D 5.4
INTERMEDIATE BUSINESS CASE IMPLEMENTATION REPORT

Project: Monitoring of Environmental Practices for Sustainable Agriculture Supported by Earth Observation

Acronym: ENVISION

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

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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

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Introduction

D5.4 “Intermediate BC Implementation Report” aims to identify the current status of BC implementation, ongoing developments and achievements of Envision data products and services. This report is crucial and one of the key milestones of the project as a way of reflecting on the work done in the previous years and assessing whether any changes and/or actions are needed based on the lessons learned from BC activities and progress to support the improvement of the ENVISION’s data products and services and commercialisation and dissemination activities

The structure of D5.4 is based on D5.2 “BC action plan”. D5.2 has been developed as a tool to collect detailed information on the execution of each BC, in line with the roles and activities established in the D5.1 guidance. It also provides a BC Gantt Chart with information on the milestones and timely execution of each activity. The contents of the document act as a roadmap for implementation and is used to monitor the progress of each BC. D5.4 focuses on reporting the BC’s progress, challenges, mitigation measures, achievements and milestones.

To give a better understanding of the importance of the BC implementation process in the project, the first section of the deliverable provides an overview of:

- the objectives of WP5 and Task 5.2 and the interaction between Task 5.3 and other WPs
- the strategic and key activities before, during and after the BC implementation process, together with their timelines.

The second section:

- It contains information on the steps and methodology followed in developing the Business Case Progress Report template.
- Describes the progress report template that was circulated to BCs to collect the necessary information.

The third chapter reports the progress of the BCs based on collected information from 10 (2 per BC) submitted progress reports, regular progress meetings and WP5 e-mails exchanged.

The final part of the deliverable consists of the overall conclusions supporting the improvement of data products and services and the commercialisation and dissemination activities of the ENVISION project in the remaining period.

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1. Introduction WP5 and Task 5.2

1.1 WP5 objectives and the role of Task 5.2 Business Cases Implementation

WP5 main objective is to deploy, test and evaluate ENVISION data products and services developed in WP3 and WP4. In summary, 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 services (WP3 and WP4) and to support the scommercialisation and dissemination activities of the ENVISION project (WP6 and WP7).

In the project, WP5 plays a critical role in ensuring that the services are developed, reach the required maturity and meet specific customer needs concerning the Common Agricultural Policy (CAP) and for the success of commercialisation, dissemination and communication activities (WP6 and WP7).

To support the above goal, Business cases implementation activities are performed within Task 5.2, developed ENVISION platform, data products and services will be used and tested in various business cases under different conditions by the business case partners (the PAs and CBs) and the LHC. They will have the opportunity to use and test the services as close as possible to their actual business practices with the necessary support and guidance they need. This will allow them to gain experience and evaluate services, not in a limited time and environment, but in their actual work environment and a longer timeframe.

More specifically this task aims:

- To facilitate the implementation and monitoring of the performance of the BCs and perform all the needed activities in the right time order using the business case action plans and Gantt as a tool.
- To support the PAs and the CBs (NPA, LV, CAPO, OCS) participating in ENVISION business cases to:
  - Integrate the ENVISION products and services within their legacy systems by providing detailed technical instructions to the users and by sorganising technical sessions and webinars for this reason;
  - Use correctly and efficiently the ENVISION products and services, with the provision of detailed tailor-made user manuals taking into account their needs.

1.2 Task 5.2 Business Cases Implementation and Interactions with Task 5.3 Evaluation of business cases and other WPs

To support a better understanding of the Task 5.2 role within the WP5 and Envision project, we will describe the interactions of the task 5.2 with the other WPs below (Figure 1):

- WP3 designs and develops the EO-enabled data products offered through the ENVISION platform while considering the end user needs identified in WP2.
- 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

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platform and ENVISION service are **co-produced** with the end-users to ensure that they are tailored to their needs

- ***The results of WP3 and WP4 (data products and services) will be used and tested within Task 5.2***. Task 5.2 will therefore carry out the necessary activities to facilitate the implementation and monitoring of the business cases and support the PAs and CBs (NPA, LV, CAPO, OCS, UK) to integrate the ENVISION products and services into their existing systems and ensure proper and efficient use of the products and services.
- Task 5.2 operates in parallel with Task 5.3 and Task 5.2 creates the most supportive and effective environment possible for the evaluation activities of Task 5.3.
- Outputs from this task, as a lesson learned from BC activities and from BC progress, will support the improvement of the ENVISION's data products and services(WP3, WP4) and commercialisation and dissemination activities (WP6, WP7)

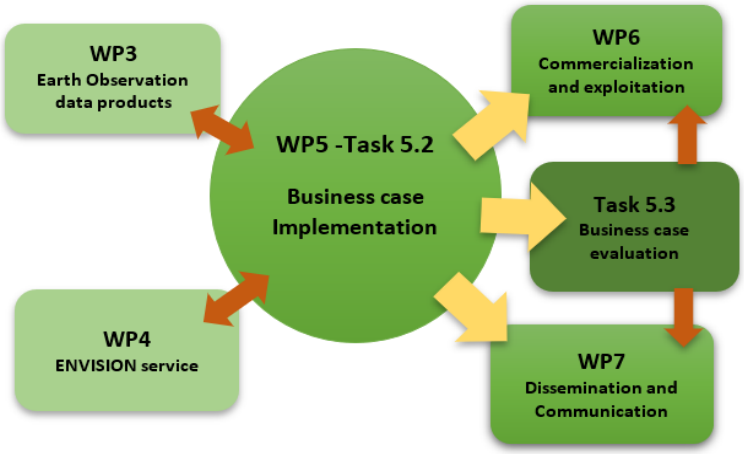

Figure 1 WP5 (Task 5.2) interactions

1.3 Time line and key activities of the BC implementation process

1.3.1 Key project activities prior to the BC implementation process

Prior to the BC implementation phase, the necessary activities were carried out from the beginning of the project (Figure 2 Timeline and key activities of the BC implementation processFigure 2), such as:

- The identification of PAs and CBs needs occurs in WP2 Commercial Service Requirements .
- Identify, collect and exploit all available ancillary datasets (Under Task3.2, for the details see D3.2 A catalogue on the available auxiliary data and repositories).
- Designing and developing the Envision platform (Within Task4.1, Task4.2, Task4,3, for more see D4.2 the initial version of the platform and D4.3 Integrated and validated version of the ENVISION platform).
- Developing the initial EO data products & services (Within Task3.3, Task3.4, Task 3.5, Task3.6, Task3.7), for the details, see D3.4 (Data products initial report).

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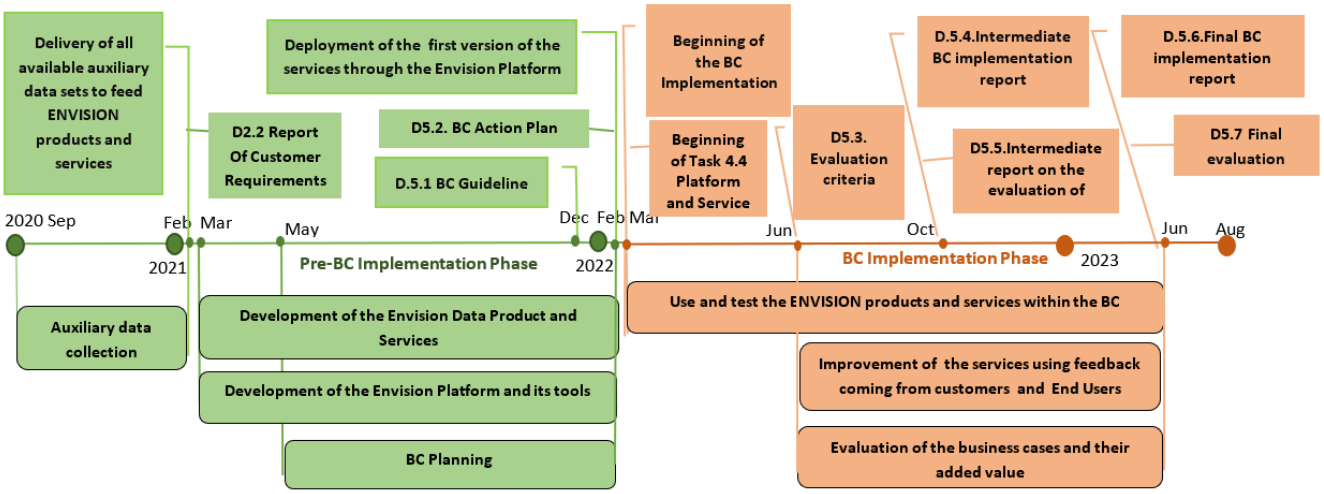

Figure 2 Timeline and key activities of the BC implementation process

In parallel with these activities, under WP5, BC planning was conducted to support the BC implementation phase.

1.3.2 Business case planning Steps

To support work related the BC planning all relevant activities from the beginning of the project has been followed as a way to understand and map in advance the business case actors, relations, needs, priorities and specific requirements, always in close collaboration with the Project Coordinator, WP2, WP3 and WP4 leaders.

Business Cases Planning consists of **two steps** to ensure the smooth uniform and successful implementation of all cases and it represents the keystone of the following tasks under the WP5.

Development of BC guideline

The guideline is designed to be the reference point for the BC actors during the BC implementation phase. With the guideline, For each BCs, the roles of the actors (Table 18, Table 19) and the planned activities were defined, and these activities were assigned to each role. During the process, meetings were held for each BC with the BC actors to discuss and review the defined roles and their assigned activities. Furthermore, basic instructions and standard features and practices for efficient communication and coordination were created (see D5.1 BC guideline). BC guidelines were sfinalised in a close collaboration with BC actors, and project partners and with their collected feedbacks (M16).

Development of the Action Plans

The action plan was prepared in line with the general aim of the project and with the roles and activities established in the D5.1 guidance. The Action Plan has been developed in close collaboration with the Business case actors. Meetings were held for each BC customers to establish effective collaboration and integrate their specific perspectives, needs and objectives into the formulation of the BC Action Plan. The D5.2 BC Action Plan has been sfinalised with the integration of comments and suggestions from the PC and related project partners.

Developed BC Action Plan aims to collect detailed information about the execution of each BC. The content of the document acts as a road map for the implementation and will be used to monitor the progress of each BC.

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BC Action Plan consist of 2 Chapter,

- BC Work Plan
  - ✓ BC Work plan is formulated in 2 phases (operational and evaluation Phase)
  - ✓ Each Phase consists of activity group/s
  - ✓ Each activity group is formed of several related activities

The BC work plan is structured so that it can be applied to all Business Cases and in an easy-to-follow manner. It provides information on the objectives and a short description of activity groups, information on the status of the activities and risks management. The General BC work plan is shown in Annex 5.3

- BC Gantt Chart (Annex 5.3)
  - ✓ The BC Gantt Chart is created as a way to display activities against time
  - ✓ It also presents milestones.

1.3.3 BC Implementation phases

The BC implementation process started with the delivery of the first version of the developed data products to future customers (PAs and CBs) and it will be implemented in two phases (Figure 2):

- Operational Phase

During the operational Phase, in accordance with the action plan, Envision data product and services will be used and tested (PSC, EnU) under different conditions within the Business Cases. Each BC will be continuously monitored and necessary feedback will be gathered (D5.4 Intermediate business case implementation report, D5.6 Final business case implementation report).

- Evaluation Phase

For the evaluation phase , Developed Envision data products and services, will be evaluated for each business case. The BC evaluation will go in parallel with the operational process. The questionnaires, interviews, and regular meetings with the BC actors will be sutilised as a tool for the evaluation (D5.3 Evaluation criteria, D5.5 Intermediate report on the evaluation of services D5.7 Final report on the evaluation of services).

1.4 BC Customers and their role in BC implementation Process

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

- Business customers (ENVISION partners NPA, LV, CAPO, OCS) who are project partners and who will participate from the beginning of the project to its completion and
- Lighthouse Customers who 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

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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.

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2 Approach & Methodology

2.1 Business Case Progress Report Template Creation

The goal of the business case progress report template is to monitor and identify the current status of BC implementation, ongoing developments and achievements of Envision data products and services. In the process developed **BC work plan** in the "D5.2 Action Plan" used as a **business case progress report template.**

To create the BC work plan (Figure 3):

- First, we defined our goals to create a well-structured, well-fitting, detailed, and quality work plan. It followed the development of a specific, measurable, achievable, relevant, and time-bound Method.
  - We ranked activities that were developed in the D5.1 BC Guideline in order of priority; where necessary, we grouped them to keep them manageable and easier to understand and implement.
  - We assigned the activities to the relevant actors according to the D5.1 BC Guideline
  - and added deadlines for each activity, and indicated the milestones (see Gantt chart and milestones in Annex5.3).
- The first draft of the work plan was shared with the Business case Facilitator (BCF) to establish effective collaboration among the BC actors and integrate their specific approaches, perspectives, needs and objectives into the formulation of the BC Action Plan.
- The renewed version of the work plan was shared with the project coordinator, WP leaders and the related project partners to gather their valuable inputs, comments, and suggestions for the BC action plan improvement.
- And finally, the final version was created in line with the collected feedback.

2.2 Methodology For Filling In The Business Case Progress Report Template

We created a template of the BC progress report where BC facilitators can provide descriptions and characteristics of their BCs. For an accurate description of each BC case, we have developed a section that covers general, but at the same time very specific, characteristics of each Business cases such as BC description, implementation area, what services (i.e. cultivated crop type maps, soil organic carbon, organic farming, grassland/ mowing ploughing, soil erosion) will be used, BCF contact information, partners involved with their roles.

The following section contains the details of the BC work plan. It is structured in an intuitive and easy-to-follow manner. It lists activities under activity groups and activity groups under two categories (operational phase and evaluation phase). It includes information on the objective and a brief description of activity groups where BC facilitators can provide information on the status of the activity and risk management. The General BC work plan description is shown in Table 5.

Feedback collection

It is important to mention that during the implementation of the BC, feedback will be collected to monitor the BC's progress and evaluate the Envision data product and services. Feedback collection

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will be conducted through meetings, workshops, events, questionnaires, and periodic reporting. The BCF should provide information on the name of the feedback reports, in conjunction with the number of the activity previously identified in the BC Work Plan, and should also describe the nature of each collected feedback and define the deadline. For the description of the nature, the following options should be used: R - document, report; DEM - demonstration; MW- meetings, webinars and workshops, S- surveys.

Feedback Reports No.	Feedback Report Title	Activity No.	Nature	Due Date (DD/MM/YYYY)	Comments
	(e.g. progress report, survey)	(e.g. A 31, A35	(e.g. R, DEM)		

Table 1. Feedback Reports template

Milestones in the reporting period

We indicated the milestones for the purpose of motivation and to ensure that we were on the right track. Milestones are the specific points within a BC implementation and will be used to measure the BC implementation progress (seeBC Work Plan (BC progress report template) Annex 5.3 Milestones). In BC Gantt chart (see Annex5.3 Gantt chart), they represent critical events such as;

- Key deliverables (M1, M3,M5,M6, M7,M9, M10)
- Delivery of Envision data products and Services (M1, M7).
- Meetings or events (M2, M4, M8)

For the achieved milestones in the examined reporting period (Table 5), BCF should provide a mean of verification, a clear statement of achievement (yes/no) and an achievement date.

Milestones No	Milestone Name	Achievement (yes/no)	Achievement Date	Mean of verifications
M1	Deployment of the first version of the services.	Yes	End of Feb	The initial version of data products is delivered. (D3.4)
M2	BC level meetings, workshops and technical support.	Yes	End of May	Regular meetings, workshops and technical support organised.

Table 2. Business Cases Milestones

Provided Data/Information In The Reporting Period

During the BC implementation process, BC customers provided the necessary information and data to support and feed the Envision data product and services. For the gathered data in this reporting period, we collected information on data gathered through the table below.

Short description of Data/information	Focused Crop type	Focused Area (location/size)	Data-format	Related data product/s	Related activity	Purpose of the data/information provided

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Please descripe the data and /or information provided in this reporting peroid	(e.g. wheat, barley)	(e.g. National, name and size of the area)	(e.g. shape file, excel)	(e.g crop type map)	(e.g A11)	please indicate the purpose of the data

Table 3. Provided Data/Information In The Reporting Period

2.3 Co-development of Intermediate business case implementation report

The content of each BC implementation report(D5.4 Intermediate Business Case Implementation Report, D5.6 Final Business Case Implementation Report) consists of several sub-progress reports co-developed under WP5. Information on the planned sub-progress report is given in Table 4.

Progress Reports.	Nature	Due Date (DD/MM/YYYY)	Achievement (yes/ no)
1 Progress report	Report	30/04/2022	yes
2 Progress report	Report	30/09/2022	yes
3 Progress report	Report	31/01/2023	
4 Progress report	Report	31/05/2023	

Table 4. Sub-Progress reports

From the start of the BC implementation to the project's end, it has been planned to collect 4 BC progress reports for each BC. Currently, two progress reports have been completed for each BC (in total 10 Reports covering the period from M19-M25), which are presented in this deliverable.

The Intermediate business case implementation report was prepared in 6 steps (Figure 3):

- Development of the BC progress report template (BC Work Plan) and distribution to fill in.
- The BC customers write the sub-progress reports using a standard pre-filled template provided by the task leader. This action was undertaken 2 times during this reporting period (March 2022 and September 2022).
- After the reports were collected and reviewed by the task leader, feedback and comments were provided for finalisation. This action was undertaken 2 times during this reporting period (March 2022 and September 2022).
- Finalised BC progress reports were analysed, and information collected through regular meetings and e-mails was presented in the draft deliverable.
- The first draft of the deliverable was shared with the Business case actors and project partners to establish effective collaboration and integrate their comments and suggestions for finalisation.

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- In the sixth and final step, the final version of the Intermediate business case implementation report was created.

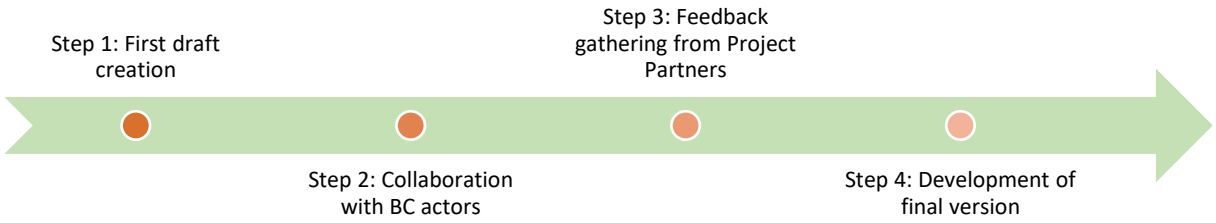

Figure 3 Followed Steps for the BC Action Plan Creation

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Business Case: *Code*	*Title*	
Business Customer:	*Potential future customers of Envision services,* *-Paying Agencies using ENVISION to monitor environmental and climate requirements of EU policies related to agriculture* *-Certification Bodies using ENVISION to monitor organic farming requirements*	***e-mail:***
Business case Facilitator	*Person responsible for supporting communication and collaboration*	***e-mail:***
BC Description	*Short Description of the BC*	
Specific objection	*Brief explanation of BC objection*	
Implementation area	*The coverage of the products (National, Regional, local) within pilot sites.*	

Work Plan						
Operational Phase	**Activity Group 1**	**Objective**	*Short description of the specific objectives which this Activity group aims to achieve.*				
		Short description	*Short description of activity groups; Describe the specific steps or actions that will take place to achieve the objectives of this activity group*				
		Title	***Partners involved***	***Milestones***	***Status of Execution - performed work -/ Changes, Achievements and Improvements***	***Adverse developments during the execution, challenges/ Potential Risks***	***Suggestions for solutions/ Risk mitigation***
		Title of the activity group	*Partners who will have a role in the activity group*		*Brief overview of the status of the activity group; provide updates and an assessment of the progress of activities against the work plan: Are activities running ahead or behind schedule?*	*Describe during the implementation phase any major issues that have arisen or might be arisen during the progress: possible critical risks, uncertainties, and difficulties associated with the execution of the activities*	*Describe your proposed measures/strategy/ actions for addressing them to ensure smooth implementation process.*
		Activities					
		Name of the activity	*Partners involved for this particular activity*		*Summary of the status for this particular activity*	*Major issues that have arisen or might be arisen for this particular activity*	*Proposed actions/ measures for this particular activity*

Table 5. Provided description (italic) of Business Cases Work Plan Template

3 Business Cases and Implementation reports

For each Business Case, implementation reports have been created based on the 1st and 2nd BC progress reports, regular meetings and e-mails. This report summarises the progress and activities for each BC until the end of September 2022.

3.1 Flemish Business case

Generic Information of Business case

Flemish Business Case					
Business Customer:	LV Flanders (BE)	***Type of organisation:***	Paying Agency (PA)		
Business case Facilitator	Sebastiaan Philips				
BC Description:	This business case focus on the Soil Organic Carbon Monitoring at the parcel level.				
Implementation area	Flemish region (large scale).				
Service	Monitoring the condition of the soil.				
Data Products	Topsoil Soil Organic Carbon Monitoring				
BC Partners	***LV***	***EV-ILVO***	***DRXS***	***AgroApps***	***FARMERS***
Partners Role	**BCF**	**WPL**	**PP**	**SP**	**EnU**
	PSC	**SP**	**BCE**	**BCE**	**BCE**
	DP	**DP**			
	EnU	**BCE**			
	BCE				

Table 6. Generic information of the Flemish BC

Current CAP's 6th GAEC requires the maintenance of soil organic matter level through appropriate agricultural practices. The objectives of the future CAP's GAECs include: maintenance of soil organic matter (GAEC 3), minimum land management reflecting site-specific conditions to limit erosion (GAEC 5), protection of soil in winter (GAEC 6) and preservation of soil potential through crop rotation(GAEC 7). Moreover, MS can define in their Strategic Plans voluntary Eco-schemes on soils with different levels of ambition. In this context, the continuous spatial and temporal monitoring of the SOC content in agricultural soils becomes extremely important, not only from the environmental perspective -to limit soil degradation- but also in economic terms to ensure that the beneficiaries of the CAP follow the obligations under the conditionalities and voluntary schemes.

Currently, the state of agricultural soils is checked by performing soil samplings and conducting laboratory examinations. However, these methods do not provide a continuous overview of the state of soils and they require significant effort, time, and resources to be committed. These types of controls could be significantly reduced and replaced with a more automated process.

This business case aims to demonstrate and evaluate how the use of EO-data and services together with ML techniques can **enhance and simplify the SOC monitoring process** concerning covering the CAP needs for soil organic carbon monitoring in cropland, supporting PAs applying their strategic plans. LV will test the ENVISION service for SOC estimation at the parcel level.

The Service will adjust to provide estimations for the whole Flemish region (large scale).

Identified product usage scenario (service business logic) and testing process

The specific objective is to be able to create a service that makes it possible to predict soil OC content for Flemish plots. With the use of the service, it is possible to inform and make farmers aware of the condition of their soil. This can be quantitative, but also relative to other plots or predefined benchmarks.

The accuracy of the model controls the SOC service logic. it's critical to define and adjust the SOC service's business logic to the LV needs and the achieved accuracy levels. The accuracy needs to support the SOC monitoring at the parcel level and not only the identification of low organic carbon zones like in Smart farming applications. From the beginning of BC implementation (March 2022), EV ILVO and LV have come to first solid conclusions on how to present the information in different accuracy scenarios.

Possible use of the service:

Objective: Visualization of the results in LV CAP applications like the soil passport

1. No policy follow-up but rather policy steering and pushing towards AECM and eco-schemes in new CAP.
    - FAST advice: insight for the farmer into the 'class' of carbon of the plot.

2. Risk analyses and risk management

A lot depends on ultimate accuracy.

• But if the error is e.g. 0.5%, show classes + - 0.5%

• Compare plot with benchmark parcels around - relative values

The latest, considering the modelling results of Scenario C, has been improved (second iteration). If accuracy can still be improved, it shows potential for It the use of the SOC maps as a benchmark and reference to farmers in maintaining SOC contents at an appropriate level and optimising decisions for sustainable land use.

Following the delivery of the product results of the 2nd iteration, a workshop was organized with LV and ILVO (October) to further discuss and define the product usage scenario (service business logic) of the SOC product for the continuous assessment and testing of the services. As a result, It was decided that;

- The service should be able to provide for each parcel in Flanders a class of SOC, not a quantitative number.
- We will continue this effort, considering new accuracy results (higher) and info coming for the XAI graphs. The goal is to develop definitive answers to questions such as the following by the end of December:
    - Which is the optimal/suggested frequency for updates?
    - How are we going to present the SOC values?
    - How are we going to estimate, deliver and show the accuracy of the assessment?
    - How can we accurately and without risk identify SOC degradation parcels?
    - May we use the SOC monitoring to motivate or award Farmers?

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Progress on operational Phase

- After a first evaluation of the initial results of the SOC product (Feb 22), which showed that the accuracy of the SOC product needs to be improved, EV ILVO continued to work on models and carried out further tests to improve the accuracy (work performed within WP3).
    - As the algorithm of the service was not accurate enough to be implemented as a service, uploading the SOC map and testing services through the platform was postponed until December to further work on improving the accuracy of the model (BC Milestones M7-end of December: Delivery of improved products and services though the Platform by ILVO).
    - EV ILVO developed and tested several regression models (Modelling scenarios for the SOC Models; Scenario A, Scenario B, Scenario C) within the **second iteration of our product developments**. The modelling results of Scenario C, has been improved. It allows the use of the SOC maps as a benchmark and reference to farmers in maintaining SOC contents at an appropriate level and optimising decisions for sustainable land use.
    - Partial enrichment of the Flemish SOC validation data set with extra sampling points.
    - Re-train the ML models using median values and generate a new top-soil organic carbon map for the entire region of Flanders.
    - Developed and apply a new alternative approach to deal with the identified limitations, such as work directly on time series values; feed the model with all the records of the cloudless bare soil collection and not only with the median values per point Select real records filtered for “seedbed” conditions.
- During the process LV has provided all needed info to EV ILVO on how to access available data sets covering the Flemish region.

Short description of Data/information	Focused Crop type	Focused area (location-size)	Data-format	Related data product/s	Related activity	Purpose of the data/information provided
Presentation on soil criteria in future CAP			Powerpoint		A3	Development of SOC service business logic
Carbon content target zones			Table		A11	To be able to divide results in classes

Table 7. Provided Data/information by Business case customer to the Services Provider M19-M25

- LV has completed the first and second BC progress reports (end of April and end of September).
- During the process, all BC partners worked closely together, which allowed for very efficient and effective cooperation and communication.
    - Until now, 8 monthly meetings were held with all BC actors and minutes were prepared and distributed. The primary goals of each meeting were
        - ➢ To record and monitor the implementation activities based on the BC Action Plan, the BC Gantt Chart and milestones

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- To reveal issues like delays, new challenges, unforeseen risks etc., acting proactively and following a problem-solving approach, always in close collaboration with the project coordinator and the WP leaders.

- All partners are constantly involved and besides the monthly meetings, we meet whenever it is necessary for one of the partners.
- Regular updates took place at WP leader's monthly meetings
- In addition, technical session has been hold between EV ILVO and LV in parallel with BC progress meetings.
  - Explain our algorithms
  - Presenting product results.
  - Feedback sharing
  - Discussion on future steps

Progress on Evaluation Phase

- The second iteration results of SOC data product by presented to the LV and in addition a demonstration was organized for the visualisation of the SOC product on the platform.
- Validation was done on the model, based on the currently obtained results and LV gave feedback to EV ILVO on the latest results of the data product and on the visualization of the product results on the platform.
- LV also expressed interest in checking and providing feedback on other services like Monitoring crop type, vegetation status, grassland mowing/ploughing, and soil erosion. In this regard a demonstration session has been organized for LV to check other services developed for other BCs and to provide feedback on the platform.
- LV co-developed the evaluation criteria and their indicators by participating in the workshop organised in Thessaloniki and by providing feedback during the consultation process (see D.3 Section 6, Table 5, 6, 9, 11).
- The criteria and indicators have been refined and enriched by ILVO through consultation with all BC actors.
- LV participated 3 workshop and later on performed 2 questionnaire surveys to evaluate the Envision data products and services and its added business value (considering usage scenario for improved product)
- LV provided baseline information as a reference point for the indicators such as: performed during on-site inspections, number of farmer declaration mistakes, number of travelling with motor vehicles for on-site inspection, etc.

Collected Feedbacks

During the implementation of the BC, collected feedback for the Flemish BC to monitor the progress of the BC and evaluate the Envision data product and services presented in the table below.

No.	Feedback Report Title	Related Activity No.	Nature	Due Date (DD/MM/YYYY)	Comments
1	Progress report	**A31** Reporting on the Business Cases progress	R	30/04/2022	
2	Progress report	**A31** Reporting on the Business Cases progress	R	30/09/2022	

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3	Baseline values for Impact indicators	**A38:** Provide the Baseline information, if needed	R, S	26/10/2022	
4	Survey "Evaluation of the business value and acceptance"	**A35**: Provide input to the workshops, events and questionnaire surveys, A26: Providing feedback as we deal with B2C and B2B scenarios.	S	18/10/2022	
5	Survey "Evaluation of Performance, Usability And Effectiveness"	**A35:** Provide input to the workshops, events and questionnaire surveys	S	18/10/2022	
6	9 BC progress meeting	**A27:** Periodically holding meetings and calls at the BC level and prepare and distribute BC level meeting agenda and minutes, **A35:** Provide input to the workshops, events and questionnaire surveys, A26: Providing feedback as we deal with B2C and B2B scenarios	MW	March 2022-September 2022	
7	3 BC Evaluation Workshop	**A37:** Define Evaluation criteria, **A35:** Provide input to the workshops, events and questionnaire surveys, **A26:** Providing feedback as we deal with B2C and B2B scenarios	MW	March 2022-September 2022	

Table 8. Collected Feedbacks M19-M25

For the description of the nature, the following options should be used: R - document, report; DEM - demonstration; MW- meetings, webinars and workshops, S- surveys

Challenges/Risk and mitigation

The main risks identified and difficulties faced by Flemish BC are ssummarised in the table below, along with a brief explanation of how they were managed:

Declared relevant activity	Challenges/Risk	Solutions/Mitigation
A3: Developing the business flow (or business logic) within the BC	Not good enough accuracy to be able to use the model as was initially planned	Tests were done to ameliorate the model, but results remain not satisfactory enough. With the new business model and expected accuracy, it should be possible to integrate the model in the process and LV CAP application like soil passport

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A38: Provide the Baseline information, if needed	For some Indicators, LV has difficulties in providing baseline data. The service is a new product and aims to provide with a new way of assessing soil criteria like OC. It is as a consequence difficult to find baseline information on much of the criteria.	To facilitate the process, WPL developed a template that offers several options for the data sources and evaluation methods. So baseline information that cannot be collected will be supplemented by expert judgement.

Table 9. Flemish BC Challenges/Risk and mitigation

Next steps

Continue executing Business Cases activities as defined in the BC Action Plans within a defined duration (for details, see D5.2 Section 4.4). More specific:

- Complete the third BC Progress report (end of January 2023).
- LV and EV ILVO will continue to work together to meet LV's needs and improve services.(BC Milestones M7- end of December: Delivery of improved products and services though the Platform by ILVO)
    - Complete the building of the SOC model deployment workflows described in D.3.3 and 3.4, allowing the Envision platform and its components to access and use the developed models directly.
    - The Data and product results wil be uploaded to the platform for visualisation (in November-December).
    - Finalise the work related to improving the accuracy of SOC modelling results
    - LV will test and provide feedback for the SOC service
    - LV will further test the mobile app and platform.
    - LV and ILVO will continue to work together for the needed data and info on how to access available data sets covering the Flemish region.
- Participating in the BC level meetings.
- LV will perform the evaluation of the Envision product/ services and its added business value and provide feedback to the workshops, events and questionnaire surveys to evaluate the product and its added business value.

Milestones

The milestones that have been achieved for the Flemish BC are shown in the table below.

Milestones No	Milestone Name	Achievement (yes/no)	Achievement Date	Mean of verifications
M1	Deployment of the first version of the services.	Yes	End of Feb	The initial version of data products is delivered. (D3.4)
M2	BC level meetings, workshops and technical support.	Yes	End of May	Regular meetings, workshops and technical support organised.
M3	Define Evaluation criteria	Yes	End of Jun	The Evaluation criteria Developed (D5.3)

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M4	BC level meetings, workshops and technical support.	Yes	End of Sep	Regular meetings, workshops and technical support organised
M5	Intermediate business case implementation report	Yes	End of-Oct	Intermediate business Case implementation report (D5.4)
M6	Intermediate evaluation report.	Yes	End of Oct	Intermediate report on the evaluation of services (D5.5)
M7	Delivering improved Envision Data product and Services though the platform.	-	End of Dec	The improved Envision of Data product and Services delivered.
M8	BC level meetings, workshops and technical support.	-	End of May 2023	Regular meetings, workshops and technical support organised
M9	Final business case implementation report	-	End of Jun 2023	Final business case implementation report (D5.6)
M10	Final evaluation report	-	End of Jun 2023	Final report on the evaluation of services (D5.7)

Table 10. Flemish BC Milestones Serbian BC Challenges/Risk and mitigation

3.2 Lithuanian Business Case

Generic Information of Business case

Lithuanian Business Case					
Business Customer:	NPA	***Type of organisation:***	Paying Agency (PA)		
Business case Facilitator	Aušrius Kučinskas, Martynas Rimgaila, Liveta Stankutė				
BC Description:	This Business case focus on employing ENVISION's services to monitor Cross-Compliance, Greening, and Rural Development Programs' (RDP's) climate-environmental requirements				
Implementation area	National scale				
Service	Monitoring crop type, vegetation status, grassland mowing/ploughing, soil erosion.				
Data Products	Crop type, vegetation status, grassland mowing/ploughing, soil erosion				
BC Partners	***EV ILVO***	***NPA***	***DRXS***	***NOA***	***FARMERS***
Partners Role	**WPL**	**BCF**	**PP**	**SP**	**EnU**
		PSC	**BCE**	**BCE**	**BCE**
		DP			
		EnU			
		BCE			

Table 11. Generic information of the Lithuanian BC

The inspection of Cross Compliance, Greening, and RDP's climate- environmental- requirements, including "Agri-environment and climate", "Organic farming" and "Natura 2000 and water framework

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directive payments", is currently a challenge to PAs because they consist of many different rules with different inspection dates. These requirements necessitate actions such as the verification of 1. crop types, 2. land abandonment, 3. use or not of herbicides, or mechanical weed control. The option to monitor the requirements remotely will reduce control costs for PAs and the administrative burden on farmers, thus ensuring faster and more efficient controls and faster delivery of payments to farmers.

Currently the environmental and climate requirements are controlled by on-farm visits and visual inspections. The large number of different cross compliance requirements and the environmentally friendly agricultural practices requirements under the RDP that have to be checked, coupled with the fact that they need to be inspected on different dates and/or apply to specific farmers significantly hinders the work of PAs.

In Lithuania's case, NPA has shown an active interest in employing EO technologies for monitoring farmers' performance (e.g. participation in RECAP project), as well as other technologies apart from on-farm checks; for example, farmers have the option to provide evidence regarding their activities by using NPA's mobile app , i.e. geotagged photos with captured coordinates, direction, azimuth value, and date stamp. Through this app, 1. farmers can inform NPA about performed activities (e.g. grass mowing, grass removal, catch crop seeding, green fallow ploughing), and 2. all users, including citizens, can inform NPA about bad farming practices (e.g. grassland areas that are not mowed). NPA officers evaluate the data and decide if they will perform on-farm-checks.

Through the ENVISION service, continuous and systematic remote monitoring of all of the above-mentioned requirements will take place throughout the year. Moreover, ENVISION will allow PAs to simultaneously monitor different requirements, saving time and resources currently devoted to performing numerous on-farm checks to inspect multiple, different measures.

The ENVISION service will be used to provide warnings and information to farmers related to their declarations. Farmers will be involved through existing networks of the CAPO.

This Business case focus on employing ENVISION's services to monitor Cross-Compliance, Greening, and Rural Development Programs' (RDP's) climate-environmental requirements

Identified a product usage scenario (service business logic) and testing process

From the beginning of BC implementation (March 2022), OCS has **identified a product usage scenario (service business logic)** for the continuous assessment and testing of services.

- This business case defines the use of ENVISION services that monitor various farming-related requirements using EO technology, applying the principle of lowest cost with the maximum effect. The main objective is to implement an automatic requirements assessment system.
- For the validation process; NPA have provided the schedule of the products (algorithms) we would like to get. The algorithms that will reach the required level of accuracy will be used in our inspection season and replace on-the-spot checks. The accuracy of the algorithms will be calculated according JRC guidance. The process consists of several parts:
  - First of all we collect the in-situ data from randomly but according to certain criteria selected parcels.
  - We compare the in-situ data results with the algorithm result and calculate the accuracy. The accuracy is determined by assessing alfa (<5 %) and beta (<20 %) mistakes.
  - We confirm the algorithm and use the results during inspection season.
- For this BC, product coverage is National

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Progress on operational Phase

- During the process data and results are continuously exchanged to discuss ways to meet BC's needs and improve services.
  - NPA identified, collected and exploited all available additional datasets that will help calibrate, validate and feed ENVISION's processing algorithms for the improvement of the products (see Table 12)
  - Several crop type maps products have been produced throughout the cultivation period of 2022 for entire Lithuania territory, starting from early April until the end of August using the methodology described in detail in the respective section of D3.3. The accuracy of the different models increases gradually, as more acquisitions are included in the input, resulting to an optimal performance at the end of August of 2022.
  - Stumble burning identification map has been developed and delivered through the platform by NOA (September).
  - Product of Grassland Mowing Events Detection has been developed and delivered through the platform by NOA (September).

Short description of Data/information	Focused Crop type	Focused area (location-size)	Data- format	Related data product/s	Related activity	Purpose of the data/information provided
Extra layers to the ENVISION portal: erosion, abandoned land area, wetland, Natura2000		All region	Shape file	2022 season ENVISION portal		Show extra layer in ENVISION portal as additional information together with generated results from algorithms (Crop type map, vegetation status, grassland mowing/ploughing, soil erosion)
GSAA 2022 data uploaded to ENVISION portal	All crops	All region	Shape file	2022 season ENVISION portal		Show GSAA data in ENVISION portal
NPA algorithms accuracy calculation methodology based on JRC guidelines		All region	Methodology	Crop type map, vegetation status, grassland mowing/ploughing, soil erosion	A11	Share methodology with technical team
Time table of In-situ data collection and scheduled on-the-spot checks		All region	Table	Crop type map, vegetation status, grassland mowing/ploughing, soil erosion	A11	Share time table with technical team to have a full picture of results validation

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ENVISION products results delivery dates in 2022		All region	Table	Crop type map, vegetation status, grassland mowing/ploughing, soil erosion		Have an agreement on results delivery dates

Table 12. Provided Data/information by Business case customer to the Services Provider M19-M25

- NPA tested the ENVISION mobile application and platform to discover all the best features, possibilities, benefit and added value for users. To achieve this objective, it was necessary to test the functionality, usability, visual appeal and also consistency.
- NPA has completed the first and second BC progress reports (end of April and end of September).
- During the process, all BC partners worked closely together, which allowed for very efficient and effective cooperation and communication.
    - Until now, 8 monthly meetings were held with all BC actors and minutes were prepared and distributed. The primary goals of each meeting were
        - To record and monitor the implementation activities based on the BC Action Plan, the BC Gantt Chart and milestones
        - To reveal issues like delays, new challenges, unforeseen risks etc., acting proactively and following a problem-solving approach, always in close collaboration with the project coordinator and the WP leaders.
    - All partners are constantly involved and besides the monthly meetings, we meet whenever it is necessary for one of the partners.
    - Regular updates took place at WP leader's monthly meetings
    - In addition, technical session has been hold in parallel with BC progress meetings. Technical support and instructions for data collection, use and testing of services/platform were also provided together with the documentation produced by services providers.
        - Explain the algorithms
        - Feedback sharing
        - Demonstrate the services and give instruction on how to use them
        - Discuss the format of the results.

Progress on Evaluation Phase

- Following the delivery of the data product by NOA, NPA provided feedback to the NOA on the data product/ services results (Validation of data product results).

  To confirm the results of the crop type marker, 100 parcels should be selected for each crop type – 50 crops data in the Eastern part of the country and 50 crops in the Western part. This year, in-situ data was collected from a total of 2 844 fields. The parcels are selected according to Joint Research Centre (JRC) recommendations:
    - Parcels declared this year;
    - Parcels bigger than or equal to 0,5 ha;
    - Parcels shape closest to square or rectangle;
    - Homogeneous;
    - In a different part of the country;
    - Not organic farming.

  In-situ data from those parcels is collected in June, then the collected information is analyzed, also alfa and beta mistakes are calculated. The crop type is confirmed if alfa – 5 % and beta –

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20 %. Alpha mistake [α] – false RED finding (in-situ data confirms declared crop type and algorithm result is negative); Beta mistake [β] – false GREEN finding (in-situ data does not confirm declared crop type and algorithm confirms).
Location data must be collected on-the-spot after visual identification of the crop or performed activity and photography with the location function is taken with mobile app.

Two iterations of the marker computation were run: the first iteration - using signals from the beginning of the year (2022-01-01) until the mid of July (2022-07-15) and second one - until the beginning of September (2022-09-08). Accuracy results were calculated by using the second iteration of results and communicated to ENVISION for further analysis.

In order to properly calculate the crop accuracy results, the first most probable prediction was used with the highest percentage number.

A marker type classification provided by Envision partners was used to determine accuracy. The group of winter cereals consists of winter wheat, winter rye, winter barley, winter triticale and the group of summer cereals consists of spring wheat, spring barley, oats and spring triticale. Also there is another group of markers - grass, which includes perennial pastures and meadows. It can be assumed that all remaining crops (for example, winter rape, peas, etc.) have no grouping and each crop type are predicted separately.

Crop type marker accuracy validation was performed based on Joint Research Centre guidance document.

The NPA calculates the error results for [α] and [β] for each algorithm tag. The calculations are performed by calculating the values according to the formula:

- [α] error = Y1 / X1 + Y1 when:
- Y1 - ENVISION result value “Unconfirmed / Negative” and location data result value “Approved”;
- X1 + Y1 - the total number of data collected in the area when the result is “Confirmed”.
- [β] error = X2 / X2 + Y2 when:
- X2 - ENVISION result value "Approved / Positive" and location data result value "Not Approved";
- X2 + Y2 is the total number of data collected in the area with an "Not Verified" result.

Considering the recommendations provided by the JRC regarding the confirmation of the accuracy of crops, it can be concluded that the following crop type markers fully met the quality: spring barley, oats, winter rape, buckwheat, beans, perennial pastures or meadows 5 years and more, corn, winter rye, winter barley and also triticale). So, all these algorithms could be confirmed.

The results of pasture/meadow markers show that the algorithm works well. Unfortunately, there is an opposite tendency, which demonstrates the ineffectiveness of the arable land cover marker.

A blind photo-interpretation process based on Sentinel-2 optical images was used to validate the accuracy of the mowing markers. For each mowing detection, an approximate time period was identified with the start and end of the event based on the Sentinel image acquisitions. The estimated mowed area as a percentage was also provided. Each parcel was assigned a positive/negative label indicating whether mowing was detected in that field. A negative value

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of "0" shows that mowing was not detected in the parcel. The each mowing detection timeframe was additionally verified through Sentinel imagery.

ENVISION mowing data product has shown reasonable 98% accuracy for grassland mowing detection.

ENVISION geotag app provides a simple way to communicate between farmers and paying agencies by creating a platform for submitting an evidence from the field. The app itself has a potential to be applied and used by farmers due its easy use. The UI is intuitive and easy to navigate and so is the process of submitting declaration evidence and viewing owned parcels.

With the ENVISION web-based platform paying agencies can browse through declared parcels with ease. The platform includes advanced search tools, compliance and potential problem filters as well as a NDVI filter. Each parcel can be individually examined for more detailed relevant data. When all the present features are combined the resulting product turns into a fast and reliable tool for paying agenciesCAPO has tested Envision platform and provided initial feedback on the functionality of the Envision platforms (in June -July).

- NPA co-developed the evaluation criteria and their indicators by participating in the workshop organised in Thessaloniki and by providing feedback during the consultation process (see D.3 Section 6, Table 5, 6, 9, 11).
- The criteria and indicators have been refined and enriched by ILVO through consultation with all BC actors.
- NPA participated 2 workshop and later on performed 2 questionnaire surveys to evaluate the Envision data products and services and its added business value.
- Baseline collected based on 2022 claim year statistical data or estimated based on common experience

Collected Feedbacks

During the implementation of the BC, collected feedback for the Lithuanian BC to monitor the progress of the BC and evaluate the Envision data product and services presented in the table below.

No.	Feedback Report Title	Related Activity No.	Nature	Due Date (DD/MM/YYYY)	Comments
1	Progress report	**A31** Reporting on the Business Cases progress	R	30/04/2022	
2	Progress report	**A31** Reporting on the Business Cases progress	R	30/09/2022	
3	Baseline values for Impact indicators	**A38:** Provide the Baseline information, if needed	R, S	20/10/2022	
4	Survey "Evaluation of the business value and acceptance"	**A35**: Provide input to the workshops, events and questionnaire surveys, A26: Providing feedback as we deal with B2C and B2B scenarios.	S	13/10/2022	
5	Survey "Evaluation of Performance, Usability And Effectiveness"	**A35:** Provide input to the workshops, events and questionnaire surveys	S	13/10/2022	

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6	9 BC progress meeting	**A27:** Periodically holding meetings and calls at the BC level and prepare and distribute BC level meeting agenda and minutes, **A35:** Provide input to the workshops, events and questionnaire surveys, A26: Providing feedback as we deal with B2C and B2B scenarios	MW	March 2022-September 2022	
7	3 BC Evaluation Workshop	**A37:** Define Evaluation criteria, **A35:** Provide input to the workshops, events and questionnaire surveys, **A26:** Providing feedback as we deal with B2C and B2B scenarios	MW	March 2022-September 2022	

Table 13. Collected Feedbacks M19-M25

For the description of the nature, the following options should be used: R - document, report; DEM - demonstration; MW- meetings, webinars and workshops, S- surveys

Challenges/Risk and mitigation

The main risks identified and difficulties faced by Lithuanian BC are ssummarised in the table below, along with a brief explanation of how they were managed:

Declared relevant activity	Challenges/Risk	Solutions/Mitigation
A11: Validate the products and services	The most potential risk is that winter wheat, spring wheat, peas, black fallow, green fallow, pasture or meadow, perennial grass up to 5 years, sugar beet, spring rape and also winter triticale does not achieve the required level of accuracy (highlighted yellow in the Table 1).	In this case, the necessary support for algorithm adjustments and result improvements will be provided
A38: Provide the Baseline information, if needed	For some Indicators, NPA has difficulties in providing baseline data,	To facilitate the process, WPL developed a template that offers several options for the data sources and evaluation methods. So baseline information that cannot be collected will be supplemented by expert judgement.

Table 14. Lithuanian BC Challenges/Risk and mitigation

Next steps

Continue executing Business Cases activities as defined in the BC Action Plans within a defined duration (for details, see D5.2 Section 4.4). More specific:

- Complete the third BC Progress report (end of January 2023).
- NPA and NOA will continue to work together to meet NPA's needs and improve services.(BC Milestones M7- end of December: Delivery of improved products and services though the Platform by NOA)
    - NPA will continue to test and provide feedback for the services provided

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- NOA will perform further Improvement of the methodologies described and fine-tuning of the implemented models.
- Development and delivery of the Minimum Soil Cover for soil erosion.
- Development and delivery of the Run off risk detection in NVZ
- NPA will further test the mobile app and platform.
- NPA will continue to provide necessary data to the NOA in order to feed and improve the data products/services.

- Participating in the BC level meetings.
- NPA will perform the evaluation of the Envision product/ services and its added business value and provide feedback to the workshops, events and questionnaire surveys to evaluate the product and its added business value.

Milestones

The milestones that have been achieved for the Lithuanian BC are shown in the table below.

Milestones No	Milestone Name	Achievement (yes/no)	Achievement Date	Mean of verifications
M1	Deployment of the first version of the services.	Yes	End of Feb	The initial version of data products is delivered. (D3.4)
M2	BC level meetings, workshops and technical support.	Yes	End of May	Regular meetings, workshops and technical support organised.
M3	Define Evaluation criteria	Yes	End of Jun	The Evaluation criteria Developed (D5.3)
M4	BC level meetings, workshops and technical support.	Yes	End of Sep	Regular meetings, workshops and technical support organised
M5	Intermediate business case implementation report	Yes	End of-Oct	Intermediate business Case implementation report (D5.4)
M6	Intermediate evaluation report.	Yes	End of Oct	Intermediate report on the evaluation of services (D5.5)
M7	Delivering improved Envision Data product and Services though the platform.	-	End of Dec	The improved Envision of Data product and Services delivered.
M8	BC level meetings, workshops and technical support.	-	End of May 2023	Regular meetings, workshops and technical support organised
M9	Final business case implementation report	-	End of Jun 2023	Final business case implementation report (D5.6)
M10	Final evaluation report	-	End of Jun 2023	Final report on the evaluation of services (D5.7)

Table 15. Lithuanian BC Milestones Serbian BC Challenges/Risk and mitigation

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3.3 Cypriot Business Case

Generic Information of Business case

Cypriot Business Case					
Business Customer:	CAPO	***Type of organisation:***	Paying Agency (PA)		
Business case Facilitator	George Groutas George Farkonis				
BC Description:	This Business case focus on employing ENVISION's services to monitor Cross-Compliance/Conditionality, and Strategic Plans Interventions regarding climate-environmental-requirements.				
Implementation area	National scale				
Service	Monitoring Multiple Environmental and Climate Requirements of CAP (organic and non-organic identification).				
Data Products	crop type, vegetation status, crop growth				
BC Partners	***EV-ILVO***	***CAPO***	***DRXS***	***NOA***	***FARMERS***
Partners Role	**WPL**	**BCF**	**PP**	**SP**	**EnU**
		PSC	**BCE**	**BCE**	**BCE**
		DP			
		EnU			
		BCE			

Table 16. Generic information of the Cypriot BC

The inspection of Cross Compliance, Greening, and RDP's climate- environmental- requirements, including "Agri-environment and climate", "Organic farming" and "Natura 2000 and water framework directive payments", is currently a challenge to PAs because they consist of many different rules with different inspection dates. These requirements necessitate actions such as the verification of 1. crop types, 2. land abandonment, 3. use or not of herbicides, or mechanical weed control. The option to monitor the requirements remotely will reduce control costs for PAs and the administrative burden on farmers, thus ensuring faster and more efficient controls and faster delivery of payments to farmers.

Currently the environmental and climate requirements are controlled by on-farm visits and visual inspections. The large number of different cross compliance requirements and the environmentally friendly agricultural practices requirements under the RDP that have to be checked, coupled with the fact that they need to be inspected on different dates and/or apply to specific farmers significantly hinders the work of PAs.

In Cyprus's case, CAPO uses a traditional method of monitoring and inspecting farmers' practices. This method consists of four steps: 1. submission of farmer's electronic application, 2. on-farm checks and some remotely sensed controls (using VHR data that are very costly), 3. administrative controls, 4. submission of documents from farmers when required.

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Through the ENVISION service, continuous and systematic remote monitoring of all of the above-mentioned requirements will take place throughout the year. Moreover, ENVISION will allow PAs to simultaneously monitor different requirements, saving time and resources currently devoted to performing numerous on-farm checks to inspect multiple, different measures.

The ENVISION service will be used to provide warnings and information to farmers related to their declarations. Farmers will be involved through existing networks of the CAPO.

Cypriot BC focus on employing ENVISION's services to monitor Cross-Compliance/Conditionality, and Strategic Plans Interventions regarding climate-environmental-requirements.

Identified a product usage scenario (service business logic) and testing process

From the beginning of BC implementation (March 2022), OCS has **identified a product usage scenario (service business logic)** for the continuous assessment and testing of services. In this scenario,

- CAPO will assess to what extent the developed services and products can contribute to a better control framework for submitted applications and speed up the process of application checks and payments by saving time and resources.
- The business flow is to receive results from the services, aimed at monitoring the environmental and climate requirements of the Interventions of the National Strategic Plan.
- For the validation process after receiving the results, CAPO analyze the capability of the service to distinguish real cases from false positives, check them against available validation data (ie VHR photos, OTSC results) and determine the level of precision providing the relevant feedback for improvement. For example when they receive results on stumble burning identification they proceed to validate it with VHR orthro photos or correspondence from the affected applicants. Final aim of the CAPO is to notify the applicants for the findings, so they proceed to corrective actions.
- For this BC, product coverage is National

Progress on operational Phase

- During the process data and results are continuously exchanged to discuss ways to meet BC's needs and improve services.
    - CAPO identified, collected and exploited all available additional datasets that will help calibrate, validate and feed ENVISION's processing algorithms for the improvement of the products (see Table 17. Provided Data/information by Business case customer to the Services Provider M19-M25) .
    - Several crop type maps have been produced throughout the cultivation period of Cyprus, starting from early April until the end of June using the methodology described in detail in the respective section of D3.3. The accuracy of the different models increases gradually, as more acquisitions are included in the input, resulting to an optimal performance at the end of the cultivation period of 2022.
    - Stumble burning identification map has been developed and delivered through the platform by NOA (September).
    - Data cup EndPoint services for the provision of parcels' time-series images has been developed by NOA

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Short description of Data/information	Focused Crop type	Focused area (location-size)	Data-format	Related data product/s	Related activity	Purpose of the data/information provided
Greenhouse Dataset	Vegetables in Greenhouses	National	Shapefile	CCTM	A11	To refine the results when a crop is grown under plastic greenhouses.
Interim Declarations 2022	All	National	Shapefile	CCTM	A11	Further training of algorithms and to be used as the source for a new iteration of the service.
River Network/Waterbodies	All	Buffers around River Network/Waterbodies	Shapefile	Runoff Risk	A11	Limit the area where needed for the service
Nitrosensitive Zone Areas	All	Nitrosensitive Areas	Shapefile	Runoff Risk	A11	Limit the area where needed for the service
Elevation Data for Slope Calculation	All	Nitrosensitive Areas	Shapefile	Runoff Risk	A11	Limit the area where needed for the service
On the spot observations (Validation Data)	All	National	Shapefile	CCTM	A11	To be used as validation dataset for the results of the service

Table 17. Provided Data/information by Business case customer to the Services Provider M19-M25

- CAPO has installed the mobile app that has been released to test (in July -August). Farmers are not involved yet. Due to problems caused by GeoSrbija's hacking, the use and testing of the mobile app was delayed.

Recently problem solved by INOSENS and DRAXIS. CAPO will be able to continue testing the mobile app (October-November).

- CAPO has completed the first and second BC progress reports (end of April and end of September).
- During the process, all BC partners worked closely together, which allowed for very efficient and effective cooperation and communication.
    - Until now, 8 monthly meetings were held with all BC actors and minutes were prepared and distributed. The primary goals of each meeting were
        - To record and monitor the implementation activities based on the BC Action Plan, the BC Gantt Chart and milestones
        - To reveal issues like delays, new challenges, unforeseen risks etc., acting proactively and following a problem-solving approach, always in close collaboration with the project coordinator and the WP leaders.

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- All partners are constantly involved and besides the monthly meetings, we meet whenever it is necessary for one of the partners.
- Regular updates took place at WP leader's monthly meetings
- In addition, technical session has been hold in parallel with BC progress meetings. Technical support and instructions for data collection, use and testing of services/platform were also provided together with the documentation produced by services providers.
  - Explain the algorithms
  - ➢ Feedback sharing
  - ➢ Demonstrate the services and give instruction on how to use them
  - ➢ Discuss the format of the results.

Progress on Evaluation Phase

- Following the delivery of the data product by NOA, CAPO provided feedback to the NOA on the data product/ services results (Validation of data product results).
  - Crop type Mapping: Results have been provided both in standalone format and through the platform. During validation phase, issues were identified with LPIS structure (parcels with very few pixels to provide meaningful analysis), with summer crops following main winter crop, with greenhouse presence, especially temporary ones, with false declarations by applicants and difficulties in distinguishing crops at the lowest level.
  - Stumble burning identification: Results are checked against other sources, mainly by visual interpretation of VHR images. Lower confidence results may be omitted or ignored in the final service.
- CAPO has tested Envision platform and provided initial feedback on the functionality of the Envision platforms (in June -July).
- CAPO co-developed the evaluation criteria and their indicators by participating in the workshop organised in Thessaloniki and by providing feedback during the consultation process (see D.3 Section 6, Table 5, 6, 9, 11).
- The criteria and indicators have been refined and enriched by ILVO through consultation with all BC actors.
- CAPO participated 2 workshop and later on performed 2 questionnaire surveys to evaluate the Envision data products and services and its added business value.
- CAPO provided baseline information as a reference point for the indicators such as: performed during on-site inspections, number of farmer declaration mistakes, number of travelling with motor vehicles for on-site inspection, etc.

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Collected Feedbacks

During the implementation of the BC, collected feedback for the Cypriot BC to monitor the progress of the BC and evaluate the Envision data product and services presented in the table below.

No.	Feedback Report Title	Related Activity No.	Nature	Due Date (DD/MM/YYYY)	Comments
1	Progress report	**A31** Reporting on the Business Cases progress	R	30/04/2022	
2	Progress report	**A31** Reporting on the Business Cases progress	R	30/09/2022	
3	Baseline values for Impact indicators	**A38:** Provide the Baseline information, if needed	R, S	20/10/2022	
4	Survey "Evaluation of the business value and acceptance"	**A35**: Provide input to the workshops, events and questionnaire surveys, A26: Providing feedback as we deal with B2C and B2B scenarios.	S	10/10/2022	
5	Survey "Evaluation of Performance, Usability And Effectiveness"	**A35:** Provide input to the workshops, events and questionnaire surveys	S	10/10/2022	
6	9 BC progress meeting	**A27:** Periodically holding meetings and calls at the BC level and prepare and distribute BC level meeting agenda and minutes, **A35:** Provide input to the workshops, events and questionnaire surveys, A26: Providing feedback as we deal with B2C and B2B scenarios	MW	March 2022-September 2022	
7	3 BC Evaluation Workshop	**A37:** Define Evaluation criteria, **A35:** Provide input to the workshops, events and questionnaire surveys, **A26:** Providing feedback as we deal with B2C and B2B scenarios	MW	March 2022-September 2022	

Table 18. Collected Feedbacks M19-M25

For the description of the nature, the following options should be used: R - document, report; DEM - demonstration; MW- meetings, webinars and workshops, S- surveys

Challenges/Risk and mitigation

The main risks identified and difficulties faced by Cypriot BC are ssummarised in the table below, along with a brief explanation of how they were managed:

Declared relevant activity	Challenges/Risk	Solutions/Mitigation
A3: Developing the business flow (or business logic) within the BC	High percentage of false declarations has been identified. (~10%)	For the false declarations we going to present them as warnings in our pre-filled forms for the applicants to take corrective actions

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A10: Test the services under various conditions	Seems we are a bit delayed, The mobile app is not fully functional yet as an issue was reported regarding Geosrbija. As a consequence CAPO haven't started on field verification visits.	Problem with GeoSerbia has been solved recently and CAPO are speeding up the process in October when the CAPO application data will be finalized.
A11: Validate the products and services	Crop type mapping: False declarations seem to be critical in many aspects and must be addressed. Homogeneity of declared parcels (in terms of contained pixels) should be further explored. When second crops follow main crop, there is the possibility of getting mixed results in later iterations of the service, due to alterations in parcel statistics. Stumble burning identification: A risk has been identified in cases where compost or livestock waste is applied in parcels as a means of soil improvement.	Crop type mapping: Discussion in technical session between CAPO and NOA where different approaches may be discussed and put to test. Stumble burning identification: Discussion will be held about ways to distinguish actually burned areas from burn-like areas.
A38: Provide the Baseline information, if needed	For some Indicators, CAPO has difficulties in providing baseline data, such as difficulties in quantifying some elements regarding farmer declaration mistakes and frouds.	Analysis of the claims data on our disposal and identify the dividing line between mistake and fraud.

Table 19. Cypriot BC Challenges/Risk and mitigation

Next steps

Continue executing Business Cases activities as defined in the BC Action Plans within a defined duration (for details, see D5.2 Section 4.4). More specific:

- Complete the third BC Progress report (end of January 2023).
- CAPO and NOA will continue to work together to meet CAPO's needs and improve services.(BC Milestones M7- end of December: Delivery of improved products and services though the Platform by NOA)
    - CAPO will continue to test and provide feedback for the services provided
    - NOA will perform further Improvement of the methodologies described and fine-tuning of the implemented models.
    - Delivery of the natural 2000 hold production map (end of October)
    - Development and delivery of the Minimum Soil Cover for soil erosion.
    - Development and delivery of the Run off risk detection in NVZ
    - CAPO will further test the mobile app and platform.
    - CAPO will continue to provide necessary data to the NOA in order to feed and improve the data products/services.
- Participating in the BC level meetings.

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- CAPO will perform the evaluation of the Envision product/ services and its added business value and provide feedback to the workshops, events and questionnaire surveys to evaluate the product and its added business value.

Milestones

The milestones that have been achieved for the Cypriot BC are shown in the table below.

Milestones No	Milestone Name	Achievement (yes/no)	Achievement Date	Mean of verifications
M1	Deployment of the first version of the services.	Yes	End of Feb	The initial version of data products is delivered. (D3.4)
M2	BC level meetings, workshops and technical support.	Yes	End of May	Regular meetings, workshops and technical support organised.
M3	Define Evaluation criteria	Yes	End of Jun	The Evaluation criteria Developed (D5.3)
M4	BC level meetings, workshops and technical support.	Yes	End of Sep	Regular meetings, workshops and technical support organised
M5	Intermediate business case implementation report	Yes	End of-Oct	Intermediate business Case implementation report (D5.4)
M6	Intermediate evaluation report.	Yes	End of Oct	Intermediate report on the evaluation of services (D5.5)
M7	Delivering improved Envision Data product and Services though the platform.	-	End of Dec	The improved Envision of Data product and Services delivered.
M8	BC level meetings, workshops and technical support.	-	End of May 2023	Regular meetings, workshops and technical support organised
M9	Final business case implementation report	-	End of Jun 2023	Final business case implementation report (D5.6)
M10	Final evaluation report	-	End of Jun 2023	Final report on the evaluation of services (D5.7)

Table 20. Cypriot BC Milestones Serbian BC Challenges/Risk and mitigation

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3.4 Serbian Business Case

Generic Information of Business case:

Serbian Business Case						
Business Customer:	OCS	***Type of organisation:***	Certification Body (CB)			
Business case Facilitator	Svetlana Vitomirović, Kosta Novaković,, Bojana Lendvaji Vignjević					
BC Description:	This Business case focus to employ ENVISION's services to demonstrate how the uptake of remote and continuous monitoring through the EO technology can improve the overall monitoring of organic certification requirements.					
Implementation area	OCS decided to slocalise testing on Vojvodina (Northern part of Serbia) and on 4 plant species: wheat, corn (maise), sunflower and soybean.					
Service	Monitoring organic farming requirements (Distinction of organic vs conventional farming practices)					
Data Products	crop growth monitoring, Grassland mowing/ploughing, Cultivated crop type maps, Vegetation status					
BC Partners	***EV-ILVO***	***OCS***	***DRXS***	***AgroApps***	***INOSENSE***	***FARMERS***
Partners Role	WPL	BCF	PP	SP	DP	EnU
		PSC	BCE	BCE	BCE	BCE
		DP				
		EnU				
		BCE				

Table 21. Generic information of the Serbian BC

Organic farmers in Serbia are required to comply with the **Law on Organic Production**[1]; this Law is designed to be fully in line with environmental EU legislation in respect to the conservation of the environment as a vital objective of organic agriculture.

To that end, there are several requirements that farmers need to follow (limits to fertilisation, mandatory buffer strips, soil erosion prevention, nutrient management etc.) to acquire and maintain an organic certification. Organic certification bodies are responsible for evaluating their performance and compliance to the environmental rules by performing on-farm checks.

OCS's organic certification process consists of two parts: 1) **preparation period**, which includes office work where the checklist for the on-site controls is prepared, and 2) **on-site control**, which includes: (i) checking of farmer records, working dairy, and other relevant documentation, and (ii) on-site monitoring of farm biodiversity, soil fertility and soil structure, the usage of prohibited substances, and measurements of buffer zones, strings, rows.

The process of organic certification needs to be both digitised and enhanced in relation to monitoring environmentally friendly practices remotely; the administrative burdens and costs of current methods significantly hinder the monitoring procedure of organic farming requirements. EO-based technologies and information will be employed to enhance OCS's inspection process by enabling the easy and continuous monitoring of several organic requirements, all year round. The ENVISION service will be

[1] Chamber of Commerce and Industry of Serbia, 2016. Available at http://www.pks.rs/SADRZAJ/Files/OPC%20Brosura%20ENG.pdf

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used to provide warnings and information to farmers related to their declarations. Farmers will be involved through the existing networks of Serbian partners.
This Business case focuses on employing ENVISION's services to demonstrate how the uptake of remote and continuous monitoring through the EO technology can improve the overall monitoring of organic certification requirements. Farmers will be involved through the existing networks of Serbian partners.

Identified a product usage scenario (service business logic) and testing process

From the beginning of BC implementation (March 2022), OCS has **identified a product usage scenario (service business logic)** for the continuous assessment and testing of services. In this scenario,

- OCS will assess the extent to which the developed services and products can facilitate and improve monitoring and inspection activities of the organic certification process in terms of reduction of time, cost and effort and improved decision-making.
- OCS will test the ability of the services to determine the difference between organic and conventional farming by comparing data on the rate of accumulation of crop biomass and other biophysical parameters between plots growing the same crop and declared as organic or conventional.
- For the validation process, OCS will compare the product results with results from on-site inspections. If the farmer has a smaller number of parcels (less than 20), OCS will check on site 100% of parcels. If a farmer has a larger number of parcels, OCS will check a minimum 50% up to about 80% of parcels (depending on the number of parcels, their area and the heterogeneity of their location).
- It has been decided to localise testing on Vojvodina (Northern part of Serbia) and on four plant species: wheat, corn (maise), sunflower and soybean.

Progress on operational Phase

- During the process data and results are continuously exchanged to discuss ways to meet BC's needs and improve services.
  - OCS identified, collected and exploited all available additional datasets that will help calibrate, validate and feed ENVISION's processing algorithms for the improvement of the products. The datasets include farmer declarations, inspection results, free and open data collected and other available sources. Information on the data provided by OCS is shown inTable 22.
  - The initial approaches/methods and results of the analysed data were presented and discussed with OCS to obtain feedback and improve the quality of data collection, thus improving service delivery.
  - As the algorithm of the service was not accurate enough to be implemented as a service, testing the services through the platform was postponed until December to further work on improving the accuracy of the model. (BC Milestones M7- end of December: Delivery of improved products and services though the Platform by DRAXIS).
  - Spatial Sample dataset enhancement was made. OCS provided with some more validation data that concern the same spatiotemporal extent (2016-2021). This dataset addition was checked for errors and was assessed. The spatial data gathered included parcels from 4 crops of interest, namely Maize, Soybean, Sunflower and Wheat.
  - OCS performed on-the-spot checks for validation of the product results:

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- On-site inspections of parcels started at the end of April 2022. Most inspections are scheduled in May and June, and several in July. OCS completed almost all field control on the spot in July.

Short description of Data/information	Focused Crop type	Focused area (location-size)	Data-format	Related data product/s	Related activity	Purpose of the data/information provided
Data collections of parcels with cadastral, parcel ID, type of crop and physically checked or not all data in document "Parcels identification, recognition & monitoring"	Wheat, sunflower, maize and soybean	Bela Crkva, Čenej, Čurug, Dobričevo, Kanjiža, Taraš, Rumenka (all cadastral in Vojvodina)	Excel document	all	A11 (Checked on spot in 2022)	Validation the product

Table 22. Provided Data/information by Business case customer to the Services Provider M19-M25

- After the first version of the organic crop identification product service was delivered (Feb 22), with a first set of results showing medium prediction performances according to the evaluation of the model, a 2nd iteration of training a machine learning algorithm was performed by service provider, with a scope to achieve better classification results for the task of organic farming identification by the further incorporation of extra phenology and GLCM image texture features of EO data.
- AgroApps planned the necessary steps (see D 1.9 page 59), to upload updated and improved data results to the platform (November - December) (BC Milestones 7: Delivery of improved products and services through the Platform by AgroApps -end of December). Such as; incorporating more features into the training process, like phenology, image texture and additional soil-related features to improve overall prediction accuracies and abondonning the multi-year dataset and going on with the model training per year for the 2nd iteration of the training process
- In parallel, OCS tested and provided feedback on Envision Platform. The tests are carried out in accordance with an instruction from Deliverable 4.3 Integrated and validated version of the ENVISION platform.
    - OCS started uploading the pilot data into the platform from February 2022 to test the platforms functionality. Data uploads to the platform were paused in July due to problems caused by GeoSrbija's hacking.
    - OCS has installed the mobile app and tested that has been released in July. Due to problems caused by GeoSrbija's hacking, the use and testing of the mobile app was also delayed.

Recently problem solved by INOSENS and DRAXIS. OCS will be able to upload the necessary data to the platform and continue testing the mobile app. (October-November).

- OCS has completed the first and second BC progress reports (end of April and end of September).
- During the process, all BC partners worked closely together, which allowed for very efficient and effective cooperation and communication.
    - Until now, 8 monthly meetings were held with all BC actors and minutes were prepared and distributed. The primary goals of each meeting were

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- To record and monitor the implementation activities based on the BC Action Plan, the BC Gantt Chart and milestones
- To reveal issues like delays, new challenges, unforeseen risks etc., acting proactively and following a problem-solving approach, always in close collaboration with the project coordinator and the WP leaders.

- OCS semphasised that communication and cooperation is very efficient. All partners are constantly involved and besides the monthly meetings, we meet whenever it is necessary for one of the partners.
- In addition, two technical meetings were held where the Initial results of the product on the NDVI results and the solution for GeoSrbija related problems were discussed
- Regular updates took place at WP leader's monthly meetings
- Technical support and instructions for data collection, use and testing of services/platform were also provided together with the documentation produced by service providers.
  - OCS received clear guidelines from DRAXIS on how the platform should be used and tested.
  - Technical support regarding the uploading the parcels provided.
    - The problems with inserting data into the template and the platform were solved by setting computers to srecognise those files exclusively in the Libra office.
    - DRAXIS and Inosens together solved the problem related to Latin letters in the csv file (č, ć and đ) so that OCS could enter data on the platform without any problems.
    - Inosens and DRAXIS solved the problems related GeoSrbija by redirecting calls from the application through the InoSens server.
  - Technical information and how to use mobile app provided

Progress on Evaluation Phase

Validation of the Product and Services;

- The results of the first iteration of the product for the distinction between organic and conventional wheat regarding NDVI values were not consistent with the accompanying information provided by OCS.
  - About 50% of organic wheat has typical NDVI curves, while the other 50% has NDVI curves that behave like spring crops. Based on the NDVI values, the indicated crop is possibly a spring crop or a crop other than wheat. When OCS checked this problematic data against historical records, it appeared that all of these plots were declared as winter wheat.
  - OCS noted that organic parcels have green mass almost all the time due to the ban on the use of herbicides in organic production, and also crops in organic production have a longer green mass than crops in conventional production due to the higher percentage of natural humus in the soil. According to OCS, this could be the reason for the different NDVI values. There could also be a matter of fraud statement regarding herbicide use and/or crop type.
  - For more accurate analysis it was decided to check spot plots and take soil samples for herbicide analysis and/or to check the correctness of the declared crop type.

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- For the 2nd iteration, there are no preliminary ML validation results have been created yet, because the update of the training data frame has not been completed yet. After delivery of the services, OCS will test and validate the results.

- OCS has tested Envision platform and provided initial feedback on the functionality of the Envision platforms (in June -July). According to the first experience of the staff involved in task, the platform is very user-friendly and works very well regarding functionality.
- OCS and Innosense co-developed the evaluation criteria and their indicators by participating in the workshop organised in Thessaloniki and by providing feedback during the consultation process (see D.3 Section 6, Table 5, 6, 10, 11).
- The criteria and indicators have been refined and enriched by ILVO through consultation with all BC actors.
- OCS participated 2 workshop and later on performed 2 questionnaire surveys to evaluate the Envision data products and services and its added business value (considering usage of the improved product).
- OCS provided baseline information as a reference point for the indicators such as: performed during on-site inspections, number of farmer declaration mistakes, total area/unit determined under organic farming, amount of time spent for monitoring and inspection activities, and also administrative work, number of travelling with motor vehicles for on-site inspection, etc.

Collected Feedbacks

During the implementation of the BC, collected feedback for the Serbian BC to monitor the progress of the BC and evaluate the Envision data product and services presented in the table below.

No.	Feedback Report Title	Related Activity No.	Nature	Due Date (DD/MM/YYYY)	Comments
1	Progress report	**A31** Reporting on the Business Cases progress	R	30/04/2022	
2	Progress report	**A31** Reporting on the Business Cases progress	R	30/09/2022	
3	Baseline values for Impact indicators	**A38:** Provide the Baseline information, if needed	R, S	12/10/2022	
4	Survey "Evaluation of the business value and acceptance"	**A35**: Provide input to the workshops, events and questionnaire surveys, A26: Providing feedback as we deal with B2C and B2B scenarios.	S	30/09/2022	
5	Survey "Evaluation of Performance, Usability And Effectiveness"	**A35:** Provide input to the workshops, events and questionnaire surveys	S	30/09/2022	
6	9 BC progress meeting	**A27:** Periodically holding meetings and calls at the BC level and prepare and distribute BC level meeting agenda and minutes, **A35:** Provide input to the workshops, events and questionnaire surveys, A26: Providing feedback as we deal with B2C and B2B scenarios	MW	March 2022-September 2022	

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7	3 BC Evaluation Workshop	**A37:** Define Evaluation criteria, **A35**: Provide input to the workshops, events and questionnaire surveys, **A26:** Providing feedback as we deal with B2C and B2B scenarios	MW	March 2022-September 2022	

Table 23. Collected Feedbacks M19-M25

For the description of the nature, the following options should be used: R - document, report; DEM - demonstration; MW- meetings, webinars and workshops, S- surveys

Challenges/Risk and mitigation

The main risks identified and difficulties faced by Serbian BC are ssummarised in the table below, along with a brief explanation of how they were managed:

Declared relevant activity	Challenges/Risk	Solutions/Mitigation
A3: Developing the business flow (or business logic) within the BC	insufficient number of parcels for testing. Problem is that parcel with different crop types could not be used for testing platform, only parcel with one crop type on it.	OCS could inspect also some other parcels which are not organic and also test platform using data for conventional parcels if will be necessary.
A10: Test the services under various conditions	During the implementation phase, a major problem which does not depend on the Envison project participants is that each parcel must be srecognised by the Geosrbija platform in order to be srecognised by the Envision platform. Unfortunately, Geosrbija is not fully updated with all the parcels.	For parcels that are not on the Geosrbija platform at any given time, periodic monitoring should take place.
A10: Test the services under various conditions	In the beginning, data could not be imported by different users because of the problem with different versions of Excel. Only one particular computer could be used to import data. This problem was eventually completely solved by changing the configuration of all computers.	OCS found the real cause of the problem was not a version of excel, but it is setting in the computer. In the Control panel in the part of Region (language preferences) in Additional settings in the part of Decimal symbol need to be point (.) and in the part of List separator need to be comma (,).
A10: Test the services under various conditions	Naming of cadastral municipality in Envision platform and in Geosrbija is not the same. Envision platform creates ID number for each parcel which contains code of cadastral municipality and cadastral number and its sub-number.	Document created (Identification, recognition and monitoring of parcels) on Envision dropbox in the folder 08_WPs\05_WP5_Business cases implementation and evaluation\Serbian BC (OCS) to facilitate the recognition of parcels and stored on a disk that OCS fills with data about cadastral municipality, cadastral number and ID of the platform.
A10: Test the services under various conditions	Template for importing data could`t srecognise Serbian letters Č, Ć and Đ, but srecognise letter Ž and Š. Almost all cadastral municipality have some of these letters.	The problem solved with using Libra office in format UTF-8.

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A10: Test the services under various conditions	The hack of GeoSerbia and the following blockage of access prevented data from being transferred to the platform.	Problem with GeoSerbia was solved. InoSens solved the problem by redirecting calls from the application through the InoSens server. DRAXIS tested the solution and reported that it works. App will work properly when DRAXIS replace the old calls with the new ones.
A38: Provide the Baseline information, if needed	For some Indicators, OCS has difficulties in providing baseline data, such as the current number of laws/regulations supporting the technologies for the continuous and systematic monitoring of agricultural practices and baseline value regarding using/interacting with the services.	This baseline information will be change during the project. And to facilitate the process, WPL developed a template that offers several options for the data sources and evaluation methods. So baseline information that cannot be collected will be supplemented by expert judgement.

Table 24. Serbian BC Challenges/Risk and mitigation

Next steps

Continue executing Business Cases activities as defined in the BC Action Plans within a defined duration (for details, see D5.2 Section 4.4). More specific:

- Complete the third BC Progress report (end of January 2023).
- OCS and AgroApps will continue to work together to meet OCS's needs and improve services.(BC Milestones 7: Delivery of improved products and services though the Platform by AgroApps -end of December)
    - AgroApps will upload the updated and improved data results to the platform (November-December)
    - After AgroApps upload the updated product results to the platform, OCS will test and provide further feedback on the Envision Mobile app and Data product/ services.
    - OCS will continue to provide necessary data to the AgroApps in order to feed and improve the data products/services.
    - OCS will continue to upload the collected data to the platform.
    - OCS will perform on-the-spot checks for validation of the product results. One action is related to the enrichment or improvement of the validation set (some issues were identified). This action will be carried out by visiting and inspecting the site where the information that OCS has provided is NOT in accordance with the NDVI values of the product (in September- October).
- Participating in the BC level meetings.
- OCS will perform the evaluation of the Envision product/ services and its added business value and provide feedback to the workshops, events and questionnaire surveys to evaluate the product and its added business value.

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Milestones

The milestones that have been achieved for the Serbian BC are shown in the table below.

Milestones No	Milestone Name	Achievement (yes/no)	Achievement Date	Mean of verifications
M1	Deployment of the first version of the services.	Yes	End of Feb	The initial version of data products is delivered. (D3.4)
M2	BC level meetings, workshops and technical support.	Yes	End of May	Regular meetings, workshops and technical support organised.
M3	Define Evaluation criteria	Yes	End of Jun	The Evaluation criteria Developed (D5.3)
M4	BC level meetings, workshops and technical support.	Yes	End of Sep	Regular meetings, workshops and technical support organised
M5	Intermediate business case implementation report	Yes	End of-Oct	Intermediate business Case implementation report (D5.4)
M6	Intermediate evaluation report.	Yes	End of Oct	Intermediate report on the evaluation of services (D5.5)
M7	Delivering improved Envision Data product and Services though the platform.	-	End of Dec	The improved Envision of Data product and Services delivered.
M8	BC level meetings, workshops and technical support.	-	End of May 2023	Regular meetings, workshops and technical support organised
M9	Final business case implementation report	-	End of Jun 2023	Final business case implementation report (D5.6)
M10	Final evaluation report	-	End of Jun 2023	Final report on the evaluation of services (D5.7)

Table 25. Serbian BC Milestones Serbian BC Challenges/Risk and mitigation

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3.5 UK Business Case

Generic Information of Business case

UK Business Case					
Business Customer:	LEAF	***Type of organisation:***	Environmental Assurance		
Business case Facilitator	Abbey Holman				
BC Description:	The UK BC will investigate the role of EO in agriculture assurance schemes. LEAF will apply the ENVISION services within LEAF Marque auditing to test their potential for assessing compliance with a number of control points within the LEAF Marque Standard. A trial audit pilot study will take place to perform this assessment.				
Implementation area	The business case is being implemented on a farm in in the Norfolk, UK. (129 hectares).				
Service	Monitoring Vegetation status				
Data Products	Vegetation status				
BC Partners	***EV ILVO***	***LEAF***	***DRXS***	***NOA***	***AgroApps***
Partners Role	WPL	BCF	PP	SP	SP
		PSC	BCE	BCE	BCE
		DP			
		EnU			
		BCE			

Table 26. Generic information of the UK BC

The ENVISION monitoring service will be applied within LEAF Marque auditing to demonstrate its potential for covering a number of control points within the standard. LEAF Marque is a farm assurance system, showing that food has been grown sustainably with care for the environment. It requires LEAF Marque businesses to have a number of plans and policies in place for successful implementation of Integrated Farm Management.

As part of the ISEAL Alliance (the global membership association for credible sustainability standards), LEAF Marque, along with other ISEAL members, look to explore the ways to increase the effectiveness and efficiency of sustainability standards and identify opportunities for innovation that increase the uptake of credible standards. As part of this work a push for a more outcomes-based hybrid approach has been identified and EVISION provides an opportunity to access a number of LEAF Marque control points by their outcome and increase the transparency of the auditing process.

Currently LEAF Marque is audited through a yearly inspection which includes checking compliance against every control point in the LEAF Marque Standard including checking farmer management plans, the implementation of Integrated Farm Management practices, monitoring and recording activities and communication with staff and the general public.

The ENVISION service will be used to improve and innovate the auditing process and allow the LEAF Marque Standard to monitor overall improvement of LEAF Marque businesses. They have the potential to improve the efficiency of the auditing process which could help to reduce audit costs for certified

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businesses, and increase the attractiveness of LEAF Marque to new or existing supply chain actors such as retailers, brands or food schemes.

After the end of the project, LEAF will explore the possibility of incorporating EO data and knowledge generated from ENVISION into the requirements of the LEAF Marque Standard.

Identified a product usage scenario (service business logic) and testing process

From the beginning of BC implementation (March 2022), OCS has identified a product usage scenario (service business logic/flow) for the continuous assessment and testing of services. In this scenario

- The UK BC will investigate the role of EO in agriculture assurance schemes. LEAF will apply the ENVISION services within LEAF Marque auditing to test their potential for assessing compliance with a number of control points within the LEAF Marque Standard. A trial audit pilot study will take place to perform this assessment.
- The specific objective of the BC is to assess the feasibility of incorporating EO into the LEAF Marque certification and auditing process, including identifying opportunities and barriers to implementation and evaluating the robustness of using EO to verify compliance with the LEAF Marque Standard.
- The business case is being implemented on a farm in in the Norfolk, UK. (129 hectares).
- Developed the business flow for the trial audit process within the BC, defines the trial audit timeline, format and execution activities. The business flow includes the following steps:
  - identifying the LEAF Marque Standard control points that will be assessed for compliance,
  - defining intended outcomes of the trial,
  - defining questions to be answered by trial participants,
  - trial audit implementation on farm using vegetation status mapping services,
  - and collecting feedback from participants in the trial.

Progress on operational Phase

- During this reporting period, a farm candidate has been identified to participate in the BC and a confidentiality agreement has been signed. (in July).
- The parcel information and data are collected from the farm for uploading to the ENVISION platform in order to start testing the services.
- Communication problems (see Challenges/Risk and mitigation) between AgroApps and LEAF and RB Organic led to delays in receiving data from farms and thus uploading it to the platform, which in turn led to delays in testing and validating of the product and service.
- Data and information's are continuously exchanged through monthly meetings and through the documentation produced such as;
  - Brief description regarding services (Analytics on Vegetation and Soil Index Time-Series and Crop growth monitoring) logic that will be used in BC and information on needed data provided by AgroApps.
  - LEAF provided documentation of necessary information to support the development of Envision data product and services (Analytics on Vegetation and Soil Index Time-Series and Crop growth monitoring) such as; Information on what does the business case need to monitor, crops cultivated, size of the farm, available data that can be shared, etc. (see Table 27)

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- LEAF Marque Business Case and Feasibility Background paper has been provided which gives overview of the roles and flow of information related to LEAF Marque assurance and certification and describes the feasibility considerations to incorporate ENVISION services into the LEAF Marque certification process by LEAF.

Short description of Data/information	Focused Crop type	Focused Area (location-size)	Data-format	Related data product/s	Related activity	Purpose of the data/information provided
Information on what does the business case need to monitor, crops cultivated, size of the farm, available data that can be shared, etc.	Carrots, potatoes	129.23 ha (farm size) – to be confirmed by the farm	Document	Vegetation status mapping	A10Test the services under various conditions , Trial audit	To monitor the customer's compliance with LEAF Marque Standard environmental control points. To support the development of Envision data product and services
Information on what does the business case need to monitor, crops cultivated, size of the farm, available data that can be shared, etc.	carrot, potato and leek	129.23 ha (Farm size)	Document	Vegetation status mapping	A10	Support the development of Envision data product and services
LEAF Marque Business Case and Feasibility Background pap	-	-	Document	-	Activity group 4 Evaluate the business cases and their added value ,A26 Providing feedback as we deal with B2C and B2B scenarios.	Overview of the roles and information flow related to LEAF Marque assurance and certification and describes the considerations for including ENVISION services in the LEAF Marque certification process.

Table 27. Provided Data/information by Business case customer to the Services Provider M19-M25

- The credential has been provided to set up account and give access to the platform (in August).
- LEAF has completed the first and second BC progress reports (end of April and end of September).
- During the process, all BC partners worked closely together, which allowed for very efficient and effective cooperation and communication.
    - Until now, 8 monthly meetings were held with all BC actors and minutes were prepared and distributed. The primary goals of each meeting were
        - ➢ To record and monitor the implementation activities based on the BC Action Plan, the BC Gantt Chart and milestones

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- To reveal issues like delays, new challenges, unforeseen risks etc., acting proactively and following a problem-solving approach, always in close collaboration with the project coordinator and the WP leaders.

- All partners are constantly involved and besides the monthly meetings, we meet whenever it is necessary for one of the partners.
- Regular updates took place at WP leader's monthly meetings

Progress on Evaluation Phase

- The Co-developed the evaluation criteria and their indicators provided to the LEAF by EV ILVO (beginning of June).
- The impact assessment indicators and acceptance criteria have been be prioritized for the UK BC within the workshop organized by EV-ILVO in September.
- LEAF will provide the needed baseline information as a reference point for the evaluation of the BC.(in September)
- LEAF provided Business Case Feasibility Background paper that include information on LEAF's considerations and criteria to incorporate ENVISION services into the LEAF Marque certification process.(in April).
- The criteria and indicators have been refined and enriched by ILVO through consultation with all BC actors.
- LEAF participated 2 workshop and later on performed 2 questionnaire surveys to evaluate the Envision data products and services and its added business value.
- LEAF are currently in the process of providing the baseline information for the evaluation criteria, by using existing data, collecting data from relevant BC stakeholders and/or utilising judgement by experts.

Collected Feedbacks

During the implementation of the BC, collected feedback for the UK BC to monitor the progress of the BC and evaluate the Envision data product and services presented in the table below.

No.	Feedback Report Title	Related Activity No.	Nature	Due Date (DD/MM/YYYY)	Comments
1	Progress report	**A31** Reporting on the Business Cases progress	R	30/04/2022	
2	Progress report	**A31** Reporting on the Business Cases progress	R	30/09/2022	
3	Baseline values for Impact indicators	**A38:** Provide the Baseline information, if needed	R, S	22/09/2022	
4	Survey "Evaluation of the business value and acceptance"	**A35**: Provide input to the workshops, events and questionnaire surveys, A26: Providing feedback as we deal with B2C and B2B scenarios.	S	07/10/2022	
5	Survey "Evaluation of Performance, Usability And Effectiveness"	**A35:** Provide input to the workshops, events and questionnaire surveys	S	07/10/2022	

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6	9 BC progress meeting	**A27:** Periodically holding meetings and calls at the BC level and prepare and distribute BC level meeting agenda and minutes, **A35:** Provide input to the workshops, events and questionnaire surveys, A26: Providing feedback as we deal with B2C and B2B scenarios	MW	March 2022-September 2022	
7	3 BC Evaluation Workshop	**A37:** Define Evaluation criteria, **A35**: Provide input to the workshops, events and questionnaire surveys,	MW	March 2022-September 2022	

Table 28. Collected Feedbacks M19-M25

For the description of the nature, the following options should be used: R - document, report; DEM - demonstration; MW- meetings, webinars and workshops, S- surveys

Challenges/Risk and mitigation

The main risks identified and difficulties faced by UK BC are ssummarised in the table below, along with a brief explanation of how they were managed:

Declared relevant activity	Challenges/Risk	Solutions/Mitigation
A3: Developing the business flow (or business logic) within the BC	The business flow might need to be modified due to delays in beginning the trial audit, more specifically, the timeframe of the trial will need to be shortened and the on farm shadow audit may need to be performed earlier than planned if possible or removed from the trial process. Delays in beginning the trial audit have been caused by communication delays	Modify the business flow to reflect the new timeframe (October 2022 to April 2023) that is feasible for the trial audit and communication of these changes to all stakeholders involved in the trial.
A10: Test the services under various conditions	Communication delays between AgroApps and LEAF and RB Organic and LEAF, due to delayed email replies during the summer holidays and harvest season to provide required answers/information on the BC setup in the ENVISION platform, have resulted in delays to finishing the preparations and actions necessary to begin testing the services in the trial audit.	Frequent email communications and follow up on action items to ensure prompt responses and collection of information in a timely manor
A11: Validate the products and services	Communication delays have resulted in delays to finishing the preparations and actions necessary to begin validating the products and services.	Frequent email communications and follow up on action items to ensure prompt responses and collection of information in a timely manor.
A38: Provide the Baseline information, if needed	Very little time available to provide baseline information, so it may not be possible to locate or collect baseline data.	Baseline information that cannot be collected will be supplemented by expert judgement.

Table 29. UK BC Challenges/Risk and mitigation

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Next steps

Continue executing Business Cases activities as defined in the BC Action Plans within a defined duration (for details, see D5.2 Section 4.4). More specific:

- Complete the third BC Progress report (end of January 2023).
- LEAF and AgroApps will continue to work together to meet LEAF's needs and improve services.(BC Milestones 7: Delivery of improved products and services though the Platform by AgroApps -end of December)
  - AgroApps will upload the updated and improved data results to the platform (November-December)
  - The parcel information is being collected from the farm, will be uploaded to the ENVISION platform to begin testing the services.
  - Following the upload the parcels and latest results of the data product to the platform, LEAF will test the services through the platform and validate the product results.
  - LEAF will test and provide feedback on the Envision Mobile app and Data product/ services.
  - LEAF will continue to provide necessary data to the AgroApps in order to feed and improve the data products/services.
- Technical support and instructions to use and testing of services will be provided together with the documentation produced by DRAXIS.
  - Technical support regarding the uploading the parcels.
  - Technical information and how to use mobile app.
- Participating in the BC level meetings.
- LEAF will perform the evaluation of the Envision product/ services and its added business value and provide feedback to the workshops, events and questionnaire surveys to evaluate the product and its added business value.

Milestones

The milestones that have been achieved for the UK BC are shown in the table below.

Milestones No	Milestone Name	Achievement (yes/no)	Achievement Date	Mean of verifications
M1	Deployment of the first version of the service.	yes	End of Feb	The initial version of data products is delivered. (D3.4)
M2	BC level meetings, workshops and technical support.	Yes	End of May	Regular meetings, workshops and technical support organised.
M3	Define Evaluation criteria	Yes	End of Jun	The Evaluation criteria Developed (D5.3)
M4	BC level meetings, workshops and technical support.	Yes	End of Sep	Regular meetings, workshops and technical support organised
M5	Intermediate business case implementation report	Yes	End of-Oct	Intermediate business Case implementation report (D5.4)
M6	Intermediate evaluation report.	Yes	End of Oct	Intermediate report on the evaluation of services (D5.5)

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M7	Delivering improved Envision Data product and Services though the platform.	-	End of Dec/	The improved Envision of Data product and Services delivered.
M8	BC level meetings, workshops and technical support.	-	End of May 2023	Regular meetings, workshops and technical support organised
M9	Final business case implementation report	-	End of Jun 2023	Final business case implementation report (D5.6)
M10	Final evaluation report	-	End of Jun 2023	Final report on the evaluation of services (D5.7)

Table 30. UK BC Milestones

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4 Conclusions

D5.4 "Intermediate BC Implementation Report" was developed based on collected information from 10 (2 per BC) submitted progress reports reflecting the current status and progress of implemented activities, regular progress meetings and emails from WP5. All BCs submitted their progress reports, but the quality of information provided is not equal for all BCs.

Although some BCs have faced difficulties and challenges with some activities or deliverables, all of them managed to submit the progress reports on time and achieved their deliverables and milestones within the reporting period. And in the coming period, WP5 will continue its support to the BCs.

From all the information gathered, it appears that a lot has been done from the beginning of the implementation phase (M19). On the other hand, UK, Serbian and Flemish BC have experienced some delays in some activities related to the implementation of the services. The cause of the delay has been identified and a plan has been drawn up with an adjusted schedule and the necessary additional resources.

Furthermore, the progress reports have shown that effective communication and cooperation between the BC partners has been established during the process, allowing us to anticipate challenges, constraints, potential roadblocks, etc. so that we can take timely measures for smooth implementation.

To conclude, the progress reports submitted by the Business Cases show that ENVISION products and services has a innovative potential to bring commercial and market value.

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5 Annex

5.1 Actors of the WP5

No	Name (Short name)	Participation in Tasks and Business Cases
1	DRAXIS Environmental (DRXS)	Participate in the planning and implementation phase of the Business case and contribute to Task 5.4 Add-on development showcase and capacity building.
2	National Observatory of Athens (NOA)	Participate in the planning and implementation phase of the Lithuanian and Cypriot Business case.
3	National Paying Agency (NPA)	Responsible for the Lithuanian business case (Monitoring multiple environmental and climate requirements of CAP)
4	Flemish Department of Agriculture and Fisheries (LV)	Responsible for the Belgium Business Case (Monitoring the condition of the soil)
5	Organismos Agrotikon Pliromon (CAPO)	Responsible for the Cypriot Business Case (Monitoring multiple environmental and climate requirements of CAP)
6	Doo Organic Control System Subotica (OCS)	Responsible for the Serbian Business Case (Monitoring organic farming practices)
7	Eigen Vermogen Van Het Instituut Voor Landbouw – En Visserijonderzoek (EV ILVO),	WP Leader and Task Leader in 5.1-5.2 and 5.3.
10	ITC - Innovation Technology Cluster Murska Sobota (ITC)	Leader of Task 5.4 Add-on development showcase and capacity building.
12	INOSENS Doo Novi Sad (INOS)	Participate in the planning, implementation, and evaluation phase of the Serbian and UK (LEAF) Business case and contribute to the Add-on development showcase and capacity building.
13	AgroApps I.K.E (AgroApps),	Participate in the planning, implementation, and evaluation phase of the Serbian Business case and contribute to the Task 5.4 Add-on development showcase and capacity building.
14	Linking Environment And Farming (LEAF)	Responsible for the UK business case focusing on LEAF Marque Certification and how EO data could be used to improve the accreditation process.

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5.2 Role descriptions

Role ID	Role Name	Role Short Description (underline verbs highlight the major activities)
R1	Work Package **Leader** (WPL)	Responsible for managing the WP activities and supporting the implementation of the Business Cases. WPL also defines the Business Cases, assigns roles and supports the evaluation of the ENVISION data products and services. They collaborate closely with the Facilitators and the WP partners.
R2	Business case **Facilitator** (BCF)	Facilitates Business Use Cases, supporting efficient communication and collaboration between the Consumers, the Providers and the End Users. Depending on the complexity of a business case, a Facilitator can act as a Consumer or as End Users or a Data Provider.
R3	Product & Service **Consumers** (PSC)	A PSC can actively participate in the co-production of the ENVISION products and services, test them under various conditions and validate them within the Business Cases. A PSC can participate in one or many Business Cases. A PSC also integrates, if needed, the services into their line of business as a way to develop the business flow. A PSC may also act as an end-user when the end-users are actors within the same organisation. A PSC also acts as the primary BC Evaluator.
R4	**Service Provider** (SP)	An SP develops and delivers services for the implementation of the Business Cases. They also improve the services using feedback coming from the Consumers and the End Users.
R5	**Platform Provider** (PP)	A PP develops and delivers the Envision Platform and its tools by using suitable techniques and technologies. The SP delivers their services through the Envision Platform. The PP updates the platform using the collected feedback from the Consumers, End Users and the Data and Service Providers.
R6	**Data Provider** (DP)	DPs identify, collect, integrate, and validate all available ancillary data sets to feed ENVISION's products and services. Service Providers use the data resources that come from the Data Providers to deliver their services.
R7	**End Users** (EnU)	EnUs ultimately use the service (or the product) within a Business Case, for example, the Farmers or Agronomists. An EnU also acts as the primary BC Evaluator.
R7	**BC Evaluators** (BCE)	BCEs evaluate the business cases and their added value. This role is performed mainly by the Consumers and the End Users; however, providers may participate as evaluators providing their feedback as we deal with B2C and B2B scenarios.

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5.3 BC Work Plan (BC progress report template)

Second BC progress report for M20-M25 (April 2022-September 2022).

Name of the Business Case

Flemish Business Case					
Business Customer:				***email***	
Business case Facilitator				***email:***	
BC Description:	.				
Specific objectives					
Implementation area					
Service					
Data Products					
BC Partners					
Partners Role					

Work Plan			
Operational Phase	**Activity Group 1 Use and test**	**Objective**	The overall goal of this group is to validate and evaluate the data product and services to improve and demonstrate that the services meet market needs in a cost-effective manner
		Short description	Under this group, key activities will take place. First, the business flow for the process will be defined to simulate PSC's (PAs & CAs) real business operation to test the service's to test the services'

			capability and reliability in fulfilling the needs of organizations to monitor sustainable agricultural practices. In some cases, along with their current workflow, the services will be integrated into their business line and/or systems.				
		Activities	***Partners involved***	***Milestones***	***Status of Execution - performed work -/ Changes, Achievements and Improvements***	***Adverse developments during the execution, challenges/ Potential Risks***	***Suggestions for solutions/ Risk mitigation***
		A3: Developing the business flow (or business logic) within the BC					
		A10: Test the services under various conditions					
		A12: Integrating, if needed, the services into their line of business.					
		Other relevant work performed					
	Activity Group 2 Provide efficient communication and collaboration between the Consumers, the	**Objective**	Establish and strengthen cooperation and communication between Project partners and BC actors and facilitate coordination of BCs.				
		Short description	To achieve the objectives of this activity group, meetings will be organized with the BC actors during the implementation phase and the necessary documents will be prepared (agenda and minutes). The WPLs and project management will be kept informed through regular monthly progress meetings and/or other communication tools defined in D5.1.				
		Activities	***Partners involved***	***Milestones***	***Status of Execution - performed work / Changes, Achievements and Improvements***	***Adverse developments during the execution, challenges / Potential Risks***	***Suggestions for solutions/ Risk mitigation***
		A27: Periodically holding meetings and calls at the BC level and prepare and					

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		distribute BC level meeting agenda and minutes.					
		A36: Periodically Updating WP and project partners with a meetings and calls					
		A2: Supporting the implementation of the BC by providing necessary technical instructions with technical sessions and webinars.					
		Other relevant work performed					
	Activity Group 3 Gathering Feedback and reporting	**Objective**	Ensure continuous evaluation and monitoring for each BC. Establish a bottom-up approach to problem-solving.				
		Short description	This group will focus on the organizational activities needed for feedback collection and the periodic feedback reporting, both for evaluation of the Envision data product and services and for monitoring the BC implementation progress, either through documentation or by providing input in organized workshops and demonstrations.				
		Activities	***Partners involved***	***Milestones***	***Status of Execution - performed work / Changes, Achievements and Improvements***	***Adverse developments during the execution, challenges / Potential Risks***	***Suggestions for solutions/ Risk mitigation***
		A31: Reporting on the Business Cases progress					
		A34: Organizing internal and/or external demonstration activities and workshops.					
		A35: Provide input to the workshops, events and questionnaire surveys					
		A26: Providing feedback as we deal with B2C and B2B scenarios.					

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		Other relevant work performed					
Evaluation Phase	**Activity Group 4** **Evaluate the business cases and their added value**	**Objective**	Evaluate the performance, usability and effectiveness of the products and services and their economic, environmental and social impacts in the implementation of the BC				
		Short description	This activity group will include specific activities needed for a successful evaluation. First, we will define the criteria and determine the structure and tools. Second, we will focus on data collection by using determined tools such as questionnaires, interviews and regular meetings to analyze the data and document the findings.				
		Activities	***Partners involved***	***Milestones***	***Status of Execution - performed work / Changes, Achievements and Improvements***	***Adverse developments during the execution, challenges / Potential Risks***	***Suggestions for solutions/ Risk mitigation***
		A37: Define Evaluation criteria					
		A38: Provide the Baseline information, if needed					
		A11: Validate the products and services					
		Other relevant work performed					

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Provided Data/information by Business case customer to the Services Provider in this reporting period M18-M23

Short description of Data/information	Focused Crop type	Focused Area (location-size)	Data- format	Related data product/s	Related activity	Purpose of the data/information provided

Feedback collection

Feedback Reports No.	Feedback Report Title	Activity No.	Nature	Due Date (DD/MM/YYYY)	Comments
1	BC Progress report	A31	R	30/04/2022	
2	BC Progress report	A31	R	30/09/2022	

For the description of the nature, the following options should be used: R - document, report; DEM - demonstration; MW- meetings, webinars and workshops.

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Guidance for filling in the template

Business Customer:	*Potential future customers of Envision services,* *-Paying Agencies using ENVISION to monitor environmental and climate requirements of EU policies related to agriculture* *-Certification Bodies using ENVISION to monitor organic farming requirements*	*e-mail:*	
Business case Facilitator	*Person responsible for supporting communication and collaboration*	*e-mail:*	
BC Description	*Short Description of the BC*		
Specific objection	*Brief explanation of BC objection*		
Implementation area	*The coverage of the products (National, Regional, local) within pilot sites.*		
Service	*Envision services that will be tested and validated in BC by PSC*		
Data Products	*Data Products developed for Envision services*		
BC Partners	***Short name of the Partners involved in BC Work Plan***	*Short Name*	*Short Name*
Partners Role	*Partners roles as those defined in D 5.1*		

Work Plan						
Operational Phase	Activity Group 1	**Objective**	*Short description of the specific objectives which this Activity group aims to achieve.*				
		Short description	*Short description of activity groups; Describe the specific steps or actions that will take place to achieve the objectives of this activity group*				
		Title	***Partners involved***	***Milestones***	***Status of Execution - performed work -/ Changes, Achievements and Improvements***	***Adverse developments during the execution, challenges/ Potential Risks***	***Suggestions for solutions/ Risk mitigation***
		Title of the activity group	*Partners who will have a role in the activity group*		*Brief overview of the status of the activity group; provide updates and an assessment of the progress of activities against the work plan: Are activities running ahead or behind schedule?*	*Describe during the implementation phase any major issues that have arisen or might be arisen during the progress: possible critical risks, uncertainties, and difficulties associated with the execution of the activities*	*Describe your proposed measures/strategy/ actions for addressing them to ensure smooth implementation process.*
		Activities					
		Name of the activity	*Partners involved for this particular activity*		*Summary of the status for this particular activity*	*Major issues that have arisen or might be arisen for this particular activity*	*Proposed actions/ measures for this particular activity*

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BC General Gantt chart

BC General Gantt chart

Phase		Activities	Partners involved	2022 Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2023 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Operational Phase	Activity Group 1	**Use and test the ENVISION products and services within the BC .**		M1										M7								
		A13 Developing the business flow(or business logic)within the BC																				
		A10 Test the services under various conditions																				
		A12 Integrating, if needed, the services into their line of business.																				
	Activity Group 2	**Communication and collaboration between the Consumers,the Providers, the End Users**					M2				M4								M8			
		A27:Holding meetings and calls at the BC level and prepare and distribute BC level meeting agenda and minutes.																				
		A36: Periodicly Updating WP and project partners with a meetings and calls																				
		A2: Supporting the implementation of the BC by providing necessary technical instructions with technical sessions and webinars.																				
	Activity Group 3	**Gathering and Reporting Feedback**										M5								M9		
		A31: Reporting on the Business Cases progress																				
		A34: Organizing internal and/or external demonstration activities and workshops.																				
		A35: Provide input to the workshops, events and questionnaire surveys																				
		A26: Providing feedback as we deal with B2C and B2B scenarios.																				
Evaluation Phace	Activity Group 4	**Evaluate the business cases and their added value**						M3				M6								M10		
		A37: Define Evaluation criteria																				
		A38: Provide the Baseline information, if needed																				
		A11 Validate the products and services																				

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Milestones

Milestones No	Milestone Name	Due date	Mean of verifications
M1	Deployment of the first version of the services.	End of Feb	The initial version of data products is delivered. (D3.4)
M2	BC level meetings, workshops and technical support.	End of May	Regular meetings, workshops and technical support organized.
M3	Define Evaluation criteria	End of Jun	The Evaluation criteria Developed (D5.3)
M4	BC level meetings, workshops and technical support.	End of Sep	Regular meetings, workshops and technical support organized
M5	Intermediate business case implementation report	End of-Oct	Intermediate business Case implementation report (D5.4)
M6	Intermediate evaluation report.	End of Oct	Intermediate report on the evaluation of services (D5.5)
M7	Delivering improved Envision Data product and Services though the Platform.	End of Dec	The improved Envision of Data product and Services delivered.
M8	BC level meetings, workshops and technical support.	End of May 2023	Regular meetings, workshops and technical support organized
M9	Final business case implementation report	End of Jun 2023	Final business case implementation report (D5.6)
M10	Final evaluation report	End of Jun 2023	Final report on the evaluation of services (D5.7)

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End of Document

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