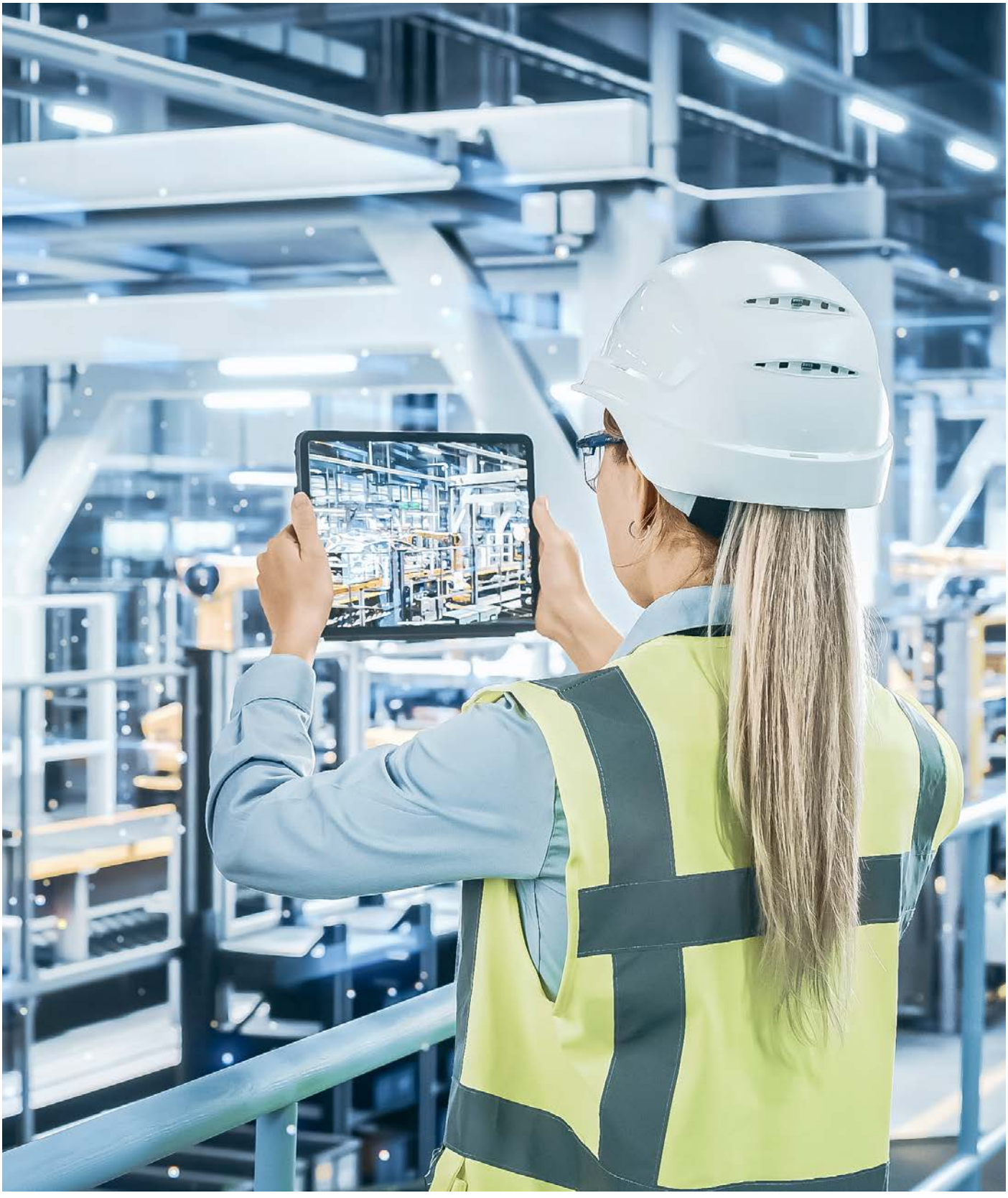
Warehouse Insights

Smart Automation



kardex

Intralogistics today and beyond

The intralogistics industry is experiencing an unprecedented transformation driven by the increasing demands for faster, more efficient, and error-free processes. The integration of automation in intralogistics is setting new benchmarks for reliability, speed, and precision, addressing the ever-growing complexities of global supply chains and consumer expectations. The industry is also rapidly adopting cutting-edge solutions such as robotics, AI-driven software, and Internet of Things (IoT) integrations.[1] These innovations enhance operational efficiencies and reshape the landscape of warehouse management, inventory control, and material handling.

The journey towards automation for many companies is not triggered by a single challenge, but rather by a complex interplay of multiple factors, including managing a high volume and diverse range of products, meeting tight delivery deadlines, coping with seasonal demand fluctuations, ensuring transparency while reducing redundancy, optimizing space, and balancing the need for maximum delivery capacity with minimal stock. This multifaceted set of challenges compels businesses to adopt automation as a comprehensive solution to enhance operational efficiency and agility.[2] Automation also addresses critical industry challenges, such as the labor shortage and the increasing complexity of supply chain networks.[3]

[1] https://industrialautomationindia.in/coverstoryitm/16279/Digital-Transformation-in-Intralogistics/cover-story

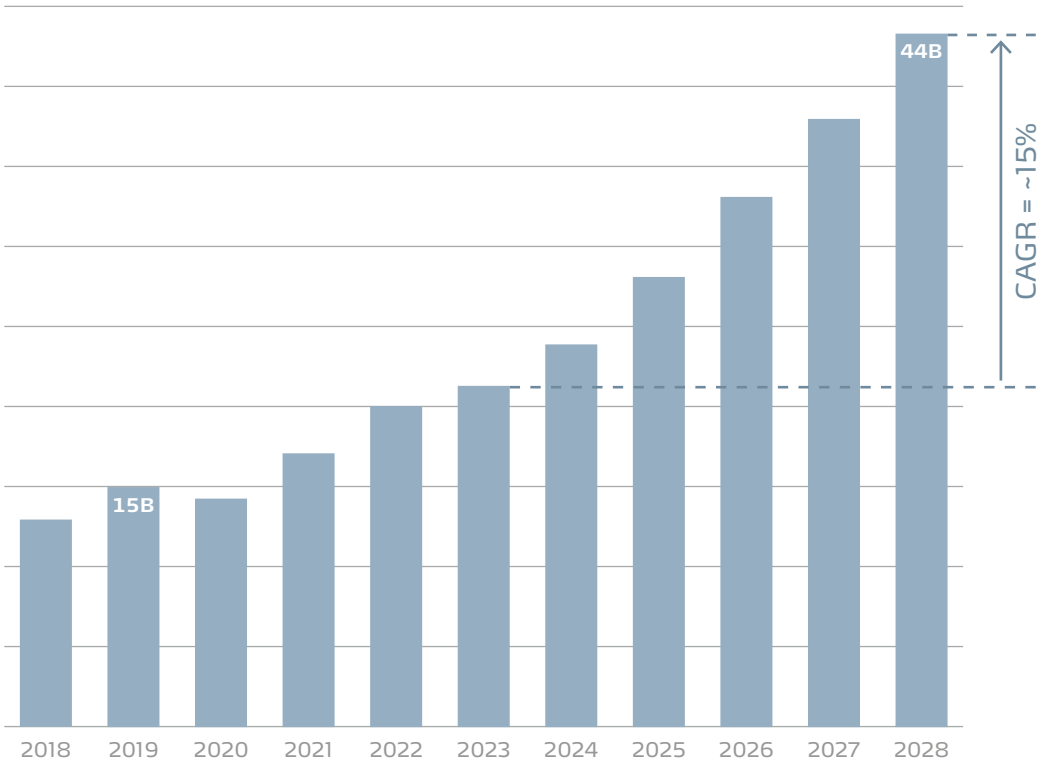
[2] https://www.robotics247.com/article/enhance_facility_flexibility_agility_mobile_robots/applications

[3] https://www2.deloitte.com/us/en/insights/industry/manufacturing/realigning-global-supply-chain-management-networks.html

The growth of automation

The emergence of automation in intralogistics[4] is not just a trend but a paradigm shift that is redefining the industry's future. Recent statistics paint a vivid picture of this transformation. According to one industry report, the global intralogistics automation market is projected to reach US$44 billion by 2028 at a compound annual growth rate (CAGR) of 15% between 2023 and 2028.[5] The adoption of robotic systems fuels this growth. Currently, an estimated 36% of warehouses have adopted robotics technology, with an estimated futuristic impact by 2025 of 85%, an increase of 49 percentage points.[6]

Warehouse Automation Market



Source: www.thelogisticsiq.com/research/warehouse-automation-market

[4] https://www.mckinsey.com/capabilities/operations/our-insights/future-proofing-the-supply-chain

[5] Logistics IQ. "Warehouse Automation Market". Accessed February 2024. https://www.thelogisticsiq.com/research/warehouse-automation-market

[6] Logistics IQ. "Next Generation Supply Chain Market (Future of Logistics). Accessed February 2024. https://www.thelogisticsiq.com/research/next-gen-supply-chain-market

Understanding automation

The core components

Automated systems comprise several core components, each playing a vital role in enhancing operational efficiency.

Prominent among these are automated storage and retrieval systems, including miniload systems, vertical lift modules, vertical carousel modules, bin shuttle and bin storage systems, which optimize space utilization and expedite retrieval. These systems are pivotal in transforming storage dynamics, allowing for high-density storage and rapid access to inventory.

Conveying technology, the lifelines of any automated warehouse, facilitate the smooth and continuous movement of goods, seamlessly connecting different areas of operation.

The integration of robotics is another cornerstone of modern intralogistics, offering unparalleled precision and efficiency in repetitive tasks such as picking, packing, and sorting.[7]

Lastly, stacker cranes stand out for their ability to handle heavy loads and navigate tall storage racks, significantly enhancing vertical storage capacity and retrieval speed.

Collectively, these components form the backbone of an advanced automated system, driving the efficiency, accuracy, and scalability essential in today's fast-paced intralogistics environments.

[7] https://www.idtechex.com/en/research-article/the-continued-rise-of-the-robotics-industry-over-the-next-decade/30334

Value-added assistance

Innovation drive these technologies to new heights, substantially improving the efficiency of existing automation.

State-of-the-art **Intuitive Picking Assistant** navigates operators through the entire picking process.

Kardex Power Pick System, a fully integrated software solution, cuts order processing time.

Display LED-Navigator boosts picking efficiency and accuracy with light-based guidance.

Kardex Connect offers digital services, including remote support, analytics, and monitoring.

The advantages of automation

The adoption of automation in warehousing brings forth many advantages, fundamentally transforming how warehouses operate.

First and foremost, **productivity** is significantly enhanced; automated systems streamline various processes, from inventory management to order fulfillment, minimizing manual intervention and reducing operational time. According to a study by McKinsey, implementing automation in warehouse management can increase productivity by up to 40%, leading to significant cost savings.[8]

Watch the video – Greater Efficiency and Capacity through Automation

»Thanks to the high efficiency and performance of this warehouse, we can ship nearly 9,000 household appliances per day, which would have been impossible in a conventional bulk warehouse.«

Tomasz Machaj, Director of Investments & Maintenanc, Amica S.A.

[8] https://www.intellinum.com/top-benefits-of-automation-in-warehouse-management

Safety is another critical advantage – automation reduces the need for human workers to perform hazardous tasks or handle heavy loads, thereby minimizing the risk of workplace injuries.

Watch the video – Health and Safety in Intralogistics

In terms of **scalability**, automated warehouses can adapt more fluidly to changing business needs. They can handle increased volumes without the proportional increase in labor or resources, making scaling up more cost-effective.

For **inventory management**, the integration of secure automated storage and retrieval systems ensures every transaction is closely monitored. This enhances the oversight of inventory and user access, significantly improving control over stored items and ensuring precise inventory tracking.

Lastly, automation optimizes **space** utilization. Compact storage solutions like vertical lifts free up valuable floor space, allowing warehouses to store more goods in a smaller footprint.

Watch the video – Maximum Use of Available Space

Together, these advantages contribute to a more robust, more agile, and sustainable warehouse operation.

Common challenges

Implementing automated systems in warehousing environments presents several challenges, each requiring careful consideration and strategic planning.

Integration
A primary concern is the integration with existing systems. Many warehouses operate on legacy systems, and integrating new automation technology without disrupting current operations is complex. Kardex tackles this by offering modular and customizable solutions that seamlessly integrate with various existing systems, ensuring a smooth transition.

Scalability
Another critical aspect of warehouse automation is scalability and flexibility. As businesses grow and market demands fluctuate, automated systems must adapt accordingly. Kardex's solutions are designed for scalability, allowing warehouses to expand their automation capabilities in tandem with their growth without necessitating complete overhauls.

Reliability
Ensuring reliability and reducing downtime is another challenge. Automated systems, while efficient, can lead to significant losses if they fail. Kardex addresses this through advanced predictive maintenance, which help foresee and prevent potential issues, minimizing downtime.

Training
Training staff and managing change is an often-underappreciated aspect of automation. The human element of automation – training staff and managing the cultural shift towards automated processes – is often overlooked but is essential for successful implementation. Kardex supports this transition through comprehensive training programs and user-friendly interfaces, ensuring that staff are well-equipped to work alongside the new technology.

Cost
The cost of implementing automated systems represents a significant consideration for many businesses. While automation can offer long-term savings, the initial investment can be substantial. Kardex addresses this challenge by offering scalable solutions that allow businesses to phase their investment in automation. This incremental approach enables companies to match their spending with growth and achieve a return on investment (ROI) within three years, making the transition to automation financially viable and strategically sound.

Questions to consider when transitioning to warehouse automation:

How can I measure the strategic investment's long term profitability?

Will a new system enable me to meet my goals?

Do hardware and software adjust to sales peaks and inventory expansions?

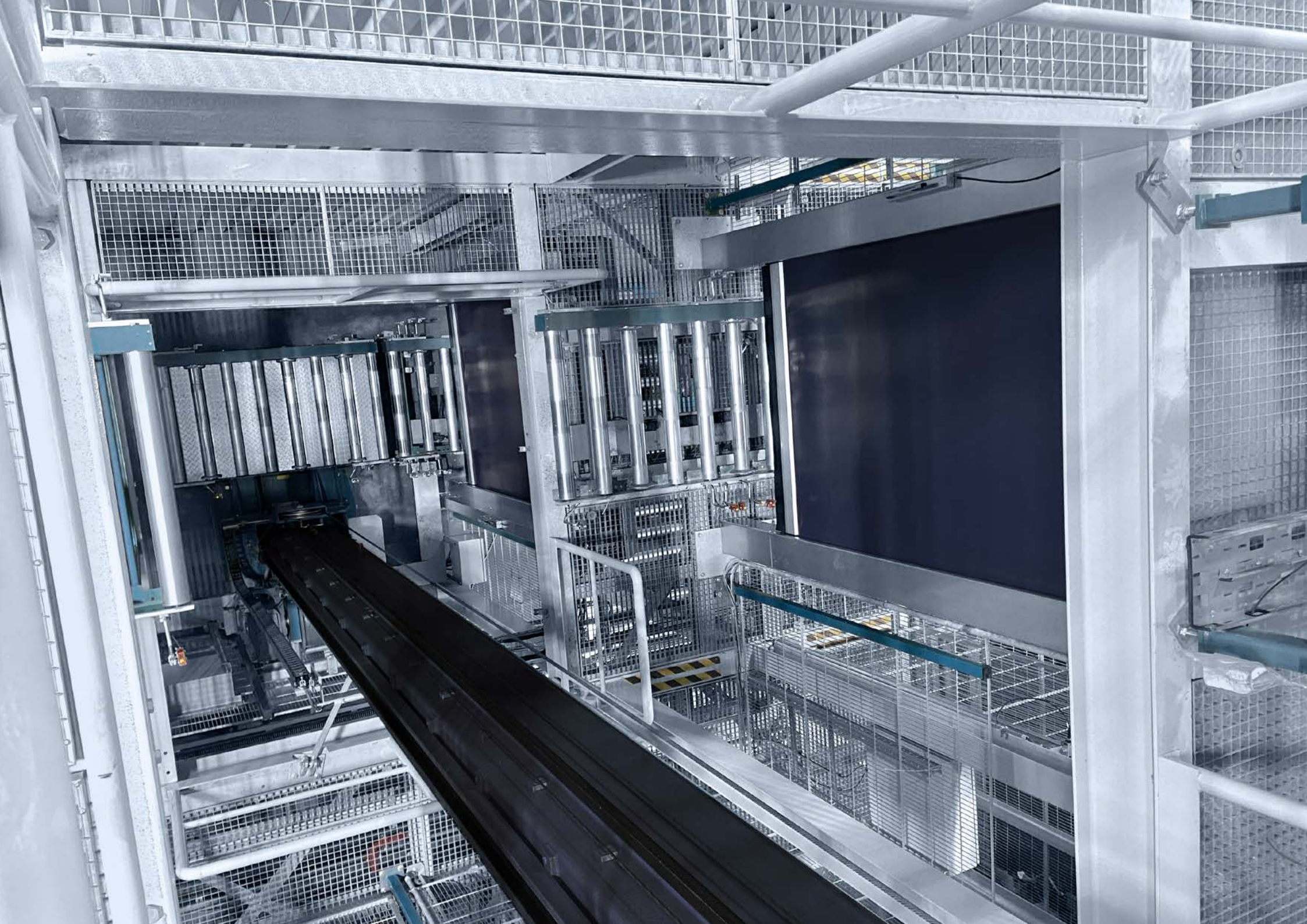
Does the intralogistics partner have a strong reputation for providing excellent service?

Data in warehousing

Integrating data analytics and AI in warehouse operations marks a transformative era in logistics and supply chain management. These technologies are pivotal in enhancing efficiency, accuracy, and decision-making processes. Data analytics, through the aggregation and examination of vast amounts of operational data, aids in identifying patterns, predicting inventory needs, and optimizing workflows. This predictive capability ensures warehouses are proactive, rather than reactive, in managing stock levels, reducing overstock and stockouts, and facilitating just-in-time inventory practices.

AI, particularly in the form of machine learning algorithms, revolutionizes warehouse operations by automating complex tasks. Moreover, integrating AI in warehouse management systems enables real-time decision-making, enhances demand forecasting accuracy, and improves overall operational efficiency.

Learn more about the 4 ways AI transforms intralogistics



Success Stories

Harnessing the power of automation for operational excellence

Apetito, a leading provider of frozen meals and catering solutions, partnered with Kardex Mlog to upgrade its central refrigerated warehouse in Germany. The refurbishment included 170 new drives, five vertical conveyors, and a new automatic control and plant visualization system.

This project significantly enhanced warehouse automation, optimizing material flow and availability without disrupting operations, showcasing the critical role and benefits of automation in streamlining logistics and improving efficiency in the food service industry.

Read the Case Study – Faster Logistics for apetito

Partnering with Kardex Remstar, **Besli**, a Dutch electrotechnical wholesaler, embraced automation to manage its growing inventory and enhance logistics efficiency. Their collaboration led to the implementation of Kardex Miniload-in-a-Box units and Kardex Shuttles, integrated with the Kardex Power Pick System software.

This solution not only optimized space but also reduced search times by 30% and increased order processing efficiency by 50%. The transformation allowed Besli to significantly improve its picking performance, delivery reliability, and adapt to increasing market demands.

Read the Case Study – Moving Into the Future

In partnership with Kardex, **Arbeitsschutz-Express** revolutionized its e-commerce logistics through automation. Faced with the challenge of maximizing storage and enhancing fulfillment speeds due to rapid growth, the company adopted an AutoStore system.

This solution halved the required storage space to 1400 m² while providing capacity for 54,000 bins, powered by 26 robots. It significantly improved efficiency, enabling order processing within 30 minutes and reducing the workforce needed for peak season operations from 30 to 12 employees. This case illustrates the critical role of automation and its significant benefits in achieving scalable, efficient, and reliable e-commerce operations.

Read the Case Study – More Storage in Less Space

Conclusion

For businesses embarking on the journey towards warehouse automation, starting with small, manageable steps is crucial. Begin by identifying areas where automation can have an immediate impact, such as inventory tracking or order processing, to quickly gain efficiency and build momentum. Invest in scalable technologies that can grow with your business, ensuring that initial investments continue to deliver value in the long term. Throughout this process, keep a clear vision of your ultimate goals, allowing this vision to guide strategic decisions and investments. Emphasizing employee training and engagement with new technologies will also be key, ensuring a smooth transition to more automated operations. This approach ensures not just a transformation in your logistics but cultivates a culture ready for continuous innovation.

It is also important to find a reliable intralogistics partner. Choosing Kardex means opting for a partner that values simplicity and effectiveness in navigating the complexities of automated warehousing. Our vision is centered around making warehousing more adaptable and efficient, with a solid commitment to improving operations for businesses of varying sizes. We offer scalable and easily integrated systems, that enhance productivity without complicating the process.

Our approach prioritizes a personalized analysis of your needs and a consultative partnership to identify the best solution.

Contact us