



CAPSELLA

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

Deliverable 3.9

Progress report on the results of meetings with communities 3

Date:	June 2018
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Quality assesor(s):	Petr Jiskra (WDT)
Dissemination level:	PU
	WP3
Version:	1.0
Keywords:	
Description:	This deliverable describes the interactions with the agri-food communities in CAPSELLA scenarios (Seed, Field, Food) during tools development phase.



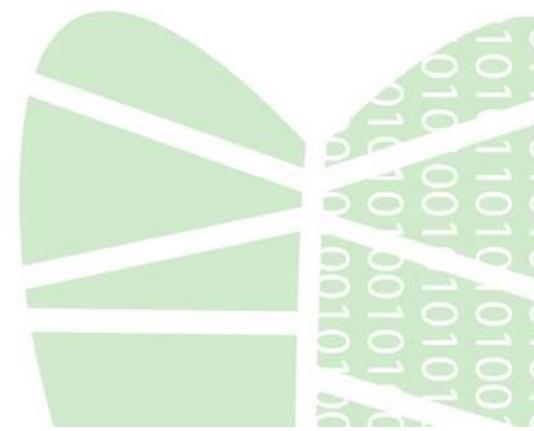
ICT-10-2015 Collective Awareness Platforms for Sustainability and Social Innovation

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

Project No. 688813

Project Runtime: January 2016 – June 2018

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Version History

Version	Date	Description
0.1	7 June	Very first draft and ToC
0.2	28 June	Document sent to consortium ML and quality check responsible
0.3	29 June	Additions from quality check
1.0	29 June	Final version submitted

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CAPSELLA is a project partially funded by the European Union

1. Executive Summary

In this document we present Seed, Field and Food scenarios meeting with communities in the last 10 months of CAPSELLA (M20 - M30, September 2017 - June 2018). We present the meetings organised with the involved communities from September 2017. The integration and interconnection of each scenario with the connected pilots is presented providing the key elements of the impact of the theoretic framework (scenario) on the outcomes of the pilots activity. We present as well the activities organized in the last part of CAPSELLA for increasing the outreach of the project among external communities at European level.

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1. Scenarios overview at CAPSELLA final phase

The three scenarios (Seed, Field, Food) developed with the communities, prepared a solid conceptual base, along the 30 months of CAPSELLA, on which to fund the actions aimed at raising awareness on the opportunities offered by social digital innovation and ICT tools in supporting innovation in agrobiodiversity management, agroecological practices application and quality food chain building.

Seed Scenario activities allowed to raise awareness in the European seed network community represented in CAPSELLA by *Rete Semi Rurali* on the possibility to exploit digital tools for decentralised and participatory agrobiodiversity management. The seed network community background and the internal debate on ICT tools use for agrobiodiversity management flowing into the Seed scenario allowed to actively involve the community members in the process of IT demonstrator development within the *WP4 Data Management for EU Seeds Networks* pilot activities. Providing RSR community with a demonstrator of the Seed App offered a concrete insight, once in the hand of the potential final users, that generated a large number of interesting comments that could be used to improve the development of the tool itself but also for deepening the general discussion on the challenges and opportunities of ICT use by the community. The comments at the base of a continuous process of back and forward comments and improvement between the community and the IT developers that could appear to be time consuming, resulted instead to be the most efficient way to develop a product that is specifically tailored on the community needs. The collaborative process resulted useful for feeding the scenario discussion in RSR community and in the European seed network community (thanks to the MoU with DIVERSIFOOD project) about the general potential of integrating digital social innovation approach in their activity.

Field Scenario supported the discussion on the use of ICT tools for supporting innovations uptake in agroecological crop production and land management. The discussion was tailored to the organic sector on the activities with *Esapoda association* from Italy and *Aegilops - Network for Biodiversity and Ecology in Greece* and to the Precision Agriculture domain in the activities with *ZLTO* community. Using soil quality management, common core topic deriving from the early phase of participatory co-design with these communities, allowed to create bridges among them and to expand the Field Scenario objectives. Bridging the two development lines of *Soil Health* and *Compost in Precision agriculture* pilots allowed, at scenario level, to use the co-creation process for the two demonstrators as proof of concept on the possibility to use digitisation as a neutral framework in which diverse farming cultures can dialog and learn to benefit from digital opportunities for reaching common sustainability aims. During the co-creation experience, different positions and visions of the two groups were evident. Nevertheless, the field scenario worked as an open space where the involved actors realised a practical link between the two domains 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 two pilot activities. The two tools can be integrated in order to be useful to both farmers' groups as results of interactions created within the scenario activities. In Field scenario we have worked with farmer communities that practice precision agriculture and smart farming as well as with others that implement organic farming

practices. We worked with farmers from Northern and Southern Europe. It was a major challenge for the scenario to bring these two worlds together. During the project, the differences between the two farmers' groups were evident. The power of high-tech investments of big companies in the digitisation domain can conflict with the market position of smallholder farmers and as such with the general position of farmers about ICT tools' usefulness. Nevertheless, the Field scenario activities worked as an open space where the actors involved could realise a practical link between the ICT and sustainable farming.

Food Scenario involved very diverse actors taking part to the four pilots relative to this scenario. Farmers, advisors, students and citizens from Greece and Netherlands (*Food Product Data Analytics, Storytelling on Food Production*), food policy makers, restaurant entrepreneurs and citizens from Italy and Czech Republic (*Personalised Public Food Service, Personalized Food Systems: The "Meal Prediction Tool"*). This allowed to reach a wide audience with the Food scenario topics and to stimulate the discussion on the use of ICT tools for enhancing the interactions among the different food chain actors and in different socio-economic and geographical contexts.

With the addition of specific actions undertaken to involve communities external to the project, Europe wide, CAPSELLA scenarios allowed to increase awareness on ICT application in sustainable food chains with providing a strong theoretic framework on agrobiodiversity and agroecology.

2. Seed Scenario: feedback from the communities

The Seed scenario framework was based on the combination of the experience of the IT sector in co-design and user centred approach with the long experience of RSR, which represented the European Seed Network community, in co-innovation and participatory research for plant breeding. The convergence of those two approaches represented an opportunity for synergies between already existing processes. The activities for the development of the CAPSELLA Seed app prototype in WP4 represented an interesting experience of interaction between ICT company (Agroknow) and a group of agronomy researchers, technicians and farmers (Rete Semi Rurali). This allowed discussion within the seed network community more in depth the role of ICT in improving data management in participatory plant breeding experiments.

The main goal identified by RSR was to make the farmer/technician autonomous in collecting experimental data on farm. An important point that came out is that there is no need for the individual farmer collecting data to know the complete experimental design in which he/she is embedded: a clear overview of his farm data is sufficient to monitor the crop performance year by year.

The aim of the pilots' process was to digitalize a document for data collection that was developed by Rete Semi Rurali in many years of experience in carrying on experiments with farmers on participatory research. However, this process was not easy and required a lot of effort and discussions within the community, that enriched the Seed Scenario of the analysis of which challenges arise when such a type of community interacts with ICT and open data domain.

The interesting point is that the participatory process to develop IT tools was new for the project partners and before CAPSELLA, RSR did not had opportunities to participate in similar processes. This raised an internal discussion on the language and tools to use for making this interaction successful. At the beginning the IT company and the RSR researchers were using different languages and this created challenges in sharing a vision and building a common understanding of the expected outcome. The different languages made to appear at the beginning the interaction as more similar to a client/service provider relationships. In the following part of the project the two actor groups managed, dedicating time to the each other background and language understanding as important part of the scenario activity, to transform this relationship in a more collaborative approach, based on mutual learning that allowed the development of the Seed App prototype in WP4.

After the collaborative planning of the app done by the project partners, once a first version of the app was ready, in **December 2017** the Seed App was presented during the Rete Semi Rurali annual training meeting. In that occasion, at least 10 people from different Italian regions and context expressed their interest in contribution in the testing phase and improving the app development. That was the phase in which the whole community has been involved in the process. It was possible to do that because we had the possibility not just to explain the community members our idea, but we also had the opportunity to show them something concrete on which they could comment. Having an app demonstrator was useful not only for the testing of this but especially as real example

on which to base the community dialog on the opportunities deriving from ICT for agrobiodiversity management.

The final version of the app was used with the same purpose in the final workshop in Milan in May 2018. In **June 2018** it was presented to the whole RSR community, including researchers from France and Ireland for practical testing on the field and for continuing to stimulate the internal discussion on the opportunities and challenges to include ICT tools in the routine activities of the community. Even in this occasion, the involved community of a total of 60 people was looking at the Seed app with much more enthusiasm than before. The app was available and the discussion on ICT tools was easier to do with a tailored, concrete tool on hand.

The impact of CAPSELLA was strong on the RSR community in terms of improving their trust on the possibility to use IT tools to improve data management in their work. It was a first step into a longer process that should continue but definitely, the community has now more clear ideas on how the IT tools can be used to improve their data management system.

There are still some issues open, such as in the case of the Seed Network communities the one of managing privacy issues and ownership of data. However, there is much more interest in the involved community in developing IT solutions to improve their system.

3. Field Scenario: feedback from the communities

Field Scenario activities from September 2017 are in line with the activities that took place in the previous part of the project. A higher effort was done in this last part of the project for connecting the different communities involved (from Italy, Greece and Netherlands) and for bringing to higher level the discussion of the role of ICT in supporting transition to more sustainable farming practices.

On 8 **October 2017**, Aegilops-Network for Biodiversity and Ecology in Greece in collaboration with the Union of Organic Farmers of Northern Greece hosted the fourth CAPSELLA workshop. Around 40 participants (farmers, consultants, researchers) took part to the workshop. The workshop was divided in a seminar and a field part. The seminar included presentations followed by open discussion sessions about key aspects of soil fertility management. The topics discussed were: soil biodiversity, soil analysis and chemical fertility management, functional biodiversity, and use of reduced tillage. These background discussions were very useful for showing in practice the SOILapp developed in Soil Health pilot. The background discussion allowed for a more detailed and active participation to the SOILapp evaluation.

On 25-27 **October 2017** the core CAPSELLA question “How Digital Revolution in Agriculture fit in the Agroecological approach?” was discussed with the European Agroecology community at the first Agroecology Europe Symposium in Lyon. This event was the occasion to show and test the SOILapp with a wide and diverse community (farmers, scientists, activists from all over Europe) but especially for challenging the agroecology community with the discussion on how to use ICT for supporting the development of agroecological farming systems.

On 30 **November 2017**, the “spade test” digitalised by the SOILapp was discussed in different events, during the Dutch meeting “Dairy in a European Perspective’. The “spade test” in the version present in the SOILapp was brought forward as a way to raise awareness among farmers. Advisors and teachers were interested to include it in their meetings and curricula. The real effect of that will follow after the project period, but the first results can already be seen.

On 1st **December 2017**, the Compost calculator and the SOILapp where discussed with ZLTO community and farmers network on Precision agriculture. The meeting was a good occasion for testing the effect of interaction among very different farming cultures.

On 17 **May 2018** on Raaijmakers farm in the Netherlands, a group of pupils from the local school, was trained to look at the soil using the spade test in the SOILapp. Jolanda Raaijmakers showed them how to look at the soil biodiversity. Before this activity, the farmer had tested the SOILapp for children. Suggestion on how to tailor this tool to the children target group (e.g. increasing the pictures and decreasing the text) came out from this activity.

Esapoda association hosted on 29 **May 2018** the workshop “Plants, water and climate change” supported by CAPSELLA. Around 80 participants (farmers, technicians, active citizens) were present at the event. During this event there was a very active debate on how farmers can adjust the agroecosystem management to adapt to climate change and on how crops use water and how they behave when water is missing or over-abundant in the soil, facilitating a conversation with the participants on irrigation management.

CAPSELLA team at Scuola Superiore Sant'Anna presented in this occasion a number of ICT tools available on the market that can support farmers in water management.

This workshop was a great occasion to introduce Esapoda community that participated to Soil Health pilot, to the ICT possibilities available on a different domain (irrigation) even if strictly connected to the soil fertility management treated in the pilot work. This event allowed to highlight that the same community was much more open to the topic of ICT tools use in new agronomic domains (eg irrigation) after taking part to the co-creating of SOILapp.

The Compost calculator was tested by several advisors of the farmers organisation during the last months. These tests allowed the ZLTO team to discuss the opportunity for the future to include it in advice tools, like 'soil passport'.

4. Food Scenario: feedback from the communities

A rigorous participatory process has been followed for the development and demonstration of the two CAPSELLA Food Pilots with an intense workload in this period of the project.

Concerning the scenario activities connected to the Public Food pilot, repeated consultation meetings with city officers (Asti and Milan), a design workshop with the participation of parents' representatives (**September 2017**), and launching events in the two cities have provided grounds for opening a dialogue around the use of data-driven services for public food service management in the two cities. During pilot presentations and demonstrations in several scientific conferences, including the 3rd Multi-Stakeholder Forum on Science, Technology & Innovation for the Sustainable Development Goals (New York, **5-6 June 2018**), we had the opportunity to expand this discussion among the scientific community. The nexus of data and public food is considered a novel research and development area, as cities are only now starting to engage with open governance technologies but is expected to be a topic of major interest in the coming years. The CAPSELLA Public Food Pilot is an innovative tool that can lead the way, should more cities apt to adopt the technology, in order to improve their urban food systems.

Scenario activities connected to Meal Prediction Pilot included the presentation of the content of the pilot in international conferences and events including Annual Czech Hotel and Restaurants association conference (Olomouc, **29 November – 1 December**) where first professionals from the hospitality sector were presented with the idea and possible functionalities. It was also an event where the piloting partner Mozaic house in Prague was confirmed. This was followed by the 17th HOREKA Congress (Prague, **25 April 2018**) during which participants were able to test and provide feedback on the running demo of the application. Similarly, at the AVI2018 conference (Castigliano della Pescaia, **29 May - 01 June 2018**) our teams had an opportunity to present the methodology used and search for new possible partnerships for further development. Besides that, a participatory user experience design workshop was organised, involving food business owners (Prague, **13 February 2018**). The Meal Prediction Pilot represents a novel way of connecting restaurants with users, with possibilities to expand through the use of sentiment analysis to provide more insights for informed decision making in restaurant management. CAPSELLA has interacted with numerous professional stakeholders in order to raise awareness and engage diverse user audiences for the development of this service.

5. Community outreach with scenarios activities

Based on the Community Engagement Plan and the need of acquiring new links to the CAPSELLA communities, which was a key challenge for the project, the whole consortium and specifically the Zephyr Team boosted the promotional activities in order to achieve a community growth.

In this light, EU funded consortia such as DIVERSIFOOD, FERTILCROP, HNV-Link, SAVINGFOOD, CERERE and networks such as the Institute for Soil Conservation and Sustainable Agriculture in Germany were identified and informed about the CAPSELLA's pilots and scenarios. All these communities, spreading outside the CAPSELLA's geographical coverage, were also invited to try the SOILapp and other ready tools and provide feedback.

Some collaborations, such as the one with the DIVERSIFOOD project, were more fruitful and its communities stronger engaged in the CAPSELLA's activities including networking events, this was possible also thanks to an MoU signed between the projects further to a key workshop organised in Pisa. The same positive attitude, was guaranteed by the German Institute for Soil Conservation and Sustainable Agriculture, whose Director not only tried and provided useful feedback about the SOILapp but also joined the CAPSELLA conference in Milano and kindly accepted to be interviewed in one of the videos shot during the aforementioned event. Moreover, the CAPSELLA team (each project partner assign someone in his/her organisation to carry out this task) got in contact with designated persons and proceed in the process by asking them to recommend other similar persons, organisations, etc.

One of the most successful means of communities enlargement, was the organisation of the final conference in Milano, reported in detail in the related deliverable (D2.4 Final Workshop Evaluation Report), where, thanks to the concrete collaboration with the recently launched Italian Observatory for Agroecology, the policy makers of Regione Lombardia and Milano Municipality, the EU citizen movement of People4Soil and Legambiente and the Association of Agronomists of the Milano, Pavia, Monza e Brianza provinces, ensured that the CAPSELLA's messages reached out a large audience.

Radio interviews, numerous videos which were largely promoted through social media campaigns and YouTube channel, articles published in key magazines (such as Agronotizie) and massive impact on EU major players on-line newsletters and website (such as IFOAM, EIP-AGRI and TP Organics, AIMS FAO Communities) guaranteed not only a good attendance at the final conference but also a valuable outreach of the CAPSELLA's demonstrators, activities, scope and key messages.

Although the project is approaching the end of its funding period, the consortium partners SSSA and Zephyr will continue some planned activities such as the SOILapp test in some organic and conventional farms in Sicily in early July, whose data will enrich the CAPSELLA's infrastructure platform, ZTLO will present CAPSELLA at the IFSA symposium in Crete and We Deliver Taste and ATHENA continue the testing with the hospitality partner Mosaic house as well as run again and disseminate the Public Food application at the beginning of the new school year (September – October 2018) in both municipalities involved in the pilot.