



# CAPSELLA

COLLECTIVE AWARENESS PLATFORMS FOR ENVIRONMENTALLY-SOUND LAND  
MANAGEMENT BASED ON DATA TECHNOLOGIES AND AGROBIODIVERSITY

## Deliverable D2.4

### Final workshop evaluation report

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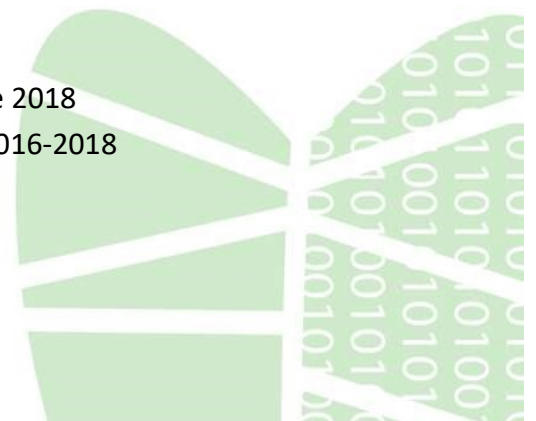
ICT-10-2015 Collective Awareness Platforms for Sustainability and Social Innovation

**CAPSELLA** (Collective Awareness PlatformS for Environmentally-sound Land management based on data technologies and Agrobiodiversity)

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## Version History

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## Executive Summary

This document sets out the rationale for the final CAPSELLA conference, ‘Harvesting Innovation: bridging digital innovation to sustainable agriculture and food systems’ in Milano during the Food Week, the logistics and its goals and main outcome.

The underlying rationale behind this final event was to steer discussions among policy and user communities towards adopting new tools and open data frameworks for sustainable agriculture, by demonstrating the applicability of the CAPSELLA pilot digital services. The pilot applications and their underlying data infrastructure were presented and discussed, always in the context of the organic agriculture and agroecology, and how these can be supported by digital tools and to lead to better and more sustainable social-economic models.

The event aimed to present the final findings of CAPSELLA to representatives of different user communities. It aimed to set out the conclusions and lessons learned from completing the project tasks, and to present some recommendations drawn by the project. An equally important aim was to consolidate networking between key user communities to continue exchanging best practice and experience of using and testing the different CAPSELLA pilots and elicit feedback from them on the pilots to improve final applications.

During the event, the official launch of the Italian Observatory for Agroecology (OPERA) took place. OPERA was a joint delivery partner of the event, sharing with CAPSELLA the same overall approach in relation to agro-biodiversity. Additionally, the workshop was an opportunity to highlight the significant investments and policy vision of the Milan Municipality in the food domain (Comune di Milano Food Council) towards the quality of food and living conditions of its citizens. CAPSELLA is proud to be in close collaboration with the Milan Municipality, developing an innovative data-driven solution for the Milan public elementary schools.

“Harvesting Innovation” was co-organised with OPERA with the patronage of Milan Municipality – Food Council and the involvement of the Association of Agronomists of Milano, Monza, Lodi and Pavia. The involvement of these key actors ensured an active participation of 95 qualified participants, (please refer to the list in Annex 3) with a well-balanced presence from the policy and decision makers, farmers, ICT and open data experts, food analysts and food experts, researchers, representatives from NGO and citizens movement such as **Legambiente**, **URGENCI** and **Arc2020**, whose representatives enriched the panel discussions and round tables.

In this light and taking into account the procedure of involving new communities described in the Community Engagement report, this event generated interest and traffic towards the CAPSELLA pilots and demonstrators.

The event not only demonstrated the approach and results of CAPSELLA, it also sparked urgent debates on the theme of digital innovation for sustainable agriculture. The stakeholders underlined the importance of co-creating with farmers the digital, open data based solutions to their specific

problems. Only in this way we will be able to nurture and economically sustain technology enabled (but nature-based) solutions to the challenges of sustainable food and farm systems, and deal with sustainable development goals more effectively.

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## 1. Scope of the event

Organised at the end of the project lifespan, the event was meant not only to present the CAPSELLA pilots and demonstrators but also to further discuss the key aspects of agroecology, agrobiodiversity and open data, the international and national policy orientation towards the respect and protection of biodiversity and what are the necessary future steps to valorize agroecology and the understanding of its benefits.

In this light, the organizers gave as much as possible space to open debates among international researchers, experts in soil health, representatives from NGOs, farmers, experts in open data and policy makers. They shared thoughts and experiences and valuable suggestions on how to empower the CAPSELLA's results and achievements. This format encouraged the generation of feedback and new ideas to build on the conclusions of the project.

## 2. Workshop set up and preparation

The CAPSELLA conference, called 'Harvesting Innovation' was held at the Acquario Civico in Milan during the **Food Week** on May the 8th 2018, with a field trip the day before on the 7<sup>th</sup> May, to study agroecology and digital applications in practice. The programme is presented in Annex 1.

### Field Trip: May 7<sup>th</sup>



Figure 2-1. Pictures from the Cascina Forestina farm visit

Participants<sup>1</sup> were on the field trip to CASCINA FORESTINA, an organic, agroecological farm. The aim of the visit was to witness an agroecological farm in action, hear about its operating model, challenges and tools used, and especially, understand the usefulness of digital innovation for supporting its business. During this visit the CAPSELLA team ran the spade test showing how to use the SOILapp tool. Discussions around the in-field test also highlighted the importance of the actual local knowledge of the farmers carrying out the test and how the tool could be useful for maintaining the network between farmers and exchanging practices, beyond the uploading of soil health observations.

The main part of the ‘Harvesting Innovation’ event took place in Milan after the field trip of the first day and was structured in two halves. The first half included a high-level panel setting out policy drivers and objectives for digital & open data innovation for agroecology.

This was followed by an interactive ‘fishbowl’ debate on the digital needs and business model requirements for adopting open data to support agroecological outcomes. Fishbowl panel brought together experts from the different CAPSELLA’s domains, while the structure, content and results of the above discussion groups are presented in detail in Chapter 3. Key speakers had three minutes to set out their opinions and participants could then take the floor to build on or react to these comments. After lunch participants were engaged in a World Cafés debate, changing groups as they discussed key questions so as to cross fertilise ideas and enrich recommendations. After this the round tables presented in detail the CAPSELLA pilots and sought feedback and ideas on their applicability and discussed implications for the overall sustainable agricultural paradigm.

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<sup>1</sup> Farm study trip participants registered online via the CAPSELLA event webpage.



### 3. Overview of organisation and marketing



**Figure 3-1. Picture of the participants during the fishbowl debate**

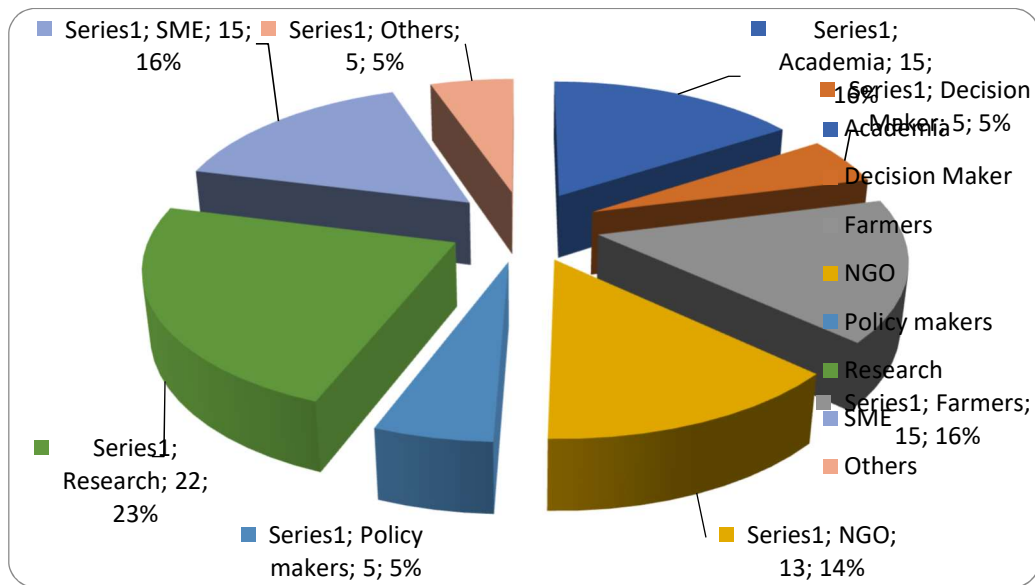
Information and dissemination of the event started in December 2017 by circulating the first announcement about the conference in the CAPSELLA December 2017 Newsletter. Most of the marketing was done via partner networks and key on-line platforms and websites such as [TP Organics](#), IFOAM and [AIMS](#) (a portal with information about and access to standards, technology and good practices. It is also a forum for connecting information management workers worldwide and for discussing open access and open data). In order to promote the project and its final conference, we published key articles in agricultural national on-line journals such as [AGRONOTIZIE](#) in Italy, while the final conference was published in the [AGRONOTIZIE](#) special edition. We organised Radio interviews to publicise the event. These live interviews were also filmed to share on social channels. Similarly, we developed a film specifically to raise awareness of the key issues of open data and digital innovations for agrobiodiversity, inviting stakeholder communities to join the event. This promotion film was the subject of a campaign led on project social channels too.

An extensive campaign was also carried out at several meetings at University of Milano and during the kick off/launch event of the Italian Observatory for Agroecology.

The acceptance of the [Associations of Agronomists of Milano, Lodi, Monza and Pavia Municipalities](#), which credited their members who actively attended our event, was another channel to spread the word. Overall, we marketed the event to specific communities to obtain a qualified audience with whom the project messages would gain traction and from whom we could gain valuable feedback. The content used to market the event via multiplier partners was curated in a way to not only attract



The distribution of the workshop participants as per their category is illustrated in Figure 3-3:



**Figure 3-3: Participants profiles**

#### 4. Keynote Session

The opening session set out the state of the art and the key issues today in agroecology, digital and open data innovation, and policies to foster sustainable agriculture and food systems:

##### Policy

- Milan Food Policy – Dr. Andrea Magarini (Milan Food Policy coordinator, Mayor’s Office Comune di Milano )
- Agrobiodiversity and agroecology: state of the art and opportunities in EU policy – Dott.ssa Maria Luisa Paracchini (Joint Research Center of European Commission)

##### Research

- A new paradigm for sustainable farming: the role of agro-biodiversity management – Prof. Stefano Bocchi (Italian Agroecology Observatory – OPERA)
- Fondazione Cariplo for Food and Agriculture – Sonia Cantoni (Consiglio amministrazione con delega all’ambiente)

##### Innovation

- Co-creating innovation: the CAPSELLA approach - Prof. Paolo Bàrberi (Scuola Superiore Sant’Anna)
- Major outcomes of the CAPSELLA project - Prof. Yannis Ioannidis (Athena Research Centre,)

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Musound provided two official translators (by native-speaking trained professionals), both simultaneous and consecutive from English into Italian.

This was a key session, which started by setting out the imperative of protecting biodiversity, reducing soil degradation and adopting a more sustainable use of pesticides and fertilisers. These have been a key element of policy making for several decades at the European level. With the urgent need to contribute to meeting the sustainable development goals and the EU inclusive growth agenda, sustainable agriculture is essential. Within this, it was made clear that nature-based solutions are of paramount importance. Nature can help provide viable solutions that use and deploy the properties of natural ecosystems and the services that they provide in a smart, 'engineered' way. Working with nature, rather than against it, can further pave the way towards a more resource efficient, competitive and greener economy. EIP-AGRI (European Innovation Partnership) was designed as a key initiative for co-creation and sharing knowledge and turning salient features of ecological approaches into innovation actions.

A call was made not to assume profitability and healthy ecosystems as mutually exclusive: addressing climate change and environmental degradation is key to achieve resilience and sustainable growth.

Digital innovation and a data infrastructure can help in developing a common understanding of agroecology, and in driving an improved knowledge of the state of agroecology in EU farming. It was made clear that there is an urgent need to acquire information and data to assess farm performance and develop better policy. Applying digital innovation to farming is needed to foster transition to agroecology: but the innovation must be developed with the user, for the user, though guided by an environmental imperative.

Milan food policy was seen as an example of how to take a complex systems approach to drive a more sustainable food outcome. The policies analyse the key big issues inherently tied up with Food systems: Governance, Education, Waste, Access to food, Well-being, Environment, Agroecosystem, Food Production, Finance and Trade. This goes to show how important it can be to bring food management into a sustainable paradigm in order to align the sustainability of so many other economic processes and sectors. This needs innovation. However, Innovation does not 'just happen': To have long-term sustainability and resilience in food systems we need ...diversity.

Diversity is essential in nature-based solutions and agroecology. Moreover, when it comes to realising the full potential for open data and digital innovations, it is important to engage with a diversity of problem owners, not simply focus on the data or just the policy goal. This is why CAPSELLA started with real world problems and the communities owning those problems: organic and conventional farmers, cooperatives and food processors, agronomists & breeders, municipalities & civil society, restaurants & customers, scientists and ICT developers. CAPSELLA started by analysing the overall system and rich picture of issues within its scope, kept identifying priority challenges for user communities, and then co-created with them solutions in the form of prototype pilots (presented initially in this session and in more depth in later sessions).

Making an open data infrastructure available for agrobiodiversity communities to develop applications on, as CAPSELLA has done, is like nurturing a fertile field on which a diversity of crops can grow. Data generated by and used in applications for users helps reinforce the innovation potential and impact for all - just as a diversity of crops reinforce each other's resilience.

Open data and open innovation therefore helps in the transition towards an agroecological paradigm, with cooperation between a diversity of stakeholders.

In this, an open data mindset was seen to be key both to users and to policy makers: it drives innovation, sustainability, economic growth, opportunity.

## 5. Fishbowl debate

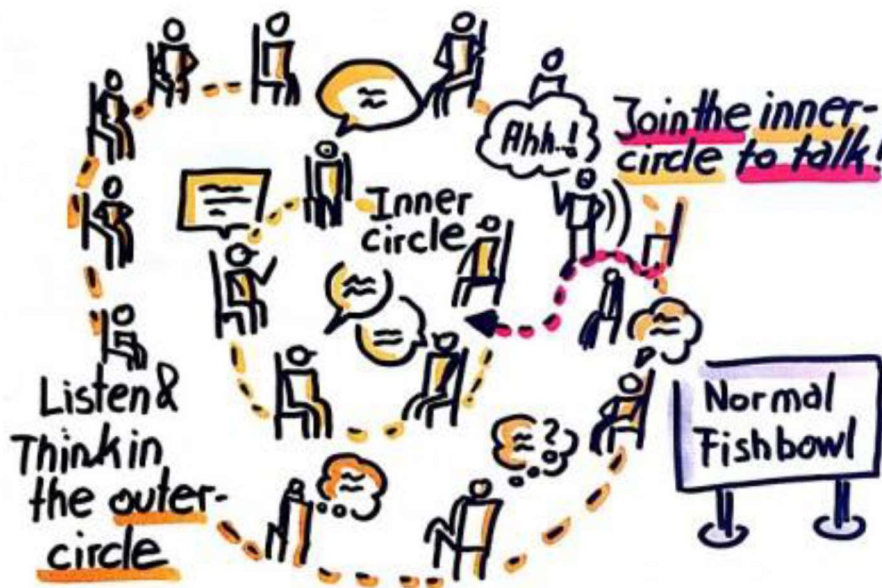


Figure 5-1. Fishbowl debate structure

The fishbowl panel, moderated by Vassilis Gkisakis from Agroecology Europe, was structured in two panels that were kicked off with the following questions to break the ice:

### **PANEL 1) *How can the digital revolution enable innovation in Agroecology?***

Participants were invited to consider the key features that distinguish sustainable farming from conventional agriculture and were invited to present in three minutes the specific challenges (at any level in the food chains or cross-cutting issues) of sustainable farming in which modern technologies can support this type of agriculture.

Eg. Agroecological farming implies the use of germplasm adapted and selected locally. ICT tools that ease the collection and analysis of data at farm level could be an advantage for decentralized plant breeding.

**PANEL 2) *What policies are needed for data to drive innovation in sustainable agriculture and food systems?***

Participants were encouraged to tackle the hot topic of the application of open data in agriculture and invited to present in three minutes good examples of open data use in agriculture and/or cases in which keeping data private can be positive for stakeholders involved in sustainable agriculture.

They were encouraged to focus on the type of data that are needed in agriculture: which type of use and management do you think that is more appropriate for this domain? (Eg. The access to open soil maps can help in the management of soil fertility.)

All the speakers were provided the questions beforehand and introduced to each other online prior to the event. The panel was started by the moderator by asking the above listed questions, speakers replied from their point of view as a farmer, ICT specialist or policy-maker.

Each speaker had 3 minutes to answer it (just verbally). Then, other participants from the audience with something to add joined the panel's '*empty chair*' to have their say. In this period any panelists had the chance to react to each others' ideas too or make additional comments. Each panel lasted 45 minutes.

The first debate revolved on how "*digital revolution*" can enable innovation in agroecology. Visions from farming world, agroecology research, digital innovation domain and public policy met with participants' opinions initiating an active debate. From the discussion it emerged that the current digital hype can truly become a revolution supporting sustainable farming only if the technological solutions proposed address concrete challenges of the transition towards agroecological farming systems. Such solutions must be practical and easy to use by the agri-food chain actors, in order to have an impact of the agroecosystems management strategy.

Agroecological farming promotes a system redesign and a farming paradigm change from the current mainstream farming system. Digital revolution should as well be able to adapt to the new paradigm of sustainable farming for being useful in this process. Digital hype should also be directed towards bridging the gap between rural and urban areas. As much of knowledge sharing and creation is needed to achieve the sustainable goals in agri-food production, technology should also be inspirational and educational for the actors involved.

Where some questioned the value of technological innovation because it was often seen as something 'done just for the sake of it', other participants however recognised that technology can drive real innovation and real impact. Overall it was agreed that the digital revolution implies opportunities and risks for the agri-food domain. From a technical perspective, which reflects its

effects on the practical uptake of digital solutions, much work should focus on **overcoming the current fragmentation of technologies and data**. The openness policies (open hardware, open access and open source) can be used to support the application of agroecological practices to food chains as long as policies are put in place to enhance the opportunities and minimize the risks, especially for small-holder farmers. Collective research, implying the involvement of all stakeholders in the co-innovation process, will play a key role in the real impact of digital technologies in agriculture. **Digital innovation with a societal focus** is therefore central in maximizing the potential of innovation by the application of digital technologies: it is social in both its means and its ends and enabled by technology.

The second debate examined in depth the role of data and data infrastructure policies in enabling the best use of openness in data, software and hardware. The debate highlighted the importance of using as core framework not data or information but **knowledge**, which implies the human intellectual reflection. Basing the definition of innovation in terms of knowledge circulation, the involvement of society becomes crucial, and thus social innovation, as well as the process of building communities and community relationships within society.

The Digital revolution and open data policies should manage to overcome the prescriptive vision of decision support systems that propose decisions to farmers without giving the knowledge to take the actual decision. That deprives farmers of a sense of agency. Protecting local knowledge from speculation and enabling access to open knowledge networks, data policies should enable agroecological farming from a positive niche example to a new mainstream paradigm and empower farmers and larger communities with a new sense of agency. Technology can support this pathway if data policies include a sustainability mind-set, together with a long-term vision. The focus on co-creation methodology is seen as a way to enable rural systems to benefit from digital technologies and become more empowered. Trust on data infrastructure and ease of access to data are key points in enabling community's involvement in open innovation. Policies should consider the diverse needs for data, data infrastructures and policies for different communities and different actors within communities. Participants in the debate also argued that it was essential to enable social sharing of open data policies. Not only should the policies promote co-design of digital innovation but also the co-design of the policies themselves.

Overall open data is seen as a big opportunity for sustainable agriculture if it respects community's links and rights. The key is adopting an open data mind-set.

## 6. World Café discussion

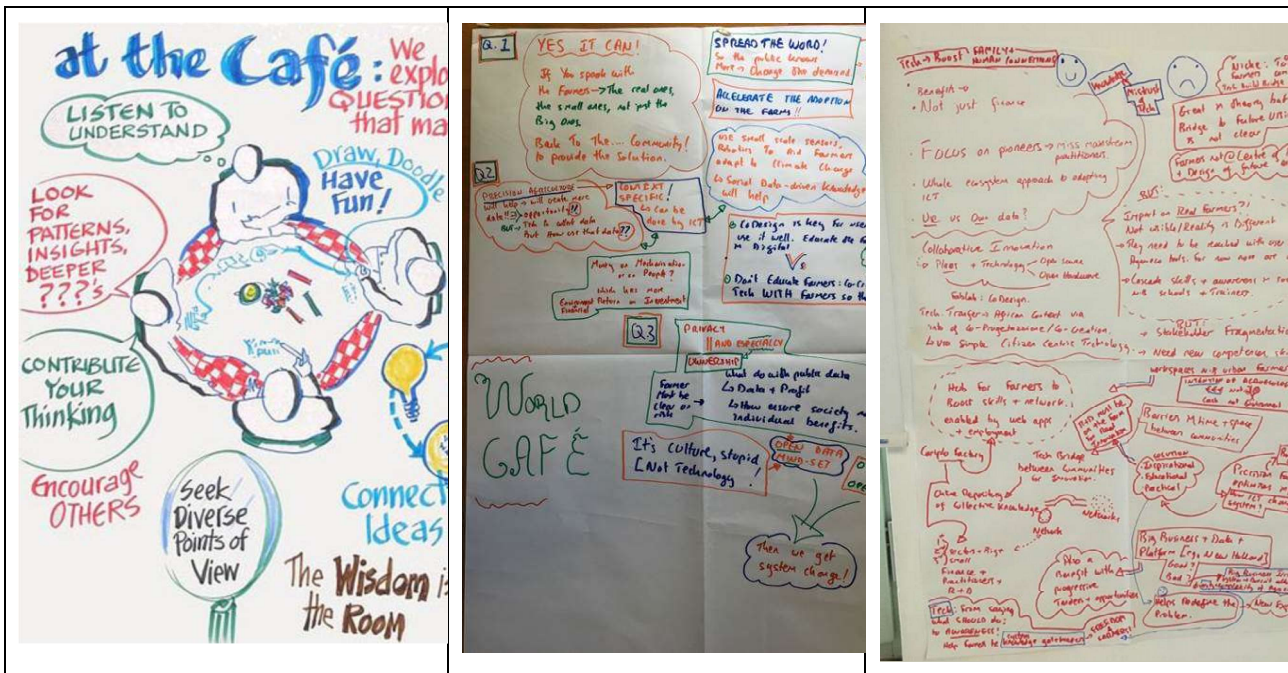


Figure 6-1. World Café discussion summary

Whilst the **Fishbowl** panel was mainly revolving around the open data and ICT aspects in both conventional and sustainable agriculture, the World Café, coordinated and moderated by the CAPSELLA partners, tackled the following open questions that generated an inspiring debate of all participants. Based on the evaluation on-line survey that was sent to all participants with a “thank you” message, this open approach was very much appreciated by attendees who were given the opportunity to express their point of view and share experience with each other.

The 1<sup>st</sup> question was related to the fact that Agroecology encompasses knowledge, local practices and socio-economical aspects. Can digitization facilitate the interaction between these aspects?

The 2<sup>nd</sup> question was a quite challenging one that brought together precision and sustainable agriculture to understand what they have in common and if and how Smart/Precision agriculture tools support agroecological innovation and agrobiodiversity management.

The 3<sup>rd</sup> question took into consideration the food aspects as the last step of the production chain. It focused on understanding what are the main opportunities and threats of open-data policy applied to food chain.

Main finding and outcomes from the World Café show how in reality agro-ecological/organic farms are not reached with tools that help their real-life needs. This is because Farmers are often not at the centre of the debate, nor at the centre of design enough: they should be made more central.



Farmers cannot operate in isolation from the system around them, so it is not just the farmers that need the skills or the digital tools: skills and awareness must be cascaded into schools, to trainers, and amongst consumers too.

Big business suppliers of agri-tech do not allow for diversity or complexity of agroecology. R&D must be *on the farm* for real innovation to happen, especially in the more complex diversity of sustainable farms. A one size innovation that happens in a distant lab cannot fit all, let alone the smaller agroecology farms. When these companies do research they use models which are based on large scale farms. Having an open data infrastructure will help build models bottom up based on real users and will allow research models and their outputs to be used and developed by a much more diverse set of stakeholders (notably to be used by smaller scale agroecological farmers). The open data infrastructure will create the diversity and quantity of datasets needed to fuel innovation for agroecological farming in the future, a process more complex than monocrop large scale cultivation.

This requires an open data mind-set: open to working with a broad range of stakeholders, open to co-creating innovations with farmers, open to farmers and tech communities co-creating priorities for research or policy. The openness extends to being open for scrutiny: allowing results to be tested and better methods proposed for developing new tools or practices.

We cannot see sustainable farmers as solely motivated by environmental concerns. They are driven by making income: they are businesses after all. The technology must support their business aims by sustaining the agroecological approach. Similarly, open data and digital innovation must help larger scale businesses to adopt agroecological practices without damage to margins and should provide evidence of the urgency for new business models which can survive the tribulations of the market and fast changing demand.

At the same time, we must not lose sight of the overall system: farmers have to be enabled by technology and open data to become the gatekeepers of local knowledge. Technology must help them to build bridges between local user communities: between farmers, and between farmers and consumers and policy. Consumers are in fact key stakeholders: if the public knows more, about the biodiversity imperative and the health benefits, if you can change the nature of demand. Part of the solution lies in progressive tenders from the public sector, and private public partnerships.

Precision agriculture (in big and small farms) will create more data: this is an opportunity. But how can we collect it and use it is not always obvious. This is why openness is key.

Creating a broader and more diverse community that can provide both data and analytics will be extremely valuable for public investment and policy decision-making: open data when applied to sustainable farming then becomes a valuable public good.

## 7. Round Table #1 – Field & Seeds

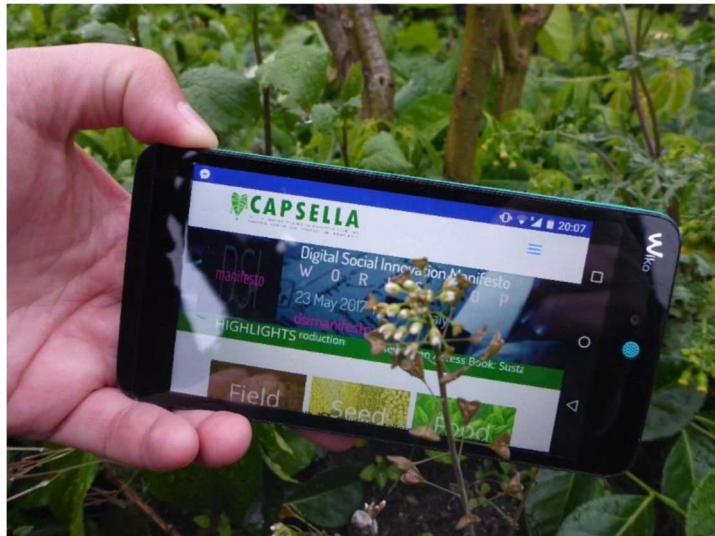


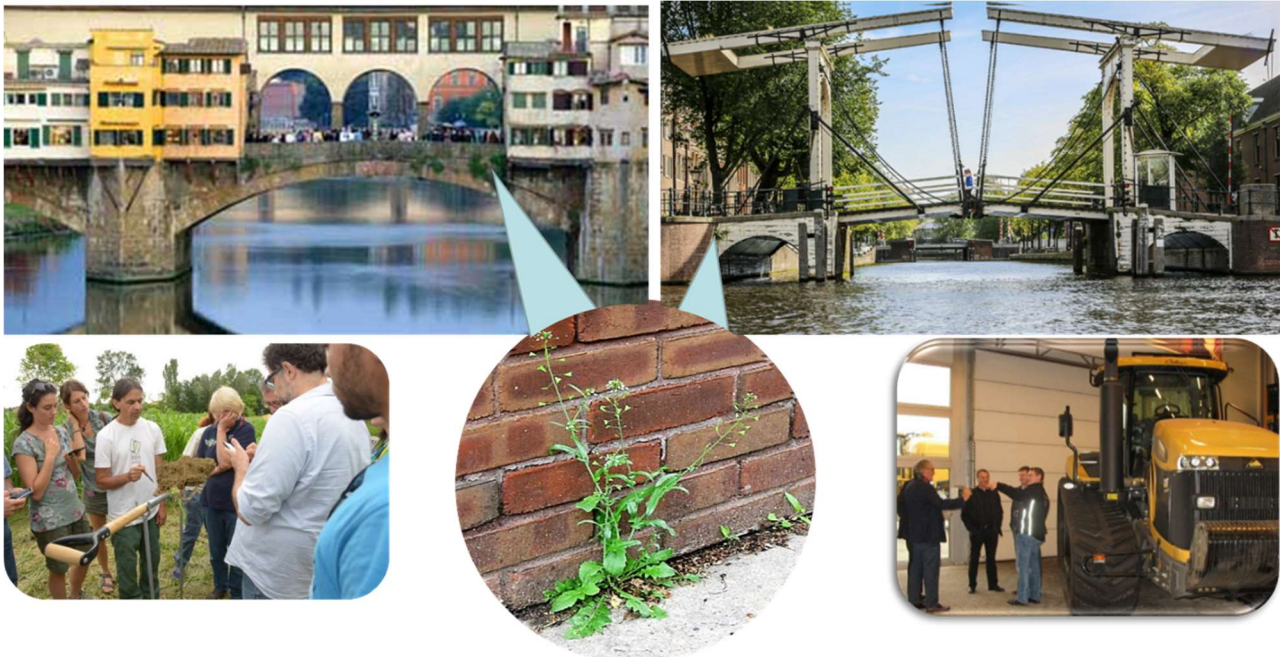
Figure 7-1. CAPSELLA website together with a *Capsella bursa-pastoris* plant

The Round Table dedicated to Field and Seed scenarios of CAPSELLA focused on the aspects of how digital tools support agrobiodiversity management bearing in mind that digitalization, not necessarily, implies and/or is synonym of innovation as the latter lies in the creative process, not only in the tool itself.

Starting with the aforementioned provocative thoughts, the round table open questions that all participants were invited to answer were related to the main challenges of currently available ICT tools useful for agroecological farming and which specific features and improvements are to be included in future ICT tools supporting sustainable farming practices.

The round table started with an introduction on the type of digital solutions to support agrobiodiversity management. Then real cases of co-created apps within CAPSELLA were presented, together with the demonstrators deriving from Soil health, Compost in precision agriculture and Data management for EU seed networks pilots.

Scuola Sant'Anna and ZLTO team presented the Soil health and Compost in precision agriculture pilots. They showed how CAPSELLA initiative worked as an open space where the involved actors realised a practical bridge between the two domains of organic and precision agriculture which is shown by the converging topics covered by the two applications developed. A qualitative and a sensor-based soil quality assessment and management tool derived from the process. The two tools can be integrated in order to be useful to both farmers' groups.



**Figure 7-2. CAPSELLA initiative as open space creating bridges between different farmers' communities**

Rete Semi Rurali, thanks to its vast experience in running experiments that involve different farmers who collect data during different phenological phases, was in the position to highlight how data sharing can be often an issue for farmers by presenting the outcomes of the Data management for EU seed networks pilot.

Nevertheless and given the app developed within CAPSELLA, farmers are in the position to decide which degree of openness they would like to give to their data stored in the CAPSELLA infrastructure, the round table conversation revolved around this new app which shall help Rete Semi Rurali to improve efficiency of data entry in a context that involves many farmers in different EU locations by reducing the risks of errors and facilitating the data management and analysis. The two levels of the app, with the administrator and users interface, were presented and , their functionalities were describing.

After the opening presentations the participants have been split in four groups and took actively part in the discussion. The groups had 30 minutes to discuss the three questions and then each group reported the highlights of the discussion in key point to the rest of the participants.

The questions used for the group work were:

Q1. Which are the main challenges of currently available ICT tools for being useful for agroecological farming?

Q2. Which specific features and improvements to be included in future ICT tools supporting agrobiodiversity farming practices?

Q3. Which new features and improvements need to be considered in an ICT tool for making consumers aware of the story behind the product (how it is produced, the philosophy behind, farmer's ideology...)?

Participants could use CAPSELLA apps as example, but they were not asked to focus only on those. The main outcomes of the group work include:

Answering Q3 that ICT tools should support farmers in telling the story behind products and prices and to enable transparency and trust from the application of sustainable production practices to the consumption.

Q1 and Q2 were very rich in reflections within the groups about the needs of features improvements. For this, participants underlined the need for:

- Studying methods to achieve fruitful interaction without being dispersive in co-innovation processes.
- Supporting the realisation of open data with services for data interpretation. The community creation side of the ICT applications should be enhanced in order to allow the sharing of difficulties and possible solutions.
- Reinforcement of community identity. Taking care of the local (specialization, size, pedoclimatic condition) is fundamental for developing ICT tools useful for agroecological farming that is based on the use of local resources and adjustment of practices to the specific conditions.
- Working on Data visualization in order to allow collective cultural intelligence building.

Related to the challenges of available ICT tools,

- There is a need to enhance the educational objective of these in order to really empower human thinking and not trying to substitute it. Digital must give people capacity, not deprive them of it.
- A common practical language or basic concept of ICT application in agroecology innovation is needed in order to overcome the mainstream buzz words and framework on innovation.
- Tools should be created following real need of end-users and with their active participation in all phases of the process and a clear cost/finance business model should be developed during the co-creation path.

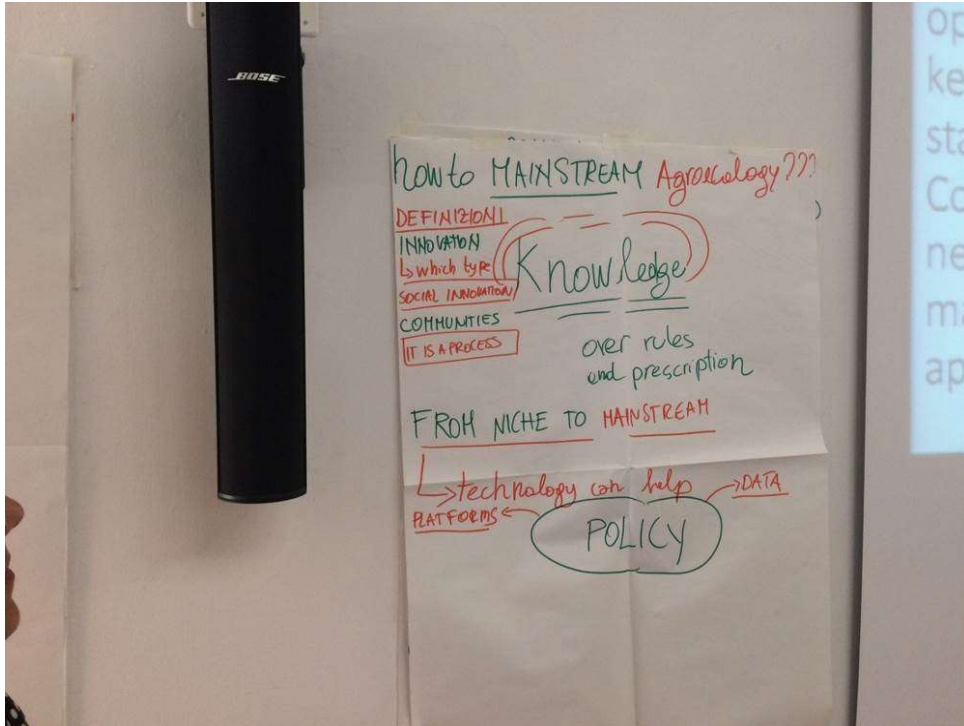


Figure 7-3. Rich picture produced by the discussion during the first session of the round table



Figure 7-4. CAPSELLA's Demo of the Story Telling app highlighted during the round table

## 8. Round Table #2 - Food



**Figure 8-1. Nicola Robecchi presenting the publicfood.eu platform**

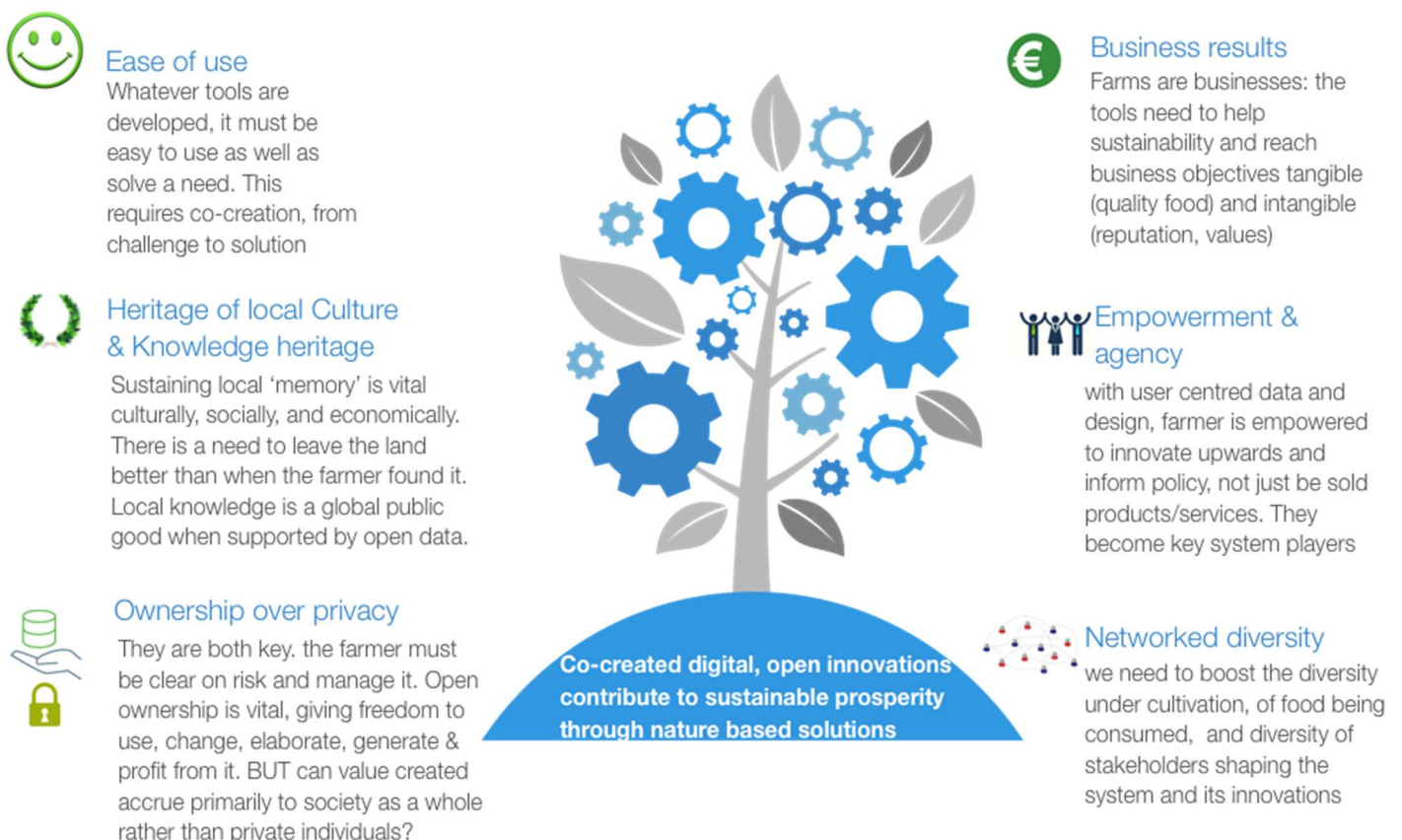
This Round Table on the CAPSELLA food scenario was an opportunity to present for the first time the two data-driven CAPSELLA Food Pilots (delivered by WDT and ATHENA) to a diverse audience, which included citizens, parent representatives, researchers and public administrators. The speakers (Pavlos Georgiadis, Nicola Robecchi, Petr Jiskra; WDT and Eleni Toli, ATHENA) presented the functionalities and benefits of the two applications, describing the user groups and the technologies utilised on the back-end. Following the presentation, participants engaged in a lively discussion, posing questions and comments related to data-driven technologies for the food supply chain. The session was also attended by the representatives of the City of Asti, who presented the current implementation status of the Public Food app in their city and stressed the impact this digital tool can have on better understanding and monitoring the food habits in the elementary schools of Asti. The discussion was also an opportunity to receive useful feedback, which is being used in order to improve the applications.

## 9. Outcomes, sustainability and conclusions

This project has been a fruitful opportunity to create a network of people and partners which we hope will be the beginning of future collaborations for making the agri-food system more sustainable and transparent through the use of innovative and technological tools. Open data and digitalization are not tools which go in the opposite direction of agroecology and agrobiodiversity while they can be useful means to scale them up. This event achieved participants' expectations by gathering together experts with different backgrounds and experiences (open data ICT experts, researchers, farmers, policy and decision makers including the EC Joint Research Center, extension agents, food experts etc.) that shared experiences and skills. Everyone's contribution has been

essential for the newly established network though they have to be strengthened to spread the word about the benefits to steer towards agrobiodiversity and protect biodiversity as essential to make our planet sustainable. The overall impression, based upon participants’ verbal feedback and reactions, is that we still have a long way to go to facilitate ICT tools and innovation adoption by farmers. We need to communicate that new technologies do not necessarily imply a massive and/or big economic effort by farmers. In fact, this is one of the biggest concern by farmers as they fear that innovation and innovative technologies require investments that could not have a short-term economic return for them.

Far from being an opinion, the data bears it out: a move toward an agroecological paradigm is essential for sustainable and resilient food and farming systems in the future. Moreover, innovation in this area can drive economic growth as well as wellbeing. Technology and open data need to enable agroecological approaches, by creating a fertile ground for innovation to develop bottom up and for ideas to cross fertilise and inform policy with rich sets of data. The importance was underlined of co-creating with farmers the digital, open data based solutions to their specific problems. Only in this way can nature-based solutions contribute to sustainable prosperity locally, in the EU and globally.



**Figure 9-1. A summary of main points emerging from the debate**

For this to work, data ownership issues were regarded critical. The farms still need to make income: farmers feed cities and can be the solution for environmental ills but they are also businesses. This requires developing digital innovations which respond to a direct problem specific to the user. Since these needs are often very specific to unique locations, they must be developed bottom up, co-created with users and with open data. The underlying data however needs a clear ownership structure: verticalisation of the sector with top down data ownership will not respond to the specific needs of more complex agroecological practices. This calls for an open data ‘mindset’ from farmers as well as policy makers and citizen consumer/producers. There will be times when data needs to be kept private and when it is clearly owned by a given user. Overall, the openness will allow for wider analysis and idea exchange by peers (especially in smaller agroecological farms) to support their decision making or to enrich the mosaic of local cultural and historical knowledge – an asset of intrinsic as well as extrinsic value. This openness will help policy makers develop policy, based on richer evidence. The open data can become a space for pre-competitive research to flourish. This, in turn, empowers the farmers and gives them a sense of agency whilst this digitally enabled social interaction of stakeholders drives innovation and serves not just profit but the planet. This makes agrobiodiversity and agriculture generally one of the most dynamic – and urgent – fields of digital social innovation in the next decade.



**ANNEX 1 WORKSHOP AGENDA**



Event accredited by  
ORDINE DEI DOTTORI AGRONOMI  
E DEI DOTTORI FORESTALI DI MILANO  
PROVINCE DI MILANO, LODI, MONZA E BRIANZA, PAVIA

**HARVESTING INNOVATION - BRINGING DIGITAL INNOVATION TO  
SUSTAINABLE AGRICULTURAL AND FOOD SYSTEMS**

A MILAN FOOD WEEK EVENT  
ACQUARIO CIVICO (MILANO)  
TUESDAY, 8TH MAY 2018

**AGENDA**

8:45-9:00 **Registration** (Translation between Italian and English is available during the morning debates)

**A NEW PARADIGM FOR TRULY SUSTAINABLE AGRICULTURE AND QUALITY  
FOOD SYSTEMS – Chair: Stephen Benians**

9:15-9:25 **Welcome address – Dr. Andrea Magarini Milan Food Policy coordinator, Mayor's Office Comune di Milano**  
*Investments, achievements and future plans towards quality food systems*

9:25-9:40 **Joint Research Center of European Commission – Dott.ssa Maria Luisa Paracchini**  
*Fostering agroecology and agrobiodiversity: the engagement of the European Commission*

9:40-10:00 **Italian Agroecology Observatory – OPERA, Prof. Stefano Bocchi & Fondazione Cariplo, Sonia Cantoni, consiglio amministrazione-Delega: Ambiente**  
*A new paradigm for sustainable farming: the role of agro-biodiversity management*

10:10-10:25 **Agriculture digitization: Open data supporting Agriculture, Dr. Christopher Brewster (TNO, The Netherlands)**  
*Developing ICT tools for sustainable farming and food systems through social digital innovation*

10:30-11:00 **Innovation experiences- Insight in the CAPSELLA initiative & its main outcomes and results - Prof. Yannis Ioannidis (Athena Research Centre, Greece) & Prof. Paolo Bàrberi (Scuola Superiore Sant'Anna, Pisa, Italy)**  
*Major outcomes of the CAPSELLA project*

11:00-11:20 Coffee Break

## FOSTERING LINKS BETWEEN ACTORS IN AGRO-BIODIVERSITY AND THE DIGITAL WORLD

11:30-13:00 'Fishbowl' debate: brief Expert insights followed by input from participants - Moderator: Dr. Vasileios Gkissakis (Agroecologist, Greece)

### Panel 1: Kick off Question: How can the digital revolution enable innovation in Agroecology?

**Researchers in agroecology:** Dr. Ambrogio Costanzo (Organic Research Center United Kingdom)

**Farmers representatives:** Peter Paree (ZLTO, The Netherlands), Stefano Soldati (Scuola di Pratiche Sostenibili)

**Innovation experts:** Panagiota Megagianni (CORALLIA, Greece), Eleni Kavallieratou Agrologies team (CAPSELLA Innovation Contest Winner), Cristina Martellosio (WEMAKE, Italy)

**Policy & Decision makers:** Dr. Andrea Magarini (Milan Food Policy coordinator, Mayor's Office Comune di Milano), Sonia Cantoni (Fondazione Cariplo-consiglio amministrazione-Delega:Ambiente), Rossana Torri (Comune di Milano)

### Panel 2: Kick off Question: What policies are needed for data to drive innovation in sustainable agriculture and food systems?

**Researchers in agroecology:** Andrea Beste (Institute for Soil Conservation and Sustainable Agriculture, Germany), Christine Watson (SRUC U.K)

**Farmers representatives:** Riccardo Bocci (DIVERSIFOOD project, EU), Luca Conte (Esapoda, Italy)

**ICT specialists:** Christopher Brewster (TNO, The Netherlands), Diego Guidotti (AEDIT s.r.l., Italy)

**Policy & Decision makers:** Damiano Di Simine (Legambiente Lombardia #CambiamoAgricoltura), Helene Schulze (Arc2020), Filippo Dadone (Programmazione Territoriale e Urbanistica – Regione Lombardia)

13:00-14:00 **Network Lunch (Demo of CAPSELLA open data tools available)**

## WHAT TYPE OF ICT SOLUTIONS TO SUPPORT AGRO-BIODIVERSITY USE AND MANAGEMENT? DISCUSSION ON REQUIREMENTS AND NEEDS

14:00-14:55 **World Café** – all participants devise solutions to the big questions.

15:00-16:30 **Parallel round tables** – How to improve data management for different users with ICT tools?

(1) Farmers/advisors (agronomic practices, soil health management, varietal choice etc.) [RSR, SSSA, ZLTO, Agroknow]

(2) Citizens (linkages to the supply chain, transparency, quality, consumers satisfaction) [WE DELIVER TASTE, Agroknow]

16:30-17:00 **Local Ice cream & coffee**

**Synthesis of panel round table discussions & Conclusions**

**Chair Dr. Tommaso Gaifami (OPERA and Agroecology Europe)**

## ANNEX 2 Participants List

name	surname	affiliation	Country
Alessia	Albini	Fondazione Sviluppo Ca Granda	Italy
Barbara	Albonico	Fondazione Sviluppo Cagrande	Italy
Leonidas	Anastasakis	Aston University	United Kingdom
Federico	Andreotti	Osservatorio Agroecologia	Italy
Gabriel	Ash	Farmer	Switzerland
Athanasios	Ballis	ATHENA Research and Innovation Center In Information	Greece
Paolo	Barberi	Scuola Superiore Sant'Anna	Italy
Andrea	Bortolazzi	Gnucoop	Italy
Stephen	Benians	Zephyr s.r.l.	Luxemburg
Andrea	Beste	Institute for Soil Conservation and Sustainable Agriculture	Germany
Stefano	Bocchi	Università di Milano	Italy
Maria	Boile	ATHENA Research and Innovation Center In Information	Greece
Paolo	Bonelli	WE MAKE Project	Italy
Carlo	Bonizzi		Italy
Giovanni	Buccheri	EcorNaturaSi Spa	Italy
Giovanna	Calabrò	Zephyr s.r.l.	Italy
Andrea	Calori	URGENTI	Italy
Sonia	Cantoni	Fondazione Cariplo	Italy
Paolo	Casalone	Centro Culturale	Italy
Lorenzo	Casiraghi	Farmer	Italy
Luca	Conte	Farmer/Esapoda	Italy
Daniel	Coret	University of Milano	Italy
Ambrogio	Costanzo	Organic Research Center	United Kingdom
Paola	Cuniberti	Comune di Milano	Italy
Michele	Curami	ACRA	Italy
Filippo	Dadone	Programmazione Territoriale e Urbanistica – Regione Lombardia	Italy
Michele	Dall'Igna	Agronomist	Italy
Paola	De Bernardi	University of Turin	Italy
Linda	de Groot	Farmer	The Netherlands
Giuseppe	De Santis	Rete Semi Rurali	Italy
Damiano	Di Simine	Legambiente	Italy
Patrizia	Fazio	R&D in food s.r.l.	Italy
Valentina	Ferrante	Italian Association for Organic and Biodynamic Farming Systems	Italy
Lorenzo	Ferrari	Università di Milano	Italy
Lorenzo	Ferretti	Università di Firenze	Italy
Matilde	Ferretto	Università Milano Bicocca	Italy
Stefano	Fiorillo	VerticalPix	Italy
Enrico	Gabrielli	DEAFAL ONG	Italy
Paolo	Gaifami	Intesa Sanpaolo	Italy
Tommaso	Gaifami	OPERA	Italy
Marinella	Gallo	Agronomist	
Claudio	Garrone	Dottore Forestale	Italy
Marta	Gatti	Giornalista	Italy
Pavlos	Georgiadis	WE DELIVER TASTE	Greece
Vasileios	Gkisakis	Agronomist	Greece
Diego	Guidotti	Aedit s.r.l.	Italy
Yannis	Ioannidis	ATHENA Research and Innovation Center In Information	Greece
Petr	Jiskra	WE DELIVER TASTE	Czech Republic
Lins	Keijzers	Farmer	The Netherlands

Jacqueline	Kroon	ZLTO	The Netherlands
Achille	Lanzarini	Fondazione Sviluppo Ca' Granda	Italy
Mariateresa	Lazzaro	Scuola Superiore Sant'Anna	Italy
Enrica	Lia	Deafal ONG	Italy
Susanna	Lolli	Università di Milano	Italy
Andrea	Magarini	Comune di Milano	Italy
Laura	Maggi	Slow Food	Italy
Fabio	Maggi	Adapta Group, climate smart agriculture	Italy
Cristina	Martellosio	WE MAKE Project	Italy
Panagiota	Megagianni	ATHENA Research and Innovation Center In Information / CORALLIA	Greece
Gabriella	Merlo	Indipendent consultant	Italy
Christos	Mitatakis	ATHENA Research and Innovation Center In Information	Greece
Francesco	Moisè	R&D in food s.r.l.	Italy
Sara	Monti	Gaia Foundation	United Kingdom
Camilla	Moonen	Scuola Superiore Sant'Anna	Italy
Neil	Munro	Gaia Foundation	United Kingdom
Carlo	Murer	EcorNaturaSi Spa	Italy
Elena	Muscarella	Acra	Italy
Francesca	Neonato	PN Studio	Italy
Livia	Ortolani	Rete Semi Rurali	Italy
Antonio	Palmaribello		Italy
Maria Luisa	Paracchini	European Commission	Belgium
Matteo	Penzo		Italy
Peter	Paree	ZLTO	The Netherlands
Andrea	Patrucco	Agronomist	Italy
Morena	Perez	Deafal ONG	Italy
Francesca	Pisani	Agronomist	Italy
Jolanda	Raaijmakers	Farmer	The Netherlands
Nicola	Robecchi	WE DELIVER TASTE	Italy
Amalia	Sacchi	Bottom Up	Italy
Michele	Salvan	Università di Milano	Italy
Maria Luisa	Saviano	Università degli Studi di Salerno	Italy
Raffaele	Schiuma	Milano Ristorazione	Italy
Helene	Schulze	Arc2020	United Kingdom
Fabio	Slaviero	ABACO SpA	Italy
Stefano	Soldati	PERMACULTURA LA BOA	Italy
Claudia	Sorlini	Casa dell'Agricoltura	Italy
Roberto	Spigarolo	DESP - Dipartimento di Scienze e Politiche Ambientali - Università di Milano	Italy
Eleni	Toli	ATHENA Research and Innovation Center In Information	Greece
Luca	Toschi	Dottore Agronomo	Italy
Valentina	Vaglia	University of Milano	Italy
Alain	Valsangiacomo	xFarm	Italy
Elisa	Vanoni	Libero professionista	Italy
Christine	Watson	Scotland Rural College	U.K
Geert	Wilms	ZLTO	The Netherlands