

# Proactive Monitoring





# Introduction

**Smooth-functioning intralogistics processes are essential for efficient and competitive distribution and fulfillment operations. Automated systems and technologies, long deployed by manufacturing facilities, are now moving further into the supply chain to support distribution and fulfillment operations.**

Indeed, as the U.S. Roadmap for Material Handling & Logistics noted: "the benefits of automation for material handling and logistics applications are many: Machines are more reliable, do not make routine errors, conveyors move packages much more quickly than workers could carry them, automated systems incur lower labor costs; workers are less prone to occupational injuries; and, in many applications, automation is more cost effective<sup>1</sup>".

Investment in automated technologies shows no signs of slowing. In an increasingly dynamic market environment, unanticipated faults and downtime often have serious consequences. The resulting delays in production and delivery can be very costly.

This report shows the types of maintenance, how to prevent unplanned downtime and the costs associated as well as a real world example of how proactive monitoring is the key to a successful operation.



Reduce downtime



Increase productivity



Reduce technician labor costs



Directly access systems

<sup>1</sup> Kevin Gue, ed., "The U.S. Roadmap for Material Handling & Logistics," <http://www.MHLRoadmap.org>, 47

# Types of maintenance

## Corrective maintenance

Also known as Breakdown Maintenance, this is the most common type of maintenance. It's performed when a piece of equipment experiences a hardware or software failure. The goal is to get it back to working order as quickly as possible and minimize unexpected and costly production downtime. The repairs themselves can be considerably expensive, as they often require expedited spare parts acquisition and overtime man-hours.

## Preventive maintenance

Also known as Planned Maintenance, this involves performing maintenance in an effort to avoid equipment breakdowns and failures.

## Remote maintenance & proactive monitoring

As times are changing, facilities are now highly automated. Therefore, companies are adopting proactive monitoring systems when operations come to a halt. Errors can be detected and fixed remotely to reduce the need to wait for a costly on-site intervention.

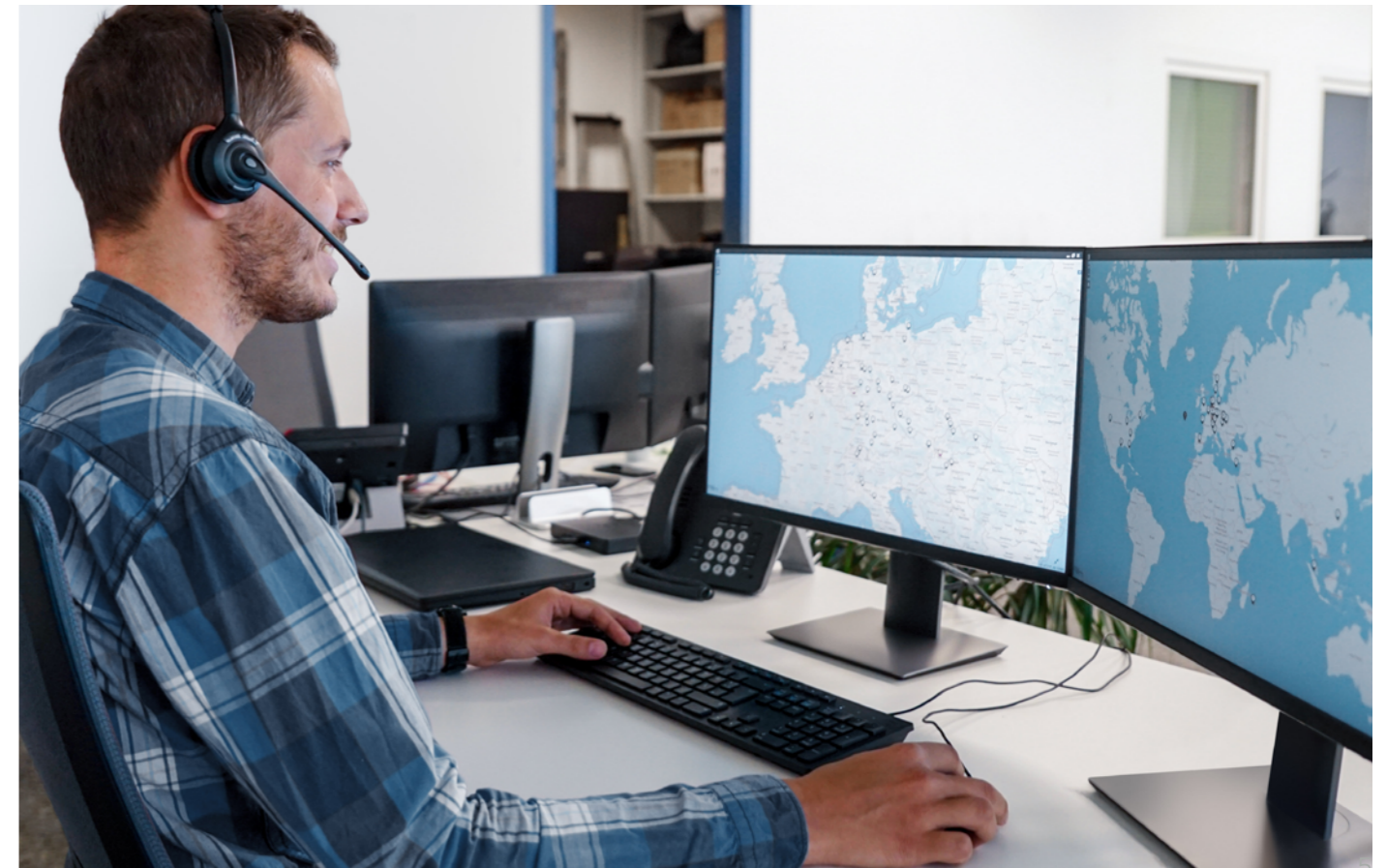
# Product overview

## Kardex's proactive monitoring system

With a proactive monitoring system in place, Kardex Remstar can receive symptoms, or warnings, and proactively contact the customer. They can connect to the machine to anticipate and correct machine and software failures before they develop.

## Maximize equipment uptime and reduce service costs

With expanding, multi-million-dollar investments in large-scale automation systems – conveyors, sorters, palletizers, robotics, case erectors and sealers, packaging equipment and more – comes substantially greater emphasis on keeping everything running at peak levels of productivity. Ensuring automated facilities are properly equipped with routine proactive monitoring supplies, tools and critical spare parts are essential. But, with continuing digitization it becomes more and more important to know the true condition of the equipment to reduce downtime and maintenance costs.



# Kardex Connect

## Remote Support

With Remote Support our expert helpdesk team offers fast and professional support 24/7. With our Kardex Connect Platform, we securely connect to your machines to remotely fix and diagnose your equipment with cutting edge security.

After receiving your service request and permission to connect, we provide a remote diagnosis, which saves you time and money and avoids the need for a technician's visit. If a problem cannot be solved via remote maintenance, an engineer is immediately informed about the diagnosis and comes optimally prepared to repair the machine on-site.

This allows us to proactively contact a customer if we see problems occurring and remotely access the machine to fix errors proactively, before major issues arrive.

## Smart Monitoring

Maximum equipment efficiency is crucial. Early detection of potential downtime and identification of operational faults are important conditions to optimize utilization.

Companies today are driven by operational speed, mobility, flexibility, and individuality. They face challenges like waiting on hold for a helpdesk representative, long waiting times and using their automated storage and retrieval systems in different areas of the facility. Various groups of people need to be informed about the status of these units at the same time, at all times, and in real time. Services are expected to come digitally, personalized, and interconnected.

With our Smart Monitoring service the connected equipment automatically sends a report when an error occurs, guaranteeing fast reaction times and efficient service processes. All data is analyzed within your network – a connection is only established in case of an error. Our helpdesk is immediately informed and contacts you to fix the issue.

## Conferencing

With the Kardex Assist & Conferencing App, you easily and securely communicate by video with the Kardex helpdesk, making Remote Support even more efficient! Have a call session with our experts in your browser, smartphone, or tablet.

By enabling our Life Cycle Service team to put their eyes and ears on-site during remote maintenance, it's easier for them to support and solve the problem. The data-transfer is managed by a TÜV-IT certified, secure HTTPS connection. The application is GDPR compliant.

## Analytics

With Kardex Connect, you receive an extensive analysis (e.g., callouts, utilized capacity per machine, completed cycles):

- Visualization of the machine's data
- Live machine information (visualized KPIs) any time and from anywhere, allowing you to compare machine statistics and enjoy maximum process reliability

At an early stage, we identify and solve fluctuations in the machine's capacity and inform you when machine utilization is lower than expected, leading to a higher process reliability and effectiveness.



# Downtime costs

The shutdown of an automated system, whether scheduled for routine preventive maintenance activities or unexpected due to a faulty or defective component that must be replaced, is costly. The potential costs can be calculated based on three factors: labor costs, lost revenue, and service costs<sup>1</sup>.

## Labor costs

Calculate your costs here. **Labor costs = P × E × R × H**

$$\frac{\text{Number of people affected}}{\text{Number of people affected}} \times \frac{\text{Average percentage they are affected}}{\text{Average percentage they are affected}} \times \frac{\text{Average employee cost per hour}}{\text{Average employee cost per hour}} \times \frac{\text{Number of hours of outage}}{\text{Number of hours of outage}}$$

## Lost revenue

Calculate your costs here. **Lost revenue = (GR ÷ TH) × I × H**

$$\left( \frac{\text{Gross yearly revenue}}{\text{Total yearly business hours}} \right) \times \frac{\text{Percentage impacted}}{\text{Percentage impacted}} \times \frac{\text{Number of hours of outage}}{\text{Number of hours of outage}}$$

## Service costs

Further, and harder to calculate, are service costs. These might include:

- Late delivery surcharges from customers
- Overtime pay required to compensate for productivity losses
- Delayed shipments which result in decreased customer satisfaction or loss of customers
- Rush and overnight shipping costs associated with a needed service part

After adding up those (and other) service costs, divide the total by the number of hours of system downtime to calculate cost-per-hour.

Careful consideration of these costs and losses from system downtime leads companies to evaluate alternative solutions to support in-house MRO practices. The shift to ever more complex automated processes calls for a shift in maintenance to early detection and preventive action.

<sup>1</sup> Ibid.

# Case study

## Videoton EAS Ltd. adds automation

Videoton EAS Ltd., one of the largest companies in Hungary in the Electrics & Electronics industry, decided to move to a new building and modernize their processes for continued growth. Operators needed to have faster and easier access to the stored electronic components, increased picking accuracy and productivity, and most importantly, reduced downtime.

To automate the facility, Videoton EAS Ltd. installed 20 Vertical Lift Modules (VLMs) Kardex Shuttle 500, connected with conveyors and position indicators, integrated with Kardex Power Pick System warehouse management software. As downtime could mean potentially high costs, Videoton EAS Ltd. opted for a proactive maintenance solution, Remote Support, to ensure maximum equipment efficiency.

A Remote Support Box (site control) was integrated into the system to allow service technicians to connect to the VLMs remotely for monitoring and troubleshooting. When an automatically generated service request arrived from the site control at Videotron EAS Ltd., which is enabled by the monitoring features, Kardex Remstar service technicians received the request and called Videoton EAS Ltd. before they even realized there was a problem.

## Videoton EAS Ltd. resolves problems remotely

After approval from a Videoton EAS Ltd. employee, the service technician connected to the machine, downloaded the logfile and detected the problem. In cooperation of both the Videoton EAS Ltd. employee and the Kardex Remstar service technician, the problem was resolved from afar within 20 minutes.

Downtime was kept to a minimum, technician labor costs minimized, and system productivity maintained.

# Benefits overview

With Remote Support, operator and management support ensure exceptional unit efficiency. Downtime is minimized, technician labor cost reduced, and productivity increased. Due to more efficient troubleshooting and repairs by online access, Kardex Remstar machines are immediately operational.

- ✓ **Downtime** costs are kept to a minimum as a priority hotline connects operators directly with experts.
- ✓ **Higher first-time-fix rate** with precise diagnosis before actually going to the customer service. Technicians are much better prepared.
- ✓ **Faster reaction times and efficient service processes** save valuable time due to condition monitoring and a service request button on the machine.
- ✓ **Troubleshooting is more efficient** as error logs can be viewed by both parties online via a portal.
- ✓ **Early detection** of possible downtime and identification of operational faults, unit status messages can be set to suit individual preferences.
- ✓ **Higher transparency** guarantees **process reliability** with the help of a live overview of the equipment status.

 [Learn more about Kardex Connect](#)