NIVA – NEW IACS VISION IN ACTION

WP 5 Dissemination and Exploitation

D5.5 NIVA roadmap for IACS transformation

Deliverable Lead: WUR

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1 Introduction

1.1 Background

The NIVA project focusses on the digital transformation of the IACS systems: including more digital technologies and datasets, to improve (encourage) the performance of CAP payments, to make the IACS more efficient and to reduce administrative burden. Hereto, one of the actions of the project is to organise an Innovation Ecosystem to collectively work on this transformation, to share experiences and good practices and to work on common tools.

1.2 Objectives

The effectiveness of an Innovation Ecosystem requires an ongoing sustainable management beyond the project. To ensure this, WP5 will develop a road map for continued innovation management. This roadmap will include the continued management of the open-source repository, maintaining the contribution on standards, and facilitating the response to the ongoing need of (non-agri) users of IACS datasets, e.g., for monitoring the environment. This road map may include a continuation of the stakeholder exchange platform in the shape of annual conferences, meetings, hackathons.

The roadmap describes the actions to manage an Innovation Ecosystem that provides fertile ground for development and uptake of innovative techniques and methods which are developed during and after the project. The objectives of this roadmap document are:

- Describe the IACS transformation, whereto this roadmap will lead;
- List the relevant stakeholders involved in this transformation;
- Define actions and identify ownership for each action;
- Put actions in order and analyse dependencies, risks and mitigation measures;
- Conclude on the feasibility of Innovation System management as a separate continued activity beyond this project.

1.3 Objectives of this version

There will be subsequent versions of this roadmap. The final version at M36 will be the final roadmap. This document (V1.0, M4) lays down the steps required to develop the roadmap. This version of the document aims at encouraging discussion between project partners and with other stakeholders to create awareness, to build opinions and to collect inputs to the process of innovation management continuation.

1.4 Target audience

The document is a public document. The target audience consists of project partners and involved stakeholders, including Commission bodies and organisations, other member state organisations

involved in the IACS and CAP and actors in the agricultural domain (e.g. farmer organisations) and suppliers of digital technologies.

1.5 Reading guide

The reader guidance will be added in the next iteration of this document.

2 Towards self-sustained management of the Innovation Ecosystem

2.1 Definition of the 'IACS' innovation ecosystem

2.1.1 Systems approach

The so-called 'systems approach' has become an established way to study complex phenomena. The main characteristic of systems approach is that it promotes an interdisciplinary study of the phenomenon. It includes defining activities of the borders of a system. A good method for this is that within a system, changing one part of the system affects other parts or the whole system. Furthermore, addressing phenomena as systems also allows to deeper study how it is functioning, how it is organized and how it is influenced by its founding or surrounding environment.

Ecosystems are a special category, originally used in biology and natural sciences. Ecosystems are per definition dynamic in its boundaries and its functioning, and operate as a 'community' of individuals that interact with eachother and respond to internal and external factors.

In business, the systems approach has become popular too and the concept of innovation ecosystems has been evolving in the past decade. An innovation ecosystem encompasses all actors, relationships and resources who are involved in transforming a technology, concept or invention into operation and being used by a user community at a sustainable scale. The innovation ecosystem therefore includes users and producers, finance, science, human capital, regulations, networking and infrastructure.

Innovation ecosystems can be less or more effective and efficient in turning innovations to impact. Therefore Innovation Ecosystem Management addresses the functioning of the ecosystem and entails actions to maintain or improve its functioning. As mentioned, a change to one part of the innovation ecosystem leads to changes in other parts of the innovation ecosystem. Innovation Ecosystem Management is therefore an approach to move the ecosystem into a more effective construct, to identify critical aspects, to evaluate the functioning and to propose and take action to improvements.

2.2 The IACS Innovation Ecosystem

2.2.1 IACS System

(modified, original text from ec.europa.eu)

European Union Member States are responsible for the administration and control of payments to farmers in their country. The main building block of the management of payments system is the integrated administration and control system (IACS). The IACS ensures that transactions financed under the area and animal-based aid schemes are carried out correctly prevents, discovers and follows up on irregularities, recovers unduly paid amounts and supports farmers in making correct applications.

Member States use appropriate technology when setting up their IACS, with a view to reducing administrative burden and ensuring efficient and effective controls.

The IACS ensures that income support is managed and controlled in a standardised way in all EU countries. Typically, IACS covers an annual process, which starts with farmers lodging their online aid application for income support. In order to support farmers in this process, national administrations have to provide them with pre-established information that they can confirm, correct or complete.

The EU countries operate the IACS through accredited paying agencies. The system applies to all income support schemes (whether obligatory or not) as well as certain rural development support measures which are granted based on the number of hectares or animals held by the farmer. EU countries also use the IACS to ensure that farmers respect some of the requirements and standards mandated by cross-compliance.

The rules on the establishment and maintenance of IACS are specified by the rules on the financing, management and monitoring of the common agricultural policy (EU regulation 1306/2013, EU delegated regulation 640/2014, EU implementing regulation 809/2014).

2.2.2 The role of NIVA

The NIVA project is developing innovations for the IACS system and IACS custodians. The project is also studying the IACS Innovation Ecosystem to identify and propose ways to improve and sustain this ecosystem. The IACS Innovation Ecosystem entails all the stakeholders, suppliers, and users of the IACS systems and their interactions and transactions. The Innovation Ecosystem itself offers value in the form of organized delivery of innovations and it enables value creation in the form of interactions, ideation and inspiration, efficiency, effectivity, timeliness and the ability to absorb new technologies, methods and procedures. It is both a utility and social construct. Validation and monetisation of value will therefore combine utilitarian value with social and emotional value.

The IACS innovation ecosystem is a complex system with many actors. Although the core of the innovation ecosystem is made up by the European Commission and the Paying Agencies involved in the CAP, there are many other stakeholders that influence it and contribute to innovation. The stakeholders involve science and technology actors that inspire and influence other actors in the the uptake of new aspects. Their influence is both directly on the IACS system, as well as indirectly via the agricultural policies. Farmers, farmer representatives and other agricultural production related partners also have a large stake in the ecosystem, as they are the main entity the whole policy is concerned about. They also influence the policies, just like non-governmental organisations and other stakeholder types. In D5.2 an overview of relevant stakeholders are mentioned.

Another complexity is that IACS systems have evolved differently between different Member States, or even beteen different Paying Agencies within a Member State. The way IACS systems are organised is tuned to the local needs, the culture and organisational structures. So despite that there is one regulation that requires an IACS system, there are many different implementations.

And finally, while the IACS systems were originally designed to facilitate the correct administration and control of payments to farmers, other organisations are interested to tap into this data asset to improve their own processes. This includes other governmental organisations at national and

European level, as well as scientific organisations (including statistics), private organisations (e.g. agri-food companies, insurances etc.), and NGOs that e.g. monitor the agricultural and environmental performance.

To accommodate all these diversities, the IACS Innovation Ecosystem can be defined as:

The IACS Innovation Ecosystem entails all actors that directly and indirectly influence the development and operation of the i) administration and control of payments to farmers, ii) share IACS data with stakeholders and iii) improve the environmental performance of agriculture.

The NIVA project aims at identifying and promoting all activities that can enhance and improve the functioning of the IACS Innovation Ecosystem.

2.3 Steps

The literature review on the value and the assessment of innovation ecosystems resulted in a nine-step approach towards developing a self-sustainable platform. Participants connect to an innovation ecosystem for a variety of reasons: it provides utility or a certain value to them. This value and utility need to be clear to the management of an innovation ecosystem, in order to develop a supporting sustainability model. Therefore, the first six steps are defined to create understanding about the ecosystem through evaluation (see Figure 1). Literature review also points out that trust is essential (at least in the beginning) for participants to join, to interact and to cooperate. A systematic approach towards a governance model is step 7 and aimed to understand trust on the ecosystem and provide rules and norms for the way forward. When the value is clear and can be sustained, trust is embedded in the ecosystem, and a revenue model can be developed to create a self-sustaining governance structure.

Figure 1: Steps in setting up the management of the Innovation Ecosystem

2.4 STEP 1: Define evaluation criteria

The first step concerns sensemaking of the innovation ecosystem, in order to answer questions about the reasons to manage the innovation ecosystem, the potential interest and the general perceived

values, functionality and experiences. The goal is to define evaluation criteria which can be aligned with the KPIs of innovation management. These criteria will be used to evaluate the ecosystem governance and to develop a strategy for moving forward. Examples can be found in the involved costs, risks, interoperability, user capabilities, accessibility etc. The KPIs developed under WP2 follow the Theory of Change framework and can offer some of the criteria which can be further elaborated or shortened.

Deliverable: List of evaluation criteria for the NIVA sustainable innovation ecosystem

Deadline: 15 November 2020

2.5   STEP 2: Quantify evaluation of the Innovation Ecosystem

To compare evaluation results in an accurate way, criteria will be weighed and quantified. This will lead to a rating of different criteria and indicators following from Step 1. Adding numerical values will create better insights of the strenghts and weaknesses of the platform. It is important to clarify the elements that are vital to the sustainability of the innovation ecosystem, such as user engagement, monthly visits, willingness to pay etc. before adding weight to the different criteria.

Deliverable: weighed/quantified evaluation criteria

Deadline: 15 November 2020

2.6   STEP 3: Defining Innovation Ecosystem Functions and Roles

Innovation Ecosystem Functions can provide more specific insights of the utility and value of the Innovation Ecosystem. And individual functions can already provide the motivation to organise and govern the ecosystem or to make sure that this function remains. A preliminary list of functions comprises:

- Build the ecosystem: Networking and building a system of stakeholders;
- Capital: Providing investment and funding;
- Community: Bringing together communities of practice;
- Create culture: Building the innovation co-creation culture as compared to traditional mindsets;
- Stakeholder engagement: involving stakeholders, creating awareness and enabling them to voice their opinions;
- Customers and Markets: Access to customers and creating markets for innovations;
- Entrepreneurial support: Content and support specific to entrepreneurial capability and capacity, such as mindset or rapid growth and scale;
- Industry support: Content and support specific to industry sectors;
- Policy: Developing policy related to innovation development activities, indicated by ease of starting a business, procurement with large institutions, and development and trial of new technologies;
- Research: Developing new technologies that can be accessed by developers;

- Space and infrastructure: Physical space from which to work that is accessible by innovators, typically similar to a coworking space with short term or day by day access and inherent community and collaboration opportunities;
- Technical support: Support for technical skills and people with technical skills;

Etc.

The ecosystem also requires organisations to take specific roles, where each role can be seen as an organisation taking up one or more functions. Typical roles in an innovation ecosystem are those of investors, incubators and launching customer.

Deliverable: <mark>overview of functions and roles elaborating on the current situation of the IACS innovation Ecosystem across the project's partners.</mark>

Deadline: 15 December 2020

2.7 STEP 4: Interviewing

Surveys and interviews can help determine the perceived values of the participants in the innovation ecosystem. Value can be described in terms of utility, emotional value, and social value. Utility concerns the efficiency that participants experience from the ecosystem, emotional values and social values may include status, creativity, profit, and social value. These factors determine the success of an ecosystem; the way in which the platform is able to let participants connect to the platform, the ability of the ecosystem to attract participants, and its ability to enable exchange and co-creation. These evaluations will lead to information on the feasibility for the ecosystem governance to continue in terms of perceived value and need. Perceived value will also inform the willingness of participants to pay for provided services.

Such information is relevant for evaluation in the beginning of the project as well as towards implementation of a standalone ecosystem. The interviews will be the start of creating an iterative feedback loop to understand the perceived value over time.

Representatives to be interviewed:
- Policy officers from DG-AGRI & DG Connect
- Potential relevant EC representatives at Unit D3 in DG-AGRI, at DG-ENV, DG-CLIMA
- Representative of EC JRC
- Coordinator of the NIVA policy Board
- 3 NIVA policy board representatives
- Representative at farmers union, for example from COPA COGECA or NIVA's partners SEGES or ZLTO;
- Representative at environmental NGO, for example EEB
- Representative in coordination of Panta Rhei
- Representative in coordination of Learning Network
- Representatives of farmer organisations/or selection of individual farmers

Deliverable: A format, planning, and transcripts of the interviews, iterative feedbackloop

Deadline: 1 March 2021, and iterative feedbackloop before implementation

2.8   STEP 5: Analysis

The weighed criteria, the use case and the interviews will provide insights in the functionality, utility and impact of the innovation ecosystem management. These results will be analysed and subsequently presented in a report which can be presented at the NIVA policy board. Furthermore/or, the results will be summarised in short infonotes and slides to facilitate a participatory approach for evaluation.

Deliverable: Analysis report and/or short info notes

Deadline: 1 April 2021

2.9   STEP 6: Qualitative Evaluation

Attractive and informative info notes can help to generate feedback on the evaluation results of the platform. The survey/interview results and analysis will be presented at the NIVA policy board so that results can be discussed and compared at different levels. This will provide validity to the evaluation.

Deliverable: Short report on the qualitative evaluation results

Deadline: 1 August 2021

2.10 STEP 7: Governance of the Innovation Ecosystem

Participants will only accept the governance of an innovation ecosystem if they trust this system (trust in how information is shared, stored, the intentions of the founders and other participants in the system etc.). Creating trust is important to actively involve participants and getting them to interact with each other. This requires a good (system)governance approach; setting clear rules and guidelines, allowing participants to provide reviews and ratings. An important step here is to develop a clear (systemic) governance model to understand ways in which trust can be generated in the platform.

The governance is tied to a strategy that should consider how to improve on the reliability and loyalty of the participants, and how to create a revenue structure to enable the platform and participants to grow together.

Governance may consist of strict developer guidelines, or for example a reward system for providing reliable reviews and examples. In any instance, the platform should be predictable and reliable.

Deliverable: (Multiple) Governance strategy(s) for a standalone innovation ecosystem

Deadline: 1 August 2021

2.11 STEP 8: Candidates

The Innovation Ecosystem Management itself should be further developed to an independent cost effective solution. This is an entrepreneurial endeavour and needs to be undertaken by a participant that can perform this management efficiently and trustworthy. An assessment of possible candidates to manage the innovation ecosystem and the required qualification of such a service provider is informed by the evaluation. The list may include for example technology providers, JRC, DG Agri, CAPIGI Network, Wageningen UR, Digitalisation agenda of Brussels, DG Agri. Different type of stakeholders may have vested interests in managing (a part of) the Innovation ecosystem which may shape the way the whole ecosystem operates. It is therefore important to connect the perceived value of the ecosystem management to the most suitable candidate. If such a candidate is available.

Candidates interested to manage the innovation ecosystem may be interested in an interesting profitable proposition, other types of candidates may seek a mere cost effective solution. The evaluation of the Innovation Ecosystem directly feeds into a value proposition in terms of utility, emotional value (superior user experience or associated image), or social value (the interaction with other participants).

When a candidate is interested to manage the innovation ecosystem as a business, a revenue model should be designed and implemented. Revenue is generally generated through a commission model, a subscription model, an advertising model, or through service sales but other types of revenue models could be created as well.

Deliverable: A list of potential candidates with summarised eligibility based on perceived value

Deadline: 15 January 2022

2.12 STEP 9: Sustainability of the Innovation ecosystem management

To complete the sustainabillity plan, other elements of a business plan should be considered such as the cost structure, key activities, key partners, customer channels, key resources etc. Depending on the candidate, such elements can be developed independently or together with the project team. This influences the size and set up of the sustainability plan of an efficient innovation ecosystem management.

Deliverable: Sustainability plan for a self sufficient innovation ecosystem management.

Deadline: 15 January 2022

2.13 Planning

Activities commenced in 2020 and are planned to be finalised in January 2022 after which the innovation ecosystem can be started as a standalone self sufficient platform (see Figure 2).

Figure 2: timeline of activities.

3 Contributing NIVA activities

The Innovation Ecosystem Management will be a motor that will help the transformation of IACS. The NIVA project will initiate activities to improve and strengthen the ecosystem and organises the foundation for continuation after the project.

3.1 Management of Open Source tools

As part of the Innovation Ecosystem NIVA will set up a software repository that is accessible for all PA's. Even after the end of the NIVA project, the repository will be available and will be further improved.

In the NIVA project, this software repository will be set up and maintained by WP4. It will be transferred to the Innovation Ecosystem Management at the end of the project.

3.2 Facilitate actors interactions

In the Paying Agencies, several actors are involved in realising digital tools, including IT application managers, internal IT developers, external software companies and other. They are all part of this Innovation Ecosystem but need to be facilitated (encouraged maybe) to work together across countries, organisations and specific projects.

3.2.1 Exchange of ideas (Hackathons, brainstorms, workshops etc.)

By organising hackathons NIVA will facilitate the cooperation between NIVA and the stakeholders in settings that are normally not being used in the development of IACS-tools. By using a multi-actor approach within the hackathon organised by NIVA new innovative ideas will flourish and will be tested.

Include the informal meetings: these are important for the Innovation Ecosystem. WP and UC meetings. The local and formal and informal meetings, include the MAA.

Hackathons   Bi-annually

15 October 2020
15 February 2021
14 September 2021

3.3 Interaction with the other stakeholders

3.3.1 Meetings

The stakeholder fora have an important role in setting up and further improvement of the Innovation Ecosystem. At the stakeholder fora the various stakeholders will learn about NIVA, but will also be given the floor to participate and express their wishes and to contribute to the NIVA deliverables. After
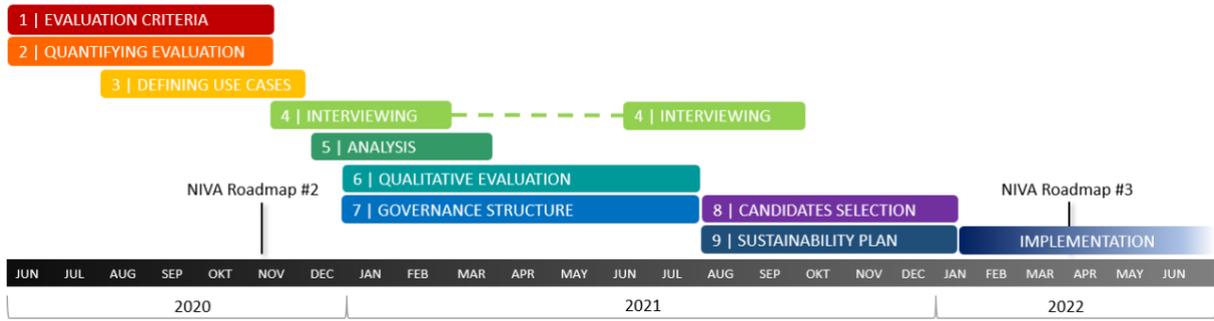
every stakeholder forum NIVA will deliver a Stakeholder Exchange Platform Report. In this report an update on the road to the IACS transformation will be described.

Planning

Stakeholder meeting	Once per quarter	?
1 July 2020		
1 October 2020		
1 January 2021		
1 April 2021		
1 July 2021		
1 October 2021		

3.3.2 Communication

The Dissemination and Communication plan of NIVA will facilitate the communication on the roadmap of the IACS transformation.

3.4 Standardisation

Another important function of the Innovation Ecosystem is to facilitate discussions on standardisation, harmonisation and interoperability of software and data. In the NIVA project WP3 is taking a lead to organise these efforts during the project. This is an important action to continue after the project finishes. Also, within the Innovation Ecosystem Management a dedicated function to maintain standards can be appointed.

4 Action Dependencies

The main dependency of the work for the Roadmap is the work delivered in the various Work Packages of NIVA. The deliverables of NIVA are the basis for further actions. The more successful the deliverables are and are being valued in a positive way by the different stakeholders the more likely the work will continue after the NIVA project ends.

5 Actions and planning

As mentioned, there will be subsequent versions of this roadmap. The final version will be delivered at M36. The roadmap for IACS transformation will follow the milestones from the NIVA project. This document is part of the second milestone: Inception.

5.1 Milestone 3: Single Member State Pilot (M12)

After the conclusion of the Single Member State Pilot a good idea of the working of the Use Cases will be present. At that moment the project NIVA will have a good understanding of the stakeholders wishes and contribution.

5.2 Milestone 4: Multi Member State Pilot (M18)

After this first version of the roadmap a new version will be delivered in M18 (30th of November 2020). At that moment the project NIVA will have a good understanding of the stakeholders wishes and contribution. But most important, both the Single Member State and the Multi Member State delivered their work.

5.3 Milestone 5: Demonstration Review (m24)

To be completed later

5.4 Milestone 6: Roadmap and demonstration review (M30)

To be completed later

5.5 Milestone 6: Final Review (M36)

To be completed later

6 Conclusions

6.1 Conclusions

Conclusions on this version

The IACS Innovation Ecosystem is mainly defined by the CAP regulation that is currently changing, therefore the ecosystem is changing too. Important changes are the uptake of new technologies and concepts, encouraged by the ongoing digitalisation in the agricultural sector as well as the significantly improved capabilities of technology, including space, connectivity, mobile applications and artificial intelligence. Also, the scope of IACS is changing with the regulation, from a system to prove compliance to a system that monitors performance. In order for the IACS Innovation Ecosystem to continuously improve its efficiency, a solid evaluation of its current functioning and organisation is required. This roadmap therefore identifies nine steps to be taken to understand and propose organisational constructs to create an effective governance of the future IACS Innovation Ecoysystem. This governance may include the set-up of a specific platform and management, to facilitate the functioning of the ecosystem.

6.2 Recommendations

This document is the first version of the roadmap for IACS transformation and entails the identification and promotion of the Innovation Ecosystem approach. It is recommended to the project leadership

6.3 Further work

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ANNEX 1 IACS Transformation

The modernisation of the Common Agricultural Policy (CAP) will benefit from ongoing digitisation of the agricultural sector as this is expected to reduce administrative burden and it will improve the sustainability and competitiveness of the sector. CAP modernisation also offers potential for data use and reuse and thus improves accessibility of CAP data for monitoring the societal benefits of agriculture towards climate, environment and rural development.

A key element in the CAP is the Integrated Administration and Control System (IACS) which is the obligatory instrument that all paying agencies implement. While the European Commission sets the requirements and end terms of the IACS, it is the competence of Member States to implement an IACS, taking into account the national (or regional) context, such as the organisation in departments, agencies and bodies, the use of geospatial data and their respective sources and the organisation of the interaction with the agricultural sector. This has led to 42 different IACS implementations across the European Union.

The IACS ensures that

- transactions financed under the area and animal-based aid schemes are carried out correctly;
- prevents, discovers and follows up on irregularities;
- recovers unduly paid amounts;
- supports farmers in making correct applications.

A new function added to IACS in the new CAP is the monitoring of the performance of 1) the budget and 2) the progress made towards societal goals. This monitoring goes beyond dealing with irregularities as its function is also to engage in a dialogue between funder and beneficiary (the farmer) on how performance is ongoing and if necessary how it can be improved.

EU countries use appropriate technology when setting up their IACS, with a view to reducing administrative burden and ensuring efficient and effective controls.

NIVA contribution to IACS transition

The Paying Agencies from 9 EU Member States that joined forces in this project, set out to realise this digital transformation of IACS, especially in the way that innovations can be developed and absorbed: improve the way that we can learn from each others implementations and work collectively on designing and developing new tools and aspects of the IACS. In particular the modernisation with EU wide data programmes such as Copernicus and INSPIRE and ICT programmes as Connecting Europe offer an opportunity to collaborate and create a collective innovation ecosystem.

NIVA delivers a suite of digital solutions, e-tools and good practices for e-governance and initiates an innovation ecosystem to support further development of IACS that will facilitate data and information flows. The project's results promote a transparent, simpler administrative process that contributes to a future CAP that increases environmental performance.

This transformation of the IACS system, as well as how it is developed and implemented requires a roadmap to reach this new and improved situation.

ANNEX 2: Stakeholders

Stakeholders for the different IACS elements

IACS consists of a number of digital and interconnected databases, in particular

- a system for the identification of all agricultural plots in EU countries, called the land parcel identification system (LPIS);
- a system allowing farmers to graphically indicate the agricultural areas for which they apply for aid (the GSAA);
- a computerised database for animals in EU countries where animal-based aid schemes apply;
- an integrated control system which ensures systematic checks of aid applications based on computerised cross checks and physical on-farm controls (on-the spot checks).

The current legal framework of the CAP from 2013 will be reformed by 2020 in order to modernize and simplify the CAP. In this upcoming CAP reform satellite Earth Observation (EO) is seen to take an increasing role for improving the IACS and making it more cost efficient.

LPIS stakeholders

The most relevant stakeholders for the LPIS are:

- European Commission: sets out the rules for LPIS;
- Joint Research Centre: provides scientific and technical support to the EC on LPIS and the quality assurance;
- Paying Agencies (and coordinating bodies): design, develop, implement and maintain LPIS in their territory;
- Mapping Agencies: Although differently organised in many countries, mapping agencies are involved in providing base materials for creating an LPIS, or for other relevant aspects (like infrastructure, water bodies, nature areas etc.);
- Farmers: claims for area based schemes can only be made on basis of the LPIS;
- Research, ICT solution providers etc.: Using LPIS as boundary of "agricultural land" or as clipping mask (e.g. for analysing satellite data).

In several Member States the LPIS is available as Open Data. Also the agricultural parcels (as cropfields within LPIS polygons) can be available as Open Data. In other Member States the LPIS is only used internally.

The LPIS provides at least the area of all agricultural land *that is in the IACS system*. This means that it does not include other land use and in some countries it doesn't even cover all agricultural land.

GSAA stakeholders

The GSAA is the tool that assists farmers to make adequate claims for area based support. It uses the LPIS to map the outer boundaries of the agricultural land. It then allows farmers to indicate their crop fields, a homogeneous area of land concerning crop and user, and continuous within physical borders. In most (all?) cases, the GSAA provides access to aerial photographs too.

The most relevant stakeholders for the GSAA are:

- European Commission: setting out the rules for the GSAA;
- Joint Research Centre: technical support, also to MS, on implementation;
- Paying Agencies (and coordinating bodies): design, develop and implement the GSAA;
- Contractors: Contractors to develop software for the GSAA;
- Farmers and supporting organisations: using the GSAA to enter support claims, this is sometimes done on behalf of the farmers by consultants, cooperatives or others;

The GSAA 'produces' the geographical layer of area based aid claims. This layer, the geographical boundaries and their land-cover (crop), is published as Open Data in several countries, often after administrative checks. In principle is the geographic data layer from the GSAA the (annual) agricultural land cover map.

On-the-spot-checks stakeholders

The On-the-spot-checks provide evidence about farmers claims, both for approving and denying the legitimacy of the claim.

The most relevant stakeholders for the on-the-spot checks are:

- European Commission: setting out the rules for the OTSC;
- Joint Research Centre: technical support, also to MS, on execution. JRC also manages the contracts with satellite data providers for the Control with Remote Sensing element under the current CAP;
- Paying Agencies (and coordinating bodies): doing the risk analysis and performing the OTSC (sometimes delegated to other agencies);
- Contractors: In several MS the OTSC is (partly) executed by contractors, in particular the Control With Remote Sensing (CWRS);
- Farmers: who are subject of the OTSC;
- For further consideration: Citizens: in future, 'citizens science' also known as crowd-sourced science, or volunteer monitoring, could be deployed to provide additional data sources (eg. Geo-tagged photographs, samples, wildlife counts,…)
-

Checks-by-monitoring stakeholders

The On-the-spot-checks provide evidence about farmers claims, both for approving and denying the legitimacy of the claim.

The most relevant stakeholders for the on-the-spot checks are:

- <u>European Commission</u>: setting out the rules for the OTSC;
- <u>Joint Research Centre</u>: technical support, also to MS, on execution. JRC also manages the contracts with satellite data providers for the Control with Remote Sensing element;
- <u>Paying Agencies (and coordinating bodies)</u>: doing the risk analysis and performing the OTSC (sometimes delegated to other agencies);
- <u>Contractors</u>: In several MS the OTSC is (partly) executed by contractors, in particular the Control With Remote Sensing (CWRS);
- <u>Farmers</u>: who are the subject of the OTSC.

Checks by monitoring stakeholders

The Checks-by-monitoring is an alternative for the OTSC introduced in 2018. Checks by monitoring is a monitoring approach with earth observation data consisting of:

- Information to farmers about being subject to monitoring;
- Automated processing of satellite data, creating markers;
- Allow a decision on eligibility.

The most relevant stakeholders on the checks-by-monitoring are:

- <u>European Commission</u>: setting out the rules for the checks-by-monitoring;
- <u>Joint Research Centre</u>: technical support to EC and also to MS, on implementation;
- <u>Paying Agencies (and coordinating bodies)</u>: setting up the communication about the monitoring with farmers, performing the checks-by-monitoring, setting the rules for markers (sometimes delegated to other agencies);
- <u>Contractors</u>: In several MS the checks-by-monitoring is executed by contractors;
- <u>Farmers</u>: who are subject of the checks;

Stakeholders for simplification

The most relevant stakeholders on the Simplification are:

- <u>Farmers and their supporting consultants</u>: desire a simpler and easy-to-fill-out forms to make the aid support claims;
- <u>Farmer organisations</u>: on national and European level (COPA-COGECA), farmer organisations lobby for simplification of the regulations and reduction of the administrative burden;
- <u>Paying Agencies (and coordinating bodies)</u>: desire a simpler system that also helps the farmers to make the right application, so that the number of incorrect applications will decrease;

- <u>European Commission</u>: reduce administrative burden for farmers and government agencies;
- European Parliament: @@

Stakeholders for data re-use

In the European Commission the need for data re-use increases as more policies and their implementations become digital. Therefore it is advocated that across the EC (and beyond preferably) policy domains and bodies create the ability to access and use the same data resource by multiple applications or user.

- <u>European Commission</u>: agencies and directorates concerned with agriculture directly or indirectly as an actor in environment, landscape, climate or (rural) economy. IACS Data can be used for reporting and modelling the contribution of agriculture to different societal challenges;
  - o <u>DG</u>-CLIMA: interested in (amongst other) land use and land use change data;
  - o DG-ENVIRONMENT: interested in (amongst other) agricultural activity, also in relation to specific focus areas and objects (nature reserves, water ways etc.);
  - o DG- … ??@@ elaborate the specific DGs;
- <u>National and European Environment Agencies: The Environment Agencies need agricultural datay is making all kinds of monitoring tools and reportsfor their monitoring of environmental compliance and performance;</u>
- <u>EUROSTAT</u>: Using IACS data in statistics;
- <u>NGOs: ..</u>
- <u>Societal actors (NGOs, think tanks, research institutes)NGOs: Civil society and academic actors contribute to the monitoring and evaluation of EU and national agricultural and environmental policies, for which the use of agricultural data is crucial...</u>
- <u>Farmers and farmer organisations</u>
- <u>Advisors</u>
- <u>Software companies</u>
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- <u>European Data Hub</u> …

Stakeholder analysis

@@we need some more then just a list. Maybe something like PIE or so.