



aWISH

ANIMAL WELFARE INDICATORS AT
THE SLAUGHTERHOUSE

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Technological Innovations in Automated Monitoring of Pig and Broiler Welfare at the Slaughterhouse: Progress of the aWISH project

Noémie Van Noten

AI4AS conference – 29/06/2026

ILVO

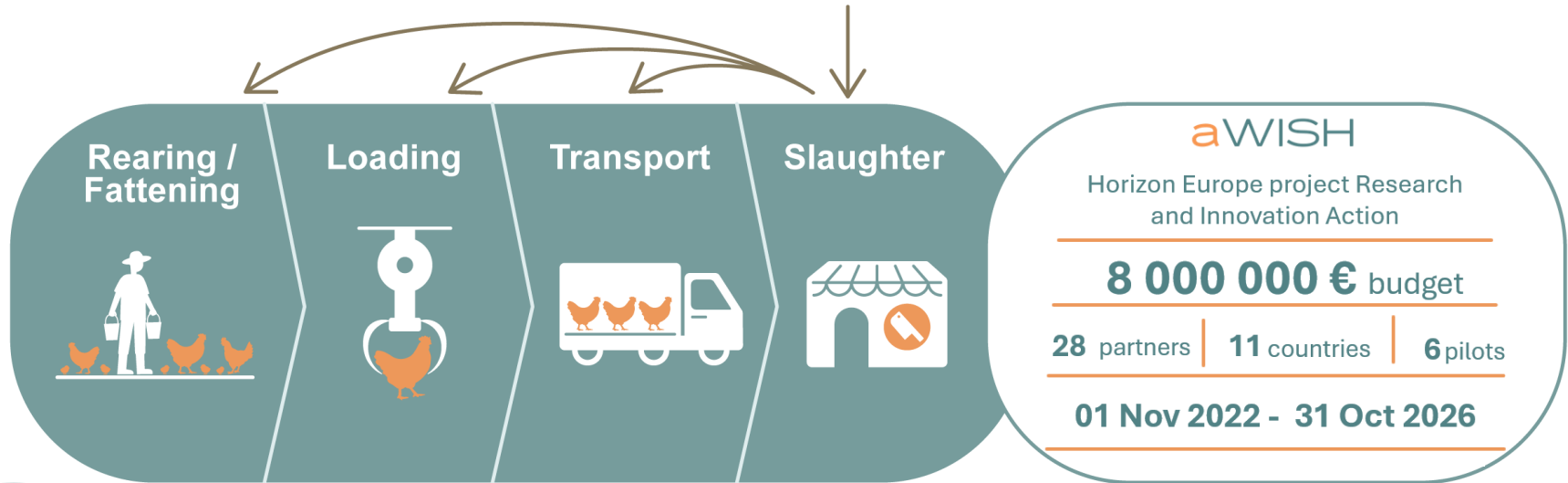


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General aim



Large-scale automated **welfare monitoring**
of **animal-based indicators** at the **slaughterhouse**



The aWISH pilots

Pilot No.	Pilot Lead	Scientific Lead	Phase
Pilot 1	VION	UU	1st phase
Pilot 2	Batallé	UAB	1st phase
Pilot 3	Plukon - Duc	ITAVI	1st phase
Pilot 4	Plukon - Sieradz	IGBZ PAN	1st phase
Pilot 5	Großfurtner - Hügelsberger	Vetmeduni	2nd phase
Pilot 6	Carnex	BioSense	2nd phase

16 new technologies
25 new installations



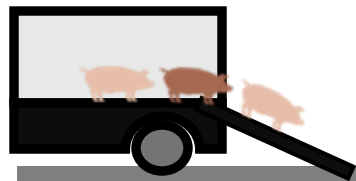
Sensor technologies – Pig pilots



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FARM



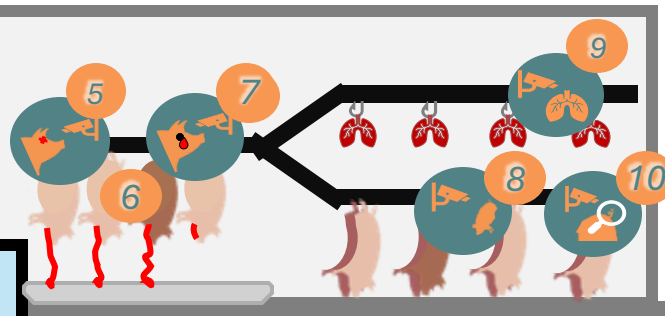
UNLOADING



LAIRAGE



STUNNING



BLEEDING

PROCESSING

Figure adapted from NVWA figure (Sensortechnology at the slaughterhouse)

1

Enviro-Detect (Innotech) – Barn climate monitoring

2

Weight-Detect (Innotech) – Weight prediction via depth sensor

3

Climate and behaviour sensor (Bitgear)

AI 4

STREMOD0 (FBN) – Stress Vocalizations

AI 5

Blink AI (Nuna Solutions) – stunning effectiveness

6

IGFBPs (FBN) – Stress level in exsanguination blood

AI 7

Tear Staining (ILVO)

AI 8

Lesion-Detect (Innotech) – Pulmonary health monitoring

AI 9

PigInspector (CLK) – Ear, Tail and Skin Lesions, Tail length

AI 10

Tail length (Vion / Batallé)

Presentation Simon Verlinde
(session 3 at 14:45)

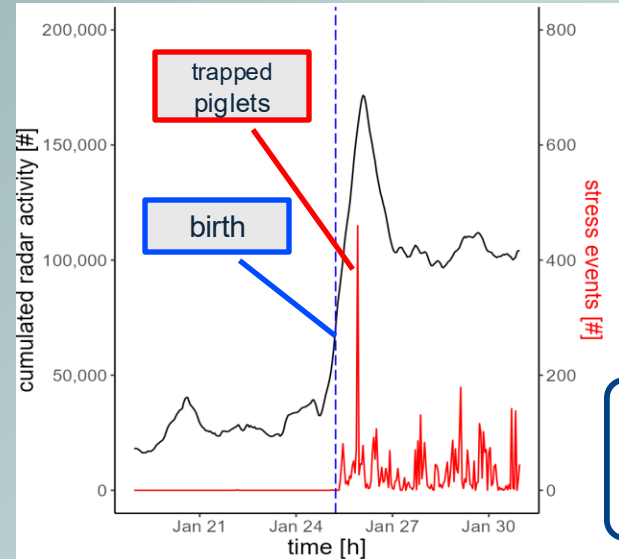
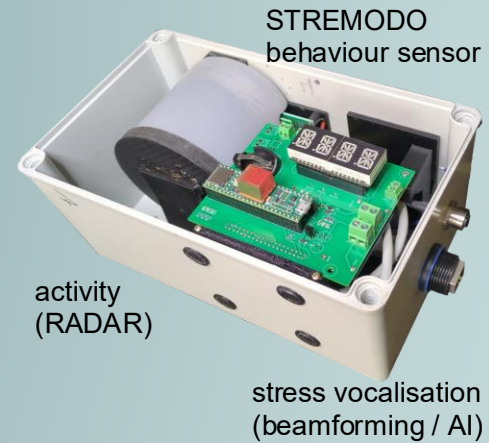
STREMODO

Purpose

- Monitoring of distress (group level)
 - activity increase
 - stress vocalisations
- Use cases
 - Birth detection / crushing detection (On-farm)
 - QC unloading / lairage (Slaughterhouse)
 - Aggression / tail-biting (On-farm)

AI

- Linear predictive coding (LPC) with 12 parameters
- Artificial neural network



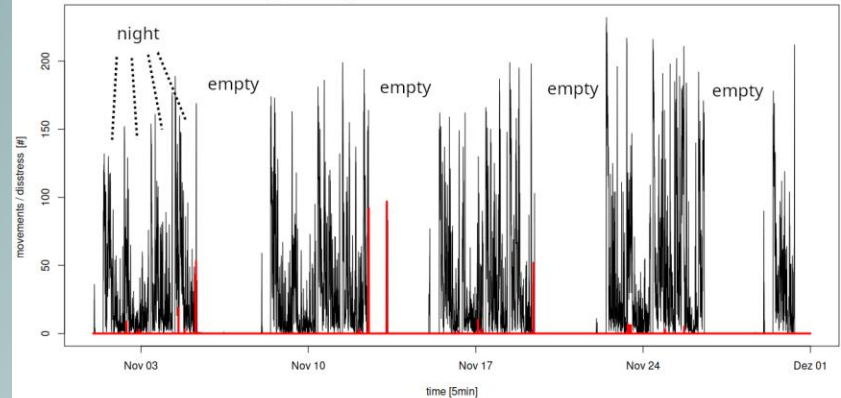
TRL = 6



Challenges

- Optimal installation spot
- Background noise
- For validation, link with:
 - Temporal data (procedures, batches)
 - Spatial data (pen level)

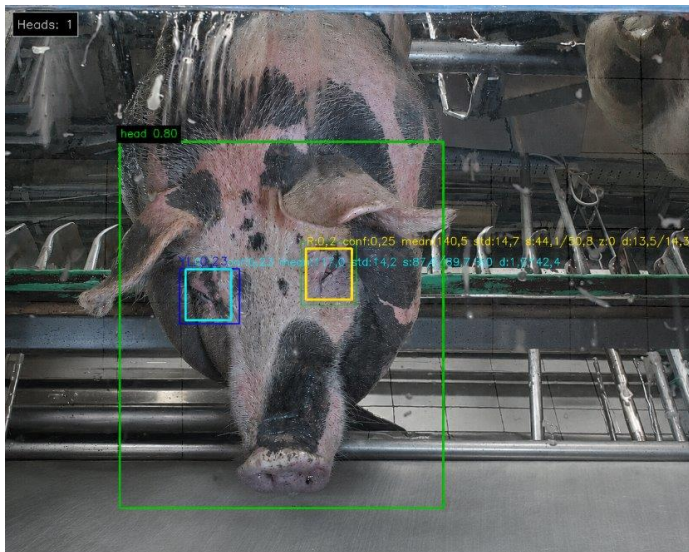
Lairage occupation and distress vocalisation



Purpose

Detection of consciousness after CO₂ stunning:

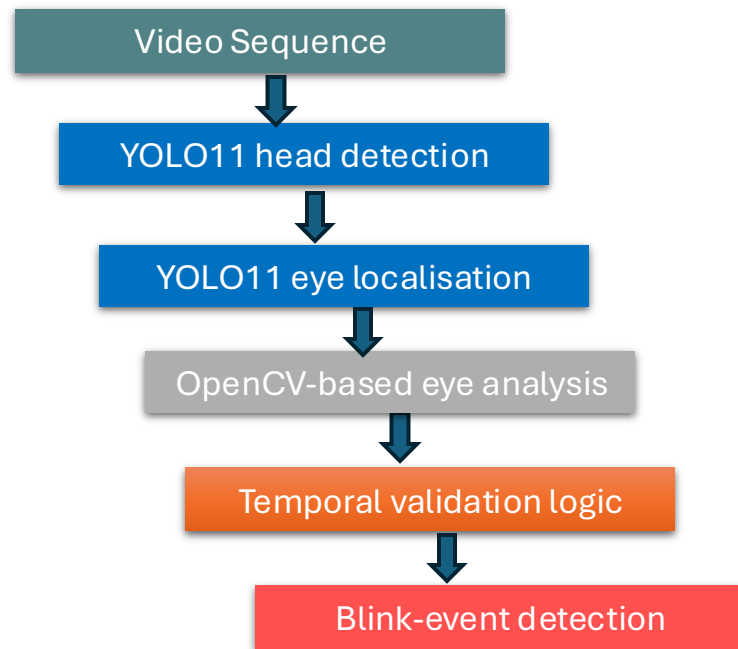
- Based on blinking patterns (corneal reflex)
- After stimulus with air flow in the eye



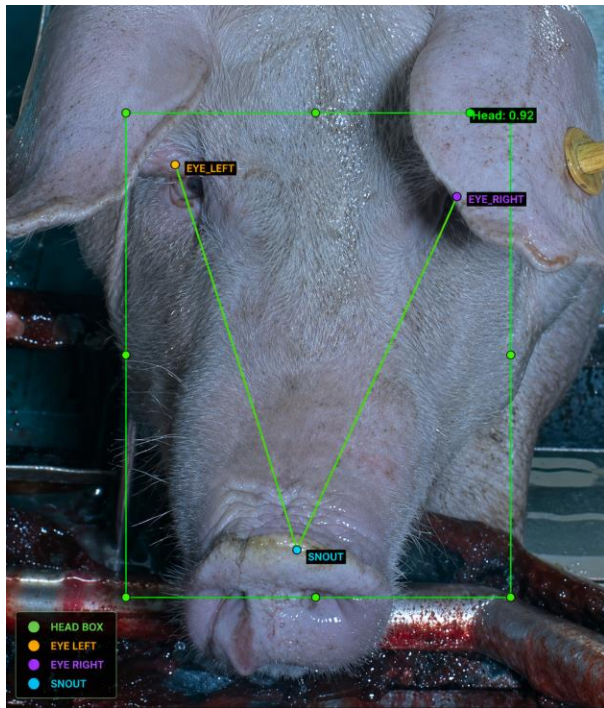
Real-time anatomical localisation under industrial slaughterhouse conditions



AI

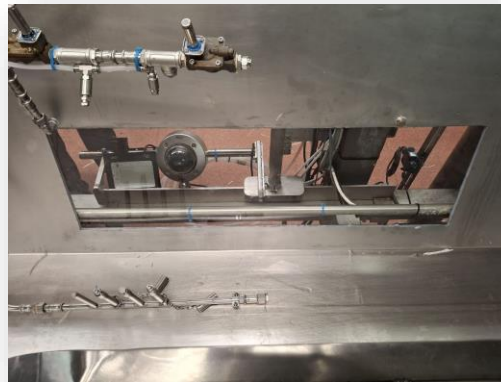


TRL = 6



Challenges

- Variable lighting conditions
- Animal position
- Industrial line speed
- Humidity and dirt
- Low number of positive cases (~0,03%)

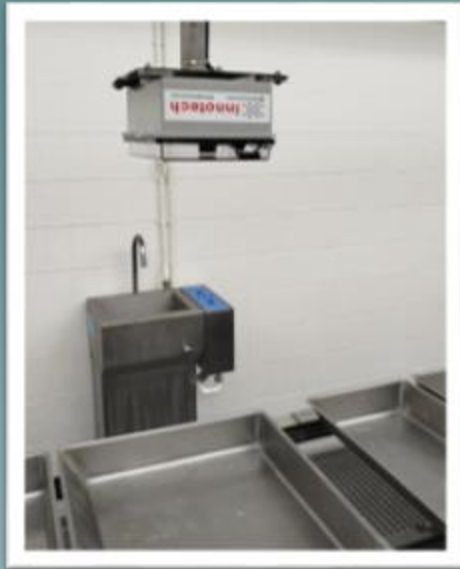


Lesion-Detect

Purpose

Classification of lesion severity on lungs

- According to according to the Australian PHMS scoring system
- 0 = not affected → 50 = fully impacted by lesions

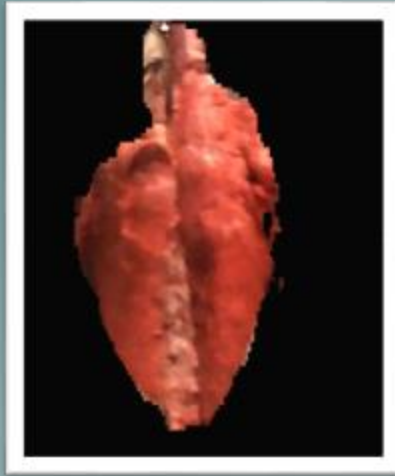


AI

AI-based lesion segmentation algorithm:

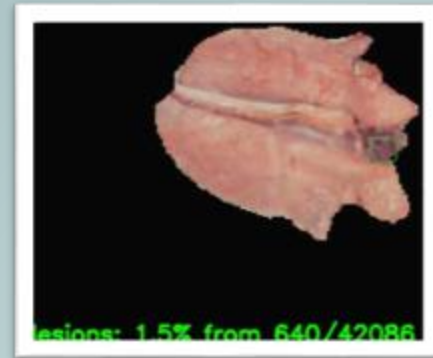
1. Identification of lung boundaries
2. Detection of lesion areas
3. Estimation of lesion severity

TRL = 6



Challenges

- Position of the lungs:
 - Laying in trays
 - vs Hanging (partial occlusions)
- Processing power limitation
- Hardware exposure to water



Sensor technologies –Broiler pilots



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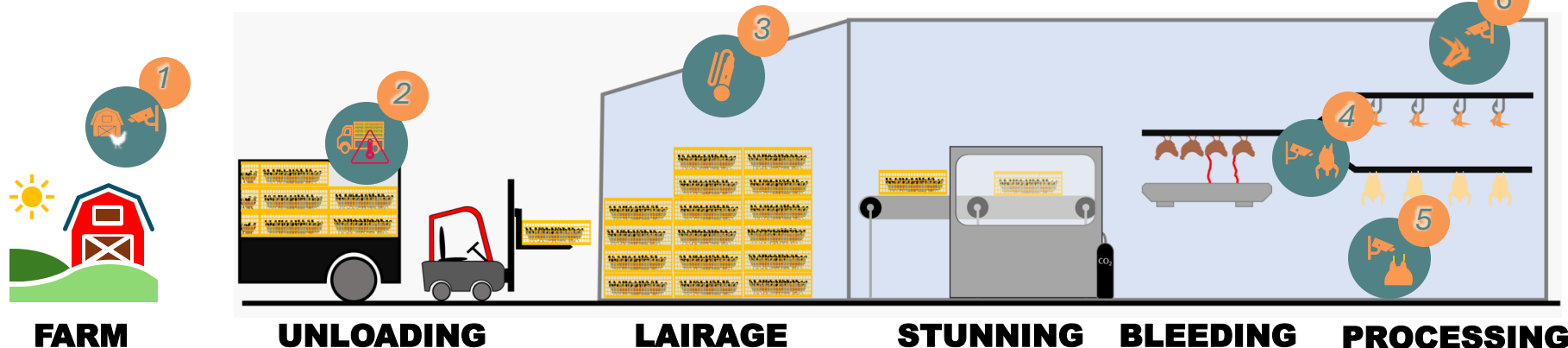


Figure adapted from NVWA figure (Sensortechnology at the slaughterhouse)



EBroilerTrack Image (ITAVI) – Individual broiler activity on farm



Transport monitoring (ITAVI) – model for heat stress



EBroilerTrack Sound (ITAVI) – Broiler vocalizations



ChickenCheck Catch Damage (CLK) – Catching damage (bruises and fractures) and scratches



ChickenCheck Hockburn (CLK) –Hockburns



ChickenCheck Footpad (CLK) –Footpad dermatitis



ChickenCheck Catch Damage

Purpose

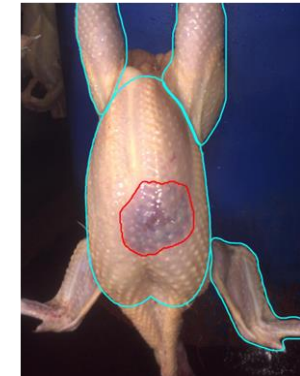
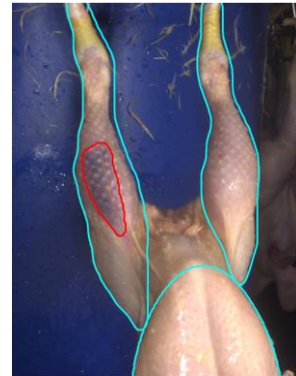
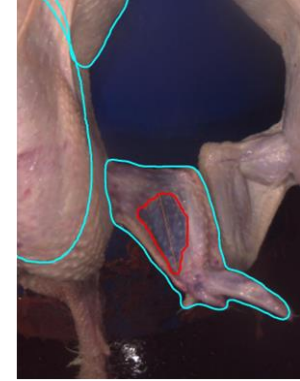
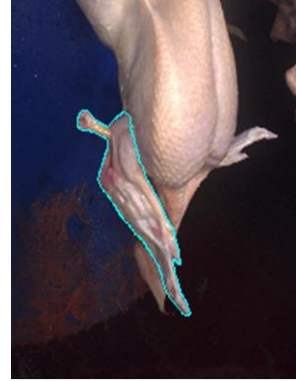
Detection of carcass damage:

- Broken wings
- Hematomas on wings, breast & legs

AI

AI-based lesion segmentation algorithm:

1. Identification of separate body parts (Yolov8)
2. Detection of coloured areas
3. Decision based on colour and diameter of affected area



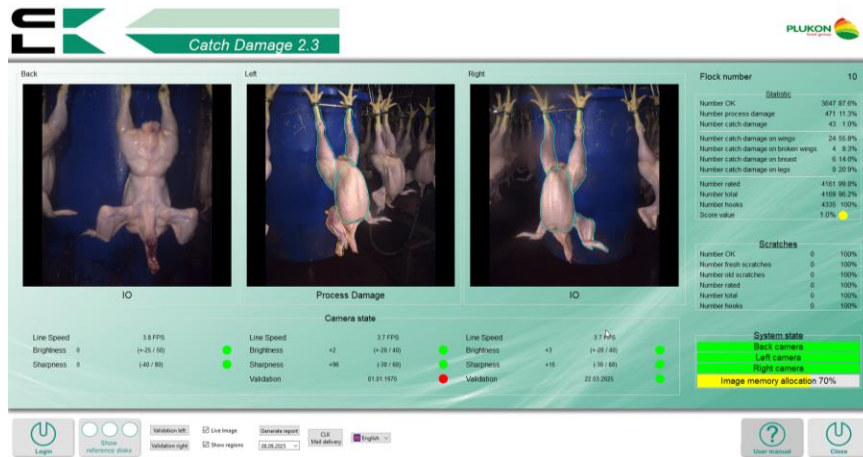
ChickenCheck Catch Damage

TRL = 7



Challenges

- Bad image quality (improper cleaning of sensor)
- High line speed (18 000 birds/h)
- Distinction between lesions:
 - Old lesions (before catching/transport)
 - New/ process lesions

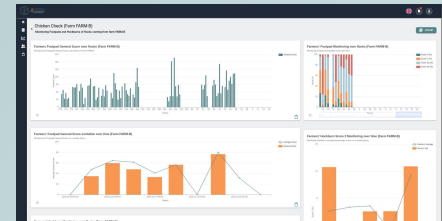


Conclusions

The slaughterhouse =
a **central, though challenging** location for automated
animal welfare monitoring

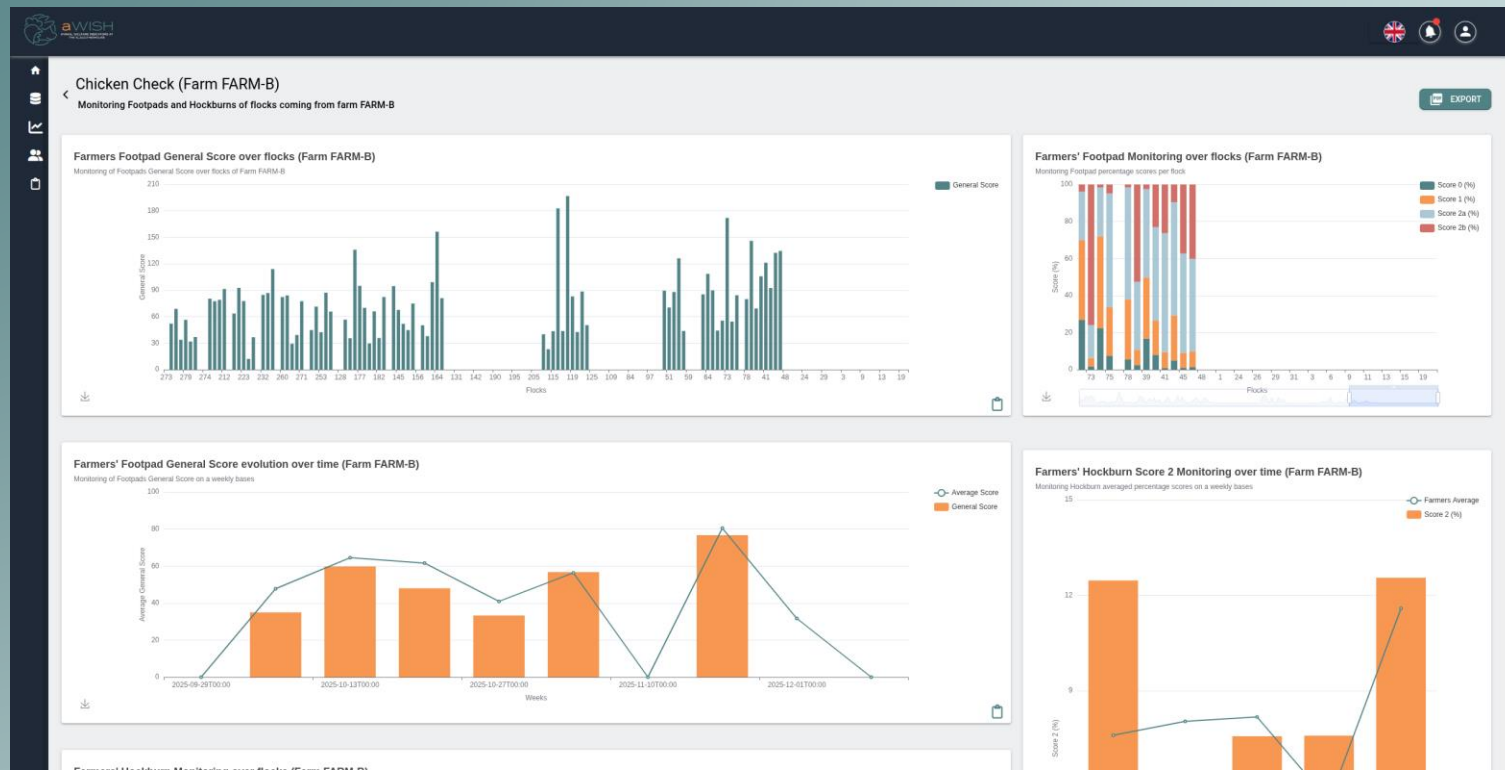
- Harsh environment (dust, water, steam, blood)
- High speed processes
- Limited physical space for sensor installation
- Every slaughterhouse is different!
→ validation under specific circumstances

With potential to generate
a huge amount of routine welfare data
→ aWISH data platform



The aWISH data platform

Feedback mechanism for all actors in the chain





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Thank you!

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