Deloitte.

AI4Animals

Reinventing camera surveillance in slaughterhouses – AI for Animal Science – June 4th 2025

Introduction

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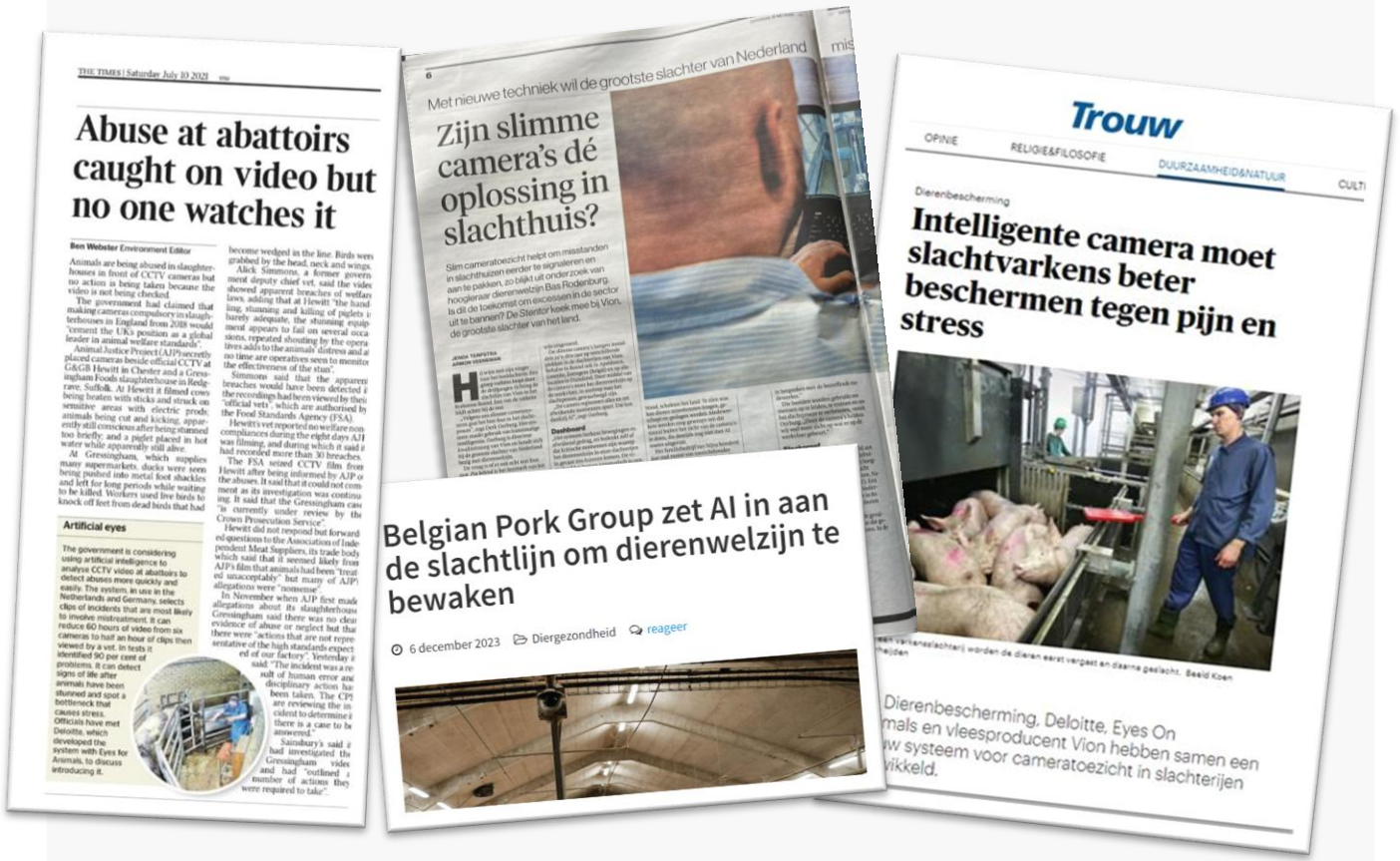
Product Owner

@ AI4Animals

- 7+ years at Deloitte
- AI Product Lead
- Background in Econometrics and Mechanical Engineering

AI4Animals – our joint ambition

Media response



Our ambition

To reduce avoidable and unnecessary animal stress and suffering through innovative technology and its effective adoption, in close collaboration with committed organizations

AI4A in summary

What it is

AI4A consists of AI models and a dashboard that significantly improves the effectiveness of camera surveillance by automatically detecting **animal handling and welfare issues**

Challenge

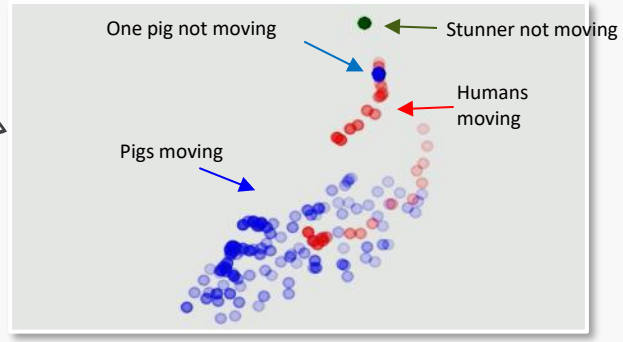
- Most slaughterhouses have implemented **camera monitoring systems**
- Everyday, this results in **hundreds of hours of video recordings**
- Slaughterhouse personnel tend to review a **random and small selection** of recordings
- As a result, most **video recordings remains unseen**
- Current camera systems are **not able to identify trends** and structural issues

How it works

1 AI solution - detections

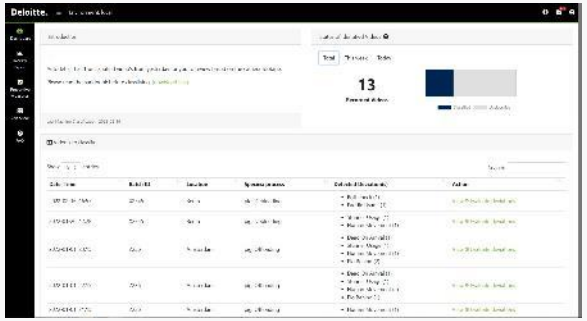
The AI4A algorithm detects animals, people, and objects and how they interact

2 AI solution – movement heatmaps



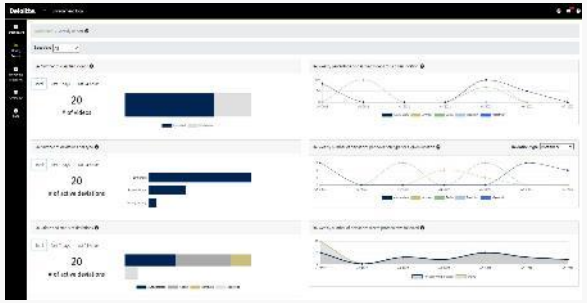
Images are translated into movement heatmaps to detect potential handling issues

3 Dashboard - deviations list review



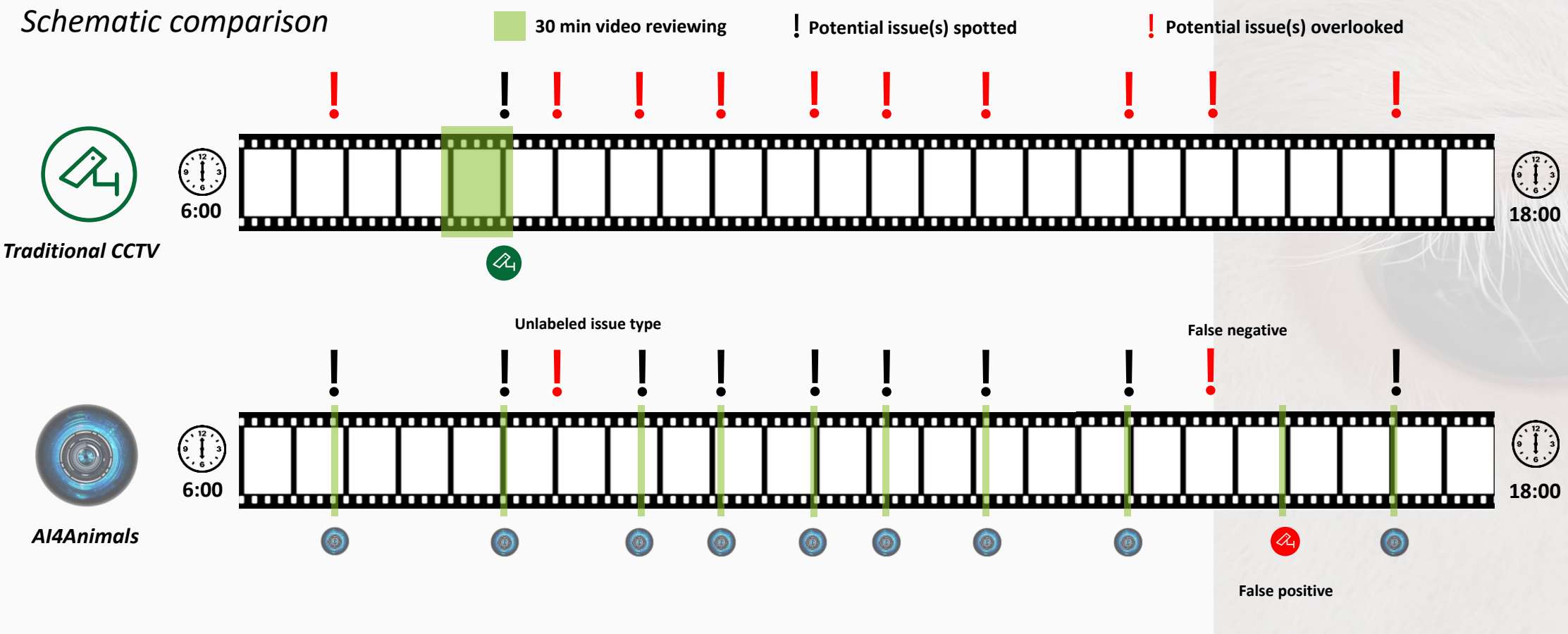
AI4A selects and aggregates all video recordings containing potential deviations to be reviewed

4 Dashboard - trend reports



AI4A includes trends reports outlining deviations over time and per slaughterhouse

Traditional vs. AI camera surveillance



Selection AI4Animals features – pigs

Use of emergency stunner

Immobilized / dead on arrival

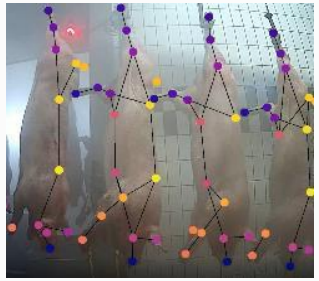
Counting

Stressful human behavior

Use of paddle / prod / stimulator

Group size control

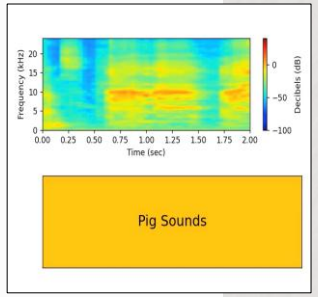
Congestion / bottlenecks



Signs of life / movement gasping / breathing

Various real time notifications

Privacy / blurring



Audio analytics / stress calls

Thermographic / heat issues

Kicking, hitting, dragging

Reflex after stunning

Blood Stream

Cut placement

Stun – stick interval

Link to transport & farm

AI4A Partnerships

Partners of AI4A

Beter Leven Keurmerk

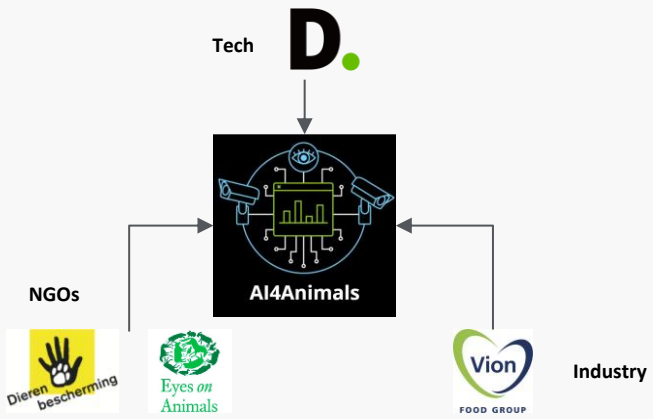
Dieren-bescherming

Eyes on Animals

Vion Food Group

Amazon Web Services

Start of AI4A (2019)

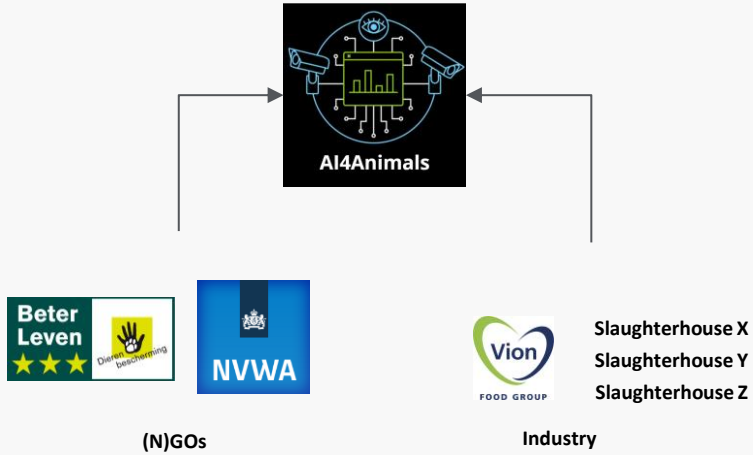


Consortium where all parties invested in building solution

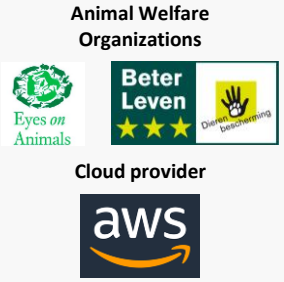
AI4A as a platform (2021)

Investment from AWS to build **real time** edge computing **platform**

AI4A at clients (2022-)



Asset with revenue from **license fees** (industry) and investment for **new features** from (N)Gos



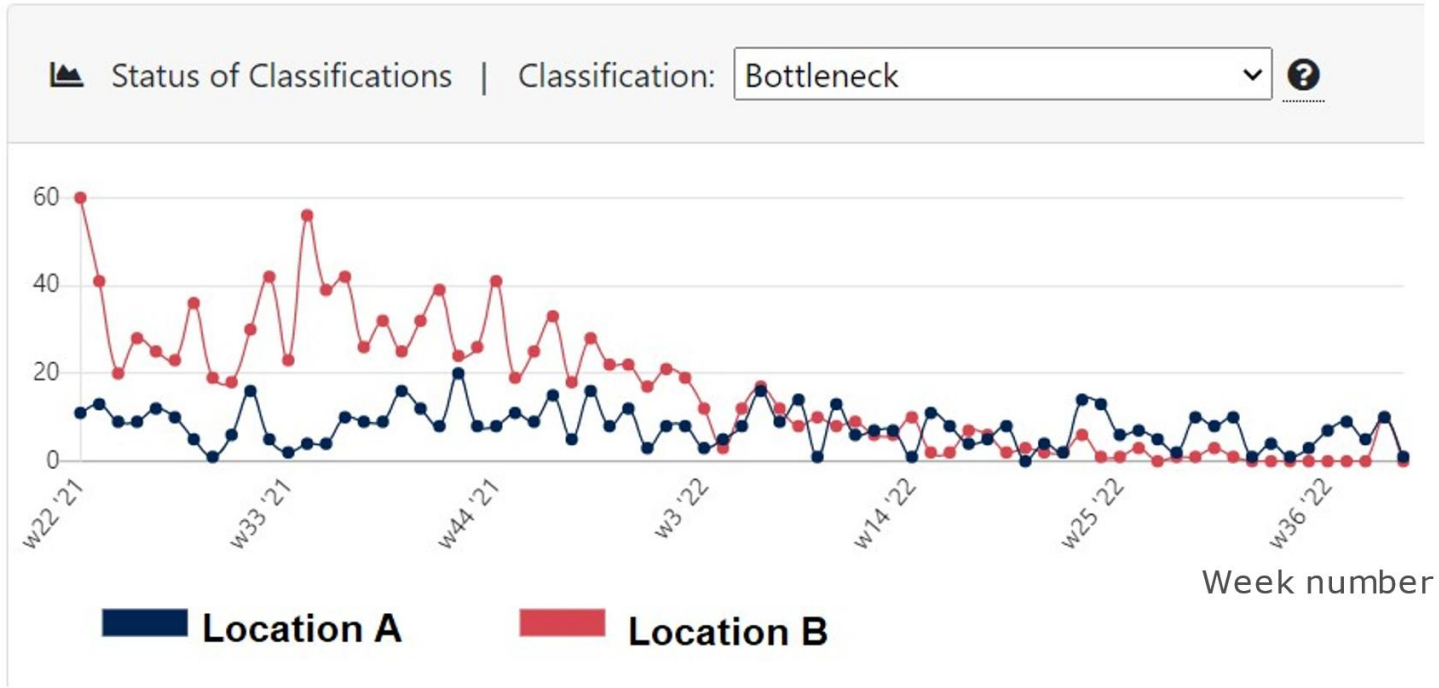
Support on 'where to play' from Animal Welfare organizations and platform support from Cloud partner. Both where needed

Video about partnerships

Example AI*4*A impact

Real impact

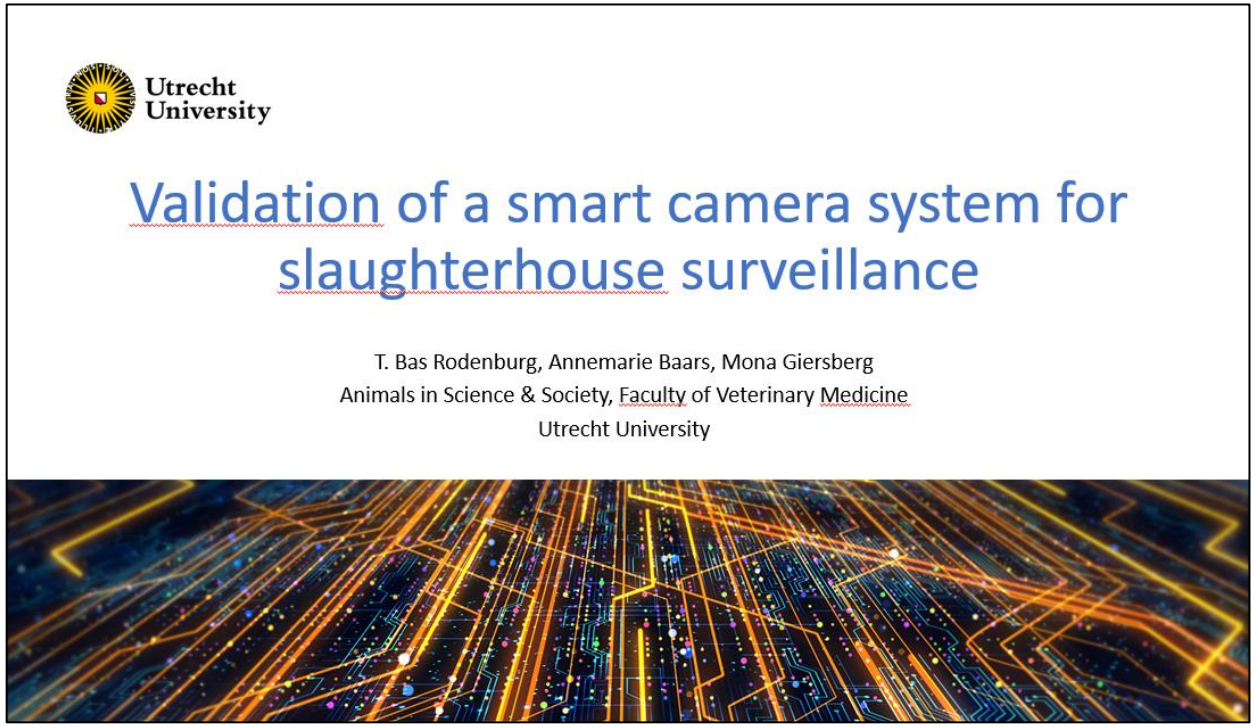
AI*4*A helps monitoring an increasing or declining trend in the number and severity of the animal handling issues



Client case

- **Too many animals in one area causes stress**
- With the help of AI4A the client analyzed the **root causes at slaughterhouse B**
- Conclusion: bottleneck- and congestion-related stress situations were primarily caused due to **uncoordinated unloading of animals by truck drivers and use of paddles**
- Based on those observations, client **adjusted the unloading procedures and phased out paddles.**
- This resulted in a **significant reduction of bottlenecks**

Scientific validation of AI4Animals by prof. dr. ir Rodenburg


Utrecht University

Validation of a smart camera system for slaughterhouse surveillance

T. Bas Rodenburg, Annemarie Baars, Mona Giersberg
Animals in Science & Society, Faculty of Veterinary Medicine
Utrecht University

"...the **AI4Animals** system provides a **valid solution** for smart monitoring..."

"For use of the prod, this has already **led to changes in protocols** and more detailed observations of the stunning area"

Value according to AI*4*Animals clients

- Incidental animal handling **issues identified faste**r
- **Fact based insights** and reporting across all plants
- Opportunity for **learning, training and improvement**
- Enables **comparison / benchmarking** between slaughterhouses
- Avoiding animal handling issues, improves **operations**
- Helps avoid **incidents** becoming **structural issues** becoming **culture**

Proof of concept approach and timeline

During our proof of concept, we will gather information on the current situation, select the most suitable hardware for the solution, and train and evaluate the initial models

Throughput time	1 week	~3 weeks	2-4 weeks
	Preparation and hardware	**Model training and validation**	**Evaluation and follow up**
Purpose	Gather information on process and define hardware setup for solution	Develop models based on video data received with selected hardware setup	Evaluate initial models and define follow up
Activities	• Facilitate kick-off with relevant stakeholders • Define success criteria • Use collected input of locations to define hardware setup • Setup proper hardware • Evaluate quality of video footage collected from selected hardware	• Find and label deviations based on received video data • Train models with AI pipelines • Validate findings of trained models	• Test developed model and gather metrics on its accuracy • Facilitate evaluation session with relevant stakeholders
Results	• Video data received for model training	• Labelled training set for model training • Model trained for decapitation issues	• Model accuracy metrics presented at evaluation session • Follow up actions discussed and defined


Questions?