



# UC4a: AgriSnap

Eoin Dooley DAFM

Dave Hearne Walton

NIVA Stakeholder Forum Santorini

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- Hybrid Mobile Application
- Design Thinking Approach
  - Interviews
  - Focus Groups
  - Workshops
  - Surveys
  - User Feedback
- Real Life testing
  - Real user feedback



UC objective

# UC 4a objective

## Geo-tagged Photo Application



An Roinn Talmhaíochta,  
Bia agus Mara  
Department of Agriculture,  
Food and the Marine

### Scenarios:

- Farmer input
- PA query request
- Inspection data
- 3<sup>rd</sup> party data

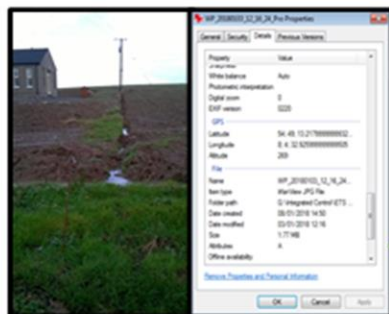


### Photo Request

- Email
- SMS

Monitoring & Performance

Photo App



Validation

Integration

Cleared for Payment

### NIVA UC4a

Setting the scene



Multi-actor approach



Prototype



Pilot & Evaluate

Training

Create Awareness

App Development

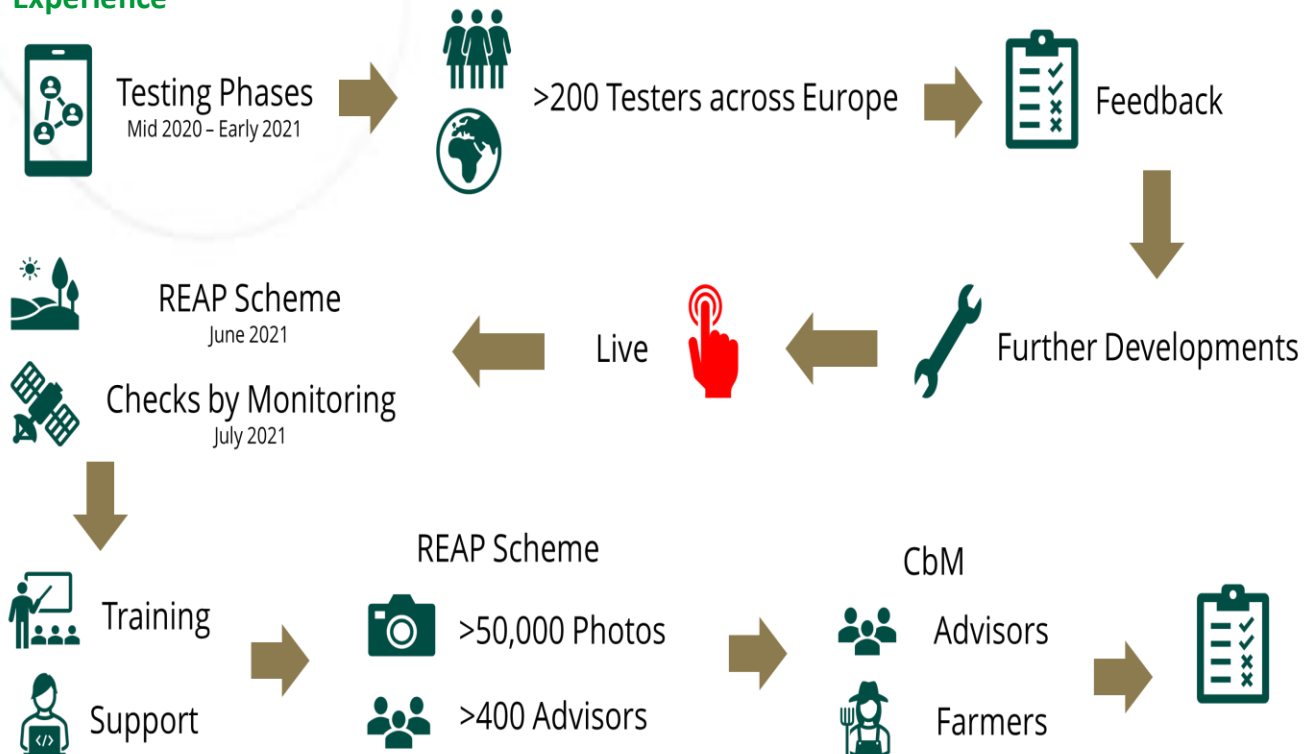
Roll Out

TSSG



# Results

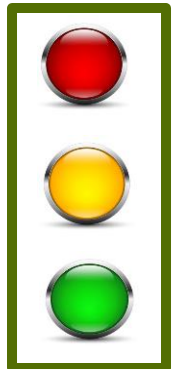
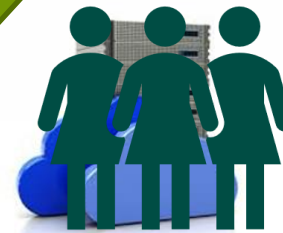
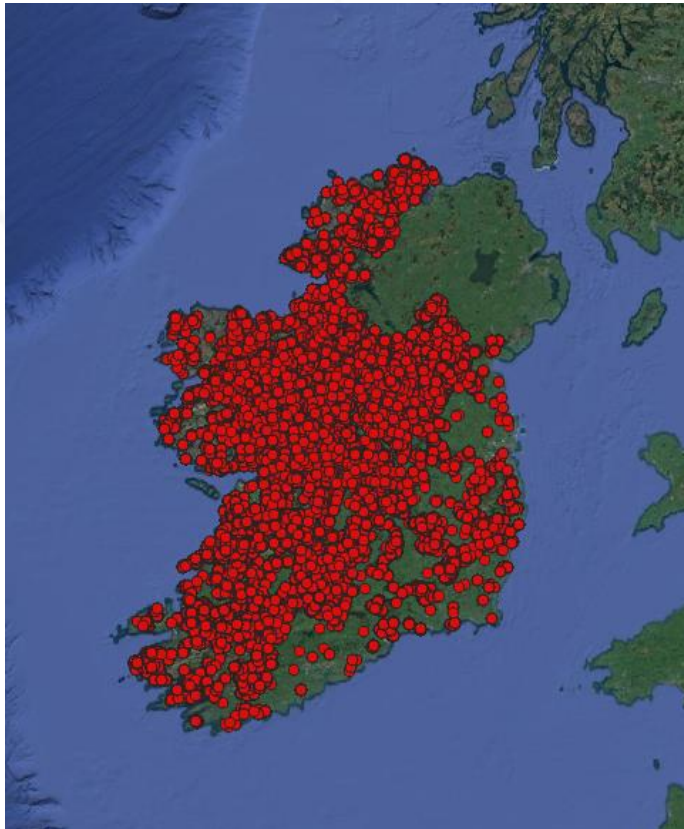
## Real World Experience



UC results

# Real World Experience

2022







# AgriSnap Testing Reflection

- Feedback from real users
- Improving functionality
  - Land Parcels
  - Augmented Reality
- Roll out to other schemes (custom scheme integration)
- Farmer training (webinars and videos)
- Photo Management (latest feature)
- Machine Learning / Artificial Intelligence (in progress)

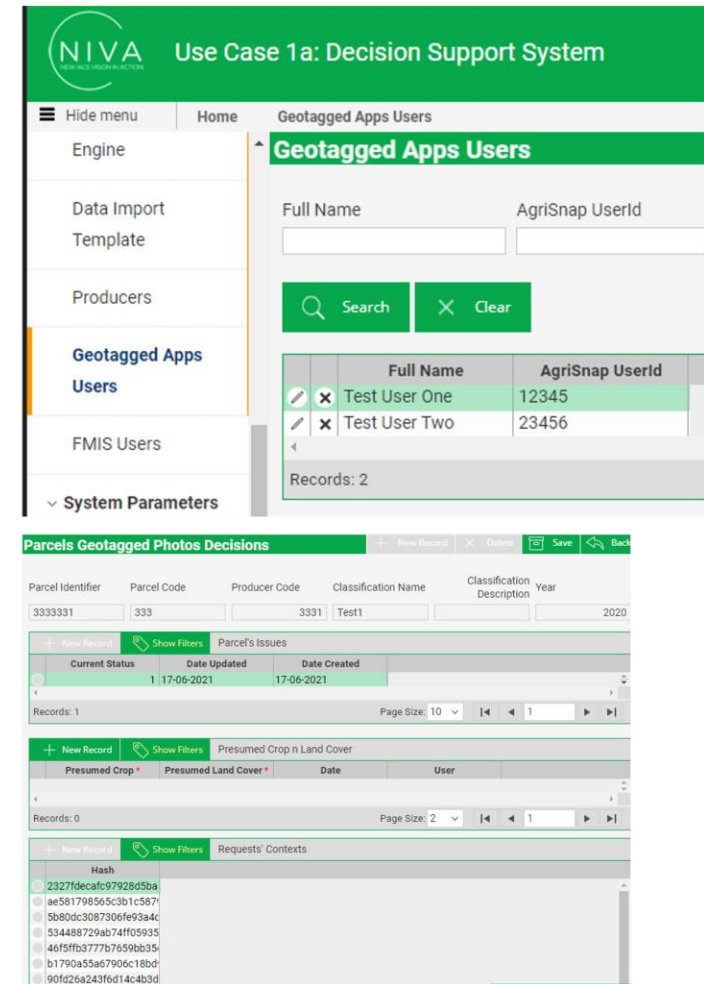
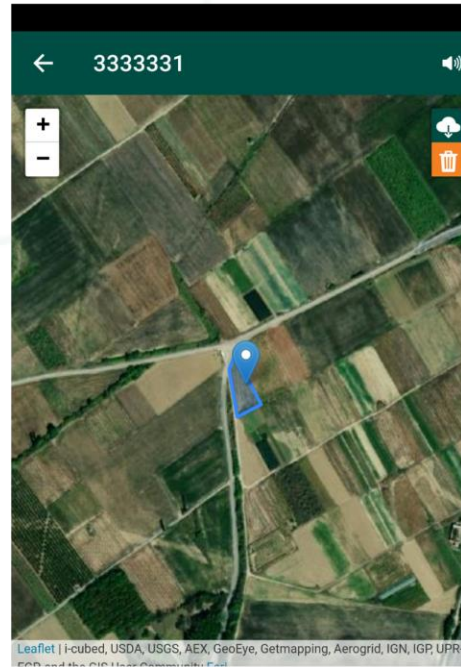
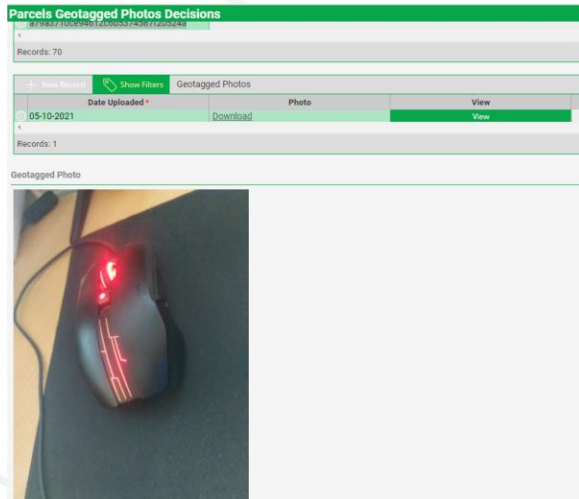




# UC results

- What are the main results of the UC
  - **Production Ready Mobile Application**
- What components did the UC delivered?
  - **A Hybrid Mobile Application for farmers, advisors and Department staff**
- For what are the components being used or planned to be used for?
  - **To assist with claims and on the spot checks for the new CAP**

# UC1a integration



# UC results in action





European  
Commission

Horizon 2020  
European Union funding  
for Research & Innovation

**NIVA**  
NEW IACS VISION IN ACTION

**AgriSnap**  
Use Case 4a



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Bia agus Mara  
Department of Agriculture,  
Food and the Marine

  
Teagasc  
AGRICULTURE AND FOOD DEVELOPMENT AUTHORITY

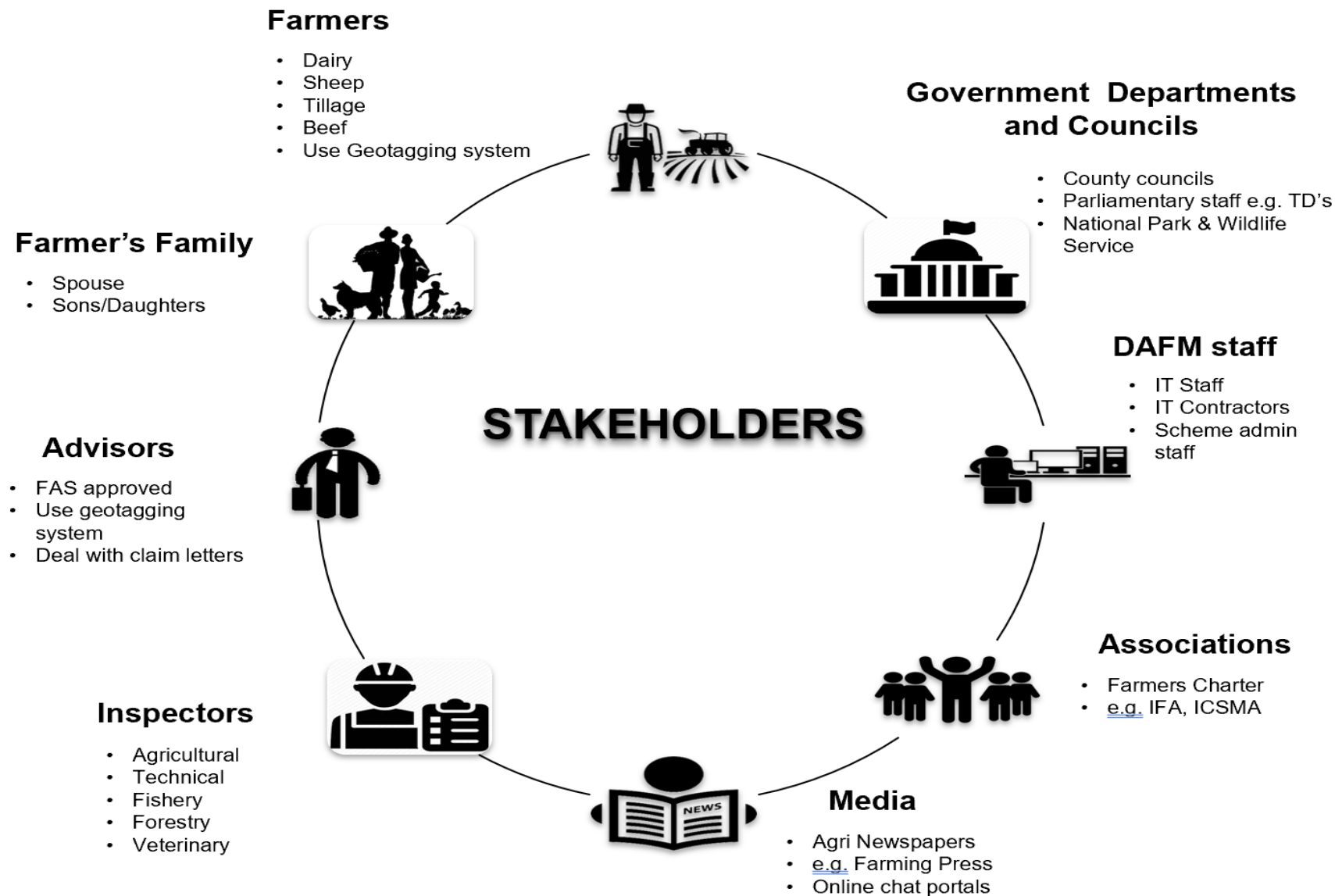


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Institute for Information and  
Communication Systems Science

UC benefits

# UC4a Benefits



## UC4a Benefits

- 20% reduction in errors in images from farmers and advisors (based on 2020 stats vs. 2022 stats)
- Faster claims process
- More transparency in communication
- Easier communication channel
- Extendable mobile app to suit all types of claims and processes

# UC challenges

NEW ACS VISION IN ACTION



# UC challenges

- Which pitfalls are identified?
  - Vast amount of images
- Which ideas are there to challenge these pitfalls?
  - Deep Learning and Machine learning
- What is when needed to challenge these pitfalls successfully?
  - Our approach (Following slides)

# Problem

- Using geotagged photos apps poses a new problem
  - How did we review so many images
  - In the last 9 months alone UC4a has received ~100,000 images
    - (image from 2022)



# Solution

- A platform to allow:
  - Machine learning
  - Deep learning
  - API communication layer
  - UI layer

The screenshot displays the NIVA web application interface. The header includes the NIVA logo (NEW RICS VERIFICATION ACTION) and the title "Automated Review and Pre-validation of Geo-tagged Agriculture Images for IACS". A "Logout" button is located in the top right corner. A green sidebar on the left contains navigation links: Home, Profile, About, and Help. The main content area features a form with the following elements:

- A section titled "Enter Application ID" with a text input field labeled "Application ID".
- A section titled "Choose Image(s)" containing a dashed box for image upload. Inside the box is a placeholder image of a landscape with a sun and mountains, and a green arrow icon. The text "Drag and Drop Images" is positioned to the right of the placeholder.
- An "Upload Image" button located below the dashed box.

# Solution – Implementation (UI)

- Upload Images
- Assign Application information
- Select an AI Model
- Result and Preview Results
- Database storage for data visualisation & historical information

Number of Images Uploaded: 1



Run AI Model

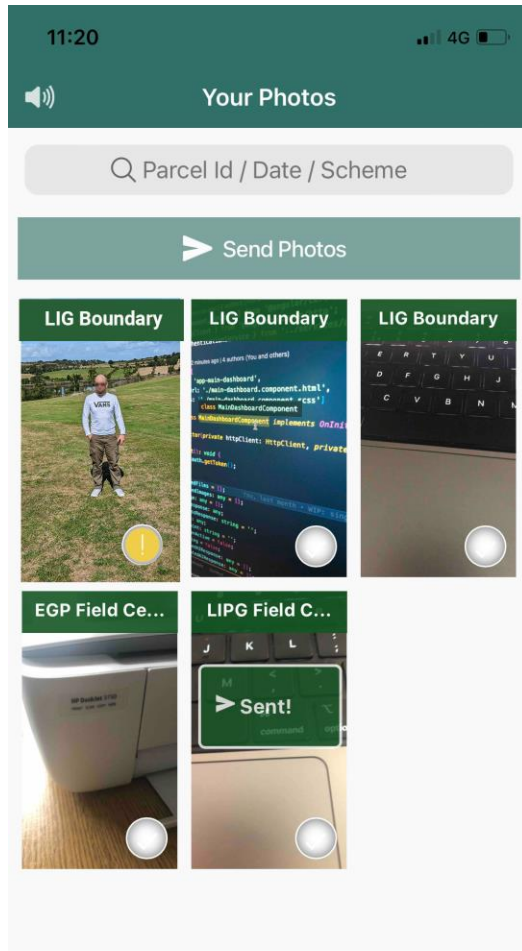
**Face Detected:** true

**Accuracy:** 0.9955843091011047

**Replace Image:**



# Solution – Implementation (API)



**Parcel Id:** Dry-Humid Acid Grassland

**Date Taken:** 22-09-2022 11:20:01 AM



Home



Photos



Land Parcels



Schemes



Home



Photos



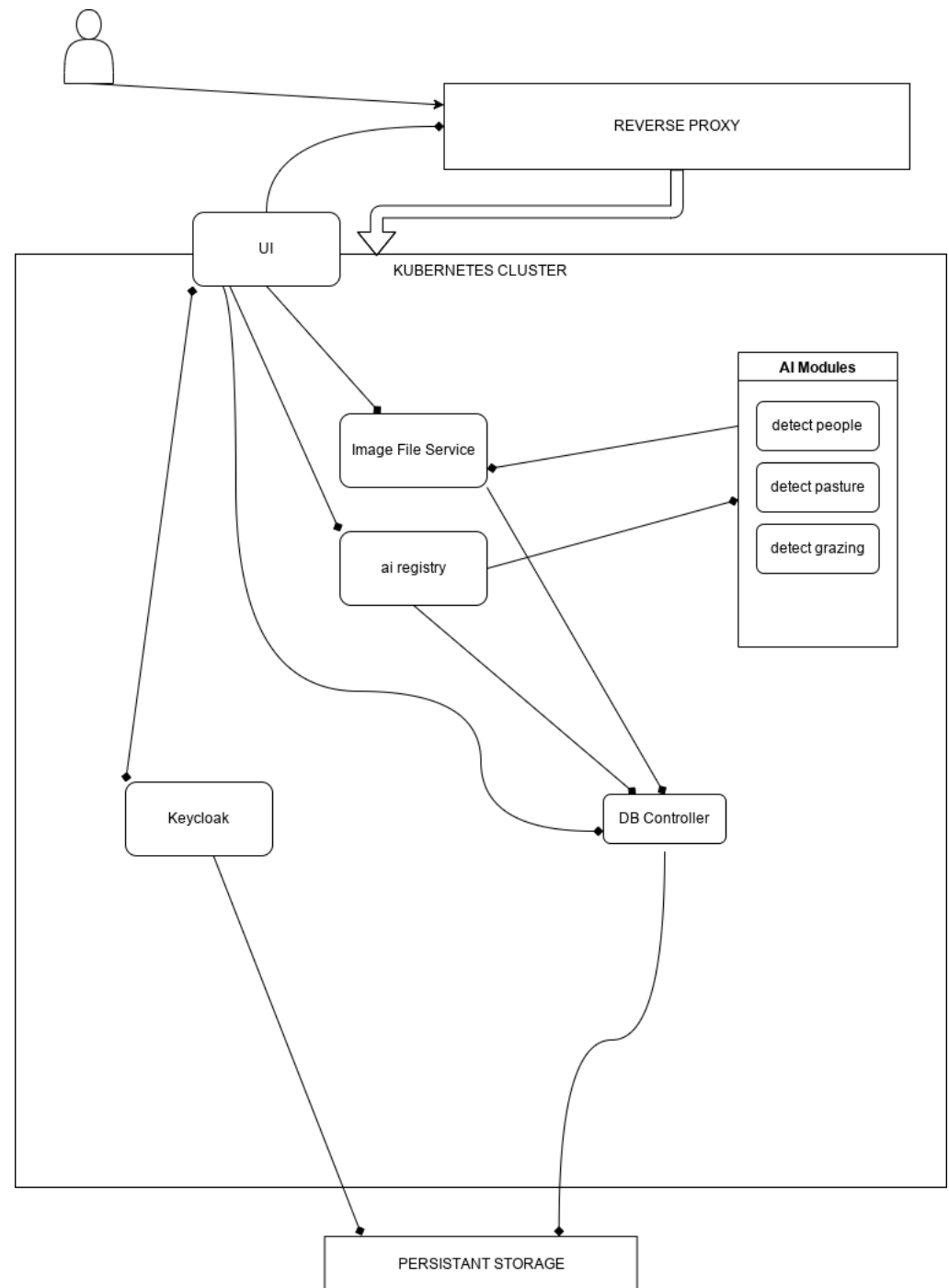
Land Parcels



Schemes

# Solution – Technical

- Kubernetes Cluster
- Dockerized Models
- AI as a Service (FastAPI)
- Micro-service architecture
- AI Registry

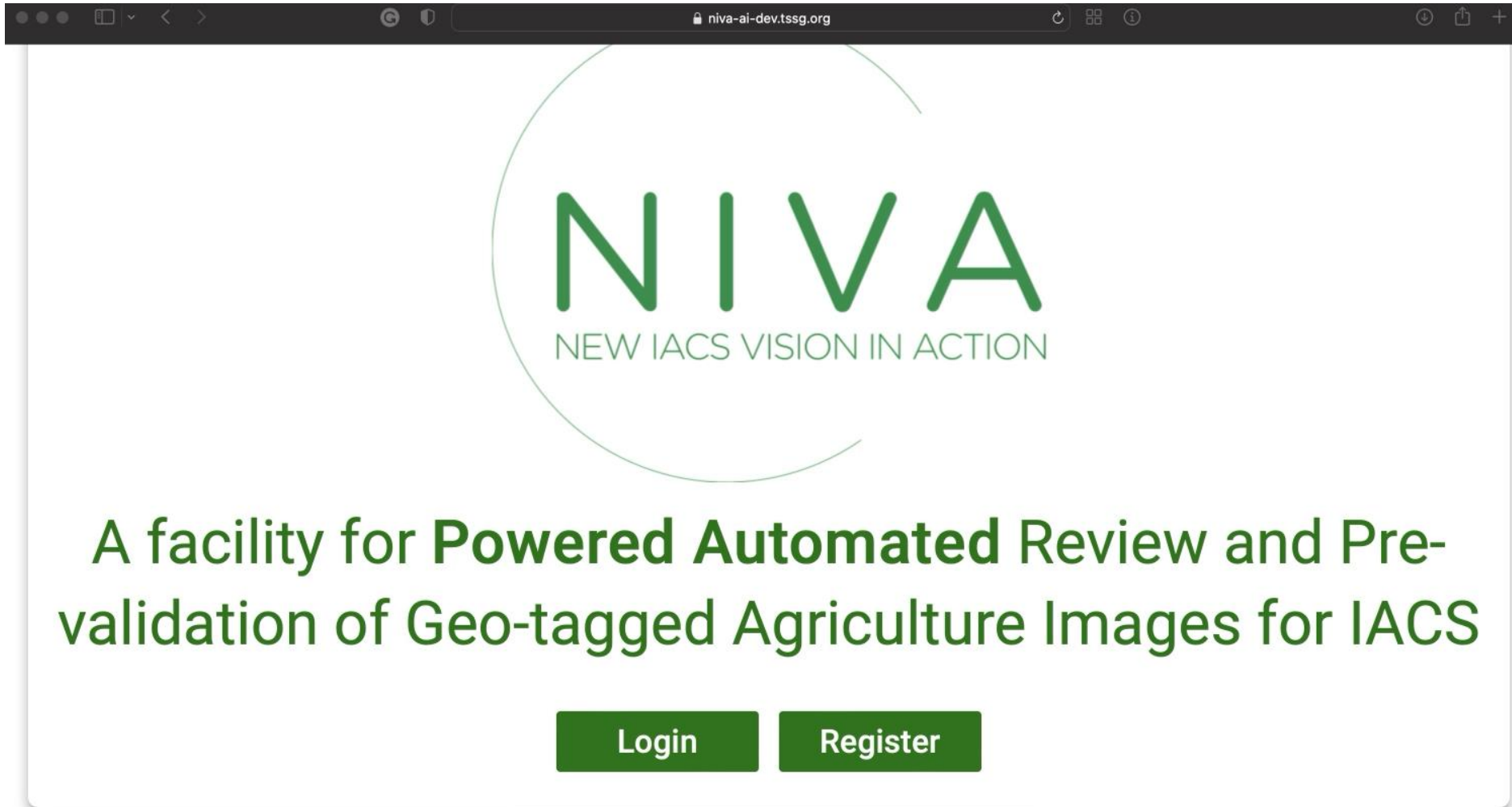


# Currently Running

- Privacy Protection
- Grazing Identification (Wageningen)
- Pasture Identification (Training in Progress)



# DEMO



Horizon2020  
European Union Funding  
for Research & Innovation



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# THANK YOU!



Waterford Institute of Technology



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