



# **The VIRTUAL SPACE of the ICT-AGRI-FOOD Knowledge Incubator Concept Note**

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This document presents the concept of the Virtual Space online tool emerged from a co-design process involving researchers and funders of the ERA-NET ICT-AGRI-FOOD community.

## 1. What is the ICT-AGRI-FOOD Knowledge Incubator Virtual Space?

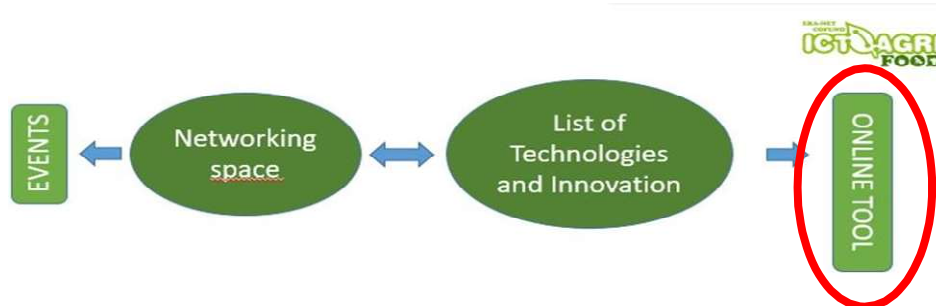
The ICT-AGRI-FOOD Knowledge Incubator is a **networking space** based on an online tool (Virtual Space) to facilitate the interaction between **public and private research in agriculture** and **private sector** developing ICT technologies for the agri-food sector. The Virtual Space, developed following a co-design process, is a **repository and exhibition of digital innovation for the agri-food sector**, which offers the possibility to **share comments** and to **interact by sharing knowledge and expertise** on digital innovation for the agri-food sector. Users of the Virtual Space are invited to share innovations, describing **how digital technologies can contribute to solve a specific problem in the agri-food-system**.

The ICT-AGRI-FOOD Knowledge Incubator Virtual Space	
<b>Aims</b>	To make the <b>agricultural and food systems research</b> resulting from <b>public fundings</b> available to <b>the ICT companies</b> that want to develop digital innovation for the agri-food sector. To facilitate the <b>interaction among researchers</b> from different domains (ICT, AGRI and FOOD) and the corresponding <b>private sectors</b> .
<b>Approach</b>	Multi-actor approach, involving stakeholders with different background in order to facilitate further innovation development
<b>Organization of Knowledge</b>	The Virtual Space online tool has been organized as a <b>repository and exhibition of innovations</b> , presented on the base of <b>concrete problems</b> of the agri-food sector they are contributing to solve. The Innovations are organized by <b>domains and categories</b> . For each domain a detailed list of categories has been defined in order to facilitate the search of innovation by the users of the Virtual Space.
<b>Functions</b>	In each innovation description page, it is possible to <b>comment</b> on the innovation, to share it using the <b>social media</b> and to connect with the <b>reference person</b> of the specific innovation in order to ask further questions and clarification and share ideas.
<b>New Notification System</b>	To promote interaction and communication among various stakeholders, a notification system has been activated. This system ensures that users receive notifications for each addition of innovations, comments, or modifications. These notifications invite users to discuss and engage with the topic, fostering a more interactive and collaborative environment.

The Virtual Space supports the application of a **multi-actor approach** in the development of RDI on digitalization of the agri-food sector as it represents a **pivotal point of knowledge** connecting researchers from the agriculture, food and ICT research areas together with the private sector and other stakeholders, facilitating the creation of new and interdisciplinary partnerships for innovation development.

## 2. Rationale: Why a Virtual Space for the ICT, AGRI and FOOD community is required

With the digital decade policy programme, Europe aims to empower businesses and people in a human-centred, sustainable and more prosperous digital future<sup>1</sup>.



In this framework, digitalization in the agri-food sector is receiving increasing attention within European Policies on Agriculture and Rural Development Programmes (RDPs), as stated in several strategic documents<sup>2</sup>. The promotion of digital economy in rural areas and digital transformation in agricultural **enterprises** is one of the transversal objectives of the CAP post 2020, and it should be integrated in the Agricultural and Knowledge Innovation System (AKIS).

### Challenges and needs - Creating a culture of knowledge and technology sharing among researchers and practitioners from different sectors remains a challenge.

The research community needed some time to adopt the multi-actor perspective promoted by the EIP-AGRI, the RDP and the Horizon2020 over the past years as a tool to develop an **interactive innovation model**. Today, there is a need today to **create spaces that enables interaction between the agricultural sector, the food industry and the ICT community**. Different tools can be used to further encourage the interaction among a heterogeneous set of actors to develop innovations relevant for the society as a whole. The effort of the ERA-NET ICT-AGRI-FOOD to start co designing an online tool involving funders and researchers can be a good starting point in order start a discussion in this direction.

<sup>1</sup> [https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/europes-digital-decade-digital-targets-2030\\_en](https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/europes-digital-decade-digital-targets-2030_en)

<sup>2</sup> Declaration of cooperation on “A smart and sustainable digital future for European Agriculture and rural areas”, 2019; EIP-AGRI seminars: “New Skills for digital farming” – Aranjuez, 5-6 Feb 2020; “multi-level strategies for digitizing agriculture and rural areas” – Anversa, 12-13 December 2018.

The use of data and digital technologies in the agri-food system is a strongly **transdisciplinary field of research**, where expertise in Agronomy, Economics, Social Sciences and ICT Engineering meet each other. **Commercial products** can be developed on the basis of the research results, with the support of companies able to develop ready to use solutions to be put on the market.

The ERA-NET ICT-AGRI-FOOD started this process working on the planning of a Virtual Space to facilitate the interaction of different actors of the Knowledge Incubator with the following aims: i) to valorize the existing experiences that have linked the Agricultural Research community with the ICT and Food Industry, and ii) to stimulate a continuous mutual learning process based on the interaction among different actors of innovation in order to facilitate the match of technology demand and offer.

The ICT-AGRI-FOOD Knowledge Incubator Virtual Space can have multiple functions and outcomes for different stakeholders, some of them are listed below:

- **Farmers, food sector, advisors and civil society working in rural areas** will have the possibility to share their needs with the ICT sector through an interactive innovation model.
- **Researchers and Research Institutions** will have the opportunity to gain visibility for their research projects and outputs, interact with the industry from the ICT, the Agricultural and the Food sector, understand the research needs and the main trends of the mentioned sectors, increase the number of citations and learn about funding opportunities.
- **Startup and SMEs** interested in developing or using ICT tools in the AGRI-FOOD sector will have the opportunity for networking, building partnerships for products and project proposals development, market analysis, understanding of innovation needs of the agri-food sector and the potential demand for ICT technologies, matching technology demand and offer.
- **Funding bodies and policy makers** will have the opportunity to understand the key topics that need to be funded, to encourage the valorization of the research developed with public funds and have an higher quality of future funded projects.

The ICT-AGRI-FOOD Knowledge Incubator Virtual Space contributes to the process of **building the social infrastructure** to facilitate the integration of ICT technologies within the agri-food sector, through a global network of stakeholders, businesses and funding communities coming from Agricultural Research and the ICT and Food Industry. It will be an opportunity to share knowledge, technologies, guidance, data, and tools to ensure better cooperation and use of resources in the area of digital agricultural and food research, development and innovation.

The ICT-AGRI-FOOD Knowledge Incubator will offer a **portfolio of innovations and technologies** on the ICT, Agri and Food Systems domains. This will allow Startups, SMEs, researchers and funders to interact both individually (e.g., through messaging services) and in groups (e.g., through the promotion of webinars and online meetings).

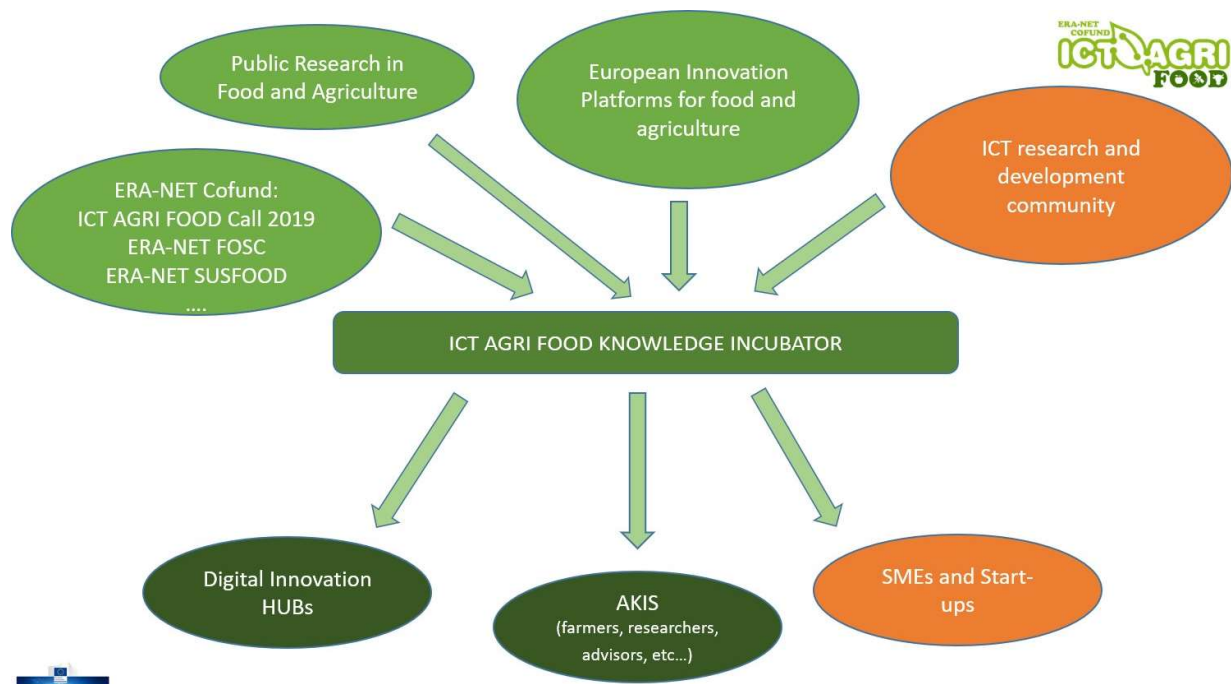


Fig. 1: The Knowledge Incubator as a networking space involving different European actors.

### 3. Moving from projects to innovations

Building a **research community that share a common vision** and work to improve the sustainability and the competitiveness of the agri-food sector through the use of a digital tool requires **sharing our research output**. Often knowledge platforms developed by research networks are organized by projects and use acronyms which are not familiar for the private sector that should interact with the research community.

The main interest for the private sector is not only the amount of resources invested in each projects and the name of the partners of each funded project, but the **content and the result of the project activities**.

For this reason, the ICT-AGRI-FOOD research community agreed on the idea of **sharing knowledge through the description of innovations developed**. For each innovation, the inclusion of the TRL allows the private sector and other researchers to understand where the project worked and what phase of development the single innovation have reached thanks to the public funded activities.

In the discussion with the ICT-AGRI-FOOD research community it emerged the point that often research is too theoretical and still there is a **need of further steps to develop the commercial product that allow the research results to reach the end users**. This is even more relevant if we talk about digital tools for the agriculture and food sectors. The AKIS approach should necessarily involve in this case also the **ICT companies** able to develop commercial tools co- designed with end users.

The development of digital technologies should be based on the main aim of **solving problems of the agri-food sector** in order to guarantee the uptake by end users. For this reason, the description of innovation within the online tool starts from the description of the

problem the innovation is contributing to solve.

Public funds for innovation can be used to carry on this **follow up phase of agricultural and food research projects**.

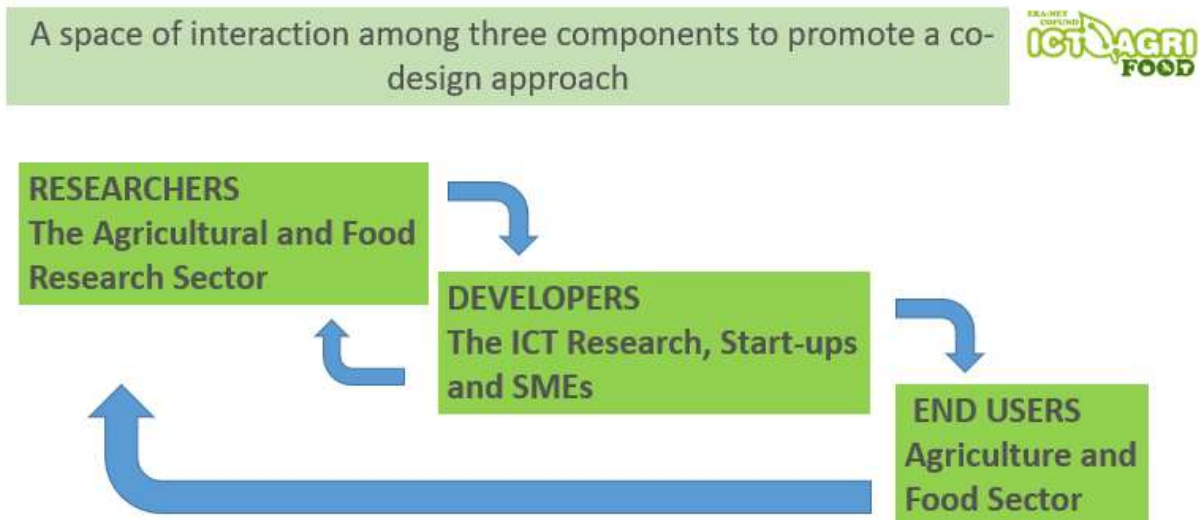


Fig. 2: The Knowledge Incubator as a network of stakeholders, business and funding communities from different domains.

#### 4. The Co-design process

As the main goal of the Virtual Space online tool developed by the ICT-AGRI-FOOD Knowledge Incubator is the **creation of an interaction environment to encourage the development and valorization of technologies using the abilities and knowledge of concerned stakeholders**, a co-design approach was used also for the design of the Virtual Space online tool to make it suited/appropriate for the purpose.

The planning of the online tool was a continuous interactive process of mutual learning between the **team responsible to develop the KI online tool** (MASAF, BLE, ILVO) and the **broader ICT-AGRI-FOOD community** involving funders and individual researchers involved in funded projects.

The first concept of the Virtual Space online tool was presented in August 2020 with the aim of collecting inputs from the ERA-NET coordination group. An improved version of the tool was then presented to the ICT-AGRI-FOOD Governing Board meeting in November 2020 and further inputs were collected with an online survey from individual funders. Again, the output of the survey enriched the proposal and the design of the online tool that was presented in the ICT-AGRI-FOOD “Fast track to innovation” workshop in December 2020, where researchers from the funded projects could contribute and comment on the plan proposed. Finally, in January 2021 the online tool was presented at the Workshop for Gap Analysis organized online by the ERA-NET FOSC.

The collection of all inputs allow to **define the rationale and the approach of the online tool** as a **repository of innovations** instead of projects as in the previous Meta Knowledge Base (former website of ICT-AGRI 2 ERA-NET).

Another aspect that emerged from the interaction with different actors was the need for the online tool to allow startups, SMEs, researchers and founders **to interact with each other**

both individually, e.g. through messaging services, and in groups, e.g. through the promotion of webinars and online meetings.

In March 2021 the **Kick-off meeting of the Knowledge Incubator** took place online and the final structure of the online tool was presented to researchers and funders of the ERA-NET ICT-AGRI-FOOD for validation.

During the Kickoff meeting, both researchers and funders have been involved in the definition of categories for each of the three domains, i.e., ICT, AGRI and FOOD, in order to facilitate the searching function for individual innovations.

In 2021/2022, ILVO worked on **building the IT structure of the Knowledge Incubator online tool** as planned and the specific form to upload individual innovation was developed.

**The form** to describe and upload innovation is focusing on answering the question on **how the innovation is contributing to solve a specific problem of the agri-food sector**. The structure follows the one of the Practice Abstract used by the EIP AGRI for presenting innovations in agriculture more in general.

The form was **tested with 5 research groups** between February and April 2022 and the final version of the form, together with the **instruction on how to upload innovations** was presented to the ICT AGRI-FOOD research community in May 2022.

During the summer 2022 the researchers **uploaded the first 25 innovations** and in the Mid Term seminar of the Co-funded call 2019, in September 2022, the researchers discussed in a specific workshop about the difficulties in identify individual innovations within complex research projects, in uploading innovations before the end of the project as the TRL is too low and in finding the time to work on the data entry for the online tool. However, they confirmed the interest for the online tool and the potential for facilitating the interaction with other stakeholders and the possibility to publish it as a database.

A **difficulty** for the researchers in describing their projects in term of **innovations and problem solving** emerged and there is a need to train them in improving these skills or identify other actors that should be responsible for the **outreach of publicly funded research projects**.

The challenge now is to involve a global network of researchers, stakeholders, business and funding communities interacting with/connecting to each other with the aim of sharing knowledge, guidance, data, and tools to ensure better cooperation and use of resources in the area of digital agri-food research, development and innovation.

The Knowledge Incubator online tool will be now presented to **different Agricultural Research funding programmes** in order to involve them in the process of sharing knowledge related to the development of digital tools for the Agri-food sector. A **shared reflection on the possibility to populate such a tool** and identify possible innovations to be uploaded on the tool will be a discussion that will start in the framework of the ERA NET ICT-AGRI-FOOD and will possibly be continued in the European Partnership Agriculture of Data.

## 5. The validation process for upload of innovation in the Virtual Space

The Virtual Space went live in 2022 and, as already described, there is **an interesting process that has been carried on in order to design it and discuss with the founders and research community** involved in the ERA NET ICT-AGRI-FOOD. In order to open the

repository and ask to other actors to upload their innovation a specific **guideline** have been developed in order to establish a **validation process** that will assure the **quality of the content of the online tool**.

In case of innovation derived from projects funded by the H2020 and HE programmes there will be no need to carry on the validation process as they have been already selected for funding and this assure the quality of the applicant and the research outcomes.

In case of innovation derived from other public funds, not directly related to research and innovation sector of EU, there will be a need for validation and a group of three expert will be asked to look at the uploaded form and compile the validation form.

**Some key questions** have been defined for the **validation form** and they could be used also for a **cross/cutting analysis of the innovation**, once the database will be populated with a significant number of relevant innovations for the Agri-food Sector. The complete set of questions is available on the guidelines to validate innovations to be added in the online tool document.

Community of Practices, digital innovation hubs, local administration could be involved in the process of uploading innovations in the online tool with the aim of facilitating the interaction among different communities and identify bottom-up research questions for the public Research and Innovation sector.

The ICT-AGRI-FOOD Knowledge Incubator should be different from Digital Hubs as its goal is not (only) to reach end users and facilitate uptake of innovation developed, but to improve interaction and knowledge sharing among researchers from different communities (ICT, Agriculture, Food).