NIVA Position Paper

Common European Agricultural Data Space

Introduction

The Horizon2020-project NIVA (New IACS Vision in Action) starts from the premise that innovative new developments of IACS[1] responding to new digital trends can lead to a more sustainable agricultural production across Member States and can assist in a reduction of the administrative burden to actors and stakeholders. This involves three main challenges:

1. Absorbing innovations to simplify the governance;
2. Reducing socio-economic and administrative burden to farmers;
3. Reducing the gap between IACS data use and potential broader uses.

The question how to deal with (agricultural) data is an important part of the NIVA project. In preparation of the Expert workshop on a Common European Agricultural Data Space NIVA will share its position on the Common European Agricultural Data Space.

NIVA consortium is aware on the European Strategy for Data, published in February 2020, and is willing to contribute to the development of agricultural and environmental sectoral European data space under the Digital Europe Programme.

NIVA main contributions comes from public sector and more specifically from more than 9 Paying Agencies and member states together with FMIS[2] and IACS ICT components providers involving diverse kind of users as stakeholders of the agro-food chain, rural-regional development networks, environmental entrepreneurship, circular economy and green deal experts.

[1] Integrated Administration and Control Systems
[2] Farm Management Information Systems

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1. **Is the federation of some of the Farm Management System (FMS) platforms and other data platforms feasible?** Yes, it is. It is technologically feasible, furthermore, FMIS providers are mature enough to work with a federated approach and it becomes to be remarkably interesting for many actors in the food chain. However, the main barriers are more cultural-social barriers and the huge heterogeneity of the different solutions considering local-regional needs and how to interact with public interfaces. Depending on the strength of the FMIS solution and how many farmers, territory, and type of farming is dealing with, federation is often requiring lots of efforts, the question for farmers is more about cost-benefit analysis than just about feasibility although European data space under the Digital Europe Programme might play a key role.

2. **Assuming that the implementation option for the Common European Agricultural Data Space for agriculture is based on a federated distributed system of existing data platforms, what is needed to implement a European data space from a technical point of view (definition of the interoperability mechanisms)?**

   NIVA approach could be used as starting point:

   - Semantic interoperability (e.g. e-crop, LUCAS, standards might be used for some part of FMIS data)
   - Technical interoperability: decide on data exchange tools, formats, protocols, etc
   - Legal interoperability: clarify who can use which data for doing what under GDPR, open to new business models for data sharing where farmers should be one of the beneficiaries of the solutions.

   Current and future platforms and infrastructures like Copernicus Data Exploitation Platforms DIAS[3] based, European High-Performance Supercomputing Centres EuroHPC[4] or The EU cloud GAIA-X[5], might be of great interest, however final solutions for farmers, FMIS providers and additional developments for linked business models must address highly targeted solutions where Google, Amazon and others have a clear advantage nowadays even with data provided by EU like Sentinel images from Copernicus program.

3. **How can we reach an agreement on a set of interoperability mechanisms (avoiding locking into existing platform architectures)?**

   NIVA project deal with a new IACS Reference Architecture for new Common Agriculture Policy for next decade that is already looking into existing platforms. Then this is not necessary.
   Data harmonization and Linked Open Data Infrastructures can also play an important role to be considered.

   Based on our experience main brakes to interoperability are:

[3] https://www.copernicus.eu/en/access-data/dias
[4] https://eurohpc-ju.europa.eu/
[5] https://www.internationaldataspaces.org/gaia-x-enters-the-next-phase/

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- Lack of motivation that may be mitigated by showing clear benefits (understand why we need interoperability) and by adopting a collaborative approach (agree on how to reach this interoperability). Legal obligation may also be strong motivation!
- Financial investment to move to something new, it might be mitigated by (EU) funding
- Human investment to move to something new, it might be mitigated by capacity building activities.

4. **Are the suppliers of FMS ready to share their data? And willing to federate their data platform with other suppliers?**

   Every FMIS is sharing data at least between farmers and FMIS services providers that use to be managed by farmers associations, cooperatives, or ICT companies. Data sharing with public platforms happens sometimes through FMIS, sometimes through ad-hoc applications, sometimes directly with public web pages and even many times in paper shared only under a physical public inspection. Digitalization and Federation might bring enormous benefits including the easy mechanism for data sharing and its monetization for additional usages.

   It is important to mention that FMIS data is mainly data from farms-farmers and should be under farmer ownership (instead of FMIS or ICT infrastructure providers only).

   Federation or a least, loosely coupled distributed systems, might bring many advantages for all if it is considered properly the role of each actor, GDPR and data ownership.

5. **Which existing platforms supported by ecosystems (at regional or national level) are already sharing data? In which sub-sectors are they sharing the data?**

   There are lots of national, regional, or thematic SDI (Spatial Data Infrastructures) whose main aim is spatial data sharing. This is also the main aim of INSPIRE at European level. Regarding IACS and data for new CAP, NIVA is working in a Reference Architecture that might bring a lot of interoperable mechanism that might be addressed by national regional paying agencies in Europe.
   There are also Public Linked Open Data Infrastructures that might be reinforced with private open datasets publishing.

6. **Which public data sets would be of particular relevance for increasing the effectiveness of the Common European Agriculture Data Space?**

   The key datasets for the effectiveness in the agro-environmental sector might be all Copernicus Data, IACS Datasets and its links with FMIS, with parcel granularity where it is needed an EU harmonized farm registry. Finally, environmental and biodiversity datasets facilitating also other business models dealing with tourism, rural development, energy, transport and logistics, health, entrepreneurship, etc.

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7. **Are their experiences with taking public data sets as input to FMS, farmers` applications or agricultural**

   IACS data is often or at least sometimes used by FMIS. NIVA is working on a survey that will bring soon more information addressing this question.
   By the way it can be mentioned at least three examples,

   - Copernicus Data. Artificial Intelligence techniques process of images for decision support for precision farming, water management, etc,
   - LPIS[6] & INSPIRE interfaces for Data sharing.
   - Biodiversity and Environmental Datasets for quality checks and traceability.
   - …

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[6] Land Parcel Identification Systems (LPIS)

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