order lines and services, which shows that customers also adapted very quickly. In general, it can be said that we learned important lessons out of this, and the next step will be to define what of this will be part of our long-term solution, to create the flexibility we talked about earlier.

Andreas Miller:

I believe, with COVID-19 we have leapfrogged some years of e-com development and we will also leapfrog

the development of stores. Customer expectations have changed, we all – *no matter what age* – have become even more digital and this is driving the digital world into shops. For example, customers will expect touchscreens to get information on products and feedback from screens as they now experience it on their mobiles.

Andrew Blundell:

Definitely, and there's a growth of contactless shopping where people don't want to touch things. Again, you end up using mobile tech within stores, e.g. with apps on your phone which you can use to scan the goods, put them straight in your bag, pay and leave the store. So that changes the in-store experience a lot.

Bernd Stöger:

Before COVID-19, we mainly focused on efficiency and experience aspects within an omni-channel network, so lower costs and more service options. What has become very clear during the pandemic is that omni-channel logistics networks also need high resilience and flexibility. As Andrew said, having a network of 2,500 stores

all over the country in place where in-store picking could be performed was a big advantage for Boots during the lockdowns. And flexibility is needed to serve all channels and to immediately respond to changes in the customer behavior, which can change within 24 hours as we have seen.

In early 2019, as a part of their partnership Boots and KNAPP already started working on the so-called Future Store, a solution for brick and mortar stores to enable seamless commerce. What were key drivers of the project and how did it develop from there?

Andrew Blundell:

It started as an efficiency question, we were thinking: *Is there a way we can make our stores much more space-efficient and labor-efficient using some form of automation?* These are the two biggest costs and automation would mean you can get more stock into less space and you need fewer people to be able to manage that. I think within the conversation we also started thinking: *Does this enable*

“Store automation is a small step in automation but a giant leap in mindset.”

Andreas Miller
Head of Sales and Account Management
Retail Solutions
KNAPP AG

also new kinds of customer offer and new ways of interacting with our customers? And I think this is where the conversation and this whole concept started to develop from.

Andreas Miller:

I remember very well that I thought: *Well, that can't be too much of a challenge. We have a similar technology in place for pharmacies, we can easily transfer that to retail.* However, we ran into an unexpected challenge which was onboarding the right people throughout the organizations and create a common mindset. Because back in those days we as KNAPP didn't have sufficient experience forming the direct interface to the customer with our technologies and the shop operations people from Boots didn't have any experience with automation. So, it took us some 3-7 meetings to create this common mindset and I can remember very clearly Andrew sitting between the two parties translating things back and forth. So, bottom line I'd say: *This was a relatively small step in automation but a giant leap in mindset for all of us.*

Andrew Blundell:

Yes, and we actually started with store visits so that our KNAPP colleagues could get a better feel of how the insides of our stores work; to take this out of the supply chain world and make the mindset changes that Andreas spoke about. Because it is quite different automating what happens with customers in a store. They don't pick to light, they don't have shifts and you can't tell them what to do – they just walk into the store and do whatever they fancy - and you have to respond to that.

Bernd Stöger:

In the beginning we started every thought with: *From the logistics point of view*, and it was so important to step out of this. In the course of the conversation we managed to merge all the different perspectives from marketing, store operations and supply chain together and in the end, we stepped out with several use cases or rather customer journeys which we decided to work on further.

Andrew Blundell:

Yes, that was indeed the process we went through, and it was a good one too.

Andreas Miller:

And still, our first designs were a disaster, I'll have to admit – the colors were wrong, the automation piece didn't match the store, there was no logo on it.

Andrew Blundell:

I wouldn't go as far as calling it a

disaster. But it had some room for improvement. *(laughing)*

Bernd Stöger:

Looking back, it was important to use this iterative approach, because that enabled us to work out potentials of which we had not dreamed of. And, I think this is how you do innovation that creates real benefit. At first you need to bring the right people together, then you focus on the same topic from different angles and finally you work out a solution that serves all perspectives. This is also why strong partnerships, such as the one we have with Boots are so important for our organization. We cannot bring in all perspectives and need the perspectives and feedback from the industry to maximize the benefit of our solutions. What is also needed is a certain level of trust and this is the great thing that we have with Boots because of our long history. We can talk about strategy, we can design solutions, we can implement them, we can run them, and we can also manage all the challenges on the way and finally we come to a point where benefit is created for both parties.

Andrew Blundell:

Yes, I would agree entirely, I was actually about to say something very similar about how partnership was important in doing this. The ability to have these open and open-ended discussions and taking the time to understand each other's perspectives. Partnership has to work for both partners, otherwise it's not a partnership.

What is the current status of the project and what are the next steps?**Bernd Stöger:**

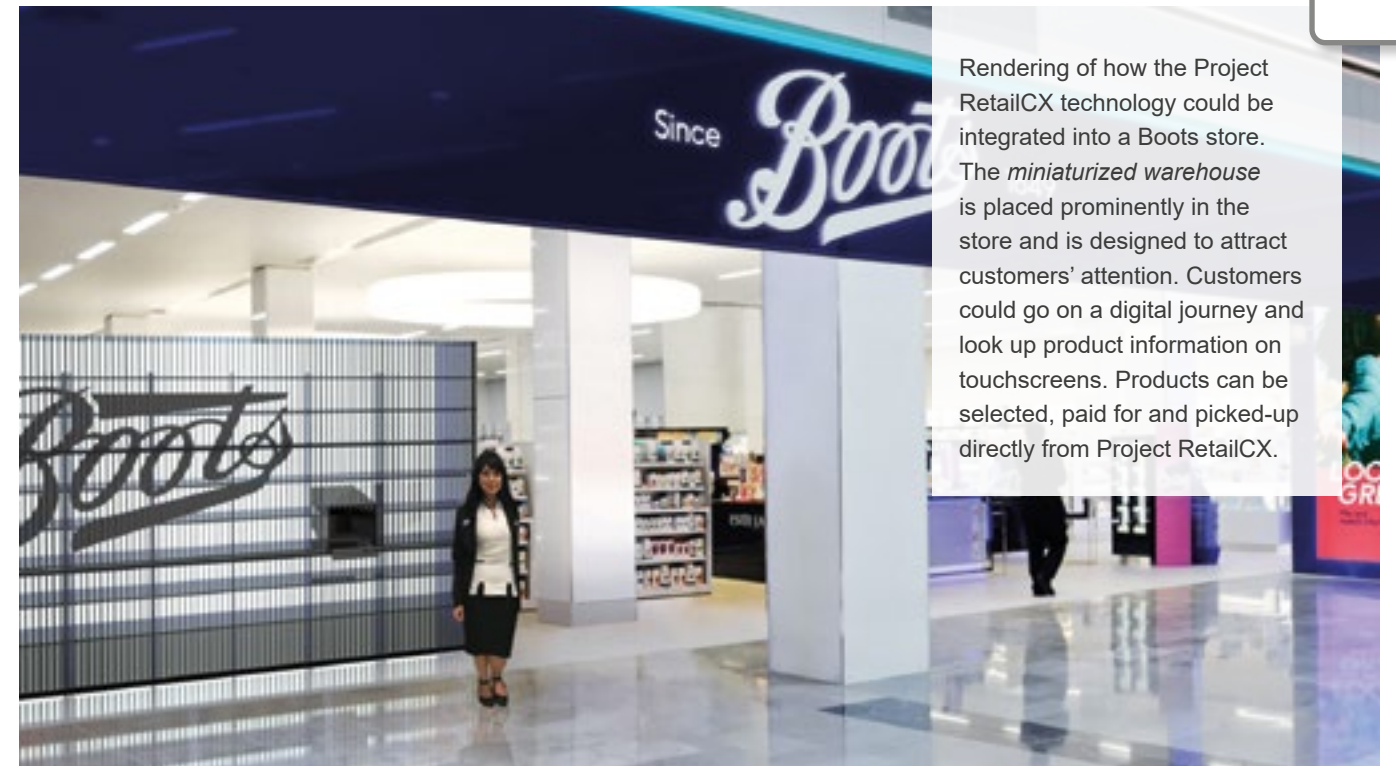
In the beginning of 2020, we had 3 different customer journeys in mind, which we wanted to test in the stores to have the chance to gather feedback from customers. Of course, COVID-19 gave us a big break, but it also helped us realize that our journey of a new urban concept for store automation has not come to an end yet. For example, resilience and flexibility as well as contactless shopping were aspects, we had not put such a strong focus on in the earlier designs, and clearly that changed.

Andrew Blundell:

I think for this year we picked on the key themes, which is flexibility, decentralization and the merging of e-com and physical fulfillment, and of course last mile is an important topic when you look at the economics. So, the next step is to work out what a future network would look like and what are the principles that guide us meeting the needs of efficiency, flexibility, resilience and most importantly supporting the customer offer that we want to give.

What is the future outlook and how is the partnership going to develop?**Andrew Blundell:**

We are starting now to work out what shape our overall supply chain network should be. And I am sure we will be closely working together with



Rendering of how the Project RetailCX technology could be integrated into a Boots store. The *miniaturized warehouse* is placed prominently in the store and is designed to attract customers' attention. Customers could go on a digital journey and look up product information on touchscreens. Products can be selected, paid for and picked-up directly from Project RetailCX.

“The open and open-ended discussions and taking time to understand each other's perspectives was very important for this project.”

Andrew Blundell

our KNAPP colleagues to understand what's possible and what solutions are there, building a roadmap for several years ahead. It is important to see what things are coming down the line from supply chain development and tech development. I believe, software will get an even bigger role and you might end up mixing and matching solutions differently as we used to do it.

Andreas Miller:

What we see is that 2020 clearly has been the time of e-com and I think this shift to digital will be a lasting one. For 2021, I believe it will be a year of strategy, consolidation and improving – not improving e-commerce but improving shops. Because, whenever this pandemic is

over, and people return to shops they will want to find digital services there and it is now the time so implement them and to create a whole new shopping experience. So, I strongly believe that we are going to shape the competitiveness of stores in nearer future.

Bernd Stöger:

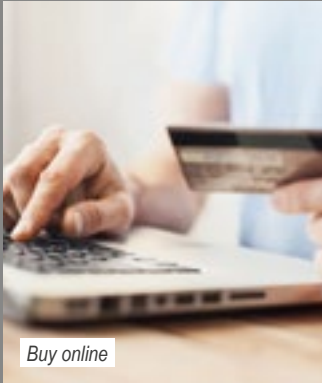
I think COVID-19 accelerated certain trends, technologies as well as the way we work together. For the future it will be crucial to be agile and make use of these assets that are available now, being able to design and implement projects faster. And again, partnership and trust come into play, because you might come to a point where you say: *“Ok, it's not perfect yet, but let's give it a try, because we*

are able to keep investment and risk low on both sides, and we can learn fast and take off from there.”

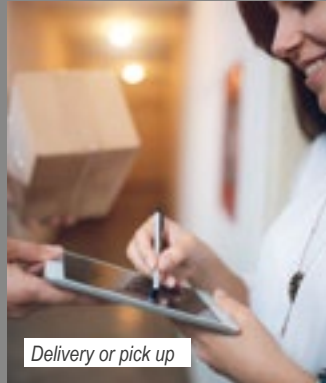
When fashion shopping becomes an experience

Omni-channel is the magic word

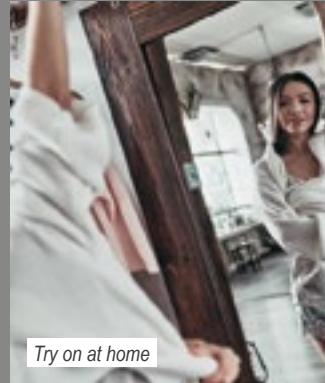
I want it all and I want it now. If the rock band Queen had been singing in those days about the shopping behavior of today's fashion customers, they would probably have had to add to the text: *I want it anywhere and I want an experience.* Because shopping today is not just about shopping. Seamless commerce and the customer experience are extremely popular. It is important to fulfill customer requests and create harmonious brand experiences using every possible product channel. Join us in exploring the world of omni-channel fashion retail. Find out what it is that makes fashion customers tick, the challenges it involves, and how our solutions can help you create a seamless experience for your customers that stands above the rest.



Buy online



Delivery or pickup



Try on at home



Return

Fashion customers are plugged in

Today's modern fashion customer finds out about the latest fashions from their Instagram feed. A click on the outfit takes them right to the online store. Digital consultancy, size recommendations and online reviews help in the selection. What is ordered is often available the next day – whether for home delivery, in-store pickup, or collection from a chosen pickup station. It's so easy that it's become the new normal. And what if the ordered goods don't fit or you don't like them? No problem, simply send them back

free of charge or return them to the store. This is fashion shopping today. Your customers are probably not even aware that they use several channels in a single shopping trip. But how do you create this seamless user experience, this connection between the virtual and physical shopping worlds? You achieve it through brand consistency across all channels, from product presentation, to purchase, to exchange. It doesn't matter whether fashion is found in the store or online.

Flexible solutions for flexible shopping

Combining the requirements of digital business models with those of brick and mortar retail is crucial. Christian Krenn, System Design Engineer Fashion Solutions at KNAPP AG, JR White, Senior Account Executive at KNAPP US, and Siegfried Zwing, Managing Director at redPILOT®, talk about the challenges posed by omnichannel fashion retail. After all, we would not be who we are if we did not have the right solutions to meet these challenges.



Christian Krenn sees the flexible shopping behavior of the end customer as a great challenge. *"Today's customer is accustomed to receiving real-time information before, during and after a purchase. They want the ability to get their order various ways including store pickup, centralized pick-up station, or delivery to their home or office, all within a few hours. Customization, like personal notes or gift wrapping, is also a popular offering. Our solutions not only support and fulfill these requirements but can react to order changes during the order fulfillment process as well."*



According to **JR White**, it's not just the flexible buying habits of customers that is a challenge, but also the rising tide of e-commerce: *"Fashion Retail today is undergoing profound change. Companies that aren't keeping up with the rapid advance of e-commerce and adapting to the changing customer requirements are really struggling in this environment. We gear our technologies to providing omni-channel solutions for our customers. They allow picking from the same inventory for retail, wholesale and e-commerce, and make goods available for in-store pickup, home delivery or collection from a centralized location. This allows the end customer to create their preferred shopping experience."*



Siegfried Zwing at redPILOT® knows that in order to offer the ideal shopping experience to customers, everything in the background must run like clockwork. *"Offering the customers more flexibility means that warehouse processes increase in complexity. Wildly fluctuating order structures and unexpected bottlenecks are now the rule and not the exception. To meet these customer demands for flexibility, the logistics company must possess the right tools in the warehouse. Our Operational Excellence software package is just the right tool to help warehouse management easily stay on top of the complexity during ongoing operations. What's more, this is a learning system that determines the optimal scheduling for operations, making continual adaptations as conditions change."*

Successful omni-channel strategy

As our experts explain, it is important to us to offer our customers the best possible support when it comes to omni-channel commerce. Our forward-thinking system solutions have the agility to respond to new requirements, transforming the business models of tomorrow. We are proud that our efforts really make a difference for our customers and we can look back on a successful omni-channel strategy. Sainsbury's, a long-term customer and one of the leading supermarkets in the UK, offers its fashion brand Tu not just in stores, but also online. The UK company has witnessed the benefit of automation, which helped them exceed last year's peak online figures during the COVID-19 lockdown, as their popular Tu clothing range can either be delivered directly to customers' home addresses or to the store for click and collect.

"Highly flexible and modular automation is helping us to master the challenges of our omnichannel market. We can ensure store-friendly deliveries to our outlets and perfectly sequenced e-commerce orders for our internet customers at maximized productivity and minimized operational cost", explains us **Andy Smith**, Operations Manager DHL Sainsbury's Tu DC.



The different touchpoints are highlighted in the text.

Now is the time to address customer loyalty and service.

Our personal shopping behavior has changed, bringing with it a change in perspective. Many customers have made use of online shopping, thereby accelerating fundamental changes in retail. In the pharmaceutical sector, online orders are skyrocketing as well, since many people fear infecting others who are at high risk from the virus. Even online holdouts are now daring to shop over the internet. Online orders are also attractive to patients as they can conveniently have their medicine delivered to their doorstep. For local pharmacies, the surge in online shopping means that they have to play their best cards, take advantage of their locality and start thinking in a customer-oriented way. By showing that they are able to do what online drug stores promise, they can win back their customers.

High-quality consulting and immediate availability of medicine brings the customers through the door

There will always be customer needs that are best handled at the local pharmacy. Sound advice and immediate help with a problem are special services that only the local pharmacy can provide. No online drug store can deliver as quickly as one's own **9 delivery service**, and, from a customer's point of view, knowing that you were given good advice and all-round support by a person you know is absolutely unbeatable. Local pharmacies have the distinct advantage of knowing their customers personally, allowing them to provide the services their customers really need.

Preparing for tomorrow with partnership and collaboration

Strong initiatives, such as *Zukunftspakt Apotheke*, offer great potential for business development. Pharmacies taking part in this initiative benefit from incorporating an omni-channel concept. Of particular value is the acceptance of digital prescriptions, a blanket solution that attracts customers to the local pharmacy. The digital future holds more opportunities than risks for pharmacies preparing themselves and their customers for digital prescriptions. Solutions offering patients the maximum flexibility and the freedom to choose their preferred level of service make the value of digitization and of digital prescriptions tangible.

A comprehensive view on pharmacies

For pharmacies to find the best business approach for the future, they need an overall view and a thorough analysis of their business model. Besides outside perspectives, scrutinizing the internal structures and organization of the team is vital. Motivated and open-minded employees are prepared to enter the new world of pharmaceutical service where customers and their new needs are put first. By always keeping the three largest trends – **health**, **personalization** and **safety** – in mind, pharmacies stay flexible and innovative. With a strong and well thought-out business construct, they can easily keep pace with a rapidly changing sector. For pharmacies, the use of new technologies to address and interact with customers as well as to manage customer flows offers several new opportunities.

NEW REALITIES. NEW TOUCHPOINTS.

Local pharmacies gearing up for the future

Pharmacies are constantly changing due to an increasingly competitive environment, the introduction of digital prescriptions, telepharmacy and growing customer and patient demands. Complexity and speed are therefore on the rise, demanding flexibility and innovation from pharmacies and their teams. In 2020, local pharmacies beautifully demonstrated just that by dealing with the sudden influx of customers and new purchasing behavior.

Attractive touchpoint solutions to heighten customers' experience

Local pharmacies' unique selling point is their consulting service, an important asset setting them apart from other stores, such as online pharmacies and supermarkets. This distinctive quality must be emphasized and made as easily accessible as possible.

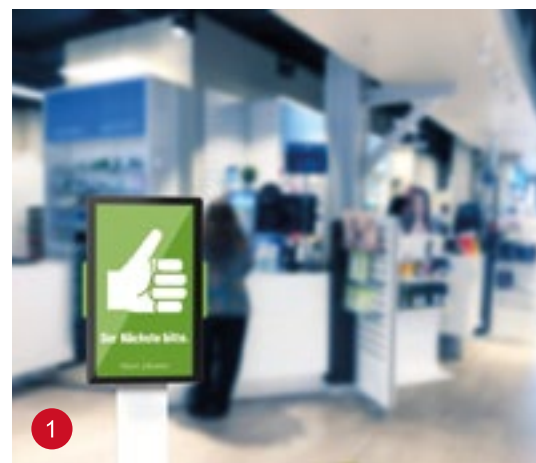
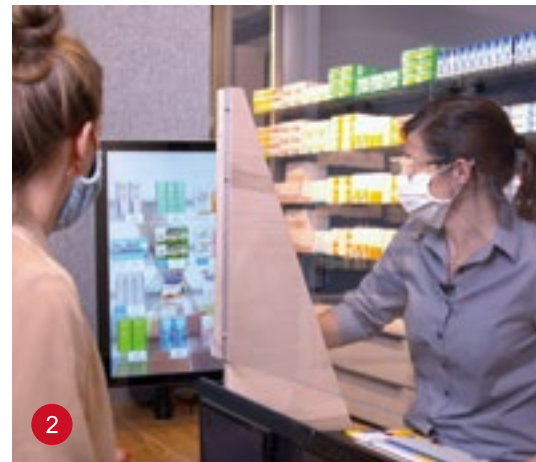
For instance, **1** by using displays with scanners at the entrance that clearly communicate which customer may enter next, safety is ensured right from the start. The customer can "check in" with a quick scan of their customer card, allowing expert personnel to always be ready to provide advice and customers waiting to pick up products to be quickly directed to the pickup counter. The access system also keeps track of how many customers are present inside the pharmacy.

3 Automatic access control ensures that all customers are treated fairly and directed to where they should go. If they have to wait, customers can browse products displayed on the **5 Active Shelf** – a shelf equipped for digital product presentation – or by using the product scanner. Customers can also use touch screen terminals to find information, pre-order products and receive advice on a particular product or service.

Messages displayed on a monitor or push messages sent to customers' mobile phones inform them that they may enter the pharmacy. Pharmacy personnel can offer comprehensive and in-depth assistance using visual aids, such as **2 OTC displays**, or tablets for more discretion, allowing customers to make informed decisions. Customers who want their medication history on hand can save it on a specially designed app, which provides an additional layer of safety and trust.

Picking up pre-ordered products is easy and quick thanks to specially designed pickup terminals and digitally uploaded prescriptions.

Learn more
about digital-butler
on the website.



"We are convinced that technology is simply a means to an end, a tool. To use this tool successfully, our employees need to trust each other and work together as a team. Many social aspects play a vital role even before technology is used for support. The transfer of knowledge and the exchange of ideas are especially important", explains **Christopher Thielen**, Managing Director of Apostore.

Example: The pharmacy in the health center in Rheine, Germany

How smooth processes can be achieved today

From the pharmacy ...

Several of the new touchpoints mentioned above are already in use today in the Apotheke im Gesundheitszentrum, a pharmacy located in the health center in Rheine, Germany. Touchpoints are successful because of the smart interplay of all the elements. The touchpoints provide clear, specific guidance to customers with opportunities for customers to make decisions for themselves. They offer just the right experience to suit customers' needs.

The new service counter design serves as an example. It has an organic design, absorbs sound and includes a visual shield to ensure privacy and make the customer feel comfortable. Pharmacists and pharmaceutical technicians also benefit as the counter offers digital and analog aids that provide more freedom to address customers' needs.

... to the customer's door ...

Pharmacies offering **9 delivery service** are especially customer-friendly. In fact, many pharmacies have been offering *same-day deliveries* for a long time and can compete with Amazon in terms of convenience. Again, using technology optimizes pharmaceutical processes, such as **8 apps for ordering products** and **7 order fulfilment solutions**.

... and back to the future to the 24/7 terminal

In future, processes will also go the other way around.

What if customers could pick up important medications at any time in keeping with their daily schedule? They could make orders whenever and wherever they wanted and decide for themselves whether they need expert advice. By ordering from home, customers can conveniently purchase OTC products and pick them up at a **6 24/7 terminal** using a QR code. Prescription drugs can also be picked up at these terminals. The customer consults with their doctor or a telehealth provider and the prescription is held digitally in their digital health information (ePA). The pharmacy makes the necessary preparations and a simple scan is enough to pick up medication at any time at the 24/7 terminal. The technology for this convenience is on the market and ready to be used.

Intelligent logistics solutions for hospitals

ProServ[↑]

Numerous processes in a healthcare facility need to run like clockwork to ensure optimal care for patients. In addition to comprehensive first care, counseling and care in facilities, providing patients with the correct food and medication on time and making the right surgical instruments available are also very important. The processes running in the background to fulfil all these requirements have enormous potential for optimization. But how? Intelligent logistics solutions form the bridge between these various disciplines, while simultaneously generating added value for patients.

KNAPP Hospital Campus

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. Through the use of common resources, such as a vehicle pool, additional synergistic effects are achieved. What's more, supply to local healthcare facilities is on time, flexible and as needed: This also saves 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 heart of the KNAPP Hospital Campus 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 with the necessary goods, be it a commercial kitchen, the sterilization area or work areas where medications are dispensed. The Fastbox Evo buffer towers included in the system create the correct sequence; for example, food trays are sequenced according to patient room number.

"At the center of the approach is the re-designing of the tertiary supply processes under the motto: Professionalization through centralization. Medicines, ward supplies, food, sterile surgical instruments and much more are all needed in a single healthcare facility. 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", explains **Johannes Kompek**, Healthcare Solutions, KNAPP AG.

Hospital Campus at ProServ

ProServ is setting new standards in healthcare logistics with the KNAPP Hospital Campus. ProServ supplies its hospital customers with complete patient meals on trays: 6,000 trays are shipped from the healthcare logistics center every day. Furthermore, 10 hospitals have their surgical instruments processed at the healthcare logistics center. 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 healthcare and social services.

Since 2012, the ProServ organization has relied on KNAPP technologies. ProServ focusses on customer proximity and understanding their needs. This innovative service concept is based on the know-how gained from many years of experience in the healthcare sector.



Hans. J. Peglow, initiator of ProServ and former managing director of a hospital, sees the obvious advantages of such a healthcare logistics center for the future of healthcare: *"Running a hospital also means having to focus on cost-effective services that meet the quality standards. That's the only way hospitals can survive nowadays. This requires optimal processes, not only in the work with the patient, but in all the supply processes overall. 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."*

Find out more about ProServ in this video.





Dr. Marianne Leitner (right)
and the manager of the logistics project, Mrs. Maria Lanz,
from the hospital pharmacy of the hospital LKH Graz.



Modern medication logistics for LKH Graz
and the 17 hospitals in the KAGES network

Robot manages hospital pharmacy

A high-tech order fulfilment system by Apostore at the hospital pharmacy of the University Hospital Graz, Austria, makes sure that all patients receive their medications 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 prepare orders for shipping. Today, pharmacy logistics at the hospital LKH Graz is completely automated thanks to the high-tech system, which forms the crucial link between material management and transport services.

“The many advantages of the high-tech system include less walking for personnel, space-saving storage of the medicines as well as a better organization and overview, for example, through lot traceability”, explains **Dr. Marianne Leitner**, LKH Graz hospital pharmacy.

Highest availability and performance

In comparison with the Apostore robot for independent pharmacies, the picking system at the LKH Graz is designed to process four times as many medicines. Hospitals order medications in large quantities on pallets, with 60,000 medication packages being stored inside the system. The robot stores 1,500 medication packages per hour, while simultaneously registering lot and date mark data. Up to 2,250 packages per hour can be requested and provided to the individual hospital wards of the 17 hospitals connected to the hospital pharmacy. What's also great about the system is that it includes two picking robots. If a malfunction occurs, the other robot keeps working, guaranteeing maximum reliability and availability.

“The storage and picking of about 90 percent of all medications stored at room temperature is now handled fully-automatically. This provides relief to our employees and smooths out peak periods. What's more, the system provides precise inventory data to the day, and offers error-free stock and warehouse management”, explains **Maria Lanz**, LKH Graz hospital pharmacy.



Dosing and taking medicines correctly

Many people have to take a variety of medicines, many of which look very similar or are small, are in hard-to-open blister packs and can easily get lost. Once your vision and dexterity are impaired, taking medicines becomes a challenge. Unfortunately, mistakes can also happen in hospitals and retirement homes, which are often short-staffed. The remaining personnel is under a lot of pressure, which can lead to slip-ups when dispensing medicines.

a warning message is displayed and the error is corrected manually. ivii documents the entire process electronically.

ivii Remedy Scan can easily be installed in a hospital's or any other healthcare facility's pharmacy storage system and therefore does not require any additional space.

Intelligent image recognition by ivii

KNAPP's subsidiary ivii specializes in intelligent image recognition systems and has stepped up to this challenge. ivii Remedy Scan monitors the daily distribution of the required medicines for the entire day (morning, noon, evening and night) for a patient. An image recognition system monitors not only the type of medicine but also the dosage for the relevant days.

A touch screen guides the healthcare workers through the process. The dosage, type of intake, amount of tablets to take and time of administration are coordinated with the dispenser and are displayed. An integrated special camera detects the tablets and monitors whether they are dispensed in the correct compartment. If an error occurs,





24/7 SAP® EWM expertise for everyone

Service desks have become an integral part of customer service. This direct communication line to a company by means of hotline services, e-mail or chat is usually reserved for those who have purchased these services in advance. However, we are setting the bar higher. Our 24/7 SAP® EWM Service Desk is open to all SAP® EWM installation users, even if KNAPP did not implement the EWM.



"Our Service Desk team shares a high-level SAP® EWM software and industry knowledge and is available 24/7. They are very experienced in automated warehouses using SAP® EWM MFS, with KNAPP automation technology and other manufacturers that have been integrated in SAP® EWM during new and retrofit projects", explains **Gerald Lassau**, Managing Director of KNAPP IT Solutions GmbH.

2 Hubs – 1 Service Desk

Frutura Obst & Gemüse Kompetenzzentrum GmbH is one of many companies taking advantage of this service. Every year, about 160,000 metric tons of fruits and vegetables leave their main warehouse in Hartl, Austria. From their locations in Hartl and Sattledt, Austria, the food production and distribution company supplies all of the stores of the Spar supermarket chain in Austria every day. A fresh products hub of similar size is planned for mid-2021 in Vorchdorf, Austria.

Frutura uses SAP® S4/HANA with embedded SAP® EWM for warehouse management and to fulfil the transparency and traceability requirements for fruit and vegetable production. Within the system landscape, all operating processes, from goods-in to goods-out, are available on mobile devices (RF terminals). The orders are quite large and time-critical so KNAPP has been providing the about 200 SAP® EWM users at Frutura with 24/7 Hotline support in the warehouses in Hartl and Sattledt since December 2020 and this support will start at the new Vorchdorf location at the end of 2021.

Round-the-clock SAP® EWM expertise

The integration of the warehouses in our Service Desk was accomplished step-by-step within one month. This allows the KNAPP Hotline team to also provide support for those SAP® EWM features specific to Frutura. A workshop was held ahead of time to evaluate the requirements, and based on this, a tailor-made offer was drawn up. The focus is on the needs of the customer, with the range of services including a *Full Service* SAP® EWM Hotline as well as hybrid models. Service times, response times and target resolution times are defined depending on the priority of the incidents. On request, we also assume problem management, support on demand (on-site or remote) or requests for change related to SAP® EWM.

Frutura and KNAPP are banking on a long-term partnership. With this in mind, optimization of the warehouse management system at the fresh products hub in Hartl starts in January 2021 and will be rolled out to the new warehouse in Vorchdorf at the end of 2021.

Successful food retail e-commerce fulfillment

Two of our sector experts provide insight and perspective on new concepts, developments and trends in online food retail.

Curt Avallone, Chief Business Officer at our partner Takeoff Technologies and **Bill Stenger**, Director of Food Retail Solutions at KNAPP North America provide exiting perspectives on the new concepts for the food retail sector. They talk about opportunities and developments in online food retail, their joint development of an **E-Grocer MFC** (Micro Fulfillment Center) solution as well as the successful partnership between KNAPP and Takeoff Technologies. Finally, they talk about the future of online food retail.



Good to know

Our initiative New Urban Logistics equips food retailers with the tools to tailor their urban omni-channel networks precisely to their needs. The portfolio provides micro fulfillment solutions ranging from in-store fulfillment up to the fully integrated software solution that dynamically monitors and controls warehouse stock and route planning. **E-Grocer MFC** is one of our latest solutions for online food retail. It includes a store and an automated warehouse. The supermarket functions like a store that also offers an online order service. The process combines manual in-store picking and automated back-store picking. Around 90 percent of the product range is stored in the automated MFC. The OSR Shuttle™ Evo is the storage and picking system, whereby up to four orders are processed semi-automatically at the connected Pick-it-Easy work stations. Our innovative Open Shuttle technology is the key component. Autonomous, mobile robots provide the overall concept with flexibility and increase the throughput.

How did the MFC evolve?

Curt Avallone:

I've been a food retailer for 30 years. About 20 years ago, my team and I entered the online food retail sector. Ten years later, we began to consider automating the manual processes. Three years after the founding of Takeoff, we created the term MFC. When we started to look for a suitable partner, we immediately knew that KNAPP would be the best partner for us. The key factors for the concept's success were the expertise in the food industry on both sides and the synergies between KNAPP and Takeoff. Since that time, we've put ten installations into operation together. What's more, we are very happy to have already received additional orders from many of these

companies. All things considered, our journey has been long (laughs) but also very exciting. It's impressive to experience how an order of around 50 items is processed in an MFC and completed within as little as 60 minutes.

Bill, what's your take on the collaboration with Takeoff?

Bill Stenger:

It was sometimes really hard to get a company as big as KNAPP going at the same pace as a small start-up (laughs). We had to learn to think and work differently. We became more agile. Overall, the five years we worked with Takeoff were pretty amazing. At first the idea was to connect our solution to an

existing supermarket. The number of purchases in conventional stores had decreased, so space was available. Finding the optimal balance between size and performance was quite challenging. In the meantime, we're on the third version of our concept. Our systems have been up and running successfully for one and a half years.

Why is this solution so important?

Curt Avallone:

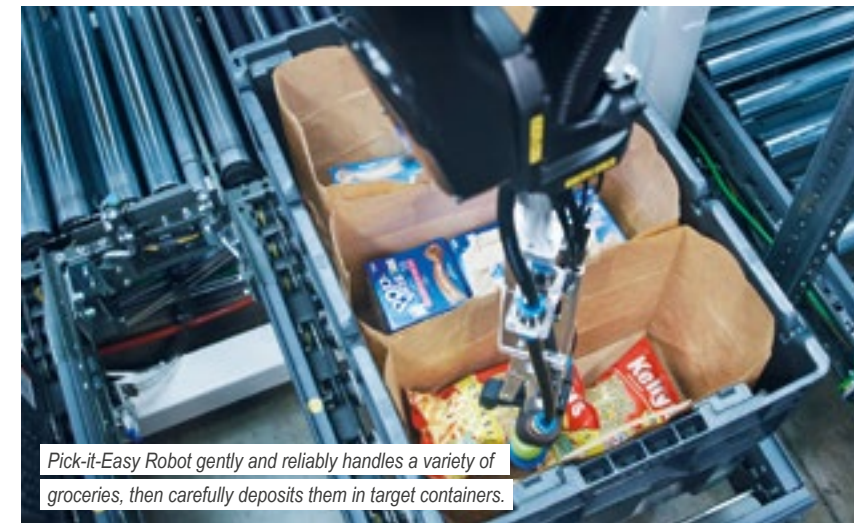
Fast order fulfillment is the name of the game. In food retail, the number of online orders has doubled. Our current challenges can also be directly attributed to the pandemic. Most of our customers have so far had manual solutions that were neither

“MFCs revolutionize online food retail and make it more efficient.”

Bill Stenger



Open Shuttles link various work areas and logistics processes.



Pick-it-Easy Robot gently and reliably handles a variety of groceries, then carefully deposits them in target containers.

“MFCs are the game changer in online food retail.”

Curt Avallone

profitable nor designed for order volumes on this level. They could see that our MFCs would be the game changer that would revolutionize online food retail, making it much more efficient. The last-mile costs could only be reduced with same-day delivery within two hours.

How big is a typical MFC?

Bill Stenger:

In general, an MFC has between 1,000 and 1,200 square meters (3,280–3,937 sq ft). That's the average size of a typical supermarket. This is a strong argument in favor of MFCs, because the investment costs are comparably low.

How do Open Shuttles bring added value to the solution?

Curt Avallone:

KNAPP's Open Shuttle technology was for sure one of the major breakthroughs. We believe that food retailers can save labor costs of up to

a quarter million dollars per year for every MFC.

Bill Stenger:

Our Open Shuttles are autonomous mobile robots that bring flexibility to our warehouses. Furthermore, they reduce costs.

How many employees on average are required in an MFC?

Curt Avallone:

During a standard shift, 12 persons work on six different tasks. With this, we can achieve a perfect coordination between the manual and the automated areas of an MFC. The result is a maximum performance of 3,000 picks per hour.

What is the system availability of an MFC?

Bill Stenger:

The average availability for all the systems we operate is over 99 percent.

Curt Avallone:

KNAPP's figures are amazing. We promise our customers 89.5 percent. We're clearly doing much better.

How long does it take to install an MFC?

Bill Stenger:

Our standardized design allows an installation time of 13 weeks. Some say it could go even faster. We aim for 13 weeks, after which everything is up and running properly.

Curt Avallone:

Most of our customers are very satisfied with this installation time.

Can you imagine using the Pick-it-Easy Robot for single-item picking in a MFC?

Bill Stenger:

Yes, of course. We integrated the Pick-it-Easy Robot into our latest MFC version. It reduces the error rate and leads to more transparency. In my

view, the robot can fully automatically pick 40 to 60 percent of all purchases. It's a real top performer. I can see the robot pre-picking orders outside of normal working hours. These orders can then be completed at the Pick-it-Easy work stations the next day.

Curt Avallone:

Our new version with robots has me convinced. They can pick some of the products into containers, then transfer them to the work stations. With this approach we can increase the speed of our MFC while reducing the costs. Since a third work station was part of our initial designs, we can extend all the installations accordingly.

When would an MFC be the optimal solution and when a central fulfillment center (CFC)?

Curt Avallone:

The decisive factors are the last mile, the population density and the transit time for home delivery. Same-day delivery within two hours is generally not possible for a CFC. Investing in a

CFC makes more sense where many customers across a wider region are supplied. However, it's clear that customers do expect same-day delivery. The decision is made based on the last mile calculation. Networks of MFCs and CFCs are certainly the future trend.

What are further trends in the sector?

Curt Avallone:

The trend in the food industry is towards profitable cross-channel alliances. Food retailers will join forces with partners in the virtual business area, which may be the QSR sector (quick service restaurant). Such a combination offers benefits for both partners: The consumer can pick up warm food together with their groceries, which is extremely convenient. And convenience is king in e-commerce. Delivery costs can be shared by the suppliers. This trend has been greatly accelerated by the pandemic. There are also models in which drugstores merge with food retailers and many new opportunities

are resulting from this. With this new cross-selling, MFCs that only supplied B2C customers (*Business-to-Consumer*) can now fulfil B2B orders (*Business-to-Business*) as well. In any case, the future will continue to be exciting.

At a glance

- A perfect fit for food retailers in urban areas
- Much faster picking than conventional e-commerce concepts
- Delivery or pick-up within two to four hours
- Lower service costs
- Increased productivity and accuracy

