



Automated guided vehicles.
Automation in intralogistics.



first in intralogistics

"A fantastic collaboration is underway at STILL that we can certainly continue to build on and recommend to others".

Rolf Urech, Project Manager Industrial Trucks, Migros Verteilbetrieb AG, Neuendorf (Switzerland)

STILL PRODUCT PORTFOLIO

Your intralogistics is our passion!

The STILL product portfolio provides you with the perfect solution to all of your intralogistics challenges. Combine new and used trucks from the **Material Handling Equipment** field along with corresponding accessories with the solutions offered by our **Advanced Applications** for automation, software applications, racking systems and efficient intralogistics consultancy.

Use the STILL **Product Services** to discover how you can utilise the expert knowledge of our service technicians for maintenance and repair and how you can benefit from perfectly matched service agreements. Between our fleet management programmes and individually designed financing and leasing concepts from our **Business Services**, we have the tools to resolve your intralogistics challenges, simply and efficiently.



CLICK FOR MORE INFORMATION.

Text with this icon in the online brochure takes you directly to further information on the relevant topic on our website.

MAKING INTRALOGISTICS SMART. / TOGETHER.

Every day you give everything for your customers. Your commitment guarantees success. This is why your internal logistics processes need to work. Without any problems. Just like that.

Things will run smoothly with us because we have the smart trucks, services and networked systems that you need. They are easy to use, safe and ensure availability at all times – and they therefore save you a lot of time and money.

Our experts know what will work best for you. They speak your language. They also know that things are changing quicker than ever before in logistics. This is why we are already developing the solutions for you today that you will need tomorrow, and sustainably at that. This is our job, and has been for over 100 years.

There is a lot for all of us to do.

Let's just do it. Let's be smart about it.

Let's do it together.

WHATEVER YOU WANT TO MOVE

We have the ideal solutions

YOUR REQUIREMENTS – OUR SOLUTIONS

More complex. Faster. Better value. Are you also confronted with challenges like these every day when competing for satisfied customers?

- **Delivery delays** due to rising order intake
- **Warehouse capacities** are reaching their limits
- **Warehouse employees** are exposed to high physical stress
- **Inefficient processes** caused by errors, empty runs and transport damage
- **Skills shortage**

If so, you should consider automating your intralogistics processes – it is a highly productive and cost-effective way to solve problems like these. STILL offers a wide range of different solutions and truck-based extension levels to help you automate your processes.

They can be adapted to the complexity of your requirements, meaning that they are guaranteed to pay off every time.

WE DRIVE AUTOMATED VEHICLES

Automation with STILL iGo

With STILL iGo, we offer various truck-based extension levels for the automation of your intralogistics which can be individually adapted to your requirements. Hardly any other solution offers as much potential for process optimisation, data exchange and networking as automated systems do. Robots, autonomous trucks and automated guided vehicles (AGV) play a key role in this area. Given all this, it is no wonder that there has been so much development in the last few years. Today, we are seeing significant investment and research in a multitude of R&D areas

– and not just by the major AGV manufacturers. Hundreds of start-ups, technology companies and software firms are also keen to break into the market in this field. With our wealth of experience and expertise in automation, we will be at your side right from the start to make sure that you find the perfect automation solution for you from among the numerous options on the market.



LEVELS OF INTRALOGISTICS AUTOMATION

The level of automation is based on your processes. Our experts will work closely with you to determine the appropriate level of automation and systematically develop your processes.

1. ASSISTED DRIVING

Assistance systems automatically support certain tasks.

→ **iGo pilot**

2. SEMI-AUTOMATED DRIVING

Trucks navigate partially independently, autonomously, or perform certain tasks automatically.

→ **iGo neo**

3. FULLY AUTOMATED DRIVING

Automated guided vehicles and autonomous mobile robots in fully automated process.

→ **iGo systems**

→ **ACH and AXH**

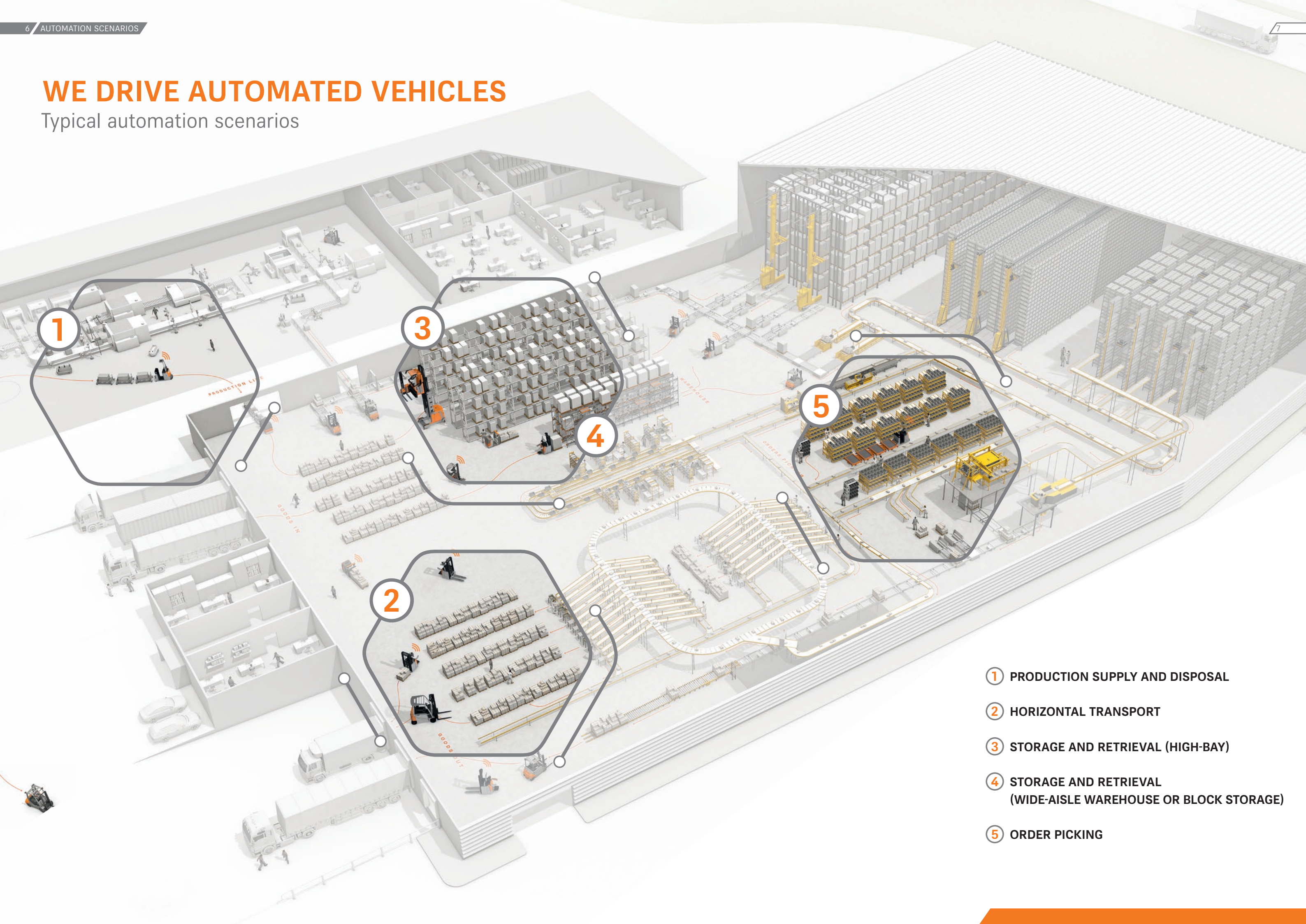
Not every technological innovation is always financially feasible for every task. We will be your partner and ensure that you do not get lost amid the vast array of digital offers available as part of Industry 4.0.

No matter what stage of your automation project you are at, we will identify just the right mix of technical solutions for your intralogistics and will always keep a close eye on your return on investment.

- **Future-proof.** Standardised and scalable solutions for every automation requirement
- **Cost-effective.** The right automation solutions in terms of ROI
- **Flexible.** Various stages of automation: the level of automation is based on your processes
- **Safe.** State-of-the-art navigation technologies and pedestrian protection
- **Complete.** Mobile and stationary solutions for completely automated delivery chains
- **Predictable.** Short response times in the design and quotation preparation stages, as well as in the implementation of projects

WE DRIVE AUTOMATED VEHICLES

Typical automation scenarios



- ① PRODUCTION SUPPLY AND DISPOSAL
- ② HORIZONTAL TRANSPORT
- ③ STORAGE AND RETRIEVAL (HIGH-BAY)
- ④ STORAGE AND RETRIEVAL (WIDE-AISLE WAREHOUSE OR BLOCK STORAGE)
- ⑤ ORDER PICKING

Scenario 1

PRODUCTION SUPPLY AND DISPOSAL

AUTONOMOUS MOBILE ROBOTS

Smart. Compact. Independent Our autonomous mobile robots (AMR) are the smart solution for optimised horizontal material flow. These agile little underdrive AGVs navigate complex warehouse structures proactively and autonomously and are easy to integrate into existing warehouse and transport systems. Combined with comparatively low acquisition and operating costs, a high throughput, minimal space requirements and exceptional scalability, they are a forward-looking and highly efficient solution.



AXH 10

📦 up to 1 t 🚶 up to 2.2 m/s



ACH 06-15

📦 up to 1.5 t 🚶 up to 2 m/s



LTX 50 iGo systems

🚚 up to 5,000 kg 🚶 up to 1.7 m/s

ACH 06-15

Small. Manoeuvrable. Powerful. Thanks to intelligent QR code navigation, the ACH independently transports loads of 0.6 to 1.5 tonnes. Remarkably compact, of agile design and exceptional manoeuvrability, it moves deep into the warehouse and production areas.

AXH 10

Robust. Flexible. Intelligent. Ideal for existing warehouses, the AXH moves loads of up to 1 t – even over long distances. Featuring innovative SLAM technology for navigation and a reliable object recognition, it independently circumnavigates obstacles and easily handles inaccurately positioned carriers.

AUTOMATED TUGGER TRAINS

The STILL tugger train system ensures a precisely timed supply of material with minimal traffic – and is even partially or fully automated. The driverless LTX 50 iGo systems tractor reliably navigates the train along a predefined route. It can pull a total weight of up to 5 tonnes, spread across several trailers with a maximum load of 1.5 tonnes. The STILL LiftRunner tugger train system offers the lowest rolling resistance in the sector and, thanks to the wide range of compatible frames and trolleys with the practical STILL transport and removal system, each tugger train can be configured individually.

“Our goal was to increase our capacity by merging the warehouses with an automatic warehousing system. In order to give ourselves the flexibility we need for the future, we opted for STILL's iGo system with automatic industrial trucks”.

Martin Rosengreen Jessen, Production Supervisor, Danfoss, Tinglev (Denmark)



Scenario 2

HORIZONTAL TRANSPORT

THE CUSTOMER

Danfoss Power Electronics A/S, Denmark, heating and cooling technology, more than 27,000 employees in over 100 countries.

THE CHALLENGE

Increase capacity and create flexibility by merging two manual warehouses into a single automated central warehouse. Volume: approx. 2,000 articles on roughly 8,800 pallets.

THE SOLUTION

Design and implementation of an automatic warehouse with perfectly synchronised, fully automated MX-X very narrow aisle trucks and EXV high lift pallet trucks, including all system components. Incoming pallets are stored by the EXV iGo systems in the warehouse, then moved to production and transferred to the appropriate material handling system. The high lifting speed and intelligent environmental warning system guarantee efficient goods handling, safe horizontal transport and accurate goods transfer. The system is optimised and analysed via the smart STILL cloud-based solution iGo insights.

THE CUSTOMER BENEFITS

In addition to increased capacity, benefits include time savings, space optimisation and process harmonisation. The flexible scalability of this solution allows to quickly respond to turnover peaks. An initial analysis performed shortly after implementation already indicates cost savings of around 20 percent.



EXV iGo systems

↑ up to 3,744 mm 📦 up to 1.6 t
🚶 up to 2.0 m/s



AUTOMATED HIGH LIFT PALLET TRUCK

EXV iGo systems. Power meets innovation. The automated STILL EXV iGo systems high lift pallet truck ensures highly efficient logistics processes – as a stand alone solution, in mixed operation with manual trucks or in conjunction with other AGVs. It combines a high load capacity, high speed and impressive lifting height with optimum process safety. For example, the 360° personal protection system with sensitive scanners and sensors protects people, the truck and the load – completely automatically.

Scenario 3

STORAGE AND RETRIEVAL

(high-bay)

MX-X iGo systems

↑ up to 14,000 mm up to 1.4 t
 ⤵ up to 3 m/s

**AUTOMATED VERY NARROW AISLE TRUCK AND ORDER PICKER**

MX-X iGo systems. Perfection at the highest level. The automated very narrow aisle truck is the ideal partner for warehouses with a particularly high level of space utilisation. It works with precision at lofty heights to accurately store and retrieve goods weighing up to 1.4 tonnes – for maximum efficiency and optimum goods handling. Thanks to intelligent safety features such as warning signals and multiple laser scanners to detect people and objects, it is also extremely safe, even when used in conjunction with manual trucks.

“Our operation is safer, more reliable and more efficient”.

Michiel van Trijen, Supply Chain Manager, Tarkett, Waalwijk (Netherlands)



3

**THE CUSTOMER**

Tarkett, Netherlands, flooring solutions, approx. 12,500 employees across 36 locations.

THE CHALLENGE

Optimise internal logistics and improve efficiency and process reliability at the new automatic warehouse in Waalwijk.

THE SOLUTION

Implementation of a fully automated narrow-aisle warehouse where the MX-X iGo systems very narrow aisle trucks can perform to their full potential. They quickly and safely store and retrieve goods at heights of up to 14 metres and ensure fast and efficient goods handling, and all that at maximum storage density, as the STILL high pallet shelving has space for 18,000 pallets over 21 rows. The MX-X iGo systems works in perfect harmony with the automated EXV, as well as with manual reach trucks and electric pallet trucks for loading and unloading. This solution provides an integrated process from the HGV to the shelf.

THE CUSTOMER BENEFITS

Greater efficiency and delivery reliability thanks to optimised organisation and a reduction in errors and damage. The customer also benefits from a much higher level of safety for employees and significant cost savings.

“We proposed our project to many well-known suppliers of driverless transport systems and complete solutions. Ultimately, STILL was the only contractor able to implement the entire concept in the very tight time frame of just nine weeks”.

Manfred Kania, Head of Logistics, Kuraray, Troisdorf (Germany)

Scenario 4

STORAGE AND RETRIEVAL

(wide-aisle warehouse or block storage)

THE CUSTOMER

Kuraray Europe GmbH, Germany, plastics industry, approx. 10,000 employees.

THE CHALLENGE

Centralise and automate a raw materials warehouse of 4,500 m² to increase capacity and ensure long-term competitiveness. 24/7 production requires a minimum system availability of 98 percent.

THE SOLUTION

In the material flow concept, which comprises intelligent software and automation systems, semi-automated shuttles communicate with fully automated STILL FM-X iGo systems reach trucks. Within the rack system with its 3,300 shelf positions, they ensure the efficient storage and retrieval of raw materials, the automatic implementation of shuttles in the right racks, and their transportation to the relevant production locations. An emergency concept to bridge any disruptions ensures uninterrupted production.

THE CUSTOMER BENEFITS

The customer benefits from a highly efficient, transparent warehouse management system. The intelligent networking of trucks and the smart control system ensure that the necessary raw materials are available for production supply – both now and in the future.



IFOY winner

FM-X iGo systems

↑ up to 10,000 mm up to 2.5 t
 ⤵ up to 1.7 m/s

**AUTOMATED REACH TRUCK**

FM-X iGo systems. Redefining precision and efficiency: whether it is operating in long-distance transport or storing and retrieving goods at great height, the automated reach truck impresses with its first-rate handling performance and safety. Combined with its precision, for example when feeding automatic shuttle systems, the intelligent safety features and impressive lifting height, the FM-X iGo systems makes efficient space utilisation child's play.

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"Out of all the trucks on the market that we tested, the OPX iGo neo is the most highly developed. The variety of options offered by the STILL autonomous horizontal order pickers impressed us".

Rolf Urech, Project Manager Industrial Trucks, Migros Verteilbetrieb AG, Neuendorf (Switzerland)

Scenario 5 ORDER PICKING



OPX-L 20 S iGo neo
↑ up to 700 mm 📦 up to 2 t

AUTOMATED ORDER PICKER

The smart way. The OPX iGo neo is the most reliable colleague you could ever wish to have. The autonomous low level order picker follows operators wherever they go and effectively eases their workload. Thanks to the intelligent analysis performed by its sensors, it also detects its surroundings, obstacles and distances precisely and proactively.



THE CUSTOMER

Migros Verteilbetrieb AG, Switzerland, logistics, over 1,600 employees.

THE CHALLENGE

Optimise warehouse organisation in light of growing online business. Safe and efficient handling of goods that cannot be picked fully automatically due to their nature.

THE SOLUTION

Design and implementation of a holistic warehouse concept comprising a pick-by-voice storage system and autonomous STILL OPX iGo neo low level order pickers. The innovative Z order picking system ensures maximum flexibility and efficiency while intelligent safety features prevent collisions.

THE CUSTOMER BENEFITS

Efficiency, increase in capacity, ergonomics and safety. The distances that staff have to walk with loads are significantly reduced, safety is increased and the time spent ascending and descending during a shift is reduced by up to 75 percent. Voice control significantly improves efficiency.

AUTOMATICALLY COST-EFFECTIVE

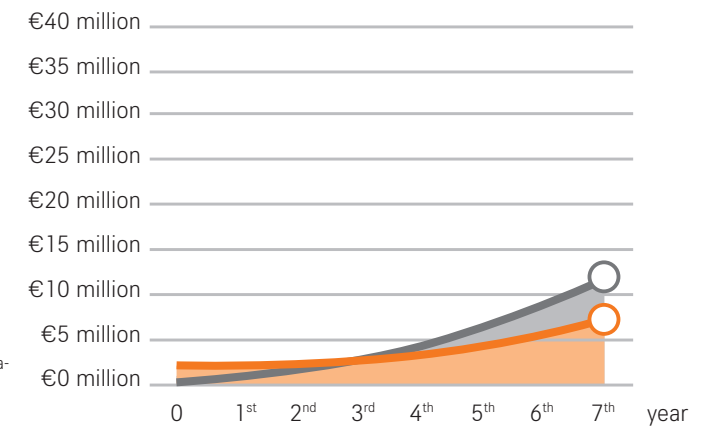
Automated processes offer potential for savings

An automated warehouse offers many advantages. In addition to increasing efficiency and safety, the value-creating use of resources also plays an important role: when intelligent machines take over physically demanding and repetitive work, this frees up employees to focus on more creative and responsible tasks.

Manual
Automated

The graph is a sample illustration of costs.

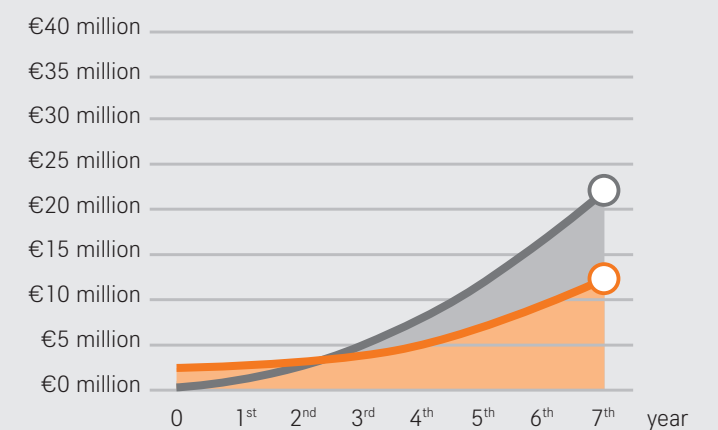
ONE-SHIFT OPERATION COSTS



AND YOU ALSO BENEFIT FROM A COST-EFFICIENCY PERSPECTIVE:

- Increased handling capacity and maximum productivity – 24/7 if required
- Significantly reduced accident rate and optimum safety for people and machines
- Less damage to goods, materials and trucks
- Minimal error rate thanks to intelligent systems
- Greater independence from the labour market while becoming more attractive as a place to work

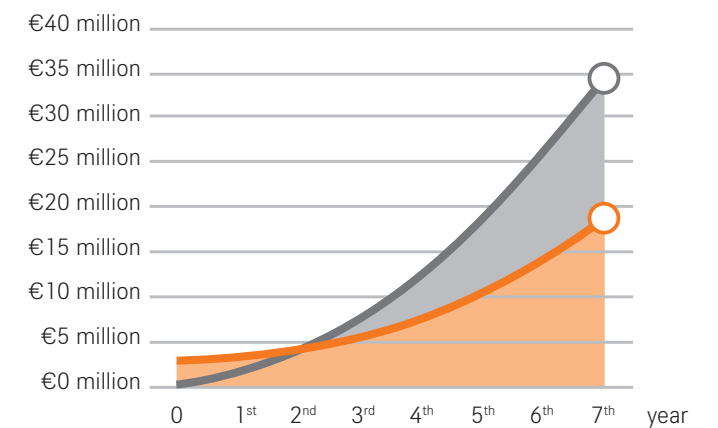
TWO-SHIFT OPERATION COSTS



AUTOMATION - AN INVESTMENT THAT PAYS OFF

Even in the very first year and in one-shift operation, you can achieve significant savings on annual costs, for example when comparing a manual warehouse with three trucks to an automated warehouse with four AGVs. Naturally, lower personnel costs play a big role in this, but potential additional costs and downtime costs are also much lower thanks to the high level of process reliability. Particularly when viewed over the course of several years, the cumulative costs clearly demonstrate the savings potential of automated processes. Not to mention the future viability.

THREE-SHIFT OPERATION COSTS



AUTOMATION WITH STILL

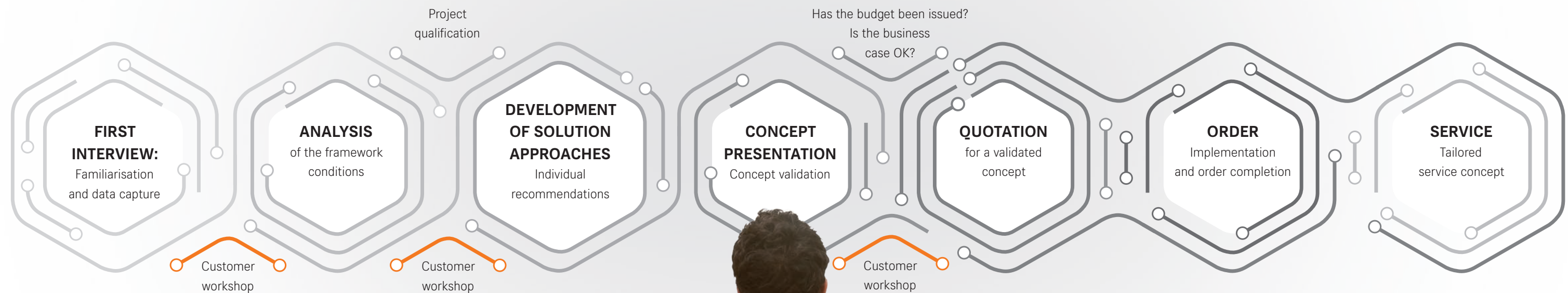
A joint project process

The key to successful automation projects is thorough preparation, precise planning and a transparent cooperation based on trust. With that in mind, we focus on two things in particular during the **first interview: listening and analysing**. It is important to us to make sure that we understand your goals and visions while learning as much as possible about how you work, the current conditions and any particular challenges you face.

An informed decision for maximum success. These two elements form the basis for the first project qualification. We work closely with you to decide whether an automation solution is the right route for you, or whether other measures would be more appropriate. If we jointly decide on automation, we will start to develop some initial **solution ideas** based on our analyses – from a classic truck and rack solution to a fully automated warehouse.

A concept that is 100 percent tailored to you. In the next step, we present our recommendations to you in a detailed **concept presentation**. At this stage, too, it is important to us that we work together to evaluate the concept and take it to the next level. Working in close collaboration with you, we thoroughly examine the concept and also talk openly and transparently about the business case and budget.

We make costs transparent – and prepare a detailed **quote** and clear cost calculation based on the concept that we have developed and validated together. Once the **order has been placed**, our specialists get to work on the implementation of your individual automation solution.



Your satisfaction is our priority.

Our approach means that you are part of the team and actively involved in all processes – from the initial analysis to the finished solution. In **joint workshops**, we evaluate our analysis results, define our recommended measures and validate our concept proposals. The result is a solution that is precisely tailored to you and your specific challenges.

What you can count on. We are a reliable partner – and that does not stop once we have finished implementing your automation solution. With individual, tailored **service packages**, software-assisted maintenance and service processes and service teams available at all times, we provide long-term, proactive, reliable support for you and your seamless intralogistics.

iGo insights

Automated process optimisation



PROACTIVE OPTIMISATION

Automated vehicles are used 24 hours a day, 365 days a year. The automated guided vehicles (AGV) are controlled and monitored by an AGV control system, which generates valuable data that allows for a thorough analysis of your system and processes from a higher-level perspective. With iGo insights, STILL offers a cloud-based evaluation tool that filters correlations from all the process information collected and recommends specific measures to optimise the availability and performance of your system.

IMPROVING SYSTEM EFFICIENCY

iGo insights uses the principle of machine learning to improve system efficiency. All data collected by the AGV control system over a long period of time is uploaded to the cloud for evaluation. It can then be accessed online via the encrypted web portal. The software recognises structures in this data flow, calculates probabilities and allows you to act in a proactive way – for example when scheduling maintenance or repairs.



GAIN A CLEAR ADVANTAGE WITH iGo insights

- **Analytical.** Graphic representation of all vehicle movements in heat maps, for identifying and optimising performance bottlenecks
- **Problem-solving.** Playback function allows precise fault determination by looking back over truck and system behaviour
- **Monitoring.** Key figures for response times, traffic density, capacity utilisation and downtimes
- **Forward-thinking.** Daily information on trends and anomalies
- **Responsive.** Web interface for desktop and all mobile end devices
- **Time-saving.** Maintenance or repair measures are proactively initiated

STILL SOFTWARE SOLUTIONS

Material flow management for your automated warehouse

DIGITAL. INTELLIGENT. NETWORKED.

In a (semi-)automated warehouse, everything is intelligently linked. Software systems and automated guided vehicles, manual trucks and warehouse trucks, truck assistance modules and analysis tools can be connected and individually configured with the aid of flexible interfaces. The result is a material flow that meets your precise requirements without any compromises – for a productive, optimised and future-proof warehouse.

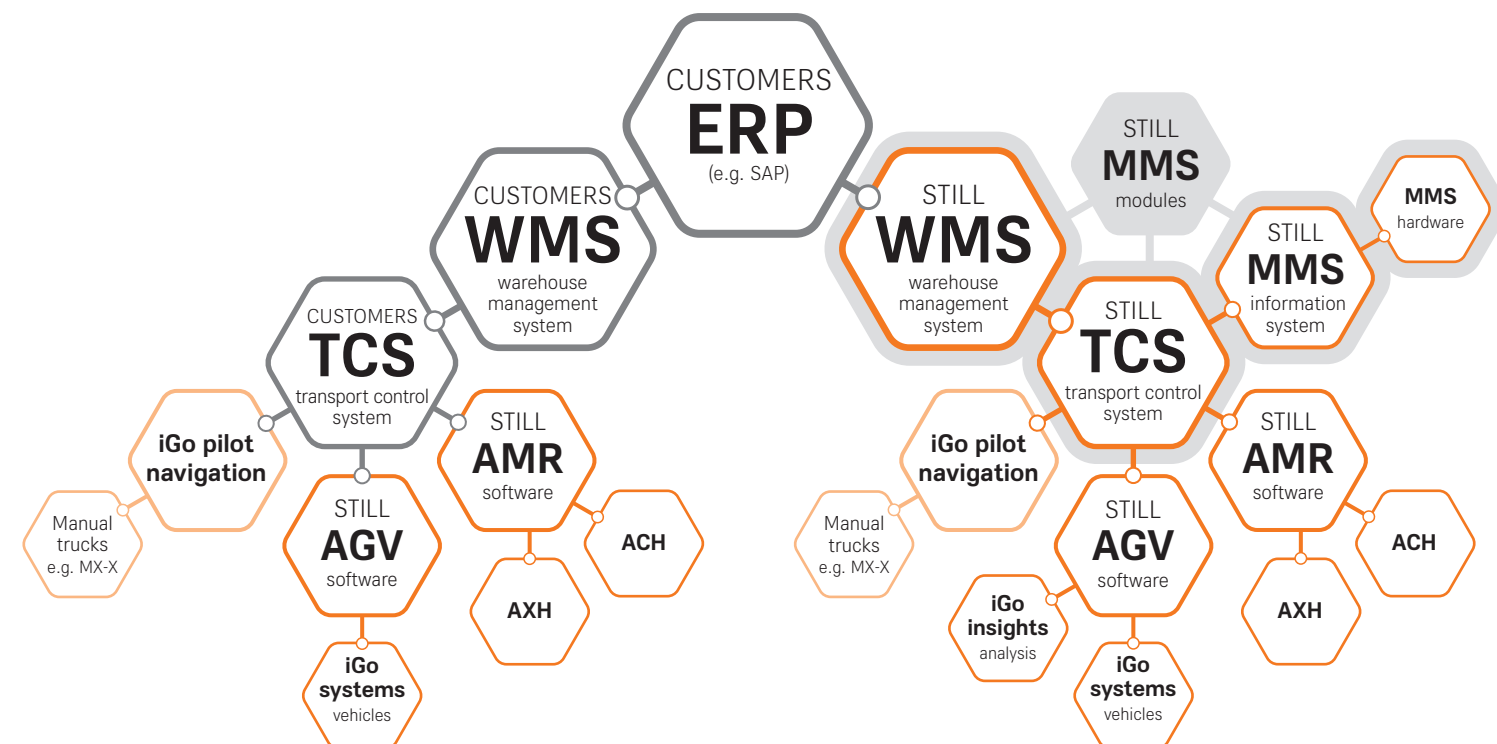
STILL SOFTWARE SOLUTIONS - AS UNIQUE AS OUR CUSTOMERS

We always meet you exactly where you are when it comes to your warehouse needs: STILL software solutions are designed so that we can seamlessly link your established systems to our digital material flow solutions via highly compatible application programming interfaces (APIs) and enhance your existing systems. The modules in the STILL material flow management system (MMS) enable all goods and information flows along the entire intralogistics chain to be controlled, mapped and analysed. Using your ERP system (e.g. SAP) as the basis, control modules such as the STILL warehouse management system (WMS) or existing customer-side warehouse management software are integrated so that orders can be issued to the

trucks. The STILL transport control system (TCS) ensures the efficient distribution, prioritisation and coordination of orders, routes and goods distribution across the entire fleet. Apart from automated guided vehicles (AGV), autonomous mobile robots (AMR) such as the STILL ACH and AXH series and truck assistance modules like the STILL iGo pilot can also be incorporated. While the latter is used to coordinate manually operated very narrow aisle trucks, AGV and AMR software ensures the smooth management, transport distribution and traffic control of the individual trucks in each system.

SMART ANALYSIS TOOLS KEEP EVERYTHING IN VIEW

When it comes to transparent data evaluation and efficiency-boosting analysis of your fleet, tools such as STILL iGo insights are also key to intelligent digital material flow management. They enable you to maintain an overview of all transport movements and the utilisation and status of your trucks at all times, in real time, and allow you to make optimisations and adjustments to your processes promptly and easily.



OPERATOR-FREE, ERROR-FREE

Innovative technology for safe driverless transport

Safety first! All STILL trucks are equipped with all relevant safety functions and systems as standard to make them inherently safe and ensure optimum protection of people, the truck and the environment.



ALWAYS ON THE BEST ROUTE

Precise navigation thanks to intelligent technology

Reliable, error-free navigation is crucial to the success of a smart warehouse and the seamless interaction of manual and automated trucks. That is why we use the latest technology to ensure our AGVs navigate the warehouse safely, productively and without any accidents. And because no two warehouses or requirements are the same, we use different navigation methods depending on the situation – tailored to you and your internal logistics.

BARCODE NAVIGATION

The truck gets its route information from barcode labels that are affixed to the floor, aisles and racks and are read by special sensors on the AGV – even when travelling at high speed. Barcode navigation is an extremely precise method and is easy to integrate into existing warehouse environments.



LASER NAVIGATION

With the aid of a 360-degree laser scanner, the truck navigates using reflectors that are permanently installed in the warehouse. In addition, a rotary encoder continuously measures changes in the AGV's angle and position and updates its position data in the warehouse up to 10 times per second. After a learning phase, the system can be scaled as required and routes can be quickly and flexibly adapted.

SLAM NAVIGATION

When navigating using SLAM (Simultaneous Localisation and Mapping), the truck uses different parameters to determine its position, which makes navigation even more flexible. The AGV creates an initial map of the surrounding area and constantly compares it with the current data from its laser scanner. This enables it to precisely determine its position and respond intelligently to any unforeseen events or obstacles. The first intelligent robot trucks from STILL, such as the OPX iGo neo and the AXH, are already navigating using this method.

iGo pilot

The intelligent pilot for your warehouse



STILL iGo pilot is the smart solution for safe and efficient work processes in your (semi-)automated narrow-aisle warehouse. The smart assistance systems for precise navigation (iGo pilot navigation) and reliable safety (iGo pilot safety) link the specific warehouse topography to the trucks operating within to create an integrated working environment – for optimum productivity and the effective protection of people and machines. The trucks navigate using a 3D warehouse plan and defined orientation points in the warehouse.

- **For every customer requirement** there is the ideal system. STILL iGo pilot can read RFID tags and barcode labels.
- **Custom configuration.** The system can be individually adapted to any conceivable narrow-aisle warehouse.
- **Optimal working conditions.** Doing away with search processes and wasted trips relieves the burden on employees and enables quick familiarisation.



iGo pilot navigation

Productive. Simple. Precise. iGo pilot navigation communicates with your warehouse management system and combines the warehouse processes into an intelligent whole. During its journey through the shelving aisles, the very narrow aisle truck continuously detects its current position, knows which shelving location to drive to next and autonomously finds its way through the warehouse aisles.

iGo pilot safety

Safe. Reliable. Efficient. iGo pilot safety is your guardian angel in the (semi-) automated narrow-aisle warehouse. The assistance system has up to 15 safety configurations, for example for height and speed limits, obstacles and braking distances. This ensures that goods, shelves, trucks and people in the warehouse are reliably protected against damage and accidents.



MX-X iGo pilot

iGo neo

The smart way



The autonomous low level order picker reduces the employees' workload. The picking of goods is a diverse and challenging task in intralogistics. In particular, the high levels of passenger traffic in the picking areas as well as very long transport routes pose major challenges for employees.

The OPX iGo neo can be perfectly integrated into the individual picking processes. The increased picking performance and optimum ergonomics make for a winning combination – and the balance between these two aspects is absolutely key in practice. With the iGo neo technology, STILL is the first provider to succeed in turning series-produced trucks into autonomous assistants for operators. Thanks to artificial intelligence, the truck always stops at the optimal picking position and adapts its travel path and speed for the task at hand to the relevant situation.



OPX iGo neo

- **Productive.** The truck follows the operator and always stops at the optimal picking position. Artificial intelligence adjusts the travel path and speed for the task at hand to the relevant situation.
- **Less work.** Up to 75% reduction in instances of strenuous and time-consuming mounting and dismounting, with considerable reduction in walking distances with loads.
- **Safe.** A multi-stage safety concept protects people, warehouse equipment and goods. Special sensors record all dynamic and static objects in the warehouse.
- **Reliable.** The truck uses the hybrid tracking system to identify its individual operator and follow him or her – even when a Z-pick pattern is being used.
- **Efficient.** iGo neo significantly increases productivity compared with conventional order picking.

iGo neo Easy Protect. For added safety, OPX iGo neo trucks with Easy Protect offer a unique collision avoidance system. With this system, the truck automatically reduces its speed in manual operation if the operator is heading towards an obstacle. This ensures that collisions are effectively avoided while keeping interventions in operation to a minimum.

iGo systems

The fully automated logistics process



Individual automation solutions tailored to your precise requirements. STILL iGo systems enables automated interaction between one or more different trucks so that transport tasks in the warehouse can be performed without a driver. Our many years of experience have taught us that different warehouse situations require different solutions. iGo systems offers you a perfectly coordinated combination of different automated STILL series-produced trucks and corresponding software, including the installation of all components – tailored to your requirements and conditions.

Analysis, planning, implementation. Put your trust in automation that meets your needs and delivers maximum efficiency by selecting the best technologies for your requirements. This means that you can always stay flexible because all automated STILL series-produced trucks can also be operated manually in the worst-case scenario. Once your tailor-made automation solution has been implemented, a professional, custom service model guarantees that your system is available at all times.

AUTONOMOUS MOBILE ROBOTS

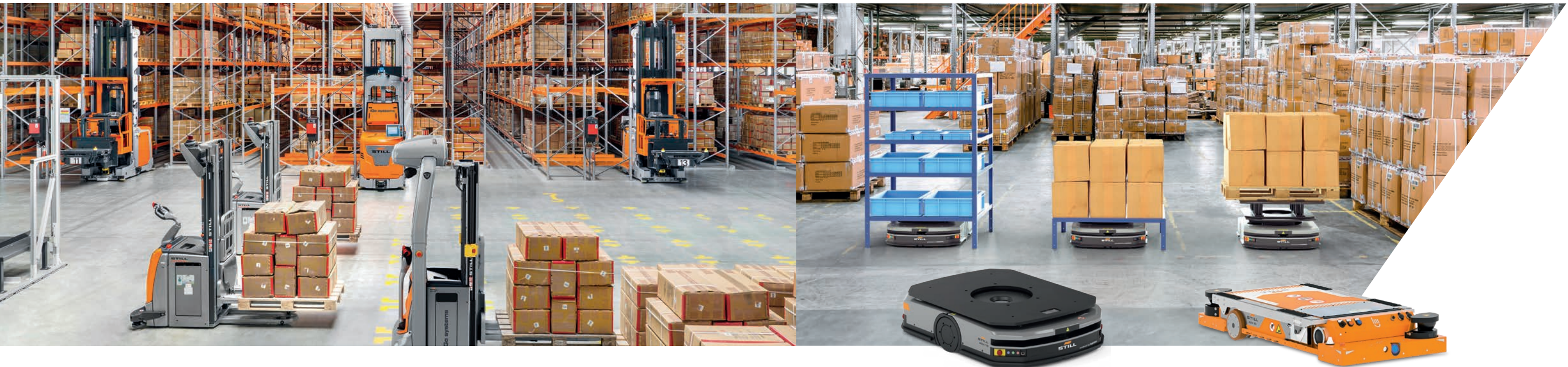
Smart efficiency increase



In order to implement a fully automated supply chain, we are adding our autonomous mobile robots ACH and AXH to our automation portfolio.

These compact, agile and intelligent underdrive AGVs are increasingly found in warehouses, distribution centres and production facilities in sectors such as the e-commerce, automotive, food and retail industries. They are extremely productive, space-saving, low-maintenance warehouse assistants for horizontal goods transport. Depending on your requirements, you can use our AMRs as a stand-alone solution

or integrate them into existing warehouse management and control systems. Using QR code or SLAM navigation, they move autonomously and proactively through the warehouse and can even adapt their routes independently as required. The AMRs can transport different carriers on their platform and can be linked to different storage and transfer stations.



- **Complete.** Continuously automated material flow from goods receipt to outgoing deliveries with a complete range of automated STILL series-produced trucks.
- **Intelligent.** Truck control, traffic regulation, battery monitoring and effective fleet utilisation with the iGo software.
- **Organised.** Effective cooperation of manually driven vehicles with semi and fully-automated transport systems.
- **Goal-oriented.** Modern navigation technologies for secure, independent movement of vehicles in the warehouse.
- **Safe.** Pedestrian protection systems guarantee the utmost safety. Appropriate sensor technology ensures precise pallet detection.

- **Flexible.** Automated series-produced trucks that can also be operated manually where required.
- **Needs-based.** Standardised and scalable solutions for every automation requirement.
- **Predictable.** Short response times both in the design and quotation preparation stages, as well as in the implementation of projects.

ACH 06-15

Small. Manoeuvrable. Powerful. The ACH is available in three variants with load capacities from 0.6 to 1.5 tonnes and transports its load from A to B at up to 2 m/s. It plans its route independently and proactively using precise, easy-to-install QR code technology, and is extremely mobile and agile. Thanks to its slim dimensions and its manoeuvrability, it can go deep into storage and production areas and transport goods to the production line.

AXH 10

Robust. Flexible. Intelligent. The AXH transports up to 1 tonne at a brisk 2.2 m/s. Innovative SLAM navigation makes it particularly autonomous and means that it can navigate according to the actual surrounding structure. It also scores points for flexible load handling and, in addition to pallets and platforms, can also handle trolleys and transport them over long distances. Thanks to innovative software and fast implementation, the AXH fits seamlessly into existing warehouse environments. As the first STILL truck with VDA 5050 interface, it also interacts smoothly with systems from other manufacturers.

STILL SERVICE

Any time. Reliable. Fast.

When it comes to the availability of your intralogistics solutions, we do not compromise. We are reliably by your side with a team of more than 3,500 service technicians across Europe, software support available at all times, a host of innovative digital services, and flexible service agreements. We are always just a phone call or a click away.

YOU CAN COUNT ON

- **24/7 availability** in person, by telephone and online
- **Fast support** from qualified experts – remotely and on-site
- **STILL original spare parts** and individual spare parts packages for your automation components
- **Scheduled and preventative maintenance** of your trucks and automation kits
- **Needs-based**, individual service agreements

OUR SUCCESS

is your satisfaction

Our job is to successfully design your intralogistics. This is where our mission comes from, as the success of our business is measured by your satisfaction. That is why we are certain that we can also be of benefit to you: because we listen carefully, we recognise your logistical challenges and make them our own, and we make every effort to find the best possible solution.

“A customer satisfaction rate of 97 percent is a great testament to our work – but not a reason to rest on our laurels”.



READY FOR USE AT ALL TIMES: HARDWARE SERVICE

To minimise the risk of failure in your intralogistics, we proactively schedule maintenance and servicing for your trucks and automation kits. And if anything should ever go wrong, our expert service technicians are always available: thanks to our comprehensive service network, help is never far away and our service technicians can be with you on site in next to no time. They bring the necessary original spare parts with them, or take what is needed from your individual spare parts package – when operating automated systems, we recommend keeping critical spare parts on site as they often require custom-made items with longer delivery times.

ALWAYS BY YOUR SIDE: SOFTWARE SUPPORT

We are also on hand should your automated systems experience a software failure. Our specialists are available 24/7 via our service hotline and the remote service to assist you with analysis, diagnostics and troubleshooting. We are able to rectify most faults quickly and remotely via a secure VPN connection. You will also receive detailed fault documentation.

Here at STILL, we are all about solidarity. We work together as a community to develop and implement the best solutions for you. At STILL, every single one of us identifies significantly with this mission statement and works towards it with passion and dedication. It is this sense of solidarity which also underpins our collaboration with our partner companies.

“Only by working together will we find the perfect solution. Our STILL experts provide solution-oriented advice: the ideal basis for a lasting, trusting relationship”.

ALWAYS ONE STEP AHEAD

Visionary intralogistics solutions

Intralogistics is an extremely dynamic, highly technical field. Automation and robotics are no longer a vision of the future – they are a reality. They are also what will shape our industry over the years to come. We already have solutions for the challenges of tomorrow today.

SMART FACTORY AND THE INTERACTION BETWEEN HUMAN AND MACHINE

The industrial internet of things enables direct communication between vehicles, systems and equipment. It allows them to organise themselves largely autonomously while employees increasingly perform control and optimisation functions. Safe interaction between humans and machines is crucial to the success of this system – and the high safety standards of our AGVs and the development of the 3D localisation of objects and people are important steps on the journey to a smart warehouse.



ROBOTICS AND AUTONOMOUS DRIVING IN INTRALOGISTICS

Automated guided vehicles are a standard feature of modern warehouses. Their assistance systems are becoming more and more sophisticated and, thanks to artificial intelligence, are able to perform the complex tasks involved in vehicle operation. When it comes to autonomous driving, the connectivity of the systems and sensors involved is crucial.

Autonomous driving. STILL automated series-produced trucks already have the ability to choose the best travel path based on an algorithm, as well as the optimum speed, and can detect any objects that might have moved at an early stage.

Cross-system communication. In a smart warehouse, trucks and control systems communicate with one another – even if they are from different manufacturers. A standardised interface makes this possible, such as the VDA 5050 protocol that STILL is introducing for its autonomous vehicles. The AXH already has a VDA 5050 interface as standard.



Successful intralogistics requires solutions to enable transport tasks to be completed efficiently and cost-effectively. However, growing challenges and ever-evolving technologies are making it increasingly difficult for those responsible to find the appropriate products for their requirements. With our 'Simply efficient' principle, you can see the added value of all trucks, software solutions and services from STILL

at a glance: five benefit categories, based on an analysis of customer needs, guide our development and give you a clear overview of our products. The benefits are also always coordinated with each other, meaning that you always get a solution that is 'simply efficient' and offers you maximum cost-effectiveness.



Simply easy

If a solution is easy to use, for example with intuitive operating concepts, you will benefit from there being little training work and can reliably avoid damage or time lost to possible operating errors. Straightforward commissioning or integration into existing structures and processes are also important, so your employees can utilise the full productivity potential of a solution.



Simply safe

The speediest goods handling is of no use if it is not safe. That is why it is all the more important to be able to rely on intrinsically safe trucks that are perfectly suited to mixed operation. Put your trust in smart assistance systems and future-proof concepts for the safety of people, goods, data and infrastructure, as well as in qualified experts for the project management and commissioning of your solution.



Simply powerful

Whether on ramps or even ground, over long distances or in tight narrow aisles, in the form of trucks with high handling power or innovative software – you will notice that you can move more with reliable solutions that are powerful and smart. We offer you a wealth of experience and the largest portfolio of state-of-the-art transport systems.



Simply flexible

When requirements change, you need products that allow you to respond quickly and flexibly. Our modular product portfolio and the scalability of our solutions enable you to remain flexible and make it easy for you to use your trucks for different applications.



Simply connected

Efficient processes are crucial in ensuring that your intralogistics is cost-effective. Trucks that can be networked, software solutions supplied with real-time data, and control mechanisms that can be automated help you to always get the best from your fleet. What's more, an intelligent interface architecture links all solutions together and enables communication with external systems.



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STILL is certified in the following areas: Quality management, occupational safety, environmental protection and energy management.



first in intralogistics