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WHITEPAPER

OLD SYSTEMS, NEW TECHNOLOGY–

HOW RETROFITTING CAN PREPARE YOUR LOGISTICS FOR THE FUTURE

Technological innovation is propelling the logistics industry forward at an unprecedented pace, transforming the business landscape in fundamental ways. Market forces are driving this shift: intense cost pressures, rising customer expectations, and the demands of global competition have made efficiency the highest priority in intralogistics.

To keep up, many logistics providers have turned to automated systems, which offer substantial advantages. Yet, the investment required for automation is significant, and small to mid-sized companies often hesitate to take on such expenses. As a result, many existing systems essentially become time capsules—hardware, software, and infrastructure are often frozen in their original state from the time of launch. This leaves companies with the challenge of maximizing their investment, as returns are generally only realized after several years.

Retrofitting—the modernization and adaptation of existing systems—offers a promising solution here. Through targeted retrofitting, logistics facilities can enhance efficiency, increase resilience, and stay competitive in a fast-evolving landscape. However, as with any valuable upgrade, there are a few challenges and essential steps to address along the way to modernized automated systems.

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ANALYZING EXISTING SYSTEMS – A REALITY CHECK

Before embarking on a retrofit project, it's essential to conduct a thorough assessment of the existing systems. This is an ideal stage to bring in external expertise—logistics specialists can provide a comprehensive, manufacturer-independent view of the current state of automation technology. In this initial phase, the following key points should be considered:

TECHNOLOGICAL AGE

Evaluating the current condition of automated systems is crucial for pinpointing components that, while still operational, are technologically outdated. Many control units, sensors, or actuators may no longer meet modern standards. Beyond physical components, software elements are often outdated as well, potentially lacking compatibility with new IT solutions or interfaces.These "legacy" elements can significantly undermine the overall success of the retrofit project.

EVOLVING ORDER SPECTRUM

Over time, the demands and order profiles of many logistics and production facilities have fundamentally shifted. New market requirements and the trend toward customized products mean that systems now need to be flexible and scalable, able to adapt to varying order volumes and diverse product variants. Processes and systems originally designed for stable and predictable order patterns may struggle to meet current demands for flexibility and speed. A thorough analysis of both current and anticipated order structures is therefore essential to ensure that facilities are optimally prepared for future challenges and to prevent potential bottlenecks in the value chain.

PERFORMANCE BOTTLENECKS

It's crucial to analyze whether processes within the automated systems are running inefficiently, thereby slowing down the overall operation. These bottlenecks could be caused by outdated control systems, slow data transfer rates, or mechanical wear and tear, all of which can significantly impact the overall performance of the facility. Accurately identifying these bottlenecks allows for targeted improvements to optimize processes and minimize downtime.

SAFETY STANDARDS

Reviewing the current safety measures, including safety light curtains, emergency stop systems, and safety switches, is essential to determine whether they meet the latest legal requirements and best practices in automation technology. Outdated safety measures can not only lead to costly operational disruptions due to compliance violations but also jeopardize employee safety.

INTEGRATION
OF NEW TECHNOLOGIES

A key element of retrofitting is the integration of new technologies—and this is where the challenge begins. It's essential to ensure that the new components work seamlessly with the existing systems, preventing any disruptions or incompatibilities within the overall system.

COMPATIBILITY

New technologies must integrate seamlessly with existing systems to ensure smooth operations. Therefore, a thorough compatibility assessment is essential to create a stable and efficient overall system.

SCALABILITY AND FLEXIBILITY

The new technologies should not only meet current requirements but also be designed to support future expansions and adjustments. Investing in modern systems should focus on long-term efficiency, scalability and flexibility, preparing the system for changes in production processes or market demand.

RESPONSIVENESS

It's crucial to consider the adaptability of new systems in the face of sudden changes. The ability to quickly respond to new trends, requirements, or logistical challenges without needing to restructure the entire system is a significant advantage. This ensures that modernization efforts remain sustainable, allowing the facility to stay dynamic and competitive.

COST-BENEFIT ANALYSIS

The desire to simply replace old systems with new ones is understandable, but a thorough cost-benefit analysis is essential to ensure that the project is economically viable and does not result in financial losses. A detailed evaluation of both costs and potential benefits is key to making a successful investment decision.

INVESTMENT COSTS

Acquiring new technologies and modernizing existing systems can involve significant costs. These include not only the purchase price of the new components but also installation, integration, and any necessary training. Accurate budgeting is required to ensure that costs stay within reasonable limits and are justified by the anticipated benefits.

OPERATING COSTS

In addition to initial investment costs, ongoing operating costs must also be considered. This includes regular maintenance, potential upgrades, and the energy consumption of the new systems. These costs are critical to the financial planning process and should not be underestimated, as they can significantly affect the overall profitability of the investment.

RETURN ON INVESTMENT (ROI)

The central question is whether the investment will lead to a significant increase in efficiency and productivity. A positive ROI means not only that costs are covered but also that a tangible financial benefit is achieved. The expected savings and revenue increases should be realistically calculated to ensure that the investment remains profitable in the long run.

WHO CAN BENEFIT
FROM RETROFITTING?

LARGE COMPANIES

For large enterprises that operate logistics centers with extensive, often inflexible automation systems, retrofitting is almost a necessity. The advantages are clear:

SCALABILITY

The systems must be able to keep pace with the company's growth. As the facility expands, new technologies should be scalable to meet future demands.

COST EFFICIENCY

Efficiency is a crucial factor for large companies. Long-term savings from modernized technology can be substantial, helping to relieve the budget by reducing operating costs and increasing efficiency.

COMPETITIVENESS

Maintaining competitiveness in the market is a top priority. Implementing the latest technologies can help strengthen the company's market position and allow for quicker adaptation to new trends and requirements.

SMALL AND MEDIUM-SIZED ENTERPRISES (SMES)

Retrofitting can also offer significant benefits for small and medium-sized businesses. The advantages are particularly practical for SMEs:

COST-EFFECTIVE MODERNIZATION

Financial considerations are a key factor for SMEs. Retrofitting often presents a more affordable alternative to complete replacement and allows for targeted modernization of existing systems.

FLEXIBILITY

Small businesses often need to adapt quickly to changes. By strategically investing in modern technologies, they can maintain and even increase their flexibility, enhancing their ability to respond to changing market conditions.

GROWTH OPPORTUNITIES

With an efficient and high-performance facility, SMEs can better leverage their growth potential. This helps them compete more effectively and seize new business opportunities.

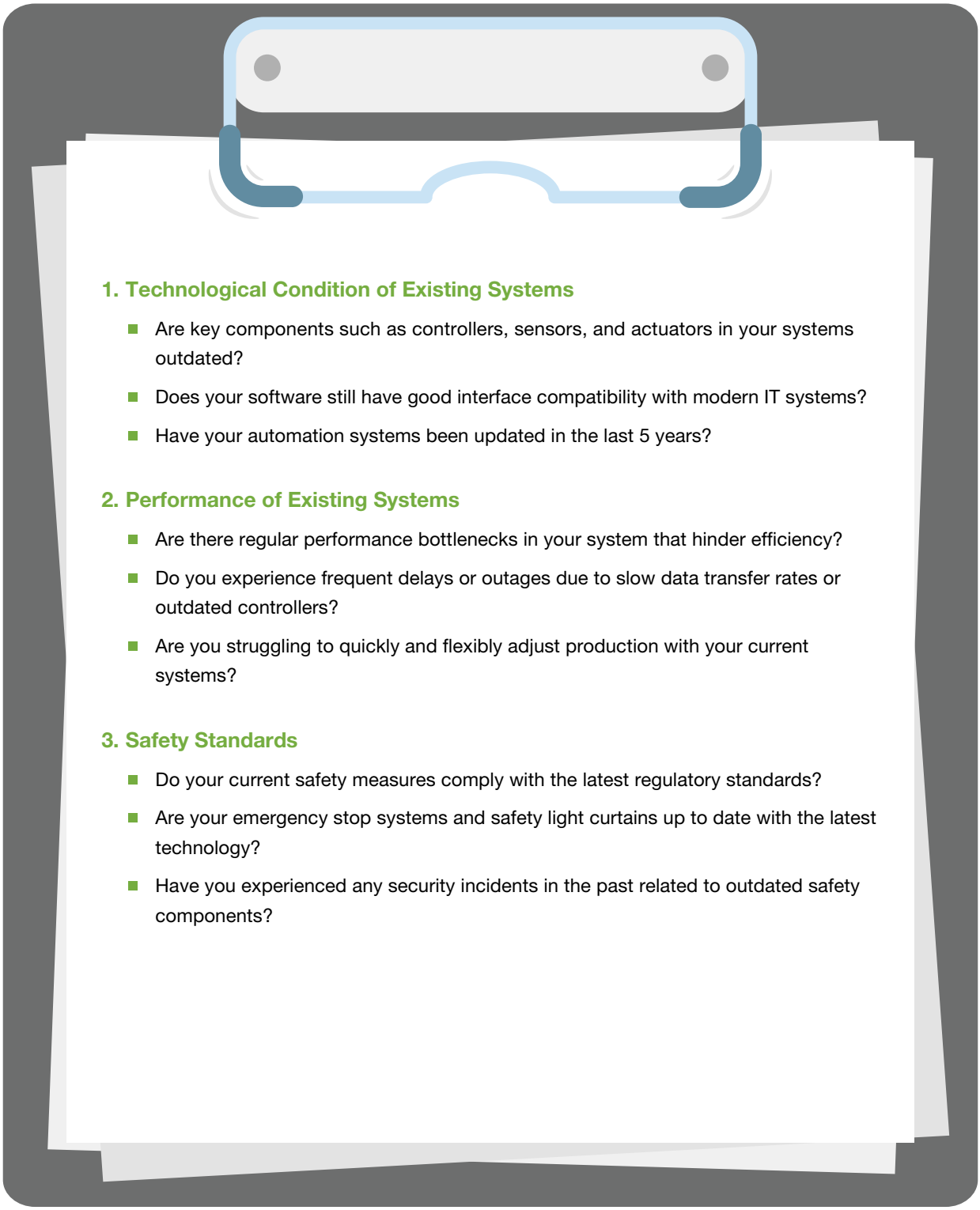
EXTERNAL SUPPORT
CAN BE A GAME-CHANGER

Retrofitting offers valuable benefits for businesses of all sizes. Large companies particularly benefit from scalability and long-term cost savings, while small and medium-sized enterprises gain from cost-effective upgrades and enhanced flexibility.

The decision to pursue retrofitting should be based on the company's specific needs and objectives. Often, it is worthwhile to seek external support at various stages of the process—logistics experts provide an unbiased perspective on solutions and are well-versed in potential pitfalls.

SELF-ASSESSMENT:
IS YOUR LOGISTICS SYSTEM READY FOR RETROFITTING?

Now it's your turn! Use this practical checklist to assess the current state of your logistics systems and determine if retrofitting is the right solution for your challenges.



1. Technological Condition of Existing Systems

- Are key components such as controllers, sensors, and actuators in your systems outdated?
- Does your software still have good interface compatibility with modern IT systems?
- Have your automation systems been updated in the last 5 years?

2. Performance of Existing Systems

- Are there regular performance bottlenecks in your system that hinder efficiency?
- Do you experience frequent delays or outages due to slow data transfer rates or outdated controllers?
- Are you struggling to quickly and flexibly adjust production with your current systems?

3. Safety Standards

- Do your current safety measures comply with the latest regulatory standards?
- Are your emergency stop systems and safety light curtains up to date with the latest technology?
- Have you experienced any security incidents in the past related to outdated safety components?

4. Compatibility and Integration of New Technologies

- Can you easily integrate modern technologies into your existing system?
- Do you have concerns that new technologies may not function optimally due to the existing system architecture?
- Have you been unable to implement new technologies in the past due to compatibility issues with your current infrastructure?

5. Cost-Benefit Analysis

- Have you conducted a detailed analysis showing that retrofitting will reduce operational costs in the long term?
- Is the investment in retrofitting financially feasible without exceeding your budget?
- Are the expected savings and productivity gains sufficient to cover the costs of modernization?

6. Scalability and Future-Proofing

- Will your existing system meet future growth and complexity requirements?
- Are there plans to expand the system in the coming years, and is your current system suitable for that?
- Can the technologies in use keep up with new market demands or changes in the logistics industry?

7. Downtime and Maintenance Effort

- Have you experienced frequent downtimes due to technical issues in the past?
- How high is the maintenance effort for your existing systems, and how well does it align with operational requirements?
- Does maintaining your current systems cause disproportionate effort and costs?

8. External Support and Expertise

- Have you already consulted external experts to assess the potential for retrofitting?
- Would you consider seeking external advice to select the right technologies for modernization?
- Have you had experience with external service providers who assisted in integrating new technologies?