



UC1a: Earth Observation Monitoring & Traffic Lights

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VC 1A

EARTH OBSERVATION MONITORING
AND TRAFFIC LIGHTS

PAYING AGENCY

DATA

1ST DECISION

2ND DECISION

GEO-TAGGED
PHOTOS

AUTOMATED
CONFIRMATION OF
ELIGIBILITY RULES



NON-ELIGIBLE



(MORE DATA NEEDED)
INCONCLUSIVE

ELIGIBLE

CONSECUTIVE
DECISIONS

WARNING
ALERTS

PARCEL
LEVEL



AMS
GSAA
CBMS
LPIS
IACS

LESS BURDEN

LESS PENALTIES

TIME SAVING

LESS FIELD VISITS



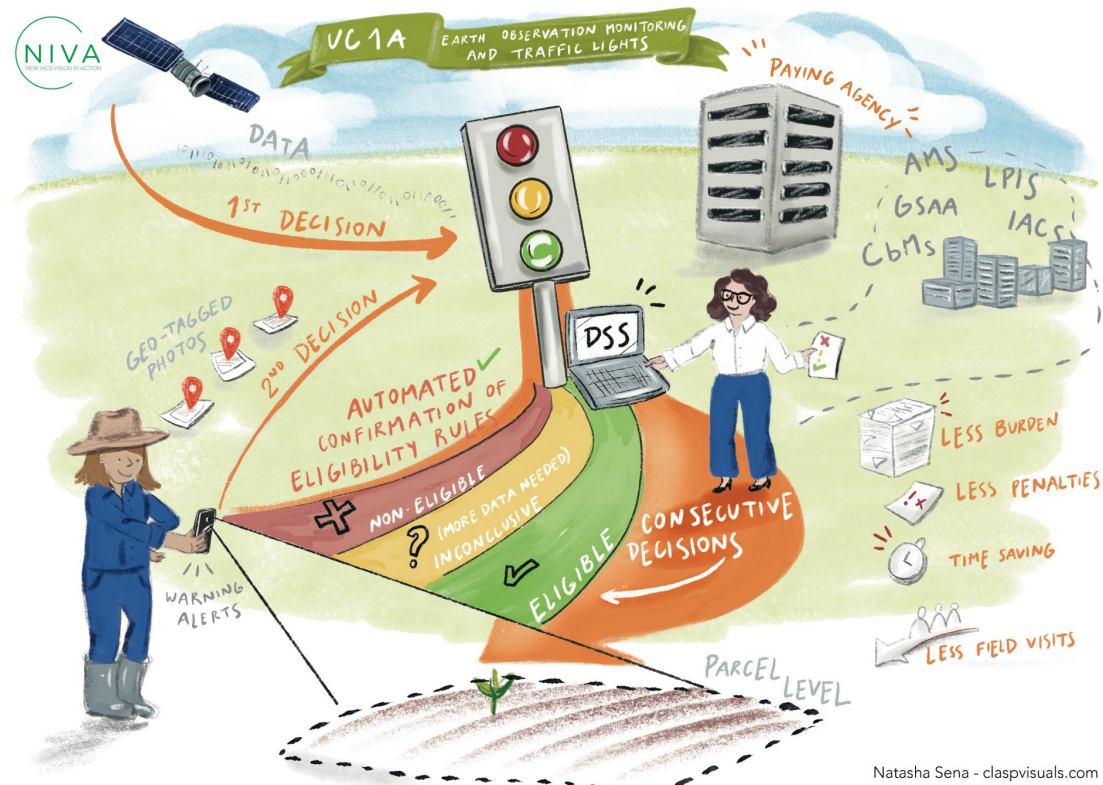
UC objective

UC objective

What is the UC about?

A decision support system aiming to help the implementation of Checks by Monitoring as well as the forthcoming Area Measurement System

- integrates EO-driven results originating from a classification engine
- secondary data as extra proof of eligibility (geotagged images)



UC objective

What is the UC about?

- What were the objectives
 - produce traffic light codes in a parcel level resulting from EO processing
 - build a business rule engine to check eligibility criteria for: Basic Payment Scheme, Voluntary Coupled Schemes & Crop Specific Payment for Cotton
 - automatically send and receive data (alerts and field photos) in a seamless manner

UC results

UC results

- *What are the main results of the UC?*
- *What components did the UC delivered?*
- *For what are the components being used or planned to be used for?*

UC results

1 tool (NIVA DSS)- 5 subcomponents

Data Import

- Excel sheets (crop, land cover)
- Shp (crop type mapping)
- Data import template

Business Rule Engine

- Ruleset per eligibility criteria

Decision Engine

- 1st round of decision making
- Geotagged images-FMIS calendars
- 2nd round - Integrated decisions
- Dashboard - sequence of decisions

Field Map

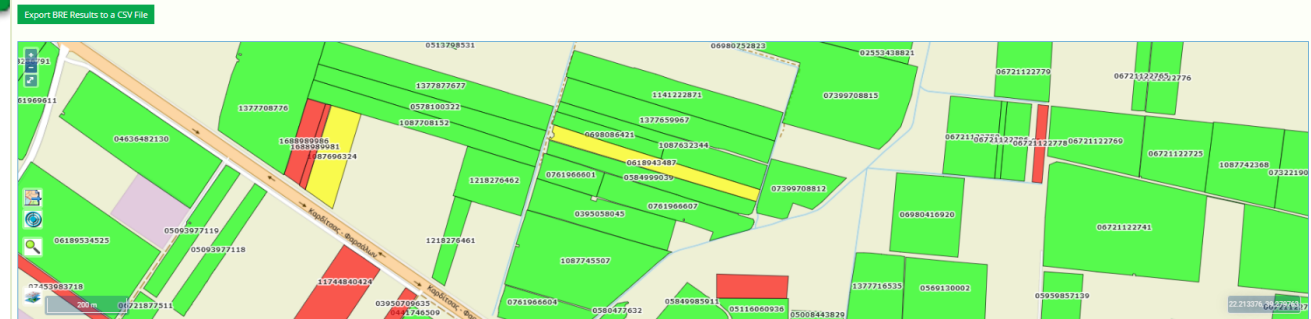
- Viewer (decision-making result, traffic light colour)

Data Export

- API

The screenshot shows the 'Eligibility Criteria Sets' configuration page in the NIVA DSS. The left sidebar contains navigation links: Decision Support Engine, Data Import, Aid Schemes / Dashboard / Field Map, BRE Runs, Geotagged/FMIS Decisions, Administration, Business Rules Engine, Data Import Templates, and Producers. The main area is divided into two sections: 'Crops in Land Cover Types' and 'Rules'. The 'Crops in Land Cover Types' section has a table with columns for Crop Name and Crop Code, showing one record for 'COTTON' with code '5'. The 'Rules' section has a table with columns for Order, Prediction 1st, Comparison Operator 1st, Probability Threshold 1st (%), Prediction 2nd, Comparison Operator 2nd, Probability Threshold 2nd (%), Comparison Operator 1st+2nd, Probability Threshold 1st+2nd (%), and Decision Light. It shows four rules for 'COTTON' with various probability thresholds and decision lights (Green, Yellow, Red). A dropdown menu for 'Evaluation Method' is open, showing options: Choose one, Crop, Land Cover, and Crop to Land Cover.

The screenshot shows the 'Decisions per Parcel' table in the NIVA DSS. The table has columns for Identifier, Parcel's Code, Producer's Code, and Decision Light. It displays a list of parcels with their respective codes and decision lights. The 'Decision Light' column shows values like Green, Yellow, and Red. The table is paginated, showing records 1 to 30294.



UC results

1 tool (NIVA DSS)- 5 subcomponents

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Field Map

- Viewer (decision-making result, traffic light colour)

Data Export

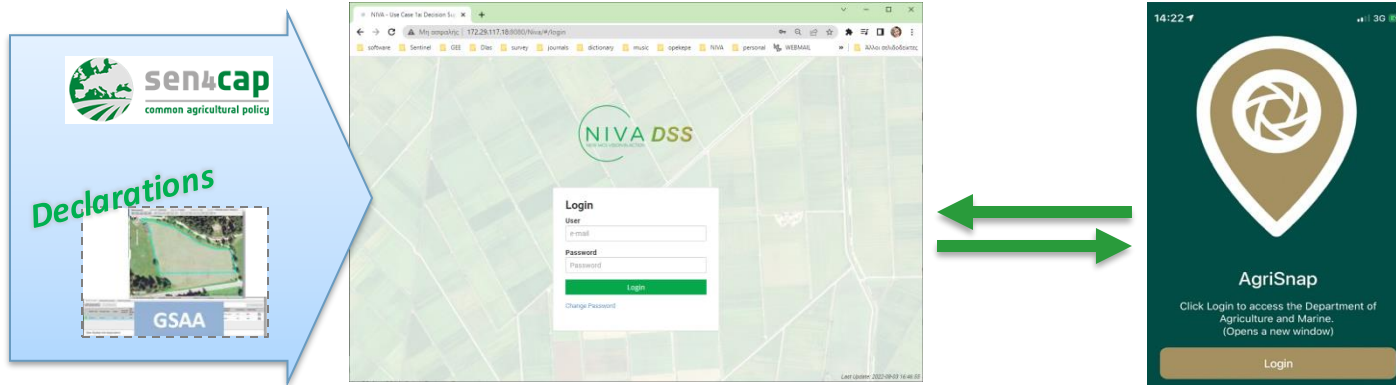
- API

The screenshot displays the NIVA Decision Support System (DSS) interface. The main header shows the NIVA logo and the title 'Use Case 1a: Decision Support System'. The left sidebar contains a navigation menu with the following items: Decision Support Engine, Geotagged/FMIS Decisions, Administration, Business Rules Engine, Data Import Templates, Producers, Geotagged app Users, Tools, System Configuration, Classification Engine, Crop Types, Land Cover Types, and Documentation. The main content area is divided into several sections: 'Auxiliary Data Decisions' with search filters for Identifier, Code, Producer's Code, Reference Year, and Hash; 'Geotagged/FMIS Decisions' with a table of records; 'Geotagged Photos' with a table of uploaded photos; and 'Geotagged Shots' with a map view. Two pop-up windows are visible: 'Select Cultivation' and 'Select Cover Type'. The 'Select Cultivation' window shows a list of crops with their codes: apples (1), asparagus (2), beans (3), chickpea (4), and cotton (5). The 'Select Cover Type' window shows a list of cover types: Arable, Fallowland, non eligible, Pasture, and Permanent. Blue arrows indicate the flow of data from the 'Geotagged Photos' and 'Geotagged Shots' sections to the 'Select Cultivation' and 'Select Cover Type' windows.

UC benefits

UC Benefits

- *What are the benefits of the UC?*
- *How does the UC contribute to the CAP and IACS?*
- *When will the benefits are available for the user?*
- *Who or what benefits most from this UC?*



UC Benefits

- Benefits for PA
 - Automated management of big-files and possibility to check eligibility for different schemes
 - Feedback from secondary data integrated in the workflow without extra effort
 - Visualization and management of geotagged photos so as to use them in the decision process
 - Simplified overview of the consecutive decision rounds throughout a claim year for each parcel

NIVA Use Case 1a: Decision Support System

u1@Niva Logout

Hide menu Home BRE Runs BRE Runs

Decision Support Engine

- Data Import
- Aid Schemes / Dashboard / Field Map
- BRE Runs**
- Geotagged/FMIS Decisions
- Administration
 - Business Rules Engine
 - Data Import Templates
 - Producers
 - Geotagged app Users
 - Tools
 - System Configuration
- System Parameters
 - Classification Engine
 - Crop Types
 - Land Cover Types

BRE Runs

Description* Data Import Year of Reference Eligibility Criteria Set Date Run

Cotton_trik Cotton_trik0208 2022 COTTON 07-09-2022

Use this BRE Run in a Payment Scheme

Identifier	Parcel's Code	Producer's Code	Decision Light
0000000000	0000000000	0000000000	Green
0000000000	0000000000	0000000000	Green
0000000000	0000000000	0000000000	Green
0000000000	0000000000	0000000000	Green
0000000000	0000000000	0000000000	Green

Records: 30294

Export BRE Results to a CSV File

Declarations

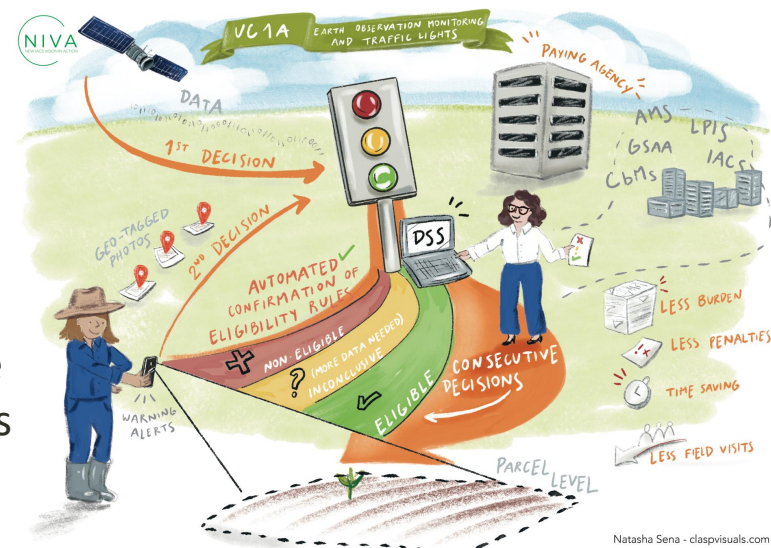
sen4cap common agricultural policy

GSAA

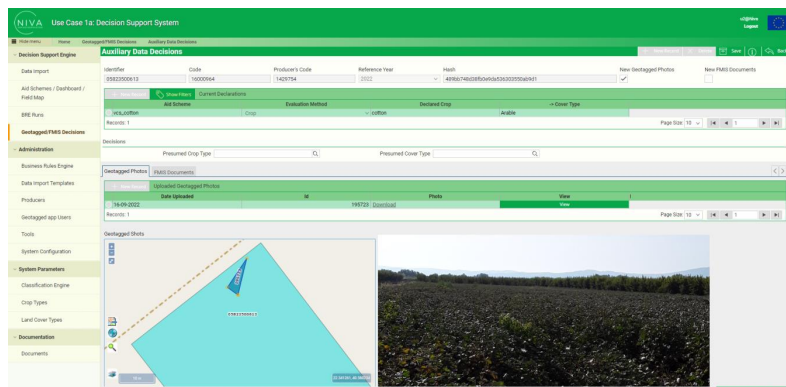
UC Benefits

Benefits for farmers: CbMs tools ensure equal treatment regarding penalty application (not only part of the control population is checked, the 5% sample).

- Farmers get immediate warnings about inconclusive assessments (yellow) and can send directly feedback (geotagged)
- Increased transparency guaranteed through the direct sent of 'alerts' to check/correct their declarations
- Decreased objections, no need to appeal because the whole procedure of declaration amendment is done prior of payment



Natasha Sena - claspsvisuals.com

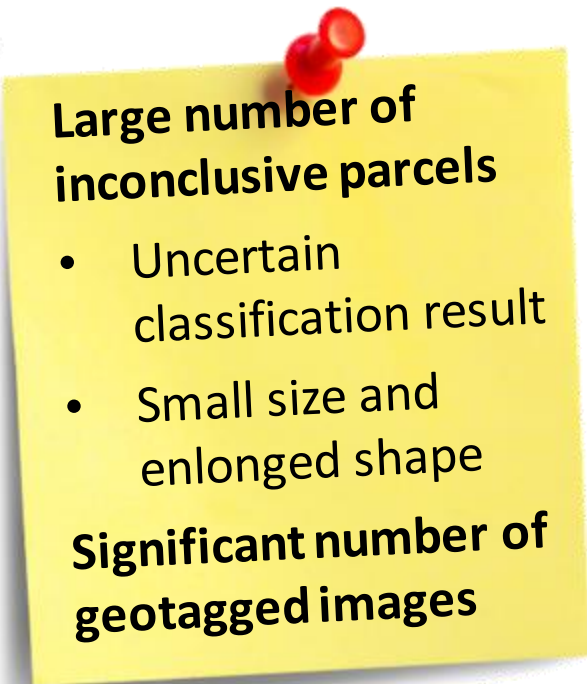


UC challenges

NEW ACS VISION IN ACTION

UC challenges

- *Which pitfalls are identified?*
- *Which ideas are there to challenge these pitfalls?*
- *What is needed to challenge these pitfalls successfully?*



Large number of inconclusive parcels

- Uncertain classification result
- Small size and elonged shape

Significant number of geotagged images

- Involve extra tools in the DSS traffic light assessment
- Combine tools
 - WP6 extra components and tools from other UCs and integrate them to a tool facing the needs of CbM and AMS
 - Use them operationally in 2023 (CAP 2023-2027)
- Interest on super-resolution processing of Sentinel 2 images
- Interest on AI solution on geotagged automatic analysis made in the context of NIVA

THANK YOU!



Waterford Institute of Technology



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