NIVA – NEW IACS VISION IN ACTION
WP3 Harmonisation and interoperability
D3.1 Common Glossary

Deliverable Lead: IGN

Deliverable due date: 30/05/2020

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1 Foreword

1.1 General objectives

The Common Glossary aims to provide definitions and/or explanations about the general terms used in the NIVA project documents. The Common glossary is the result of the task T3.1: "This task will set-up and maintain this common glossary as a living document. The common glossary will define the main terms used in the NIVA project; it will ensure consistent use of terminology and facilitate communication, both within the project and outside of it."

More accurately, the glossary should ensure common understanding within the NIVA project, by enabling partners to use same terms with same meaning. The common glossary should also have a practical benefit, by avoiding the necessity to have long glossaries at the beginning of each NIVA deliverable. Last but not least, the common glossary should be an help for external communication, enabling external readers to decode the various NIVA deliverables and other outcomes.

The ambition of the glossary is to provide a knowledge database about the project. As a consequence, the glossary will be structured to show the links between terms and not just provided as an alphabetical list.

1.2 Glossary versions

The Common Glossary is a living document that should be officially delivered on M3, M12, M24 and M36 of the project, i.e. respectively 3 months, 12 months, 24 months and 36 months after the official beginning of the project (that took place on 01 June 2019).

The current document is the second version of the Common Glossary that was officially scheduled on M12.

1.3 Description of this current version of the glossary

The first version of the glossary was mainly based on the terms present in the Grant Agreement. This second version of the glossary has an enriched content with focus on the terms that have appeared due to the work progress in the NIVA project, in its various Use Cases and Work Packages. Some new terms have been also added reflecting the context evolution.

To make the comparison easier, the lines corresponding to modified or enriched definitions have been highlighted in yellow whereas the lines corresponding to new terms have been highlighted in green.

The current version of the common glossary is structured as the first version, with 3 tables describing the project structure (partners, Work Packages and Use Cases) and 3 other tables describing other termrs of interest (organisms, CAP or NIVA terms, general acronyms).

Most changes and enrichments are related to the tables about organisms and CAP or NIVA terms.

1.4 Next steps: publication tool

This second version of the Common Glossary is still in a text document and composed of several tables, with terms more or less ordered according the alphabetical logic. Its reading as a whole may be of interest to get a better idea about what NIVA is about but it should be recognised that searching a given term would not be easy.

There is clear need to publish the Common Glossary in a more digital way, offering search functions. The envisaged publication tool is the registry developed by the ISA[2] project (Re3gistry) and used for INSPIRE. However, installing it and making it run has proved to be quite more difficult than expected. A second version of Re3gistry has been issued recently and looks more promising.

2 Glossary

2.1 Project structure

Consortium partners			
Name	Acronym	Country	Category / Description
Stichting Wageningen research	WR	Netherlands	Research Institute for healthy food and living environment
Ministerie van economische zaken en klimaat	RVO	Netherlands	Paying Agency
Ministry of Food, Agriculture and Fisheries, Danish agrifish Agency	DAA	Denmark	Paying Agency
Pollumajanduse registrite ja Informatsiooni amet	ARIB	Estonia	Paying Agency
Agence de services et de paiement	ASP	France	Paying Agency
Organismos pliromon ke Eleghou kinotikon enishyseon Prosanatolismou keeggyiseon	OPEKEPE	Greece	Paying Agency
Department of agriculture, food And the marine	DAFM	Ireland	Paying Agency
Agenzia per le erogazioni in Agricoltura agea	AGEA	Italy	Paying Agency
National paying agency	NPA	Lithuania	Paying Agency
Fondo espanol de garantia Agraria	FEGA	Spain	Paying Agency
Neuropublic ae pliroforikis & Epikoinonion	NP	Greece	Small or Medium Enterprise in Information & Communication Technologies
Abaco spa	ABACO	Italy	European company specialist in IACS
Institut National de l'Information Géographique et Forestière	IGN	France	National Mapping Agency, data producer of French LPIS, research activities in remote sensing , …

E-geos spa	EGEOS	Italy	Company in Earth Observations
Bureau européen de l'environnement AISBL	EEB	Belgium	Network of environmental citizens'organisations in Europe
Zuidelijke land- en Tuinbouworganisatie vereniging	ZLTO	Netherlands	Organisation of farmers
Institut National de la Recherche Agronomique	INRA	France	Agricultural Research Institute
Empresa de transformacion Agraria sa	TRAGSA	Spain	State owned company providing technical support to the Spanish Ministry of Agriculture and Environment
Waterford institute of Technology	WIT	Ireland	Research on Information & Communication Technologies
Teagasc - agriculture and food Development authority	TEAGASC	Ireland	Agri-food research institute
Tartu ulikool	UT	Estonia	Research institute on remote sensing, space technology, …
Consiglio per la ricerca In agricoltura e l'analisi Dell'economia agraria	CREA	Italy	Council for Agricultural Research and Economics – research institution on agriculture and forestry.
Itree lietuva uab	ITREE	Lithuania	Small or Medium Enterprise in information system development
Landbrug & fodevarer f.m.b.a.	LANDBRUG	Denmark	Knowledge and innovation centre of Danish agriculture.
Sinergise laboratorij za Geografske informacijske Sisteme doo	SINERGISE	Slovenia	Small or Medium Enterprise in geospatial information systems
Instituto tecnologico agrario De castilla y leon	ITACyL	Spain	Technical Agricultural Research Institute of Castilla and Leon.
Consejeria de agricultura , Pesca y desarrollo rural	CAPDER	Spain	Regional Paying Agency of Andalusia.

Table 1 Consortium partners

		Work Packages		
Name	Acronym	Description	Leader	Co-leader
Coordination and Management	WP1	This Work Package (WP) covers the project's coordination and management tasks: day-to-day project and financial management, internal communication, organisation of meetings, reporting, monitoring of deadlines and related actions. It will also monitor and evaluate project progress and quality and propose corrective measures.	WR	DAFM
Large-Scale Pilot	WP2	This work package aims to design, deploy, test and validate highly demanded ICT tools and services for a modern Common Agricultural Policy (CAP) with significant reduction of the socio-economic costs across member states, increasing target communities, addressing farmer's needs, EU demands, and other stakeholder's requests. WP2 manages (more than) 12 months of trials in real conditions at least in the nine countries involved in the project.	TRAGSA	DAA
Harmonisation and Interoperability	WP3	WP3 provides interoperability specifications to the NIVA project, ensuring that the IACS components developed by the project can be efficiently used by the identified local test sites and then effectively reused by a wider community (such as other Member States or other application domains). Interoperability and open standards will be a necessary condition to ensure the migration from national experiences to pan-European solutions.	IGN	OPEKEPE
Knowledge Information System	WP4	The main objective of this work package is to provide a technical environment (code and documentation repository) and support services to ensure that digital solutions, e-tools and documentation (project assets) produced within the use cases are collected, meet defined standards, and can be effectively disseminated and efficiently re-used.	AGEA	

Innovation Ecosystem	WP5	This work package will set-up and manage an Innovation Ecosystem that provides fertile soil for development and uptake of innovative techniques and methods which are developed during and after the project. This work package focuses on a highly efficient and user-friendly communication strategy to facilitate active involvement of the different (groups of) stakeholders and actors in creating impact during and after the project	RVO	ARIB
Open Call	WP6	This work package will set-up and manage a call mechanism for software components and pilot validations. To support a new vision for IACS, specific or upcoming innovations cannot be solely developed within the NIVA consortium but need to involve wider expertise outside NIVA helping to realize the vision. Through this call mechanism, NIVA will be able - to build on best expertise available within EU Member states to realize specialised innovations; - to validate and scale out innovations beyond their initial development within the NIVA use cases to ensure flexibility in the work plan to absorb new developments, that need further exploration.	WR	
Ethics requirements	WP7	This work package sets out the 'ethics requirements' that the project must comply with.	WR	

Table 2 Work Packages

Use Cases			
Name	Acronym	Description	Leader
EO Monitoring and Traffic Lights	UC1a	UC1a will demonstrate how the "monitoring" can be implemented and deployed. The Use Case will review the latest data processing algorithms based on current or past projects, review of monitorable eligibility criteria (markers) at the parcel or farm level, define set of common and local eligibility criteria to be monitored in real condition and modelling observed conditions in	OPEKEPE

		relation with traffic light codes and eligibility scenarios.	
Agro-environmental monitoring	UC1b	UC1b will contribute to a continuous agro-environmental and country-level monitoring and reporting through identifying relevant indicators and models at MS & EU level integrating appropriate data streams from EO monitoring and application forms, Farm Management Information System (FMIS) and other reference data.	ASP
Farmer Performance	UC1C	There is a need derived from new CAP monitoring requirements (done by consultants, paying agencies, NGO's, etc) to get data from IACS to evaluate farmers' impact on environment, climate, economical sustainability. UC1c demonstrates enhanced links between IACS and farmer. The UC1c pilot results in mapped information systems and demonstrated solutions. The pilot establishes evidence for recommended standards and data structure of interfaces (APIs) between different systems.	ARIB
Prefilled applications	UC2	UC2 aims to develop a model that, with a help of automation, will collect large part of application data: from the registries, from continuous monitoring, from other public bodies, from previous years' aid applications, to ensure that the data submitted in the aid application is compliant and verified.	NPA
Farm registry	UC3	Modernised CAP will need an extensive use of information and access to various data sources to support a wider monitoring, to verify the claims, to make easier the control and information crossover to Public Administrations and to guide the application processes and finally to support a seamless experience for the farmers. UC3 will develop and architecture and associated tools for a new Farm Registry that will be such source of information	FEGA
Geotagged photos	UC4a	UC4a will fully customize and demonstrate an application for mobile devices to facilitate a farmer and/or advisor to upload a geotagged photograph as a supporting evidence to the support received, or to be received.	DAFM
Machine data in Geo-spatial 'on-line' aid application as added value data	UC4b	This Use Case explores the use of data from farm machines, as a data source for IACS and as an added value data source for the farmer. This data can serve as a source to update the farmer's agricultural parcels in Geo-spatial 'on-line' aid application (GSAA) and to control some CAP measures.	RVO

Land Parcel Identification System update & change detection	UC5a	The objective of this UC is to demonstrate the automatic detection and updating of reference parcels and areas like ecological focus areas, which are subject to land cover changes and hereby to focus on updating activity of those parcels.	DAA
Scheme Eligibility and Payments Eligibility: Click-and-Pay	UC5b	UC5b will define the governance and design, prototype and test the end-to-end process to achieve a seamless claim ('Click and Pay'), by piloting, for example, the Smart Contract concept onto the existing IACS distributed ledgers. UC5b will also create an EU-wide simulation tool to quantify the value of payment rights under the Basic Payment Scheme.	AGEA
EO Monitoring and Traffic Lights	UC1a	UC1a will demonstrate how the "monitoring" can be implemented and deployed. The Use Case will review the latest data processing algorithms based on current or past projects, review of monitorable eligibility criteria (markers) at the parcel or farm level, define set of common and local eligibility criteria to be monitored in real condition and modelling observed conditions in relation with traffic light codes and eligibility scenarios.	OPEKEPE

Table 3 Use Cases

2.2   Other terms

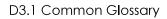| Organisms			
Name	Acronym	Definition	Explanation
Paying Agency	PA	In each Member State, the administration in charge to manage the CAP subsidies management.	NOTE: Paying Agencies are main partners of the NIVA project.
Policy Board	PB	Policy Board is part of the NIVA management structure, it is composed of representatives of the Paying Agencies who are members of the NIVA consortium, it is in charge of the strategic direction of the project.	
Project Management Board	PMB	Project Management Board is	NOTE: for the NIVA project, the

		responsible for operational management of the project. It is composed of the coordinator, the co-coordinator and the WP leaders.	coordinator of PMB is WR and the co-coordinator is DAFM.
Project Coordinator	PC	Project coordinator has the overall responsibility for the achievements of the project objectives.	NOTE: the project coordinator of NIVA is WR.
General Assembly	GA	The General Assembly is composed of one authorised representative from each partner and decides on all elements of importance for the consortium.	
Project Officer	PO	The person in charge of following the NIVA project, on behalf of European Commission.	The PO officer comes from REA (Research Executive Agency)
Reference Group		Group of Paying Agencies outside the NIVA consortium. Purpose of the Reference Group is to ensure that the NIVA project may benefit to the whole EU community.	
Stakeholder Forum		Industry partner group of the NIVA project (i.e. farmer organisations, IT firms, geo-firms, machinery companies). This group will be invited to dissemination and learning events of the NIVA project.	
Operational Group	OG	These are groups of farmers, researchers, advisors and businesses in the agri-food sector. They receive Rural Development funding to run projects.[from European Commission glossary]	
European Space Agency	ESA	ESA is an international organisation of 22 member states dedicated to the exploration of space.	ESA is providing satellite images that will be used by the NIVA project.
Open Geospatial Consortium	OGC	OGC is an international voluntary consensus standards organisation, originated in 1994. In the OGC, more than 500	OGC is providing standards that may be of interest for NIVA.

		commercial, governmental, nonprofit and research organizations worldwide collaborate in a consensus process encouraging development and implementation of open standards for geospatial content and services, sensor web and Internet of Things , GIS data processing and data sharing.	
United Nations Centre for Trade Facilitation and Electronic Business.	UN/CEFACT	UN/CEFACT is a subsidiary, intergovernmental body of the United Nations Economic Commission for Europe (UNECE), which serves as a focal point within the United Nations Economic and Social Council for trade facilitation recommendations and electronic business standards	The eCROP standard that is considered of interest for the NIVA project comes from UN/CEFACT
Food and Agriculture Organization	FAO	The Food and Agriculture Organization of the United Nations (FAO)[is a specialized agency of the United Nations that leads international efforts to defeat hunger and improve nutrition and food security.	Some standards elaborated by FAO (crop type lists) are of interest for the NIVA project.
European and Mediterranean Plant Protection Organisation	EPPO	EPPO is an intergovernmental organization responsible for cooperation in plant health within the Euro-Mediterranean region.	EPPO is editing a data base, including crop types, that is of interest for NIVA.
Global Standards 1	GS1	GS1 is a global working NGO and acts as standard setting body.. GS1 sets the standards for product coding (e.g. bardcode in retail products) and more generally publishes a global language for businesses.	The standard GPC (Global Product Code) including a crop type list comes from GS1 and is considered of interest for NIVA
	Open IACS	European project whose main aim is to provide a community platform for sharing solutions in the IACS domain though the Linked Open Data principles.	Open IACS and NIVA are two European projects running at same period and having both the general objective of opening IACS data.
	Sen4CAP	Sen4CAP is a European project set up by ESA and aiming to provide validated algorithms, products, workflows and best practices, based on the use of	Several NIVA Use Cases will reuse the results coming from the previous Sen4CAP project.

		Sentinel images, for agriculture monitoring relevant for the management of the CAP.	
	DIONE	DIONE is a European project from January 2020 to June 2022, and aiming to provide an integrated EO-based toolbox for modernising CAP area-based compliance checks and assessing respective environmental impact	DIONE has some common members (NPA and Sinergise) and some common topics (EO Monitoring, geotagged photos agro-environmental indicators) with NIVA
eAgronom		A privately held Estonian company offering a FMIS software	Eagronom is participating in the UC1c pilot project on a voluntary basis (software offered by eAgronom is used as an example in developing APIs enabling to exchange data between IACS and FMIS).
Directorate-General for Agriculture and Rural Development	DG AGRI	DG AGRI is a Directorate general of the European Union. The DG AGRI is responsible for the European Union policy area of agriculture and rural development. The work of the DG AGRI is closely linked with the Common Agricultural Policy.	Key stakeholder for NIVA project. Funder (with DG CNECT) of the project.
Directorate-General for Climate Action	DG CLIMA	DG CLIMA is a Directorate general of the European Union ; it leads international negotiations on climate, helps the EU to deal with the consequences of climate change and to meet its targets for 2020, as well as develops and implements the EU Emissions Trading System	Key stakeholder for NIVA project.
Directorate-General for Communications Networks, Content and Technology	DG CNECT	DG Connect is a Directorate general of the European Union. DG Connect is responsible for managing the Digital Agenda.	Key stakeholder for NIVA project. Funder (with DG AGRI) of the project.
Directorate-General for the Environment	DG ENV	DG ENV is the European Commission department responsible for EU policy on the environment. It aims to protect, preserve and improve the environment for present and future generations, proposing and implementing policies that ensure a high level of environmental protection and preserve the quality of life of EU	Key stakeholder for NIVA project.

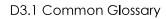|		citizens.	
Joint Research Centre	JRC	European Commission's science and knowledge service which employs scientists to carry out research in order to provide independent advice and support to EU policy.The Joint Research Centre (JRC) is the European Commission's science and knowledge service which employs scientists to carry out research in order to provide independent scientific advice and support to EU policy. The Joint Research Centre (JRC) is the European Commission's science and knowledge service which employs scientists to carry out research in order to provide independent scientific advice and support to EU policy. The Joint Research Centre (JRC) is the European Commission's science and knowledge service which employs scientists to carry out research in order to provide independent scientific advice and support to EU policy. The Joint Research Centre (JRC) is the European Commission's science and knowledge service which employs scientists to carry out research in order to provide independent scientific advice and support to EU policy.	Key stakeholder for NIVA project.
European Statistical Office	Eurostat	Eurostat is a Directorate-General of the European Commission whose main responsibilities are to provide statistical information to the institutions of the European Union (EU) and to promote the harmonisation of statistical methods across its member states and candidates for accession as well as EFTA countries.	Key stakeholder for NIVA project: potential user of IACS data, source of standards of interest for NIVA
European Innovation Partnership on Agriculture	EIP-AGRI	The agricultural European Innovation Partnership (EIP-AGRI) works to foster competitive and sustainable farming and forestry that 'achieves more and better from less'.	
Alliance for Internet of Things Innovation.	AIOTI	AIOTI aims to strengthen the dialogue and interaction among Internet of Things stakeholders.	
European Agriculture Machinery Association	CEMA	CEMA is the association representing the European agricultural machinery industry.	Key stakeholder at EU level for NIVA project.

		With 10 national member associations, the CEMA network represents both large multinational companies and numerous European SMEs active in the sector.	
Committee of Professional Agricultural Organisations - General Committee for Agricultural Cooperation in the European Union	COPA-COGECA	European umbrella organisation representing farmers and agri-cooperatives (Copa represents over 11 million farmers whilst Cogeca represents the interest of some 22,000 agricultural cooperatives).	Key stakeholder at EU level for NIVA project.
	Farm Europe	Multicultural think tank aiming to stimulate thoughts on rural economies.	Key stakeholder at EU level for NIVA project.
European Association of Remote Sensing Companies	EARSC	Association aiming to promote the use of Earth Observation technologies	Key stakeholder at EU level for NIVA project.
Network of European Regions Using Space Technologies	NEREUS	Platform aiming at making a better use of space applications for the delivery of efficient public policies	Key stakeholder at EU level for NIVA project.
European Regions for Innovation in Agriculture, Food and Forestry	ERIAFF	Network aiming to facilitate the integration of European policies in favour of innovation in agriculture, food and forestry areas	Key stakeholder at EU level for NIVA project.
Agricultural Knowledge and Information System	AKIS	Agricultural Knowledge and Information Systems (AKIS) comprise the institutions and organizations that generate and disseminate knowledge and information to support agriculture production, marketing, and post-harvest handling of agricultural products and management of natural resources. Most AKIS projects support agricultural research, extension, or education activities, which are increasingly viewed as components of an inter-related system.	Most AKIS projects support agricultural research, extension, or education activities, which are increasingly viewed as components of an inter-related system.

Table 4 Organisms

CAP or NIVA terms			
Name	Acronym	Definition	Explanation
Acceptance test-driven development	ATDD	A development methodology based on communication between the business customers, the developers, and the testers.	ATDD is a methodology applied (at least) in UC2 on prefilled applications.
Administrative burden		Administrative activities that farmers and administrations conduct only because of legal obligations and which add no real value to their work [From European Commission glossary]	One of the objectives of the NIVA project is to reduce, for farmers and Paying Agencies, the administrative burden related to the control of the current CAP
Administrative costs		Administrative costs are defined as the costs borne by businesses, citizens, civil society organisations and public authorities as a result of administrative activities performed to comply with information obligations included in legal rules" [Better regulation ToolBox]	
Agricultural Parcel		A continuous area of land, declared by one farmer, which does not cover more than one single crop group	Agricultural Parcel is a key feature for most NIVA Use Cases.
AgroConnect		AgroConnect is a national standard developed in the Netherlands about crop types.	The approach taken by AgroConnect (combining a botanical and product-oriented approach) is considered of interest by NIVA for a potential common crop type list.
Basic Payment Scheme	BPS	Direct payment received by farmers, in the CAP context; eligibility condition is to have agricultural activity.	Eligibility for the Basic Payment Scheme (or, as the case may be, the Single Area Payment Scheme) is a precondition for farmers to receive other direct payments.

BPS is one of the eligibility rules that will be implemented in the Decision Support System of UC1a |

Broker		In current language, a broker is stakeholder that brings users and providers together and assists in the negotiation of contracts between them. In ICT language, a broker is a technical solution to exchange data between two systems.	NIVA has the objective to develop some brokers between IACS and external systems such as FMIS or Sentinel images.
Click and Pay		A component of UC5b that aims to provide an interface with users (farmers) in the context of a Seamless Claim.	
Common Agricultural Policy	CAP	This is the set of legislation and practices adopted by the European Union to provide a common, unified policy on agriculture. The overall objective is to ensure that agriculture can be maintained over the long term at the heart of a living countryside [from European Commission glossary]	
Component		a component is an independent software package that provides functionality via well-defined interfaces	A NIVA common eTool or service is composed of one or several components.
Common component		An interface or communication protocol usually known as API intended to simplify the building of client-side software. In the NIVA context it is defined as an implementation of software libraries that share the same programming interface and always provide a response in a specific format or initiate a defined action. A common component is intended as reusable/common building block to facilitate the development of the NIVA "Common eTools & Services" produced by the NIVA Use Cases.	All NIVA components may be considered as "common" as they should be reusable in more than one EU Member State. However, the expression "common components" aims to identify the components that are common to several NIVA Use Cases. These common components are developed by WP4.

Common eTools & Services		Deliverables produced by the NIVA Use Cases and intended as solutions or services reusable in more than one EU Member State (hence the "common" in the name), which is one of the main NIVA purposes.	
Connected Europe Facility	CEF	Key EU funding instrument to promote growth, jobs and competitiveness through targeted infrastructure investment at European level.	
Continuous Development	CD	Continuous Development is a set of practicesaiming to ensure the application will work once deployed. This set of practices involves packaging (e.g. putting the code in a pre-production environment or a replica of the actual production server) and rigorous testing.	Continuous Development is a principle recommended for the developments in NIVA.
Continuous Integration		Continuous Integration is a set of practices in development domain consisting to check that each code modification does bring any regression in the developed application.	Continuous integration is a principle recommended for the developments in NIVA.
Copernicus		Copernicus is the European Union Earth observation programme coordinated and managed by the European Commission in partnership with the European Space Agency (ESA), the EU Member States and EU Agencies	The Copernicus is providing satellite images that may be used by the smart monitoring process and so, by the NIVA project.
	CREODIAS	One of the existing DIAS (Data and Information Access Service to Sentinel images)	CREODIAS is the DIAS that has been chosen by the Sen4CAP and the NIVA projects.
Crop rotation		Crop rotation is the practice of growing a series of different types of crops in the same area across a sequence of growing seasons. It reduces reliance on one set of nutrients, pest and	Crop rotation is the key principle used in the computation of nitrate indicator develiopped by UC1b , i.e. risk of nitrate lixiviation depends mainly on crop rotation.

		weed pressure, and the probability of developing resistant pest and weeds.	
Crop sequence		Chronologically ordered suite of crops on a given piece of land (e.g. agricultural parcel, pixel) in a given period of time.	Crop sequenceson drainage period is necessary information for the nitrate indicator developed by UC1b.
Crop type		In NIVA, a crop type is the crop classification according to the cultivate species and/or according the expected crop product.	The crop type information may be provided at different levels of detail by using hierarchical code lists.
Data and Information Access Service	DIAS	A DIAS offers to facilitate access to data (e.g. Sentinel images) and software.	
Decision Support System	DSS	The Decision Support System is a NIVA tool that should enable users to define and then run the rules and decision tree from the results of EO processing (and if necessary alternative evidences) to the traffic lights at parcel level.	DSS is developed by UC1a
Digital Surface Model	DSM	Surface describing the three dimensional shape of the Earth's surface, including all static features placed on it.	DSM is required as input data for some of the LPIS change detection components developed by UC5a.
Digital Terrain Model	DTM	Surface describing the three dimensional shape of the Earth's bare surface, excluding as possible any other features placed on it.	DSM is required as input data for some of the LPIS change detection components developed by UC5a.
eCROP		A standard developed by the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) describing messages for exchanging crop related data	eCROP is considered as a standard of interest in NIVA for the exchange between machine data and FMIS or between FMIS and IACS.
Earth Observation	EO	Earth observation (EO) is the gathering of information about the physical, chemical, and biological systems of the planet via remote-sensing technologies, supplemented by [Earth]-surveying techniques, which	From the definition, EO includes in situ, airborne and satellite observations. However, in CAP and NIVA context, it is mainly used for satellite observations.

		encompasses the collection, analysis, and presentation of data.	
EO-flow		Python library with code and examples for creation of Earth Observation (EO) projects using TensorFlow . TensorFlow is a free and open-source symbolic math library that is used for machine learning applications such as neural networks.	EO-low is a technology used in UC2 (prefilled application).
EO-Patch		EO-Patch is common data-object that contains contains multi-temporal remotely sensed data of a single patch (area) of Earth's surface typically defined by a bounding box in specific coordinate reference system.	EO-patch is a concept used in UC2 (prefilled application).
European Union Public Licence	EUPL	The European Union Public Licence (EUPL) is a free software licence that has been created and approved by the European Commission.	All tools developed in the NIVA project must be open source and under the EUPL licence.
Farm Advisory Service	FAS	The Farm Advisory System aims at helping farmers to better understand and meet the EU rules for environment, public and animal health, animal welfare and the good agricultural and environmental condition. It is required for Member States to set up of a Farm Advisory System (FAS).	
Farm Management Information System	FMIS	A Farm Management Information System (FMIS) is a management information system designed to assist agricultural farmers to perform various tasks ranging from operational planning, implementation and documentation for assessment of performed field work.	Facilitating data exchange between IACS and FMIS is one of the objectives of several NIVA Use Cases.
Farm Performance Payment Scheme	FPPS		Mentioned by UC1c
Farm Registry		A database storing and managing	Farm registry data model and

		information about where the farm is, what the farm produces and how the farm produces. Farm registry should be part of the future IACS and should be fed in continuous way by farmer data (FMIS)	interface tools are developed by the NIVA UC3.
Field Book		An electronic (or paper-format) document used by farmers for keeping track of agricultural activities performed in their agricultural parcels. Field Book is a component of most FMIS.	
Geo Spatial Aid Application	GSAA	Pre-established form that the farmer has to provide in electronic form, when claiming for CAP payment.	
	GitLab	GitLab is an open-source and web-based tool to manage the lifecycle of a development project; it provides a Git-repository manager including wiki, issue-tracking and it enables continuous integration.	GitLab is the technical solution chosen by NIVA to host and manage the developments done during the project.
Global Good Agricultural Practices	GlobalGAP	G.A.P. stands for Good Agricultural Practices – and GLOBALG.A.P. is the worldwide standard that assures them.	
Global Product Code	GPC	GPC is a standard issued by GS1 and including a crop type classification.	The GPC crop type classification is considered as of interest by NIVA for a potential common crop type list.
Hackathon		A hackathon is an event, in which computer programmers and others involved in software development, collaborate intensively on software projects.	NIVA has organized or might organize hackathons to deal with specific issues (e.g. geometry handling to import machine data or to manage crop rotation)
Horizon 2020	H2020	Horizon 2020 is the financial instrument implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe's global competitiveness.	NIVA is a H2020 project

Interoperability solutions for public administrations, businesses and citizens	ISA²	The ISA² Programme supports the development of digital solutions that enable public administrations, businesses and citizens in Europe to benefit from interoperable cross-border and cross-sector public services	The ISA² Programme provides a registry tool that might be used for publication of the NIVA glossary and Feature Catalogue
Infrastructure for spatial information in Europe	INSPIRE	The INSPIRE Directive aims to create a European Union spatial data infrastructure for the purposes of EU environmental policies and policies or activities which may have an impact on the environment. This European Spatial Data Infrastructure will enable the sharing of environmental spatial information among public sector organisations, facilitate public access to spatial information across Europe and assist in policy-making across boundaries.	The NIVA tools will work on IACS data; part of this data is under the scope of the INSPIRE Directive.
Integrated Administration and Control System	IACS	This is an obligatory system used by member states for the management and control of payments made to farmers under the Common Agricultural Policy, using advanced techniques to check parcels by aerial or satellite photography, and to cross-check farmers claims with computer databases [from European Commission glossary]	Specifically, the integrated administration and control system ensures that payment irregularities are revealed and that queries are followed up. In this way, payments to farmers are made correctly and any amounts which have been unduly paid are recovered.
Agri-environmental indicator (CAP)	AEI	Agri-environmental indicators track the integration of environmental concerns into the Common Agricultural Policy at European Union, national and regional levels. [from European Commission glossary]	In 2006, the European Commission adopted 28 such indicators to assess the interaction between the Common Agricultural Policy and the environment and to serve the following purposes: to provide information on the state of the environment in agriculture; to understand and monitor the

			linkages between agricultural practices and their effects on the environment; to provide contextual information, particularly concerning the diversity of agri-ecosystems; to assess the extent to which the Common Agricultural Policy and the Rural Development programmes promote environmentally-friendly farming activities and sustainable agriculture and, lastly, to provide information for the global assessment process of agricultural sustainability. [from European Commission glossary]
Agro-environmental indicator (NIVA)		An indicator designed by the NIVA Use Case on agro-environmental monitoring (UC1b) and aiming to measure the impact of agricultural activities on environment and climate	The NIVA agro-environmental indicators are independent from the new CAP indicators (though close to the impact ones).
Carbon indicator Tier I		This NIVA indicator measures, for an agricultural campaign, the CO_2 flow (in t/ha) due to plant vegetation cycle on a given part of land using a simple relation between number of days with vegetation and CO_2 flow. The given part of land may be a pixel, a parcel, a farm holding or an administrative unit. This indicator is useful for climate change.	This indicator is using only widely available data: IACS and Sentinel images.
Carbon indicator Tier II		This NIVA indicator measures, for an agricultural campaign, the carbon storage (in t/ha) taking into account the plant vegetation cycle, the imports (organic fertilizers) and exports (grain and straw) on a parcel or on a farm holding	In addition to IACS and Sentinel data, this indicator requires FMIS data.

		This indicator is useful for climate change.	
Carbon indicator Tier III		This NIVA indicator aims to measure, for an agricultural campaign, on a parcel, a farm holding or an administrative unit, the carbon storage (in t/ha) taking into account the plant vegetation cycle and if available, the imports (organic fertilizers) and exports (straw). The CO_2 flow due to the plant vegetation cycle is simulated according a physical model (called SAFY-CO2) This indicator is useful for climate change.	In addition to IACS and Sentinel data, this indicator requires meteorological data and if possible FMIS data.
Nitrate indicator Tier I		This NIVA indicator measures, for a yearly drainage period, on a given part of land, the risk of nitrates lixiviation due to the influence of crop sequence and of intermediary cover presence. The given part of land may be a pixel, a parcel, a farm holding or a catchment area. This indicator is useful for water quality.	This indicator is using only widely available data: IACS and Sentinel images.
Nitrate indicator Tier II		This NIVA indicator measures, for a yearly drainage period, on a given part of land, the risk of nitrates lixiviation due to the influence of crop sequence of intermediary cover presence and nature and of soil and climatic conditions. The given part of land may be a pixel, a parcel, a farm holding or a catchment area. This indicator is useful for water quality.	In addition to IACS and Sentinel data, this indicator requires FMIS data (for intermediary crops) and of soil and climatic data.
Biodiversity indicator Tier I		This NIVA indicator aims to measures the biodiversity for an agricultural campaign, and on a	This indicator requires mainly IACS data (from the landscape characteristics related to

		given part of land.	agriculture practices) and topographic data (for the other landscape features).
		The biodiversity is assessed through the landscape characteristics that influences the presence of several taxon (plants and small animals)	
		The given part of land may be a grid cell (1 km^2) or a farm holding.	
Key Performance Indicator	KPI	In the NIVA context, indicators aiming to measure the main achievements of the project.	In practice, there are : - global KPI for the whole project - KPI for each Use Case - KPI for communication activities
Output KPI		A KPI aiming to measure the results, the concrete achievements of the NIVA project.	Number of components developed by a UC is an example of output KPI.
Outreach KPI		A KPI aiming to measure how much NIVA has succeeded in involving its target stakeholder community	Number of farmers involved is an example of outreach KPI.
Adoption KPI		A KPI aiming to measure the adoption of the assets elaborated by the NIVA project where adoption implies usage, acceptance of an innovation uptake (product or process), entailing a recognition of its value or burden reduction by the users.	Benefits expected from a given Use Case are an example of adoption KPI.
Leaf Area Index	LAI	Leaf area index (LAI) is a dimensionless quantity that characterizes plant canopies.	LAI may be derived from Sentinel or other satellite images and is widely used in EO processing and so of interest for NIVA
Land Parcel Identification System	LPIS	This computer database contains all agricultural areas that are eligible for a payment under the Common Agricultural Policy under the payment schemes mainly identified by the EU Reg. 1307/2013 and 1305/2013. It operates at reference parcel	The Land Parcel Identification System (LPIS) was designed as the main instrument for the implementation of the CAP's first pillar, whereby direct payments are made to the farmer once the land and area eligible for payments have been identified and quantified

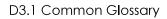|		level. It enables the unique and unambiguous localisation of each agricultural parcel annually declared by beneficiaries and ensures that such declared parcels are also reliably identified. Its main purpose is to determine the maximum eligible area for the purpose of different payment schemes and to cross-check overpayments.	
Land Cover Classification System	LCCS	The Land Cover Classification System (LCCS) was developed by FAO to provide a consistent framework for the classification and mapping of land cover.	The LCCS includes a crop type classification that is considered as of interest by NIVA for a potential common crop type list.
Landsat		Landsat is a long-running American programme for acquisition of satellite imagery of Earth	Images from Landsat-8 are of interest for EO monitoring of CAP.
Machine-learning		A machine-learning process is based on the possibility for the machine to induce decision rules from a set of labelled examples (called training data). It is widely used in EO processing.	Machine-learning is used in NIVA by several Use Cases
Deep-learning		Deep learning is part of a broader family of machine learning methods based on artificial neural networks with representation learning. Regarding EO processing, whereas the machine-learning may allow some human help by defining the image characteristics to be taken into account to define the decision rules, the deep-learning is fully automatic.	Deep-learning is used in NIVA by several Use Cases
Linked Open Data	LOD	Data that is both linked (i.e. structured data which is built upon standard Web technologies	Linked Open Data is currently seen as the highest degree of data opening also called "five

		and interlinked with other data so it becomes more useful through semantic queries) and open (i.e. released under an open license, which does not impede its reuse for free).	stars"
Land Use/Cover Area frame Survey	LUCAS	LUCAS is a Land Use & Land Cover product of the European Commission (Eurostat). This product is captured according LUCAS related classifications.	The LUCAS Land Cover classification includes a crop type list of interest for NIVA.
Multi Actor Approach	MAA	A multi-actor approach aims to make innovation fully demand-driven, involving concerned actors during the whole cycle	NIVA is applying a multi-actor approach; the concerned actors include farmers, farmers' groups, PAs, Public Administrations, researchers, citizenship, etc.
Monitoring		In common language, monitoring is about observing and checking the progress or quality of (something) over a period of time and keeping it under systematic review.	In the NIVA project context, "monitoring" is often used as synonymous for "Smart monitoring".
Area Monitoring System	AMS	The system to be put in place by Member States for CAP monitoring and applying the principles of smart monitoring.	The AMS has to be put in place by Member States in the framework of the programming period 2021-2027
Smart Monitoring		Continuous monitoring based on satellite data (especially Sentinel images) and automated classification algorithms to check the farmers' claims, according to regulation 1306/2013 article 110.	One of the objectives of the NIVA project is to develop tools to implement the Smart Monitoring in real conditions.
Normalized Difference Vegetation Index	NDVI	The density of vegetation (NDVI) at a certain point of the image is equal to the difference in the intensities of reflected light in the red and infrared range divided by the sum of these intensities.	NDVI may be derived from Sentinel or other satellite images and is widely used in EO processing and so of interest for NIVA
A New IACS Vision in Action	NIVA	The project described by this glossary and by the web site in general.	NIVA aims to modernise IACS by making efficient use of digital solutions and e-tools, by creating reliable methodologies and

			harmonised data sets for monitoring agricultural performance while reducing administrative burden for farmers, paying agencies and other stakeholders.
NIVA Dashboard Supervisor	NIDAS	A component dedicated to the audit and validation of the datasets used as input for the Seamless Claim (UC5b)	
Optical Character Recognition	OCR	The electronic or mechanical conversion of images of typed, handwritten or printed text into machine-encoded text.	OCR is one of the technologies used by Robot framework, the data mining tool of UC2.
orthophoto		An orthoimage is a raster image of the Earth surface that has been geometrically corrected ("orthorectified") to remove distortion caused by differences in elevation, sensor tilt and, optionally, by sensor optics. Term "orthophoto" is commonly used for orthoimages coming from images taken by airborne sensors.	Orthophotos are input data for the LPIS change detection components developed by UC5a.
Local pilot		Innovation experiences conducted in a local site (in practice, by one of the Paying Agency member of NIVA) for each Use Case of the NIVA project.	Local pilot is scheduled for the first year of the NIVA project. "local pilot" and "Single MS pilot" are synonymous.
Single MS pilot		Innovation experiences conducted in a single Member State, for each Use Case of the NIVA project.	Single MS Pilot is scheduled for the first half of the NIVA project (1st cycle ou 1rst wave). "Local pilot" and "Single MS pilot" are synonymous.
Multi MS pilot		Innovation experiences conducted in several Member State, for each Use Case of the NIVA project.	Multi MS Pilot is scheduled duringthe second year of the NIVA project (2nd cycle or 2nd wave).
Planet		A programm of satellite images	Images from Planet are of

		coming from an American private Earth imaging company. The goal is to image the entirety of the Earth daily.	interest for EO monitoring of CAP, especially for small parcels.
Preliminary parcel boundary detection and delineation	PPBDD	In NIVA, one of the UC2 component that detects changes in parcel boundaries and suggests new delineation, based on processing of satellite images. This information is then used for the prefilled application.	
Prosumer		Producer and consumer	Farmers are prosumers of IACS.
Operational trial		For each Use Case of the NIVA project, Innovation achievements of the project are tested under real conditions in several Member States	Operational trials are scheduled on third year of the project (3rd cycle or 3rd wave).
Open access	OA	The Open Access (OA) publication provides principles for the publication of academic work.	NIVA will follow the OA principles.
Open Call		In the NIVA project context, the mechanism that be used to have the tools developed outside the project partners (by subcontracting) or adopted by other stakeholders	The Open call is considered under WP6.
Open Innovation	OI	In research and development domains, Open Innovation is used for Innovation modes funded on sharing and collaboration between stakeholders	NIVA developments are done under the Open Innovation principles.
Random Forest		Random forests or random decision forests are an ensemble of learning methods for classification, regression and other tasks that operate by constructing a multitude of decision trees at training time	Random Forest is an algorithm widely used for crop type classification in the smart monitoring processes.
ResUnet		A fully convolutional network for semantic segmentation. (Convolutional network being a class of deep learning methods, most commonly applied to	ResUnet is a technology adopted by UC2 (prefilled application).

		analyzing visual imagery)	
ResUNet-a		A deep learning framework for semantic segmentation of remotely sensed data	ResUnet-a is a technology adopted by UC2 (prefilled application).
Key exploitable result	KER	According to the Horizon 2020 text, a **result** is defined as: "Any tangible or intangible output of the action, such as data, knowledge and information whatever their form or nature, whether or not they can be protected, which are generated in the action as well as any attached rights, including intellectual property rights". A **Key Exploitable Result (KER)** is an identified main interesting result (as defined above) which has been selected and prioritised due to its high potential to be "exploited" – meaning to make use and derive benefits- downstream the value chain of a product, process or solution, or act as an important input to policy, further research or education. In order to select and prioritise results, the following criteria should be used: a) degree of innovation, b) exploitability and c) impact.	NIVA being a Horizon 2020 project, aims to deliver Key exploitable results.
Robot framework		Robot Framework is a generic test automation framework for acceptance testing and acceptance test-driven development	Robot framework is the tool adopted by UC2 (prefilled application) for data mining in external registers.
Robotic Process Automation	RPA	RPA systems develop the action list by watching the user perform that task in the application's graphical user interface (GUI), and then perform the automation by repeating those tasks directly in the GUI.	The UC2 data mining tool Robot Framework is using RPA technology.
On The Spot Check	OTSC	Traditional way to control farmer declarations, based on sampling.	The OTSC is going to be replaced by the Smart Monitoring.

Seamless Claim		By properly combining several datasets and using innovative technologies, it seamlessly provides farmers with advisory and validated payments thus reducing, if not eliminating, sanctions.	
Sentinel		Satellite constellation for Earth Observation. The Sentinel missions are part of the Copernicus programme.	The images Sentinel-1 (radar) and Sentinel-2 (optic) are expected to be used in the smart monitoring process and so, in the NIVA project.
Single Area Payment Scheme	SAPS	Due to limited administrative capacities and the absence of historical data, new member states (i.e. those that joined the European Union in 2004 and 2007) were granted the possibility of applying the single area payment scheme instead of applying the standard direct payment schemes. [from European Commission glossary]	
Smart Contract		Digital Contract between farmers and Paying Agencies, in the context of the Seamless Claim (UC5b), and specifying the conditions of the monitoring process.	There will be different kinds of smart contracts depending on the payment support.
Social Innovation	SI	Social innovation consists in elaborating new answers to social new requirements or to unsatisfied existing ones in the current conditions related to market or to social policies, by involving participation and cooperation of involved stakeholders, especially users.	The Social Innovation principles are recommended in the NIVA project.
Social Spaces for Research and Innovation	SSRI	Social Spaces for Research and Innovation (SSRI)1 are defined as organizational ecosystems in which the research and innovation activities are guided	NIVA aims to build such SSRI, mainly through its work package Innovation ecosystem (WP5)

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[1] www.researchspaces.eu

		by the necessities and constraints of the social communities that benefit from the results, involving, in a balanced way, all the actors present in the research and innovation value chain	
Technology Readiness Level	TRL	Degree of maturity of a technology	One of the objectives of the NIVA project is to increase the TRL of the CAP monitoring components.
Third Party		Party external to a given system.	In the NIVA context, third party is used both for the external systems that are candidates for data exchange with IACS such as FMIS (WP3) or for the stakeholders that should be encouraged to use the NIVA assets, mainly the Paying Agencies not partners of the NIVA project (WP6)
Tier		Tier is used for ranking, i.e. for a relationship involving order between a set of observations or variables	There are several Tiers of the agro-environmental indicators developed by UC1b, depending on the input data and resulting indicator. Tier I indicator are using data widely available and providing coarse results whereas Tier II or III indicators are using more data and providing better results.
Traffic Light		Traffic Lights are intermediary results in the continuous smart monitoring process, indicating if the degree of reliability of the farmer declaration. In summary, the traffic light is green when the monitoring operation results are in agreement with the farmer declaration, red in case of disagreement and yellow in case of doubt.	
Use Case	UC	In the NIVA project context, a Use Case addresses a specific issue to be solved (at least partly) by the	There are 9 Use Cases in the NIVA project.

		practical tools that will be developed by the project.	
Voluntary Coupled Scheme	VCS	One of support schemes listed in Annex I ("direct payments"). 1307/2013 Title IV, Chapter 1 In practice, it is related to the support for production of specific crops.	VCS is one of the eligibility rules that will be implemented in the Decision Support System of UC1a
Work Package	WP	Usual way to organize the activities in a European project. Set of tasks aiming to achieve a high level objective.	There are 7 Work Packages in the NIVA project.

Table 5 CAP or NIVA terms

General acronyms	
Acronym	Full name
API	Application Programming Interface
CAPI	Computer Aided Photo Interpretation
eID	electronic Identifier
EC	European Commission
EU	European Union
ICT	Information & Communication Technologies
IT	Information Technologies
GEOSS	Global Earth Observation System of Systems
GNSS	Global Navigation Satellite Systems
GUI	Graphical User Interface
MS	Member State (of the European Union)
NGO	Non Governmental Organisation
REST API	Representational State Transfer API
SDG	Sustainable Development Goal
SME	Small and Medium sized Enterprise
ToR	Terms of Reference
TRL	Technology Readiness Level
UML	Unified Modelling Language
UX	User eXperience

Table 6 General acronyms