

## D7.1 MAA activity planning and roadmap

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## Contents

1	Executive Summary.....	4
2	Document History .....	5
3	Abbreviations and Acronyms .....	5
4	List of Authors .....	6
5	Introduction .....	7
6	MAA Activity Plan.....	9
6.1	DEMETER’s Digital Spaces as supporting tools for MAA .....	9
6.1.1	Measures to support the user-centred development of the Digital Spaces .....	10
6.1.1.1	Surveys .....	10
6.1.1.2	Vision Scenario Elaboration .....	11
6.1.1.3	Supporting the Process of User Requirements Engineering .....	12
6.2	Planned formats and methods for DEMETER stakeholder workshops and trainings .....	13
6.3	Multi-actor approach roadmap.....	15
6.4	Pilot specific and national actions .....	16
6.4.1	MAA activities in Norway .....	17
6.4.2	MAA activities in Belgian/Flanders .....	18
6.4.3	MAA activities in Spain .....	19
6.4.4	MAA activities in Georgia .....	20
6.4.5	MAA activities in Italy .....	21
6.4.6	MAA activities in Ireland .....	22
6.5	Open Calls .....	23
6.6	Dissemination .....	25
6.7	Cross Project Collaborations.....	28
4.	Shared Infrastructure .....	29
7	Monitoring the effectiveness of the multi-actor approach .....	32
8	Conclusion.....	37

## List of Figures

<i>Figure 1: DEMETER's Digital Spaces .....</i>	<i>9</i>
<i>Figure 2: DEMETER Roadmap M1-23.....</i>	<i>16</i>
<i>Figure 3: DEMETER Roadmap M18-42.....</i>	<i>16</i>
<i>Figure 4: Open Call process.....</i>	<i>24</i>
<i>Figure 5: DEMETER website .....</i>	<i>27</i>
<i>Figure 6: Social Spaces for Research and Innovation five elements: policy, market, society, infrastructures and technology.....</i>	<i>33</i>

## List of Tables

<i>Table 1: Offered workshop and training formats .....</i>	<i>13</i>
<i>Table 2: Target audiences and content positioning.....</i>	<i>25</i>
<i>Table 3: DEMETER Social Media Channels.....</i>	<i>27</i>
<i>Table 4: Target audiences per SM channel .....</i>	<i>27</i>
<i>Table 5: Areas for collaboration.....</i>	<i>28</i>

## 1 Executive Summary

This deliverable is re-issued as requested in the review report from June 24. The deliverable 7.1 was already submitted in February 2020; therefore, all old chapters are still on the status of February 2020. In addition, this reissue version 1.1 contains the chapters “6.1.1.3 Supporting the Process of User Requirements Engineering” and “6.3 Multi-Actor Approach Roadmap”.

Work Package 7 is responsible for establishing and supporting the Multi Actor Approach in DEMETER. In this respect, WP7 is in charge of handling the governance of processes, engaging users, external stakeholders and establishing a usable demand driven approach across the full chain.

The present deliverable describes planned activities implementing the DEMETER MAA, which will be carried out for the most part in WP7, but also partly in close cooperation with other WPs. In summary, these activities include: (1) support for the user-centred development of Demeter Digital Spaces, (2) the organisation and implementation of interactive workshops - partly on a national level, but in the long term also to discuss the international perspective, and (3) the Open Calls. Furthermore, a description of how WP7 pursues other tasks of the MAA, such as dissemination and cross project collaboration, and how these tasks interact with other WPs, will be given.

## 2 Document History

Version	Author	Description
D7.1_V0.1	FhG-FIT	First Draft with TOC
D7.1_V0.2	FhG-FIT	Updated version, confirmed with contributors and agreed on distribution of work
D7.1_V0.3	All mentioned authors (see table below)	FIT-internal version, input from contributors added
D7.1_V0.4	FhG-FIT	Updated version, comments and adjustments from partners reviewed by FIT.
D7.1_V0.5	FhG-FIT	Updated version, TOC restructured and updated, minor changes in texts
D7.1_V0.6	FhG-FIT	Version for first internal review (2020-02-21)
D7.1_V0.7	FhG-FIT	Feedback from reviewers included for second internal review (2020-02-27)
D7.1_V1.0	FhG-FIT	Submitted
D7.1_V2.0	FhG-FIT	Updated version for reissue, chapters Supporting the Process of User Requirements Engineering and MAA roadmap added in line with review report received June 24.

## 3 Abbreviations and Acronyms

Abbreviation/Acronym	Explanation
AC	Agricultural Coordination
AIS	Agricultural Interoperability Space
DL	Deliverable Leader
ICT	Information and Communication Technologies
KPI	Key Performance Indicator
MAA	Multi-Actor Approach
PM	Person Month
RE	Requirements Engineering
SM	Social Media
SOCS	Stakeholders Open Collaboration Space
WP	Work Package
WPL	Work Package Leader

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## 5 Introduction

The goal of the Multi-Actor Approach (MAA) is bringing together all the social actors relevant to the project in order to jointly develop approaches and solutions. The involvement of all stakeholders aims to increase the acceptance of the solutions developed, increase their dissemination, lead to a common culture of exchange and open up space for innovative solutions.

WP 7 is responsible for establishing and supporting the MAA in DEMETER. In this respect, this WP is in charge of handling the governance of processes engaging users and external stakeholders and establishing a usable demand driven approach across the full chain. For this purpose, DEMETER bundles in this WP competences for the organization of participative and interactive workshops, such as focus groups, co-creation workshops, and hackathons, which are supporting pillars for the MAA and will help to successfully implement DEMETER solutions.

DEMETER, as a large-scale pilot project, is characterised by a transdisciplinary and internationally very broad-based consortium. To this end, various participatory workshop methods, as well as digital platforms will be applied in order to include co-creation and co-decision processes in the development process. The MAA in DEMETER does not only address the user perspective, which is especially important in the individual pilots, but also promotes communication and the exchange of knowledge across existing borders (such as local, national or cultural borders, and disciplinary borders).

To address this WP7 consists of four tasks:

- Task 7.1. Governance of Multi-actor approach activities - this task involves planning, organising and coordinating MAA activities.
- Task 7.2. Multi-actor approach Animation – this task includes the performance of the planned activities (Workshops, trainings, etc)
- Task 7.3. Co-creation and development Open Calls – this task deals with the set up and conduction of the Open Calls.
- Task 7.4. Monitoring the effectiveness of the multi-actor approach – this task serves to examine how digital spaces can be evaluated from the perspective of the MAA.

This Deliverable describes the MAA activities planned at this time. It represents the first version of the MAA activity plan. These main activities are in summary:

- A central approach in DEMETER is the development of Digital Spaces, which in essence enable a digital co-creation approach and focus on the needs of the users (the farmers). In addition, the Spaces will offer further functions, e.g. for the exchange of knowledge. WP7 accompanies the user-centred development of these Digital Spaces in an advisory manner. These activities are assigned to Task 7.1. and described in Chapter 6.1.
- The need to develop a common vision scenario for the use of these Digital Spaces has been identified in recent months. This will ensure that all partners have the same understanding of the DEMETER development. Furthermore, dissemination and exploitation activities (especially WP6) can be supported with the jointly developed materials. WP7 organizes and moderates these Workshop series. These activities are assigned to Task 7.1. and described in chapter 6.1.1.2.
- The partners of WP7 can support the DEMETER MAA in general by offering partners support in organizing and moderating workshops. For this purpose, the most important formats and

methods have been summarized in tabular form. These activities are assigned to Task 7.2 and described in chapter 6.2.

- Furthermore, some MAA activities are already planned at national level. These activities will be described separately and carried out by the respective partners on their own responsibility. The documentation of the results is done via an online template and through reports in the bi-weekly WP7 telephone conferences. These activities are assigned to Task 7.2 and described in chapter 6.3.
- WP7 will enable the extension of the technology offer beyond consortium partners through two open calls. The planned procedure is described in detail. These activities are assigned to Task 7.3 and described in chapter 6.5.
- WP7 will help to design dissemination materials with tailored messages to reach the various target audiences. This is done in close collaboration with WP6. These activities are assigned to Task 7.1 and described in chapter 0.
- One important task of the MAA is to ensure collaboration and knowledge exchange with other projects and initiatives. This task is mainly organized by the coordinator of the project. The chapter 6.7 summarizes the activities so far.

The activities in WP7 are, besides the support of the dissemination and the organisation of the Open Calls, mainly workshops and trainings. These activities are partly planned, but it is important for us to maintain a certain degree of flexibility to be able to react to current developments and needs. Therefore, this plan is a living document which will be updated as needed.

The MAA activities are discussed in the biweekly WP7 conference calls and documented with the help of a template. This template records not only when and where the activity took place and who participated, but also the topics discussed, the outcome and follow-up steps.



## 6 MAA Activity Plan

### 6.1 DEMETER's Digital Spaces as supporting tools for MAA

The Digital Spaces developed in DEMETER represent an answer to the need highlighted by the EC (DG Agriculture and Rural) and EIP AGRI, to foster the knowledge exchange and lessons learnt in the agricultural, forestry and rural development sectors as well the “interactive innovation model” among all the interested stakeholders. The interactive innovation model is implemented through the Digital Spaces. In this way DEMETER implements the MAA across the full chain, from farmers to service advisors and suppliers (covering the full diversity of providers including ICT, data sources, knowledge, developers, software and hardware providers).

The DEMETER Digital Spaces allow to “put farmers fully in control of their needs, of their choices, of their speed of adoption of solutions, of their data”. DEMETER “reverses the relationship

between farmers and providers” since “farmers define their needs together, individually or with advisors”, “suppliers collectively and individually, share the responsibility of elaborating one (or more) solutions to answer the need” and “the solutions made are comparable based”.

The MAA is implemented through a complete set of mechanisms structuring the human interaction with all stakeholders and is supported through digital spaces, with each space catering to different phases of the interaction leading to the co-creation and deployment of new solutions at the farmers. Therefore, DEMETER delivers three spaces, the Stakeholders Open Collaboration Space (SOCS) and the Agricultural Interoperability Space (AIS) connected by the DEMETER Enabler Hub (DEH).

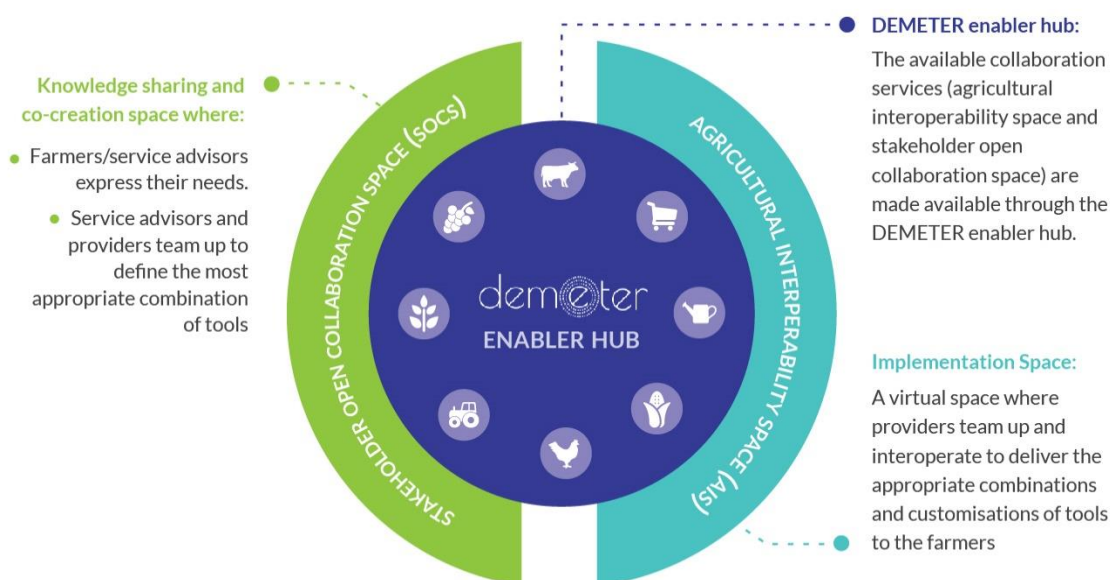


Figure 1: DEMETER's Digital Spaces

Internal discussions with developers and users of these digital spaces showed that there is a need to describe more precisely the functions, the benefits and also how such a system can be integrated and operated in business structures in the future. This is necessary because otherwise there will be different understandings and thus misinterpretations of the use of the Digital Spaces.

Here are some shared definitions of these three digital spaces. These need to be sharpened and brought closer to users who have less technical expertise by using an easily understandable language.

- The **DEH** is a **registry where suppliers can describe their resources** which become accessible by developers to be used through the “co-creation process” in order to build new solution. DEH is a space **dedicated to developers** since its focus is on enabling users (acting as DEMETER Providers) to register their offered resources (components, devices, services, data sources, platforms, etc.), and users (acting as DEMETER Consumers) to browse it to discover suitable resources matching their requirements (search API or tags).
- The **SOCS** is a space **dedicated to all stakeholders** (farmers, advisors and suppliers) where they can **collaborate, share best practices and participate to co-creation processes**. This collaboration space makes a farmer need visible to advisors and developers and conveys the information coming from the farmers as input in order to select the most suitable resources registered in DEH to be used to build the optimal solution.
- The **AIS** enables the secure **interoperability and integration** of different agriculture platforms, technology components and datasets, utilizing a brokerage environment based on producers/consumers. AIS is a space **dedicated to developers** since its focus is on delivering a full set of interoperability mechanisms to actually deploy the solution (which consists of resources such as components, devices, services, data sources, platforms, etc. that are accessible for deployment) through the DEMETER enabled interoperability mechanisms.

#### 6.1.1 Measures to support the user-centred development of the Digital Spaces

In order to ensure user-centred development, two measures were adopted. On the one hand, surveys were created in order to evaluate the needs of specific functions and features. Secondly, the process of developing a vision scenario was initiated. This process serves to sharpen the benefit of DEMETER’s Digital Spaces and bring the idea closer to users who have less technical expertise by using an easily understandable language. Moreover, the process of eliciting user requirements shall be monitored and supported within WP7.

##### 6.1.1.1 Surveys

In relation with tasks T3.5 “DEMETER Hub” and T4.5 “Stakeholder Open Collaboration Space Implementation” for which requirements have to be collected in the context of D3.1 “DEMETER reference architecture” and D4.2 “Decision Enablers, Advisory support tools and DEMETER Stakeholder Open Collaboration Space - Release 1”, two surveys dedicated to DEH and SOCS were prepared in order to have a joint draft. These two surveys were prepared by ENGINEERING and reviewed by FRAUNHOFER and respectively by T3.5 and T4.5 members.

These surveys have the same format, they consist of three main parts: an introductory section that provides a description of DEMETER key concepts, an overview on the survey’s sections and the survey with its questions.

- The **DEH survey** proposes a list of possible features for DEMETER ENABLER HUB (DEH) based on the Grant Agreement (GA) and aims at finding a prioritization for the implementation of those features, moreover it gives the possibility to add additional comments on proposed features and suggestions for any other missing features. It aims to collect suggestions on the kind of resources that could be registered in DEH; comments and ideas on the interactions between DEH and the other DEMETER modules. Moreover, it tries to collect insights from other initiatives which realized hub as well (DataBio with its DataBioHub , HUB4AGRI , etc.) in

order to not start from zero either in terms of framework and technologies or in terms of interesting features. Since DEH should be a space mainly for developers, WP3 members are considered as main DEH survey recipients.

- II. The **SOCS survey** proposes a list of possible social networking and co-creation features based on an ENGINEERING asset (OPENNESS - OPEN Networked Enterprise Social Software) and aims at finding a prioritization for the implementation of those features, moreover it gives the possibility to add additional comments on proposed features and suggestions for any other missing features. Since SOCS is a space for all DEMETER stakeholders, pilots' members are considered as main SOCS survey recipients.

All the results collected through the surveys will be gathered in deliverables D3.1 and D4.2 and will be merged with results of DEMETER Vision workshop in order to take into account of them for the next versions of these two deliverables.

### *6.1.1.2 Vision Scenario Elaboration*

With respect to the co-creation approach of the MAA followed in DEMETER, Vision Scenario Elaboration workshops are supposed to build a common ground for key project partners.

The workshops will follow two main goals. On the one hand, they serve as a tool to build a common ground and a mutual understanding of important pillars of the DEMETER project. On the other hand, they push the internal MAA forward, in that project partners will learn about each other's goals and, partners' approaches to the DEMETER project and the intentions brought to the table by the partners and the stakeholders that they represent.

In order to develop such a common ground, WP7 will conduct Vision Scenario Elaboration workshops. In these workshops, partners of the consortium are going to develop a common vision in a co-creative manner. Concrete questions that shall be answered by the participants are:

- a) For whom are we building the platform?
- b) What problem(s) are we solving for our target group?
- c) How can we help them in order to achieve their goals more efficiently?

After elaborating on these three questions, a Vision Scenario will be formulated, that serves as a guideline for technical and non-technical partners for the rest of the project phase. A vision scenario describes a prospective future state of the platform at the end of the DEMETER project phase by describing a user scenario in a prosaic way with respect to the three questions mentioned above. The user scenario serves as a common goal for project partners to aim at during the development of the platform and will make sure that at the end of the project phase DEMETER is going to yield a platform that will be viable and serves the stakeholders' needs. The vision scenario will also help with the dissemination of the DEMETER material, as it gives a concrete example of how the DEMETER platform might look like and how stakeholders are going to profit from it.

For the format of the workshops, several methods and formats can be utilized.

#### On-Site workshops:

In order to develop a first common understanding, on-site workshops can be conducted. On-site workshops, in contrast to remote workshops, put the participants in a dynamic environment and let them focus and concentrate on the problem at hand. The workshops are going to be guided and

facilitated by WP7 in order to make sure that all relevant stakeholders are involved in the creation of the vision scenario. On-site workshops should be conducted in the XXX phase of the project, where there still is a lot of uncertainty about the prospective users and the user scenarios.

#### Remote Workshops:

As a low-cost means in order to conduct workshops, remote workshops can be conceptualized and executed. Given the vast distance between the partners' headquarters and in order to keep traveling costs low, remote workshops resemble a good low-cost method to get as many partners as possible involved in the process. Tools for these workshops can be DFNconf, miro, or other software that supports collaboration between distributed teams. Remote workshops are the best means in order to solve a very specific problem, hence uncertainty about the outcome is low.

In addition to the above-mentioned workshop formats, methods as mentioned in chapter 6.2 will be utilized as required by the task and the workshop format at hand.

#### *6.1.1.3 Supporting the Process of User Requirements Engineering*

The requirements engineering process in DEMETER is managed as a cyclical approach in an iterative fashion, through gathering and deriving stakeholder requirements that inform the development of technical requirements. These user and organisational requirements can be empirically derived from focus groups, interviews, and stakeholder workshops and serve to feed into the technical development of the DEMETER environment. In this way, all MAA activities within the first half of the DEMETER project serve to elicit and consolidate stakeholder needs and requirements. What is more, with the DEMETER components that users can interact with (mainly DEH, SOCS), user testing will be carried out in order to elicit new requirements and recommendations for improvements.

The responsibility of WP7 hereby is twofold – first, to provide general, i.e., non-pilot-specific, DEMETER-overarching stakeholder needs and non-technical requirements via the requirements analysis underlying the WP7 activities. Regarding this, stakeholder needs and user requirements are continued to be derived from various activities (see D5.4 for the list of requirements). Besides, the adoption of the SOCS co-creation application requires its own requirements and user analysis, to be facilitated by interviews and workshops as planned MAA activities. As detailed in D7.3, the stakeholder needs (also called MAA needs) are defined in a problem-centred manner, in a form of user story, e.g., “As a farmer, I need to increase my farm's ecological sustainability.”, whereas user and organisational requirements are derived thereof, e.g., “The user needs to be able to discern the level of his/her farm's ecological sustainability on the system”. Within the DEMETER-overarching requirements management, those requirements will inform the technical requirements and functional specification in WPs 2, 3, and 4.

The second responsibility in WP7 is to intensify governance and monitoring of the user requirements analysis with regard to the pilot projects (WP5). The pilot projects in DEMETER conduct their own pilot-specific user research and requirements analysis, which means they act autonomously, whereas in WP7, that process is monitored to ensure that sufficient stakeholders are taken into account. In turn, the pilots create their own pilot requirements, which inform the development of enablers for the solutions that they build. These pilot requirements are managed by WPs 2, 3, and 4 and inform the formation of technical requirements in those work packages. Based on the pilots' feedback on that process, co-creation workshops can be held to enhance the requirements analysis in the pilots.

## 6.2 Planned formats and methods for DEMETER stakeholder workshops and trainings

Various workshops and trainings will be held during the project period. The need for workshops and trainings will be regularly asked and discussed within the consortium. In this way, the need for the Vision Scenario Workshop described above was also determined. The following table summarizes possible workshop and training formats that WP7 can offer. Most of these formats are included in the planned pilot-specific action (see below), further activities will be added as needed.

Table 1: Offered workshop and training formats

Method	Description	Output
<b>Workshops</b>		
User Focus Group	Moderated discussion which involves five to ten participants. A focus group consists of key representatives of specific target groups.	Problem statements and general information about the project and relations. Open dialogue between stakeholders and developers.
Idea Generation workshop	Structured generation of ideas for solving problems prior identified. In this guided workshop different methods are used to generate many ideas in short time.	List of ideas to cluster, prioritize and distil. Working on selected ideas as a next step.
Hackathons for Developers	Quick way to test and develop solution prototypes of ideas. Intense working period usually lasting for a couple of days. Involves developers from different partners of the developer team.	Rapid prototyping and initial feasibility testing of identified solutions.
World Café	Simple and effective format for hosting large group dialogues. In this flexible organisation style, small group rounds are created to discuss and share different aspects of a certain topic. Several discussion rounds of around twenty minutes are used to talk about problems and possible solutions at different tables. After each round participant change the table.	Input from several diverse groups about a number of topics, valuable high-level input from different perspectives.
Open Space	Good method in order to elaborate on several topics in large to very large groups. The Open Space method relies on the engagement and self-governing abilities of the participants. Open Spaces are divided into phases.  <u>Phase 1:</u> Participants will be informed about the Open Space method and what they can expect within the next couple of hours.	In-depth discussions about a vast number of topics within one day.  Input from various actors and people from all kinds of backgrounds.

	<p><u>Phase 2:</u> Participants gather topics for the workshop day, in that every participant with an inquiry writes it on a piece of paper and hangs it on a wall.</p> <p><u>Phase 3:</u> A market place is created, where participants chose topics of their liking and try to deal with overlapping discussions.</p> <p><u>Phase 4:</u> Participants meet in groups and discuss the topics</p> <p><u>Phase 5:</u> Participants gather and read about the results of the discussions</p> <p><u>Phase 6:</u> The Open Space workshop will be concluded.</p>	
Vision Scenario	Development of a vision to gather and categorise expressions and ideas of a normative future scenario.	Desirable future scenario which guides short-term and mid-term activities.
Delphi	Systematic, multilevel survey process in expert groups to review a catalogue of questions or assumptions. Experts have the possibility to estimate the given assumptions in several stages. First stage includes written replies which will be examined and condensed. In a second stage the condensed replies will be given to refine and discuss in an open dialogue.	Assessment of hypotheses about complex prospective developments and assumptions. Refinement and initial estimation of success of specific ideas or assumptions prior to investing many resources in solutions.
Design Sprints	Structured way to solve more complex problems in a short time of several weeks. Ideas can be generated, modified or rejected.	A selection of quality ideas to solve identified problems. Partly tested and implemented.
<b>Interviews</b>		
Key Informant Interviews	Interviews of representatives of specific groups. Key informants are people likely to provide answers or solutions to specific questions or problems.	Answers to specific questions and essential expectations of stakeholders towards the project.
Field Visit	Follow the target user of a system to his/her daily workplace and experience the challenges users have to face. Investigation of each step a user needs to do to solve a specific task.	Development of a deeper understanding of user problems. Answers to general questions like How?, Why? and When? will be given. Valuable data of day-to-day tasks to engineer a list of user requirements.
User Interviews	Questionnaires, face to face interviews and other methods to gather information about tasks of users.	Information about user needs and requirements.

Analysis/Evaluation		
Stakeholder Analysis	Systematic identification and screening of stakeholders related to a specific context. Descriptive analysis of relations, behaviour patterns and interests.	Identification of Key-Stakeholder and their relations and interests towards the project and other stakeholders.
Stakeholder Mapping	Visual method to illustrate interactions and relations between stakeholders and a project or a company.	Overview of stakeholders and related interests and influence on a specific project or company.
Personas	Personas represent archetypal users of a system. They are characterised by their goals, needs, feelings and expectations of the target group.	Personas help to make fundamental decisions in the development phase of a user-centered system. They support in emphasising the proposed users.
User Story	User stories represent typical situations users are confronted with and describes desired features from the perspective of the user.	Agile approach which helps shifting focus from writing about requirements to talking about them.
User Testing	Questionnaires, face to face interviews, thinking aloud tests and other methods used to test a system with the user. Different types specifically adapted to target situations can be used.	Quality information to evaluate the usability of a system. Can be used to optimize the system to user needs already during the development phase.

### 6.3 Multi-actor approach roadmap

The following roadmap (Figures 2 and 3) depicts the outline of the WP7 activities. The stakeholder needs activities are those MAA activities that are not pilot-specific but are carried out on a DEMETER-overarching level in WP7. The MAA activities of the first half of the project are described in D7.3. That deliverable also includes a concrete roadmap of the current activities.



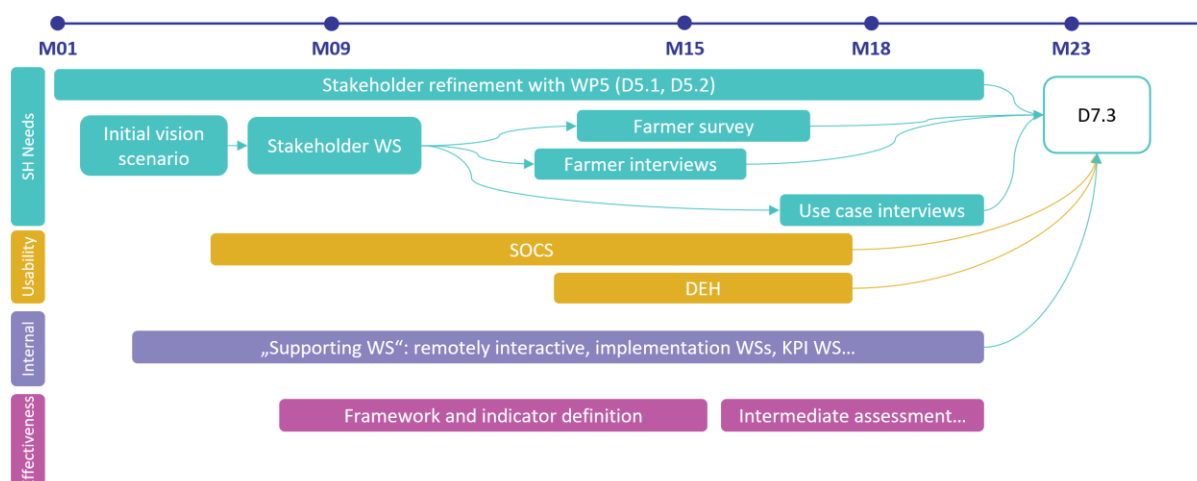


Figure 2: DEMETER Roadmap M1-23

Toward the second half of the project, usability and user experience evaluations will go hand in hand with the elicitation of stakeholder needs and corresponding user requirements in the form of on-demand workshops and activities. For example, during user testing, it might become clear that a certain functionality is missing. In that case, a workshop might be carried out in T7.2 to elicit insights and requirements on that need.

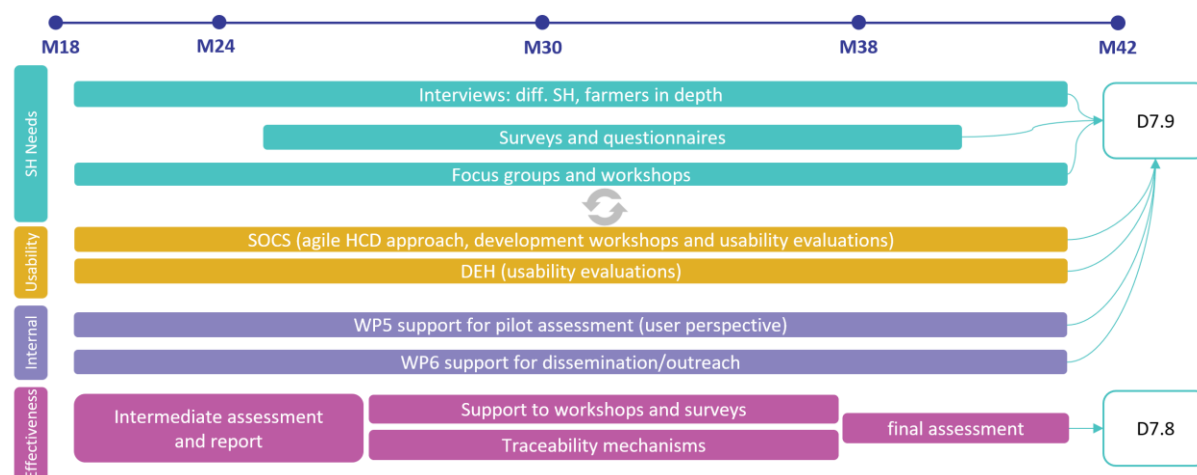


Figure 3: DEMETER Roadmap M18-42

## 6.4 Pilot specific and national actions

DEMETER, with its 20 pilots, also wants to take a regional/national approach. Responsible for these activities are partners who are active in the respective pilots, who are also familiar with the national environment and who speak the respective national or regional language. These activities can address various aspects of the MAA - from purely informative events, through interactive workshops, to joint developments, for example in the form of hackathons. In addition, explicit efforts are made to cooperate with other initiatives and projects. The following chapters describe the MAA activities that have been developed for individual pilots. Of course, similar events and workshops are planned for the other pilots.



#### 6.4.1 MAA activities in Norway

TFoU and SINTEF are planning Multi-Stakeholder involvement process around the Norwegian pilot and our related activities in other work packages in DEMETER.

The Norwegian Pilot (Pilot 4.1. Dairy Farmers Dashboard for the entire milk and meat production value chain) has two main actors, "Landbrukets Dataflyt", or Agricultural Dataflow, and Mimiro. Both are SMEs with thousands of farmers as indirect owners and with existing dashboard solutions running on different platforms. The idea is to co-develop and explore potential links between them, as well as with the overarching DEMETER architecture and other solutions.

The initial project months (2019) were mainly spent exploring the internal relationship and getting to understand the multiple solutions and overarching framework of the project.

For 2020 we aim to identify use cases and business-/work processes and initial thoughts from stakeholders on how they envision that the dashboard solutions and other DEMETER solutions can be used. This includes the identification of challenges, requirements and stakeholder mapping.

*Activity 1: To establish the methodology and templates (including interview guide) to use for the activities in WP7*

- Identify, chose and combine tools and templates which can be used (e.g. DEMETER tools/templates, use case methodology)

*Activity 2: Contact and meetings with actors and stakeholders in Norway – focusing on the pilots*

- User focus groups / workshops with primary users (farmers and advisors)
- Key stakeholder interviews (based on an interview guide) and field visits in connection with this. Focus on actors in Trøndelag and Southeast Norway. Key questions:
  - How is the farmers' digital life today, and what requirements, expectations, wishes do they have for digital tools in future?
  - What are the key decision-making parameters for different categories of farmers when it comes to economics, production management and sustainability
  - How much time do farmers spend on digital services and what could be done more efficiently with improved digital co-operation between actors (public and private)?
  - What registrations of data do farmers make as actors in different systems and programs?
  - What is the communication with other actors, with what extent and frequency, and which media are used for communication about what?
- If possible, try out a slightly shortened form of 'agri sprint', focused on identified challenges/opportunities.

*Activity 3: Contact and meetings with other partners and the HUB in DEMETER*

- Examples of relevant partners that is identified already, is partners that work with pilots in cluster 4, John Deere and partners in general that work with dashboards solutions.
- We also plan to facilitate meetings with technology providers whose solutions could be included in the dashboard (potential Norwegian applicants for the first Open Call, as well as other DEMETER pilot solutions/partners). This may involve among others large companies as the DEMETER partner John Deere, but also other large technology providers that are not a part of DEMETER today.

#### *Activity 4: Make other stakeholders in Norway aware of DEMETER*

- Contact and meeting activity with farmers, farmers organisations, technology providers, etc. and 2 conference presentations. One of this is a conference that “Grønn Forskning Midt-Norge” (Agricultural research mid-norway), arrange.

For 2021 and later we are planning to follow up the relevant actors that are identified in 2020, and involve a wider set of stakeholders, including other actors and system owners. Key questions are: How can the farmers dashboard facilitate learning, and sustainable innovation, at individual farm and system level? How can the HUB in DEMETER, be developed and used with respect to get improved solutions, production and economy in agriculture and related sectors? Therefore, interviews and workshops are planned with the aim to answer important questions in the process of solution development. In this we also will have dialogue with related projects and actors in Norway, and connect those to the EU innovation hubs.

#### **6.4.2 MAA activities in Belgian/Flandern**

VITO plans to organize co-creation workshops in Flanders/Belgium to inform stakeholders on the DEMETER project, and make them more involved in the project, gather their feedback, introduce the DEMETER concepts. Information on DEMETER (and the pilot 3.4) will be given to stakeholders in different formats.

- Info moments for farmers not directly involved in DEMETER now (during Nov-2020 to Mar-2021)
  - Info on scientific results
    - How good is the link between vegetation indices from drone/satellite images and in-field soil samples and yield information
  - Info in VITO-AVR WatchItGrow Decision Support System
    - How to enter data manually
    - How is data transferred automatically from machine to cloud
    - How to view data for one specific field, e.g. map of vegetation parameters
    - How to extract task maps from the DSS: variable rate fertilization, irrigation, Haulm killing
- Info moments for industry professional – Train the trainer (during Nov-2020 to Mar-2021)
  - Aimed at crop supervisors from potato processing industry
    - How to use the WatchItGrow DSS platform
    - How to explain to farmers how to use the platform
    - How to convince the farmers to start using the platform and share their data
- Workshop for farmers involved in DEMETER Pilot 3.4 (summer 2020)
  - Advice on the use of WatchItGrow DSS (VITO platform) and AVR Cloud platform (AVR), and how they are connected
- Participation in Trade Fairs (2019-2022)
  - Agrotechnica 2019: VITO + AVR demos on WatchItGrow and AVR Connect
  - Belgian trade fairs: Agribex and Interpom (demo from VITO in cooperation with the Belgian Potato Processing Industry; focused on potato processors, potato traders, machinery manufacturers)
- Synergies between DEMETER and other VITO projects
  - VITO has several research projects in Flanders on the use of drone and satellite images linked to croptype phenology. Dissemination of results in these projects will

also include info on the WatchItGrow+AVR Connect platform, and the DEMETER approach for agricultural data sharing.

- To Be Discussed: workshops for data-crunching third parties (as of 2021?)
  - Info on the DEMETER Enabler Hub:
    - How to discover data
    - How to use the data processing building blocks
    - How is data ownership handled, data security, ...
    - Cost of data use: possible business cases

#### 6.4.3 MAA activities in Spain

Pilot 5.2 focuses on improving milk quality in dairies as well as animals' well-being and health, and how this can affect the quality and information of processed products, considering also cereals and eggs as raw materials. This pilot also considers end-user involvement in quality testing and feedback provision. We consider in Pilot 5.2 a stakeholder as either an individual, group or organization who is impacted by the outcome of the pilot. They have an interest in the success of the project, and can be within or outside DEMETER.

Regarding actions for *improving milk quality and animals' well-being*, different questionnaires will be made to farmers and veterinarians to evaluate and improve applications and application requirements. The questionnaires will have the following questions:

- Project Vision:
  - *What is your vision for this pilot-product?*
  - *What defines success for this pilot-product?*
- Competition:
  - *What similar tools are in use today?*
  - *Which is the target market?*
  - *What are their relative strengths/weaknesses?*
- Users:
  - *Who is the primary role for this service/application?*
  - *What problems do users have that this product solves?*
- User goals:
  - *What defines success and what is a bad result?*
  - *What would the users wish for?*
- Context of use:
  - *What tools do they use today?*
  - *What data points do they collect today?*
  - *What's missing in the current process that this tool will provide?*

As we are in a very initial phase of the project, it has not yet been chosen in which location the field visits and key informant interviews will take place. However, latest interviews with farmers were done in "Centro de Capacitación Agraria de Palencia" (CIFP VIÑALTA) (<http://cifpvinalta.centros.educa.jcyl.es/sitio/>). Thus, this is a probable place for future user-involvement related activities.

Regarding *food production and user involvement use case*, Pilot 5.2 intends to integrate data brokering solutions in current production systems of dairy products and pastries, with the purpose of tracking ingredients, and assessing the quality of final products. In order to do this, we have to develop a series

of interactions with different stakeholders, both participants in DEMETER (internal) and external. Below we indicate the activities that will be carried out with their purpose and estimated calendar.

Interaction to professionals of food production: through Key Informant Interviews, the pilot participants will hold regular meetings with food production professionals to correctly understand the problems they face in their profession, in relation to the quality information of their products, interaction with suppliers, and relationship with end users.

Activities are planned periodically every 2 months or so, in the form of 2-hour meetings. Some of them, those that require the interaction or direct visualization of the production processes, will be carried out in the dependencies of the producing company and will be defined as field visits.

Regarding the provision of techniques to involve end-users in the production of food, it is intended to have regular consumer users of pastries and other bakery products (external stakeholders), who appreciate the difficulties of making processed food and value having information on food beyond the one currently labelled. Various activities are planned in which the pilot participants will have technological support in the form of Web applications or mobile phones, which allow them to interact with consumers and ask for opinions and comments on these factors:

- Correct product labelling and additional information about logos
- Personalized information according to user preferences. Assessment of the level of personalization of the information.
- Evaluation of products according to their consumption and management of recommendations.

These consumer workshops will be organized in Madrid, Spain, where the process of elaboration and processing of products will be explained, as well as instructions of how to use applications to interact to workshop organizers.

#### **6.4.4 MAA activities in Georgia**

The Georgian Farmer Association (GFA) will define, select and invite different interested parties: farmers, agricultural specialists, representatives of NGOs and government working in agriculture, students of Agricultural University, relevant private sector – shops/restaurants/ hotels/distribution companies, different donors etc. GFA will collaborate with INDATA to select Information Technology specialists to participate in planned activities under WP 7. GFA will be involved in organizing workshops and trainings. Training curriculum will be developed by DEMETER consortium and GFA will assist in conducting training programme in Georgia. GFA will use various strategies to reach all potential participants for attending the training programmes. GFA will actively use Mobile Application Agronavti in all the relevant activities within the framework of this project. Particularly, all training modules will be adapted and uploaded in Agronavti so that it is available online for further usage. GFA will use its Call Centre and Call Centre operators will be involved during mobilizing relevant stakeholders for the workshops and trainings.

The aim of the involvement of different stakeholders in the planned activities and conducting trainings and workshops is to:

- Raise awareness on project activities
- Introduce benefits of project to interested parties
- Increase knowledge on using modern technologies

- Share Agricultural best practices
- Increase access to training materials
- Improve agricultural production methods
- Increase sales due to high quality products produced by using modern technologies
- Increase private sector's and farmers' competitive advantage

Information about project activities will be spread across Georgia in spring using GFA communication channels (website, Mobile application Agronavti, social media, call center).

Theoretical part of planned workshops and trainings will be conducted in Tbilisi and practical component in the selected pilots in Georgia after installation of equipment on sites.

#### 6.4.5 MAA activities in Italy

The pilot 4.2 focuses on implementing an information flow optimization across different actors of the milk supply chain – from producers to consumers – ensuring the transparency of all stages. This means that all these actors are “interested parties” in project results that need to be reached by different means and contents. On one side, then, farmers and stakeholders of the agricultural sector, that will be involved in the project to:

- Contribute to the development of modern solutions based on real farmers' needs
- Increase farmers' knowledge about modern technologies
- Improve agricultural advisors and institutions knowledge about the benefit for their job coming from modern technologies
- Foster the adoption of modern technologies
- Improve production and processing methods
- Attract young people to agriculture

On the other side, consumers, final (the single consumer) and intermediate (the retailer), that will be involved in the project to:

- Collect their opinions about their trust towards products coming from “modern production technics”
- Know their level of acceptance of the new label coming from the pilot
- Improve their knowledge about the effort of the agricultural sector to reach their expectation
- Push them towards more aware purchasing habits based on transparency and knowledge of the production process

To these aims, Coldiretti will:

- translate into Italian language the most useful dissemination and communication products from DEMETER (the low level of English is indeed a real obstacle that affects the fulfillment of an effective multiactor approach)
- organize co-creation workshop in Italian territory, during which different stakeholders' opinions will be collected with the use of surveys questionnaires
- contribute to the definition of training materials to be disseminate among other farmers
- produce a set of articles on Coldiretti's online specialized magazine named “Il punto Coldiretti” that is sent via email to 240.000 users (mainly farmers, but also institution, advisors, technical staff of the local branches of Coldiretti) to explain the project objective, results, impacts, and opportunities.

#### 6.4.6 MAA activities in Ireland

The Irish Farmer Association (IFA) has identified that along with technical performance and pricing, the user experience of a technology solution is becoming a critical factor for the decision-making units on farm. As a result, a core objective for IFA is to develop new approaches for user-centric problem definition and solution building as outlined in section 5.2.1. The aims of these approaches are to shorten the discovery, validation, development and adoption new technologies on Irish farms. As farmers are the foundation of the modern agri-food supply chain this will also benefit the agricultural industry as a whole through up-stream value building.

IFA sees collaborating with, and learning from DEMETER consortium partners and extended industry stakeholders, as being vital to developing a best practice model that encompasses user-centric, participatory and lean that will help farmers identify and communicate the challenges they face and any opportunities they might see and connecting these with the DEMETER technology solution set.

Initially, IFA will work with TSSG, the lead on Task 7.2. Multi-actor approach animation, to better understand the best approaches to user-centric and design-driven solution building and see how these approaches are currently being applied in the agricultural sector. We will then investigate how these approaches can be further developed and extended into the primary producer (farmer) layer to better:

- understand farmer's 'jobs to be done', how the farming sector is segmented, what are the limiting conditions and what are the optimising criteria involved;
- observe and analyse the contexts in which these jobs and tasks take place;
- prototype solutions incrementally;
- and to better implement the new concept in reality.

The use of the DEMETER digital rooms developed as part of Work Packages 3 and 4, in particular the stakeholder open collaboration space (SOCS) will allow for the better facilitation of these collaborative efforts and workshops and open up new knowledge paths that can be currently difficult to organise. However, conducting knowledge transfer and learning activities virtually will be a new experience for the vast majority of Irish farmers <sup>1</sup>.

IFA will assist in the provision of training and the development of on-boarding strategies to help Irish farmers and other stakeholders' access and use the digital rooms. IFA will be able to offer guidance and insights on the best approaches to training farmers with regards to new technologies. We recently completed a research project on Irish farmers' use of, and attitudes to digital technologies on the farm. We will be able apply some of the key findings and recommendations for the farmer segment of the multi-actor animation, such as:

- stimulating awareness around the positive impacts these new technologies bring (such as saving time and reducing operational costs);
- starting small to include all levels of technology confidence and farm needs and building on what is already being used;
- and education and implementation of new technologies need to happen closer together.

After the initial engagement between IFA and TSSG, IFA will then start the planning activities related to farmer needs finding and problem identification through creating a consortium of reference

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<sup>1</sup> Digital Agriculture Technology: Attitudes and Adoption Study', Irish Farmers' Association 2019: <https://ifa.ie/DigitalAg>

farmers comprising of the different IFA farm sectoral committees and project teams i.e. IFA Future Leaders cohorts).

Planning will be influenced by the structure and design of the different methods detailed in 5.2.1. aligned to the outcomes desired by all stakeholders but with a particular focus on the farmer end-user.

IFA's aim for year 1 is to map the different MAA methods to the different requirement sets of our members and two run one workshop at a minimum by year end 2020 with a further three workshops in 2021.

## 6.5 Open Calls

The MAA approach will enable the extension of the technology offer beyond consortium partners and enlarge the outreach of the large-scale pilots by supporting the deployment of new pilots in different geographic regions through two open calls. One of the key features of DEMETER is to help farmers to overcome particular challenges by providing an innovative and open environment where farmers connect with technology and solution providers; it provides a collaboration framework between SMEs, pilot stakeholders and technology providers, to deploy pilots of new or enhanced products/services. Therefore, DEMETER open call to third parties has two main goals:

- Enlarge pool of Agro-interoperable technologies by engaging tech SMEs towards the integration of their solutions;
- Deploy geographic distributed small-scale pilots that demonstrate the impact and potential of DEMETER approach towards digitalising and boosting European Agro-business.

The open call process has been designed to be highly attractive to tech SMEs as well as early adopters/users, and is composed by the following phases:

- **Preparation:** The design, preparation and timing for the launch of the open call to engage third parties with DEMETER is critical for the success of the project. Preparation phase aims to:
  - **Design and publish the funding scheme:** the overall amount to fund third-parties is €1.0M, divided in €300k for Call #1 and €700k to Call #2
  - **Structure the open call process:** elaboration of the open call guidelines, materials, contract templates for sub-grantees and the definition of the templates for proposals
  - **Evaluation board:** receive applications, select and brief/ train external experts;
  - **Prepare other relevant call documents:** Call text, summary leaflet, Q&A (including application form and the detailed guidance on eligibility criteria).
- **Open Calls:** The open calls will be launched via F6S platform under a form-based application. F6S will be used both as a publication, promotion and evaluation platform for gathering the maximum number of proposals. Both calls will follow the protocol:
  - **General rules and eligibility criteria:** required by the official template of proposals by the EC. As a summary, it is important to indicate that the calls will fund the execution of projects by single SMEs for Call #1 and 2-3 partner consortium for Call #2.
  - **Publication, dissemination & scouting:** all partners will be invited to promote the Open Calls in events and marketing channels. Applicants that go through an earlier



call, will be invited to support the promotion of forthcoming calls on a peer-to-peer approach.

- **Evaluation and selection:** considering the funnel approach, there will be two evaluation periods:
  - Remote evaluation
  - Online-interview and scores consolidation.
- **Open Call #1, DEVELOP:**
  - **Goal:** to attract and fund single tech-SMEs (legal entities under the EC regulations<sup>2</sup>) in the development, integration and interoperability of technological products/ services within DEMETER ecosystem.
  - Main call characteristics: total budget: €300k; budget per project: up to €30k; number of funded projects: 8-12; duration of the project: 6-months.
  - **Timeline:**
    - M12 - Opening of call #1
    - M14 - Closing of call #1
    - M16<sup>3</sup> - Completion of call #1 application evaluations and projects launch
- **Open Call #2, DEPLOY:**
  - **Goal:** to finance the execution of projects by consortia of SMEs and non-profit entities, that are considered eligible by H2020, of 2-3 partners representing at least a tech provider/integrator and an end-user, for the deployment of small pilots (design, installation/operation and assessment) enhancing DEMETER methodology, technologies and value proposition.
  - Main call characteristics: total budget: €700k; budget per project: up to €150k; number of funded projects: 4-8; duration of the project: 12-months.
  - **Timeline:**
    - M22 - Opening of call #2
    - M24 - Closing of call #2
    - M26 - Completion of call #2 application evaluations and projects launch

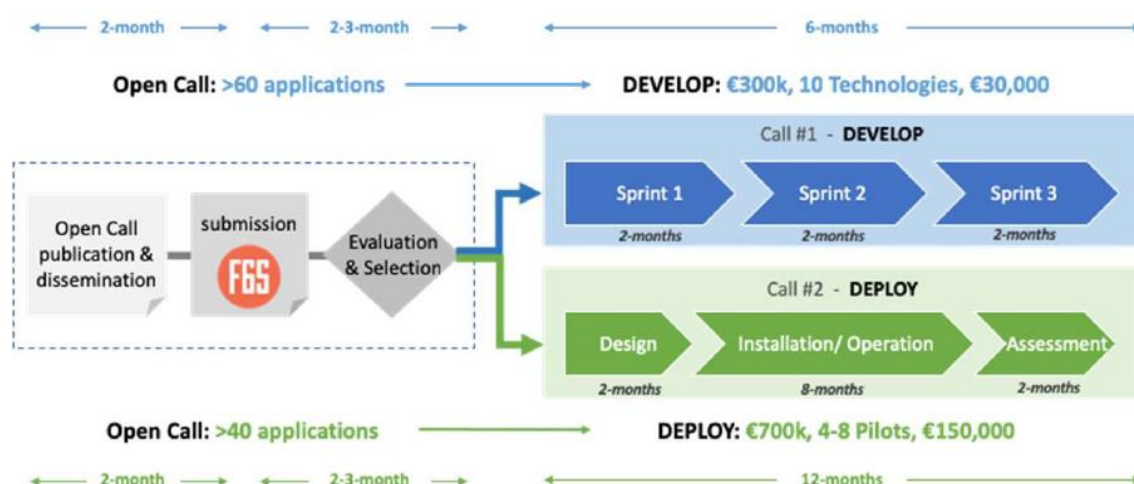


Figure 4: Open Call process

<sup>2</sup> [https://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition\\_en](https://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition_en)

<sup>3</sup> Updated from M14 to M16 in the first amendment of the project currently been prepared



To avoid conflicts of interest, applications will not be accepted from persons or organisations who are partners in the DEMETER consortium or who are formally linked in any way to partners of the consortium. All applicants will be required to declare that they know of no such potential conflicts of interest that should prevent them from applying.

## 6.6 Dissemination

Dissemination is one important goal of the MAA. All dissemination materials are designed in support of the MAA and will use tailored messages to reach the various target audiences. For this, WP6 and 7 are working closely together. The content described in this chapter is also part of Deliverable 6.1.

Table 2 outlines the various target audiences and how the content should be positioned.

*Table 2: Target audiences and content positioning*

Areas	Target Audience	Positioning of Content
Social	Public in general	Understandable by a large public of non-specialists - facilitated by World Farmers Organisation (WFO) and advisory services.
Agri-food	Farmers, cooperatives, agri service advisors, food processors, distributors, consumers	Understandable by stakeholders along the complete supply chain in the agri and food domains, in multiple countries globally.
Technical	Software and hardware developers	Understandable by ICT systems developers and system managers.
Scientific	Research community and international focus	Promotion of DEMETER as a creator of and a channel for high impact researchers and scientific investigations.
Business	Industry, SMEs, investors and solutions providers	Business opportunities and potential of technology ad societal benefits.

- Brochure

The use of brochures will be important at events, workshops and presentations to provide information on the DEMETER project to those attending across agri-food, technical, scientific and business sectors, in a visually appealing manner. The first brochure will be created when the open calls are launched.

- Flyers

Flyers or leaflets act as an important dissemination tool for the DEMETER project for those attending events, presentations and workshops. These will be similar to the brochure but condense the project's objectives and actions into a smaller output. As the space is limited, the flyers will be visually appealing, using infographics and limited text.

- Roll Up Banners and Posters

Roll-up banners are an effective branding tool for use at seminars, conferences, workshops etc. A generic design will be created reflect the style of the existing website.

Posters can be an excellent visual tool to explain the overall DEMETER project and the pilot clusters. Specific posters will be created for project events and shared in the online platform.

- Videos

A series of short marketing videos presenting the project and its objectives, the project partners and the outcomes will be created and used during events such as conferences and exhibitions. The videos will also be shared on the DEMETER YouTube channel.

- Newsletter/e-zine

A DEMETER project newsletter will be published every six months in year one (M1-M12) and quarterly from M12-42, to highlight the key project activities and deliverables. The aim of the newsletter is to inform the various target audiences particularly agri-food stakeholders, technical groups, public authorities, other EU initiatives and researchers of the progress and achievements of the project. The newsletter will contain focused content such as insights, interviews, progress reports, updates on deliverables, event summaries etc. It will be an essential instrument for effectively communicating and disseminating the project work during the three project phases.

- Press Releases

Periodic press releases (which coincide with major project meetings and events) will be released to local, national and international media (online, newspapers, trade press and publications). Major activities will be disseminated, when possible, through press releases and direct contacts with the media. Online press is prioritised for outreach reasons, but TV, radio and newspapers are also encouraged. Online press activity through recognised news websites as well as websites relevant to the agri-tech sector such as associations, cooperatives and companies is recommended.

- Website

The DEMETER website (<http://h2020-DEMETER.eu/>), illustrated in Figure 3, will be the main interface for communication with the public and will be updated regularly. It contains information relating to the objectives and goals of DEMETER, the project partners, pilot projects, proposed activities, demo videos, news and events, organised workshops and achieved results. It will include a “links and download” section where project information and reports/deliverables can be easily downloaded by relevant parties. The website also links to the DEMETER social media pages and contains a contact form and a sign-up form for the project newsletter. It will also be connected to the Open Innovation Space and will also include a dedicated space to manage the Open Calls. The website will be updated regularly by the webmaster with input from partners. Website traffic will be monitored using Google Analytics which provides data on users and their interactions with the site.

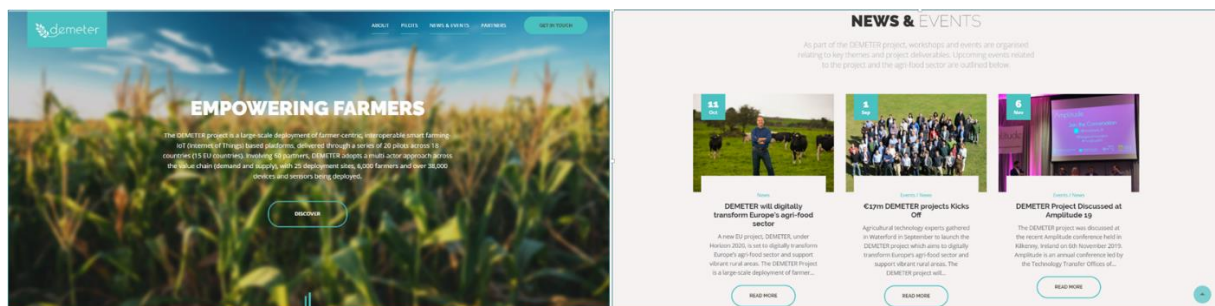


Figure 5: DEMETER website

- Social Media (SM)

To reach a broad target audience, the use of social media is essential. Social networks will be employed to interact with the public and the professional community (researchers, SMEs, large industry). Table 3 outlines the social media channels and their direct links, which will be used during the dissemination effort. The goal of the social media activity is similar to that of the communication strategy in terms of attracting, influencing and engaging with the identified target audiences. The platforms offer an opportunity to raise awareness of the project and the overall digitisation of the agri-food sector. Taking into account the DEMETER project goals and target audiences, Twitter and LinkedIn are the most active channels and have been established since the project outset.

Table 3: DEMETER Social Media Channels

Social Media Channel	Direct Link
Twitter 	<a href="https://twitter.com/H2020DEMETER">https://twitter.com/H2020DEMETER</a>
LinkedIn 	<a href="https://www.linkedin.com/company/h2020-DEMETER/">https://www.linkedin.com/company/h2020-DEMETER/</a>
Facebook 	<a href="http://www.facebook.com/H2020DEMETER">www.facebook.com/H2020DEMETER</a>
YouTube* 	<a href="https://www.youtube.com/channel/UC4yCHnnD1hJcQAF4yQXdiag">https://www.youtube.com/channel/UC4yCHnnD1hJcQAF4yQXdiag</a> *Custom URL for YouTube can only be established once channel has reached >100 subscribers.
SlideShare 	<a href="https://www.slideshare.net/H2020DEMETER">https://www.slideshare.net/H2020DEMETER</a>

Nevertheless, certain SM channels are more suitable for certain target groups. Table 4 summarises the target audiences per SM channel.

Table 4: Target audiences per SM channel

	Twitter	LinkedIn	Facebook	YouTube	SlideShare
Partners of the consortium	X	X	X	X	X
Agri-food Stakeholders	X	X		X	
Technical Groups	X	X		X	X
Public Authorities	X	X			
EU initiatives	X	X	X	X	X

	Twitter	LinkedIn	Facebook	YouTube	SlideShare
Researchers	X	X	X	X	X
Industry Associations and Technology Clusters	X	X		X	X
Press	X	X			
General Public	X		X		

This information will be more detailed in Deliverable 6.1: Initial DEMETER Communication & Dissemination plan.

## 6.7 Cross Project Collaborations

DEMETER intends to collaborate with other projects and initiatives.

In May 2019 a meeting with other projects took place in the ICT/Agri space, including ATLAS, IoF2020, SmartAgriHubs, AgROBOfood DIH and the CSA OpenDEI. The aim of the meeting was to discuss the cooperation of these projects accompanied by Open DEI. The output of this was an agreement to collaborate across a number of different areas (to varying degrees), as listed in the Table 5. Furthermore, DEMETER is collaborating with SmartAgriHubs to organise a session on pilots and use cases at the upcoming SAH event in Bucharest. Additionally, we are co-creating the agenda for the Agri sessions for IoTWeek with Atlas, SAH and IoF2020, DEMETER is the lead organiser.

Table 5: Areas for collaboration

Topic	Which role do you expect from OpenDEI?
<b>1. Communication</b>	
1.1 Common communication platform	Initiate, realisation - Implementation and maintenance of the platform - Common platform (website, mailing lists) to share relevant news, project results and events. Coordination of key press contacts for information dissemination. Agrobofood also has to be in conformity with the DIH for Robotics CSA:Robotics Digital Innovation Network: RODIN). We need to see how RODIN relates to OpenDEI. AgRoboFood would like to line-up as much as possible with IOF2020 and SAH, certainly for regional (Netherlands) activities.
1.2 common communication strategy	Taking the lead based on expertise and supplying tools/facilities/websites etc. And also facilitate, coordination - Organization and coordination of the strategy development process, regular assessment of the strategy -
<b>2. Open Calls</b>	
2.1 Sharing advisory board members	- Establishing an intercommunication process - To facilitate exchange or to upgrade an available list including members from other related projects.

2.2 Sharing standard package	Call	Compile best practices- First collaborative assessment of how such a package could look (e.g. terms of participation, FAQs, NDAs for evaluators...), presentation of the outcome to the consortia- Establishment of a common platform (website, mailing list, series of webinars) to share information about the open-calls in the Agri-Food area. This in order to have a single face to full ecosystem. Harmonize procedures.
2.3 Sharing short list of evaluators		Collection of necessary information about all possible evaluators, compiling, maintenance and distribution of the list - To facilitate exchange or to upgrade an available list including members from other related projects.
<b>3. Use Case Explorer</b>		
3.1 Sharing case descriptions		Collection, support at recording- Collection and distribution, consulting. Use Cases Benchmark.  Share. Share descriptions so we know which projects are doing which use cases - but not insisting that projects replicate use Cases. Make a uniform format to present use cases. Collect, archive and disseminate those. Maintain the status of the Use Cases (progress, TRL, contacts etc.) Maybe an annual update (public report?)
3.2 Sharing case specifications		Collection and distribution, consulting. Use Cases Benchmark. Support for setting up specifications by facilitating sharing and providing a common best practice format. support at recording, expertise on privacy, GDPR-
3.3 Sharing business models		Collection and distribution, consulting. Collect practices from all projects, combine and distil best practices. Maintain an inventory of those. support at recording, expertise on privacy, GDPR.
<b>4. Shared Infrastructure</b>		
4.1 Data infrastructure		Collecting good practices other sectors- Establishing and provision of common data storage services (e.g. cloud based), establishing and provision of a common HPC infrastructure (e.g. for neural network training, simulations)- AgROBO-food: Make a central data infrastructure to maintain all common shared information. Make it easy (less time consuming) for projects to submit information. Make the info easily accessible and transparent so projects can find each other to combine/share activities. We do think that it is upon the projects itself to what extend they want to collaborate, but the CSA should facilitate that project can find each other very easy.
4.2 Data market place – develop models showing value for communities		Need to define first what the marketplace will do. Further investigation needed.  Collecting good practices other sectors, initiate and coordinate actions- -
4.3 Sharing KPI definitions and methods		Collection, integration KPI sets and methods, GDPR expertise, making material accessible- Organizing and initiating the sharing process. Create process for sharing and harmonising terms and definitions. Maintain it in an inventory and distil best practices.

4.4 Sharing templates for Use Case monitoring, assessment and feedback	Collection and making material accessible - Organizing and initiating the sharing process. OpenDEI could possibly identify successful tools and templates from previous / existing projects - but not to mandate their usage. Maintain it in an inventory and distil best practices.
<b>5. Linking Eco-System</b>	
5.1 Combine kick-off meetings with public part	Coordination, organisation public part - Coordination and organization. OpenDEI maintain registry of relevant events / meetings - so projects can see if there is a suitable venue for common meetings.
5.2 Organise common events	Initiate and organise. May be few in common. Maintain a list of events, and provide means to be able to discuss among all projects possible common activities well in time.  Organisation of events focusing on the alignment of user needs, technology reuse, use-case implementations, impact, dissemination, knowledge exchange. Opportunity to get access to a broad user community.
5.3 sharing dissemination events with project active participation	Initiate, organisation- Doing the organization. Maintain a list of events, and provide means to be able to discuss among all projects possible common activities well in time.
5.4 Share communities of the 3 platforms	Facilitate linking to each other, and facilitate/promote cross-linking. Coordination - Collect / monitor the communities, organize the interconnection between them – see also comment on common communication platform.
5.5 Synergy between Use Cases (bring UCs together)	This needs more definition as not fully clear what this is about. Initiate, organisation - Collect information on all use cases, identify possible synergies, initiate the cooperation. Maintain a Use Case inventory and review regularly the inventory and search for possible overlaps/linking possibilities. If so report directly to involved people. Projects need to report Use Case initiative already in an early state (low TRL).
<b>6. Technical Topics</b>	
6.1 Architectures	Collection, distribution - Organizing meetings, collection and distribution of information, coordination- Support to standards and harmonization processes.
6.2 Cooperation on standards	Collection, distribution - Organizing meetings, collection and distribution of information, coordination- Support to standards and harmonization processes.
6.3 Re-usable Components	Collection, distribution - Organizing meetings, collection and distribution of information, coordination- A mapping framework to establish links between user needs and relevant functionalities or components from different platforms. A registry or possibly a repository of reusable tools and

	components will promote cooperation across multiple projects and reuse of existing tools, avoiding reinventing the wheel.
<b>7. Standardisation</b>	
7.1 Standardisation plan	Survey of relevant standards in areas related to the digital platforms (Interoperability, IoT, Security, Data Exchange, Integration etc) and facilitating knowledge exchange among all projects on the use of common standards, identification of short-comings in existing specifications and potential for contributions
7.2     Structured Wiki	Setup of a structured wiki or common glossary to promote the use of common vocabulary, terminologies, technologies etc.

## 7 Monitoring the effectiveness of the multi-actor approach

Concepts as Open Innovation or Social Spaces of Innovation will be applied to classic development stages: Preparation or design, Development and Evaluation or testing. In the preparation phase, a strategic approach is necessary to involve the stakeholders. Besides this, specific approaches are necessary to gather the requirements, compile relevant information and establish the links between the pilots. Other activities as tools deployment, development of the applications, perform the users roll out; provide the corresponding training that will cover the Development phase. In the evaluation phase it is necessary to use adequate indicators; measures and techniques for assess key process and outcomes. This also will enable to compare and benchmark experiences across the different pilots.

DEMETER methodology will highlight a shared Key Performance Indicators common framework.

In DEMETER project and its pilot implementations, DEMETER partners will design, set-up and develop several innovation ecosystems as instruments to capture, maintain and implements technological innovations. These innovation ecosystems will complement and enhance previous ecosystems by connecting and integrating farming, knowledge, business and policy ecosystems. In the effective innovation ecosystem, equal roles are anticipated for users who act as motivators and provide incentives for innovation, system integrators and technology providers and governance institutions. These innovation ecosystems, shaped around the pilots, will provide means to fully absorb a well-define multi-actor approach. The multi actor approach of DEMETER means that the project will collaborate with farmers, farm advisors and other practitioners, using their knowledge, for developing solutions and creating “co-ownership” of results.

Moreover, the Innovation Ecosystems will be established within a framework of sustainability, ensuring its viability beyond the end of the project and also with the adoption of an organizational base structure leaded by the user's communities like user associations, foundations, Operational Groups, etc., with a clear definition of stakeholders, well balanced and weighed with a clear figure of a main representative of the social space.

In line with Multi Actor Approach are the concepts of Social Spaces and Social Validation. Originally, those concepts come from W. Mitchell Professor at MIT and Living lab concept adoption in Europe<sup>4</sup> and are directly related to Open Innovation as promoted by Henry Cherbourg<sup>5</sup> at the University of California. Continuing this work, there have been projects and studies that aim to define, classify and evaluate as many social spaces as possible with different approaches on their definition, classification and evaluation.

Basically, this methodology, and its DEMETER implementation, consists of a problem driven approach, with short cycles of experimentation, and target community's involvement in the early process. In order to clearly set Social Spaces for Research and Innovation concept in terms of openness, mature level or design approaches P. Ballon<sup>6</sup> used them in test and experimentation platforms for broadband systems.

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<sup>4</sup> Helisinki manifesto in 2006: [http://elivinglab.org/files/Helsinki\\_Manifesto\\_201106.pdf](http://elivinglab.org/files/Helsinki_Manifesto_201106.pdf)

<sup>5</sup> Chesbrough, H.: Open Business Models. How to Thrive in the New Innovation Landscape. Harvard Business School Press, 2006.

<sup>6</sup> Ballon, P., Pierson, J., Delaere, S. Fostering Innovation in Networked Communications: Test and Experimentation Platforms for Broadband Systems. Simon Heilesen & Sisse Siggaard Jensen, eds (2007) Desingning for Networked Communications: Strategies and Development. Hersey: Idea Group Publishing, pp. 137-167.



Social Spaces for Research and Innovation (SSRI)<sup>7</sup> are defined as organizational ecosystems in which the research and innovation activities are guided by the necessities and constraints of the social communities that benefit from the results, involving, in a balanced way, all the actors present in the research and innovation value chain such as social communities, technology and solution suppliers, service suppliers, funding organizations and members of the local, regional and national legal, economic and political scene. As it is possible to see, this approach fully agrees with our defined MAA in the DEMETER project.

SSRIs are linked to a specific context or territory whose main pillars or foundations are society, market, policy, technology and infrastructure (see **Error! Reference source not found.**).

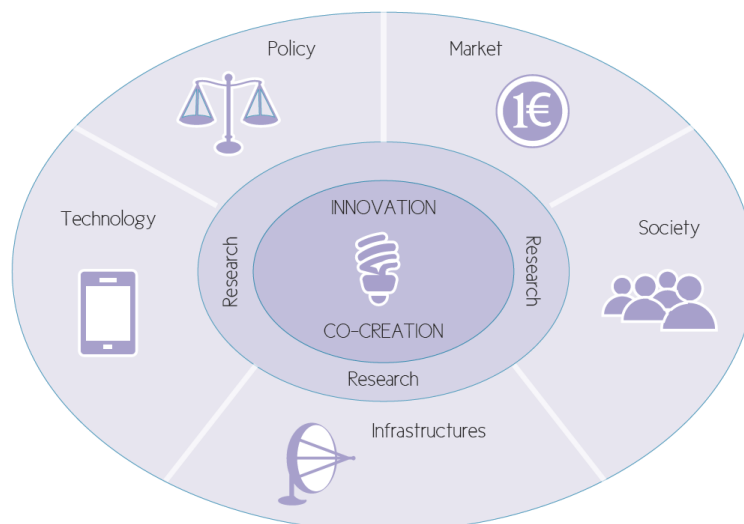


Figure 6: Social Spaces for Research and Innovation five elements: policy, market, society, infrastructures and technology

This concept pursues the creation of innovation territorial clusters for demand driven open innovation at environmental scenarios.

Through enabling new ways of collaboration within sectors, based on ICT solutions, this approach strengthens traditional researching activities as well as societal services, and stimulates emerging business activities with the purpose of generating innovative solutions, reducing costs and improving work user-experience and, definitely, making easier the adoption of researching solutions by final users and stakeholders.

SSRI is paving the way from basic research to innovation and facilitates technology transfer to society including societal pilots and market pilots as market trials. SSRI is guaranteeing results and society adoption of the main outcomes of innovation into a profitable approach. It includes all types of test in available infrastructures, from early prototyping to end deployment.

SSRI has become an important instrument for the emancipation and empowerment of the society, promoting new models of governance and relationships between society, national institutions and companies, democratizing the process for innovation. Most approaches do not consider sustainability indicators, lessons learnt and best practices to launch innovation ecosystems. Only SSRI consider success indicators, quality and maturity measures, clear target communities involved and enough critical mass or representativeness to be considered a strong innovation ecosystem.

Our methodology framework considers local community building as a basis for end-user engagement, getting key stakeholders involved and agreeing with them about the open innovation strategy,

<sup>7</sup> [www.researchspaces.eu](http://www.researchspaces.eu)

establishing short experimentation, monitoring and evaluation cycles of solutions, and gradually building a framework to develop strategies for achieving impact at local, national and European levels.

The SSRI concept aims to accelerate the progress of stakeholder's communities to be the ones playing a leading role in the tools that they will use and willing to actively participate in the co-creation and design of innovative services and ways of cooperation. The real power of SSRI lies on its member's strengths and its cooperation capabilities in terms of knowledge exchange, joint design and planning of strategies and services oriented to achieve significant improvements and benefits to the final users.

Besides this, our Multi-Actor Approach and SSRI strategy, that guides DEMETER methodology, is fully supported by the concept of Open Innovation. One of the best and most concise definitions of OI was proposed by Chesbrough (2006): "the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively." This definition is based on fundamental assumptions developed in the economics and management literatures on "knowledge spillovers," or whether and how knowledge "leaks" out of organizations that invest in knowledge development such as research and development (R&D). The European Commission (2016) develops this idea (which they dub Open Innovation 2.0) further, discussing the central role that users play in both value creation (as in distributed innovation or crowdsourcing, e.g., Afuah & Tucci, 2012) and as the target of innovation in and of itself ("user-centric"). This so-called Open Innovation 2.0 also includes a well-functioning "ecosystem" or business ecosystem, where stakeholders or members of the ecosystem collaborate "along and across industry and sector-specific value chains to co-create solutions to socio-economic and business challenges.

Farmers, Agricultural Cooperatives, PAs representatives, Smart Farming providers, Farm Advisory Services, researchers and other stakeholders will be engaged from the beginning of the project and contribute to the concept design, in the validation and in the testing of the components, providing feedback, data, information from Smart Farming apps and requirements.

In a practical level, DEMETER will implement the MAA approach across the full chain, from farmers to public administrators and technology providers. The DEMETER MAA is implemented through a complete set of mechanisms structuring the human interaction with all stakeholders, and supports this interaction through social spaces, with each space catering to different phases of the interaction leading to the innovations and deployment of enhanced applications at farmers.

A Key Performance Indicator is a measurable value that demonstrates how effectively key objectives are being achieved. Organizations use KPIs at multiple levels to evaluate their success at reaching targets. High-level KPIs may focus on the overall performance of the business, while low-level KPIs may focus on processes in departments such as sales, marketing, HR, support and others. Consequently, KPIs are quantifiable measures used to evaluate the success of DEMETER Pilots.

KEY PERFORMANCE INDICATORS					
AREA	CONCEPT	KPI 1	KPI 2	KPI ...	KPI N
Strategy	Goal				
	Audience				
	Question				
	Use				
Description	Name				
	Collection method				
	Assessment				
	Targets and/or Thresholds				
	Source				
	Frequency				
	Reporting Frequency				
	Data Entry				
Validation	Expiry of Revision				
	Cost				
	Completeness				
	Consequences				

In the DEMETER KPIs template each pilot will register the following information regarding final outcomes validated through specific KPIs. The information will be explained accordingly to three main areas:

#### **Strategy:**

This section will define WHY a specific result has been obtained. The different points to fill by the pilot are:

- Goal: It names the strategic objective which is being assessed with this indicator
- Audience: It names the key audience for this indicator and clarify who will have access rights to it
- Question: It names the performance question(s) this indicator is helping to answer
- Use: It describes how the insights this indicator generates will be used and outline how this indicator will not be used

#### **Description:**

This section will define WHAT a specific result is obtaining. The different points to fill by the pilot are:

- Name: Short and clear indicator name
- Collection method: Description of how the data will be collected
- Assessment: Describe how performance levels will be determined. This can be qualitative, in which case the assessment criteria need to be identified, or it can be numerical or using a scale, in which case the formula or scales with categories need to be identified
- Targets and/or Thresholds: Identification of targets, benchmarks, and thresholds for traffic lighting
- Source: Describe where the validation data will come from
- Frequency: Describe how frequently is this indicator will be collected.
- Reporting frequency: Outline how frequently this indicator will be reported to the different audiences (if applicable)
- Data entry: Name the person or role responsible for collecting and updating the data
- Expiry or Revision: Identify the date until when this indicator will be valid to or when it will have to be revised

**Validation:**

This section will define HOW a specific result is validated. The different points to fill by the pilot are:

- Cost: A estimation of the costs incurred by introducing and maintaining this indicator
- Completeness: It assesses how well this indicator is helping to answer the associated key performance question and identify possible limitations
- Consequences: It describes how this indicator could influence wrong behaviors just to accomplish the KPI

## 8 Conclusion

WP7 is going to carry out and support several activities during the runtime of the DEMETER project. This deliverable describes planned activities to implement the DEMETER Multi Actor-Approach (MAA).

For DEMETER Digital Spaces that are developed in WP 2 and WP 3, WP7 will support these work packages in order to ensure that a user-centric approach is going to be carried out during the development process of these spaces. To ensure a user centred design approach, planned activities include the support of surveys, monitoring of the requirements engineering process and the elaboration of a vision scenario.

WP7 will furthermore conduct workshops and trainings with a variety of stakeholders affiliated with DEMETER. These workshops and trainings are going to be conducted on demand, meaning that there is no specific number of activities planned. Rather, they are supposed to take place when and where required. For this, WP7 prepared a list of workshop formats and methods, be it onsite or remote.

In addition, WP7 is going to support the pilot specific national actions, that are taking place in the above listed countries. They will receive training and methodological support by WP7 and the quality of their results will be monitored here.

Through the DEMETER Open Calls, the MAA opens up to external developers and encourages tech SME's to take part in the development of smart agricultural solutions. WP7 will be responsible for the preparation, planning, and the opening of these calls.

Last but not least, WP7 will take measurements in order to collaborate both internally and externally throughout the DEMETER project runtime. On the one hand, for the dissemination of the DEMETER activities, a close collaboration with WP6 is planned. This includes newsletters, press releases, websites, etc. On the other hand, several collaborations with other projects in the field of smart agriculture are planned, in order to promote knowledge exchange and the MAA as a whole.

The planning of activities is constantly monitored and adjusted according to needs and current developments. All MAA activities are discussed in the biweekly WP7 conference calls and in the biweekly WPL conference calls.