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CURRENT TRL  
& TARGET TRL

# 2.5 EARLY LAMENESS DETECTION THROUGH MACHINE LEARNING

87%

DETECTION ACCURACY

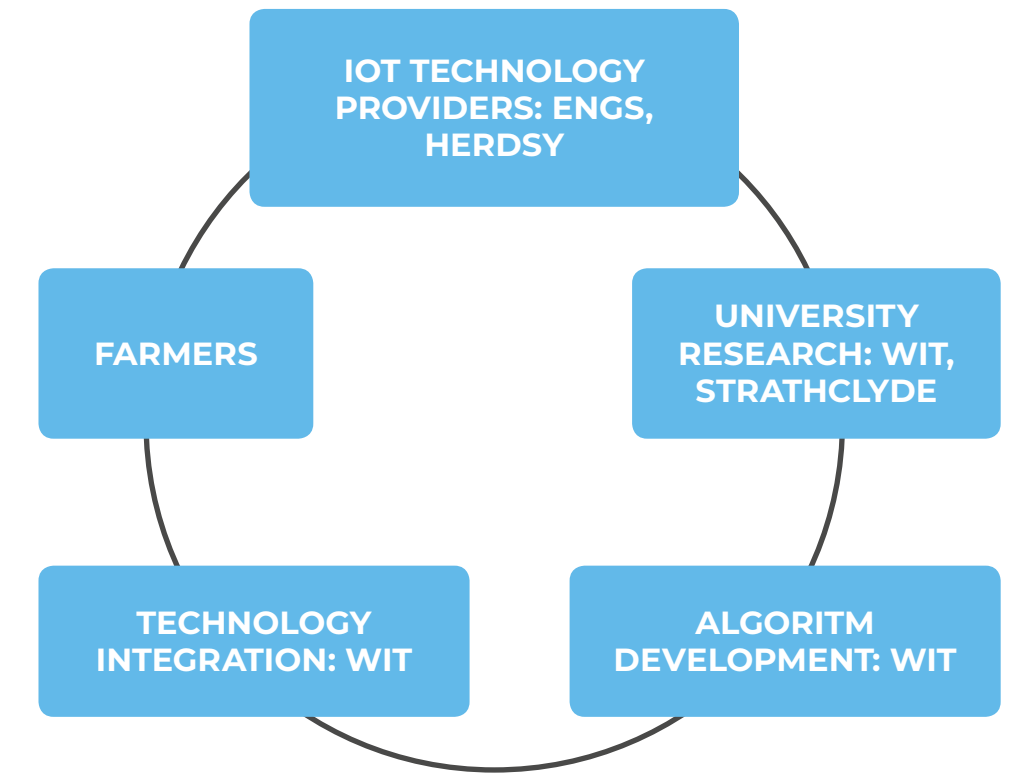
- 15%

REQUIRED TREATMENT TIME

- 7%

MILK YIELD LOSS

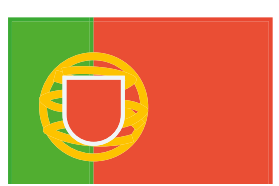
Lameness is a substantial issue in the dairy industry – it entails pain and discomfort for the cow, and results in decreasing fertility and milk yield for the farmer. Current solutions are cost-intensive and involve complex equipment. Lameness can be addressed without having to spend a high amount of resources. By employing leg mounted sensors and machine learning algorithms lame cattle can be identified at an early stage, and the data acquired can be sent directly to the farmer so that treatment of lameness can start immediately.



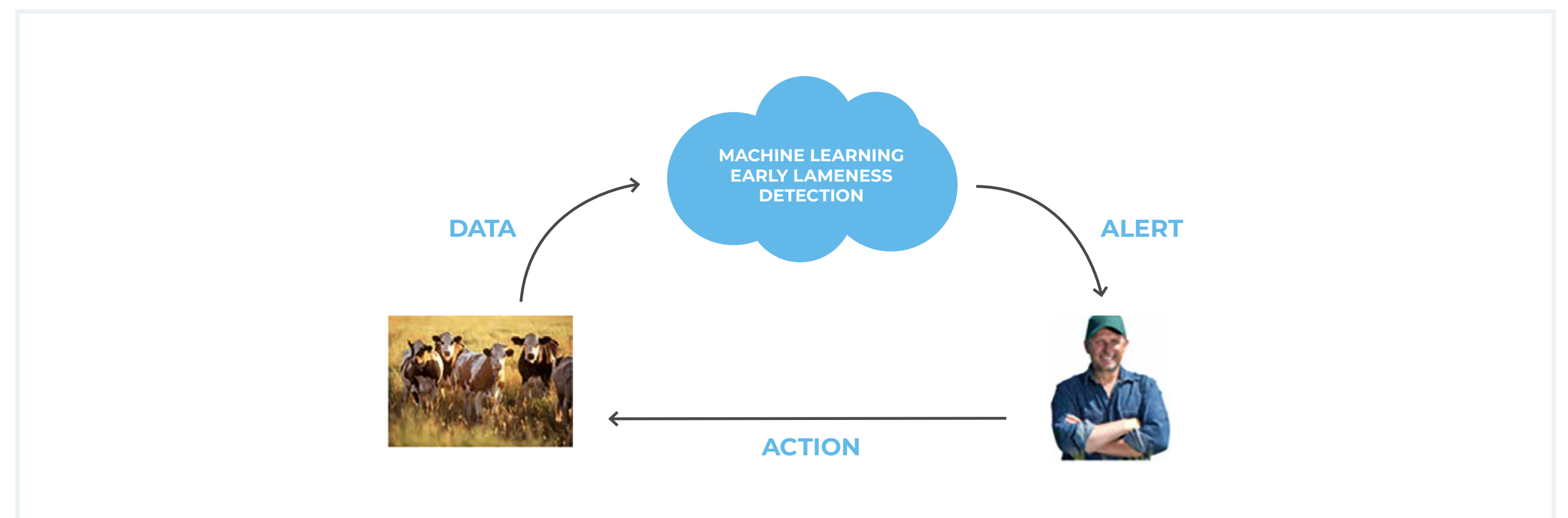
**PARTNERS (DEVELOPING TEAM)**  
• Technology Providers: ENGS, Herdsy  
• Research: WIT, Strathclyde  
• Algorithm Development: WIT

**THIRD PARTIES**  
• Farms: Ireland, Portugal, Israel, South Africa, United Kingdom

## COUNTRIES



## HOW IT WORKS



The use case will build upon an existing trial for early lameness detection deployed on a farm in South East Ireland and extend as well as integrate this deployment into other IoF2020 use cases. The current deployment on a farm with 150 cattle utilises leg mounted sensors and uses Machine Learning for early lameness detection. The team will attach sensors from two separate vendors on cattle in dairy and beef herds in three further countries. The approach will thus be validated in different environments and scenarios.

## PARTNERS



**ENGS** Systems  
Innovative Dairy Solutions



University of  
**Strathclyde**  
Glasgow

## THE IMPACT

### OUR OBJECTIVES

- Integrate existing Lameness Detection as a Service (LDaaS) into IoF2020 architecture;
- Extend the use case to integrate with existing third-party services;
- Expand the use case to new regions;
- Commercially validate the solution with multiple vendors.

### ON ECONOMY

- Reduced animal mortality (-5%);
- Decreased milk yield loss due to lameness (-7%);
- Increased beef production (+10%).

### OTHER IMPACT

- Lameness detection rate (+7%);
- Detection accuracy (87%);
- Improved reproduction efficiency index (+5%);
- Reduced usage of antibiotics (-5%).