# NIVA – NEW IACS VISION IN ACTION

## Guide for Applicants: Call for pilot validations

14 january 2022

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 842009.

## Disclaimer

*The information provided in this document is not binding and the NIVA consortium reserves the right to update, amend or modify any part, section or detail of the document at any point in time without prior information.*

*This document is issued within the frame and for the purpose of the NIVA project. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 842009. The opinions expressed and arguments employed herein do not necessarily reflect the official views of the European Commission.*

# Table of Contents

# List of abbreviations

PA = Paying Agency

CAP = Common Agricultural Policy of the EU

GSAA = Geospatial Aid Application

LPIS = Land Parcel Information System

FMIS = Farm Management Information System

DSS = Decision Support System

API = Application Programming Interface

TP = Third Party

# 1 Background

The Common Agricultural Policy (CAP) of the European Union is one of the oldest policies of the European Union, and over time it has evolved to a comprehensive set of regulations. The CAP compensates farmers across the EU with subsidies. Subsidies are meant to stimulate the farmer's contribution to the agricultural sector and rural livelihoods.

For the processing of these subsidy payments to farmers, the Member States (MS) have set up Integrated Application and Control Systems (IACS) which are operated by the respective regional or national Paying Agencies (PA). With the advancement of digital technology, also the IACS have become complex, fully digital infrastructures in which many applications are handled yearly.

Digital technologies (i.e. drones, artificial intelligence, satellites, smart contracts) advance rapidly. The **CAP stimulates this digitalization of the agricultural sector, and benefits from it**. Digitalisation reduces the administrative burden and is expected to improve the sustainability and competitiveness of the sector. CAP modernisation offers potential for data use and reuse. It improves accessibility of **IACS data for monitoring the societal benefits** of agriculture towards climate, environment and rural development.

The operationalisation of the **Copernicus** satellite programme and the **use of Earth Observation** data for agriculture has unprecedented impact on the monitoring of agricultural land. **New tools and technologies** are available on the market. Also, the **interoperability** has increased between different 'sub' systems, like open data, farm management and information systems (FMIS), telemetry on farm machinery and local sensors. This provides additional incentives to **modernise governance** of our sector.

At the same time, negotiations on the upcoming Common Agricultural Policy (2023-2027) are ongoing between the member states and the European Commission. New technologies are suggested for the Area Monitoring System and the Checks-by-Monitoring. Satellite data is used here to validate the farmers claims, and other data sources (i.e. geo-tagged photo's, orthophoto's) are used to check cases with doubt. This could lead to a shift in governance, in which the check of the farmers application ex-post, but could be continuous process with multiple data exchanges and a collaboration between the farmer and the PA. Another shift is that the MS get the responsibility to draw up their own strategic plans with their own ambitions for implementation.

## 1.1 NIVA

**Paying Agencies from nine EU Member States joined forces** to realise a new vision on the Integrated Administration and Control System (IACS): **"New IACS Vision in Action" (NIVA)**. The PA's and their technical partners have developed and explored **nine innovations**.

The Paying Agencies realise that using the potential of digitalisation calls on innovating their systems and approaches. Encouraged by the new EU legislation on monitoring and by the upcoming CAP, the NIVA Paying Agencies have **demonstrated how these digital tools will enhance their operation.**

The tools **open new opportunities** to improve farming processes and techniques to increase sustainability and competitiveness. NIVA **increases** the **speed of innovation, reduces administrative burden, sustains broader and deeper collaboration** in an innovation ecosystem and **provides accepted methods to establish information flows to improve environmental performance.**

Through co-creation, each of the 9 innovations **involves the stakeholders required** to demonstrate and evaluate these innovations. The cross-cutting digital- and process innovations are made available as **open source tools on the NIVA GitLab.**

NIVA is built on four cycles:

1. Development of the innovations
2. Testing in the single member state
3. Multi-member state testing
4. **Large scale testing and deployment in the real-life conditions**

We are at the start of the fourth cycle. The NIVA innovations are mature enough to be deployed by other parties outside of the NIVA consortium. There are many PA's and Managing Authorities (MA's) that are not not part of NIVA. These can benefit from NIVA innovations in their own IACS or comparable systems. NIVA invites these parties to validate the NIVA innovations and pilots in their own systems through the Financial Support for Third Parties mechanism. This is also a great opportunity to involve new Member States in the NIVA project, through the PA and MA.

# 2 Purpose of the call

NIVA invites Third Parties (TP) to test and validate its innovations and components in diverse circumstances for purposes related to CAP monitoring, but potentially also beyond their original purpose.

NIVA partners have already done previous rounds of testing and identified issues in transferring innovations from one set up to another. Third parties will do a wider round of testing and validation. Third Parties can be an accredited Paying Agency or Managing Authority (as described in the CAP Regulations) and technical partners implementing CAP or other monitoring programs. Third Parties will benefit from the NIVA innovations as they will allow for an improvement of their IACS or digital management system (i.e. supply chain management system, Farm Management Information System) at relatively low costs. The NIVA consortium benefits from Third Party testing as it will receive an evaluation of its components (including improvements and source code suggestions) and testing results from the Third Parties. The third parties need to demonstrate a commitment and an approach to run the test of the NIVA component operationally in their system, and must provide feedback to the NIVA project consortium on their lessons learned, according to pre-described formats.

# 3 Innovations available for Piloting

## 3.1 General information

The aim of Pilot Validations is to deploy a NIVA innovation as listed in section 3.2 in an operational system for an Paying Agency and Managing Authority to govern Common Agricultural Policy and national agricultural policy implementation, most likely an IACS or an equivalent.

The Call aims at selecting approximately 5 to 10 Pilot Validations that can be carried out by an individual party or a small consortium of two parties, with strong support of a PA or MA, either as a partner or at minimum a letter-of-support for availability in implementation into an IACS.

Selected consortia will receive up to EURO 120.000 with a maximum of EURO 60.000 per party as a Third Party to the NIVA consortium.

Chosen experiments will go through a 6 month process that consists of 2 phases: 1. Month 1-2: inception and exploration with the NIVA innovation lead; 2. Month 3-5: Implementation of NIVA innovation into operational system and pilot the NIVA innovations in the operational system with documentation of the pilot results and presentation to the NIVA consortium during an appropriate meeting. After positive evaluation, each phase is followed by financial support.

## 3.2 Submission Procedure

The entry point for the submission of all proposals to NIVA Call-for-pilot-Validation is the NIVA general email address: info@niva4cap.eu. Submissions received by any other channel will be automatically discarded. Documents required in subsequent phases will be submitted via dedicated channels, which will be indicated by the NIVA consortium in the contracting phase.

## 3.3 Language

English is the official language for NIVA Open Calls. Submissions done in any other language will not be evaluated. English is also the only official language during the whole execution of the NIVA project. This means any requested submission of deliverable will be done in English in order to be eligible.

## 3.4 Documentation Formats

Any document requested in any of the phases must be submitted electronically in PDF format without restrictions for printing. Important notice 2: When filling in the proposal template, make sure to keep set formatting of the document, including margins, font size and do not exceed the defined maximum of 30 pages.

## 3.5 Origin of the Funds

The funds provided through the Call-for-pilot-validation come directly from the funds of the European Project NIVA funded itself by the European Commission under Grant Agreement Number 842009. In order to receive funding, any selected proposer will sign a dedicated Sub-Grantee Funding Agreement with the NIVA consortium. More details on obligations of beneficiaries can be found in Chapter 5.

# 4 Innovation topics

**Innovation 1:**

| | |
|---|---|
| Title: | EO Traffic lights for parcel based evaluation |
| Developed by: | OPEKEPE, NEUROPUBLIC |
| Description of main innovation: | A croptype and area monitoring system (NIVA DSS) that is set up as a decision support system for PAs to make most of capabilities of remote sensing. The NIVA DSS uses inputs from Remote Sensing processing and LPIS parcel boundaries to translate these to traffic-lights (Green = matching observed crop type and declaration; yellow = doubt about the match; red = no match between crop type and declaration). With the DSS a PA or similar operator of a monitoring system, can import processed Remote Sensing data (for example from SEN4CAP or equivalent processing chain), and set business rules for determining red, yellow, and green parcels, executing them on an imported data set, and visualize the results, also on a parcel level. Ultimately the result files can be exported. |
| Description of main component: | The DSS consists of three main parts:<br>1. Decision Rule engine: This applies business rules to a Remote Sensing data set, prepared with links to LPIS and parcels, and it allows the configure the precise set up of the business rules;<br>2. Business Rule engine: This creates the business rules themselves from a set of options and definitions for crops, crop groups, land cover types, combined with color codes<br>3. Field view: the viewer on the DSS for the operator of the PA, in which the results of the decision rule can be visualized, with different filtering options for presentations and overviews. |
| Ancillary components: | Data import, Data Export and User Management |
| Implementation languages: | JavaScript (Angular) , Java, and SQL (PostGreSQL); A complete docker image is available |
| Test results | An test data set for Greece is developed with the NIVA DSS |
| Link to Gitlab repository: | https://gitlab.com/nivaeu/uc1a_dss |

## Innovation 2:

| | |
|---|---|
| Title: | Annual CO2 Flux Indicator Calculator |
| Developed by: | ASP, INRAE, IGN |
| Description of main innovation: | The Calculator estimates empirically the Net Ecosystem Exchange (NEE,), i.e. the net annual $CO_2$ fluxes including $CO_2$ absorption by photosynthesis (of cash crops eventually followed by cover crops) and the losses associated to plant and soil respiration, at plot scale for cropland. This is one of the components of a carbon budget for the soil, and thus a first step towards calculating the carbon footprint of crop farming and grass land. The approach is based a relation that has been established between the number of days with active vegetation cover in the cropping year and the NEE (see Ceschia et al. 2010). In this study, the relation has been built based on 15 European sites with 13 different cash crop types (straw cereals including winter wheat, spring wheat, winter barley, spring barley, triticale, rye, maize, sorgho, pea, rapeseed, sunflower, potato, sugar beet) eventually followed by cover crops/weeds/spontaneous regrowths. |
| Description of main component: | Carbon Flux Calculator uses parcel data from IACS systems/LPIS and processed NDVI time series from Sentinel 2 Imagery on a parcel basis to calculate the net annual $CO_2$ fluxes based on indicators per crop and a crop type list. |
| Ancillary components: | Farm/Region Aggregation Component, NDVI data processing component (potentially based on SEN4CAP), IACS data preparation |
| Implementation languages: | Python scripts for the main component |
| Test results | The scripts have been tested for 6 regions in France, regions in Spain and the whole of NL. The application of the scripts is straightforward if LPIS data and NDVI time series are available in the right formats. |
| Link to Gitlab repository: | https://gitlab.com/nivagroup/uc1b/-/tree/dev |

## Innovation 3:

| | |
|---|---|
| Title: | IACS-FMIS data sharing API |
| Developed by: | ARIB, UT |
| Description of main innovation: | To compute farm performance indicators a bi-directional standardized data exchange between Integrated Administration and Control System (IACS) and other applications, in particular Farm Management Information System (FMIS) type of applications will be established. As farmers keep most of their data in FMIS systems with respect to the crop and livestock management, these are potentially rich resources of relevant data and a single point of reference for farmers, avoiding administrative burden of re-entering data for different purposes. Also more and more farmers are switching to FMIS for keeping track of their farms activities or decision support. Currently exchange of data between IACS and FMIS is mostly manual, file-based and not standardized. |
| Description of main component: | IACS-FMIS-data-sharing-API component is a REST API micro-service that supports bi-directional data-requests between an IACS and FMIS, implemented on the side of the IACS. The FMIS can request data from IACS through the API, while also IACS can receive data from the FMIS. The data exchanges have been standardized through the adoption of the eCrop standard. A farm ID is used to structure the API requests. |
| Ancillary components: | In addition to REST API component, which is already available, there are additional components in development phase – database component, farm typology component and farmer performance dashboard component. |
| Implementation languages: | Nest.js application, runs in Docker container. User interface foor testing the API's– Swagger, with data-exchanges in JSON format, datastructure is based on eCrop standard. |
| Test results | Functional, integration and system testing has been carried out between an IACS and FMIS system, with data streams validated between applications. Testing results are documented in Confluence. Application of the API requires commitment of and integration with both an IACS and an FMIS. |
| Link to Gitlab repository: | https://gitlab.com/nivaeu/uc1c-public-api |

## Innovation 4:

| | |
|---|---|
| Title: | Preliminary parcel boundary automatic delineation |
| Developed by: | NPA, Sinergise, iTREE |
| Description of main innovation: | The development of the algorithms for the automatic detection of the parcel boundaries based on Sentinel-2 data. Farmers use a GeoSpatial Aid Application (GSAA) to submit parcels (incl their boundaries) and the crops on the respective parcels to Paying Agencies. Through the Algorithms for automatic detection, farmers will be provided additional data for the application submission to avoid errors in their applications, thereby lowering their administrative burden. Also Paying Agencies will get less errors in the farmers' applications, thereby having less administrative burden.<br>The automatic detection of Parcel boundaries is based on pre-processed Sentinel 2 data into grid based 10x10m resolution pixels with indicators like NDVI and the application of deep learning algorithms to learn from past GSAA application parcels |
| Description of main component: | Preliminary-parcel-boundary-automatic-delineation component is based on a machine learning model on prepared GSAA parcels in a shapefile and Sentinel 2 data preprocessed to indicators through SEN4CAP or equivalent. . Once the imaging data and reference labels (i.e. rasterised GSAA parcels) are prepared, a convolutional deep learning model will be trained to extract from images features relevant to the parcellisation (segmentation) of agricultural fields. Training of the model will aim to maximise the similarity between the output of the network and the reference GSAA delineations. |
| Ancillary components: | Robot Framework for additional data, GSAA and Sentinel data preparation workflows. |
| Implementation languages: | Python 3.5+, with the creation of a Python package that includes all required Python dependencies. In addition, docker containers, PostgreSQL and the gdal geospatial processing library are used for data pre- and post-processing |
| Test results | A test models was trained in Lithuania for data in 2019, with a strong correlation valuations on classification agreement, and subsequently applied for 2020 in Lithuania and a test region in Spain, Castilla y Leon. |
| Link to Gitlab repository: | https://gitlab.com/nivaeu/uc2_fielddelineation |

## Innovation 5:

| | |
|---|---|
| Title: | Farm Registry |
| Developed by: | FEGA, CAPDER, TRAGSA & TRAGSATEC |
| Description of main innovation: | Data structures for storing data as part of an IACS are often different across EU member states, and sometimes within member states due to different regional implementation. A common Farm Registry reference data model and common definitions and common code lists, help to standardize and set the base for a cross border Farm Registry. This provides comparable data from different PA's in order to exchange information and to obtain statistics and indicators, but also will allow but will also allow innovative components from one IACS system to another, to ensure a faster uptake of innovations at lower costs, as less modifications and adaptations are required. Such a Farm Registry can only be adopted if it has the 'buy-in' or community acceptance, to ensure that it can be applied many different IACS implementation. |
| Description of main component: | The Farm Registry component is based on a Farm Registry Data Model for agricultural areas and updating and consulting interfaces (web services) to exchange information, and potentially modify, delete or add records. Standard coding and unique identifiers have been implemented to ensure that all objects in the data model can be traced and fully harmonized. Main data types enclosed are farm, farmer, parcel, land use, geometry, variety and crop management related information, with many secondary data types available |
| Ancillary components: | Data loading, data deletion and data updating as common operations |
| Implementation languages: | Java (with Maven, Spring, Hibernate & Swagger) for Webservices; PostgreSQL/PostGIS for data storage and JSON for data exchange |
| Test results | Different tests have been carried out. The data model has been validated conceptually in Spain and Estonia. An implementation with exchange services was tested for the Andalucía region in Spain. |
| Link to Gitlab repository: | https://gitlab.com/nivaeu/uc3 |

## Innovation 6:

| | |
|---|---|
| Title: | Geotagged photo app |
| Developed by: | DAFM, TSSG, TEAGASC |
| Description of main innovation: | The main purpose of the Geotagged Photo app is to allow paying agencies to send requests for geotagged photo's to end users (Farmers/Advisors). The geotagged photos relate to land parcels and the images are needed to resolve queries related to payment claims. Such a geotagged photo can be used when there is more data and information needed about the circumstances on a parcel, when such information cannot be retrieved directly from a satellite data set, due to lack of resolution or cloud cover. To ensure the maximum usability of the geo-tagged photo for the receiving party it is essential that the location of the picture taken is well logged, that the angle and position of the object photographed (once or multiple times) is well captured and that the origin of the photo is validated. |
| Description of main component: | The GeoTagged Photo app (AgriSnap) is developed as a hybrid mobile application, designed to run on both iOS and Android devices. Request recipients can use the application to capture geotagged photos and submit these to the paying agencies. The AgriSnap app is build for user friendliness to ensure that the navigation experience by the farmer is smooth, and the opportunities of getting adequate data are maximized. Data is shared back to an IACS system through a REST API using secure encrypted HTTPS communications. |
| Ancillary components: | Not applicable |
| Implementation languages: | Ionic Javascript Framework (including stack below): Capacitor; Angular; SASS; Typescript – Apache 2.0; HTML |
| Test results | AgriSnap was tested in different rounds with technical tests by the developers to more extensive tests with groups of tester across Ireland. In a second round a group of testers across the EU was recruited to experience the app. |
| Link to Gitlab repository: | https://gitlab.com/nivaeu/uc4a_geotagapp |

## Innovation 7:

| | |
|---|---|
| Title: | Machinery data in Farmer's aid applications |
| Developed by: | RVO, SEGES, WR |
| Description of main innovation: | Data from farm machines (e.g. tractors, seeders, harvesters) can be used as a data source for CAP applications by farmers. This data has a high positional and temporal accuracy and thus serves as a source to update the farmer's agricultural parcel boundaries in GSAA, preferably in a single message. Also, data from specific machines could be used to supply evidence in the monitoring process, for example the seeding of a winter cereal. Some measures in current CAP (e.g. mixed seed catch crop) are difficult to control and are therefore laborious and costly, thus using such machine data could lead to a further reduction of the administrative costs and reduction of possibilities for errors for the PA. These uses lead to a decrease of administrative burden for the farmer combined with greater accuracy and is a logical building block in a seamless claim implementation of IACS. |
| Description of main component: | The NIVA Connector implements a workflow of steps to retrieve data from a farm machine into an FMIS system, and to validate the 'as-applied' data into an eCrop message that can be checked and submitted to the IACS system of the PA. The workflow works with task maps from the FMIS system (e.g. task map shows what is the intention to apply or to cultivate) and the farm machinery operation leads to an 'as-applied' map on the parcel. This data needs to validated and standardized to ensure a seamless delivery into the IACS. The farmer can visualize the data in a web page before submitting. |
| Ancillary components: | NIVA Connector consists of a front-end and back-end, a create component of the e-Crop message, a validator of the e-Crop message, and a webservice to receive the e-Crop message at the IACS |
| Implementation languages: | Data exchange in Json, C#.Net and Java, with REST API and PostgreSQL data storage |
| Test results | In Denmark and NL the workflow of the NIVA connector was tested for the spreading of fertilizer and for the seeding of a winter crop. This test has demonstrated that it is possible to execute such a workflow, and adaptation to different types of machinery is required. |
| Link to Gitlab repository: | https://gitlab.com/nivaeu/uc4b |

## Innovation 8:

| | |
|---|---|
| Title: | Automatic change detection with Very High Resolution Images |
| Developed by: | DAA, ASP, IGN |
| Description of main innovation: | Parcel boundaries of agricultural parcels are contained in the Land Parcel Information System (LPIS), and every year a significant number of changes in these parcel boundaries occurs by building, roads, vegetation changes, natural developments. Ideally such changes of parcel boundaries can be automatically detected through deep learning algorithms, saving a lot of manual work for both the farmer and the Paying Agency. Such deep learning algorithms for the detection of changes on orthophotos have been developed for ponds, groups of trees, trees in line, unfortified roads and paths, artificial covered surfaces, semi-agricultural natural vegetation & buildings. Similar deep learning models can be develop for other objects to be detected. As part of the workflow of data processing, landscape feature maps are taken into account, as are different rules based on the crops occurring on the parcels. |
| Description of main component: | NIVA Change Detector is a Deep Learning workflow of different steps, that needs to be trained for a specific geographical context before it can be automatically applied. As input data is uses NDVI time series, ortho photo's, Digital Terrain Model, and Digital Surface Model, existing definition of Agricultural Parcels, and landscape feature map. |
| Ancillary components: | GIS operations and data preparation of RS and ortho-photo data |
| Implementation languages: | Python (PyTorch) and GDAL with data exchanges in GDAL compatible format, and GIS tools are required for validation and cross checking |
| Test results | All algorithms have been tested in test regions in France and Denmark, on about similar areas. In the testing up to 70% of vegetative and 80% of building objects could be recognized. The preparation of the training data is crucial to the success, and requires some time. Also experience in working with deep learning models is required. |
| Link to Gitlab repository: | https://gitlab.com/nivaeu/uc5a_daa_segmentation<br>https://gitlab.com/nivaeu/uc5a_ign_alertcreation<br>https://gitlab.com/nivaeu/uc5a_ign_maskdetection |

## Innovation 9:

| | |
|---|---|
| Title: | Click and Pay |
| Developed by: | AGEA, e-GEOS, ABACO, CREA |
| Description of main innovation: | With the current CAP Regulation, every farmer must prepare and submit an aid application, or payment claim, for each relevant area and animal measure. These applications are burdensome for the farmer and need go through complex validity checks to proceed to a payment, or potentially to apply a sanction. Frequently, handling costs surpass the average value of a CAP subsidy. The Click-and-Pay innovation is to demonstrate a re-routing of the traditional application journey. In the Click-and-Pay application journey, a Digital Contract (i.e. digital terms & conditions to receive a payment) is connected to the existing IACS distributed ledgers, so that farmers will not need to submit the yearly application, since the Paying Agency (PA) already has access to necessary data through official databases. The processing of payments will be based on dossier and monitoring results becoming quicker and less burdensome. Such smart contracts require validation of source data of the PA and routines for data validation have been implemented. |
| Description of main component: | The Click-and-Pay Component implements a digital contract approach where claims (digital contracts) are based on information available in IACS ledgers and monitoring procedures/rules. It consists of a list of agreements/contracts the farmer can select from and commit to. It then shows those that have been activated by beneficiaries. Through information from the Farm Dossier, GSAA, LPIS and Entitlements registry, the list of contracts offered to the farmer is generated, and the farmer can active/select contracts based on his preference, and check the progress status based on the underlying data until it reaches a status where payments are done. The PA can also update the Entitlements Registries. |
| Ancillary components: | The NIDAS-component allows to classify the fitness for purpose of data based on its data source and customized rules; it reduces times and effort for diagnosis and recovery of data misalignments, as well as it reduces the onset of anomalies and disputes with users since it provides information about the suitability and certification of data to IACS sub-systems. The software, of which the primary |

| | |
|---|---|
| | language is Python, is built upon a Model-View-Controller (MVC) architecture. |
| Implementation languages: | PostgreSQL, Java, vue.js-typescript, with JSON data exchange |
| Test results | A set of user stories and walk-throughs are available, and the system has been deployed with sets of test users. These have demonstrated that the workflows are successful and contracts can be implemented. |
| Link to Gitlab repository: | nivaeu / uc5b_nidas · GitLab<br>nivaeu / uc5b_seamless_claim · GitLab<br>nivaeu / uc5b_seamless_claim_webapp · GitLab |

# 5 Proposal Submission and Selection

## 5.1 Call Publication

The Call-for-Pilot-Validation will be published on the NIVA website: https://www.niva4cap.eu/ on 14 January 2022 and will be supported by:

- ✓ Call Fiche, which provides the scope and objectives of the call.
- ✓ Guidelines for Applicants, this document.
- ✓ Use Case descriptions.
- ✓ Proposal Template, word document to be submitted as a PDF in the application phase.
- ✓ Template Declaration of Honour, which declares that all conditions of the Call are accepted by an SME legal representative (to be filled in individually by every member of the consortium).
- ✓ Template Consortium Declaration, with signatures of legal representatives of each member of consortium.
- ✓ Template SME Declaration, which declares that the applicant is an SME according to EC standards
  (to be filled in individually by every member of the consortium).
- ✓ Data Privacy Policy, which addresses the aspect of data privacy.
- ✓ Template Bank Account information.
- ✓ Template sub-grant agreement.

## 5.2 Eligibility Criteria

NIVA Calls are aimed at European Paying Agencies, Management Authorities and affiliated SMEs and start-ups working in the field of the CAP. Detailed eligibility criteria are described in this section. Overall eligibility criteria for the NIVA call are:

- ✓ Applicants are allowed to apply as consortia
- ✓ Existing consortium members of NIVA project are not eligible for the Calls of NIVA.
- ✓ The proposal is delivered before the defined deadline, applying the requested submission procedure.
- ✓ Current NIVA beneficiaries (Call 1 beneficiaries, Industrial Challenges beneficiaries), IAB members and NIVA partners are not eligible.

## 5.3 Application Process

Proposals must be send to info@niva4cap.eu before 14 March 2022 17.00 CET. The proposals must include all the required documents in PDF.

## 5.4 Evaluation Process

After the deadline for the application an external independent committee of reviewers will the proposals and write an advice. Bases on this advice the winning proposals will be informed.

### 5.4.1 Proposal Requirements

Proposals need to cover the following elements, that also serve as criteria:

Understanding of the objective:

- ✓ Impact: Understanding of NIVA's Impact and KPI's
- ✓ Applicability of the innovation: Does the problem that the third party wants to address align with NIVA's goals?
- ✓ Approach to the component testing and validation: Understanding of the problem

Impression of the team:

- ✓ General requirement: Team composition ?
- ✓ Track Record: Integration with operational systems incl remote sensing environments Track record: Published open source code and open source management of projects
- ✓ Expertise: Integration and software systems
- ✓ General requirement: Is a PA/MA included either through a role in the third partyship or commitment letter?

Quality of the proposal/approach:

- ✓ Timeline
- ✓ Applicability of the innovation: What does the third party expect from NIVA?
- ✓ Quality of the proposal: Clearliness and level of English
- ✓ Quality of the proposal: Logic of desired innovation
- ✓ Approach to the component development: Technical Feasibility
- ✓ Synergy with NIVA: Third party must be from a member state not included in NIVA

# 6 Implementation/start of the Pilot Validations

Once the selection and contracting process is finished, selected beneficiaries will start the testing and validation process. Implementation consists of two phases, where each phase is followed by reporting requirements that lead to a release of a designated part of the payment.

## 6.1 Pilot Validations Timeline

Pilot validations starts on April 30th 2022 and finishes on September 30th 2022.

## 6.2 Financial Support

Selected Innovation Experiments will receive up to €120.000,- financial support from NIVA according to the implementation timeline defined in Chapter 4.1. The NIVA consortium will closely monitor this allocation of resources and the financial support to consortia will be based upon the review of deliverables. The financial support is considered as a global amount deemed to cover all costs of the action or a specific category of costs i.e. lump-sum costs as defined in Article 5 of H2020 AMGA — Annotated Model Grant Agreement.

# 7 Applicant's Responsibilities

The applicant's responsibilities will be included in the Agreement. This will lay down the responsibilities regarding Intellectual Property Rights, Conflict of interest, Data protection & confidentiality and promoting/ giving visibility to the EU Funding.