How AI is changing the safety landscape from reactive to preventive

ANDREA SCHMIDT
Dir. Solution Architecture
SparkCognition
May 2023

How AI is changing the safety landscape

What you will learn

1. How to identify opportunities for AI in safety
2. How to use video data for a proactive safety program
3. Industry examples of AI in safety
4. Challenges in adoption

Why has improvement stagnated?

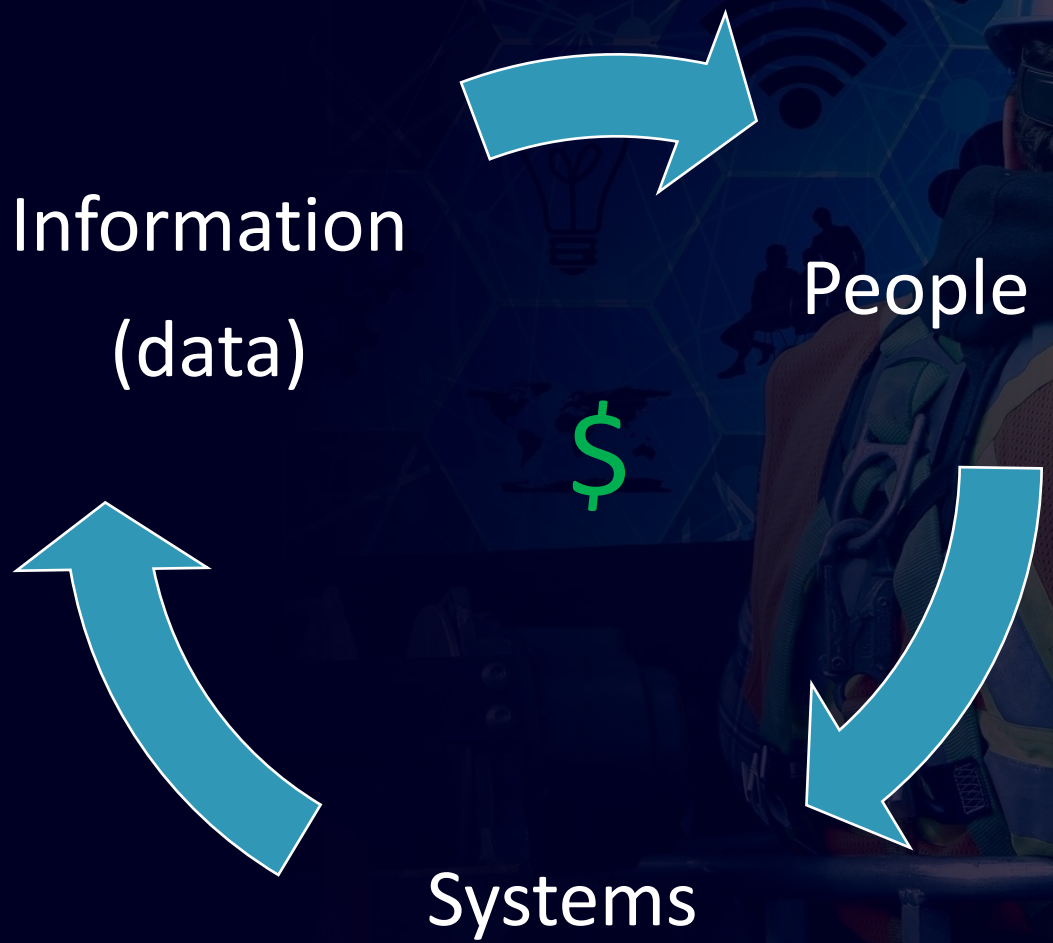
10 years of flat-lined numbers

Injury Incident Rate

Source: Health and Safety Executive

Identifying opportunities for AI in Safety

Using AI to do more with less.



What information do you collect?

AI for Information Extraction

What manual analysis is required?

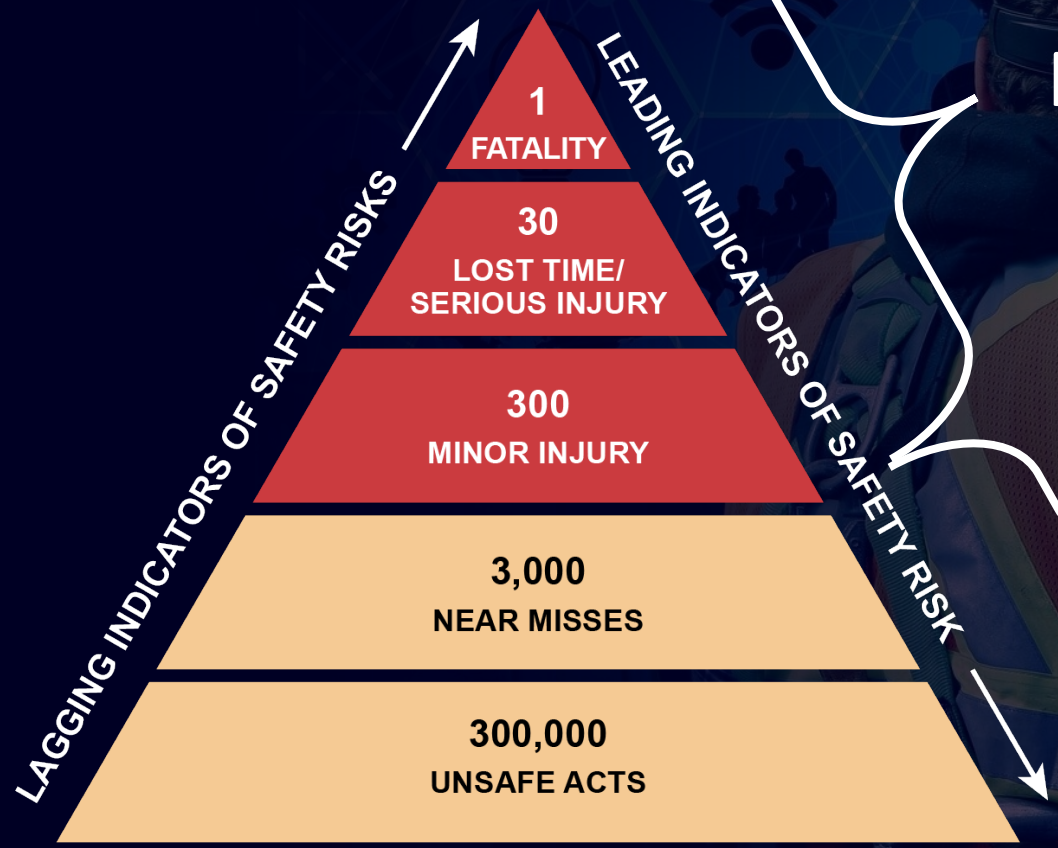
AI for Process Automation

How long does it take to receive information?

AI for Real Time / Proactive Analysis

AI for Proactive Information Capture

Visual AI for Real Time Insights Delivery

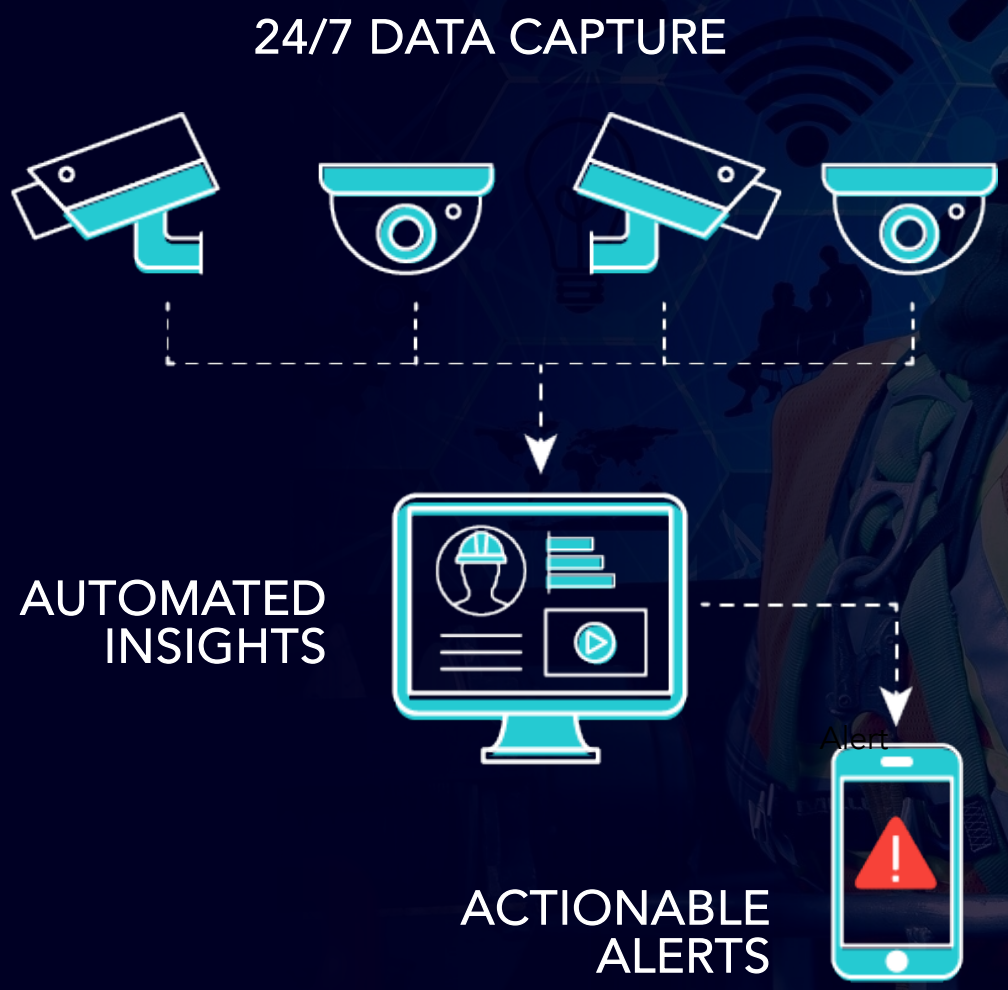


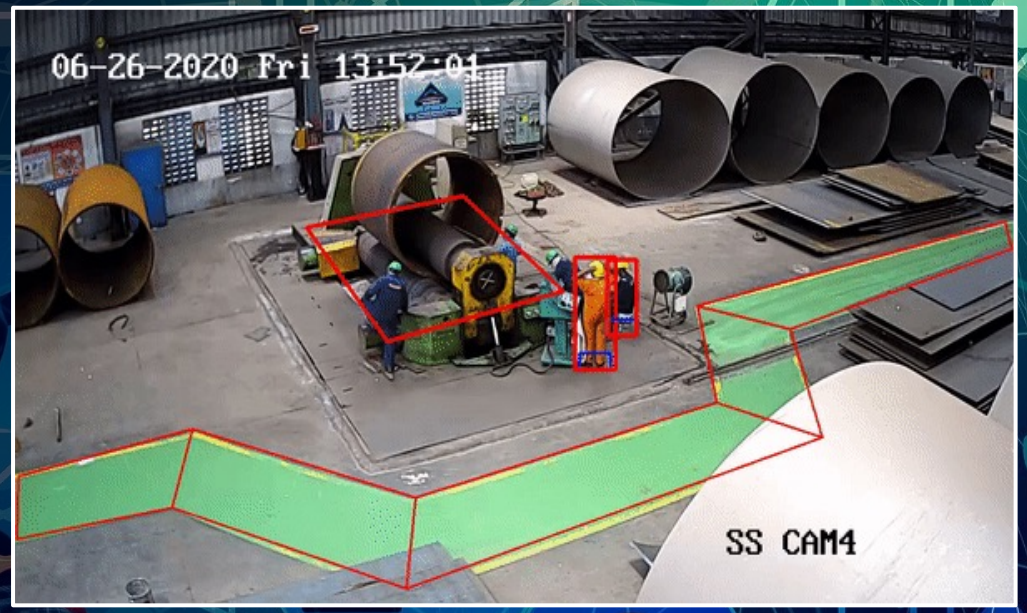
Reactive

Proactive

AI Enabled Workflows

Visual AI for Real Time Insights Delivery





LLMs and Generative AI

Visual AI for Real Time Insights Delivery

Failure Report #1

Failure Report #2

Failure Report #3

CUSTOMER / WELL INFORMATION:

Customer Name:	CALLON	**Install Date:**	3/6/2017
Well Name:	CHEEK 28-21 #9SH	**Pull Date:**	6/6/2017
Report #:	2017216	**Installed/Run Days:**	92
Report Completed by:	Ade/Shelbi	**Dismantle Date:**	6/16/2017
Reason for Pull:	Low Production	**Report Date:**	6/21/2017
To:	Michael Hosick	**CC:**	Duane Bullock
Customer Witness:	No	**Witness Name:**	NA

NOTES

- Ten joints of tailpipe full of sand. Bottom of desander contains a hole.
- Up and down thrust washers missing on impeller. Diffuser bore contains excessive radial wear.
- Most of the diffusers had small holes or erosional wear along the balance ring bores.
- UT seal had a large amounts of sand and water throughout the chambers. Bags filled with water.
- LT seal had water and light amounts of sand throughout the chambers. Bags filled with watery oil.
- UT motor had watery oil. CT motor base end and sensor had water. Motors were not grounded.

CAUSE OF FAILURE **CLASSIFICATION: H**

According to pull report, all ten joints of tailpipe were full of sand. Impeller balance rings and Diffuser balance ring bores showed severe scoring from abrasive/sand. Holes found on the balance rings bores caused by erosional wear due to abrasives/sand wash-out in between the Impeller balance ring and Diffuser balance ring bore. Stages also showed lots of radial wear on the diffuser bore. Seals failed due to the water and sand throughout the chambers. Motors were not grounded however did not pass hi-pot due to water contamination from the failed seals. Low production is due to holes found in the diffuser and stages radial wear. Mode of failure due to reservoir- sand. Samples collected are available for pickup here at the Odessa Yard.

RECOMMENDATIONS

- Clean Out Well

Sparkbot

There is sand in the tailpipe joint. What could be the cause?

Based on the recommendations mentioned in the reports, the possible recommendations for addressing the issue are:

1. Clean out the well: This recommendation is mentioned in both reports as a possible solution to address the presence of sand or foreign matter in the equipment.

2. Perform hydrostatic testing on tubing: In one report, it is recommended to perform hydrostatic testing on the tubing to identify any potential holes or damages that could allow sand

Type a message...

Actions (Coming Soon)

- ✓ Generate Safety Reports for pre-work Safety Briefings
- ✓ Query Records and Summarize Findings

SOP Compliance & Auditing

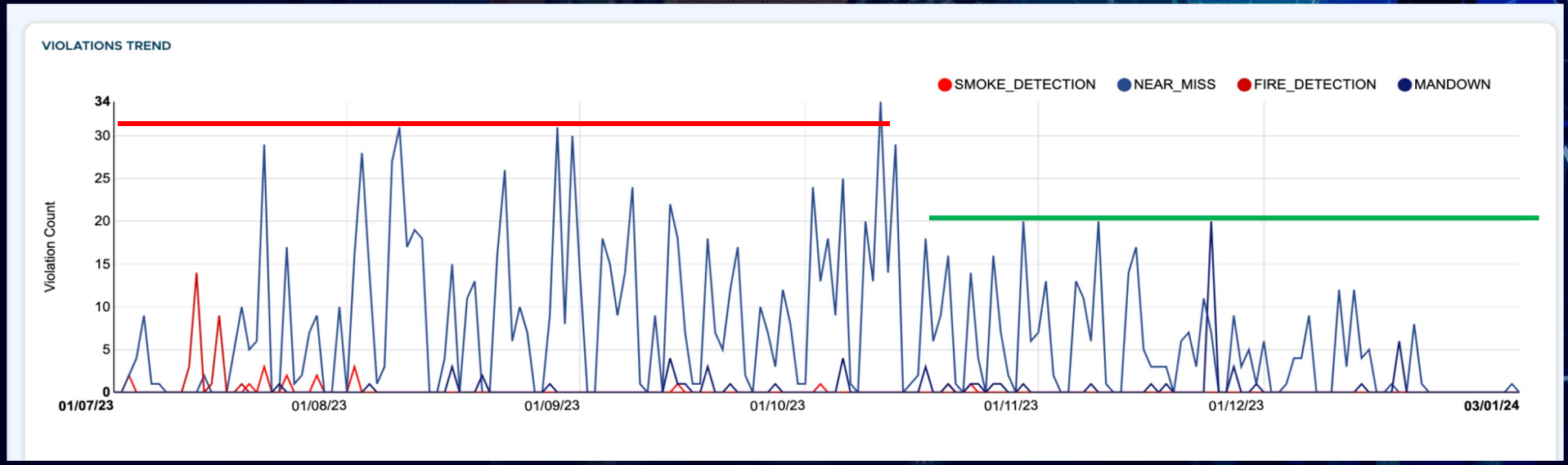
Visual AI for Real Time Insights Delivery

- ✓ 40% improvement in fire prevention SOPs
- ✓ 80% improvement in overall SOP adherence
- ✓ 250K annual cost reduction in audit documentation

Vehicle Near Miss

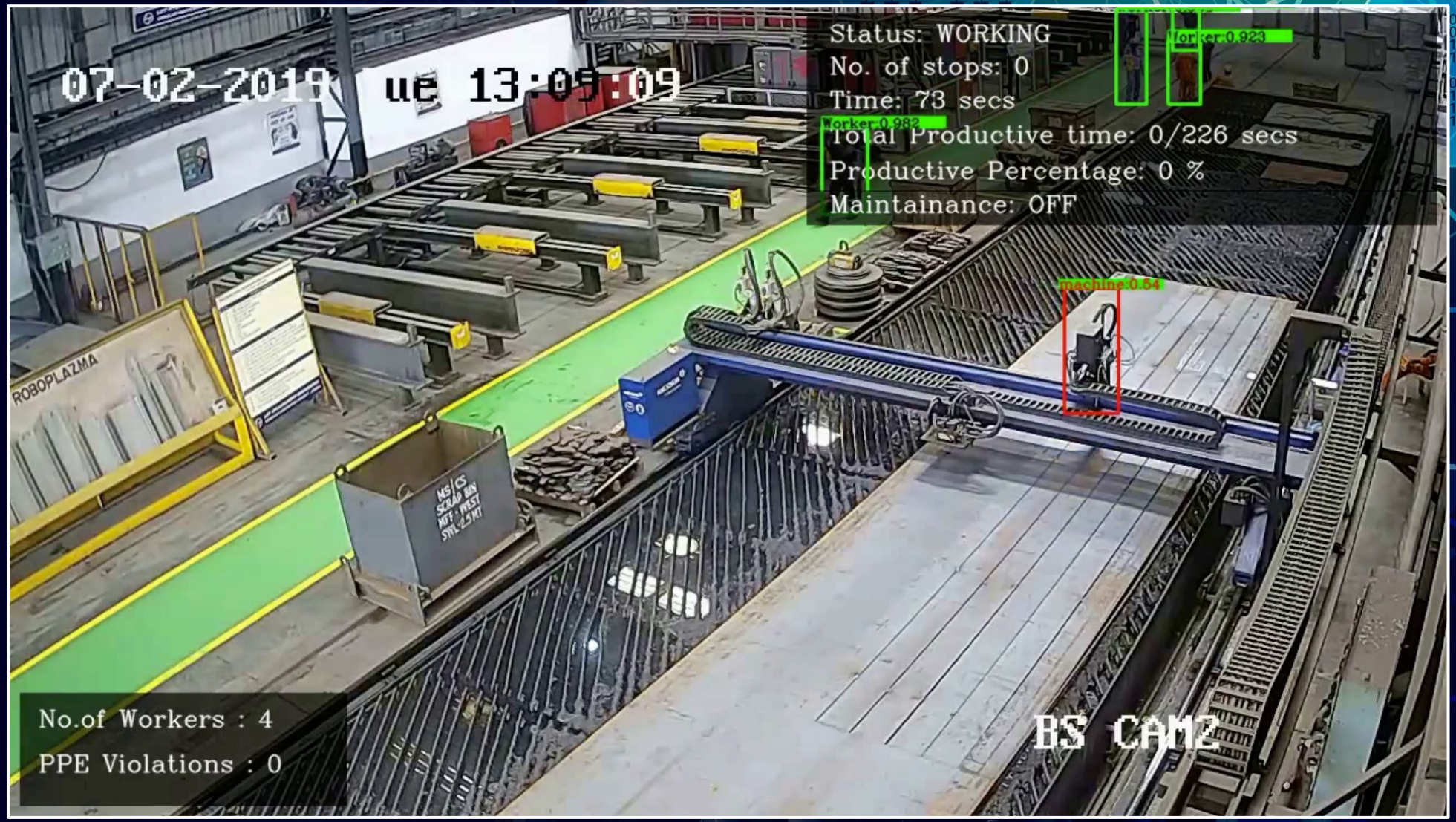
Visual AI for Real Time Insights Delivery

- ✓ Discovery of behaviors
- ✓ Implementation of new policy
- ✓ Quantified reduction of near-miss incidents



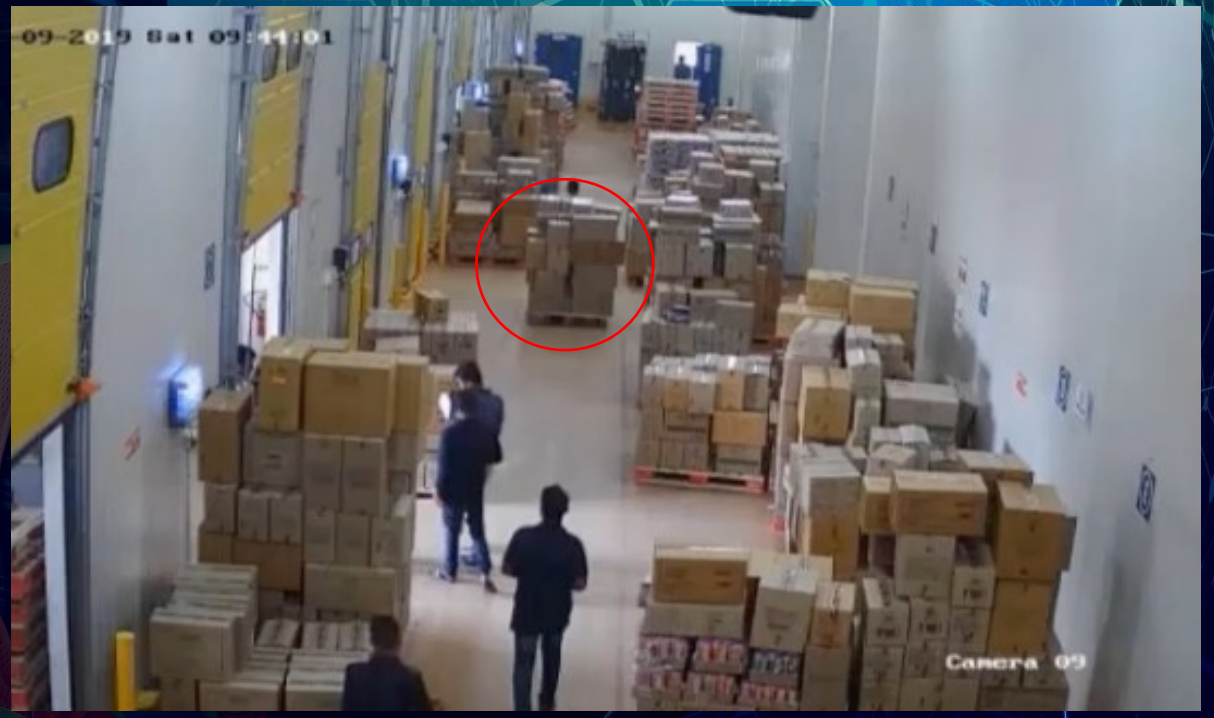
Machine Guarding & Utilization Tacking

Multi-purpose Applied AI



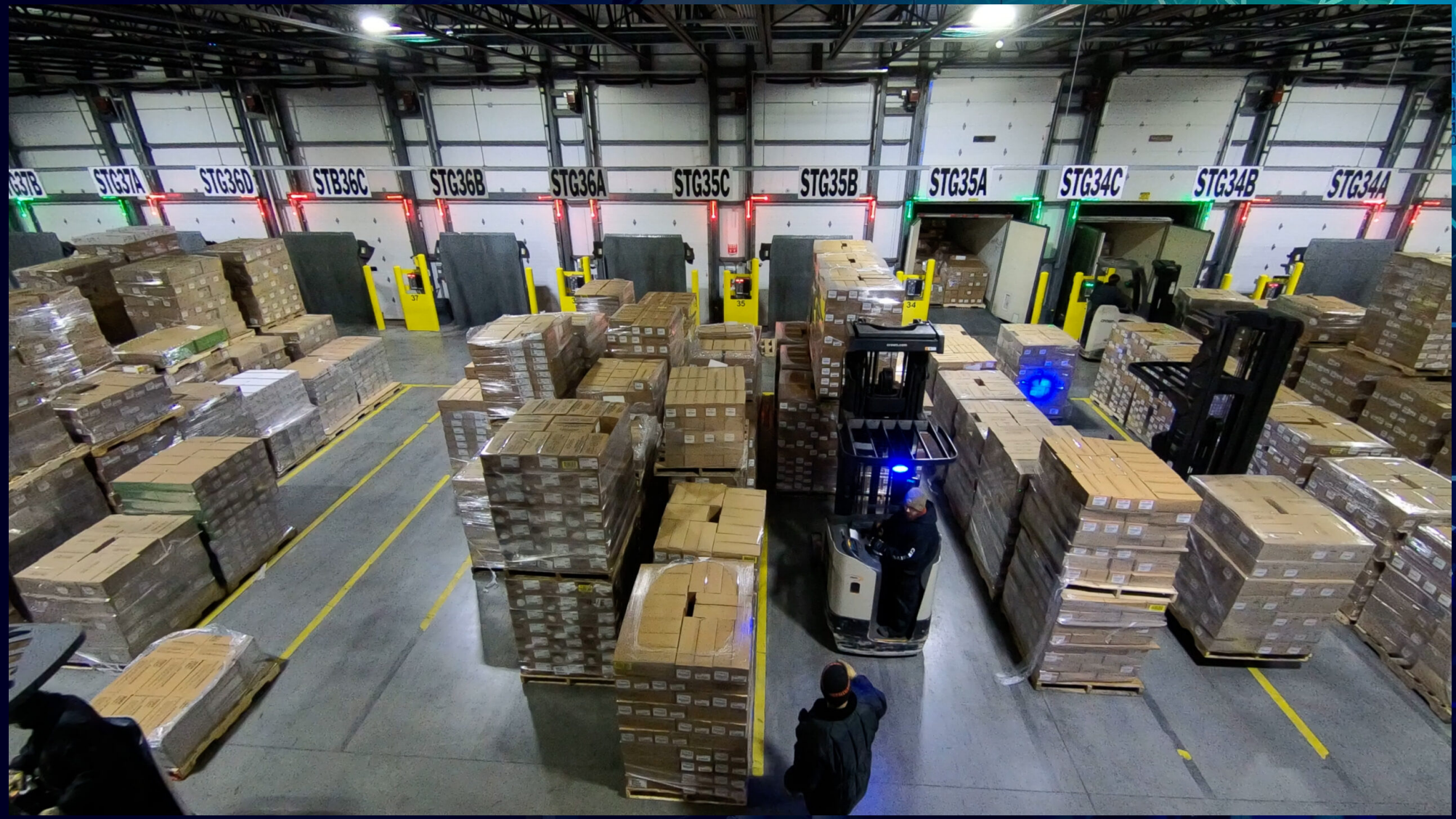
Material Handling Safety & SOP Compliance

Multi-purpose Applied AI



Dock Door Safety & Productivity

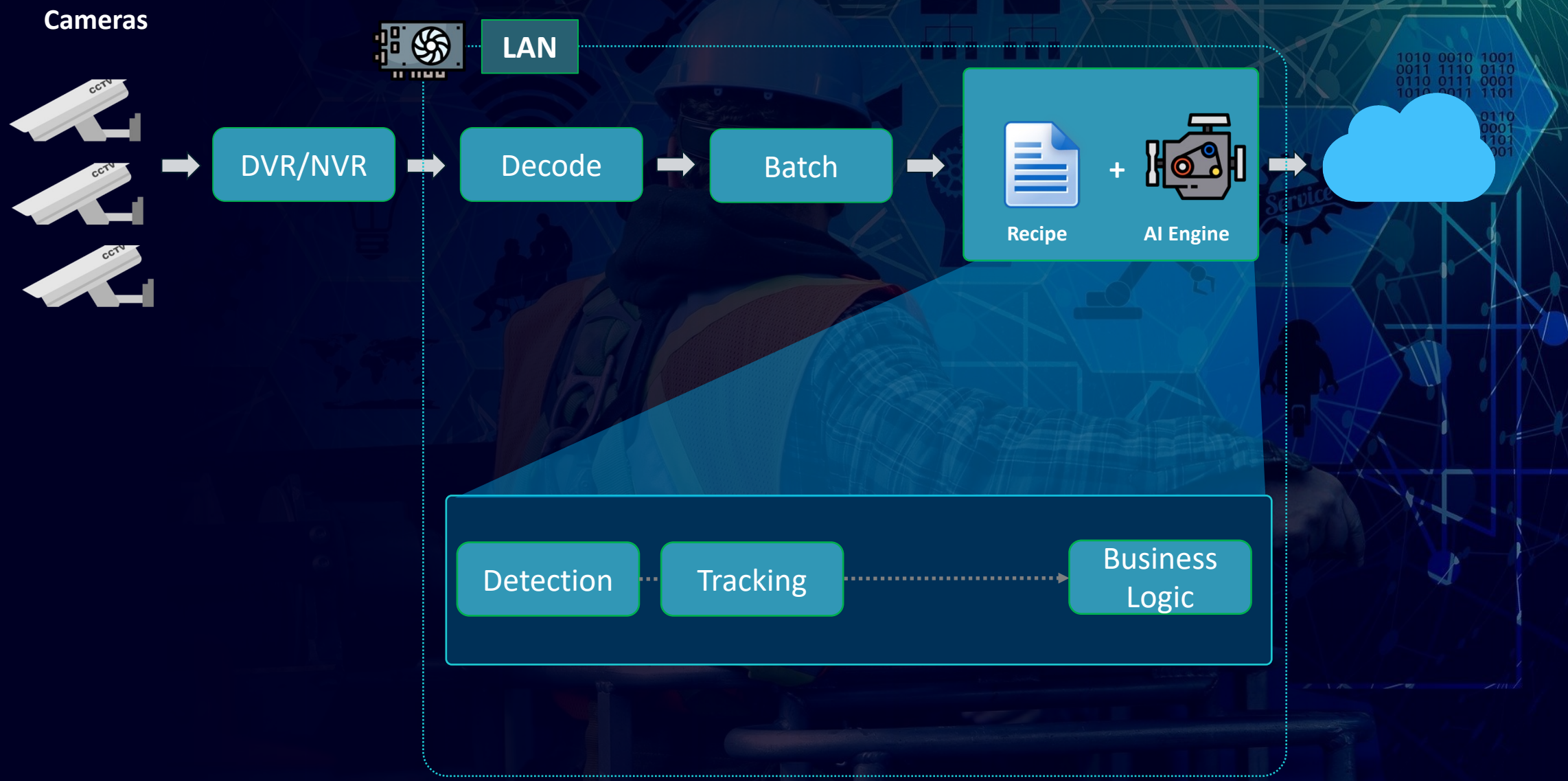
Multi-purpose Applied AI



AI PERFECTED FOR BUSINESS

WWW.SPARKCOGNITION.COM

How does Scene Understanding in Visual AI work?



AI PERFECTED FOR BUSINESS

WWW.SPARKCOGNITION.COM

AI Technology Adoption Challenges

Multi-stakeholder Initiative

1. Integrations
2. Daily Users & Alert Chain of Responsibility
3. Network Security
4. Privacy & PII
5. Hardware Requirements
6. Success Criteria and Enterprise Value


Thank You
Let's talk about your AI for Safety
aschmidt@sparkcognition.com
ANDREA SCHMIDT
Director, Solution Architecture at SparkCognition