

NASA International SPACE  
APPS Challenges

# Services 4 CAP monitoring

October 6-8, 2023, Thessaloniki

# Welcome teams!



Introduction to ENVISION and CALLISTO



Our datasets



SWAGGER



KAGGLE



The Challenge!



# THE COMMON AGRICULTURAL POLICY: KEEPING THE AMBITION HIGH in EUROPE

POLICY PERSPECTIVES ON AGRICULTURE AND THE DEVELOPEMENT OF NATIONAL STRATEGIES



OUR FOOD PLANET FUTURE



SOIL

IT'S A TREMENDOUSLY IMPORTANT ISSUE

IT'S IMPORTANT TO PROVIDE TO FARMERS

TECHNOLOGY KNOWLEDGE

FIGHT CLIMATE CHANGE



OBJECTIVES

REDUCING GREENHOUSE EMISSIONS

WE HAVE TO GET INTO ACTION!

DEVELOPING A STRATEGIC PLAN



IMPROVING THE CONDITION IN THE COUNTRYSIDE

PROTECTION OF SOIL



ASSESSMENT BASED ON S.W.O.T. ANALYSIS

STRUCTURED PROCESS

INTRODUCING MEASURES MORE EQUAL FOR FARMERS



FOOD IS HEALTH

THE SOCIETY IS INTERESTED IN NON GMO, ORGANIC FOOD



RELATIONSHIP

AGRICULTURAL POLICY IS REALLY COMPLEX



MANY ASPECTS

MULTIPLE FOCUS



SUPPORTING INNOVATION and COOPERATION



REINFORCEMENT OF NETWORK

STRATEGY

MAKING THE USE OF FUNDS MORE EFFECTIVE

SOLVING the FRAGMENTATION



RESEARCH and AGRICULTURE



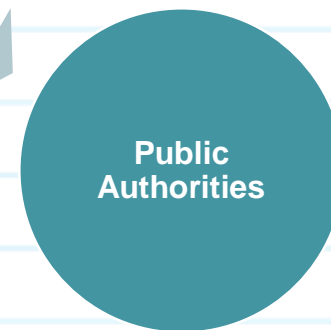
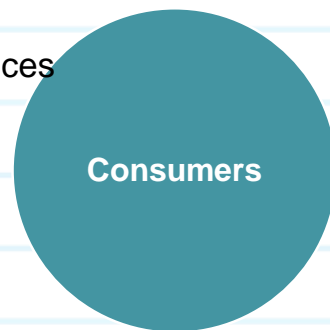
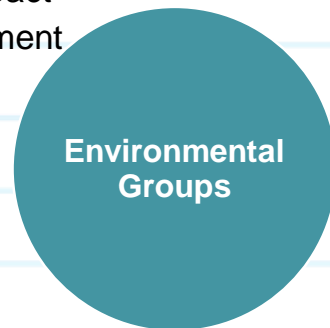
STORYTELLING about the VALUE of FOOD





Advocacy for Sustainable Practices  
Monitoring Environmental Impact  
Collaboration for Policy Alignment

Influence on Policy Preferences  
Food Quality and Safety  
Market Impact



CAP Funding Recipients  
Regulatory Compliance  
Policy Implementation

Policy Advocacy  
Collaboration in Policy Design  
Implementation Partnership

Policy Implementation  
CAP Fund Administration  
Monitoring and Compliance

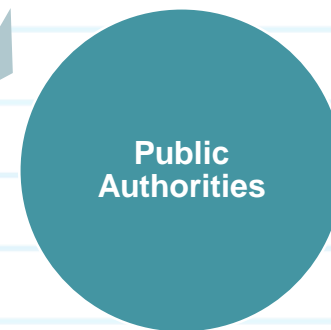
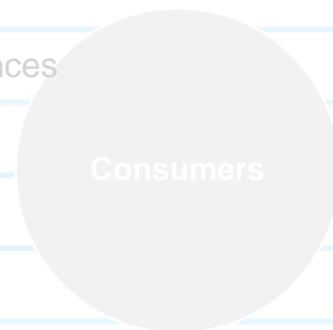
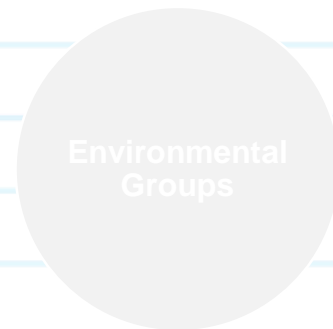
Policy Development  
Budget Allocation  
Oversight and Review





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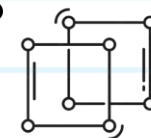
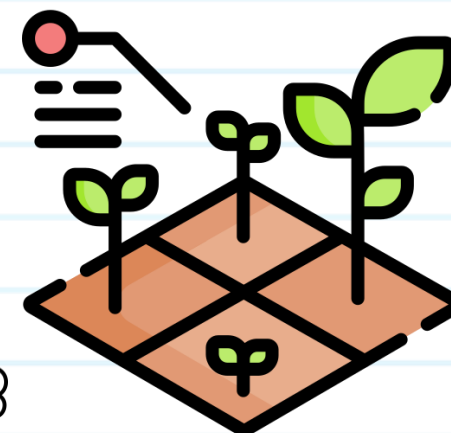
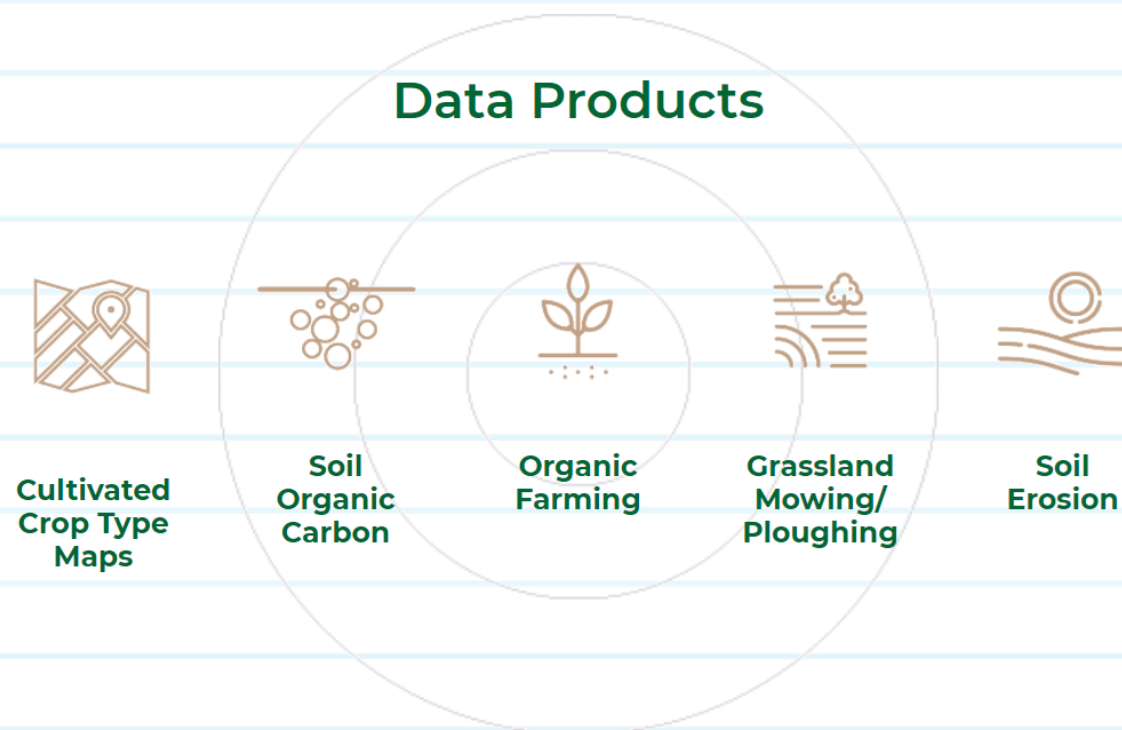
Policy Advocacy  
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# ENVISION

<https://zenodo.org/record/8334122>



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 869366.

# CALLISTO



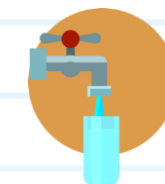
## Common Agricultural Policy (CAP) monitoring

Virtual monitoring of the implementation of the CAP obligations.



## Satellite Journalism

Assessment of the reliability of the news that environmental journalists receive about pollution events.



## Water quality assessment

Virtual presence in water resources for water quality assessment using EO and in-situ data



## Land border change detection

Improving the existing approaches and increasing the value of the current Border Surveillance Services.



# Our datasets

- **3 Countries:** Lithuania, Cyprus, Serbia
- **Parcels provided:**
- **Data provided:**
  - Business cases related endpoints
  - Crop classification/ various-data/ mowing detection/ NDVI related endpoints
  - Parcel geometries and LPIS data related endpoints
  - Sentinel-2 optical images (from November 1st, 2021, to May 31st, 2022 for Cyprus)
  - Sentinel-1 SAR data
  - Mapillary Street-Level photos (25.715)





# Swagger



Web app Development and API consumption  
for enhanced CAP services visualisation

- **Add-on tool:**  
<https://api.envision.draxis.gr/api/doc/>
- **ENVISION platform:**  
<https://doi.org/10.5281/zenodo.8334122>
- Dataset detailed description
- Examples/ Responses
- Schemas

The screenshot displays the Swagger UI for the ENVISION API. It features a 'Parameters' section with a table of query parameters:

Name	Description
<b>latitude</b> • required number(double) (query)	Latitude value in decimal degrees
<b>longitude</b> • required number(double) (query)	Longitude value in decimal degrees
<b>business_case_key</b> • required string (query)	The country where a parcel is registered
<b>year</b> • required integer (query)	Year of declaration
<b>radius</b> • required integer (query)	radius

Below the parameters, there are input fields for each parameter with the following values: latitude=35.1985284, longitude=33.3777018, business\_case\_key=cyprus, year=2022, and radius=1000. At the bottom, there is an 'Execute' button and a 'Clear' button. The 'Responses' section shows the 'Curl' command and the 'Request URL'.

```
curl -X 'GET' \
  'https://api.envision.draxis.gr/api/parcels/find-by-point-radius?latitude=35.1985284&longitude=33.3777018&business_case_key=cyprus&year=2022&radius=1000' \
  -H 'accept: application/json'
```

Request URL:  
[https://api.envision.draxis.gr/api/parcels/find-by-point-radius?latitude=35.1985284&longitude=33.3777018&business\\_case\\_key=cyprus&year=2022&radius=1000](https://api.envision.draxis.gr/api/parcels/find-by-point-radius?latitude=35.1985284&longitude=33.3777018&business_case_key=cyprus&year=2022&radius=1000)

# Kaggle



## A Multi-Source Fusion Challenge for Crop Classification in Cyprus

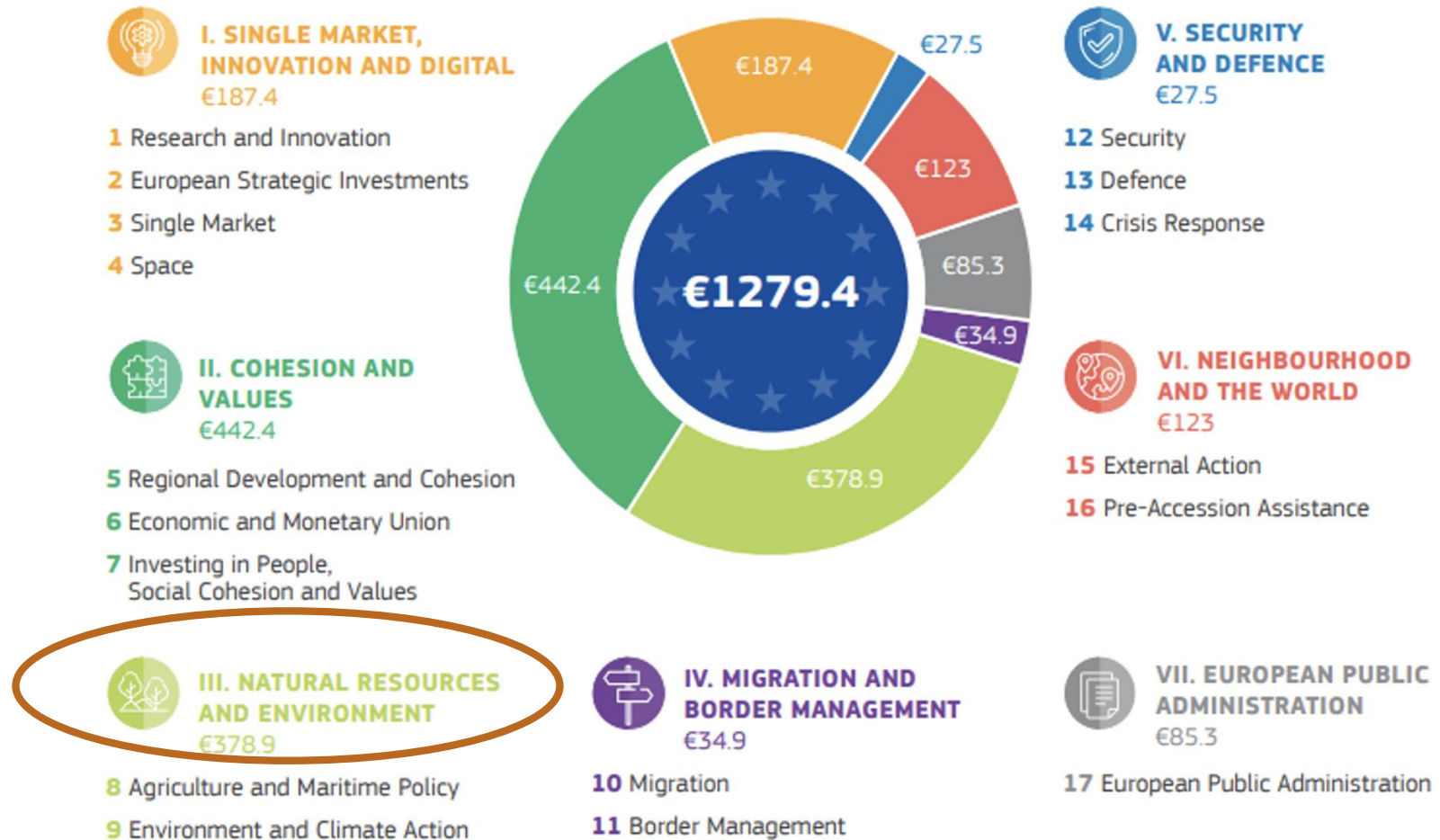
### Overview

Welcome to the "Multi-Source Fusion Challenge for Crop Classification in Cyprus" In this dynamic competition, participants will harness the power of both satellite and street-level imagery to tackle the task of crop classification. The challenge revolves around the fusion of data from multiple sources, enabling a profound understanding of agricultural landscapes in Cyprus. Your mission is to develop innovative machine learning models that can accurately classify crops using the diverse data at your disposal. From Sentinel-1 and Sentinel-2 satellite images to Mapillary street-level photos, your solutions should showcase the synergy of these different perspectives, all while focusing on the unique agricultural context of Cyprus. Join us in this cross-dimensional journey to advance crop classification and contribute to sustainable agriculture in the Mediterranean region, making a real impact on the future of farming.



- **Competition on Kaggle:**  
<https://www.kaggle.com/competitions/nasa-space-apps-crop-vision-fusion-challenge>
- **ENVISION platform:**  
<https://doi.org/10.5281/zenodo.8334122>
- Dataset detailed description
  - Sentinel data
  - Street-Level pictures
- Evaluation methodology
- Deadline → Sunday, October 8 17:00

# The Challenge





# Tomorrow

- Presentation of the Add-on tools: Swagger and Kaggle
- Presentation of examples



**simplicity**

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Project Manager



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Scientist



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Project Manager

