

AT A GLANCE

Industry: Pharmaceuticals

Employees: 10k+

Objectives:

- Reduce workplace safety risks
- Identify unsafe events earlier
- Improve safety decisions with operational data
- Protect sensitive workplace information
- Scale safety monitoring across global sites
- Reduce injury related downtime

Technology used:

- Azure Machine Learning
- Azure Computer Vision
- Azure IoT Edge
- Azure Data Lake Storage
- Azure Synapse Analytics
- Azure Security Centre
- Power BI
- Databricks Unified Analytics Platform
- Databricks Delta Lake
- Databricks MLflow

IMPROVING INDUSTRIAL SAFETY THROUGH EARLIER RISK DETECTION

STRENGTHENING SAFETY ACROSS FACTORIES AND WAREHOUSES.

BACKGROUND

A global pharmaceutical company with more than 10,000 employees operates factories and warehouses where people, vehicles and machinery work in close proximity every day. In these environments, even routine activity brings inherent safety risks, so protecting employees is closely linked to maintaining reliable operations.

Established safety measures already included designated walkways, speed limits and strict loading procedures. While these reduced many common risks, unsafe situations could still arise through human error or unexpected events.

To strengthen its approach, the organisation wanted to identify potential risks earlier and give safety teams better evidence to support training, prevention and decision-making across multiple sites.

CHALLENGE

Factory and warehouse teams often work close to moving vehicles, machinery and storage equipment, where even small changes in movement or behaviour can quickly increase risk. This includes workers or vehicles entering restricted or shared zones, or activity that brings people and machinery too close together.

For safety teams, the challenge was to recognise these situations more consistently and sooner, while learning more from everyday operations rather than relying mainly on reported incidents or periodic checks. Better visibility would help identify where risks occurred most often and where further training, changes to procedures or other interventions would have the greatest value.

Because the approach involved sensitive workplace footage and operational information, the organisation also needed to improve visibility while keeping confidential data within its controlled environment.

395 MILLION

Around 395 million workers worldwide sustain a non-fatal work injury each year, according to the International Labour Organisation ⁽¹⁾.

SOLUTION

Nexer worked closely with the organisation's health and safety, IT and security teams to introduce automated safety monitoring through the existing CCTV network.

The solution identifies people and vehicles moving through restricted or shared zones and analyses how they move in relation to one another. When activity indicates a potential collision or breach of safety rules, the relevant teams receive an alert and supporting information for further investigation.

Over time, examples of safe and unsafe behaviour provide a broader view of recurring risks during normal operations. This evidence helps safety teams understand where more attention is needed and make better informed decisions about training, procedures, site layout and awareness programmes.

Given the sensitivity of workplace footage and operational data, privacy and security formed part of the design throughout. Nexer integrated the solution into the organisation's existing environment, keeping sensitive information within established security controls while still giving safety teams the insight they needed.

The solution was first tested at a single factory. Following the pilot, the same model was introduced at additional sites, creating a consistent foundation for wider rollout across the organisation.



RESULTS

The organisation now has earlier insight into potentially unsafe conditions and stronger evidence to support safety decisions across its operations. By identifying where risks develop and which behaviours recur, safety teams are better placed to focus training, awareness programmes and further intervention where they are most needed.

The pilot also established a secure and repeatable approach that supports wider rollout across additional factories and warehouses.

72%

Microsoft and IoT Analytics conducted a global survey of manufacturers in 2024, with 72% of respondents identifying scalability as crucial to the factory's future ⁽²⁾.



BENEFITS

Earlier identification of safety risks

Potential safety violations are identified earlier, giving teams more time to investigate and respond before an event escalates.

Faster response to unsafe events

Safety teams receive clearer information about what happened, helping them determine the appropriate action sooner.

More focused safety programmes

Evidence from real operations helps direct training and awareness activities toward recurring behaviours, locations, and risks.

Better operational insight

Patterns across everyday activity give safety teams a broader view of where risks occur, rather than relying mainly on individual reported incidents.

Strong protection of sensitive information

Workplace footage and related operational data remain within the organisation's controlled environment.

Lower exposure to disruption

Reducing workplace safety risks also helps limit the impact of injuries, employee absence and operational interruption.

A consistent approach across sites

The pilot created a repeatable model that supports wider adoption across factories and warehouses in different locations.

WANT TO KNOW MORE?



Contact us at:
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1. <https://www.ilo.org/topics-and-sectors/safety-and-health-work?lang=en>
2. <https://www.microsoft.com/en-us/microsoft-cloud/blog/manufacturing/2024/06/20/6-findings-from-iot-signals-report-manufacturers-prepare-their-shop-floor-for-ai/>