

UPDATE

The company magazine of SSI SCHAEFER | No. 38

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Technology with its finger on the pulse

Which megatrends challenge us and how we can meet them proactively.

Ideas, visions, and solutions for the material handling industry

Innovative technologies from AGVs to software – all from a single source
Insights into the practice of solution-oriented material handling
Solutions and ideas for e-commerce, software, and cybersecurity

SSI SCHAEFER

We are preparing the ground, proactively addressing change, while at the same time helping our customers to fulfill their own performance promises in terms of end-customer satisfaction.



Dear readers,

Allow me to begin with a quote from Charles Darwin, which is also how I introduced the presentation I had the pleasure of giving a few weeks ago at the International Supply Chain Conference in Berlin: "It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is most adaptable to change." Applied to the here and now, this means that companies – like any species – also have to continually justify their presence in the marketplace and keep moving. Because adapting to change is not an option, but a must.

But what drives this change, what spurs us on? In the center is the customer, who expects their logistics and material handling partner to adapt its range of services to changing expectations and requirements. This development is also driven by megatrends such as digitalization and urbanization, sustainability and climate protection, and the boom in e-commerce.

The warehouse plays a key role here. This is because data is also stored there, yet lies dormant in silos, largely unused. Breaking open these silos and linking, consolidating, and interpreting data and information is one of the most important tasks of our time. A virtual warehouse of warehouses is emerging – the key to successful adaptability to the ongoing dynamics of change.

Through architecturally open software, support and networking of other digital platforms such as dock and yard management, transport management, distributed order management and artificial intelligence, we are developing omnichannel logistics and unified commerce – from order entry to last mile delivery. It is a platform through which all supply chain partners involved share data and interact in real time.

SSI Schaefer is part of this continuous development process. We are a family business with a tradition going back over 80 years, and support our customers as a global provider of warehouse logistics solutions, but in the future increasingly as a manager of the whole supply chain.

We will stick to our tried and tested ways by continuing to focus on modular, scalable, efficient, and sustainable logistics solutions which (and this is the trend-setting benchmark) will unleash their full power in the future combined with an end-to-end supply chain platform. We are preparing the ground, proactively addressing change, while at the same time helping our customers to fulfill their own performance promises in terms of end-customer satisfaction. All this is no longer just a vision, but to some extent already the reality. As a result, the material handling 'species' and with it the virtual warehouse of warehouses will create added value for customers and their customers. Let's go down this path together!

We are also working hard to develop solutions to address the exponential increase in urbanization, such as the vertical farming model currently being presented at Expo 2020 in Dubai. Working in partnership with the Berlin-based start-up Infarm, SSI Schaefer is the only representative of the material handling industry to present a jointly developed solution for supplying food to a rapidly growing population in the megacities of the future. Short distances to the consumer are another advantage – an exciting but demonstrably achievable task for logistics.

The vertical farming principle presented in the Future City Lab of the German Pavilion in Dubai once again highlights the SSI Schaefer Group's value promise to customers and its commitment to shaping the future in more sustainable, safer and at the same time more efficient ways with responsible use of resources. Here it is about ensuring basic food supplies, but the same applies to all other industries and in particular to medium-sized businesses, which are faced with increasingly complex requirements and rightly demand future-proof solutions.

You can rest assured that we, as a logistics and material handling partner, will continue to support your company's development with intelligent warehouse solutions that meet all the criteria mentioned above, including in the area of digitalization and automation. As we head into the future, the Internet of Things, new services, machine learning, and artificial intelligence will play an increasingly important role.

You should find quite a few stimulating ideas in this issue of our company magazine, Update. We hope you enjoy reading it!

Warmest regards,

Steffen Bersch
CEO of SSI Schaefer Group



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Editor

SSI SCHÄFER
FRITZ SCHÄFER GMBH & CO KG
Fritz-Schäfer-Straße 20
57290 Neunkirchen
Phone +49 2735 70-1
global.marketing@ssi-schaefer.com

Responsible for the content

SSI SCHÄFER
FRITZ SCHÄFER GMBH & CO KG
Enrico Gazzano

Editorial, Concept, Design

SSI SCHÄFER
FRITZ SCHÄFER GMBH & CO KG

Picture credits

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Megatrends – A Lever for Management and Strategy

Demography, urbanization, technological change, and green technologies: to remain viable moving forward, companies must react to these developments.

People have always believed that the times they are living through are constantly changing. The truth is that there has never been a time when society was not undergoing social, economic, and political changes. The pace of change has permanently sped up, however – simply consider that more time passed between the building of the pyramids and the reign of Cleopatra than between Cleopatra and the invention of the smartphone. Since the advent of industrialization in particular, the speed of change has continued to increase at a rapid rate, and today, in the third millennium, it is positively dizzying.

Changes occur based on trends and every era is characterized by megatrends. But what is a megatrend? And which megatrends will affect the strategies and business fields of many companies?

Defining a megatrend is quite simple – it's a trend that grows in a linear manner, has a significant effect on global events, and has major strategic relevance. It is part of a paradigm shift and lasts a very long time. If we look at the world with these parameters in mind, four current relevant megatrends are plain to see: demography, urbanization, technological change, and green technologies. These four trends are evident worldwide, and mutually shape and influence one another.

Demography: conflicting trends – same consequence

The Earth is getting fuller and more crowded. Experts expect the global population to reach 8.5 billion by 2030 – an increase of one sixth, or 1.2 billion people, compared to just fifteen years earlier. This trend is connected to other significant developments: in the densely populated developing countries, the population increase primarily concerns younger people, together with a growth in the middle classes. In the western industrialized countries, we can see the opposite trend: the population is aging. The number of people there over the age of 65 is set to reach one billion by 2030. The implications of these demographic changes are different, but they add up to the same result: digitalization and artificial intelligence (AI) will become more and more important.

Why? On the one hand, we have a rapidly growing youth population in the emergent industrial nations – a population with a high affinity for the internet and related technologies. They make many of their purchases online, meaning e-commerce continues to grow. For companies, this development means that their logistics will have to adjust to the increasing demands and requirements placed on services. On the other hand, the growing proportion of elderly persons in western industrialized countries means a greater demand for health products, together with the means to store and deliver them. And since the majority of older people in industrialized countries are firmly settled in the middle classes, there are ever fewer workers available to fill low-skilled positions – meaning that AI and automation are becoming ever more crucial.

Urbanization: megacities with innovative urban logistics

The migration of people into cities is still in full swing, the world over. Enormous megacities – urban areas with 20 million or more inhabitants such as Shanghai, Beijing, Kinshasa, Tokyo, or Mexico City, which make Berlin, Germany's metropolis, look like a rural idyll – have already existed for years in many countries. There is no end in sight for this megatrend.

As consumers, city dwellers have increasing requirements – they demand ever more individualized products or same-day delivery. Growing online commerce entails increased delivery traffic, which in turn clogs up the city streets more and more, to the point of gridlock. One possible remedy to this is "vertical agriculture" in high-rise buildings located in the middle of cities – a promising possibility for shortening distances to consumers. Logistics is standing by to offer innovative solutions.

Megatrends – A Lever for Management and Strategy

Technological change: a brave new world with AI and IoT

Megacities bring new challenges. But having so many people living in close quarters also brings about new opportunities – urbanization brings talent together in very close proximity and the closer networking helps in implementing technological innovations as solutions to these challenges. We already see the ways artificial intelligence, robotics, and even virtual reality are increasingly encroaching on our lives practically every day, in practically every respect. In combination with machine learning, AI will plan a significant part of our lives in the future, making us more efficient. And that includes in the area of production. Data is to the 21st century what oil was to the 20th, and what bread was before that: a decisive driver of economic development. Data is exchanged via the Internet of Things (IoT) and decisions made automatically on the basis of previously defined standards.

For example, businesses can maintain smaller storage facilities in the middle of a city and, thanks to artificial intelligence and the excellent availability of data, these storage facilities are able to know in advance what customers will want in the near future.

Logistics isn't merely about actively using data to enable automated decision-making, but about the way in which all logistical systems interact with one another. So, for example, automated guided vehicles, like apps in a Tesla, can be updated and adapted to a particular situation as needed and from a tablet. And there are many other fantastic possibilities that are enabled by automation. One example is 3D printing, which enables us to manufacture products at home, instead of buying them in a shop or ordering them online for delivery.

Green technologies: an issue of the future and a job driver

Without digitalization, sustainability is inconceivable, and without sustainability, climate change will continue unchecked. Everything is interrelated. It is now widely accepted, in global politics and economics, that humans are responsible for climate change. The vision of the new US President, Joe Biden, of climate protection as a driver for job creation makes it clear that green technologies are a key issue of the future, which companies can profit from. This is why green technologies have long since been developing into

a broader megatrend – one that is only going to get more important as time goes by. There is increasing pressure in logistics and material handling to develop sustainable solutions for reducing energy consumption and packaging waste, and in the areas of transport and the reuse of goods, among others.

It is therefore clear that it is imperative for companies that want to remain successful to keep an eye on megatrends, to analyze the way they develop, and to address the challenges they bring and view them as opportunities. This is more true in our rapidly changing times than ever before.

Why Software is the Main Driver of Material Handling

The challenges of today's logistics are many and the processes are becoming increasingly complex. Intelligently deployed, scalable technologies can make all the difference when it comes to successfully managing warehouses and logistics centers in the long term. In particular, powerful software is indispensable.

Software is not only a part of modern logistics, but also the driving force behind data analysis, forecasting, and customer segmentation. For example, business mathematicians can now predict consumer behavior based on weather forecasts – and so help supermarkets stock optimal quantities so that customers don't find empty shelves, but also avoid waste. This in turn is linked to an intelligent logistics solution. In the warehouse, the software acts like an orchestra conductor – regardless of whether the solutions are manual or fully automated – and can help reduce complexity, optimize processes, and create transparency.

Exploiting synergies and remaining flexible in the long term

To remain competitive, small, medium, and large companies require modern technologies and need their hardware and software to deliver an optimized combination of exploitable synergies. Only when one wheel meshes with the other can logistics and warehouse processes be properly controlled, storage capacity utilization be optimized, picking errors be reduced, fulfillment rates be increased, and, among other things, on-time delivery be guaranteed. The solution must also be able to grow with the business and be flexible enough to adapt to changes.

Steffen Bersch, CEO of SSI Schaefer Group, explains:

"Software is a key driver of material handling. This recognition supports the idea that our long-term corporate strategy and focus on technology leadership is the correct approach, especially in the area of software."

Partner for high-performance software solutions with WAMAS® and SAP

As a global logistics and material handling provider, SSI Schaefer is a reliable market partner that understands the requirements of modern material handling from hardware to software, and translates them into sustainable solutions for customers from all sectors. Software plays an important role in helping customers to manage their processes more efficiently.

Depending on their requirements and initial situation, SSI Schaefer's customers benefit not only from the globally recognized, scalable, and standardized WAMAS software for managing, controlling, and monitoring material flows and warehouse processes, but also from the strong SAP competence. Under the new **partnership with SAP logistics specialist SWAN**, SSI Schaefer is strengthening its project expertise for the implementation of logistics solutions with SAP EWM, so as to provide a fully comprehensive service to customers. SSI Schaefer will of course continue to offer the whole range of logistics systems as a general contractor – with WAMAS or SAP.



Our actions are consistently led by our goal to optimally supply our customers with high-performance software and efficient and sustainable logistics and material handling solutions.

Steffen Bersch
CEO of SSI Schaefer Group

Shared Material Handling and AGV Expertise

Automated Guided Vehicles (AGVs) are not new, but, in times of growing complexity and uncertainty, they are an increasingly sought-after game changer for making processes more flexible, reducing dependencies, and cutting costs through optimized processes and increased efficiency. With its "Driverless Solutions" product line, SSI Schaefer meets this increased demand through optimally integrated solutions that can be implemented quickly while at the same time accommodating individual customer requirements. The know-how for these solutions comes from AGV specialist DS Automation.

For several years now, AGVs have proven their worth as reliable assistants in the warehouse and/or production environment. They relieve humans of monotonous and arduous tasks and help make up for the ongoing shortage of personnel, which creates additional challenges, especially in three-shift operation. Particularly during the pandemic, companies increasingly see a need to exploit potential for improvement as quickly as possible and achieve greater flexibility with the help of AGVs. Another point in favor of AGVs is that they quickly pay for themselves. Moreover, depending on the application, noticeable and measurable added value can be achieved with just one or two vehicles. This means that operators do not have to make large investments immediately, but can gradually build up a vehicle fleet adapted to future growth.

A solid foundation for global technology leadership

However, the effectiveness of AGVs crucially depends on the integrated communication, navigation, and safety technology, not to mention the software. Another decisive factor is the know-how needed to incorporate

the vehicles intelligently and effectively into an existing or newly established overall system. SSI Schaefer shares these competencies under its partnership with AGV specialist DS Automation, thereby strengthening its presence in this growth sector. "Linking our offering with the SSI Schaefer portfolio has the key advantage of being able to offer highly integrated solutions without interface problems," says Kurt Ammerstorfer, Head of Sales, Product Management & Marketing at DS Automation. This point is echoed by Peter Berlik, SVP Global Head of Technology at SSI Schaefer: "Sharing all this mechanical and software expertise under one roof means that we have everything in our own hands, we are not reliant on third parties and can implement tailor-made AGV applications quickly, safely, and efficiently." This holistic approach also means that all AGVs are developed directly as a fully automated transport vehicle, as a best-in-class solution from a single source. It does away with the time-consuming and always risky process of having serially manufactured machines tuned by third party automation companies. This ensures continuous availability and performance and guarantees the highest safety standards for customers.

Intelligent, networked solutions instead of rigid structures

At the heart is the DS NAVIOS control system, which makes both track-guided and autonomous AGV applications possible. The software provides interfaces with customers' IT architectures and can be linked to SSI Schaefer's own WAMAS® logistics software, thus supporting synchronized interaction with other components. Another advantage is that the AGVs, which are specifically adapted to the use case, can be put into operation quickly. Within a few days of commissioning, significant performance improvements can be achieved with increasingly small-scale job structures. Furthermore, companies benefit from a high ROI and great flexibility. AGVs can easily be integrated into existing factory halls, while spaces and floors can be used in a wide variety of ways. The system ensures reliable transport operations even when used in a constant 24/7 cycle, and its modular and scalable design allows optimal adaptation to dynamically changing market requirements in every phase of the company's development.

Working together with our finger on the pulse

Machine learning and artificial intelligence are proof that software continues to reach new levels of maturity. While AGVs follow defined routes, autonomous mobile robots (AMRs) use onboard navigation systems and can change the route independently - if they encounter an obstacle, for example. The "Plannable Autonomy" developed by DS Automation achieves this flexibility, but without sacrificing technical performance and availability. The collaboration on the design of the new VDA 5050 interface once again underlines the partners' software expertise, which is also being used to develop AMR solutions suitable for industrial use. "In addition to the expanded product portfolio, connected integration solutions will be a key factor for joint success and market acceptance," emphasizes Peter Berlik. Kurt Ammerstorfer adds: "DS Automation and SSI Schaefer offer these entirely from one source. This also benefits customers who want to work with a single partner for hardware selection, implementation, and IT system integration, to avoid the expense of coordinating different subsystems."



Further details of AGV solutions can be found here.

<https://pages.ssi-schaefer.com/fi-fi/AGV>

Everything from a single source: sharing mechanical and software expertise means that tailor-made AGV applications can be implemented quickly, safely, and efficiently.

Robotic Picking Solution with Integrated Track & Trace Technology for 100% Verification

When it comes to prescription drugs, order accuracy is paramount. Even the slightest mistake is intolerable. This was the case with a leading North American retail pharmacy, where SSI Schaefer implemented a solution that ensures 100% accuracy in prescription drugs and order processing.

Product Verifier



Discover single piece picking with robots, which guarantees freedom from errors and maximum process reliability.

<https://pages.ssi-schaefer.com/fi-fi/robotics>

The retail pharmacy needed not only a flawless picking solution, but also an automated solution that would work with limited personnel even during peak volumes. As a long-term partner, SSI Schaefer was able to develop a system that guarantees a fully automated solution with a complete verification process to meet the legal requirements of tracking and tracing product.

A 2-step verification process without losing time

With the newly introduced 2-step verification process, the validation requirements are now met. The goods are verified at the time of receipt and once again during picking. Both mixed pallets and single carton pallets are delivered, unpacked, and separated with a depalletizing robot. Each package receives a barcode label for later tracking within the facility. Thanks to an optimized storage strategy, the products are either stored in full cartons and automatically checked or repackaged in system storage containers and checked at ergonomic incoming goods stations. Fast-moving products are stored in a 4-aisle automated small parts warehouse equipped with SSI Miniload stacker cranes for double-deep storage and retrieval. Medium- and slow-moving items are accommodated with a 2-aisle SSI Cuby shuttle system with a total of 46 shuttle vehicles.

Picking and verification from a single source

As with any pharmaceutical fulfillment process, every system must be designed with the utmost care. Especially in regard to a zero-error tolerance policy to ensure the safety of patients, a fully automated solution must be implemented that meets these requirements. Since manpower is scarce and automation excludes human error, the new system was designed with several fail-safe picking processes.

Six A-Frames for fast-movers set the pace for this highly automated logistics center. Four A-Frame lines are connected to Product Verifiers, which enable efficient and automatic identification of each product to meet zero-defect requirements. Expiration dates and batch numbers are tracked using the label on the storage container. If articles cannot follow this process due to their properties, they are picked via two more A-Frame lines. In this case, the verification is carried out semi-automatically after picking with the help of one of the Order Verifiers.



A-Frame



Piece Picking robots

The automated concept is the most efficient solution for Rx and narcotics with the highest possible automation technology. This solution makes efficient use of human resources while ensuring 100% verification.

Christian Eingang Director of Sales Canada
Logistics Solution at SSI Schaefer

However, to minimize the amount of work and ensure additional safety, seven piece picking robots have been integrated into the solution. These robots are located within the general picking zone and within the narcotics area and handle both slow- and medium-moving products. After the containers have been removed from the SSI Cuby, the first part of the customer order is picked and checked at the Advance Pick Stations two-level. This is followed by the robot-assisted picking process. The picking robots are equipped with cameras for product verification. This ensures a complete track & trace protocol of Rx pharmaceutical articles. The "mastermind" of the image processing solution is the vision software module included in the standard logistics software WAMAS®, which identifies each product to be picked safely and error-free. By combining technologies and artificial intelligence (AI), unparalleled picking quality is achieved. The items are removed from two containers and picked into three target containers, with a capacity of up to 800 picks per hour per robot. In addition, the Advance Pick Stations are equipped with scanners. These scanners are used for products that cannot be processed by robots, as well as to cope with peak volumes.

Customer needs:

- Holistic solution for **maximum performance**
- 100% verification** and highest quality to ensure patient safety
- Fast and constant **availability** of medicine

Solution elements:

- 2-step verification** that includes both goods-in and picking processes
- Piece picking robotics solution** for maximum picking and track & trace performance
- Precise material flow control and transparency with the **logistics software WAMAS®**

Precise control of complex processes

The complexity of these processes illustrates the importance of SSI Schaefer's logistics software WAMAS. "Maximum process reliability is essential," says Herbert Schorrer, Director Technology and Solutions Healthcare & Cosmetics at SSI Schaefer. "Powerful and automated processes can only be guaranteed through the use of intelligent software solutions for material flow control." WAMAS® Lighthouse is therefore the ideal counterpart for warehouse managers and operating personnel. As a central information point, WAMAS Lighthouse collects data throughout the warehouse and makes it available in real-time and displays that information on an easy-to-read analysis dashboard. The central information platform makes operational processes transparent and visible. The software analyzes actual situations and prevents disturbances before they occur.

High-Performance Logistics for Increased Efficiency

The European logistics center of Misumi in Frankfurt features the latest technology from SSI Schaefer. The integrated solution provides exceptionally powerful material handling features and permanent system availability.

„It's all about time“ is the motto of Misumi, the global manufacturer and leading supplier of mechanical components for special-purpose machinery, and underlines the vital role that time plays in the business activities of the company. Innovation cycles are additionally considerably shorter than before, particularly in mechanical engineering, leaving the market players with less time for product development and needing their components sooner.

The higher our stock levels, the shorter the average delivery time. To significantly increase warehouse capacity Misumi and SSI Schaefer have been working together since 2018. As part of a material handling project, SSI Schaefer installed a 4-tier R 3000 modular shelving system to increase warehouse capacity at Misumi by a factor of six. The modular shelving system makes optimum use of the 10 m high building, providing space for up to 250,000 items. Extended by the compact shuttle warehouse the storage capacity has increased to 450,000 items, and Misumi can supply standard parts to its customers much faster than before.

The solution

Despite the limited space available, the new material handling solution was able to interconnect the different work stations and warehouse areas perfectly. Misumi is now the proud owner of an open-ended and powerful material flow system that has sufficient buffer capacity to handle the order levels as they fluctuate during the day.

At the heart of the system is the shuttle warehouse, with SSI Cuby shuttles taking care of fully automated warehousing. The compact design makes optimum use of the available space. Misumi uses around 56,000 returnable containers from the SSI Schaefer portfolio. Of these, approximately 46,000 are used as stock containers in the shuttle warehouse, while the rest are utilized for order consolidation.

Two lifts per aisle ensure a high degree of technical performance of the system and a high level of reliability in the shuttle warehouse. The conveying system connects the two warehouse areas with the various work stations – at ground level as well as on the steel platform – and thus eliminates almost all walking. The system also includes six conveyor loops: three loops on top of each other, per level – on which the storage, retrieval, and empty containers are transported and distributed between the storage, picking, and dispatch/packing locations. The shuttle warehouse and conveying system are controlled by the WAMAS® logistics software from SSI Schaefer.

The 825 m² steel platform, on which the picking area is situated, lies in front of the shuttle warehouse. The platform is where the five ergonomic Advanced Pick Stations two-level are located. Employees are guided by a light signal that keeps them focused on the picking operation. This approach has resulted in a dramatic increase in picking speed and quality at Misumi, while reducing the error rate to almost zero. The goods-in and dispatch areas are located underneath the steel platform on the first floor.

The process

The customized components arrive in the morning at Frankfurt Airport and are delivered to the Misumi logistics center by truck. In the goods-in area, the pallets are broken down using a cross-docking procedure, distributed in containers, and temporarily stored in the shuttle warehouse. The pallets have several thousand individual positions for a large number of different customers.

The goods are split by customer-specific make-to-order (MTO) goods and goods for storage at the first four work stations. The MTO items are packed in containers and transported into the shuttle warehouse until the order is completed. The goods for storage are forwarded to one of the four remaining work stations, where the items are sorted for storage either in the modular shelving system or in the shuttle warehouse. Afterwards, the goods pass along the conveying system to the corresponding warehouse area. As soon as picking of all the order items is complete, the warehouse management system launches the retrieval process. The conveying system transports the containers to one of the dispatch work stations, where the items are taken out of the containers, packed in a carton, and prepared for shipping.

Permanent system availability

Although the project closed-out, the collaboration between Misumi and SSI Schaefer is by no means over. SSI Schaefer took over all the servicing and maintenance of the system for the first two years after handover to ensure continuous operation of the system. Preventive maintenance is performed by specially trained service technicians using SSI CMMS, the computerized maintenance management system. SSI CMMS is an electronic service portal that controls and monitors maintenance and repair activities efficiently. All the relevant information can be stored, consolidated, and visualized to provide fact-based insights into the status of the system and to rectify any wear in a timely manner.

Overall, lead times have improved and we are seeing high increases in productivity. In the ideal scenario, an order will pass through our logistics center in less than 60 minutes.

Jörg Gonnermann

General Manager Logistics Service Platform at Misumi Europa GmbH

Customer needs:

- Greatest possible process **efficiency**
- Higher storage capacity and optimal **use of space**
- Ergonomic** design of work stations
- High **flexibility** of system utilization

Solution elements:

- 4-tier R 3000 **modular shelving system** provides space for up to 250,000 items
- SSI Cuby shuttles** ensure high throughput of returnable containers in the logistics center
- Ergonomic Pick by Light work stations** increase picking speed and quality
- The shuttle warehouse and conveying system are controlled by the **WAMAS® logistics software**
- Preventive maintenance** is performed by specially trained service technicians using **SSI CMMS**, the computerized maintenance management system



Get more project details on modernization and expansion!

<https://pages.ssi-schaefer.com/fi-fi/high-performance-logistics-center>

View of an access level in the shuttle warehouse: the single-level SSI Cuby is used inside the shuttle warehouse.

It's a Record! A Highly Efficient E-Commerce Warehouse Created in 14 Days

With the support of SSI Schaefer, the Swiss retail company Coop set up and commissioned an e-commerce warehouse in the town of Altishofen within the space of just two weeks to allow it to process a surge in online orders in good time. SSI Schaefer equipped the new facility with its WAMAS® logistics software.

With around 90,000 employees, Coop is a major player in Switzerland. Besides the well-known supermarket chain, the Coop Group also includes various sales formats as well as wholesale and production companies. In 2020, this successful company achieved total revenues of 30.17 billion Swiss francs, and its online retailing business has seen powerful growth.

Focus on increasing capacity

While traditionally rooted in brick and mortar retail, Coop recorded a sharp rise in orders via the online shop Coop.ch during the lockdown of spring 2020. Faced with this unforeseeable spike in demand, the logistics structures reached the limits of their capacity. A quick solution therefore had to be found to create more storage space and offer customers additional delivery time slots.

Twin-pillar strategy for online business implemented in a rush

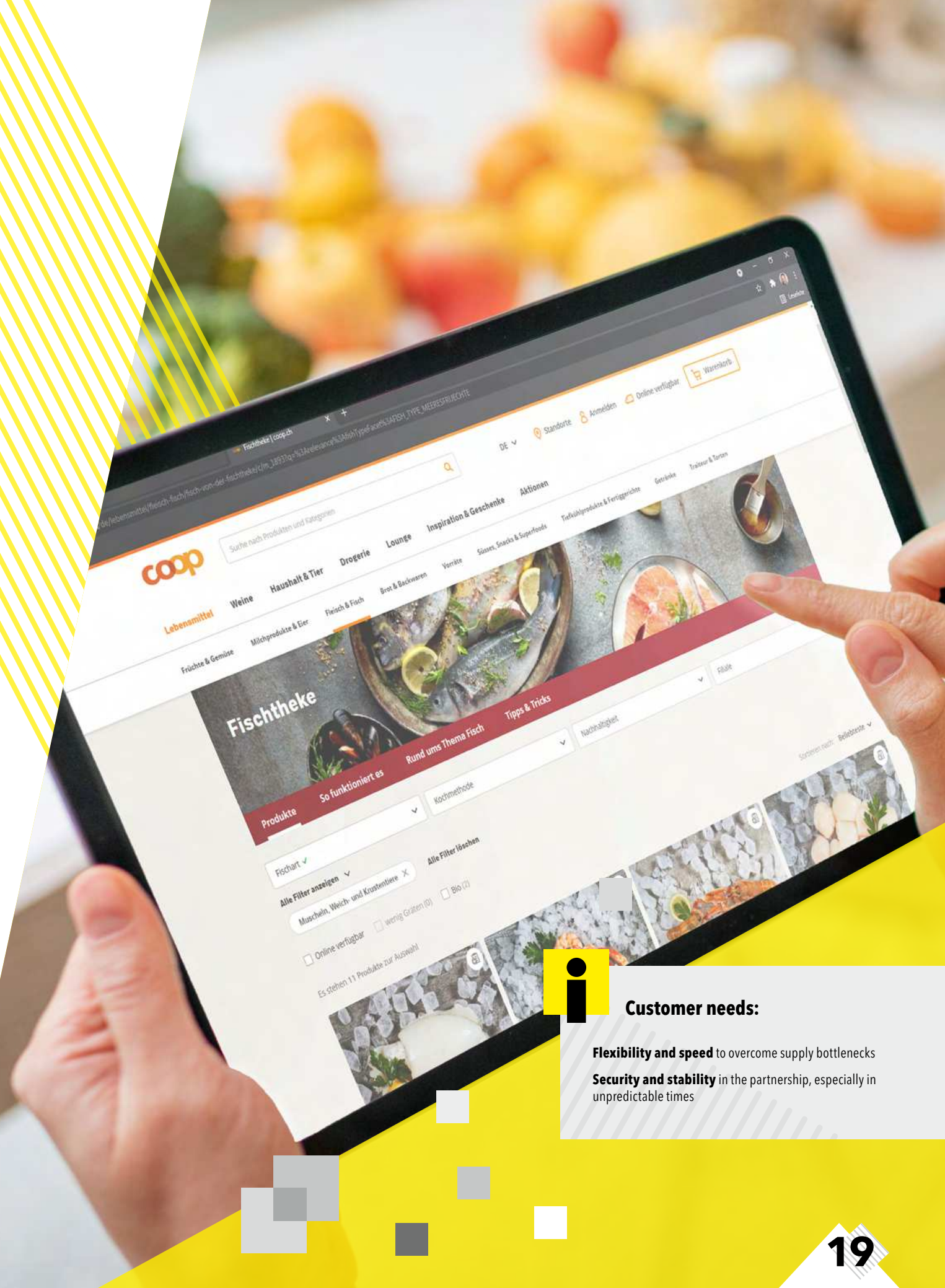
Coop initiated a twin-pillar strategy. First, an assortment of products was defined that would keep an average Swiss household supplied with basic goods. These products would then be handled via a 6,000 m² warehouse leased at short notice, equipped with a new IT and logistics infrastructure, and connected to the Coop network, all within the space of 14 days. WAMAS was implemented in partnership with SSI Schaefer. At the same time, more than 100 pickers were trained to operate the logistics software, which has been used since commissioning to manage the rapid processing of online orders efficiently via 300 pick-up locations with multiple placement. The extremely user-friendly WAMAS user interface also ensured that staff could learn the system quickly.

Software standard and team strength as project accelerators

Coop has relied on the software expertise of SSI Schaefer for its warehouse management since 2001. The retail and wholesale company uses a uniform warehouse management (WMS) solution at all its locations to optimize performance and harmonize logistics processes. Another advantage of WAMAS is the increased transparency of all stocks and transactions with complete traceability. The integrated software standard, tailor-made for Coop, as well as trust in the partner's know-how built up over the course of a 20-year collaboration, proved decisive in overcoming even unplanned events: "Setting up a warehouse from scratch and putting it into operation in just 14 days is only possible with dependable partners, and a team where everyone knows what to do, and if you can fully rely on each other," says Martin Nyfeler, Head of IT Pro. WW Logistics/SCM, Coop, underlining the successful collaboration with SSI Schaefer.

Agile enough to cope with the unexpected and reliably prepared

Flexibility, responsiveness, and the ability to put ideas into practice are always elementary success factors, but in challenging times they are downright essential. While seasonal fluctuations in demand can be cushioned by precise advance planning over several months, a pandemic event calls for ad-hoc measures to maintain supply chains. These can only be implemented effectively with the support of a long-standing software partner like SSI Schaefer, who understands both the industry and the customer's specific needs, and is fully familiar with the processes. At the same time, the new e-commerce warehouse in Altishofen which has been implemented within a very short time for Coop – a retail company that has also become a successful online retailer – is tangible proof that the material handling specialist has again lived up to its promise to deliver **flexibility and speed plus security and stability in every situation.**



Customer needs:

Flexibility and speed to overcome supply bottlenecks

Security and stability in the partnership, especially in unpredictable times

SSI Carrier // Next Level E-Commerce Fulfillment



E-commerce business is at a fast-moving stage of development. With the modular design of the SSI Carrier, we offer a cost-efficient solution that is highly scalable and offers optimum space utilization with maximum storage density. Through a smart combination of modules, the system can be flexibly adapted to the required sorting capacity.

Dr. Michael Zacher Product Manager Overhead Conveying at SSI Schaefer

The ongoing boom in e-commerce promises rapidly increasing sales. However, this is not a foregone conclusion. Companies that want to benefit from this trend in the long term cannot avoid examining their material handling structures and adapting them to the new and irreversible shopping reality with integrated omni-channel concepts.

With the sharp rise in online orders since the outbreak of the pandemic, fulfillment processes have been subjected to a continuous stress test. Fashion, pharmaceutical, and cosmetics suppliers and retailers in particular are faced with the task of channeling extremely heterogeneous assortments within the framework of order processing in such a way that both customers visiting local branches and those in the habit of using the Internet - whose demand behavior is difficult or virtually impossible to calculate - are offered a satisfying all-round shopping experience.

Ever more demanding customer expectations set the pace

Other challenges include seasonal peaks, "Black Friday" promotions and the like, the trend towards "click & collect", and the high rate of returns, which is difficult to manage. As a result, there is a growing need for automated system solutions that meet the demand for high availability and guarantee fast, error-free, and efficient processing of orders generated online. At the same time,

traditional sales channels must be served efficiently within a warehouse or distribution center. For example, store delivery is mainly about precise pre-sorting and sequencing of goods. In the case of e-commerce fulfillment, the focus is also on the rapid handling of many small orders and processing returns as efficiently as possible. The SSI Carrier pouch sorter, supplied by SSI Schaefer as a turnkey system including software from a single source, is precisely tailored to this complex requirement profile. The system ensures particularly gentle transport, even of sensitive products and packaging, optimizes performance and space utilization in the warehouse, and is flexibly scalable at any time thanks to its modular design.

Stable processes even with changing order structures

Conveying, buffering, sorting, and sequencing of hanging and flat goods with just one system - the SSI Carrier makes it possible. The pouch sorter, which can be installed in a multi-level system, can achieve a technical performance of several tens of thousands of items per hour if required. The system conveys all goods, such as

clothing, shoes, cosmetics, or household items weighing up to 2.5 kg, individually into pouches and is able to supply them in the correct sequence and in the shortest possible time as per the order. Items can also be prepared for packing at packing work stations in the desired arrangement, for example according to size or color, and transferred for shipping. Thanks to constantly high availability and the possibility of prepicking, the SSI Carrier is perfectly suited to meeting just-in-time requirements and same-day or next-day delivery promises. State-of-the-art RFID technology reduces costs whilst ensuring maximum process reliability, which is further enhanced by the high-performance WAMAS® logistics software with an integrated system visualization tool. Returns can also be handled efficiently, as returned goods are immediately available for reshipment. This saves valuable time.

A highly flexible and sustainable best-in-class solution from a single source

The heart of the pouch sorter is its unique sorting algorithm. Matrix sortation combined with a dynamic buffering system makes it possible to transfer batch-picked items from different warehouse areas to sorted customer orders, and bring these to the pouch unloading stations in any desired sequence, virtually ad hoc. Because the SSI Carrier is designed for varying order structures, the system is ideal for handling a wide range of items and processing smaller online orders, larger retail orders, and click & collect orders.

Combined with a bespoke software solution, state-of-the-art visualization technology and tailor-made Customer Service & Support, SSI Schaefer offers customers a complete turnkey solution for e-commerce and offline trading from a single source, which will allow them to cope with fluctuating and growing order volumes securely and efficiently in the future.

PDF

Is e-commerce becoming more and more important for you? Find out about individual solutions in our guide.

<https://pages.ssi-schaefer.com/fi-fi/ecom-guide-finland>

Giving Structure to Complexity

When it comes to managing complexity of any kind and optimizing warehouse performance, innovative software solutions are the key to organizing automatic warehouse logistics processes efficiently and for the long term. WAMAS® from SSI Schaefer makes the difference.

Managing complex market and customer requirements

The warehouse is not a self-contained microcosm, but a central hub within the supply chain and is therefore exposed to a wide range of influences: growing product diversity, fluctuating demand behavior, ever changing assortments, fragile supply chains, cost and margin pressure, and rising customer expectations as to delivery quality and punctuality. The latter are being driven in particular by the continuing e-commerce boom, which in turn demands coherent multichannel concepts that have to be mapped operationally in logistics.

A further challenge comes from the different requirements for product handling in the warehouse due to the composition of goods or legally required safety standards, such as in the pharmaceutical sector. This leads to an ever-growing complexity that has to be mastered. In order to meet current requirements – and also to be prepared for future developments – a synchronized interaction of software, hardware, and human resources in conjunction with a high degree of real-time capability and flexibility is called for. This can be achieved with the help of warehouse automation and precisely tailored software that can be used to optimize the warehouse logistics throughout.

With SSI Schaefer, operators have a partner at their side able to offer software and automation solutions from a single source and, at the same time, provide the know-how needed to seamlessly combine all components into an integrated, sustainable system solution. The WAMAS® portfolio offers state-of-the-art, modular software solutions that enable operators to achieve the best performance in their market, now and in the future, and exceed their expectations regarding the speed and efficiency of their warehouse logistics.

Mastering complex fulfillment processes with software support

Goods-in, warehousing, picking, packing, shipping, and returns: fulfillment is an extremely multidimensional service and requires broad, proven process expertise, especially in automated, highly dynamic warehouses. In particular, expertise is also required in the management of increasingly complex order profiles, system control and coordination of warehouse staff. Customers must be able to rely on their individual requirements being met without compromise on the basis of efficient, flexibly adjustable warehouse management and material flow systems. Modern software solutions for material handling and warehouse logistics are essential in this respect.

WCS - an intelligent order processing system

The first choice in automated warehouses is a modern warehouse control system (WCS) that can be used across

all industries. It connects people and service modules and harmonizes processes, thereby making a decisive contribution to the efficient organization of order processing, despite – and especially in the face of – growing complexity.

The WCS controls automated processes within a warehouse or distribution center in real time and ensures a constant material flow. If conditions change, the system re-prioritizes processes so that fulfillment performance meets the daily requirements and is accelerated. In this way, a WCS does much more than a pure material flow system (MFS) which, for example, sets conveyor belts and sortation systems in motion at the right time. Rather, a modern WCS covers numerous functionalities required for order processing and delivers optimum efficiency thanks to this broad performance spectrum.

From material flow control to holistic resource management

In highly automated warehouses, a WCS takes into account the entire resource management, including both the coordination of automation components and the personnel involved. The focus is always on the goal of moving requested goods from the warehouse to the shipping department as efficiently as possible and in the right quantity. The WCS orchestrates fulfillment operations in such a way that process costs are incurred exclusively in the low-threshold area, regardless of whether the tasks are performed by humans or machines.



Definition of terms: MFS, WCS, and WES

Outside Europe, particularly in North America, the term WES is commonly used to describe a system equivalent to the European WCS. The same applies to a WCS, which is synonymous with MFS outside the USA.

Europe	North America
WCS	WES
MFS	WCS



This is part 2 of 3 of the SSI Schaefer series "Managing Complexity". Read the first part about visualization of complex processes here.

<https://pages.ssi-schaefer.com/fi-fi/managing-complexity>

Automated solution for Kokkikartano

Snellmanin Kokkikartano Oy is well-known on the Finnish market for its ready meals cooked with homemade recipes. Kokkikartano was looking for a long-term partner rather than a one-time supplier.

The new building of 3,000 m² will accommodate an automated warehouse with shuttles, conveying system and picking technology to ensure maximum efficiency. The newsystem will support Kokkikartano's goal to double the volumes within the next 10 years.

The common ground and a speed-start into partnership

Quality, customer service and homemade authenticity are the top 3 values for Kokkikartano to preserve and communicate. SSI Schaefer, also being a family-owned company places quality as its main working principle. Another critical point was the supplier's ability to deliver the complete solution from one source, maintaining the quality and tailoring the systems to better serve Kokkikartano's processes.

"SSI Schaefer has strong local maintenance support in Finland. If we have any requests after the system is in operation, it will be much easier and faster to deal with the local team," comments Tea Tilander, Production Director at Kokkikartano.

The perfect process

In 2021 Kokkikartano assessed current processes and available resources and defined the need for a highly automated material handling solution for its new facility in Kerava. "The existing warehouse is fully operated by manual labour and

has a serious lack of storage space. To keep up with the demand, we have had to partly outsource the storage," shares Tea Tilander.

In the new automated solution goods will arrive from the production line and follow one of the three paths: storage, picking or direct dispatch. The items can be placed in the 2-aisle automated warehouse equipped with SSI Flexi shuttles until they are needed for an order. The SSI Flexi shuttles will ensure over 40,000 tote storage locations with room for future growth as the business develops.

Alternatively, the goods can directly follow a conveyor line to the picking zone. Order picking will be done manually with the help of pick by light technology for faster and error-free picking and a conveying system to deliver the goods to the right zone. Then the picked products will be moved downstairs to the palletizing area, where they are palletized and then shipped to the customers.

Thinking about the future

The new solution will provide 50 % more storage locations for totes compared to the current resources. In the future, the system will be expanded following Kokkikartano's growth rate. The solution will be handed over to Kokkikartano in Summer 2023.

Destination: e-commerce

Tallink is exploring new opportunities and expanding its warehouse picking solution. In June 2021 Tallink has signed a contract with SSI Schaefer for 7 SSI LOGIMAT® vertical lift modules.

Tallink is the leading provider for mini-cruises and passenger transportation in the Baltic sea area with headquarters in Tallinn, Estonia. In 2020 the company was selected as the most trusted brand among cruise ferry lines in Finland. (statista.com)

The pandemic brought a significant challenge to Tallink as shipping and cruises remained the leading business direction for the company. In 2020 Tallink saw decrease in the number of travelers and carried cargo units. The shipping company launched a series of different initiatives in summer 2020 but the pandemic's restrictions being on and off made the situation uncertain.

"Due to covid-19, there has been a change in customers' shopping behaviour. With growing e-commerce segment, we knew that we had to evaluate our processes to be able to support our internal customers (B2B) and also growing e-commerce (B2C)," says Marko Jurkatamm, Head of Logistics and IT Solutions at Tallink Duty Free.

As e-commerce orders are generally smaller, the shipping company forecasted two future needs: More storage space and more accurate picking.

"Tallink has already been using SSI LOGIMAT for more than five years. We are happy with the service and cooperation from SSI Schaefer. Pre-analysis and design were well supported by SSI Schaefer Finland. Together we quickly found a good solution. The project had a few details that needed to be clarified but overall feedback is that the job is done well," comments Marko Jurkatamm.

With the additional seven SSI LOGIMAT modules, Tallink does not need to expand the existing storage space. The equipment will also help to increase the picking accuracy which is extremely important for the B2C segment. To add up to the benefits of the new solution, Tallink also selected two additional SSI LOGIMAT options. LOGIDUAL will enable faster picking due to trays provision on two levels per access opening. Another option is LOGIPOINTER which uses a laser pointer to show the exact storage position of the needed items. Together these options will help Tallink to make selecting more organized, optimized and to reduce errors.

Tallink is planning to achieve one million order picking rows annually from the e-commerce segment. Right now, the shipping company is halfway there.

The project will be handed over in 2022.



Cybersecurity Providing Lasting Protection for Company Networks

Technologically sophisticated, integrated protection mechanisms for company networks are becoming increasingly important. Traditional preventive measures are far from adequate against a backdrop of escalating cyberattacks that can bring not only national but also global supply chains to a standstill. The solution: **"active patching"**. Admir Sipic, VP Global Head of Remote Services at SSI Schaefer, knows exactly how to provide lasting protection for your infrastructures, and raises awareness on the topic of cybersecurity.

Ideally, the modernization of a material handling system also involves process optimizations through software updates. Process organization in the warehouse can be improved and made longer-lasting by replacing servers and client hardware, upgrading the operating system and databases, modifying the existing IT landscape, or by issuing a new release. In this context, the topic of cybersecurity is gaining importance in view of the increasing number of hacker attacks on the IT infrastructures of individual companies or even on complete company networks.



Admir Sipic

IT systems cannot be fully protected through isolation

In particular, the growing prevalence of cross-company networking offers a target for cyberattacks. Moreover, a certain carelessness can still be observed: it is incomprehensible that, for example, system operators with sales in the millions underestimate the risk that their productive operations could be brought to a standstill by attacks from the network.

One way to counteract these threats is through patch management. Programs with security updates are installed in the IT network at regular intervals. Methods known as "virtual patching" and "hardening" are common. Where necessary, working from the outside in, any vulnerabilities are selectively sealed off against attacks in different layers at PLC (programmable logic controller) or control level. However, it has been shown that the principle of isolation does not offer absolute protection.

With "active patching", SSI Schaefer therefore goes a step further: the module scans all IT systems on a monthly basis or in an agreed cycle. It patches identified vulnerabilities and is significantly more effective due to the deeper penetration. It was primarily developed for new systems, but is increasingly being used for older systems as well – ideally as part of a comprehensive retrofit. In the past, only "virtual patching" and "hardening" were used for older systems.

Solution module for growing challenges

Cybersecurity has been high on our agenda for years. Since 2020, we have been exclusively offering our customers a security patch application developed in-house and based on the active patching principle. It enables hacker attacks to be averted proactively rather than just reactively when real compromising activities are identified. As well as actual patching, constant searching and assessment allow continuous evaluation of the current situation. This is also becoming more relevant in light of the growing professionalization of highly motivated criminal hackers and increasingly clever malware. What is more, during the pandemic and especially under lockdowns, the number of possible gateways has increased due to inadequately protected laptops and USB sticks, plus phishing e-mails and the increased use of digital services by those working from home.

Focusing on end-to-end security

Patching requires a license and takes place after the module is activated, virtually at the press of a button. The defined time windows are governed by service contracts, and our remote support is available via a hotline in case action is needed to address an acute potential hazard. Since 2020, all software packages have been offered as an option both for new systems and for modernization, which often involves an expansion of the existing system. The main goal is to create awareness of the need for technologically sophisticated, integrated protection mechanisms. Traditional preventive measures are far from adequate against a backdrop of escalating cyberattacks that can bring not only national but also global supply chains to a standstill. The costs of implementing active patch management are put into perspective by disastrous scenarios such as the recent attack on IT service provider Kaseya and its consequences.



PRODUCTION LOGISTICS

Keeping production supply under control automatically

Think Tomorrow.

How to automate production logistics step by step: with flexible and modular solutions that raise efficiency and performance, save space, and increase transparency. From automated storage and picking modules to intelligent logistics software that cleverly controls the individual elements that go to make up your system solution. With an experienced material handling expert as a reliable partner at your side.

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