D5.5 INTERMEDIATE REPORT ON THE EVALUATION OF SERVICES

Project: Monitoring of Environmental Practices for Sustainable

Agriculture Supported by Earth Observation

Acronym: ENVISION

Document Information

Grant Agreement Number	869366	Acronym	ENVISION
Full Title	Monitoring of Environmental Practices for Sustainable Agriculture Supported by Earth Observation		
Start Date	1st September 2020	Duration	36 months
Project URL	https://envision-h2020.eu/		
Deliverable	Deliverable 5.5 Intermediate report on the evaluation of services		
Work Package	WP5 – Business Cases Implementation and Evaluation		
Date of Delivery	Contractual	M26	Actual	M26
Nature	Report	Dissemination Level	Public
Lead Beneficiary	EV ILVO		
Responsible Author	Tuna Coppens		
Contributions from	Panagiotis Ilias, Bert Callens		

Document History

Version	Issue Date	Stage	Description	Contributor
D0.1	22/10/2022	Draft	First Draft for review	EV ILVO
D0.2	26/10/2022	Draft	Comments	DRAXIS
F1.0	27/10/2022	Final	Final	EV ILVO

Disclaimer

This document and its content reflect only the author's view, therefore the EASME is not responsible for any use that may be made of the information it contains!

CONTENT

LIST OF TABLES

LIST OF FIGURES

List of Abbreviations

A/A	Abbreviation	Description
1	AB	Advisory Board
2	BAP	Business Cases Action Plan
3	BC	Business Case
4	BCE	Business Case Evaluators
5	BCF	Business Case Facilitator
6	BIG	Business Cases implementation Guide Lines
7	CA	Consortium Agreement
8	Cbs	Certification Bodies
9	DP	Data Provider
10	EC	European Commission
11	EnU	End Users
12	EO	Earth Observation
13	EU	European Union
14	LHCs	Lighthouse Customers
15	Pas	Paying Agencies
16	PC	Project Coordinator
17	PP	Platform Provider
18	PSC	Product & Service Consumers
19	SOC	Soil Organic Carbon
20	SP	Services Provider
21	WP	Work Package
22	WPL	Work Package Leader
22	PMI	Project Management Institute
23	PBA	Professionals Business Analyst
24	CCLR	Collect Create Link and Rate
25	HE	Horizon Europe (Program)

Introduction

ENVISION's overall objective is to fulfil the need for continuous and systematic monitoring of agricultural land, shifting the focus from fragmented monitoring limited to specific fields and dates (or time windows) to territory-wide and all-year-round monitoring. Acting as a trailblazer for organisations that monitor environmental- and climate-friendly agricultural practices stemming from EU policy. To achieve this, ENVISION aims to develop its toolbox of services that meets its potential customers' need for continuous and systematic monitoring of sustainable agricultural practices through a customer-driven process with meaningful collaboration with future customers (Business customers, Lighthouse Customers).

In the ENVISION project, WP5 Business cases implementation and evaluation plays a critical role in the succession and effectiveness of the project. More specifically, the developed ENVISION platform, data products and services will be used, tested and evaluated in various business cases within WP5 to ensure that the developed services reach the required maturity and can cover specific customer needs related to the Common Agricultural Policy (CAP).

In this specific deliverable, the scope is to report the first evaluation of the developed Envision data products and services from three different perspectives related to;

- business value and acceptance,
- performance, usability, effectiveness
- and impact at economic, environmental and societal levels.

This document will provide necessary feedback from future customers[1] in order to support the improvement of the data products and services (WP3 and WP4) and to support the commercialization and dissemination activities of the ENVISION project (WP6 and WP7).

This deliverable consists of 4 chapters,

- The first chapter presents the general objectives of WP5 and Task 5.3, as well as the interactions between T5.3 and the other tasks and WPs.
- The second chapter provides an overview of the methodological framework. It describes the applied methodology, tools and tailoring elements for a comprehensive and robust evaluation process, including the necessary definitions and explanations of the concept and fields in which the products will be evaluated.
- The third chapter consists of the steps taken in compliance with the methodology adopted for the evaluation process, together with the work carried out under each step and the outputs of this work.
- The information and data gathered and analysed (questionnaire data, interview data, collected impact indicator values) are presented in chapter 4.
- The last chapter of the deliverable summarises the overall findings.

---

[1] Business customers (ENVISION partners NPA, LV, CAPO, OCS), who are project partners and who will participate from beginning of the project to its completion.

1 Introduction WP5 and Task 5.3

1.1 WP5 objectives and the role of Task 5.3 Evaluation of business cases

WP5 main objective is to deploy, test and evaluate ENVISION data products and services developed in WP3 and WP4. In short, within WP5:

- **Products and services** developed within WP3 and WP4 **are used and tested under different conditions** by the Business Customers (BC) and the Lighthouse customers (LC).
- **Product and services are evaluated** for each business case individually.
- **Evaluation results** will be used to improve the data products and service (WP3 and WP4) and to support the commercialization and dissemination activities of the ENVISION project (WP6, WP7).

In the ENVISION project, WP5 Business cases implementation and evaluation plays a critical role in the succession and effectiveness of the project. More specifically, the developed ENVISION platform, data products and services will be used, tested and evaluated in various business cases within WP5 in order to ensure that the services developed, reach the required maturity and can cover specific customer needs related to the Common Agricultural Policy (CAP).

To achieve the above-mentioned objectives, Task 5.3 aims to evaluate each business case individually, focusing on three different perspectives related to:

- The performance, usability and effectiveness.
- The business value and acceptance.
- The impact on an economic, environmental, and societal level.

1.2 WP5 and Interactions with other WPs

To support a better understanding of the WP5 role within the Envision project, we will describe the interactions of WP5 with the other WPs below (Figure 1):

- The identification of Paying Agencies' (Pas) and Certification Bodies' (CBs) needs occurs in WP2 Commercial Service Requirements. WP5, under Task 5.3 will consider user requirements identified in WP2 as a baseline for the performance, usability and effectiveness evaluation process.
- WP3 designs and develops the EO-enabled data products offered through the ENVISION platform while considering the end user needs identified in WP2.
  The results of WP3 (data products) will be used (Task 5.2) and evaluated 5 (Task 5.3) in WP5. WP5 will therefore identify the needed improvements and updates in the evaluation reports, considering identified needs and priorities (WP2), and **provide them to WP3 actors in the evaluation reports,** using the WP2 user stories as a baseline.
- WP4 designs and develops all aspects of the ENVISION platform. The identified end-user needs of WP2 feed into WP4, and there is an exchange of information among WP2 and WP4 as the platform and ENVISION service are **co-produced** with the end-users to ensure that they are tailored to their needs**.**

WP4 (services) results will be used (Task 5.2) and evaluated (Task 5.3) in WP5. WP5 will identify the needed improvements and updates in the evaluation reports, considering identified needs and priorities (WP2), and provide them to WP4 actors.

- **The added value and acceptance** of the proposed services will be evaluated in the WP5 (Task 5.3) to feed WP6

- WP5 (Task 5.3) evaluation results will be provided to WP6 and WP7 to support the **commercialization and dissemination activities** of the ENVISION project.
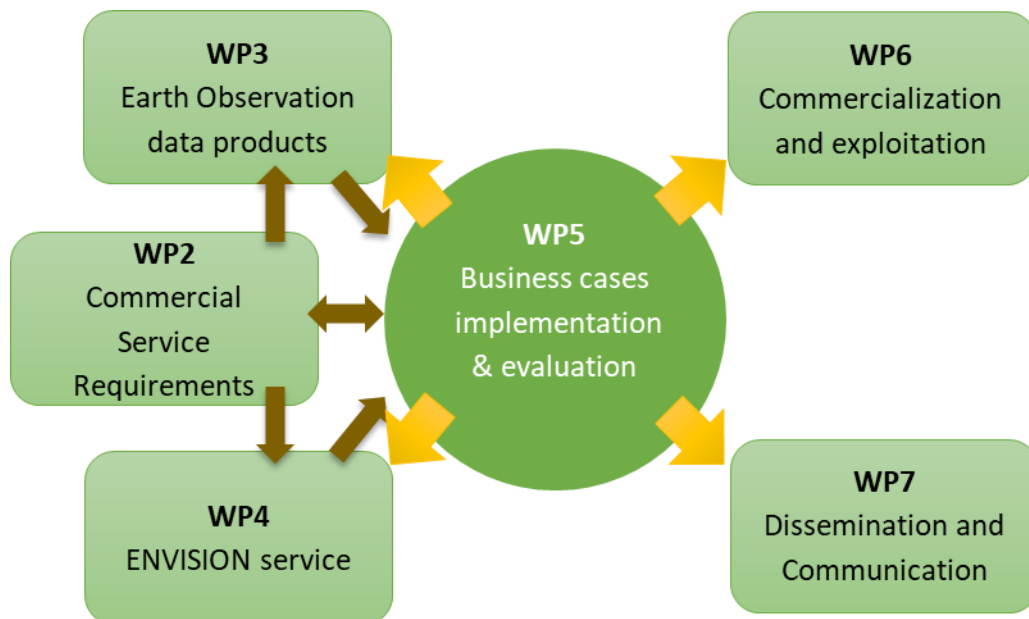
Figure 1. WP5 (Task 5.3) interactions
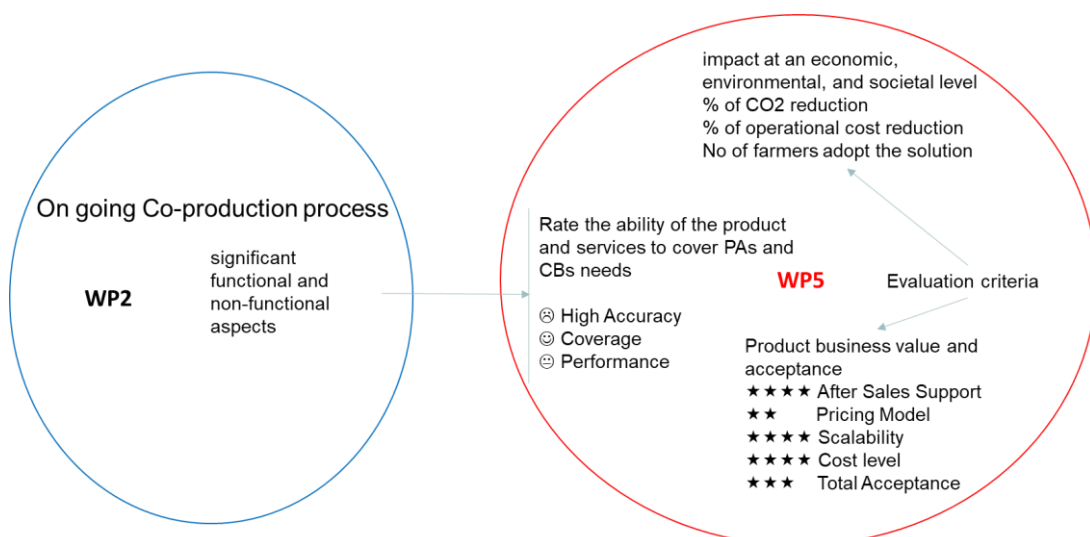
Figure 2. WP5 will use WP2 outcomes to rate the product and services' performance, usability and effectiveness.

1.3 BC Customers and their role in BC evaluation Process

During the business cases implementation and evaluation, the ENVISION products and services will be tested and evaluated by:

- Business customers (ENVISION partners NPA, LV, CAPO, OCS), who are project partners and who will participate from beginning of the project to its completion and
- Lighthouse Customers which are not members of the consortium and are participating in ENVISION voluntarily.

Two customer segments will be involved in the project:

- Paying Agencies using ENVISION to monitor environmental and climate requirements of EU policies related to agriculture, and
- Certification Bodies use ENVISION to monitor organic farming requirements.
- Farmers, through the mobile application.
- Third parties (i.e. devs) through the Add-on development.

Business customers act as business stakeholders and therefore, they actively develop the evaluation criteria and evaluate the project data product and services. Both PAs and CBs will ensure the demand-driven design of the project services and their value proposition and help pave the way for their market acceptance and uptake after the project. The following tables provide a brief overview of the Business customers and their roles in the BC implementation and evaluation Process.

Flemish Business Case
Business Customer: **LV Flanders** (BE)   **Type of organisation**: Paying Agency (PA)   **Data Products**: *Topsoil Soil Organic Carbon Monitoring*   **Service**: Monitoring the condition of the soil.
Short description: LV, the Flemish Department of Agriculture and Fisheries and Paying Agency, i.e. Flanders' official PA in charge of the financial support for agriculture and the implementation of CAP.   LV will be responsible for the Flemish business and they will use and evaluate Envision data product and services. The Flemish business case aims to demonstrate and evaluate how the use of EO-based services and Machine Learning techniques can be an alternative for soil analysis related to soil management.

Table 1. Short description of the Flemish Business Cases customer.

Lithuania Business Case
Business Customer: **NPA**   **Type of organisation:** Paying Agency (PA)

Data Products: Crop type, vegetation status, grassland mowing/ploughing, soil erosion
Service: Monitoring crop type, vegetation status, grassland mowing/ploughing, and soil erosion.
Short description: NPA, the National Paying Agency under the Ministry of Agriculture of the Republic of Lithuania, i.e. the official PA of Lithuania that manages the financial support for agriculture and the implementation of the EU CAP measures. NPA will be responsible for the Lithuanian business case and they will use and evaluate Envision data product and services. This Business case focus on employing ENVISION's services to monitor Cross-Compliance, Greening, and Rural Development Programs' (RDP's) climate-environmental requirements

Table 2. Short description of the Lithuanian Business Cases customers.

Cyprus Business Case
Customer: CAPO **Type of organisation:** Paying Agency (PA) **Data Products**: crop type, vegetation status, crop growth **Service**: Monitoring Multiple Environmental and Climate Requirements of CAP (Organic and non-organic identification).
Short description: CAPO, the Cyprus Agricultural Payments Organization, which is responsible for the management of CAP payments, i.e. the Cyprian PA. CAPO will be responsible for the Cypriot business case and they will use and evaluate Envision data product and services. This Business case focus on employing ENVISION's services to monitor Cross-Compliance, Greening, and Rural Development Programs' (RDP's) climate-environmental-requirements.

Table 3. Short description of the Cypriot BC customer's.

Serbian Business Case
Customers: OCS **Type of organisation:** Certification Body (CB) **Data Products:** Crop growth monitoring, Grassland mowing/ploughing, Cultivated crop type maps, Vegetation status **Service:** Monitoring organic farming requirements Distinction of organic vs conventional farming practices
Short description: OCS, is the authorized control body that deals with the control and certification of organic products, i.e. the Serbian Organic Certification System. OCS will be responsible for the Serbian business case and they will use and evaluate Envision data product and services. This Business case focuses on employing ENVISION's services to demonstrate how the uptake of EO technology can improve the overall monitoring of organic

certification requirements such as farmland expansion, biodiversity, GHG emissions, water and soil.

Table 4. Short description of the Serbian Business Cases customers.

UK Business Case
Customers: **LEAF**   **Type of organisation:** Environmental Assurance   **Data Products**: Vegetation status   **Service**: Monitoring Vegetation status
Short description: OCS, is the authorized control body that deals with the control and certification of organic products, i.e. the Serbian Organic Certification System.   LEAF will be responsible for the UK business case and they will use and evaluate Envision data product and services. This Business case focuses on LEAF Marque Certification and the use of ENVISION's services to demonstrate how EO data can be used to improve environmental assurance systems

Table 5. Short description of the Serbian Business Cases customers.

2 Methodological Framework For Business Case Evaluation

This section provides an overview of the methodological framework. It describes the applied methodology, tools and tailoring elements for a comprehensive and robust evaluation process, including the necessary definitions and explanations of the concept and fields in which the products will be evaluated.

2.1 Applied Methodology and Tools

To achieve WP5 objectives, **products and services are evaluated** for each business case individually and from three different perspectives related to:

- **The performance, usability and effectiveness.** We rate the ability of the product and services to cover PAs, and CBs identified needs using developed user stories within WP2 describing user requirements (functional and non).

- **The business value and acceptance.** We evaluate product business value and acceptance for each business case, using criteria co-developed with the BC actors within the WP5 and indicators that quantify the business value and acceptance.

- **The impact on an economic, environmental, and societal level**. We evaluate the impact at an economic, environmental, and societal level using impact indicators.

To support the above-mentioned objectives, within T5.3 we identify and tailors a suitable methodology to support the co-development of the evaluation criteria. The methodology needs to formulate

standard, accepted, suitable, and representative evaluation criteria for the a) business value and acceptance and b) economic, environmental, and societal impact.

A suitable methodology can generate functional outcomes and ensure transparency and standardization of the evaluation process. Additionally, it allows us to move quickly from the macroscale level (impact assessment) to the microscale level (solution acceptance for specific focus groups). The macroscale level deals with expected societal (including environmental), economic and technological impact generated by the results of the Envision project, which are the services and products. The microscale level aims to assess the business value and acceptance of the Envision product and services to specific focus groups, which in our case are the business customers (PAs and CBs). The Defined tailoring elements of our methodology are presented in section 2.6.

2.2   Economic and social impact assessment

In this section, we will focus on evaluating the Envision product and services at an economic and societal level using impact indicators.

The impact can be described as positive and negative primary and secondary long-term effects the intervention produces, whether directly or indirectly, intended or unintended.

The dimensions of Impact on which we focused in the project are described below using the Horizon Europe programme Guide as a source.

- **Societal Impact:** Impacts on societal benefits, human well-being, and fulfilment of human needs, such as an increase in productivity, improvement of working conditions, contribution to human health, improvement of policy and decision making, and raising consumer awareness.
  Improving the environmental and climate performance of farmers and your business, with a special focus on environmental sustainability, biodiversity and the European Green Deal objectives
  Example: Decreasing soil and water pollution and GHG emissions, Soil Degrade,
- **Economic/Tech Impact:** What economic and technological benefits do the services bring to your business, farmers, and society.
  Example: Increasing efficiency, decreasing costs, increasing profits, contributing to standards setting.

Metrics and Indicators

Metrics are qualitative or quantitative measures or inferences used to evaluate the effectiveness of a criterium or a process . Metrics indicate effectiveness, so some prefer the "indicator" instant off "metric". The measures or the inferences are presented with values. There are three main ways to assign the values, qualitative, quantitative and a combination of these two . More specific:

- Quantitative. When measures can be assessed quantitatively, some metrics such as time, cost and revenue can be used as evaluation criteria.
- Qualitative. When the effectiveness is difficult to measure, and there we focus more on inferences.
- A combination. When several aspects of a metric must be assessed quantitatively and qualitatively.

In the scope of our work, we have decided that it would be more convenient to use the combination option

Baseline values

Assessment of baseline values is needed when the metrics compare different stages. In the case of impact assessment, the assessment or definition of the baseline values can be very challenging and requires using various sources, such as proprietary data, records, available literature, statistical data, and expert knowledge.

Stakeholder and focus groups

During the impact evaluation, it is essential to identify the different stakeholder groups and assess how they are affected by the Envision products and services. Aiming at stakeholder groups and not generic target groups is a good practice in product development because:

1.   We consider groups with an indirect or direct interest in the developed solution.

2.   We organize our work within the key activities to increase the elicitation, analysis and stakeholder engagement activities.

Focus groups bring together prequalified stakeholders and subject matter experts (SMEs) to learn about their expectations and attitudes about a proposed solution. Focus groups provide an opportunity to obtain feedback directly from customers and/or end users. The deep dive from target groups (impact assessment) to stakeholder groups (solution evaluation) and then to focus groups (solution evaluation) within iterations is a good practice in solution evaluation.

Limitations and Challenges of the impact assessment

Below, we briefly summarised the difficulties we faced with the impact evaluation process

- Providing baseline values for impact assessment requires the use of various sources, such as proprietary data, available literature, statistical data, expert knowledge.
- No source is available due to the lack of historical data,
- Difficulties in accessing certain data. Most indicators require data collection from different sources (farmer, agricultural pesticide suppliers) rather than Pas or CSs.
- Lack of time to collect the relevant data frequently for comparison with baseline value.
- The fact is that even if comparison data can be collected frequently,
    - the intended impacts cannot be measured over a short time period such as the life of the project.
    - Data collected for comparison (for the Indicators such as: reduction in working time, travel costs, number of trips for on-site inspection, etc) cannot reflect the actual values that should be generated by the use of envision data-products and service. Because BC customers, in addition to using and testing the services to see if the services are reliable to run their business, they also run their business in a traditional way. In some cases, they carry out additional (more than usual) on-site checks for product validation.

2.3   Evaluation of the business value and acceptance

To evaluate the business value and acceptance for each business case, we used the criteria developed with the BC actors as a basis and enriched them with consideration on the project objectives. Acceptance criteria are the conditions that need to be met before a solution is accepted. They are used to measure whether a customer is satisfied with the solution built. Acceptance criteria form the basis of acceptance tests and are essential in evaluating the solution during product review sessions, where product owners or business stakeholders decide whether to accept and release the developed solution. Determining the acceptance criteria involves reviewing requirements and analysis models with business stakeholders to identify how the business stakeholder would approve something as done.

For evaluating the business value and acceptance of the proposed services, considering the relevance of the project objectives, we have identified several fields and categorised them in the following concepts;

- **User Acceptance:** To assess whether the Product is easy to use and working for the end-user correctly , the identified fields is; **User friendly.**
- **Business Acceptance**: To assess whether the product meets the business goals and purposes or not with a main focus on business benefits/ added value (finances and other), the identified fields are; **Reduced time and effort, Added economic value-benefits, Usefulness.**
- **Regulations/Compliance Acceptance**: To determine whether the Product compliance the rules and regulations that are defined by the government of the pilot countries and also to assess if the proposed product and services can contribute to compliance with National plan and agri-environmental rules, the identified fields is; **Regulatory compliance.**
- **Operational Acceptance**: To assess the operational readiness of the Product, the identified fields are; **Accessibility, Flexibility and Scalability, Quality, Completeness and Specialisation, Support service availability.**

2.4   Evaluation Of The Performance, Usability And Effectiveness

This section deals with the evaluation of the product and services in terms of performance, usability and effectiveness. For the evaluation, we used a criteria-based evaluation approach. To define the criteria, we used the user requirements identified in WP2 in the form of user stories.

Before further explaining the criterion-setting process, we think it is important to explain the relationship and differences between criteria for testing and requirements (user story).

Both user requirements (can be in form of user story) and criteria are useful for different sides of product development.

User requirements define what the developers of the product and service are required to do, user story defines the requirement for any functionality or feature from the perspective of a person who wants to use that feature, while acceptance criteria help determine whether the product works as expected, it defines the 'Definition of done' for the user story or the requirement.

In this context, we have formalised the user stories developed in WP2, into criteria to measure whether the product is ready or whether further improvements and updates are needed.

The custom-made method used to establish the criterion for evaluating the performance, usability and effectiveness of the product and services is shown below.
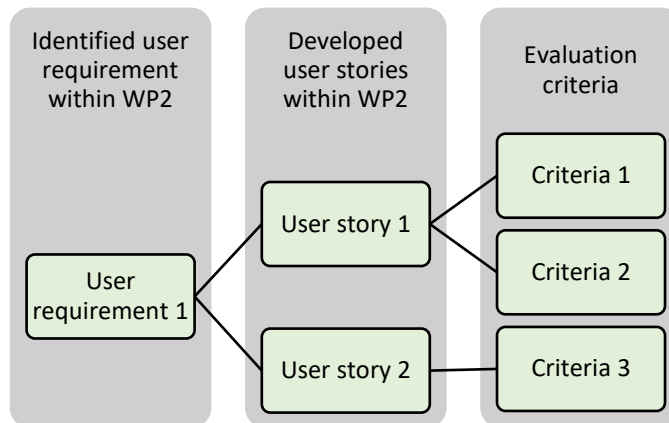
Figure 3. Setting criterion for the performance, usability and effectiveness evaluation

3   Steps For Business Case Evaluation

Figure 4 presents the performing steps for the Business case Evaluation. Intermediate report on the evaluation of services, conducted in 5 steps.

- First, we determined the evaluation methodology and co-developed the criteria under D5.3.
- in the second step, we carried out the preparatory work required for data collection, including refining and enriching the developed criteria and indicators.
- in the third step, we discussed the results of the preparation process with relevant project partners and BC actors and incorporated their suggestions and comments for finalization.
- In step four, we developed questionnaires and templates using the criteria and indicators finalised after step three and distributed them to BC actors for data collection.
- in the final step, we analysed the collected data and prepared the results to be presented in this deliverable.
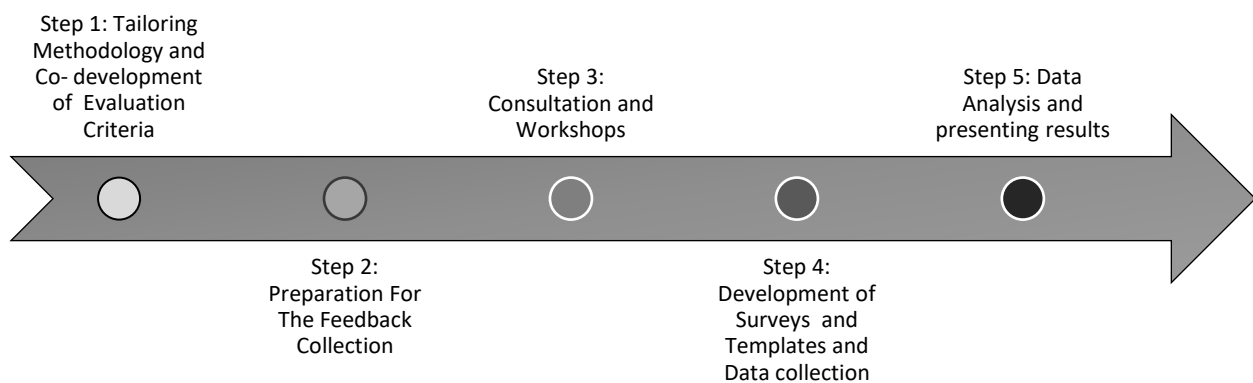
Figure 4. Activities performed within D5.5

3.1   Tailoring methodology and Co-Development of Evaluation Criteria

As explained in detail in D5.3, Section 2, a selection and tailoring of an evaluation methodology were performed to support the co-development and definition of the evaluation criteria. The significant elements of our methodology are the following:

- o Use a criteria-based evaluation approach, using best practices described in PMI-PBA guidelines for Business Analysis as a way to support product development.
- o For each criterion, one or many indicators may exist.
- o Each indicator may take qualitative or quantitative values.
- o Use facilitating workshops to support the elicitation process and the co-development of the evaluation criteria and their indicators.
- o We emphasize Economic and Societal, not scientific, because the Envision project aims at innovation and the Business Stakeholders are non-research institutes.
- o For the impact assessment, the main objectives are the target groups. For solution acceptance, the main objectives are the focus groups.

- The defined target groups are actors related to all Envision services and products. The identified target groups are Farmers, CBs, PAs, Policy makers, the General public and Technology Developers/SME.
- Elicitation & co-development activities (D5.3 Section 3). To support the elicitation and the co-development of the evaluation criteria, we organized a workshop in Thessaloniki within the Envision project meetings on 5th and 6th of May 2022. The participants represented the two major focus groups, the PAs and the CBs, and we followed the CCLR Framework (Collect, Create, Link, Rate). The workshop took place in two phases:
  - Evaluation Criteria - Impact – Day One
  - Evaluation Criteria - Business value and acceptance criteria.
- Analysis and processing of the elicitation results (D5.3 Section 4). After the workshop, we digitized workshop results, generating a relational structure that allows performing the analysis in a digital environment considering the tree-based structure of the evaluation criteria and the indicators.
- Performing a consultation phase (D5.3 Section 5). After transferring the collected results to the digital environment, we analysed and organized the resulting dataset and summarized it more conveniently. We processed the results into tables and shared them with Business customers to gather their feedback and comments. For each BC, we had two meetings, in a total of 10 meetings, to discuss and finalize the evaluation criteria.
- Delivery of the evaluation criteria (see D5.3 Section 6 – Tables 5 to 11). After the consultation phase, we present the list of the co-developed Evaluation Criteria for all BCs. More specific:

  - Impact Assessment: Evaluation Criteria and indicators.
    - **Error! Reference source not found.**
    - **Error! Reference source not found.**
  - Impact Assessment: Prioritization of the indicators per BC:
    - **Error! Reference source not found.**.
    - **Error! Reference source not found.**.
    - **Error! Reference source not found.**.
    - **Error! Reference source not found.**.
  - Evaluation Criteria – Solution Acceptance

Error! Reference source not found. for each focus group

3.2 Preparation For The Feedback Collection

The co-developed evaluation criteria and their ranked indicators provide a clear direction of what is necessary, the expected effect on different target groups and the priorities of the focus groups. However, before starting with feedback collection, we conduct some preparation work for more effective, direct and easier evaluation.

As a preparation for the feedback collection; we performed the following activities,

- Refine Impact Indicators
  - Review and analyse the indicators developed to create a renewed list of indicators that define clearer implications on the impact of Envision solutions.
  - Identify indicators we need to refine as a way to present impact scale and significance.
  - Define per indicator the type of the values and their range.

- Enrich the acceptance indicators to capture missing perspectives of solutions acceptance and to avoid overlaps with the evaluation criteria related to performance, usability and effectiveness.
  - Re-prioritization of Acceptance Criteria
- Develop questionnaires to collect values for the evaluation.

3.2.1 Refined Indicators And Development of Data Collection Template

We have refined or enriched the co-developed indicators so that they have a structure consistent with the HE indicator, while maintaining their content and logic. We have created a list by selecting indicators that allow clearer implication on the impact of Envision solutions in a way that enables more effective, direct and easier evaluation(see Table 5) .

KPI No	KPI Description	Linked Impact Criteria and Impact Dimensions
1	% Decrease in mistakes performed during on-site inspections (by CB or PA)	Improve the objectivity- transparency, and reliability of the inspections and administration work (Economic/Tech Impact-Social Impact).
2	% Decrease in number of farmer declaration mistakes	Improve the objectivity- transparency and reliability of the inspections and administration work (Economic /Tech Impact -Social Impact).
3	:% Increase in total area/unit under organic farming	Food quality/ security and safety (Social Impact); Less environmental pollution(water-Soil) (Social Impact); Increasing the farmer's income(Economic/Tech Impact - Social Impact).
4	% Decrease in work time for monitoring and inspection activities	Reduce time(Economic/Tech Impact).
5	% Decrease in time spend for administration work	Increasing the farmer's income(Economic/Tech Impact - Social Impact); reducing the administrative burden(Economic/Tech Impact -Social Impact); reducing the time(Economic/Tech Impact)
6	% Increase in the numbers of Laws / regulations supporting technologies for the continuous and systematic monitoring of agricultural practices	Compliance with regulations (Economic/Tech Impact)
7	Increase in coherence degree of the national strategic plan with the technologies that support continuous and systematic monitoring of agricultural practices.	Compliance with regulations(Economic/Tech Impact)
8	% Increase in the number of farmers and Inspectors (end users) who are willing to use the services in your BC	Ease of use(Economic/Tech Impact); improve awareness, knowledge, and opinion on environmentally friendly farming / Consumer Trust(Economic/Tech Impact -Social Impact).
9	% Increase in harvested crop yields per hectare (Barley, Wheat)	Increasing the farmer's income (Economic/Tech Impact - Social Impact)
10	% Increase in the number of new employments for relevant work in your organization	Providing new jobs (Economic/Tech Impact -Social Impact)

11	% Increase in the number of new products/services/processes by building on the ENVISION solution.	Provide better insight regarding Carbon stocks in soil, to the policy makers, farmers, public, scientist-improve awareness, knowledge, opinion on environmental friendly farming / Consumer Trust-Knowledge sharing (Social Impact)
12	% Decrease in number of records farmers shall keep	Reduce the administrative burden (Economic/Tech Impact - Social Impact)
13	% Decrease in amount of used paper for monitoring and inspection activities	Natural Resource use efficiency (Social Impact-Economic/Tech Impact Impact); Cost reduction (Economic/Tech Impact); Increasing the farmer's income (Economic/Tech Impact Impact-Social Impact).
14	% Decrease in pesticide use	Food quality/ security and safety(Social Impact); Less environmental pollution(water-Soil) (Social Impact); Cost reduction(Economic/Tech Impact); Increasing the farmer's income (Economic/Tech Impact -Social Impact)
15	% Decrease in chemical fertiliser use	Environmental pollution(water-Soil) (Social Impact): Cost reduction(Economic/Tech Impact); Increasing the farmer's income (Economic/Tech Impact -Social Impact)
16	% Increase in biodiversity in farmland	Less environmental pollution(water-Soil) (Social Impact)
17	% Increase in the use of environmentally friendly agricultural practices (no-till farming, agroforestry, crop rotation)	Environmental pollution(water-Soil) (Social Impact)
18	% Increase in the soil organic matter	Lower emissions (Social Impact)
19	% Decrease in number of travelling with motor vehicles for on-site inspection	Lower emissions (Social Impact); Environmental pollution (water-Soil) (Social Impact); Reduce time (Economic/Tech Impact); Cost reduction (Economic/Tech Impact).
20	% Increase in number of publications and dissemination activities	Improve awareness, knowledge, opinion on environmental friendly farming / Consumer Trust (Social Impact)
21	% Decrease in number of fraud statement	Improve awareness, knowledge, opinion on environmental friendly farming / Consumer Trust (Social Impact)
22	% Increase in number of datasets to support the development of technologies that allow the continuous and systematic monitoring of agricultural practices through earth observation	Creation of datasets for further scientific research (Social Impact)
23	% Increase in number of downloads (from the Envision Platform, open source APIs)	Creation of datasets for further scientific research (Social Impact)
24	% Increase in number of relevant historical databases	Creation of datasets for further scientific research (Social Impact)
25	% Decrease in max fluctuation of results of markers	Stability of results through the years (Economic/ Tech Impact)
26	% Increase in number of farmers who benefit from CAP/EU agri-environmental policies based direct payments	Compliance with regulations (Economic/ Tech Impact)

Table 6. Refined Impact Indicators.

3.2.2 Enriched and Prioritised Acceptance Criteria

We enriched the acceptance criteria under the defined concept (see section 2.3) to cover all aspects related to the acceptance of solutions by a Business customer.

The co-developed acceptance criteria and their prioritisation provided a clear direction for the priorities of the business customers (PAs and CBs). Prioritisation provides a ranking of importance that can support service providers in designing product and services and where necessary in adapting their sales policies to specifically defined details.

The updated list of acceptance criteria was prioritised by the business customers for each BC through the organised workshop. In the workshop, each BC could cast 20 votes and participants could vote as many as they wanted on one criterion and also on their own or others' ideas.

Field	Acceptance criteria	LEAF	OCS	LV	CAPO	NPA
Reduced time and effort	Reduce the number of travel trips for on-site inspection.	1	3	2	2	1
	Reduce the time spent on monitoring activities	1	3			
	Reduce time for administrative work	1	2	1	2	1
	Reduce effort and improve operational performance	1			1	
User friendly	Ease of use	1	1		1	1
Accessibility	Acceptable price and payment plan to acquire and integrate the necessary technology	1		2		1
	Acceptable operating and maintenance costs for the Envision services	1		2		1
	To have the necessary infrastructure to install and operate the services	1				
	To have financial and technological capacity for data collection					
	Acceptable needed training time for the end user	1				
	Acceptable cost for the end user training	1				
Added economic value-benefits	Return of investment ratio/ increased profits					
	Reduce Business operation cost reduction		2		1	
	Increase the productivity		2		1	
	Prevent penalties and loss of funding.					1
	Fair price/quality ratio.					
Flexibility and Scalability	Integration and interoperability with the existing system	1		2	2	1
	Be aligned with the organisation's workflows and time constraints	1			1	1
	Scalability of services/ Ability to expand and build more	1		2		

Usefulness	Useful info for policymakers			2		
	Further, increase knowledge, raise awareness of earth observation monitoring technologies					1
Regulatory compliance	Contribute to compliance with current CAP policy and EU agri-environmental rules			2	2	
	Contribute to compliance with National plan and agri-environmental rules			1	1	
	Consistency with recent relevant legislation and policy developments/ New CAP				1	3
	Alignment with EU and national regulations /laws		3		1	
	Compliance with the existing certification/ accreditation programs/ regulations.	1	3			
	Adaptability/applicability of ENVISION services to the updates of certification/accreditation standards.	1				
	Compliance with GDPR / address issues of privacy and confidentiality.	1				
	Services will be available for at least the duration of the new CAP			1		1
Quality, Completeness, Specialisation	Provide a more robust and efficient monitoring method and services compared to the other alternatives (maturity, effectiveness) in the market	1			2	1
	Provide a complete package suite to cover all important services for monitoring activities					1
	ENVISION is well-focused in terms of its design as it is more targeted in the monitoring of specific rules instead of monitoring general changes in the agricultural landscape elements.				2	2
Support service	Acceptable service level agreement			1		
	Provide support services to install, integrate, repair, use and maintain the product and services properly	1				1
	Provide training for the end users on data collection and use of the services	1				1
	To continue provide necessary support after the project (After sale support)	1	1	2		1

Table 7. Prioritized acceptance criteria

3.2.3 Defined Performance, Usability And Effectiveness Evaluation Criteria

For the performance, usability and effectiveness evaluation of the developed product and services, We used user stories generated from the user requirements developed in WP2 in the form of criteria to measure whether the product is ready or whether further improvements and updates are needed (see section 2.4).

The criteria defined, based on user stories are shown below.

User Story – Requirement	Acceptance criteria

As a Controller, I would like to receive data of crop type maps every two weeks from the middle of April to the middle of August (ideally mid-September)	(1)Ability to receive data of crop type maps with two-week frequency from the mid- April to mid-September.
As a Controller, I would like grassland mowing and grazing layers every two weeks from June till November with more than 85% accuracy	(2) Ability to receive grassland mowing and grazing layers with two-week frequency from June till November.
	(3) Data product of Grassland mowing/ploughing provides more than 85% accuracy.
As a Controller, I would like to receive crop type and grassland mowing maps that are at least 95% accurate compared to in situ data	(4) Data product of cultivated crop type maps and grassland mowing/ploughing provides at least 95% accuracy compared to in situ data
As a Controller, I would like to receive vegetation status maps with a priority on EFA catch-crop fields and all fallow land fields	(5) Ability to receive vegetation status maps with a priority on EFA catch-crop fields and all fallow land fields..
As a Controller, I would like to be able to mask layers of interest with information from ENVISION outputs, for example to check parcels which intersect with soil erosion results, or to link crop type maps with grassland mowing layers	(6) Ability to mask the layers based on the outputs of a Envision service.
	(7)The masked layers could be visualised on the Envision platform
As an Organisation, we would like to be able to identify and distinguish between organic and conventional crop, and to monitor pesticide use on the declared plots because this is an important objective in many agri-environmental policies	(8) Ability to identify and distinguish between organic and conventional crop.
	(9) Ability to monitor the pesticide and herbicide use on the declared plots (malpractices more generally) indirectly through crop growth monitoring data product.
As an Organisation, we need to receive information about the specific crop types even in very small and narrow parcels, or at least a coarser level of classification with a group of possible crop types	(10) Ability to receive information about the specific crop types even in very small and narrow parcels, or at least a coarser level of classification with a group of possible crop types
As an Organisation, we want to get ENVISION outputs per parcel, especially for information on yield of each crop	(11) Ability to get Envision outputs per parcel, especially for information on yield of organic crops.
As an Organisation, we want to get information once a year about the crops of neighbouring plots that are not involved in organic production (neighbouring to the plots that the organisation inspects)	(12) Ability to get information once a year about the crops of neighbouring plots that are not involved in organic production..
As an Organisation, we would like to get data once a year for the crop types of conventional plots that belong to the same farmers that are involved also in organic production, even if the organisation's	(13) Ability to get data once a year for the crop types of conventional plots that belong to the same farmers that are involved also in organic production.

primary target is monitoring the farmer's organic crops	
As an Organisation, we would like to track reductions in the number of plants through several times of the year, because this could be an indication of potential damages to crops that can result to events such as the re-cultivation of different crops on the same parcel, which is illegal	(14) Ability to track reductions in the number of plants through several times of the year..
As an Organisation, we would like to see the colour of crops / plants on parts of parcels (i.e. borders) for several times of the year, because changes in colour could indicate pesticide/herbicide use and can also help track events of illegal burning of crops	(15) Ability to see the colour of crops / plants on parts of parcels (i.e. borders) for several times of the year to monitor pesticide/herbicide use.
	(16) Ability to help to track events of illegal burning of crops.
As an Organisation, we need the performance of the system to be fast, to enable quick testing.	(17) The performance of the system (data processing) is fast and enable quick testing.
As an Organisation, we want the system to provide us with errors against legislation that we can communicate to farmers	(18) The system can provide with errors against legislation so that we can communicate to farmers.
As an Organisation, we need to be able to integrate services in our own applications. It is important to us that the ENVISION toolbox features as many standards as possible and that the various outputs are downloadable or easy to share via APIs so that we can analyse them in our own existing systems (interoperability and potential to transfer/download data)	(19) The ENVISION toolbox features as many standards as possible and the various outputs are downloadable or easy to share via APIs (potential to transfer/download data).
	(20) Envision data products and services enable seamless integration and interoperability with an existing system.
As an Organisation, we need all our data to be stored in one place	(21) Relevant outputs and data can be stored in one place (the ENVISION database for the ENVISION lifetime).
	(22) Ability to download outputs (i.e., shapefiles, csv files etc.), share via APIs or access the data storage online..
As an Organisation, we want the services to process information about newly declared parcels in bulk and efficiently to be able to receive outputs for such new parcels	(23) The services can process information about newly declared parcels in bulk and efficiently. So that we can receive outputs for new parcels
As an Organisation, we want to have an idea of the accuracy of the output of a service through relevant indicators and sufficient documentation of the methodology, as well as to receive	(24) The specific methodology followed to estimate the accuracy of measurements is documented on the platform.
	(25) Accuracy is provided for the entire service outputs.

notifications when the accuracy degrades throughout the cultivation period	(26) Ability to receive notifications when the accuracy degrades throughout the cultivation period
As an Organisation, we want the output of services to be stable and the services set-up for long term use	(27) The services are/will be stable and functional for the ENVISION project lifetime
	(28) Possibility of using the services after the project ends (beyond project lifetime).
As an IT expert, I want the ENVISION platform to monitor itself and notify me if there is a problem, so I can be confident that everything is ok if I am not notified	(29) ENVISION platform can monitor itself and notify me if there is a problem through selected method (email, web application, etc.).
As an Organisation, we want to be able to upload information for the enhancement of ENVISION services. In this context, we would like to also be able to provide in situ-data from fields	(30) Ability to upload and provide information and in situ data from fields for the enhancement of Envision services
As an Administrator, I need to know when ENVISION services' outputs are not available so I can warn the respective farmers that they need to provide the relevant information themselves	(31) Envision services provides indications if the values for certain pixels or plots are "Not Available - N.A.". So I can warn the respective farmers that they need to provide the relevant information themselves
As an Inspector, I want the results from ENVISION's remote monitoring services to be reliable and verifiable on the spot	(32) The results from ENVISION's remote monitoring services are reliable and verifiable on the spot.
As an Organisation, we need to receive outputs both as maps/layers and relevant tables/numeric information, as well as to receive time series of various indicators to study changes and emerging problems	(33) Ability to receive outputs in different standard data formats (i.e., shapefiles, raster files, csv data tables/ time series of various indicators) through the ENVISION platforms, in order to study changes and emerging problems
As an IT Expert, I want the toolbox to be installed on DIASes, or that DIASes offer the tools as a service, so it is preinstalled there, accessed and even maintained by the DIAS	(34) Envision services can be featured on DIASes (the toolbox can be installed on DIASes, or that DIASes offer the tools as a service so it is preinstalled there, accessed and even maintained by the DIAS).
As an IT Expert, I want good quality to characterise the ENVISIONplatform services in terms of ease of use, security and interoperability	(35) The product and services are easy to install and use
	(36) The product and services meet security standards
As a Controller, I would like to receive data for declared parcels across the whole country and not only specific zones	(37) Ability to receive data for declared parcels across the whole country and not only specific zones
As a Controller, I want ENVISION to be transparent regarding data	(38) Envision data products and services to ensure transparency and security in the context of intellectual property and GDPR.

sharing legal issues in the context of intellectual property and GDPR	
As an Organisation, we would like to be able to visualise historic data and all relevant to a plot information on the platform, for as far back in time as possible	(39) Ability to visualise historic data and all relevant to a plot information on the platform as far back as relevant data is available (i.e., from 2015 onwards, due to availability of satellite images relevant to the ENVISION services)
As an Administrator, I would like to receive ENVISION outputs from the time of submission and throughout the entire application period, in order to help applicants and explain possible implications of wrong declarations / ineligibility of plots, considering the eligibility criteria / rules for multiple agri-environmental schemes	(40) Ability to receive ENVISION outputs from the time of submission and throughout the entire application period.
	(41) Ability to help applicants and explain possible implications of wrong declarations / ineligibility of plots, considering the eligibility criteria / rules for multiple agri-environmental schemes, with Envision product outputs.
As an Inspector, I would like to see through the ENVISION platform what is important to check for each plot, according to a farmer's declaration. This is important as it will clarify the reason why certain parcels need to be checked according to the organisation's sample	(42) Ability to see what is important to check for each plot, according to a farmer's declaration, through the ENVISION platform..
	(43) Envision Service helps to clarify why certain parcels need to be checked according to the organisation's sample.

Table 8. Performance, Usability And Effectiveness Evaluation Criteria

3.3   Consultation and Workshops

Once the preparatory work was completed, the revised impact indicators and acceptance criteria were shared with relevant project partners and their feedback was integrated.

As a next step a workshop was organised with BC customers for each BC to review, and discuss the content of the revised indicators and criteria.

The workshop consisted of three parts.

- In the first part, the data sources and measurement units and methods for each impact indicator were discussed, and the template developed for data collection was introduced and how to complete it was explained.
- The second part of the workshop focused on the acceptance criteria. The revised list was introduced and discussed. Feedback from the BC customers was integrated into the revised list.
- In the third phase, the revised acceptance criteria were prioritised for each BC.

3.4   Developed Template, Surveys, for Data Collection

Development of Template for impact Indicators

Due to the limitations mentioned in section 2.2.4, it was very difficult to establish reference values for some indicators, and it may not yet be possible to establish comparative values for a given indicator. Therefore, we defined the indicator values using a hybrid approach (quantitative and qualitative values). Besides the baseline and target values, we also focused on the estimated values for impact

assessment and asked BC customers to assess the potential contribution of Envision data products and services to each indicator based on their knowledge and experience. This way, we have collected values that reflect Business Customer's perspectives without generating an unmanageable administration burden or disability to provide their response.

To ease the process, we developed a template (Table 9) for BC customers to use for value collection which

- provides clear description of the KPI
- shows related co-developed criteria and impact dimensions
- clearly defines baseline value and measurement units
- includes several options for selecting data sources and measurement methods (such as; Historical Data in use case / Compared to the baseline value; Generic Historical Data / Compared to baseline(standard) value; judgements by experts/ Survey, interview).

Developed template with refined indicators can be seen in Annex6.1 and Annex 6.2

Impact Indicators				
KPI Description:………………..				
Link to the Impact Criteria: ………………..				
Data sources/ and measurement methods				
Please Select the data sources and measurement methods and give a brief explanation of the reasons				
☐Historical Data from your Organisation / Compared to the baseline value ☐Generic Historical Data (Please indicate your data source) / Compared to baseline (standard) value			☐judgements by experts/ Survey	
Baseline value:	Target value	Measurement units	Measurement units/ Estimated Value	
Baseline Description	Decreased by…%	E.g. number/ per year; kg/ha…	Rating Scale (from 1 to 6): Please indicate the value per each scale (E.g. low influence: Decrease between %5-%20) Estimated value for M25 (Assuming you use Envision data products and services for the relevant monitoring/auditing activities to run your business) Based on your knowledge and experience (considering current result of the products) Envision data product and services potential contribution; ☐1: negative impact ☐2: no influence ☐3: low influence (Number/ %) ☐4: uncertainty concerning the impact ☐5: favourable effect (Number/ %) ☐6: very favourable effect (Number/ %)	Comments Please shortly explain the reason of your choice.

Table 9. Template for gathering Indicator values

Development of the Surveys

Using the specified framework (see section 2), we have developed the 2 questionnaires, which has been translated into a survey form. The questionnaire developed for evaluation of business value and acceptance, contained 40 closed questions on the Likert scale of 1 to 6, (1) Not relevant to our use case; 2) I strongly disagree; 3) Disagree; 4) Neutral; 5) Agree; 6) I strongly agree.) and 13 open end questions within 9 different field (Reduced time and effort; User-friendly; Accessibility; Added economic value-benefits; Flexibility and Scalability; Usefulness; Regulatory compliance; Quality; Completeness; Specialisation; Support service) (see ANNEX 6.2). For this questionnaire, we also ask BC customers to rate the " Uniqueness And Superiority " of the services as a way to express that Envision data products and services are unique or superior for the stated functions.

The survey developed for the performance usability and effectiveness of the Envision product and services contains 42 closed questions on the Likert scale of 1 to 6 (where, 1 is the lowest rate "Extremely weak performance/ product does not meet my needs"; 2 is "Poor performance, major improvement needed/ product partially meets my needs"; 3 is "At an acceptable or above level/product partially meets my needs"; 4 is "Very favourable performance, but still needs

improvement/ product fully meets my needs"; 5 is the highest rate "Clearly outstanding performance/ product fully meets my needs" and 6 is "Not relevant to our use case") and 1 open end question.

To make the survey easily accessible and user-friendly, we have transformed the questionnaire into an online survey tool and we have provided the survey link to the BC customers. The questionnaire has been developed in a user-friendly and easy-to-understand manner (see ANNEX 6.3).

Besides using questionnaires, we also conducted interviews for open-ended questions so that we could get more precise answers for a more clear understanding.

3.5   Data Analysis

After collecting the data, we transferred the collected data to excel, we developed colour-coded tables to present the results. Our focus in developing the tables was to be able to display the results for each BC separately while not repeating the tables.

Interviews were conducted during meetings and workshops to better understand the intended impact, business value and level of acceptance of Envision solutions for each BC. The results of these interviews were transcribed and analysed, and the findings were combined with the survey responses.

All business cases were requested to answer all questionnaires. However, it should be noted that some business cases were not yet at the stage where testing would provide useful results.

4 Results And Discussions

4.1 Economic and social impact assessment

The template developed (see Section 3.4 and Annex 6.1) was used to collect the data and information required for the impact assessment of Envision products and services. During the process, in addition to the baseline and target values for each KPI, estimated values were collected due to the limitations outlined in section 2. For the estimated values, a question was asked regarding the potential contribution of Envision data products and services to each indicator. While we asked the Cypriot and Lithuanian BCs to respond by considering the current results of the products, we did not ask the other BCs to do so because their products and services were not yet at a sufficient level to make the necessary assessment.

Cypriot BC and Lithuanian BCs   Serbian BC, UK BC, Flemish BC

Estimated Value
Rating Scale (from 1 to 6):
Please indicate the value per each scale (E.g. low influence: Decrease between %5-%20)
Estimated value for M25 (Assuming you use Envision data products and services for the relevant monitoring/auditing activities to run your business)
Based on your knowledge and experience, **(considering current result of the products)** Envision data product and services potential contribution;
☐1: negative impact
☐2: no influence
☐3: low influence (Number/ %)
☐4: uncertainty concerning the impact
☐5: favourable effect (Number/ %)
☐6: very favourable effect (Number/ %)

Estimated Value
Rating Scale (from 1 to 6):
Please indicate the value per each scale (E.g. low influence: Decrease between %5-%20)
Estimated value for M25 (Assuming you use Envision data products and services for the relevant monitoring/auditing activities to run your business)
Based on your knowledge and experience, Envision data product and services potential contribution;
☐1: negative impact
☐2: no influence
☐3: low influence (Number/ %)
☐4: uncertainty concerning the impact
☐5: favourable effect (Number/ %)
☐6: very favourable effect (Number/ %)

Figure 5. Impact assessment approach as per BCs

The briefly summarised results are shown in Table 10 and Table 11. See Annexes 6.1 and 6.2 for more detailed and clear information; on the related Impact Criteria, data source, measurement unit and method, clear description and value of baseline, target and estimated values, along with comments for each indicator.

KPI 1:% Decrease in mistakes performed during on-site inspections (by CB or PA)					
BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value	Decreased by 10%	Decreased by 20%	Decreased by 20%	Decreased by 10%	
Estimated Value	Very favourable effect (over 10%)	Low influence (20%)	Uncertainty concerning the impact	Favourable effect (10 %)	No influence

KPI 2: % Decrease in number of farmer declaration mistakes					
BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value	Decreased by 20%	Decreased by 5%	Decreased by 50%	Decreased by 10%	
Estimated Value	Very favourable effect (over 20%)	Low influence (5%)	Favourable effect (30/%)	Favourable effect (10 %)	

KPI 3 :% Increase in total area/unit under organic farming					
BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value	Increased by 20%	Not Applicable	Increased by10%	No target defined	
Estimated Value	low influence (5%)	No influence	Uncertainty concerning the impact	No influence	Uncertainty concerning the impact

KPI 4: % Decrease in work time for monitoring and inspection activities					
BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value	Decreased by 20%	Decreased by 0%	Decreased by 40%	Decreased by 10 %	
Estimated Value	Very favourable effect (over 20%)	Low influence (10%)	Favourable effect (Number/ 30%)	Favourable effect (10 %)	Low influence (1 %)

KPI 5: % Decrease in time spend for administration work					
BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value	Decreased by 10%	Decreased by 0%	Decreased by 30%	Decreased by 10%	
Estimated Value	Favourable effect (5-10%)	No influence	Low influence (Number/15%)	Favourable effect (10 %)	No influence

KPI 6: % Increase in the numbers of Laws / regulations supporting technologies for the continuous and systematic monitoring of agricultural practices					
BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value	Increased by 100%	Increased by 0%	Increased by 0%	No target defined	
Estimated Value	Very favourable effect (100%)	No influence	No influence	No influence	No influence

KPI 7: Increase in coherence degree of the national strategic plan with the technologies that support continuous and systematic monitoring of agricultural practices.					
BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value	Increased level of coherence with a national strategic plan	No target defined	All aspects of area-based measures in Cyprus Strategic Plan need to be revised to make use of technology either possible or easier.	Increased level of coherence with a national strategic plan	

Estimated Value	Very favourable effect (more than 3 recognitions and purchasing of services)	No influence	Low influence (10/%)	Favourable effect (10 %)	Low influence (10 %)

KPI 8: % Increase in the number of farmers and Inspectors (end users) who are willing to use the services in your BC					
BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value	Increased 50% of End users	Increased 5% of End users	Increased 500% of End users	Increased 10 % of End users	
Estimated Value	Very favourable effect (over 50%)	Low influence (5%)	Very favourable effect (250/%)	Favourable effect (10 %)	Favourable effect

KPI 9: % Increase in harvested crop yields per hectare (Wheat,barley)					
BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value	Increased by 0%	Not Applicable	No target	No target defined	
Estimated Value	No influence	No influence	Uncertainty concerning the impact	No influence	Uncertainty concerning the impact

KPI 10: % Increase in number of new employments for relevant work in your organization/company.					
BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value	With no increasing	No target	Increased by 1 %	Decreased by 20%	
Estimated Value	Negative impact	No influence	Low influence (1%)	Negative impact	Low influence (5 %)

KPI 11: % Increase in number of new products/services/processes by building on the ENVISION solution.					
BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value	Increased by 20%	Increased by 20	number of 3 new products/services/processes	Increase 10 %	
Estimated Value	Very favourable effect (over 20)	Low influence (20%)	Favourable effect (50%)	Favourable effect (10 %)	Uncertainty concerning the impact

KPI 12: % Decrease in number of records farmers shall keep					
BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value	Decreased by 50%	Decreased by 5%	No target	Decreased by10 %	
Estimated Value	Very favourable effect (over 50%)	Low influence (5%)	Uncertainty concerning the impact	Favourable effect (10%)	Low influence (Number/%)

KPI 13: % Decrease in amount of used paper for monitoring and inspection activities					
BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value	Decreased by 30%	No target defined	Decreased by 80%	No target defined	
Estimated Value	Very favourable effect (over 30%)	No influence	Very favourable effect (50%)	No influence	No influence

KPI 14: % Decrease in pesticide use					
BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC

| Target Value | Decreased by 30% | Decreased by 5% | Decreased by 10% | No target defined | |
| Estimated Value | Very favourable effect (over 30%) | Low influence (5%) | Uncertainty concerning the impact | Uncertainty concerning the impact | Favourable effect |

KPI 15: % Decrease in chemical fertiliser use

BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value	Decreased by 20%	Decreased by 5%	Decreased by 10%	No target defined	
Estimated Value	Very favourable effect (over 20%)	Low influence (5%)	Uncertainty concerning the impact	Uncertainty concerning the impact	Favourable effect

KPI 16: % Increase in biodiversity in farmland

BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value	Increased by 20%	Not Applicable	No target defined	No target defined	
Estimated Value	Very favourable effect (over 20%)	No influence	Uncertainty concerning the impact	Uncertainty concerning the impact	Favourable effect

KPI 17: % Increase in the use of environmental friendly agricultural practices (no-till farming, agroforestry, crop rotation)

BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value	Increased by 10%	Not Applicable	Increased by 10.%	Increased by 10 %	
Estimated Value	very favourable effect (over 10%)	No influence	Uncertainty concerning the impact	Favourable effect (10 %)	Favourable effect

KPI 18: % Increase in the soil organic matter

BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value	Increased by 10%	Increased by 5%	No target	No target defined	
Estimated Value	very favourable effect (over 10%)	low influence (5%)	Uncertainty concerning the impact	Uncertainty concerning the impact	Favourable effect

KPI 19: % Decrease in number of travelling with motor vehicles for on-site inspection

BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value	Decreased by 20%	No target defined	Decreased by 80%	Decreased by 20%	
Estimated Value	Very favourable effect (over 20%)	No influence	Favourable effect (20/%)	Favourable effect (20 %)	No influence

KPI 20: % Increase in number of publications and dissemination activities

BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value	Increased by 10%	Increased by 29%	Increased number by 10	No target defined	
Estimated Value	Very favourable effect (over 10%)	Favourable effect (Number/28%)	Favourable effect (increased number 2)	Uncertainty concerning the impact	Uncertainty concerning the impact

KPI 21: % Decrease in number of fraud statement

BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value	Decreased by 20%	Not applicable	Decreased by 100%	Decreased by 10%	

Estimated Value	Very favourable effect (over 20%)	No influence	Uncertainty concerning the impact	Favourable effect (10 %)	Uncertainty concerning the impact

KPI 22: % Increase in number of datasets to support the development of technologies that allow the continuous and systematic monitoring of agricultural practices through earth observation

BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value	Increased 50% of used data	Not Applicable	Increased 50% of used data	No target defined	
Estimated Value	Favourable effect (1-2datasets/applications)	No influence	Favourable effect (25/%)	No influence	Uncertainty concerning the impact

KPI 23: % Increase in number of downloads (from the Envision Platform, open source APIs)

BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value	Min. 50 downloads	Min 40	Min 10000	No target defined	
Estimated Value	Uncertainty concerning the impact	Favourable effect (40)	Favourable effect (1000)	No influence	Favourable effect

KPI 24: % Increase in number of relevant historical databases

BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value	Increased by 30%	Not Applicable	Increased by 5 (yearly databases)	No target defined	
Estimated Value	Very favourable effect (over 30%)	No influence	Favourable effect (2)	No influence	Favourable effect

KPI 25: % Decrease in max fluctuation of results of markers

BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value	-	Not Applicable	Decreased by 25%	Decreased by 10 %	
Estimated Value	Uncertainty concerning the impact	No influence	Favourable effect (10/%)	Favourable effect (10 %)	Uncertainty concerning the impact

KPI 26: % Increase in number of farmers who benefit from CAP/EU agri-environmental policies based direct payments

BC	Serbian BC	UK BC	Cypriot BC	Lithuanian BCs	Flemish BC
Target Value		Not Applicable	Increased by 10%	No target defined	
Estimated Value		No influence	Low influence (2.5/%)	No influence	No influence

Table 10. Values collected for Impact Indicators

The interview results and the comments on each KPI from the perspective of each BC are summarised in the Table 11.

KPI 1:% Decrease in mistakes performed during on-site inspections (by CB or PA)	
Serbian BC	OCS only detects mistakes during the certification process by reviewing the inspection report and photos taken during the inspection. Envision solution can help to prevent these mistakes
UK BC	Remote monitoring of specific site features such as field boundaries and removal/planting of trees could be done with more accuracy and decrease CB mistakes using Envision services, thus there could be an influence but it would be low.
Cypriot BC	On-site inspections usually find irregularities that are not visible during earth observation, and not vice versa.
Lithuanian BCs	Envision tools will help to reduce the number of mistakes performed during on-site inspection.
Flemish BC	There is no indication that there are mistakes in the controls as they are done now.
KPI 2: % Decrease in number of farmer declaration mistakes	
Serbian BC	In this season, OCS found about the same number of declaration errors as in previous years, which means the number of declaration errors is not decreasing. But OCS has no tools for this and only finds errors when it checks plots on site. When it becomes possible to check all plots through the Envision product and services, OCS expects that a higher number of declaration errors will be detected, which will lead farmers to make corrections. In the longer term, this will therefore lead to fewer declaration errors.
UK BC	LEAF Marque certified producers may be able to monitor site features and habitat features using Envision services in order to record more accurate information for their compliance audits, however the influence will likely be very low as this technology will not be widely accessible for small holder growers and other international growers that are LEAF Marque certified.
Cypriot BC	Using Envision can help point errors in declarations and help farmers correct their applications
Lithuanian BCs	Envision tools will help farmers correctly declare the crop type and properly measure the parcel boundaries.
Flemish BC	
KPI 3 :% Increase in total area/unit under organic farming	
Serbian BC	ENVISION could be influence only indirect, through increasing of subsidies and increasing efficiency of inspections and get more time for additional clients and more inspections.
UK BC	The farm that is participating in the UK BC is already 100% organic, thus there will be no change. Also, the UK BC does not monitor this type of indicator. The LEAF Marque Standard does not require farms to be organic and does not monitor their organic status, so these Envision services would have no influence in this area
Cypriot BC	Most applicants join organic farming commitments for the extra subsidy and not because they produce or sell anything. Few are professional farmers
Lithuanian BCs	Reduced control costs or farmer mistakes by envision tools won't increase a organic farming hectares
Flemish BC	There is no indication that the service can have an influence on number of organic parcels. However it is possible that farmers may decide to switch to organic farming based on information about the condition of their soil
KPI 4: % Decrease in work time for monitoring and inspection activities	
Serbian BC	The inspection and certification process is time-consuming under the current scheme and any reduction will be very valuable.
UK BC	There would likely be a low influence from the use of Envision services on decreasing the work time for monitoring and inspection activities because the a large focus of the inspection time is based on reviewing farm management plans and some onsite features that cannot be monitored by EO. However the services could help in reducing the amount of time monitoring biodiversity and habitat outcomes.
Cypriot BC	Envision can help monitor farming practices without the need for on-site visits, thus reducing the number of days needed for on-site inspections.

Lithuanian BCs	Envision tools will reduce the time consumption required for on-site inspections.
Flemish BC	Cross compliance checks are very elaborate and consist of many checks. Checking the soil analysis is only a very small part of such a farm visit. And for pH the check will still be necessary. Still there is les data to be checked.

KPI 5: % Decrease in time spend for administration work	
Serbian BC	OCS are expecting to decrease time only for annual report with ENVISION service. In applications ENVISION service couldn't have any impact.
UK BC	It is estimated that the use of Envision services would have no influence on the amount of time spent for administration work because CB administration work is based on LEAF Marque training and meetings.
Cypriot BC	Administration work is not expected to drop dramatically since the process of handling the applications is not really connected with how the checks are performed. The reduction in time can be mostly attributed to the reductions of objections to our findings since the expectation is to reduce mistakes in declarations (see KPI2)
Lithuanian BCs	Envision tools would help implement a remote monitoring system as effectively as possible, reducing the number of on-site inspections.
Flemish BC	There is no influence as the farmer will still need to have soil analysis on other parameters than OC

KPI 6: % Increase in numbers of Laws / regulations supporting technologies for the continuous and systematic monitoring of agricultural practices	
Serbian BC	It will be very important to any of legislatives recognize services like ENVISION as monitoring practice.
UK BC	There will be no influence because there are no laws/regulations that currently provide this support in the UK, despite there being a number of programs/initiatives that support technologies for monitoring agriculture performance and land use.
Cypriot BC	There is enough relevant regulation supporting technologies for monitoring of agricultural practices. Any other subsequent piece of legislation will come from a different process, but not directly from ENVISION..
Lithuanian BCs	NPA does not see any impact on law regarding Envision tools
Flemish BC	There is a European obligation in the new CAP to monitor the performance of CAP interventions using these technologies for all parameters where this is obligatory

KPI 7: Increase in coherence degree of the national strategic plan with the technologies that support continuous and systematic monitoring of agricultural practices.	
Serbian BC	It will be very important to any of legislatives recognize services like ENVISION as monitoring practice.
UK BC	There will be no influence on coherence because EO monitoring is not a national requirement for UK agriculture. There does not appear to be a clear direction in UK policy post-BREXIT for use of EO monitoring, especially if the UK becomes excluded from Copernicus.
Cypriot BC	ENVISION can help highlight key factors for increasing the said coherence. However as the preparation of the Strategic Plan is part of Policy Making and not of the Implementation, the influence of Envision will stay low.
Lithuanian BCs	EU law would help to realize the implementation of a remote monitoring system as effectively as possible, which would reduce the number of on-site inspections
Flemish BC	To monitor the exact impact of interventions is not possible because of accuracy. However the service can give an indication of where there are problems where further follow up might be necessary

KPI 8: % Increase in the number of farmers and Inspectors (end users) who are willing to use the services in your BC	
Serbian BC	More end users provide bigger insight in functionality of service.
UK BC	There is likely to be low influence on the increase of farmers and CBs willing to use the Envision services because the LEAF Marque Standard and Assurance program would first need to be re-designed to incorporate EO requirements and farmers/CBs would need assistance in overcoming access barriers (time, access to technology, financial barriers).
Cypriot BC	Once we can fully use the services then an increase in use by the farmers is expected

Lithuanian BCs	The more will be developed Envision tools, the more users will use it
Flemish BC	We expect that information on SOC can have a positive influence on the number of farmers who are willing to use the service through Soil Pasport (visualisation of the SOC). It is however very difficult to put a number on this. Soil Pasport is under development.

KPI 9: % Increase in harvested crop yields per hectare (e.g. Wheat, barley)	
Serbian BC	The ENVISION service could have no direct impact on the yield increase, the only impact could be the yield assessment, which OCS targets at 10%.
UK BC	There would be no influence as the LEAF Marque Standard requirements do not focus on measuring yield, therefore this service and target would not be applicable for the UK BC
Cypriot BC	CAPO has no data or control over production levels of crops. Subsidies are decoupled from production and are based on areas. No target can be provided as Envision Services are not directly link to crop yields
Lithuanian BCs	NPA does not see any impact of the tools to more harvesting crops (all crops are harvested already)
Flemish BC	We hope that by giving information about the soil conditions like OC, farmers will learn and decide to work on improving the soil conditions for their crops and that way increase the yields. So the impact is indirect and therefore very hard to quantify.

KPI 10: % Increase in number of new employments for relevant work in your organization/company.	
Serbian BC	OCS is looking for a service that keeps the current number of employees and increases the number of customers and productivity.
UK BC	There will likely be no influence from the use of Envision services on the number of CBs because CBs are selected to deliver LEAF Marque assurance based on factors that are not related to EO technology
Cypriot BC	CAPO is a Public Service Organization and does not have the ability to hire new employees unless a general policy decision is made from the Government. In general, new fields or new jobs stemming from Envision will be covered by further training and extending the knowledge of current staff.
Lithuanian BCs	The number of inspectors will decrease as new technologies are applied.
Flemish BC	There will be some work needed on the implementation in our processes, which in concreto will mean that an employee will spend some (5%) of his/her time on this.

KPI 11: % Increase in number of new products/services/processes by building on the ENVISION solution.	
UK BC	At the start of the project, LEAF implemented a remote auditing process to adapt to the COVID pandemic (not using EO services). There would be a low increase in the number of Envision services used for LEAF Marque monitoring because the services are only applicable to monitoring a subset of the total LEAF Marque Standard requirements, not all
Cypriot BC	Subsequent analysis of Envision data can lead to the production of new markers, which can assist in policy making.
Flemish BC	Nothing is planned at this point, but it is possible that in future processes the soil conditions will be taken into account. The service can than be very useful as it gives information for the whole of Flanders.

KPI 12: % Decrease in number of records farmers shall keep	
Serbian BC	It is very important for farmers satisfaction and happiness, because they are very frustrated with number of records they should keep and they often gets non-conformities for not updated records
UK BC	The number of records kept depends on the size of the farm. It won't be affected at least immediately from the use of technology.
Cypriot BC	The number of records kept depends on the size of the farm. It won't be affected at least immediately from the use of technology.
Lithuanian BCs	Farmers will not be required to keep the grassland mowing records register since they'll be detected via satellites
Flemish BC	We expect some impact but this will be neglectable as soil analysis is also necessary for other parameters

KPI 13: % Decrease in amount of used paper for monitoring and inspection activities	

Serbian BC	It is easier for remote work only with electronic data and also for environment protection and responsibility.
UK BC	The primary records that LEAF Marque requires farmers to keep are management plans, self-evaluations and risk assessments. Therefore EO services would have a low influence in reducing the number of farmer records, but services could help reduce soil/habitat monitoring records and farm site mapping.
Cypriot BC	Once most eligibility criteria are checked by Envision, the number of on-site checks and paper use will decrease.
Flemish BC	Inspection of cross compliance is done by means of a digital checklist
KPI 14: % Decrease in pesticide use	
Serbian BC	Organic producers are obliged to primarily establish preventive measures and avoid the use of pesticides. Detection of pesticide use, especially non permitted, is one of the key elements of organic production control.
UK BC	Because the Envision services would help growers monitor their pesticide use, they could then more successfully determine targets for pesticide-reducing practices, but the overall influence this will have on decreasing pesticide use is low as this depends on management decisions and strategies.
Cypriot BC	CAPO has no control over the use of pesticide. There's no way we can estimate the use of them or any reduction in use
Flemish BC	We hope that by giving information about the soil conditions like OC, farmers will learn and decide to work on improving the soil conditions for their crops and that way decrease the need for pesticides. So the impact is indirect and therefore very hard to quantify.
KPI 15: % Decrease in chemical fertiliser use	
Serbian BC	Organic producers are obliged to primarily establish preventive measures and avoid the use of chemical fertilizers. Detection of use of chemical fertilizers is one of the key elements of organic production control.
UK BC	Because the Envision services would help growers monitor their chemical fertiliser use, they could then more successfully determine targets for chemical fertiliser-reducing practices, but the overall influence this will have on decreasing chemical fertiliser use is low as this depends on management decisions and strategies.
Cypriot BC	CAPO has no control over the use of fertilizers
Flemish BC	We hope that by giving information about the soil conditions like OC, farmers will learn and decide to work on improving the soil conditions for their crops and that way decrease the need for pesticides. So the impact is indirect and therefore very hard to quantify.
KPI 16: % Increase in biodiversity in farmland	
Serbian BC	Contributing to a high level of biodiversity In particular using varieties suitable for organic production is one of the main objectives of organic farming. A successful, biodiverse farm is one that preserves biodiversity and conserves natural resources.
UK BC	Although the Envision services would help growers monitor some biodiversity outcomes on-farm, it will likely not influence the number of species as this would depend on their habitat management strategies and targets for both flora and fauna
Flemish BC	We hope that by giving information about the soil conditions like OC, farmers will learn and decide to work on improving the soil conditions for their crops and that way decrease the need for pesticides. So the impact is indirect and therefore very hard to quantify.
KPI 17: % Increase in the use of environmental friendly agricultural practices (no-till farming, agroforestry, crop rotation)	
Serbian BC	Environmental friendly agricultural practices are very important for general compliance with organic standards, because in the long term they indirectly affect the reduction of the use of pesticides, fertilizers, and biodiversity.
UK BC	Although the Envision services would help growers monitor the outcomes of their on-farm practices, it will likely not influence the number of sustainability practices a farm implements as this would depend on their management strategy and targets.

Cypriot BC	On the previous years some environment friendly practises were compulsory (greening) in EU legislation for farmers with over 10ha of arable land. Along with farmers committed in Agro Environmental schemes and Organic farming they formed the total of Cypriot farmers counted as baseline. Legislation is changed now so we are not certain how many will join the new voluntary schemes
Flemish BC	We hope that by giving information about the soil conditions like OC, farmers will learn and decide to work on improving the soil conditions for their crops and that way also embrace soil favorable and environmentally friendly practices. So the impact is indirect and therefore very hard to quantify.

KPI 18: % Increase in the soil organic matter

Serbian BC	Increase of SOC is indirectly indicator of good agricultural practices, the use of manure, plowing of green manure
UK BC	Because the Envision services would help growers monitor their SOM%, they could then more successfully determine targets for SOM-increasing practices, but the overall influence this will have on increasing SOM% is low as this depends on management decisions and strategies.
Flemish BC	Giving information about SOC, will surely entice the farmers to ameliorate the OC when levels are low. The impact is indirect however and therefore very hard to quantify.

KPI 19: % Decrease in number of travelling with motor vehicles for on-site inspection

Serbian BC	Continuous monitoring would reduce the need for additional visits to producers and help ensure that only those visits that are really needed are made, and would be a useful tool in risk assessment.
UK BC	Use of the Envision services would not decrease the number of auditors travelling for on-site inspections because the LEAF Marque Standard requires inspection of other on-site features, such as fuel storage and chemical input storage etc
Cypriot BC	Once most eligibility criteria are checked by Envision the number of on-the-spot checks will be reduced along with vehicle movements
Flemish BC	Field visits will still be necessary, despite the SOC service

KPI 20: % Increase in number of publications and dissemination activities

Serbian BC	OCS is very active in dissemination activities, these activities were carried out in accordance with the pre-planned
UK BC	The number of publications and social media posts by LEAF about the use of ENVISION services in sustainable farming increased between M18 to M25.
Cypriot BC	Envision results offer insights about farming practices and it will be beneficial for Administration and Policy Makers to be informed about it.
Flemish BC	

KPI 21: % Decrease in number of fraud statement

Serbian BC	Continuous supervision, useful additional tools for risk assessment could reduce possibility of frauds in agriculture. In organic frauds are in most significant number of cases related to use of non-permitted techniques, mixing or commingling of organic products with conventional.
UK BC	Not applicable to the UK BC because this is not data that is measured by LEAF however LEAF does surveillance to monitor logo use and claims related to LEAF Marque, but not the data related to what Envision services monitor.
Cypriot BC	Usually, fraud relates to land grabbing and that is not detected by technology but with administrative checks. Thus there's no way to know if fraud will be deterred by Envision.
Flemish BC	There is no evidence on fraud, but using an objective service excludes the possibility of fraud

KPI 22: % Increase in number of datasets to support the development of technologies that allow the continuous and systematic monitoring of agricultural practices through earth observation

Cypriot BC	Envision is providing access to its Datacube where all data resides, and thus providing CAPO with the opportunity to query for new datasets needed to perform new operations.
Serbian BC	If we have different types of datasets that will be satisfy different expectaition for reporting of different police makers

KPI 23: % Increase in number of downloads (from the Envision Platform, open source APIs)	
UK BC	The use of Envision services will increase the number of downloads from the Envision platform because the services will enable comparison between monitoring results and the LEAF Marque requirements to confirm farm compliance.
Cypriot BC	If using Envision platform as our main source of data for applicants we can estimate at least one third of them who are more active will use the platform for data downloads
Flemish BC	If a service like SOC becomes open source, it will probably be used more than just by LV
KPI 24: % Increase in number of relevant historical databases	
Cypriot BC	The project is moving forward and new year's declarations become available, the previous results will become historical data and can be used for comparisons, creation of historical timeline of a parcel etc
Flemish BC	The SOC service will create a database for the soil in Flanders that will eventually show a trend in the SOC in Flander and that way becomes a relevant hgistorical dataset
Serbian BC	If we get historical data for parcels which is not in our system (for new involve parcels) it will have very favourable effect, especially for cases of recognition of previous implementation of organic rules
KPI 25: % Decrease in max fluctuation of results of markers	
UK BC	Through testing, validation of results and refinement of the methodology used, the markers will be more precise over
Cypriot BC	Through testing, validation of results and refinement of the methodology used, the markers will be more precise over time as more and more scenarios are taken into account.
Flemish BC	
KPI 26: % Increase in number of farmers who benefit from CAP/EU agri-environmental policies based direct payments	
Cypriot BC	There's no certainty that the number of farmers benefiting from EU agri-environmental policies will increase with the use of technology. Maybe there's an increase in applicants in the first year but with better checks some will probably opt out after being warned for not complying with eligibility conditions, thus offsetting the initial increase.
Flemish BC	The SOC has no influence on the number of farmers who benefit from direct payments

Table 11. The comments and explanations on each KPI from the perspective of each BC

4.2 Evaluation of the business value and acceptance

The responses to the questionnaire for business value and acceptance evaluation are presented below for each specific field.

4.2.1 Reduced time and effort

The "Reduced time and effort" assessment results of the BCs are presented in Table 12 and Table 13.

Field: Reduced time and effort						Serbian BC	UK BC	Cyprus BC	Lithuanian BC	Flemish BC
On a scale 1 to 6										
Not relevant to our use case	Strongly disagree	Disagree	Neutral	Agree	Strongly agree.					
Envision data products and services can help reduce the number of travel trips for on-site inspections						strongly agree	Not relevant to our use case	Agree	Agree	Agree
Envision data products and services can help to reduce the time spent on monitoring activities						I strongly agree	Neutral	Agree	Strongly agree	Neutral
Envision data products and services can reduce time spent on administration work						Agree	Neutral	Neutral	Agree	Disagree
Envision data products and services can contribute to reducing effort and improving operational performance						Agree (5)	Neutral (4)	I strongly agree	Agree (5)	Agree (5)

Table 12. The results of the "Field; Reduced time and effort" -close questions

As shown in Table 12, most BCs agreed or strongly agreed that Envision data products and services can help reduce the time and effort spent on monitoring, inspection and administrative activities. The UK BC was largely neutral on this issue. The Cypriot and UK BC were neutral on the contribution the Envision service can make to reduce administrative work, while the Flemish BC disagreed.

The following are the combined results of the interview and open-ended questions

Field: Reduced time and effort	Serbian BC	UK BC	Cyprus BC	Lithuanian BC	Flemish BC
Why do you think Envision data products and services can/can't help to reduce the number of trips for on-site inspections?	Envision data products and services can help to get a better picture of where is potential fraud.	Remote monitoring reduces the needs for performing on-site inspection of practices and outcomes on a farm.	Because it will monitor elements previously checked by on-the-spot checks	The remote monitoring system should reduce the number of on-site inspections required	You can see results on the screen so you don't have to go on the spot
Why do you think Envision data products and services can/can't help to reduce the time spent on monitoring activities?	Envision data products and services can help shift focus from fragmented monitoring limited to single fields and specific data, to wide-	Quick access to data	Because it can cover activities currently done in house.	Since fewer on-site inspections will be conducted, less time will be required for it	Work will shift from on the spot to on the screen for a larger number of records

Why do you think Envision data products and services can/can't help reduce time spent on administrative work?	Envision data products and services can help reduce time spent on administrative work, saving historical data on the platform.	It can help reduce some time on admin work by reducing the amount of paperwork to complete.	I believe there is no change in time spent on administrative work because there are the same people will need to be behind a system either that is Envision or something else	Remote monitoring system will lessen the amount of manual work required doing administrative work	I think it will lead to more Administrative (I assumed for the paying agency)
Why do you think Envision data products and services can/can't contribute to reducing effort and improving operational performance?	Envision data products and services can reduce effort and improve operational performance with more precise and adequate data information.	The data products can reduce travel time and administrative burdens. They can also improve the tracking of agriculture performance, and this data can be used to improve business decisions and practices.	Because of the amount and quality of results produced	Envision data products could improve operational performance by reducing the amount of manual work	Because with the necessary product maturity, 100% control can be possible.

Table 13. The results of the "Field; Reduced time and effort" -open-ended questions

4.2.2 Ease of use

The main responses of each BC to the questions related to " Field; ease of use" are presented in Table 14.

Field:Ease of use										
On a scale 1 to 6						Serbian BC	UK BC	Cyprus BC	Lithuanian BC	Flemish BC
Not relevant to our use case	Strongly disagree	Disagree	Neutral	Agree	Strongly agree.					
The product and services are easy to install						Strongly agree (6)	Agree (5)	Agree (5)	Strongly agree(6)	Not relevant to our use case (1)
The product and services are easy to use and understand by everyone working with it.						Strongly agree (6)	Disagree (3)	Agree (5)	Strongly agree(6)	Agree (5)
The use of the product and services needs particular (ICT) expertise.						Disagree (3)	Neutral (4)	Strongly agree(6)	Neutral (4)	Agree (5)

Table 14. The results of the "Ease of use" -close questions

As Table 14 shows, most of the items received agreed or strongly agreed with the items indicating ease of use. What stands out in the table is the item related to the need of special (ICT) expertise in using Envision solution. Here the responses of UK and Lithuanian BCs are neutral and Serbian respond was disagree but these responses can be seen as positive, because the ease of use of the solution is positively affected if a user does not need special expertise. Given the Flemish BCs' positive answers to the last 2 questions, one might think that these two answers are in conflict, but this is not the case. The reason for the answers given is that they believe that using the Envision product requires some relevant knowledge, but that this small amount of knowledge is enough to use the product correctly.

4.2.3 Accessibility

Accessibility is important for end users/ BC customers to work with the Envision solution. To find out what conditions are important for end users/ BC customers to work with Envision services and what issues prevent them from accessing and/or using Envision services, this field focuses on possible conditions and barriers.

The results of the "Accessibility " assessment of the BCs are presented in Table 15 and Table 16

Field: Accessibility										
On a scale 1 to 6						Serbian BC	UK BC	Cyprus BC	Lithuanian BC	Flemish BC
Not relevant to our use case	Strongly disagree	Disagree	Neutral	Agree	Strongly agree.					
The initial estimated price and payment plan to acquire and integrate the Envision Product/ Services is reasonable. (PAs: 18.000 euros/year with a full service package and a specific area size (8.000 ha); CBs: 10.000 euros/year with a full service package and a specific area size (8.000 ha))						Neutral	Neutral	Disagree	Agree	Not relevant to our use case
The cost of operating and maintaining the Envision services is acceptable						Neutral	Neutral	Neutral	Agree	Not relevant to our use case
We (as a PA/ CB) have the necessary infrastructure to install and operate the services						Strongly agree	Disagree	Agree	Agree	Agree
We (as PA/ CB) have the financial and technological capacity to collect and provide data for the ENVISION Services						Agree	Neutral	Agree	Agree	Agree
The required time is acceptable for the needed trainings of end-users						Neutral	Neutral	Agree	Agree	Not relevant to our use case
The required cost is reasonable for the needed training of end-users						Neutral	Neutral	Neutral	Agree	Not relevant to our use case

Table 15. The results of the " Accessibility " -close questions

As a contribution to the ongoing work of formulating a price and payment plan for the developed services, we asked BC's customers whether or not the price and payment plan for the purchase and integration of the Envision product and services was acceptable. To assess this, we gave them the initial price and payment plan drafted from the beginning of the project. We also asked them to assess the operating and maintenance costs of the services, and these were the two most striking results that

emerged from Table 15. The Serbian and UK BC responded as neutral, while the Cyprus BC responded as disagree. The BC with the most positive view on the accessibility of services was the Lithuanian BC, which responded as agree to all questions.

The combined results of the interview and open-ended questions are summarised in the table below.

Field: Accessibility	Serbian BC	UK BC	Cyprus BC	Lithuanian BC	Flemish BC
Please indicate the issues (infrastructural, financial or technical, etc.) hindering to install and operate the Envision data product and services for your use case, If there are any:	Only issue could be financial, because we are small enterprise.	As a small charity organisation with limited resource, there are financial and infrastructural barriers to adopting Envision data products. Also, the LEAF Marque Standard and our audit processes would need to be rewritten/significantly modified in order to enable the use of Envision services.	The cost is an issue. Since we are a government organisation without own IT and a system we don't have the budget to buy from outside	none	none
Please indicate the issues (infrastructural, financial or technical, etc.) hindering to collect and provide data for the Envision data product and services for your use case, If there are any:	We are limited with small area of organic fields in Serbia.	Same as above.	none	none	none
What trainings you think are needed for end users to properly operate Envision products and services.	No training is needed for that.	Tutorial sessions done over video call that allows the trainers to demonstrate how to use the platform, how to use and interpret the data, and allows users to ask questions and interact with the platform with the trainers present.	Extensive trainings needed	No training required	none, automated processing of the results

Table 16. The results of the " Accessibility " -open ended questions

4.2.4 Added economic value-benefits

The results of the " Added economic value-benefits " assessment of the each BC are presented in Table 17 and Table 18.

Field: Added economic value-benefits							Serbian BC	UK BC	Cyprus BC	Lithuanian BC	Flemish BC
On a scale 1 to 6											
Not relevant to our use case	Strongly disagree	Disagree	Neutral	Agree	Strongly agree.						
Envision data products and services deliver a positive value for the return on investment ratio (To calculate ROI, the return of an investment, the benefit is divided by the cost of the investment)							Neutral	Disagree	Not relevant to our use case	Agree	Neutral
Envision data products and services can contribute to reducing business operating costs.							Agree	Disagree	Disagree	Strongly agree	Agree
Envision data products and services can help to increase the productivity of my farm/organisation							Agree	Neutral	Agree	Strongly agree	Agree
Envision data products and services can help prevent penalties and loss of funding by (proactively and automatically) alerting the beneficiary of possible non-compliances and enabling corrective actions through the web and mobile apps							Agree	Neutral	Agree	Agree	Neutral
The initial estimated price /quality ratio of the Envision product/ services is fair. (PAs: 18.000 euros/year with a full service package and a specific area size (8.000 ha); CBs: 10.000 euros/year with a full service package and a specific area size (8.000 ha))							Neutral	Neutral	Neutral	Agree	Not relevant to our use case

Table 17. The results of the "Field; Added economic value-benefits " -close questions

The perceived economic value of a solution consists of the perceived price, cost and productivity for the business.

With the exception of UK and Cyprus BCs, BCs' customers reported that they were neutral or agreed that Envision solutions can increase productivity and profits and reduced costs.

The combined results of the interview and open-ended questions are summarized in the table below.

Field: Added economic value-benefits	Serbian BC	UK BC	Cyprus BC	Lithuanian BC	Flemish BC
Why do you think Envision data products and services can/can't contribute to reducing business operating costs?	With saving time (employee could work on some additional job that make additional value) and travel cost.	They could potentially reduce costs if implemented at scale, but for smaller organisations with less resources it may not reduce costs.	I dont believe that Envision will reduce our cost because its not developed to all our needs as PA	They can reduce the cost by reducing the amount of manual work required	if services reach the necessary maturity, this could save on site inspection costs

Why do you think Envision data products and services can/can't contribute to increase the productivity of you organisation?	With saving time for travel to inspection on spot.	Currently, the data products can't increase the productivity for LEAF because there are no processes or proper infrastructure to be able to incorporate them into the certification and auditing process.	They can provide tools that required more resources to run them	By reducing the amount of manual work the employees can spend more time on other more urgent things	100% monitoring

Table 18. The results of the " Added economic value-benefits " -open ended questions

4.2.5 Flexibility and Scalability

The results of the "Flexibility and Scalability " assessment of the each BC are presented in Table 19.

Flexibility and Scalability											
On a scale 1 to 6						Serbian BC	UK BC	Cyprus BC	Lithuanian BC	Flemish BC
Not relevant to our use case	Strongly disagree	Disagree	Neutral	Agree	Strongly agree.					
Envision data products and services enable seamless integration and interoperability with the existing system						Agree	Not relevant to our use case	Strongly disagree	Neutral	Agree
The Envision data products and services ensure compatibility with the organisation's workflows and time constraints.						Agree	Neutral	Strongly disagree	Agree	Agree
Envision data products and services can be easily expanded or upgraded to meet changing user demands.						Neutral	Neutral	Disagree	Agree	Agree

Table 19. The results of the "Flexibility and Scalability " -close questions

Looking at the responses to the questions regarding the Flexibility and Scalability of services, the Cypriot BC stands out in particular. The Cypriot BC answered all questions as disagree or strongly disagree.

4.2.6 Usefulness

The results of the " Usefulness " assessment of the BCs are presented in Table 20 and Table 21.

Field: Usefulness						Serbian BC	UK BC	Cyprus BC	Lithuanian BC	Flemish BC
On a scale 1 to 6										
Not relevant to our use case	Strongly disagree	Disagree	Neutral	Agree	Strongly agree.					
Envision data products and services can support or create more collaborative, transparent and accurate decision-making						Agree (5)	Agree (5)	Agree (5)	Agree (5)	Agree (5)
I believe the Envision data products and services can foster the further acceptance of Earth Observation technologies.						Neutral (4)	Agree (5)	Agree (5)	Strongly agree(6)	Agree (5)

Table 20. The results of the " Usefulness " -close questions

As shown in Table 20, all BCs agreed or strongly agreed that Envision data products and services can contribute to more collaborative, transparent and accurate decision-making and further acceptance of Earth observation technologies.

The combined results of the interview and open-ended questions are summarised in the table below

Field: Usefulness	Serbian BC	UK BC	Cyprus BC	Lithuanian BC	Flemish BC
Why do you think Envision data products and services can/can't support or create more collaborative, transparent and accurate decision-making?	Envision data products and services can support or create more collaborative, transparent and accurate decision-making with exact information from all parcels of farmers.	Because it provides greater access to specialised and up-to-date data	it's an added source of data	Data provided by remote sensing technology proves to be accurate thus allowing for faster and more accurate decisions	With an improved results, it can gives a view for the entire region and as the data are available to everybody, transparent source for decision making
Why do you think Envision data products and services can/can't foster the further acceptance of Earth Observation technologies?	I am not sure what can or can't foster the further acceptance of Earth Observation technologies.	The products and services can demonstrate how EO can positively improve agriculture monitoring and provide solutions to both oversight bodies and farmers.	it's an added source of data	No opinion	if they are accurate, less burden for the farmers in their advantage

Table 21. The results of the " Usefulness " -open ended questions

4.2.7 Regulatory compliance

For the acceptance of the developed services, it is very important to assess whether the products are in line with the rules and regulations of the government of the pilot countries, and whether the proposed products and services can help improve compliance with national plans and agri-environmental regulations.

The results of the " Regulatory compliance " assessment for the BC are presented in Table 22 and Table 23.

Field: Regulatory compliance										
On a scale 1 to 6						Serbian BC	UK BC	Cyprus BC	Lithuanian BC	Flemish BC
Not relevant to our use case	Strongly disagree	Disagree	Neutral	Agree	Strongly agree.					
Envision data products and services can contribute to providing continuous information and respective confidence levels regarding compliance with current EU CAP and agri-environmental regulations						Neutral	Not relevant to our use case	Strongly disagree	Neutral	Neutral
The service will contribute to the direct monitoring of farmers' compliance with the respective regulations of pilot countries						Neutral	Neutral	Disagree	Agree	Strongly disagree
Envision products and services can provide consistency with recent relevant legislation and policy developments such as the new CAP						Neutral	Not relevant to our use case	Disagree	Agree	Neutral
Envision data products and services comply with current EU and national regulations /laws.						Neutral	Not relevant to our use case	Disagree	Agree	Neutral
Envision data products and services comply with existing certification programs						Neutral	Neutral	Not relevant to our use case	Agree	Neutral
Envision services can be adapted and applied to the updates of certification standards.						Agree	Agree	Not relevant to our use case	Agree	Neutral
Envision data products and services are compliant and ensure transparency and security in the context of intellectual property and GDPR						Agree	Agree	Agree	Agree	Not relevant to our use case
Envision data products and services can be used after the project lifetime, at least the duration of the new CAP (2023-2027)						Neutral	Agree	Agree	Agree	Neutral

Table 22. The results of the "Regulatory compliance " -close questions

The table shows that most BC were neutral or agreed with the points raised. However, Cyprus BC strongly disagreed or disagreed with all compliance questions except the one on security. Flemish BC also strongly disagreed that the service will help directly monitor farmers' compliance with the pilot countries' respective regulations.

The combined results of the interview and open-ended questions are summarised in the table below

Field: Regulatory compliance	Serbian BC	UK BC	Cyprus BC	Lithuanian BC	Flemish BC
Why do you think Envision data products and services can/can't contribute to providing continuous information and respective confidence levels regarding compliance with current EU CAP and agri-environmental regulations?	Currently EU and national regulations /laws do not recognize inspections remotely.	Not applicable.	The legislative demands are higher than what envision can offer	Constant monitoring possibility provided by remote sensing systems can improve the ability to get continuous information and take appropriate actions thus improving compliance with the current EU CAP and agro-environmental regulations	the product isn't compliant with regulations

Table 23. The results of the " Regulatory compliance " -open ended questions

4.2.8 Quality, Completeness and Specialisation

The results of the " Quality, Completeness and Specialisation " assessment of the each BC are presented in Table 24.

Field: Quality, Completeness and Specialisation						Serbian BC	UK BC	Cyprus BC	Lithuanian BC	Flemish BC
On a scale 1 to 6										
Not relevant to our use case	Strongly disagree	Disagree	Neutral	Agree	Strongly agree.					
Envision data products and services can provide a more robust and efficient monitoring method and services compared to the other alternatives (maturity, effectiveness) in the market						Neutral	Not relevant to our use case	Neutral	Strongly agree	Disagree
Envision data products and services are sufficient, covering all range of the necessary services. No additional services are necessary OR services missing are possible to build based on the add-on development tool of ENVISION						Neutral	Neutral	Disagree	Agree	Disagree
With a specific emphasis on monitoring sustainability rules, ENVISION is one step ahead in terms of readiness to address the upcoming needs of PAs and CBs.						Agree	Neutral	Disagree	Agree	Neutral

Table 24. The results of the "Quality, Completeness and Specialisation " -close questions

Looking at the quality-related points, Lithuanian BC strongly agree that the Envision data products and services can provide a more robust and efficient monitoring method and services than the other alternatives (maturity, effectiveness) on the market and also agree that the Envision data products and services are adequate and cover all necessary services. Lithuanian BC and Serbian BC state that ENVISION, with a specific focus on sustainability monitoring, is a step forward in terms of readiness to meet the upcoming needs of PAs and CBs. Other BC either neutral or disagree with the questions listed

4.2.9 Support service

The results of the " Support service " assessment of the each BC are presented in Table 25.

Field: Support service						Serbian BC	UK BC	Cyprus BC	Lithuanian BC	Flemish BC
On a scale 1 to 6										
Not relevant to our use case	Strongly disagree	Disagree	Neutral	Agree	Strongly agree.					
The proposed service level agreement is acceptable.						Agree	Neutral	Not relevant to our use case	Agree	Neutral
I had the necessary technical support to install, integrate, repair, use and maintain the product and services properly						Strongly agree	Disagree	Not relevant to our use case	Agree	Neutral
I had training on data collection and use of the services.						Strongly agree	Disagree	Not relevant to our use case	Agree	Neutral
After the project, necessary support will be provided which is the required number of yeas for after sale support						Neutral	Neutral	Not relevant to our use case	Agree	Neutral

Table 25. The results of the "Support service " -close questions

In response to questions about the provision of necessary support, the Cyprus BC replied to all questions that this was not relevant to our use case, while the UK BC disagreed that technical support was provided for integration and use of the service and they also disagreed that training was provided on data collection and use of the services. The rest of the BCs agree or are neutral on the listed questions.

4.2.10 Uniqueness And Superiority

For evaluation of the business value and acceptance, we also ask to rate " Uniqueness And Superiority " of the services as a way to express that Envision data products and services are unique or superior for the stated function.

The results of the " Uniqueness And Superiority" assessment of the BCs are presented in Table 26.

Unique/superior: If you select 5 (agree) or 6 (strongly agree), you can also select "Unique/superior" as a way of expressing that Envision data product and services are unique or superior for the stated feature.	Serbian BC
Envision data products and services can help reduce the number of travel trips for on-site inspections	Strongly agree/ Unique/superior
Envision data products and services can help to reduce the time spent on monitoring activities	Strongly agree/ Unique/superior

Table 26. The results of the "Uniqueness And Superiority " -close questions

The results of the generic open-ended question is summarised in the table below.

General	Serbian BC	UK BC	Cyprus BC	Lithuanian BC	Flemish BC
Please provide features that are not mentioned but are critical to your business and processes, if there are any:	The ENVISION product has great potential if it can be improved to operate with the required accuracy.	None			

Table 27. The results of the " Generic " -open ended questions

4.3 Evaluation of the performance, usability and effectiveness of the product and services

All business cases were requested to answer all questionnaires. However, it should be noted that some business cases were not yet at the stage where performance usability and effectiveness testing would provide useful results. In those cases, the option "Not relevant to our use" was selected.

The results of the " Performance, Usability And Effectiveness " assessment of the each BC are presented in Table 28 and Table 29.

Performance, Usability And Effectiveness					
On a scale 1 to 6	Serbian BC	UK BC	Cyprus BC	Lithuanian BC	Flemish BC
Not relevant to our use case					
Extremely weak performance/ product does not meet my needs					
Poor performance, major improvement needed/ product partially meets my needs					
At an acceptable or above level / product partially meets my needs					
Very favourable performance, but still needs improvement/ product fully meets my needs					
Clearly outstanding performance which is way above the norm/ product fully meets my needs					
Ability to receive data of crop type maps with two-week frequency from the mid- April to mid-September.	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Poor performance, major improvement needed/ product partially meets my needs.	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Not relevant to our use case
Ability to receive grassland mowing and grazing layers with two-week frequency from June till November.	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Poor performance, major improvement needed/ product partially meets my needs.	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Not relevant to our use case
Data product of Grassland mowing/ploughing provides more than 85% accuracy.	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Not relevant to our use case
Data product of cultivated crop type maps and grassland mowing/ploughing provides at least 95% accuracy compared to in situ data	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Not relevant to our use case
Ability to receive vegetation status maps with a priority on EFA catch-crop fields and all fallow land fields.	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Not relevant to our use case
Ability to mask the layers based on the outputs of a Envision service.	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	At an acceptable or above level / product partially meets my needs
The masked layers could be visualised on the Envision platform	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	At an acceptable or above level / product partially meets my needs
Ability to identify and distinguish between organic and conventional crop.	At an acceptable or above level / product	Not relevant to our use case	Clearly outstanding performance which is way	Very favourable performance, but still needs improvement/	Not relevant to our use case

	partially meets my needs.		above the norm/ product fully meets my needs.	product fully meets my needs.	
Ability to monitor the pesticide and herbicide use on the declared plots (malpractices more generally) indirectly through crop growth monitoring data product.	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Not relevant to our use case
Ability to receive information about the specific crop types even in very small and narrow parcels, or at least a coarser level of classification with a group of possible crop types	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Not relevant to our use case
Ability to get Envision outputs per parcel, especially for information on yield of organic crops.	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Not relevant to our use case	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Not relevant to our use case
Ability to get information once a year about the crops of neighbouring plots that are not involved in organic production.	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Not relevant to our use case
Ability to get data once a year for the crop types of conventional plots that belong to the same farmers that are involved also in organic production.	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Not relevant to our use case
Ability to track reductions in the number of plants through several times of the year.	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Not relevant to our use case
Ability to see the colour of crops / plants on parts of parcels (i.e. borders) for several times of the year to monitor pesticide/herbicide use.	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Not relevant to our use case
Ability to help to track events of illegal burning of crops.	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Not relevant to our use case
The performance of the system (data processing) is fast and enable quick testing.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Not relevant to our use case
The system can provide with errors against legislation so that we can communicate to farmers.	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Not relevant to our use case
The ENVISION toolbox features as many standards as possible and the various outputs are downloadable or easy to share via APIs so that we can analyse them in our own existing systems. (potential to transfer/download data)	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Not relevant to our use case
Envision data products and services enables seamless integration and interoperability with existing system.]	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Not relevant to our use case

Statement					
Relevant outputs and data can be stored in one place (the ENVISION database for the ENVISION lifetime).	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Not relevant to our use case
Ability to download outputs (i.e., shapefiles, csv files etc.), share via APIs or access the data storage online.	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Not relevant to our use case
The services can process information about newly declared parcels in bulk and efficiently. So that we can receive outputs for new parcels	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Not relevant to our use case
The specific methodology followed to estimate accuracy of measurements is documented on the platform.	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Not relevant to our use case
Accuracy is provided for the entire service outputs.	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Not relevant to our use case
Ability to receive notifications when the accuracy degrades throughout the cultivation period	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Not relevant to our use case
The services are/will be stable and functional for the ENVISION project lifetime	At an acceptable or above level / product partially meets my needs.	Not relevant to our use cas	Very favourable performance, but still needs improvement/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Not relevant to our use case
Possibility of using the services after the project ends (beyond project lifetime).	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Not relevant to our use case
ENVISION platform can monitor itself and notify me if there is a problem through selected method (email, web application, etc.).	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Not relevant to our use case
Ability to upload and provide information and in situ data from fields for the enhancement of Envision services	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Not relevant to our use case
Envision services provides indications if the values for certain pixels or plots are "Not Available - N.A.". So I can warn the respective farmers that they need to provide the relevant information themselves	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Not relevant to our use case
The results from ENVISION's remote monitoring services are reliable and verifiable on the spot.	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Not relevant to our use case
Ability to receive outputs in different standard data formats (i.e., shapefiles, raster files, csv data tables/ time series of various indicators) through the ENVISION	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully	Very favourable performance, but still needs improvement/ product fully meets my needs.	Not relevant to our use case

platforms, in order to study changes and emerging problems			meets my needs.	
Envision services can be featured on DIASes (the toolbox can be installed on DIASes, or that DIASes offer the tools as a service so it is preinstalled there, accessed and even maintained by the DIAS).	Not relevant to our use case	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Not relevant to our use case
The product and services are easy to install and use	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Not relevant to our use case
The product and services meet security standards	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Not relevant to our use case
Ability to receive data for declared parcels across the whole country and not only specific zones	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	At an acceptable or above level / product partially meets my needs
Envision data products and services ensure transparency and security in the context of intellectual property and GDPR.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Not relevant to our use case
Ability to visualise historic data and all relevant to a plot information on the platform as far back as relevant data is available (i.e., from 2015 onwards, due to availability of satellite images relevant to the ENVISION services)	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Not relevant to our use case
Ability to receive ENVISION outputs from the time of submission and throughout the entire application period.	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Not relevant to our use case
Ability to help applicants and explain possible implications of wrong declarations / ineligibility of plots, considering the eligibility criteria / rules for multiple agri-environmental schemes, with Envision product outputs.	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Clearly outstanding performance which is way above the norm/ product fully meets my needs.	Not relevant to our use case
Ability to see what is important to check for each plot, according to a farmer's declaration, through the ENVISION platform.]	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Extremely weak performance/ product does not meet my needs.
Envision Service helps to clarify why certain parcels needs to be checked according to the organisation's sample.	At an acceptable or above level / product partially meets my needs.	Not relevant to our use case	Very favourable performance, but still needs improvement/ product fully meets my needs.	Very favourable performance, but still needs improvement/ product fully meets my needs.	Extremely weak performance/ product does not meet my needs.

Table 28. The results of the "Performance, Usability and Effectiveness " -close questions

The results of the last open-ended question is summarized in the table below.

Performance, Usability and Effectiveness	Serbian BC	UK BC	Cyprus BC	Lithuanian BC	Flemish BC
Please indicate the number of statements and provide explanations where you deem necessary.	For some questions I couldn't give an answer because service hasn't started (I rated all of them with grade 3). All these answers will be covered once when we start with real testing.	The UK BC has not yet started at the time of this survey completion, so I have not been able to use the Envision platform or test the services to be able to provide accurate responses to the questions above.			Where I did not see the connection with the Flemish BC, I answered not relevant, or where the feature mentioned has not yet been developed for the BC either.

Table 29. The results of the " Performance, Usability and Effectiveness " -open ended questions

5 Conclusions

The purpose of this report is to evaluate Envision products and services in terms of business value, acceptance, performance, usability and effectiveness, and impact at economic and social levels, to reveal key experiences and feedback for Envision solutions midway through BC implementation. Thus, the output of the report will be able to support the Envision data product and services to achieve the required maturity and meet specific customer needs.

This chapter concludes the main findings of the quantitative and qualitative survey results.

Economic and social impact assessment

The main objective of this study is to assess the impacts that can be achieved by Envision products by analysing them within a framework of relevant indicators.

Although in many cases, it is too early to assess quantitative evidence of the impact generated by Envision, this study has gathered a significant amount of qualitative evidence, along with available documentation and survey results for the impacts of Envision.

Based on the initial assessment, Envision offers a positive impact in the following areas;

- Improve the objectivity, transparency and reliability of inspections and fewer mistakes and more reliable info on the declared parcels.

    The service can give a clearer picture of farmers' current activities, allowing them to conduct site visits to more specific locations identified with the service and with more up-to-date field information. This will allow them to carry out more accurate on-site inspections and make fewer mistakes during on-site inspections.

    ENVISION intends to offer additional tools that customers can use to help farmers fulfil their obligations . In this regard, PAs will be able to provide farmers (via a mobile app) with information for detected inconsistencies in their declaration, alert them to actions they need to take and allow farmers to send confirmation or proof of actions they have taken.

- Reducing the time and cost of monitoring and inspection activities.
  Envision services can reduce the need for frequent field inspections and minimise on-site inspection time and travel costs
- Support adoption of regulations to promote the use of remote sensing for monitoring agricultural practices
- Improve awareness, knowledge, and opinion on environmentally friendly farming
- Reduce the administrative burden both for Pa and farmers
- Creation of datasets for further scientific research.
- Increase biodiversity and food quality and reduce water and soil pollution by detecting and reducing the use of unauthorised fertilisers and pesticides.

    Envision services aim to help identify the possible existence of unsustainable agricultural practices that cause environmental damage in the form of water and soil pollution, biodiversity loss and greenhouse gas emissions, and with a better management intend to contribute in their correction as environmentally friendly practices.

    By providing information on soil conditions, such as OC, farmers will learn and decide to work to improve soil conditions for their crops. This can reduce the need for pesticides and chemical

fertilizers and can lead to environmentally friendly practices that increase biodiversity. The impact is indirect

- Lowering GHG emission by reducing the number of travelling with motor vehicles for on-site inspection and also increasing soil carbon content with better practices
Giving information about SOC, will surely entice the farmers to ameliorate the OC when levels are low. The impact is indirect
- Contribution to the stability of product results over the years
Through testing, validation of the results and refinement of the methodology used, the markers will become more accurate over time as more and more scenarios are considered

Evaluation of the business value and acceptance

The business value and acceptance of the Envision product and services were evaluated in the following fields.
- User friendly.
- Reduced time and effort,
- Added economic value-benefits,
- Usefulness
- Regulatory compliance.
- Accessibility,
- Flexibility and Scalability,
- Quality, Completeness and Specialisation,
- Support service availability

The key findings of the business value and acceptance evaluations are summarized below.
- The survey and interview results show that the Envision solutions are easy for all BCs to understand and use. However, the results of the interviews confirm that some basic ICT knowledge may be useful for the end user.
- The results indicate that for all BC, Envision services can reduce the need for frequent field inspections and minimise on-site inspection time and travel costs.
- From the results, we can conclude that there could be financial barriers for a government organisations and small enterprises to adopting Envision data products.
- For the UK BC, the LEAF Marque Standard and audit processes would need to be rewritten/significantly modified in order to enable the use of Envision services.
- The UK BC and Cyprus BC stated that training will be necessary for proper use of services and data collection.
- The results show that the Envision data product and services needs to be further optimised to reach the required maturity and meet all the needs of Pa and CBs in order to increase productivity and profitability and reduce operating costs.
- Envision data products and services need further improvement to ensure seamless integration and better interoperability with the existing system.
- All BCs agreed that Envision data products and services can support or create more collaborative, transparent and accurate decision-making and services can foster further acceptance of Earth observation technologies.
- Envision data products and services are compliant and ensure transparency and security in the context of intellectual property and GDPR
- For the Lithuanian BC, Envision data products and services can contribute to direct monitoring of farmers' compliance with relevant regulations, but for other BCs this requires further development of services.

- For the Lithuanian BC, Envision data products and services provide a more robust and efficient monitoring method and services compared to the other alternatives (maturity, effectiveness) in the market.
- The results show that most BCs are not fully aware of the scope and duration of post-project support.

Evaluation of the performance, usability and effectiveness of the product and services

The main insights from the performance, usability and effectiveness evaluation is briefly given below.
- The Serbian and UK business cases are not yet at the stage where usability and effectiveness testing would give useful results. A more accurate evaluation can be made in the coming monts.
- It can also be noted that most of the functions listed are not relevant to the Flemish BC.
- As the results show, the Cypriot and Lithuanian BCs stated that the performance of the services for the listed characteristics is good, but still needs to be improved to fully meet their needs.

6 Annex

6.1 Template for Impact Indicator

Note: Direct/estimated values will be collected two times during the project lifetime September 2022 and May 2023

Please fill in all yellow coloured areas.

Impact Indicators				
KPI Description:………………..				
Link to the Impact Criteria: ………………..				
Data sources/ and measurement methods				
Please Select the data sources and measurement methods and give a brief explanation of the reasons				
☐Historical Data from your Organisation / Compared to the baseline value ☐Generic Historical Data (Please indicate your data source) / Compared to baseline (standard) value			☐judgements by experts/ Survey	
Baseline value:	Target value	Measurement units	Measurement units/ Estimated Value	
Baseline Description	Decreased by…%	E.g. number/ per year; kg/ha…	Rating Scale (from 1 to 6): Please indicate the value per each scale (E.g. low influence: Decrease between %5-%20) Estimated value for M25 (Assuming you use Envision data products and services for the relevant monitoring/auditing activities to run your business) Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution; ☐1: negative impact ☐2: no influence ☐3: low influence (Number/ %) ☐4: uncertainty concerning the impact ☐5: favourable effect (Number/ %) ☐6: very favourable effect (Number/ %)	Comments Please shortly explain the reason of your choice.

6.2 Impact Indicator Values (Baseline-Target-Estimated Values)

6.2.1 Serbian Business Case

Serbian Business Case -Impact Indicators

KPI 1: % Decrease in mistakes performed during on-site inspections (by CB or PA)

Link to the Impact Criteria: Improve the objectivity- transparency, and reliability of the inspections and administration work (Economic/Tech-Social).

Data sources/ and measurement methods

OCS has approximately data for this criteria, because OCS doesn't keep these statistic. Based on data from 2018, the result was that there were 50% mistakes, but that was the one and only result OCS got from Envision data products and services.

☒Historical Data from your Organisation			☒judgements by experts/ Survey
Baseline value: The number of mistakes performed during on-site inspections (by CB or PA) during last / per production season.	Target value	Measurement units	**Estimated Value :** Based on your knowledge and experience, Envision data product and services potential contribution;
50 parcels per season	Decreased by 10%	Number per year	☒6: very favourable effect (over 10%)

Comments: OCS doesn't has any tools for this and OCS is finding mistakes only in the process of certification through the review of the report from inspection and pictures made in the inspection.

KPI 2: % Decrease in number of farmer declaration mistakes

Link to the Criteria: Improve the objectivity- transparency and reliability of the inspections and administration work (Economic/Tech-Social).

OCS has approximately data for this criteria, because OCS doesn't keep these statistic. Declaration mistakes about crop type and area of exact parcel OCS could find only for parcels which they checks on site. Declaration mistakes about data on parcel number and area OCS could find through documentation (check data on Geo Serbia). When OCS get results from Envision service for this year they will have exact data for wheat, corn, sunflower and soybean. Based on data from 2018, the result was that there were 50% mistakes, but that was one and only result OCS got from Envision data products and services.

☒Historical Data from your Organisation / Compared to the baseline value			☒judgements by experts/ Survey
Baseline value: Number of farmer declaration mistakes in the last / per declaration period.	Target value	Measurement units	**Estimated Value :** Based on your knowledge and experience, Envision data product and services potential contribution;
80 parcels per season	Decreased by 20%	Number per declaration period.	☒6: very favourable effect (over 20%)

Comments: In this season OCS found approximately same number of declaration mistakes like in the previous years which is mean that it no decreasing of declaration mistakes. But, OCS doesn't have any tools for this and they are finding mistakes only when they checked parcels on site. Because of that, this is only estimations which will be acceptable for them. When it will be possible to check all parcels through Envision service. OCS expects that a greater number of claim errors will be detected, leading to farmers making corrections. So in the longer term, this will lead to fewer declaration errors.

KPI 3 :% Increase in total area/unit under organic farming

Link to the Impact Criteria: Food quality/ security and safety (Social); Less environmental pollution(water-Soil) (Social); Increasing the farmer's income(Economic/Tech -Social).

Data sources/ and measurement methods			
OCS has relevant data for the whole country from a unique base from the Ministry of Agriculture in Serbia. Generated data is forming at the end of the year. A comparison was created between the years 2021 and 2022.			
☒Generic Historical Data (Data from Ministry of Agriculture in Serbia) / Compared to baseline(standard) value		☒judgements by experts/ Survey	
Baseline value: Total area/unit determined under organic farming in your country/ BC implementation area in the past year	Target value	Measurement units	**Estimated Value :** Based on your knowledge and experience, Envision data product and services potential contribution;
2557 ha more than in previous year (increased 22%) for plant production and 1018 ha more than in previous year (increased 23%) for wheat, corn, sunflower and soybean in Serbia. 75% of wheat, corn, sunflower and soybean in Serbia are from Vojvodina.	Increased by 20%	ha	☒3: low influence (5%)
Comments: In this criteria ENVISION could be influence only indirect, through increasing of subsidies and increasing efficiency of inspections and get more time for additional clients and more inspections.			
KPI 4: % Decrease in work time for monitoring and inspection activities			
Link to the Impact Criteria: Reduce time(Economic/Tech).			
Data sources/ and measurement methods			
OCS has relevant data for this criterium from our data base for inspection. Baseline value have shown for real time in inspection, preparation and certification. Travel time is not included.			
☒Current Data from use case / Compared to baseline value		☒judgements by experts/ Survey	
Baseline value: Average amount of time spent for monitoring and inspection activities in previous / per year.	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, Envision data product and services potential contribution;
Average 10 hours per inspection.	Decreased by 20%	Number of hours per inspection	☒6: very favourable effect (over 20%)
Comments: Inspection and certification process in current regime is very time cost and any decrease will be very valuable.			
KPI 5: % Decrease in time spend for administration work			
Link to the Impact Criteria: Increasing the farmer's income(Economic/Tech -Social); reducing the administrative burden(Economic/Tech -Social); reducing the time(Economic/Tech)			
Data sources/ and measurement methods			
OCS has relevant data for number of clients and according to experience for time spent on administrative work per client and for annual report.			
☒Current Data from use case / Compared to baseline value		☒judgements by experts/ Survey	
Baseline value: Amount of time spent for administration work in previous/per year.	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, Envision data product and services potential contribution;

576 hours of time spent for administration work per year (average 2 hours per client of plant production for applications)	Decreased by 10%	Number of hours per year	☒5: favourable effect (5-10%)

Comments: OCS are expecting to decrease time only for annual report with ENVISION service. In applications ENVISION service couldn't have any impact.

KPI 6: % Increase in numbers of Laws / regulations supporting technologies for the continuous and systematic monitoring of agricultural practices

Link to the Impact Criteria: Compliance with regulations (Economic/Tech)

Data sources/ and measurement methods

OCS don't have relevant data, because existing EU and national regulations do not still recognize service like this for monitoring and inspection of organic agriculture practice.

☒Current data (Existing EU and national relevant legislation or policies)/ Compared to baseline value	☒judgements by experts/ Interview/Survey

Baseline value: Current number of Laws/regulations supporting the technologies for the continuous and systematic monitoring of agricultural practices.	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, Envision data product and services potential contribution;
Currently none of Laws/regulations supporting the technologies for the continuous and systematic monitoring of organic agricultural practices.	Increased by 100%	Number	☒6: very favourable effect (100%)

Comments: It will be very important to any of legislatives recognize services like ENVISION as monitoring practice.

KPI 7: Increase in coherence degree of the national strategic plan with the technologies that support continuous and systematic monitoring of agricultural practices.

Link to the Impact Criteria: Compliance with regulations(Economic/Tech)

Data sources/ and measurement methods

OCS don't have relevant data..

☒Analysing existing national plan/ Compared to baseline value	☒judgements by experts/ Survey/Interview

Baseline value: Current coherence level of the national strategic plan with the technologies that support continuous, remote and systematic monitoring of agricultural practices.	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, Envision data product and services potential contribution;
National plan in Serbia generally to increase impact of digital technologies. Current coherence level of the national strategic plan with the technologies that support continuous, remote and systematic monitoring of agricultural practices according on our knowledge Serbian Government recognizes and supports digitalization in agriculture such as services provided by Geo Serbia, data base for annual report created by BIOSENS Institute, etc. Also, ENVISION project is institutionally supported by the Serbian Ministry of Agriculture.	Increased level of coherence with a national strategic plan	Textual (Open Question)	☒6: very favourable effect (more than 3 recognitions and purchasing of services)

Comments: It will be very important to any of legislatives recognize services like ENVISION as monitoring practice.	
KPI 8: % Increase in the number of farmers and Inspectors (end users) who are willing to use the services in your BC	
Link to the Impact Criteria: Ease of use(Economic/Tech); improve awareness, knowledge, and opinion on environmentally friendly farming / Consumer Trust(Economic/Tech -Social).	

Data sources/ and measurement methods

OCS has relevant data for this criteria provided from survey of farmers on field.

☒Current Data from use case/ Compared to baseline value	☒judgements by experts/ Survey

Baseline value: Number of end users using/interacting with the services from the beginning of the use case (February 2022).	**Target value**	**Measurement units**	**Estimated Value :** Based on your knowledge and experience, Envision data product and services potential contribution;
Only 1 end user using/interacting with the services from the beginning of the use case (February 2022), but all inspectors show willing for using service. 28 farmers show willing to use the service.	Increased 50% of End users	Number /during the project lifetime	☒6: very favourable effect (over 50%)
Value for M25 is same as the previous period, because service isn't start for real.			

Comments: More end users provide bigger insight in functionality of service.
KPI 9: % Increase in harvested crop yields per hectare (Wheat, maize, soya, sunflower)
Link to the Impact Criteria: Increasing the farmer's income (Economic/ Tech -Social)

Data sources/ and measurement methods

OCS has relevant data for crop yields per hectare for all crops from Statistical Office of the Republic of Serbia. Crop yields trends for organic production is similar like conventional, because of the same climatic and soil conditions.

☒Generic Historical Data (Statistical Office of the Republic of Serbia/ Compared to baseline(standard) value	☒judgements by experts/ Survey

Baseline value: Average amount of harvested crop yields in previous / per agricultural production season	**Target value**	**Measurement units**	**Estimated Value :** Based on your knowledge and experience, Envision data product and services potential contribution;
According to data for 2022, realized production of wheat amounts to 3 113 thousand tons (organic and conventional), which is by 9.6% more than the previous year production with 4,9 tons per ha. Expected maize production amounts to 4 523 thousand tons, which is by 25.0% less than production in the previous year with 4,8 tons per ha. Compared to 2021, increased production is expected referring to sunflower (by 5.9%) with 2,6 tons per ha, and decreased production of soya (by 26.2%) with 1,7 tons per ha.	Increased by 10%	t/ha	☒2: no influence

Comments: ENVISION service couldn't have any direct influence on increasing of yield, only influence could be to assess yield.which OCS target 10%
KPI 10: % Increase in number of new employments for relevant work in your organization/company.
Link to the Impact Criteria: Providing new jobs (Economic/Tech -Social)

Data sources/ and measurement methods			
OCS has relevant data from our organization for previous period.			
☒Historical Data from use case/ Compared to baseline value		☒judgements by experts/ Survey	
Baseline value: Current number of employees in your organisation for relevant work	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, Envision data product and services potential contribution;
10 employees	no increasing	Number/ per year	☒1: negative impact
Comments: OCS is looking for a service that keeps the current number of employees and increases the number of customers and productivity.			

KPI 11: % Increase in number of new products/services/processes by building on the ENVISION solution.
Link to the Impact Criteria: Provide better insight regarding Carbon stocks in soil, to the policy makers, farmers, public, scientist-improve awareness, knowledge, opinion on environmental friendly farming / Consumer Trust-Knowledge sharing (Social)

Data sources/ and measurement methods			
OCS has relevant data from our organization for using services for remote inspection only in the period of COVID-19 lock-down. Remote inspections are currently not permitted by policy makers.			
☒Data from Organization / Compared to baseline value		☒judgements by experts/ Survey	
Baseline value: Products/services /processes related to remote and continuous monitoring of farming practices that were interacted with and/or used in your organisation before the start of the project (September 2020).	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, Envision data product and services potential contribution;
-	Increased 20 %	Number / during or after the project life time	☒6: very favourable effect (over 20%)
Comments: Continious monitoring is the aim for inclusion of new services as indicator of malformed practices and for future additional on site inspections.			

KPI 12: % Decrease in number of records farmers shall keep
Link to the Impact Criteria: Reduce the administrative burden (Economic/ Tech -Social)

Data sources/ and measurement methods			
OCS has relevant data from farmers files.			
☒Current Data from use case/ Compared to baseline value		☒judgements by experts/ Survey	
Baseline value: Average /Number of records farmers kept/keeps for administration work in last / per year.	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, Envision data product and services potential contribution;
Average 20 records per farmers	Decreased by 50%	Number /per year	☒6: very favourable effect (over 50%)

Comments: It is very important for farmers satisfaction and happiness, because they are very frustrated with number of records they should keep and they often gets non-conformities for not updated records.

KPI 13: % Decrease in amount of used paper for monitoring and inspection activities

Link to the Impact Criteria: Natural Resource use efficiency (Social- Economic/Tech); Cost reduction (Economic/Tech); Increasing the farmer's income (Economic/Tech-Social).

Data sources/ and measurement methods

OCS has relevant data from our financial department.

☒Data from Organisation / Compared to baseline value			☒judgements by experts/ Survey
Baseline value: The average amount of paper used in your organization for monitoring and inspection activities in last / per year	**Target value**	**Measurement units**	**Estimated Value :** Based on your knowledge and experience, Envision data product and services potential contribution;
3 package of paper (total 1500 sheet) per month.	Decreased by 30%	Pack of paper/ Per month	☒6: very favourable effect (over 30%)

Comments: It is easier for remote work only with electronic data and also for environment protection and responsibility.

KPI 14: % Decrease in pesticide use

Link to the Impact Criteria: Food quality/ security and safety(Social); Less environmental pollution(water-Soil) (Social); Cost reduction(Economic/Tech); Increasing the farmer's income (Economic/Tech -Social)

Data sources/ and measurement methods

OCS has relevant data from our statistics of positive results and statistics by the association of certification bodies

☒Generic Historical Data (international statistics on organic production) / Compared to baseline(standard) value			☒judgements by experts/ Survey
Baseline value: Average amount of pesticide used in last /per production season	**Target value**	**Measurement units**	**Estimated Value :** Based on your knowledge and experience, Envision data product and services potential contribution;
In 2021. 2300 cases of positive results of which about 270 cases of use prohibited substances and about 500 cases of drift from neighbouring parcels. More than 400 cases were pesticides	Decreased by 30%	Number of positive cases	☒6: very favourable effect (over 30%)

Comments: Organic producers are obliged to primarily establish preventive measures and avoid the use of pesticides. Detection of pesticide use, especially non permitted, is one of the key elements of organic production control.

KPI 15: % Decrease in chemical fertiliser use

Link to the Impact Criteria: Environmental pollution(water-Soil) (Social): Cost reduction(Economic/Tech); Increasing the farmer's income (Economic/Tech -Social)

Data sources/ and measurement methods

OCS has relevant data from our statistics of positive results and statistics by the association of certification bodies

☒Generic Historical Data (international statistics on organic production) / Compared to baseline(standard) value			☒judgements by experts/ Survey
Baseline value: Average amount of chemical fertiliser used in last / per production season	**Target value**	**Measurem ent units**	**Estimated Value :**

	Decreased by 20%	Number of positive cases	☒6: very favourable effect (over 20%)
In 2021, 2300 cases of positive results of which about 270 cases of use prohibited substances and about 500 cases of drift from neighbouring parcels. About 200 cases were non-authorised fertilizers.			

Comments: Organic producers are obliged to primarily establish preventive measures and avoid the use of chemical fertilizers. Detection of use of chemical fertilizers is one of the key elements of organic production control.

KPI 16: % Increase in biodiversity in farmland

Link to the Impact Criteria: Less environmental pollution(water-Soil) (Social)

Data sources/ and measurement methods

OCS has relevant data from our work, operators files.

☒Generic Historical Data (client files) / Compared to baseline(standard) value			☒judgements by experts/ Survey
Baseline value: Number of species in surrounding and farmland in last year / years.	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, Envision data product and services potential contribution;
On the farm and surrounding, average 10 species per producer per year.	Increased by 20%	Number/per producer/ per year	☒6: very favourable effect (over 20%)

Comments: Contributing to a high level of biodiversity In particular using varieties suitable for organic production is one of the main objectives of organic farming. A successful, biodiverse farm is one that preserves biodiversity and conserves natural resources.

KPI 17: % Increase in the use of environmental friendly agricultural practices (no-till farming, agroforestry, crop rotation)

Link to the Impact Criteria: Environmental pollution(water-Soil) (Social)

Data sources/ and measurement methods

OCS has relevant data from our work, operators files.

☒Generic Historical Data (client files) / Compared to baseline(standard) value			☒judgements by experts/ Survey
Baseline value: Number of unit/farmer used environmental friendly practices in last year/ years	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, Envision data product and services potential contribution;
About 80% used environmental friendly practices in last years	Increased by 10%	% of operators/ per year	☒6: very favourable effect (over 10%)

Comments: Environmental friendly agricultural practices are very important for general compliance with organic standards, because in the long term they indirectly affect the reduction of the use of pesticides, fertilizers, and biodiversity.

KPI 18: % Increase in the soil organic matter

Link to the Impact Criteria: Lower emissions (Social)

Data sources/ and measurement methods			
OCS has relevant data for SOC from scientific articles.			
☒Generic Historical Data (scientific articles in Serbia) / Compared to baseline(standard) value			☒judgements by experts/ Survey
Baseline value: Current average amount of SOC content in field/ BC implementation area.	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, Envision data product and services potential contribution;
Current average amount of SOC content in Serbia is 1,3 (low content)	Increased by 10%	tC/ha.	☒6: very favourable effect (over 10%)

Comments: Increase of SOC is indirectly indicator of good agricultural practices, the use of manure, plowing of green manure

KPI 19: % Decrease in number of travelling with motor vehicles for on-site inspection

Link to the Impact Criteria: Lower emissions (Social); Environmental pollution (water-Soil) (Social); Reduce time (Economic/Tech); Cost reduction (Economic/Tech).

Data sources/ and measurement methods			
OCS has relevant data about number of inspections per year.			
☒Data from use case/ Compared to baseline value			☒judgements by experts/ Survey
Baseline value: Number of travelling with motor vehicles for on-site inspection during last / per year.	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, Envision data product and services potential contribution;
300 (average).	Decreased by 20%	Number/per year	☒6: very favourable effect (over 20%)

Comments: Continuous monitoring would reduce the need for additional visits to producers and help to reduce visits to those really needed, providing a helpful tool in risk assessment.

KPI 20: % Increase in number of publications and dissemination activities

Link to the Impact Criteria: improve awareness, knowledge, opinion on environmental friendly farming / Consumer Trust (Social)

Data sources/ and measurement methods			
OCS has relevant data from internal database.			
☒Data from use case/ Compared to baseline value			☒judgements by experts/ Survey
Baseline value: The number of Publications and dissemination activities related to environmental friendly farming at the starting of use case(Feb 2022)	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, Envision data product and services potential contribution;
Value for M18 (Feb 2022): 21	Increased by 10%	Number /during the project life time	☒6: very favourable effect (over 10%)
Value for M25(September 2022): 31			

Comments: OCS is very active in dissemination activities, these activities were carried out in accordance with the pre-planned

KPI 21: % Decrease in number of fraud statement			
Link to the Impact Criteria: improve awareness, knowledge, opinion on environmental friendly farming / Consumer Trust (Social)			
Data sources/ and measurement methods			
OCS has relevant data from available reports from Food Fraud Network (EU).			
☒Generic Historical Data (https://food.ec.europa.eu/system/files/2022-07/acn_annual-report_2021-final.pdf) / Compared to baseline(standard) value			☒judgements by experts/ Survey
Baseline value: Number of fraud statement by farmers in last / per year	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, Envision data product and services potential contribution;
from 2290 non compliance reported in 2021, the top reported product category was fruits and vegetables (15% of all non-compliances notifications), cereals has lower % (less than 5%). Three quarters of these notifications were concerning pesticides maximum residues limits exceedances.	Decreased by 20%	Number/year	☒6: very favourable effect (over 20%)
Comments: Continuous supervision, useful additional tools for risk assessment could reduce possibility of frauds in agriculture. In organic frauds are in most significant number of cases related to use of non-permitted techniques, mixing or commingling of organic products with conventional.			

6.2.2 Cypriot Business Case

<table>
<tr><td colspan="4" align="center">Cypriot Business Case -Impact Indicators</td></tr>
<tr><td colspan="4">KPI 1: % Decrease in mistakes performed during on-site inspections (by CB or PA)</td></tr>
<tr><td colspan="4">Link to the Impact Criteria: Improve the objectivity- transparency, and reliability of the inspections and administration work (Economic/Tech-Social).</td></tr>
<tr><td colspan="4" align="center">Data sources/ and measurement methods</td></tr>
<tr><td colspan="2">☒Historical Data from your Organisation</td><td colspan="2">☒judgements by experts/ Survey</td></tr>
<tr><td>Baseline value: The number of mistakes performed during on-site inspections (by CB or PA) during last / per production season.</td><td>Target value</td><td>Measure ment units</td><td>Estimated Value :
Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution</td></tr>
<tr><td>20 per season</td><td>Decreased by 20%</td><td>Number per year</td><td>☒4: uncertainty concerning the impact)</td></tr>
<tr><td colspan="4">Comments: On site inspections tend to find irregularities that are mostly not visible by earth observation and not the other way round</td></tr>
<tr><td colspan="4">KPI 2: % Decrease in number of farmer declaration mistakes</td></tr>
<tr><td colspan="4">Link to the Criteria: Improve the objectivity- transparency and reliability of the inspections and administration work (Economic/Tech-Social).</td></tr>
<tr><td colspan="2">☒Historical Data from your Organisation / Compared to the baseline value</td><td colspan="2">☒judgements by experts/ Survey</td></tr>
<tr><td>Baseline value: Number of farmer declaration mistakes in the last / per declaration period.</td><td>Target value</td><td>Measure ment units</td><td>Estimated Value :
Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution</td></tr>
<tr><td>5000 / per declaration period.</td><td>Decreased by 50%</td><td>Number per declaratio n period.</td><td>☒5: favourable effect (30/%)</td></tr>
<tr><td colspan="4">Comments: Using Envision can help point errors in declarations and help farmers correct their applications</td></tr>
<tr><td colspan="4">KPI 3 :% Increase in total area/unit under organic farming</td></tr>
<tr><td colspan="4">Link to the Impact Criteria: Food quality/ security and safety (Social); Less environmental pollution(water-Soil) (Social); Increasing the farmer's income(Economic/Tech -Social).</td></tr>
<tr><td colspan="4" align="center">Data sources/ and measurement methods</td></tr>
<tr><td colspan="2">☒Generic Historical Data (Data from Ministry of Agriculture in Serbia) / Compared to baseline(standard) value</td><td colspan="2">☒judgements by experts/ Survey</td></tr>
<tr><td>Baseline value: Total area/unit determined under organic farming in your country/ BC implementation area in the past year</td><td>Target value</td><td>Measure ment units</td><td>Estimated Value :
Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution</td></tr>
<tr><td>7000ha/133000ha</td><td>Increased by 10%</td><td>ha</td><td>☒4: uncertainty concerning the impact</td></tr>
</table>

Comments: Applicants for the most part tend to enter Organic Farming Commitments for the extra subsidy and not because they produce or sell anything. Few are professional farmers		

KPI 4: % Decrease in work time for monitoring and inspection activities

Link to the Impact Criteria: Reduce time(Economic/Tech).

Data sources/ and measurement methods		
☒Current Data from use case / Compared to baseline value		☒judgements by experts/ Survey
Baseline value: Average amount of time spent for monitoring and inspection activities in previous / per year.	**Target value**	**Measure ment units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
180 days per year	Decreased by 40%	Number of hours per inspection	☒5: favourable effect (Number/ 30%)

Comments: Envision can help monitor farming practices without needing on site visits therefore reducing days spent for on the spot checks

KPI 5: % Decrease in time spend for administration work

Link to the Impact Criteria: Increasing the farmer's income(Economic/Tech -Social); reducing the administrative burden(Economic/Tech -Social); reducing the time(Economic/Tech)

Data sources/ and measurement methods		
☒Current Data from use case / Compared to baseline value		☒judgements by experts/ Survey
Baseline value: Amount of time spent for administration work in previous/per year.	**Target value**	**Measure ment units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
270 days per year	Decreased by 10%	Number of days per year	☒3: low influence (Number/15%)

Comments: Administration work is not expected to drop dramatically since the process of handling the applications is not really connected with how the checks are performed. The reduction in time can be mostly attributed to the reductions of objections to our findings since the expectation is to reduce mistakes in declarations (see KPI2)

KPI 6: % Increase in numbers of Laws / regulations supporting technologies for the continuous and systematic monitoring of agricultural practices

Link to the Impact Criteria: Compliance with regulations (Economic/Tech)

Data sources/ and measurement methods		
☒Current data (Existing EU and national relevant legislation or policies)/ Compared to baseline value		☒judgements by experts/ Interview/Survey
Baseline value: Current number of Laws/regulations supporting the technologies for the continuous and systematic monitoring of agricultural practices.	**Target value**	**Measure ment units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution

15 Regulations/Laws	Increased by -%	Number	☒2: no influence

Comments: There is enough relevant regulation supporting technologies for monitoring of agricultural practices. Any other subsequent piece of legislation will come from a different process, but not directly from ENVISION..

KPI 7: Increase in coherence degree of the national strategic plan with the technologies that support continuous and systematic monitoring of agricultural practices.

Link to the Impact Criteria: Compliance with regulations(Economic/Tech)

Data sources/ and measurement methods			
☒Analysing existing national plan/ Compared to baseline value			☒judgements by experts/ Survey/Interview
Baseline value: Current coherence level of the national strategic plan with the technologies that support continuous, remote and systematic monitoring of agricultural practices.	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
Very low coherence	All aspects of area-based measures in Cyprus Strategic Plan need to be revised to make use of technology either possible or easier.	Textual (Open Question)	☒3: low influence (10/%)

Comments: ENVISION can help highlight key factors for increasing the said coherence. However as the preparation of the Strategic Plan is part of Policy Making and not of the Implementation, the influence of Envision will stay low.

KPI 8: % Increase in the number of farmers and Inspectors (end users) who are willing to use the services in your BC

Link to the Impact Criteria: Ease of use(Economic/Tech); improve awareness, knowledge, and opinion on environmentally friendly farming / Consumer Trust(Economic/Tech -Social).

Data sources/ and measurement methods			
☒Current Data from use case/ Compared to baseline value			☒judgements by experts/ Survey
Baseline value: Number of end users using/interacting with the services from the beginning of the use case (February 2022).	Target value	Measurement units	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
M25: 2 (in M33 100)	Increased 500% of End users	Number /during the project lifetime	☒6: very favourable effect (250/%)

Comments: Once we can fully use the services then an increase in use by the farmers is expected

KPI 9: % Increase in harvested crop yields per hectare (Wheat,barley)

Link to the Impact Criteria: Increasing the farmer's income (Economic/ Tech -Social)

Data sources/ and measurement methods	
☒Generic Historical Data (Statistical Office of the Republic of Serbia/ Compared to baseline(standard) value	☒judgements by experts/ Survey

Baseline value: Average amount of harvested crop yields in previous / per agricultural production season	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
Wheat: 5270 kg per hectare Barley: 2260 kg per hectare	.	t/ha	☒4: uncertainty concerning the impact

Comments: CAPO has no data or control over production levels of crops. Subsidies are decoupled from production and are based on areas. No target can be provided as Envision Services are not directly link to crop yields

KPI 10: % Increase in number of new employments for relevant work in your organization/company.

Link to the Impact Criteria: Providing new jobs (Economic/Tech -Social)

Data sources/ and measurement methods	
☒Historical Data from use case/ Compared to baseline value	☒judgements by experts/ Survey

Baseline value: Current number of employees in your organisation/company for relevant work	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
240 in 2022	Increased by 1 %	Number/ per year	☒3: low influence (1%)

Comments: CAPO is a Public Service Organization and does not have the ability to hire new employees unless a general policy decision is made from the Government. In general, new fields or new jobs stemming from Envision will be covered by further training and extending the knowledge of current staff.

KPI 11: % Increase in number of new products/services/processes by building on the ENVISION solution.

Link to the Impact Criteria: Provide better insight regarding Carbon stocks in soil, to the policy makers, farmers, public, scientist-improve awareness, knowledge, opinion on environmental friendly farming / Consumer Trust-Knowledge sharing (Social)

Data sources/ and measurement methods	
☒Data from Organization / Compared to baseline value	☒judgements by experts/ Survey

Baseline value: Products/services /processes related to remote and continuous monitoring of farming practices that were interacted with and/or used in your organisation before the start of the project (September 2020).	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution;
remote monitoring (LPIS and Remote Sensing), Area Monitoring System (AMS)	3 new products/servic es/processes	Number / during or after the project life time	☒5: favourable effect (50%)

Comments: Subsequent analysis of Envision data can lead to the production of new markers, which can assist in policy making.

KPI 12: % Decrease in number of records farmers shall keep

Link to the Impact Criteria: Reduce the administrative burden (Economic/ Tech -Social)

Data sources/ and measurement methods
☒judgements by experts/ Survey

Baseline value: Average /Number of records farmers kept/keeps for administration work in last / per year.	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
Average 20 records per farmers	Decreased by 50%	Number /per year	☒4: uncertainty concerning the impact

Comments: The number of records kept depends on the size of the farm. It won't be affected at least immediately from the use of technology.

KPI 13: % Decrease in amount of used paper for monitoring and inspection activities

Link to the Impact Criteria: Natural Resource use efficiency (Social- Economic/Tech); Cost reduction (Economic/Tech); Increasing the farmer's income (Economic/Tech-Social).

Data sources/ and measurement methods

☒judgements by experts/ Survey

Baseline value: The average amount of paper used in your organization for monitoring and inspection activities in last / per year	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
146,500 pages per year	Decreased by 80%	Sheets / Per year	☒6: very favourable effect (over 50%)

Comments: Once most eligibility criteria are checked by Envision the number of on the spot checks will be reduced along with paper use

---

KPI 14: % Decrease in pesticide use

Link to the Impact Criteria: Food quality/ security and safety(Social); Less environmental pollution(water-Soil) (Social); Cost reduction(Economic/Tech); Increasing the farmer's income (Economic/Tech -Social)

Data sources/ and measurement methods	
☒Generic Historical Data (international statistics on organic production) / Compared to baseline(standard) value	☒judgements by experts/ Survey

Baseline value: Average amount of pesticide used in last /per production season	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution;
1.36 kg pe hectare	Decreased by 10%	Kg/hectare	☒4: uncertainty concerning the impact

Comments: CAPO has no control over the use of pesticide. There's no way we can estimate the use of them or any reduction in use

---

KPI 15: % Decrease in chemical fertiliser use

Link to the Impact Criteria: Environmental pollution(water-Soil) (Social): Cost reduction(Economic/Tech); Increasing the farmer's income (Economic/Tech -Social)

Data sources/ and measurement methods

☒Generic Historical Data (international statistics on organic production) / Compared to baseline(standard) value			☒judgements by experts/ Survey
Baseline value: Average amount of chemical fertiliser used in last / per production season	**Target value**	**Measurement units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
59 kg per hectare	Decreased by 10%	Kg/hectare	☒4: uncertainty concerning the impact

Comments: CAPO has no control over the use of fertilizers

KPI 16: % Increase in the use of environmental friendly agricultural practices (no-till farming, agroforestry, crop rotation)

Link to the Impact Criteria: Environmental pollution(water-Soil) (Social)

Data sources/ and measurement methods			
☒Current data from use case/ Compared to baseline value			☒judgements by experts/ Survey
Baseline value: Number of unit/farmer used environmental friendly practices in last year/ years	**Target value**	**Measurement units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
1700 for 2022	Increased by 10%	Number/ per year	☒4: uncertainty concerning the impact

Comments: On the previous years some environment friendly practises were compulsory (greening) in EU legislation for farmers with over 10ha of arable land. Along with farmers committed in Agro Environmental schemes and Organic farming they formed the total of Cypriot farmers counted as baseline. Legislation is changed now so we are not certain how many will join the new voluntary schemes

KPI 17: % Decrease in number of travelling with motor vehicles for on-site inspection

Link to the Impact Criteria: Lower emissions (Social); Environmental pollution (water-Soil) (Social); Reduce time (Economic/Tech); Cost reduction (Economic/Tech).

Data sources/ and measurement methods			
☒Data from use case/ Compared to baseline value			☒judgements by experts/ Survey
Baseline value: Number of travelling with motor vehicles for on-site inspection during last / per year.	**Target value**	**Measurement units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
5860 per year (average).	Decreased by 80%	Number/per year	☒5: favourable effect (20/%)

Comments: Once most eligibility criteria are checked by Envision the number of on-the-spot checks will be reduced along with vehicle movements

KPI 18: % Increase in number of publications and dissemination activities

Link to the Impact Criteria: improve awareness, knowledge, opinion on environmental friendly farming / Consumer Trust (Social)

Data sources/ and measurement methods			
☒Data from use case/ Compared to baseline value			☒judgements by experts/ Survey
Baseline value: The number of Publications and dissemination activities related to environmental friendly farming at the starting of use case(Feb 2022)	Target value	Measurement units	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
Value for M18 (Feb 2022): 21 Value for M25(September 2022): 31	Increased by 10 activities	Number /during the project life time	☒5: favourable effect (2)

Comments: Envision results offer insights about farming practices and it will be beneficial for Administration and Policy Makers to be informed about it.

KPI 19: % Decrease in number of fraud statement

Link to the Impact Criteria: improve awareness, knowledge, opinion on environmental friendly farming / Consumer Trust (Social)

Data sources/ and measurement methods			
☒Data from use case/ Compared to baseline value			☒judgements by experts/ Survey
Baseline value: Number of fraud statement by farmers in last / per year	Target value	Measurement units	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
3 per year	Decreased by 100%	Number/year	☒4: uncertainty concerning the impact

Comments: There's no way to know if fraud will be deterred by Envision. Usually, fraud relates to land grabbing and that is not detected by technology but with administrative checks.

KPI 20: % Increase in number of datasets to support the development of technologies that allow the continuous and systematic monitoring of agricultural practices through earth observation

Link to the Impact Criteria: Creation of datasets for further scientific research (Social)

Data sources/ and measurement methods			
☒Current Data from use case/ Compared to baseline value			☒judgements by experts/ Survey
Baseline value: Number of dataset used to develop envision services at the start of the project .	Target value	Measure ment units	**Estimated Value:** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
10	increased 50% of used data	Number/ by M25-M36	☒5: favourable effect (25/%) .

Comment: Envision is providing access to its Datacube where all data resides, and thus providing CAPO with the opportunity to query for new datasets needed to perform new operations.

KPI 21: % Increase in number of downloads (from the Envision Platform, open source APIs)

Link to the Impact Criteria: Creation of datasets for further scientific research(Social)

Data sources/ and measurement methods	
☒Data from use case/ Compared to baseline value	☒judgements by experts/ Survey

Baseline value: Current number of downloads (from the Envision Platform, open source APIs) at the start of the use case (Feb 2022)	Target value	Measurement units	Estimated Value: Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
-	Increased Min 10000	Number/ by M25-M36	☒5: favourable effect (1000)

If using Envision platform as our main source of data for applicants we can estimate at least one third of them who are more active will use the platform for data downloads

KPI 22: % Increase in number of relevant historical databases

Link to the Impact Criteria: Creation of datasets for further scientific research (Social)

Data sources/ and measurement methods

☒judgements by experts/ Survey

Baseline value: Number of historical databases relevant to Envision data product and services at the start of the project	Target value	Measurement units	Estimated Value: Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
-	Increased by 5 (yearly databases)	Number/ by M25-M36	☒5: favourable effect (2)

Comments The project is moving forward and new year's declarations become available, the previous results will become historical data and can be used for comparisons, creation of historical timeline of a parcel etc

KPI 23: % Decrease in max fluctuation of results of markers

Link to the Impact Criteria: Stability of results through the years (Economic/ Tech)

Data sources/ and measurement methods	

☒Current Data / Compared to baseline value	☒judgements by experts/ Survey

Baseline value: …% max fluctuation of the results of markers at the start of the use case.	Target value	Measurement units	Estimated Value: Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
30% Value for M25 15%	Decreased by 25%	%	☒5: favourable effect (10/%

Comments Through testing, validation of results and refinement of the methodology used, the markers will be more precise over time as more and more scenarios are taken into account.

KPI 24: % Increase in number of farmers who benefit from CAP/EU agri-environmental policies based direct payments

Link to the Impact Criteria: Compliance with regulations (Economic/ Tech)

Data sources/ and measurement methods	

☒Current Data / Compared to baseline value	☒judgements by experts/ Survey

Baseline value: Number of farmers who received payments/subsidies related to compliance with CAP/EU agri-environmental standards in the past year.	Target value	Measurement units	Estimated Value: Based on your knowledge and experience, (considering current result of the products) Envision

			data product and services potential contribution
7866	Increased by 10%	Number	☒3: low influence (2.5/%)

Comments There's no certainty that the number of farmers benefiting from EU agri-environmental policies will increase with the use of technology. Maybe there's an increase in applicants in the first year but with better checks some will probably opt out after being warned for not complying with eligibility conditions, thus offsetting the initial increase.

6.2.3   UK BC

<table>
<tr><td colspan="4" align="center">UK Business Case -Impact Indicators</td></tr>
<tr><td colspan="4">KPI 1: % Decrease in mistakes performed during on-site inspections (by CB or PA)</td></tr>
<tr><td colspan="4">Link to the Impact Criteria: Improve the objectivity- transparency, and reliability of the inspections and administration work (Economic/Tech-Social).</td></tr>
<tr><td colspan="4" align="center"><i>Data sources/ and measurement methods</i></td></tr>
<tr><td colspan="2">☒Historical Data from your Organisation</td><td colspan="2">☒judgements by experts/ Survey</td></tr>
<tr><td>Baseline value: The number of mistakes performed during on-site inspections (by CB or PA) during last / per production season.</td><td>Target value</td><td>Measurement units</td><td>Estimated Value :
Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution</td></tr>
<tr><td>2 errors on average per CB per production season</td><td>Decreased by 20%</td><td>Number per agricultural production season</td><td>low influence (20%)</td></tr>
<tr><td colspan="4">Comments: Remote monitoring of specific site features such as field boundaries and removal/planting of trees could be done with more accuracy and decrease CB mistakes using Envision services, thus there could be an influence but it would be low.</td></tr>
<tr><td colspan="4">KPI 2: % Decrease in number of farmer declaration mistakes</td></tr>
<tr><td colspan="4">Link to the Criteria: Improve the objectivity- transparency and reliability of the inspections and administration work (Economic/Tech-Social).</td></tr>
<tr><td colspan="2">☒Historical Data from your Organisation / Compared to the baseline value</td><td colspan="2">☒judgements by experts/ Survey</td></tr>
<tr><td>Baseline value: Number of farmer declaration mistakes in the last / per declaration period.</td><td>Target value</td><td>Measurement units</td><td>Estimated Value :
Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution</td></tr>
<tr><td>3 non-conformances per farm per year (on average)</td><td>Decreased by 5%</td><td>Number per declaration period.</td><td>low influence (5%</td></tr>
<tr><td colspan="4">LEAF Marque certified producers may be able to monitor site features and habitat features using Envision services in order to record more accurate information for their compliance audits, however the influence will likely be very low as this technology will not be widely accessible for small holder growers and other international growers that are LEAF Marque certified.</td></tr>
<tr><td colspan="4">KPI 3 :% Increase in total area/unit under organic farming</td></tr>
</table>

Link to the Impact Criteria: Food quality/ security and safety (Social); Less environmental pollution(water-Soil) (Social); Increasing the farmer's income(Economic/Tech -Social).

Data sources/ and measurement methods			
☒judgements by experts/ Survey			
Baseline value: Total area/unit determined under organic farming in your country/ BC implementation area in the past year	**Target value**	**Measurement units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
Not Applicable	Not Applicable	ha	no influence

Comments: The farm that is participating in the UK BC is already 100% organic, thus there will be no change. Also, the UK BC does not monitor this type of indicator. The LEAF Marque Standard does not require farms to be organic and does not monitor their organic status, so these Envision services would have no influence in this area

KPI 4: % Decrease in work time for monitoring and inspection activities

Link to the Impact Criteria: Reduce time(Economic/Tech).

Data sources/ and measurement methods			
☒Current Data from use case / Compared to baseline value		☒judgements by experts/ Survey	
Baseline value: Average amount of time spent for monitoring and inspection activities in previous / per year.	**Target value**	**Measurement units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
74 days per year	Decreased by 10%	Number of days per inspection	☒5: low influence (10%)

Comments: There would likely be a low influence from the use of Envision services on decreasing the work time for monitoring and inspection activities because the a large focus of the inspection time is based on reviewing farm management plans and some onsite features that cannot be monitored by EO. However the services could help in reducing the amount of time monitoring biodiversity and habitat outcomes.

KPI 5: % Decrease in time spend for administration work

Link to the Impact Criteria: Increasing the farmer's income(Economic/Tech -Social); reducing the administrative burden(Economic/Tech -Social); reducing the time(Economic/Tech)

Data sources/ and measurement methods			
☒Current Data from use case / Compared to baseline value		☒judgements by experts/ Survey	
Baseline value: Amount of time spent for administration work in previous/per year.	**Target value**	**Measurement units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
10 days per year per CB	Decreased by 0%	Number of days per year	no influence

Comments: It is estimated that the use of Envision services would have no influence on the amount of time spent for administration work because CB administration work is based on LEAF Marque training and meetings.	

KPI 6: % Increase in numbers of Laws / regulations supporting technologies for the continuous and systematic monitoring of agricultural practices

Link to the Impact Criteria: Compliance with regulations (Economic/Tech)

Data sources/ and measurement methods			
☒Current data (Existing EU and national relevant legislation or policies)/ Compared to baseline value		☒judgements by experts/ Interview/Survey	
Baseline value: Current number of Laws/regulations supporting the technologies for the continuous and systematic monitoring of agricultural practices.	**Target value**	**Measure ment units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
-	Increased by -%	Number	no influence

Comments: There will be no influence because there are no laws/regulations that currently provide this support in the UK, despite there being a number of programs/initiatives that support technologies for monitoring agriculture performance and land use.

KPI 7: Increase in coherence degree of the national strategic plan with the technologies that support continuous and systematic monitoring of agricultural practices.

Link to the Impact Criteria: Compliance with regulations(Economic/Tech)

Data sources/ and measurement methods			
☒Analysing existing national plan/ Compared to baseline value		☒judgements by experts/ Survey/Interview	
Baseline value: Current coherence level of the national strategic plan with the technologies that support continuous, remote and systematic monitoring of agricultural practices.	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
Low level	0%	Textual (Open Question)	no influence

Comments: There will be no influence on coherence because EO monitoring is not a national requirement for UK agriculture. There does not appear to be a clear direction in UK policy post-BREXIT for use of EO monitoring, especially if the UK becomes excluded from Copernicus.

KPI 8: % Increase in the number of farmers and Inspectors (end users) who are willing to use the services in your BC

Link to the Impact Criteria: Ease of use(Economic/Tech); improve awareness, knowledge, and opinion on environmentally friendly farming / Consumer Trust(Economic/Tech -Social).

Data sources/ and measurement methods			
☒Current Data from use case/ Compared to baseline value		☒judgements by experts/ Survey	
Baseline value: Number of end users using/interacting with the services from the beginning of the use case (February 2022).	Target value	Measurement units	**Estimated Value :** Based on your knowledge and experience, (considering current result

			of the products) Envision data product and services potential contribution
5 farm staff 1 "auditor" (LEAF as a CB)	Increased 5% of End users	Number /during the project lifetime	low influence (5%)

Comments: There is likely to be low influence on the increase of farmers and CBs willing to use the Envision services because the LEAF Marque Standard and Assurance program would first need to be re-designed to incorporate EO requirements and farmers/CBs would need assistance in overcoming access barriers (time, access to technology, financial barriers).

KPI 9: % Increase in harvested crop yields per hectare (Wheat,barley)

Link to the Impact Criteria: Increasing the farmer's income (Economic/ Tech -Social)

Data sources/ and measurement methods			
☒Generic Historical Data (Statistical Office of the Republic of Serbia/ Compared to baseline(standard) value			☒judgements by experts/ Survey
Baseline value: Average amount of harvested crop yields in previous / per agricultural production season	**Target value**	**Measurement units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
Not Applicable	. Not Applicable	kg/ha	no influence

Comments: There would be no influence as the LEAF Marque Standard requirements do not focus on measuring yield, therefore this service and target would not be applicable for the UK BC.

KPI 10: % Increase in number of new employments for relevant work in your organization/company.

Link to the Impact Criteria: Providing new jobs (Economic/Tech -Social)

Data sources/ and measurement methods			
☒Historical Data from use case/ Compared to baseline value			☒judgements by experts/ Survey
Baseline value: Current number of employees in your organisation/company for relevant work	**Target value**	**Measurement units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
45 inspectors	Increased by μà %	Number/ per year	no influence

Comments: There will likely be no influence from the use of Envision services on the number of CBs because CBs are selected to deliver LEAF Marque assurance based on factors that are not related to EO technology

KPI 11: % Increase in number of new products/services/processes by building on the ENVISION solution.

Link to the Impact Criteria: Provide better insight regarding Carbon stocks in soil, to the policy makers, farmers, public, scientist-improve awareness, knowledge, opinion on environmental friendly farming / Consumer Trust-Knowledge sharing (Social)

Data sources/ and measurement methods			
☒Data from Organization / Compared to baseline value			☒judgements by experts/ Survey
Baseline value: Products/services /processes related to remote and continuous monitoring	**Target value**	**Measurement units**	**Estimated Value :**

of farming practices that were interacted with and/or used in your organisation before the start of the project (September 2020).			Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution;
1 process related to remote monitoring of LEAF Marque certification	Increased by 20%	Number / during or after the project life time	low influence (20%)

Comments: At the start of the project, LEAF implemented a remote auditing process to adapt to the COVID pandemic (not using EO services). There would be a low increase in the number of Envision services used for LEAF Marque monitoring because the services are only applicable to monitoring a subset of the total LEAF Marque Standard requirements,not all

KPI 12: % Decrease in number of records farmers shall keep

Link to the Impact Criteria: Reduce the administrative burden (Economic/ Tech -Social)

Data sources/ and measurement methods

☒Current Data from use case/ Compared to baseline value	☒judgements by experts/ Survey

Baseline value: Average /Number of records farmers kept/keeps for administration work in last / per year.	Target value	Measurement units	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
16 records/year	Decreased by 5%	Number /per year	☒4: uncertainty concerning the impact

Comments: The number of records kept depends on the size of the farm. It won't be affected at least immediately from the use of technology.

KPI 13: % Decrease in amount of used paper for monitoring and inspection activities

Link to the Impact Criteria: Natural Resource use efficiency (Social- Economic/Tech); Cost reduction (Economic/Tech); Increasing the farmer's income (Economic/Tech-Social).

Data sources/ and measurement methods

☒judgements by experts/ Survey

Baseline value: The average amount of paper used in your organization for monitoring and inspection activities in last / per year	Target value	Measurement units	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
53 sheet-packs total per year used for LEAF Marque inspections	Decreased by 0%	Sheets / Per year	nO influence

Comments: The primary records that LEAF Marque requires farmers to keep are management plans, self-evaluations and risk assessments. Therefore EO services would have a low influence in reducing the number of farmer records, but services could help reduce soil/habitat monitoring records and farm site mapping.

KPI 14: % Decrease in pesticide use

Link to the Impact Criteria: Food quality/ security and safety(Social); Less environmental pollution(water-Soil) (Social); Cost reduction(Economic/Tech); Increasing the farmer's income (Economic/Tech -Social)

Data sources/ and measurement methods

☒judgements by experts/ Survey			
Baseline value: Average amount of pesticide used in last /per production season	Target value	Measurement units	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution;
Not Applicable/Data not available	Decreased by 5%	Kg/hectare	low influence (5%)

Comments: Because the Envision services would help growers monitor their pesticide use, they could then more successfully determine targets for pesticide-reducing practices, but the overall influence this will have on decreasing pesticide use is low as this depends on management decisions and strategies.

KPI 15: % Decrease in chemical fertiliser use

Link to the Impact Criteria: Environmental pollution(water-Soil) (Social): Cost reduction(Economic/Tech); Increasing the farmer's income (Economic/Tech -Social)

Data sources/ and measurement methods

☒judgements by experts/ Survey			
Baseline value: Average amount of chemical fertiliser used in last / per production season	Target value	Measurement units	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
Not Applicable/Data not available	Decreased by 5%	Kg/hectare	low influence (5%)

Comments: Because the Envision services would help growers monitor their chemical fertiliser use, they could then more successfully determine targets for checmical fertiliser-reducing practices, but the overall influence this will have on decreasing checmical fertiliser use is low as this depends on management decisions and strategies.

KPI 16: % Increase in the use of environmental friendly agricultural practices (no-till farming, agroforestry, crop rotation)

Link to the Impact Criteria: Environmental pollution(water-Soil) (Social)

Data sources/ and measurement methods

☒judgements by experts/ Survey			
Baseline value: Number of unit/farmer used environmental friendly practices in last year/ years	Target value	Measurement units	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
Not Applicable	Not Applicable	Number/ per year	no influence

Comments: Although the Envision services would help growers monitor the outcomes of their on-farm practices, it will likely not influence the number of sustainability practices a farm implements as this would depend on their management strategy and targets.

KPI 17: % Decrease in number of travelling with motor vehicles for on-site inspection

Link to the Impact Criteria: Lower emissions (Social); Environmental pollution (water-Soil) (Social); Reduce time (Economic/Tech); Cost reduction (Economic/Tech).

Data sources/ and measurement methods			
☒Data from use case/ Compared to baseline value			☒judgements by experts/ Survey
Baseline value: Number of travelling with motor vehicles for on-site inspection during last / per year.	Target value	Measurement units	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
45 inspectors travelling per year by motor vehicles	0%	Number/ per year	no influence
Comments: Use of the Envision services would not decrease the number of auditors travelling for on-site inspections because the LEAF Marque Standard requires inspection of other on-site features, such as fuel storage and chemical input storage etc.			

KPI 18: % Increase in number of publications and dissemination activities

Link to the Impact Criteria: improve awareness, knowledge, opinion on environmental friendly farming / Consumer Trust (Social)

Data sources/ and measurement methods			
☒Data from use case/ Compared to baseline value			☒judgements by experts/ Survey
Baseline value: The number of Publications and dissemination activities related to environmental friendly farming at the starting of use case(Feb 2022)	Target value	Measurement units	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
M18: 4 (social media related to ENVISION) M25: 14 (10 social media, 4 newsletters related to ENVISION)	Increased by 29%	Number /during the project life time	favourable effect (Number/28%)
Comments: The number of publications and social media posts by LEAF about the use of ENVISION services in sustainable farming increased between M18 to M25.			

KPI 19: % Decrease in number of fraud statement

Link to the Impact Criteria: improve awareness, knowledge, opinion on environmental friendly farming / Consumer Trust (Social)

Data sources/ and measurement methods			
☒judgements by experts/ Survey			
Baseline value: Number of fraud statement by farmers in last / per year	Target value	Measurement units	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
Not Applicable/Data not available	Not Applicable	Number/year	no influence
Comments: Not applicable to the UK BC because this is not data that is measured by LEAF however LEAF does survailence to monitor logo use and claims related to LEAF Marque, but not the data related to what Envision services monitor.			

KPI 21: % Increase in number of downloads (from the Envision Platform, open source APIs)

Link to the Impact Criteria: Creation of datasets for further scientific research(Social)

Data sources/ and measurement methods			
☒Data from use case/ Compared to baseline value			☒judgements by experts/ Survey

Baseline value: Current number of downloads (from the Envision Platform, open source APIs) at the start of the use case (Feb 2022)	Target value	Measurement units	Estimated Value: Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
-	Increased Min 40	Number/ by M25-M36	favourable effect (40)

Comment: The use of Envision services will increase the number of downloads from the Envision platform because the services will enable comparison between monitoring results and the LEAF Marque requirements to confirm farm compliance.

KPI 22: % Decrease in max fluctuation of results of markers

Link to the Impact Criteria: Stability of results through the years (Economic/ Tech)

Data sources/ and measurement methods

☒Current Data / Compared to baseline value			☒judgements by experts/ Survey
Baseline value: …% max fluctuation of the results of markers at the start of the use case.	Target value	Measurement units	Estimated Value: Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
	Not Applicable	%	☒5: no influence

Comments Not applicable to the UK BC because markers are not established for the UK BC.

KPI 23: % Increase in biodiversity in farmland

Link to the Impact Criteria: Environmental pollution(water-Soil) (Social): Cost reduction(Economic/Tech); Increasing the farmer's income (Economic/Tech -Social)

Data sources/ and measurement methods

☒judgements by experts/ Survey			
Baseline value: Average amount of chemical fertiliser used in last / per production season	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
Not Applicable/Data not available	Not Applicable	Kg/hectare	nO influence

Comments: Although the Envision services would help growers monitor some biodiversity outcomes on-farm, it will likely not influence the number of species as this would depend on their habitat management strategies and targets for both flora and fauna

KPI 24: % Increase in the soil organic matter

Link to the Impact Criteria: Lower emissions (Social)

Data sources/ and measurement methods

☒judgements by experts/ Survey			
Baseline value: Average amount of chemical fertiliser used in last / per production season	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, (considering current result of the products)

			Envision data product and services potential contribution
Not Applicable/Data not available	Decreased by 5%	Kg/hectare	low influence (5%)

Comments: Because the Envision services would help growers monitor their SOM%, they could then more successfully determine targets for SOM-increasing practices, but the overall influence this will have on increasing SOM% is low as this depends on management decisions and strategies.

6.2.4 Lithuanian BC

Lithuanian Business Case -Impact Indicators

KPI 1: % Decrease in mistakes performed during on-site inspections (by CB or PA)

Link to the Impact Criteria: Improve the objectivity- transparency, and reliability of the inspections and administration work (Economic/Tech-Social).

Data sources/ and measurement methods	
☒Historical Data from your Organisation	☒judgements by experts/ Survey

Baseline value: The number of mistakes performed during on-site inspections (by CB or PA) during last / per production season.	Target value	Measurement units	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
10	Decreased by 10%	Number per agricultural production season	favourable effect (10 %)

Comments: Envision tools will help to reduce the number of mistakes performed during on-site inspection.

KPI 2: % Decrease in number of farmer declaration mistakes

Link to the Criteria: Improve the objectivity- transparency and reliability of the inspections and administration work (Economic/Tech-Social).

☒Historical Data from your Organisation / Compared to the baseline value	☒judgements by experts/ Survey

Baseline value: Number of farmer declaration mistakes in the last / per declaration period.	Target value	Measurement units	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
20 % (24 000	Decreased by 10%	Number per declaration period.	favourable effect (10 %)

Envision tools will help farmers correctly declare the crop type and properly measure the parcel boundaries.

KPI 3 :% Increase in total area/unit under organic farming

Link to the Impact Criteria: Food quality/ security and safety (Social); Less environmental pollution(water-Soil) (Social); Increasing the farmer's income(Economic/Tech -Social).

Data sources/ and measurement methods			
☒judgements by experts/ Survey			
Baseline value: Total area/unit determined under organic farming in your country/ BC implementation area in the past year	**Target value**	**Measure ment units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
260 000 ha	Not Applicable	ha	no influence

Comments: Reduced control costs or farmer mistakes by envision tools won't increase a organic farming hectares

KPI 4: % Decrease in work time for monitoring and inspection activities

Link to the Impact Criteria: Reduce time(Economic/Tech).

Data sources/ and measurement methods			
☒Current Data from use case / Compared to baseline value		☒judgements by experts/ Survey	
Baseline value: Average amount of time spent for monitoring and inspection activities in previous / per year.	**Target value**	**Measure ment units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
4 hours – 1 on the spot check 40 min – 1 remote check	Decreased by 10%	(Reduced hours/min utes per check)	favourable effect (10 %)

Comments: Envision tools will reduce the time consumption required for on-site inspections.

KPI 5: % Decrease in time spend for administration work

Link to the Impact Criteria: Increasing the farmer's income(Economic/Tech -Social); reducing the administrative burden(Economic/Tech -Social); reducing the time(Economic/Tech)

Data sources/ and measurement methods			
☒judgements by experts/ Survey			
Baseline value: Amount of time spent for administration work in previous/per year.	**Target value**	**Measure ment units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
10 days per year per CB	Decreased by1 0%	Number of days per year	favourable effect (10 %)

Comments: Envision tools would help to realize the implementation of a remote monitoring system as effectively as possible, which would reduce the number of on-site inspections.

KPI 6: % Increase in numbers of Laws / regulations supporting technologies for the continuous and systematic monitoring of agricultural practices

Link to the Impact Criteria: Compliance with regulations (Economic/Tech)

Data sources/ and measurement methods			
☒Current data (Existing EU and national relevant legislation or policies)/ Compared to baseline value			☒judgements by experts/ Interview/Survey
Baseline value: Current number of Laws/regulations supporting the technologies for the continuous and systematic monitoring of agricultural practices.	Target value	Measure ment units	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
-	-		no influence
Comments: NPA does not see any impact on law regarding Envision tools			

KPI 7: Increase in coherence degree of the national strategic plan with the technologies that support continuous and systematic monitoring of agricultural practices.

Link to the Impact Criteria: Compliance with regulations(Economic/Tech)

Data sources/ and measurement methods			
☒Analysing existing national plan/ Compared to baseline value			☒judgements by experts/ Survey/Interview
Baseline value: Current coherence level of the national strategic plan with the technologies that support continuous, remote and systematic monitoring of agricultural practices.	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
		Textual (Open Question)	favourable effect (10 %)
Comments: EU law would help to realize the implementation of a remote monitoring system as effectively as possible, which would reduce the number of on-site inspections.			

KPI 8: % Increase in the number of farmers and Inspectors (end users) who are willing to use the services in your BC

Link to the Impact Criteria: Ease of use(Economic/Tech); improve awareness, knowledge, and opinion on environmentally friendly farming / Consumer Trust(Economic/Tech -Social).

Data sources/ and measurement methods			
☒Current Data from use case/ Compared to baseline value			☒judgements by experts/ Survey
Baseline value: Number of end users using/interacting with the services from the beginning of the use case (February 2022).	Target value	Measurement units	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
	Increased 10 % of End users	Number /during the project lifetime	favourable effect (10 %)
Comments: The more will be developed Envision tools, the more users will use it			

KPI 9: % Increase in harvested crop yields per hectare (Wheat,barley)

Link to the Impact Criteria: Increasing the farmer's income (Economic/ Tech -Social)			
Data sources/ and measurement methods			
☒Generic Historical Data (Statistical Office of the Republic of Serbia/ Compared to baseline(standard) value		☒judgements by experts/ Survey	
Baseline value: Average amount of harvested crop yields in previous / per agricultural production season	**Target value**	**Measurement units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
1 800 000 ha	. Not Applicable	kg/ha	no influence
Comments: NPA does not see any impact of the tools to more harvesting crops (all crops are harvested already)			

KPI 10: % Increase in number of new employments for relevant work in your organization/company.			
Link to the Impact Criteria: Providing new jobs (Economic/Tech -Social)			
Data sources/ and measurement methods			
☒Historical Data from use case/ Compared to baseline value		☒judgements by experts/ Survey	
Baseline value: Current number of employees in your organisation/company for relevant work	**Target value**	**Measurement units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
45 inspectors	Decreased by 20 %	Number/ per year	negative impact
Comments: The number of inspectors will reduce since noew technologies apply.			

KPI 11: % Increase in number of new products/services/processes by building on the ENVISION solution.			
Link to the Impact Criteria: Provide better insight regarding Carbon stocks in soil, to the policy makers, farmers, public, scientist- improve awareness, knowledge, opinion on environmental friendly farming / Consumer Trust-Knowledge sharing (Social)			
Data sources/ and measurement methods			
☒Data from Organization / Compared to baseline value		☒judgements by experts/ Survey	
Baseline value: Products/services /processes related to remote and continuous monitoring of farming practices that were interacted with and/or used in your organisation before the start of the project (September 2020).	**Target value**	**Measurement units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution;
1 process related to remote monitoring of LEAF Marque certification	Increased by 10%	Number / during or after the project life time	favourable effect (10 %)

KPI 12: % Decrease in number of records farmers shall keep	
Link to the Impact Criteria: Reduce the administrative burden (Economic/ Tech -Social)	
Data sources/ and measurement methods	
☒Current Data from use case/ Compared to baseline value	☒judgements by experts/ Survey

Baseline value: Average /Number of records farmers kept/keeps for administration work in last / per year.	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
16 records/year	Decreased by 10%	Number /per year	favourable effect (10%)

Comments: Farmers will not be required to keep the grassland mowing records register since they'll be detected via satellites

---

KPI 13: % Increase in the use of environmental friendly agricultural practices (no-till farming, agroforestry, crop rotation)

Link to the Impact Criteria: Environmental pollution(water-Soil) (Social)

Data sources/ and measurement methods

☒judgements by experts/ Survey

Baseline value: Number of unit/farmer used environmental friendly practices in last year/ years	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
449 485 ha (2021)	Increased by 10 %	Number/ per year	favourable effect (10 %)

Comments: Envision tools will contribute to increasing the number of farmers using environmental friendly practices.

KPI 14: % Decrease in number of travelling with motor vehicles for on-site inspection

Link to the Impact Criteria: Lower emissions (Social); Environmental pollution (water-Soil) (Social); Reduce time (Economic/Tech); Cost reduction (Economic/Tech).

Data sources/ and measurement methods

☒Data from use case/ Compared to baseline value		☒judgements by experts/ Survey	
Baseline value: travelling (km)with motor vehicles for on-site inspection during last / per year.	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
920 000 km	Decreased by 20 %	km/ per year	favourable effect (20 %)

6.2.5 Flemish Business Case

Flemish Business Case -Impact Indicators

KPI 3 :% Increase in total area/unit under organic farming

Link to the Impact Criteria: Food quality/ security and safety (Social); Less environmental pollution(water-Soil) (Social); Increasing the farmer's income(Economic/Tech -Social).

Data sources/ and measurement methods

☒judgements by experts/ Survey

Baseline value: Total area/unit determined under organic farming in your country/ BC implementation area in the past year	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
		ha	☒4: uncertainty concerning the impact

Comments: There is no indication that the service can have an influence on number of organic parcels. However it is possible that farmers may decide to switch to organic farming based on information about the condition of their soil.

KPI 4: % Decrease in work time for monitoring and inspection activities

Link to the Impact Criteria: Reduce time(Economic/Tech).

Data sources/ and measurement methods

☒judgements by experts/ Survey

Baseline value: Average amount of time spent for monitoring and inspection activities in previous / per year.	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
	Decreased by	Number of hours per inspection	3: low influence (1 %)

Comments: Cross compliance checks are very elaborate and consist of many checks. Checking the soil analysis is only a very small part of such a farm visit. And for pH the check will still be necessary. Still there is les data to be checked.

KPI 5: % Decrease in time spend for administration work

Link to the Impact Criteria: Increasing the farmer's income(Economic/Tech -Social); reducing the administrative burden(Economic/Tech -Social); reducing the time(Economic/Tech)

Data sources/ and measurement methods

☒judgements by experts/ Survey

Baseline value: Amount of time spent for administration work in previous/per year.	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
		Number of days per year	2: no influence

Comments: There is no influence as the farmer will still need to have soil analysis on other parameters than OC

KPI 6: % Increase in numbers of Laws / regulations supporting technologies for the continuous and systematic monitoring of agricultural practices

Link to the Impact Criteria: Compliance with regulations (Economic/Tech)

Data sources/ and measurement methods

☒judgements by experts/ Interview/Survey

Baseline value: Current number of Laws/regulations supporting the technologies for the continuous and systematic monitoring of agricultural practices.	Target value	Measurement units	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
	Increased by -%	Number	2: no influence

Comments: There is a European obligation in the new CAP to monitor the performance of CAP interventions using these technologies for all parameters where this is obligatory

KPI 7: Increase in coherence degree of the national strategic plan with the technologies that support continuous and systematic monitoring of agricultural practices.

Link to the Impact Criteria: Compliance with regulations(Economic/Tech)

Data sources/ and measurement methods

☒judgements by experts/ Survey/Interview

Baseline value: Current coherence level of the national strategic plan with the technologies that support continuous, remote and systematic monitoring of agricultural practices.	Target value	Measurement units	Estimated Value : Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
	.	Textual (Open Question)	2: no influence

Comments: ENVISION can help highlight key factors for increasing the said coherence. However as the preparation of the Strategic Plan is part of Policy Making and not of the Implementation, the influence of Envision will stay low.

KPI 8: % Increase in the number of farmers and Inspectors (end users) who are willing to use the services in your BC

Link to the Impact Criteria: To monitor the exact impact of interventions is not possible because of accuracy. However the service can give an indication of where there are problems where further follow up might be necessary

Data sources/ and measurement methods

☒judgements by experts/ Survey

Baseline value: Number of end users using/interacting with the services from the beginning of the use case (February 2022).	Target value	Measurement units	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution

	Increased ...% of End users	Number /during the project lifetime	5: favourable effect

Comments: We expect that information on SOC can have a positive influence on the number of farmers who are willing to use the service through Soil Pasport (visualisation of the SOC). It is however very difficult to put a number on this. Soil Pasport is under development.

KPI 9: % Increase in harvested crop yields per hectare (Wheat,barley)

Link to the Impact Criteria: Increasing the farmer's income (Economic/ Tech -Social)

Data sources/ and measurement methods

☒judgements by experts/ Survey

Baseline value: Average amount of harvested crop yields in previous / per agricultural production season	**Target value**	**Measurement units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
	.	t/ha	4: uncertainty concerning the impact

Comments: We hope that by giving information about the soil conditions like OC, farmers will learn and decide to work on improving the soil conditions for their crops and that way increase the yields. So the impact is indirect and therefore very hard to quantify.

KPI 10: % Increase in number of new employments for relevant work in your organization/company.

Link to the Impact Criteria: Providing new jobs (Economic/Tech -Social)

Data sources/ and measurement methods

☒judgements by experts/ Survey

Baseline value: Current number of employees in your organisation/company for relevant work	**Target value**	**Measurement units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
	Increased by %	Number/ per year	☒3: low influence (5 %)

Comments: There will be some work needed on the implementation in our processes, which in concreto will mean that an employee will spend some (5%) of his/her time on this.

KPI 11: % Increase in number of new products/services/processes by building on the ENVISION solution.

Link to the Impact Criteria: Provide better insight regarding Carbon stocks in soil, to the policy makers, farmers, public, scientist-improve awareness, knowledge, opinion on environmental friendly farming / Consumer Trust-Knowledge sharing (Social)

Data sources/ and measurement methods

☒judgements by experts/ Survey

Baseline value: Products/services /processes related to remote and continuous monitoring of farming practices that were interacted with and/or used in your organisation before the start of the project (September 2020).	**Target value**	**Measurement units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution;

		Number of new products/servic es/processes	Number / during or after the project life time	4: uncertainty concerning the impact

Comments: Nothing is planned at this point, but it is possible that in future processes the soil conditions will be taken into account. The service can than be very useful as it gives information for the whole of Flanders.

KPI 12: % Decrease in number of records farmers shall keep

Link to the Impact Criteria: Reduce the administrative burden (Economic/ Tech -Social)

Data sources/ and measurement methods

☒judgements by experts/ Survey

Baseline value: Average /Number of records farmers kept/keeps for administration work in last / per year.	**Target value**	**Measurement units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
	Decreased by	Number /per year	3: low influence (Number/%

Comments: We expect some impact but this will be neglectable as soil analysis is also necessary for other parameters

KPI 14: % Decrease in pesticide use

Link to the Impact Criteria: Food quality/ security and safety(Social); Less environmental pollution(water-Soil) (Social); Cost reduction(Economic/Tech); Increasing the farmer's income (Economic/Tech -Social)

Data sources/ and measurement methods

☒judgements by experts/ Survey

Baseline value: Average amount of pesticide used in last /per production season	**Target value**	**Measurement units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution;
1.36 kg pe hectare	Decreased by 10%	Kg/hectare	5: favourable effect (Number/%)

Comments: We hope that by giving information about the soil conditions like OC, farmers will learn and decide to work on improving the soil conditions for their crops and that way decrease the need for pesticides. So the impact is indirect and therefore very hard to quantify.

KPI 15: % Decrease in chemical fertiliser use

Link to the Impact Criteria: Environmental pollution(water-Soil) (Social): Cost reduction(Economic/Tech); Increasing the farmer's income (Economic/Tech -Social)

Data sources/ and measurement methods

☒judgements by experts/ Survey

Baseline value: Average amount of chemical fertiliser used in last / per production season	**Target value**	**Measurement units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products)

	Decreased by	Kg/hectare	Envision data product and services potential contribution
			5: favourable effect (Number/%

Comments: We hope that by giving information about the soil conditions like OC, farmers will learn and decide to work on improving the soil conditions for their crops and that way decrease the need for pesticides. So the impact is indirect and therefore very hard to quantify.

KPI 16: % Increase in the use of environmental friendly agricultural practices (no-till farming, agroforestry, crop rotation)

Link to the Impact Criteria: Environmental pollution(water-Soil) (Social)

Data sources/ and measurement methods			
☒judgements by experts/ Survey			

Baseline value: Number of unit/farmer used environmental friendly practices in last year/ years	Target value	Measurement units	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
	Increased by %	Number/ per year	5: favourable effect (Number/%

Comments: We hope that by giving information about the soil conditions like OC, farmers will learn and decide to work on improving the soil conditions for their crops and that way also embrace soil favorable and environmentally friendly practices. So the impact is indirect and therefore very hard to quantify.

KPI 17: % Decrease in number of travelling with motor vehicles for on-site inspection

Link to the Impact Criteria: Lower emissions (Social); Environmental pollution (water-Soil) (Social); Reduce time (Economic/Tech); Cost reduction (Economic/Tech).

Data sources/ and measurement methods			
☒judgements by experts/ Survey			

Baseline value: Number of travelling with motor vehicles for on-site inspection during last / per year.	Target value	Measurement units	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
	Decreased by %	Number/per year	no influence

Comments: Field visits will still be necessary, despite the SOC service

KPI 18: % Increase in the soil organic matter			

Link to the Impact Criteria: Lower emissions (Social)

Data sources/ and measurement methods			
☒judgements by experts/ Survey			

Baseline value: The number of Publications and dissemination activities related to	Target value	Measurement units	**Estimated Value :** Based on your knowledge and experience, (considering current result

environmental friendly farming at the starting of use case(Feb 2022)			of the products) Envision data product and services potential contribution
	Increased by	Number /during the project life time	5: favourable effect

Comments: Giving information about SOC, will surely entice the farmers to ameliorate the OC when levels are low. The impact is indirect however and therefore very hard to quantify.

KPI 19: % Decrease in number of fraud statement

Link to the Impact Criteria: improve awareness, knowledge, opinion on environmental friendly farming / Consumer Trust (Social)

Data sources/ and measurement methods

☒judgements by experts/ Survey

Baseline value: Number of fraud statement by farmers in last / per year	**Target value**	**Measurement units**	**Estimated Value :** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
	Decreased by %	Number/year	4: uncertainty concerning the impact

Comments: There is no evidence on fraud, but using an objective service excludes the possibility of fraud

KPI 20: % % Increase in biodiversity in farmland

Link to the Impact Criteria: Creation of datasets for further scientific research (Social)

Data sources/ and measurement methods

☒judgements by experts/ Survey

Baseline value: Number of dataset used to develop envision services at the start of the project .	**Target value**	**Measurement units**	**Estimated Value:** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
	increased % of used data	Number/ by M25-M36	5: favourable effect

Comment: We hope that by giving information about the soil conditions like OC, farmers will learn and decide to work on improving the soil conditions for their crops and that way increase biodiversity. So the impact is indirect and therefore very hard to quantify..

KPI 21: % Increase in number of downloads (from the Envision Platform, open source APIs)

Link to the Impact Criteria: Creation of datasets for further scientific research(Social)

Data sources/ and measurement methods

☒judgements by experts/ Survey

Baseline value: Current number of downloads (from the Envision Platform, open source APIs) at the start of the use case (Feb 2022)	**Target value**	**Measurement units**	**Estimated Value:** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution

	Increased Min 10000	Number/ by M25-M36	5: favourable effect
-			

Comment: If a service like SOC becomes open source, it will probably be used more than just by LV

KPI 22: % Increase in number of relevant historical databases

Link to the Impact Criteria: Creation of datasets for further scientific research (Social)

Data sources/ and measurement methods

☒judgements by experts/ Survey

Baseline value: Number of historical databases relevant to Envision data product and services at the start of the project	Target value	Measure ment units	**Estimated Value:** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
-	Increased by 5 (yearly databases)	Number/ by M25-M36	5: favourable effect

Comments The SOC service will create a database for the soil in Flanders that will eventually show a trend in the SOC in Flander and that way becomes a relevant hgistorical dataset

KPI 23: % Decrease in max fluctuation of results of markers

Link to the Impact Criteria: Stability of results through the years (Economic/ Tech)

Data sources/ and measurement methods

☒judgements by experts/ Survey

Baseline value: …% max fluctuation of the results of markers at the start of the use case.	Target value	Measurement units	**Estimated Value:** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
	Decreased by %	%	4: uncertainty concerning the impact

Comments Through testing, validation of results and refinement of the methodology used, the markers will be more precise over time as more and more scenarios are taken into account.

KPI 24: % Increase in number of farmers who benefit from CAP/EU agri-environmental policies based direct payments

Link to the Impact Criteria: Compliance with regulations (Economic/ Tech)

Data sources/ and measurement methods

☒judgements by experts/ Survey

Baseline value: Number of farmers who received payments/subsidies related to compliance with CAP/EU agri-environmental standards in the past year.	Target value	Measurement units	**Estimated Value:** Based on your knowledge and experience, (considering current result of the products) Envision data product and services potential contribution
7866	Increased by 10%	Number	2: no influence

Comments The SOC has no influence on the number of farmers who benefit from direct payments

6.3   Evaluation Surveys

Evaluation of Envision Data Products and Services

Please state your organization name *

Your answer

Please state your name *

Your answer

Which Business Case are you part of *

Your answer

Evaluation of the business value and acceptance

Please select the scale which most accurately reflects your opinion for each statement. On a scale 1 to 6, 1) Not relevant to our use case; 2) I strongly disagree; 3) Disagree; 4) Neutral; 5) Agree; 6) I strongly agree.

Unique/superior: If you select 5 (agree) or 6 (strongly agree), you can also select "Unique/superior" as a way of expressing that Envision data product and services are unique or superior for the stated feature.

Reduced time and effort *

	Not relevant to our use case (1)	I strongly disagree (2)	Disagree (3)	Neutral (4)	Agree (5)	I strongly agree (6)	Unique/superior
Envision data products and services can help reduce the number of travel trips for on-site inspections	☐	☐	☐	☐	☐	☐	☐
Envision data products and services can help to reduce the time spent on monitoring activities	☐	☐	☐	☐	☐	☐	☐
Envision data products and services can reduce time spent on administration work	☐	☐	☐	☐	☐	☐	☐

Envision data products and services can reduce time spent on administration work	☐	☐	☐	☐	☐	☐	☐
Envision data products and services can contribute to reducing effort and improving operational performance	☐	☐	☐	☐	☐	☐	☐

Why you think Envision data products and services can/can't help to reduce the number of trips for on-site inspections *

Your answer

Why you think Envision data products and services can/can't help to reduce the time spent on monitoring activities. *

Your answer

Why do you think Envision data products and services can/can't help reduce time spent on administrative work? *

Your answer

Why do you think Envision data products and services can/can't contribute to reducing effort and improving operational performance? *

Your answer

Flexibility and Scalability *

	Not relevant to our use case (1)	I strongly disagree (2)	Disagree (3)	Neutral (4)	Agree (5)	I strongly agree (6)	Unique/superior
Envision data products and services enable seamless integration and interoperability with the existing system	☐	☐	☐	☐	☐	☐	☐
The Envision data products and services ensure compatibility with the organisation's workflows and time constraints.	☐	☐	☐	☐	☐	☐	☐
Envision data products and services can be easily expanded or upgraded to meet changing user demands.	☐	☐	☐	☐	☐	☐	☐

Usefulness *

	Not relevant to our use case (1)	I strongly disagree (2)	Disagree (3)	Neutral (4)	Agree (5)	I strongly agree (6)	Unique/superior
Envision data products and services can support or create more collaborative, transparent and accurate decision-making	☐	☐	☐	☐	☐	☐	☐
I believe the Envision data products and services can foster the further acceptance of Earth Observation technologies.	☐	☐	☐	☐	☐	☐	☐

Why do you think Envision data products and services can/can't support or create more collaborative, transparent and accurate decision-making?   *

Your answer

Why do you think Envision data products and services can/can't foster the further *
acceptance of Earth Observation technologies?

Your answer

Evaluation of Performance, Usability And Effectiveness

Please rate your experience with envision data product and services for each statement below from 1-6, where , 1 is the lowest rate (Extremely weak performance/ product does not meet my needs), 5 is the highest rate (Clearly outstanding performance/ product fully meets my needs) and 6 is "Not relevant to our use case". *

	Extremely weak performance/ product does not meet my needs. (1)	Poor performance, major improvement needed/ product partially meets my needs. (2)	At an acceptable or above level / product partially meets my needs. (3)	Very favourable performance, but still needs improvement/ product fully meets my needs. (4)	Clearly outstanding performanc which is wa above the norm/ product full meets my needs. (5)
(1) Ability to receive data of crop type maps with two-week frequency from the mid- April to mid- September.	○	○	○	○	○
(2) Ability to receive grassland mowing and grazing layers with two-week frequency from June till November.	○	○	○	○	○
(3) Data product of Grassland mowing/ploughing provides more than 85% accuracy.	○	○	○	○	○
(4) Data product of cultivated crop type maps and grassland mowing/ploughing provides at least 95% accuracy compared to in situ data	○	○	○	○	○

(42) Ability to see what is important to check for each plot, according to a farmer's declaration, through the ENVISION platform.

○   ○   ○   ○   ○

(43) Envision Service helps to clarify why certain parcels needs to be checked according to the organisation's sample.

○   ○   ○   ○   ○

Please indicate the number of statements and provide explanations where you deem necessary.

Your answer

End of Document