

D2.1.2 TRIAL IMPLEMENTATION PLAN

WP 2

29th June 2017



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| PU | Public | X |
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| RE | Restricted to a group specified by the consortium (including the EC Services) | |
| CO | Confidential, only for members of the consortium (including the EC) | |



TABLE OF CONTENTS

| | |
|--|-----------|
| EXECUTIVE SUMMARY | 5 |
| 1. INTRODUCTION | 6 |
| 2. METHODOLOGY | 7 |
| 2.1. METHODOLOGY FOR THE USE CASE WORK PLAN TEMPLATE CREATION | 7 |
| 2.2. METHODOLOGY FOR FILLING IN THE USE CASE WORK PLAN CONTENT | 10 |
| 3. CONCLUSION | 20 |
| ANNEX 1 | 21 |



LIST OF ABBREVIATIONS

IoF2020 – Internet of Food & Farm 2020

IoT – Internet of things

IT – Information technology

KPI – Key Performance Indicators

LSP – Large-scale pilot

MVP – Minimum viable product

SMEs – Small and medium-sized enterprises

TRL - Technology readiness level

UCs – Use Cases

UCWP – Use Case Work Plan

WP – Work Package

EXECUTIVE SUMMARY

The deliverable 2.1.2 *Trial Implementation Plan* is the result of a joint effort between work packages and use cases. The cooperation among WP2, WP3, WP4 and WP5 enabled the co-creation of an exhaustive work plan template, requiring information that cover different aspects of the Use Case future plans such as: their economic approach, tasks management, involved partners, technical requirements and dissemination material. All the 19 UCs provided their work plan, most of them proving a very high quality of the inputs. The Use Case Work Plans represent the backbone of each UC future plans, including their deliverables to the projects and the KPIs measuring their economic, environmental, and other (social) impact. On the same way, the D2.1.2 represents the scripture of IoF2020 project, since this document is the base for a measuring yearly progress of the UCs, which will be done through the annually deliverable D2.3.1 *Annual Implementation and Performance Monitoring Report*. Nonetheless, the work plans should be considered as living documents, where plans and tasks can be modified in order to obtain more significant results for the project.

After analyzing the collected data, the first indicators are showing that, even in this early stage, IoF2020 is proving to reach the project objectives, such as: demonstrate business case, integrate IoT technologies, ensure user acceptability of IoT and sustainability of the developed solutions in order to have a large-scale uptake of IoT. By comparing the analyzed results with the project objectives KPIs it can be highlighted how the number of demonstration sites for future conduction of the experiments is at 80% of the target value, with 80 sites counted. As well the number of organizations involved in the trials represents 2/3 of the target value. Moreover, the technical architecture of the UCs ensures the integration of IoT technologies for each UC, promising innovative solutions. In the future months WP3 will analyze the architectures models of the UCs to possibly enhance the interoperability of IoT solutions among UCs, this increasing the number of business cases of successful innovations. Simultaneously, the high number of end users already present in the 5 Trials together with the bottom-up approach that characterizes IoF2020 Project, ensure the user acceptability of the IoT solutions. These results, at initial project phase, represent a solid starting point for the project.

The future steps to assure the success of IoF2020 include a coordinated sheer volume of actions involving all the WPs. WP2 will keep closely following up the UCs activities through the UC monthly meetings and trial monthly meetings. The D2.3.1 -, “Annual Implementation and Performance Monitoring Report” due in M12 will already show the first progresses and results of the use cases. Meanwhile, WP3 will enhance the interoperability of the IoT solutions among UCs and WP4 will ensure that all the UCs have concrete business plans. The results will be disseminated through and thank the powerful channels that WP5 is creating and managing.

1. INTRODUCTION

The Internet of Food & Farm (IoF2020) consortium has been selected for a grant from the European Commission to investigate and foster a large-scale implementation of Internet of Things (IoT) in the European farming and food domain. IoT is a powerful driver that has the potential to transform the entire farming and food domain into smart webs of connected objects that are context-sensitive and can be identified, sensed, and controlled remotely.

IoF2020 consortium consists of more than 70 partners from around 16 countries and is coordinated by Wageningen UR. BioSense Institute, as a leader of Work Package 2 (WP2), together with ILVO, is responsible for the implementation and monitoring of all trials across Europe. The project builds around 5 trials, in the areas of fruits, vegetables, meat, arable and dairy, with 19 use cases (UCs) connecting information technology (IT) experts, end-users from the agri-food sector, small and medium-sized enterprises (SMEs), and the largest European high-tech companies, with a common goal to create sustainable and highly productive European agriculture of the future. In these use cases technology readiness levels (TRL) of IoT technologies will be upgraded, whilst at the same time building a societal ecosystem to improve take-up of these technologies.

The deliverable 2.1.2 *Trial Implementation Plan* is the second deliverable of WP2. The objective of this deliverable is to provide a thorough and detailed trial deployment plan for each of the five trials and its 19 use cases in order to ensure the execution of a successful large-scale pilot (LSP) program.

This deliverable displays detailed plan of implementation for each trial and individual use case, outlining “who does what, when and how?” to the tiniest detail. The UC work plan is developed on trial and use case level and includes, among all, the definition of the exact areas/facilities of deployment, technical requirements (number of devices, etc.), activity calendars, tasks and responsibilities of involved parties, risk management etc.

The Trail Implementation Plan deliverable is divided into 2 main sections dealing with work plan methodology description and work plans themselves. In the Conclusion, a brief analysis and conclusions of all plans is provided including a future outlook.

The main objective of this deliverable is to set the working dynamic in order not only to anticipate and respond to possible emerging issues with the available resources, but also to set a base for the UC progress monitoring, to check whether project is on-track and aligned with the planned working activities. The UCWPs are reflecting the work that is statutory required and additionally to assist in defining tangent-line-relation across UCs.

2. METHODOLOGY

2.1. METHODOLOGY FOR THE USE CASE WORK PLAN TEMPLATE CREATION

For justification of the methodology used for the Use Case Work Plan (UCWP) template creation it is important to understand the overall structure of the IoF2020 project work plan. The IoF2020 trials are representing a demand-driven approach, incorporating all technological and innovation elements, designed to carefully realise the tasks related to the use, application, and deployment along with the development, testing and integration activities. The major part of these activities is grouped in the WP2 for the management of the trials. The WP3, titled *IoT Integration and capabilities*, is supporting this from a more IoT technological perspective, facilitating the proper reuse of available approaches and technologies. The business-related support performed by WP4 (*Business support*) is driven by demand and supply for business models to finally facilitate a market reach. The WP5, called *Ecosystem development*, is maximising IoF2020's impact, while carefully supporting both, the internal and external collaboration. Accompanying, IoF2020 is based on a light-weight management structure that considers the project's complexity, enables flexibility, and explicitly includes feedback mechanisms to allow adaptation and optimisation of the technological and business approach.

Nonetheless, project management in IoF2020 goes beyond simple management structure, due to complexity of tasks, sheer number of partners involved and variety of involved partners' backgrounds. IoF2020 is combining a hierarchical top-down management model that is defined by related boards, committees, and management groups. At the same time, it allows a synergetic bottom-up management, focusing on the trials in WP2. Agile development approaches in the trials and related use cases will have strong correlations with a matrix organisation that is grouped according to the trial topics/challenges (i.e. arable, dairy, fruits, vegs, meat) with the IoT related topics (i.e. technology enablers like sensors, actuators, long-range communication). This was done to facilitate the elaboration and validation of business models as joint effort of WP2 & WP4 (*Business support*), as well as to enable the identification of synergies and efficiency potentials when realising the required technologies in WP2, supported by WP3. On top of that, it also allows responding to the trial needs with a flexible and most logical grouping of work that will enable a reuse of technologies and assures both efficiency and effectiveness of work to be accomplished. This is also considered as a basic prerequisite to follow a multi-actor approach and a demand-driven innovation through involvement of the various actors that is also consolidated in relation to WP5.

For the purpose of creating Use Case Work Plan template, WP2 has prepared a first draft with chapters covering the general use case description, partners involved, use case work plan, technical requirements, use case impact, deliverables and milestones, and risk management. The first draft was delivered to WP3, WP4 and WP5 so they could provide valuable inputs, comments, and suggestions for Use Case Work Plan template improvement. With such an approach (Figure 1), we have demonstrated collaboration between work packages by acting as a joint force. With distinctly defined

work packages roles we have managed to integrate specific approaches of each of them in the process of UCWP formulation by incorporating their knowledge and expertise contribution.

The following paragraphs provide detailed explanations how each of the mentioned WPs contributed and helped in finalization of this significant document for assuring smooth and uniform process of implementation.

Use Case Work Plan chapter *Technical requirements* was developed in cooperation with WP3. Since WP3 is intentionally designed as a supportive work package, serving the needs of smart farming and food security in the course of IoF2020 project, enabling an easier analysis and reuse of business models and technologies applied in the use cases. It facilitates the harmonisation and coordination of technological work for allowing enhancement and configurations of relevant open platforms as experimental infrastructures for usage in the specific IoT use case instances. It also coordinates and groups the synergetic work on technologies that are of joint interest.

Then, the work in WP4 on business support has a rather entrepreneurial characteristic compared to classical business plan driven approaches. An underlying concept is the application of elements from the lean-start-up approach that are applicable to start-ups as well as to large organisations and will facilitate to think in terms of a “demand-driven development of products”, instead of a technology driven provision of features. This enables an early validation of results with end-users in real-world settings, combined with the measurement of relevant key performance indicators (KPIs). Therefore, WP4 has developed economic KPIs catalogue in order to alleviate process of identification of relevant use case KPIs. Moreover, WP4 has provided input for economic approach definition, containing sections for determination of business model, minimum viable product (MVP) planning and market entry of the use case. All IoF2020 use cases got the opportunity to redefine, re-evaluate and fine-tune KPIs as well as their methods of measurement, setting current values and presenting target values as well, even they were defined at an early stage of the proposal preparation.

Concerning the WP5, it combines the internal and external communication channels. Beyond reaching individual target audiences, it also exploits the potential of match making different target audiences with each other. This takes advantage of the available contact points in WP2 to properly develop the ecosystem with establishment realising an optimal communication strategy to serve the needs from an internal and an external perspective. Therefore, WP5 is a project gateway for communication and serve at the same time just as a proxy to directly connect the stakeholders. Regarding the UCWP template, WP5 has provided chapter elaborating questions of promotion material.

After receiving these valuable and helpful details from work packages, WP2 had performed consolidation of all inputs and had published the final version of Use Case Work Plan template (see [Annex 1](#)). Prior to the UCWP distribution to the use case coordinators, WP2 has inserted available general information about UCs. Finally, UCs were given two months for a completion of fill in process.

Ultimately, finalized UCWP documents were checked and distributed to relevant WPs for further processing and use of provided information.

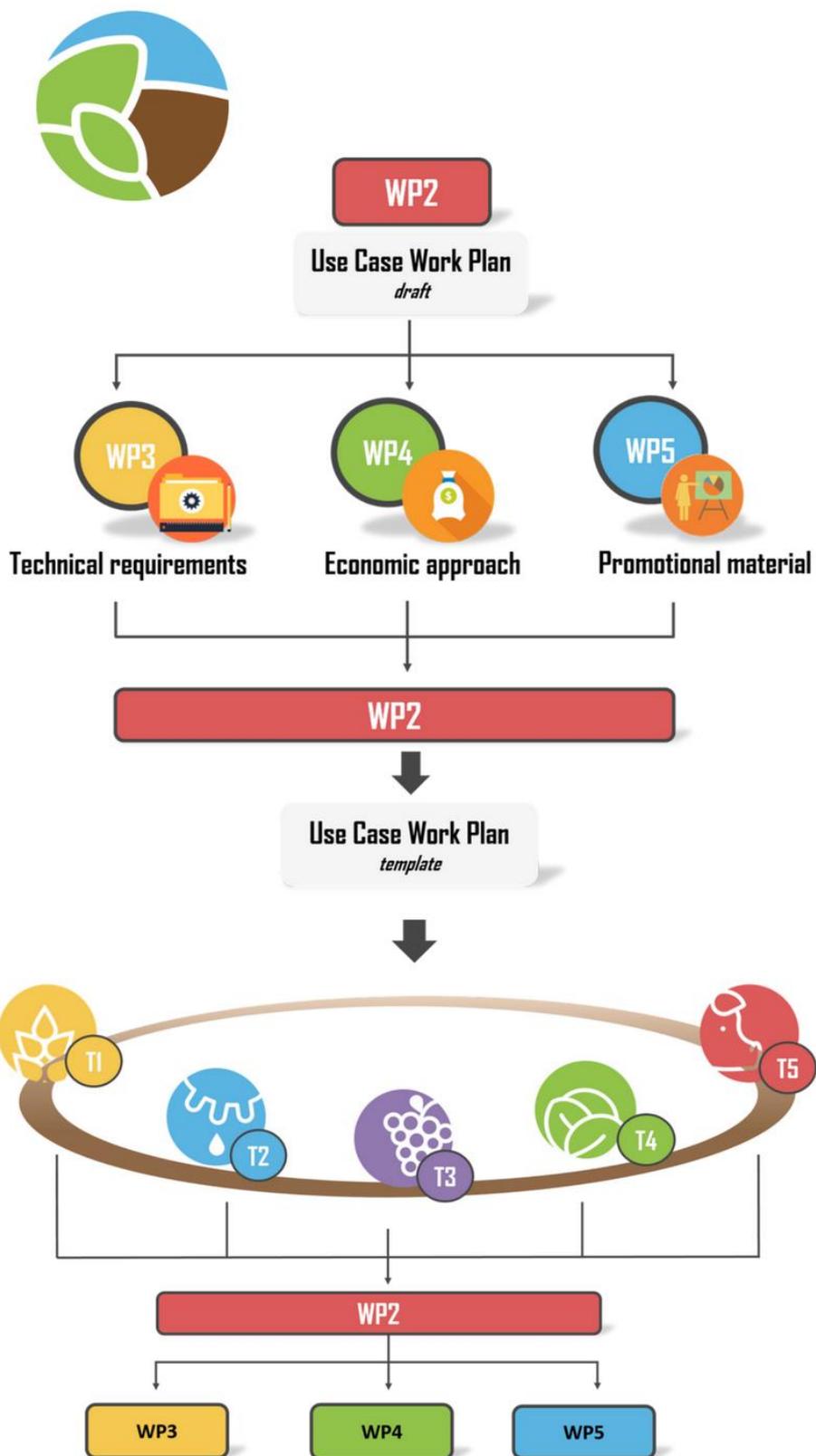


Figure 1 Collaboration between WPs

2.2. METHODOLOGY FOR FILLING IN THE USE CASE WORK PLAN CONTENT

IoF2020 has included 19 different use cases divided into 5 big trials: arable, dairy, fruits, vegetables, and meat. For a precise description of each use case, we have developed a chapter that deals with general, but at the same time very specific characteristics of each use case. General use case description table is shown in the Figure 2 with expected outcomes to be provided by the use case coordinators.

| | | | |
|----------------|--|------------------------|--|
| U.C.X.X | Use Case Name: | | |
| | Use Case Coordinator(s) and e-mail: | | |
| | UC Starting Date: | UC Ending Date: | |

| | | | |
|---|---------------------|--|---|
| General Goal | | | |
| Short Description | | | Place for trial logo |
| Use case specific challenges | | | |
| Use case envisaged outcomes | | | |
| Use Case Characteristics | | | |
| Sector | | Description of the sector that the UC focuses on | |
| Conventional/Organic | | | Description of how UC is applicable to organic agriculture and what are the benefits for organic agriculture. If not organic, could it be applicable to organic agriculture and how |
| Benefits to organic agriculture | | | |
| Countries of Implementation | | | |
| TRL | Value | Current | Target |
| | Organic | For description of UC innovation creation in the target group, explaining the current state-of -the-art, what is innovative about the UC compared to existing state-of-the-art, which are the main actors using the envisaged innovation/ related solution for which purpose, supporting this with appropriate references where needed | |
| | Conventional | | |
| Value Chain Coverage | | Indicate what parts of the value chain covers this UC and which business processes are targeted at Farming => Processing => Logistics => Consumer | |
| Problem Description | | | |
| Innovation | | | |
| Functionalities/ Services | | | For listing the main functionalities and/or services that will be provided to the stakeholders |
| 2.1 Promotion Material | | | |
| Quote | | Explanation of how will UC pave the way for the use of IoT technologies in the UC sector, in one sentence | |
| Photos | | | For photos of the UC in .png or .jpg formats |
| Public Disclosure of Use Case Progress | | | For specification if the UC progress can be communicated publicly (social media, newsletters, website, interviews) or if the information about the case should only be available to project partners until a certain time |
| Online presentation | | | |

Figure 2 General Use Case Description

In case UC have online presentation, provide link of website/ social media page/handle etc.

For the definition of partners involved within the use case, WP2 took into consideration multiple partner options as well as possibilities of third parties involved in the use case. For keeping the track of all partners included within the use case, it should be specified the following: partner details with role description and responsibilities (Figure 3 Partners involved).

| Partner 1 | |
|-------------------------------------|--|
| Organization name/short name | |
| Country/Region | |
| Address | |
| Contact person name/E-mail | |
| Type | |
| Role description | |
| Type of actor: Conventional/organic | |
| Responsibilities | |
| Person months | |
| Other comments | |

| Partner 2 | |
|-------------------------------------|--|
| Organization name/short name | |
| Country/Region | |
| Address | |
| Contact person name/E-mail | |
| Type | |
| Role description | |
| Type of actor: Conventional/organic | |
| Responsibilities | |
| Person months | |
| Other comments | |

| Third party involved | |
|-------------------------------------|--|
| Organization name/short name | |
| Country/Region | |
| Address | |
| Contact person name/E-mail | |
| Type | |
| Type of actor: Conventional/organic | |
| Role description | |
| Responsibilities | |
| Person months | |
| Other comments | |

Figure 3 Partners involved

Shifting to the use case work plan description, WP2 has established the table where the use case coordinators provided detailed work plan task list (Figure 4 Use Case Work Plan). For multiple tasks and subtasks definition it is possible to add more tables/rows.

| Task 1 | Start month | MX | Duration | XM | Total PM | XX |
|------------------------------------|---|-----------|-----------|-----------|-----------|----|
| Title | | | | | | |
| Partners involved | Partner 1 | Partner 2 | Partner 3 | Partner 4 | Partner 5 | |
| | | | | | | |
| Person months | | | | | | |
| Third parties involved: | Organization name | | | | | |
| Goal: | List of third parties involved in this task | | | | | |
| Activities Description: | Short description of the task goal | | | | | |
| Subtask 1.1 | Detailed description of activities. Limit: 10 lines per activity. | | | | | |
| Subtask 1.2 | | | | | | |
| ... | | | | | | |
| Subtask name and brief description | | | | | | |

| Task 2 | Start month | MX | Duration | XM | Total PM | XX |
|-------------------------|-------------|-----------|-----------|-----------|-----------|----|
| Title | | | | | | |
| Partners involved | Partner 1 | Partner 2 | Partner 3 | Partner 4 | Partner 5 | |
| | | | | | | |
| Person months | | | | | | |
| Third parties involved: | | | | | | |
| Goal: | | | | | | |
| Activities Description: | | | | | | |
| Subtask 2.1 | | | | | | |
| Subtask 2.2 | | | | | | |
| ... | | | | | | |

Figure 4 Use Case Work Plan

Technical requirements chapter includes subsections for precise defining of use case details regarding technical aspect. At first, use case should show architecture sketch (block diagram) of the systems deployed in the use case for clearer overview. Second, use case should list involved actors (users), outlining especially the ones using the systems deployed in the use case. Moreover, for each actor should be provided explanation what kind of input/output data is accessed by the actor as well as when, which are the main user interfaces with an option to add or remove rows (Figure 5 Actors (users) involved).

| Actor Name | Main features provided to the actor | Main data input/output actions | Main User interface(s) used |
|------------|-------------------------------------|--------------------------------|-----------------------------|
| | | | |
| | | | |
| | | | |

Figure 5 Actors (users) involved

Deployed components should be listed according to the Figure 6 Deployed components, keeping in mind names used in the sketch (block diagram) previously explained. Of crucial importance is to list deployed components (technology) name, describing its characteristics, defining its supplier (or brand) and model, number of installed units and deployment site or sites. Deployment site/sites should be in direct correlation with table shown in Figure 10 Area/facilities deployed.

| Name | Description | Supplier (brand) + Model | Number of Units | Deployment Site(s) |
|------|-------------|--------------------------|-----------------|--------------------|
| | | | | |
| | | | | |
| | | | | |

Figure 6 Deployed components

After defining deployed components, the use case coordinators should specify if any of the components are available/appropriate for re-use. If so, it should be provided web page of the component, its license (for software) and explanation of its potential for re-use by adding or removing table rows (Figure 7 Re-usable components).

| Name | Web Page | License | Potential for re-use |
|------|----------|---------|----------------------|
| | | | |
| | | | |
| | | | |

Figure 7 Re-usable components

Communication standards and formats used in the use case should be listed as required in the Figure 8 by adding or removing rows, depending of input amount. Consistency in terms of names should be respected, using the same ones as used in the sketch (diagram block).

| Interface Name | Standard(s) | Notes |
|----------------|-------------|-------|
| | | |
| | | |
| | | |

Figure 8 Communication standards and formats

Predefined data gathering is essential for a proper process setup. Therefore, the table that will allow clear overview for future progress report was prepared. By describing data that will be gathered, explaining the measurement technique, we expect to collect information dealing with deployment site definition, crops/animals used for task, frequency of data collection, task number (in correlation with tasks defined in work plan section), and finally associated data model/format as shown in Figure 9.

| Data That Will Be Gathered | | | | | | | |
|----------------------------|------|-----------------------|--------------------|-----------------------------|------------------------------|----------|------------------------------|
| No. | Data | Measurement Technique | Deployment Site(s) | Crops/animals used for task | Frequency of Data Collection | Task No. | Associated data model/format |
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |

Refer to the number from the Area/Facilities deployed chapter

Refer to the number from Work Plan chapter

Filled by following the example: for each reading: weight measured (kg) – serialized in a custom JSON frame + ISO 8601 timestamp

Figure 9 Data gathering

As an equally valuable input, information considering constrains to data privacy and security should be provided. Having in mind the structure of the question, the table is not foreseen, only the separate sub-chapter with short explanation what use case coordinators should stressed out.

For precise location identification of large scale pilots, WP2 has designed an overview of deployed areas or facilities, which should help us track all experimental fields of the use cases. With an advantage to add or remove table if needed, we have left the space for possible alternations, as shown in the Figure 10.

| Area/Facilities Deployed | |
|--------------------------|--|
| Deployment site 1 | |
| Type | Site name |
| Description | Deployment site type (dairy farm, vineyard, etc.) |
| Geographic coordinates | Deployment site description in terms of geography, topography, weather conditions, environmental conditions etc. |
| Country/Region | |
| Contact person/e-mail | Geographical coordinates in DMS format |
| Comments | |
| Deployment site 2 | |
| Type | |
| Description | |
| Geographic coordinates | |
| Country/Region | |
| Contact person/e-mail | |
| Comments | |

Figure 10 Area/facilities deployed

To be able to understand use case economic approach, we have built the chapter that deals with use case business model, minimum viable product planning and market entry. The use cases should describe currently favoured business model with way(s) of exploitation of final product or service. Moreover, UC should state out the date of the first MVP, its features and required end-user feedback. For the market entry UCs have to provide information dealing with targeted market segment, end-user, geography, farm size, and current test farms like shown in the Figure 11.

| Business Model | |
|----------------------------------|--|
| Currently Favored Business Model | Description of the UC exploitation of final product or service. Text limit 5 line/ half page |
| Exploitation Partner | Company name |
| Licensing Partner | Company name |

| MVP Planning | |
|----------------------------|---|
| Date of first MVP | Description of first MVP features |
| Features of first MVP | |
| End-user feedback you need | Description of end-user feedback that UC requires |

| Market Entry | |
|-------------------------|---|
| Targeted Market Segment | Description of UC impact from economic point of view. Text limit: 5 lines/ hlaif page |
| Targeted End-User | |
| Targeted Geography | Addresses of UC test areas |
| Targeted Farm Size | |
| Current Test Farms | |

Figure 11 Economic approach

Turning to the definition of possible collaboration with other use cases, it is essential to identify and outline the collaboration opportunities with other use cases. If such potential is recognized, use case coordinators should determine what sharing components or approaches or integration of data/services are dividable with which use case, as demonstrated in the Figure 12. Likewise, in previous cases, adding or removing of table rows is optional.

| Use Case Name and Number | Potential for sharing components or approaches identified ¹ | Potential for integration of data/services identified ² |
|--------------------------|---|--|
| | <div style="border: 1px solid blue; padding: 5px; width: fit-content;"> Examples: common hardware solutions are needed in both UCs, common software features are necessary, common technologies are already in use, etc. </div> | <div style="border: 1px solid blue; padding: 5px; width: fit-content;"> Examples: data or services that could be made available by another UC or as general development and that could benefit your UCs (or vice-versa). Mentioning if integration may generate new value, also beyond the goals of UC. </div> |

Figure 12 Collaboration with other use cases

Use case impacts are described and measurable through 3 types of impacts and their key performance indicators: economic, environmental, and other (social impact). For a clear overview of impact description, KPIs, chosen measurement technique, and both current and targeted values, the tables for collection this valuable inputs have been prepared, as shown in the Figure 13, Figure 14 and Figure 15.

| Economic Impact | | |
|------------------------------------|---|---|
| Economic Impact Description | <div style="border: 1px solid blue; padding: 5px; width: fit-content;"> Described UC created impact from economic point of view. Text limit: 5 lines/half page </div> | |
| KPI 1 | <div style="border: 1px solid blue; padding: 5px; width: fit-content;"> KPI name </div> | |
| Measurement Technique | <div style="border: 1px solid blue; padding: 5px; width: fit-content;"> Explanation of how is KPI measured </div> | |
| Values | Current Value | Target Value |
| Comments | <div style="border: 1px solid blue; padding: 5px; width: fit-content;"> Current KPI value </div> | <div style="border: 1px solid blue; padding: 5px; width: fit-content;"> Targeted KPI value </div> |
| KPI 2 | | |
| Measurement Technique | | |
| Values | Current Value | Targeted value |
| Comments | | |

Figure 13 Economic impact

| Environmental Impact | | |
|----------------------------------|---|--------------------|
| Environmental Impact Description | Described UC created impact from environmental point of view. Text limit: 5 lines/half page | |
| KPI 1 | KPI name | |
| Measurement Technique | Explanation of how is KPI measured | |
| Values | Current Value | Target Value |
| | Current KPI value | Targeted KPI value |
| Comments | | |

| | | |
|-----------------------|---------------|--------------|
| KPI 2 | | |
| Measurement Technique | | |
| Values | Current Value | Target Value |
| | | |
| Comments | | |

Figure 14 Environmental impact

| Other Impacts (Social Impact) | | |
|-----------------------------------|--|--------------------|
| Other Impact (Social) Description | Described UC created impact from social point of view. Text limit: 5 lines/half page | |
| KPI 1 | KPI name | |
| Measurement Technique | Explanation of how is KPI measured | |
| Values | Current Value | Target Value |
| | Current KPI value | Targeted KPI value |
| Comments | | |

| | | |
|-----------------------|---------------|--------------|
| KPI 2 | | |
| Measurement Technique | | |
| Values | Current Value | Target Value |
| | | |
| Comments | | |

Figure 15 Other impact (Social impact)

Deliverables and milestones are elaborated separately, since each of them having its own subchapter. Use case coordinators should provide information regarding deliverable name (Figure 16) in correlation with task number previously defined in the Work plan chapter, additionally describing the nature of each deliverable and due date. For nature description, the following options should be used: **R** – document, report; **DEM** – demonstrator, pilot, prototype; **DEC** – website, patents filling, press and media, videos; **OTHER** – software, technical diagram. As for milestones (Figure 17), milestone name and due date should be listed.

| Deliv. No. | Deliverable Name | Task No. | Nature ³ | Due Date (DD/MM/YYYY) | Comments |
|------------|------------------|----------|---------------------|-----------------------|----------|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Provided task number which is in correspondence with UC Work Plan chapter

Figure 16 Deliverables

| Milestone No. | Milestone Name | Due Date (DD/MM/YYYY) | Comments |
|---------------|----------------|-----------------------|----------|
| | | | |
| | | | |
| | | | |
| | | | |

Figure 17 Milestones

The final chapter, but equally valuable, risk management deals with use case risk description, to which task is entitled to and proposed risk – mitigation measure. Adding or removing rows is optional.

| Description of Risk | Task Concerned | Proposed Risk-Mitigation Measures |
|---------------------|----------------|-----------------------------------|
| | | |
| | | |
| | | |

Described risk

Provided task number which is in correspondence with UC Work Plan chapter

Described risk mitigation measures

Figure 18 Risk management

3. CONCLUSION

The deliverable 2.1.2 *Trial Implementation Plan* is the result of the cooperation between WP2, WP3, WP4 and WP5, and the inputs provided by the UCs. The work plans represent a concrete base for IoF2020, the starting point and foundation of the work that will be performed by the UCs, and a proof of their agreed-upon plans.

UCWPs are living documents, where plans and tasks can be modified in order to obtain more significant results for the project. In case of changes, they must be accepted beforehand by the WPs and the project management.

Throughout the UCWPs collection process, UCs coordinators have shown eagerness to cooperate and professionalism, nonetheless we have faced postponements challenges, that were caused due to a work load, amount of required data and partners` daily tasks and obligations.

General impression is that the UCWPs are well-structured, written with detailed and high-quality inputs. Nevertheless, some chapters remained incomplete, lacking information mostly on KPIs, business and technical understanding.

After analysing the collected data, the first indicators are showing that, even in this early stage, IoF2020 is proving to reach the project objectives. By comparing analysed results with project objectives KPIs it can be highlighted how the number of demonstration sites for future conduction of the experiments is at 80% of the target value, with 80 sites counted. As well the number of organizations involved in the trials represents 2/3 of the target value. These results, at initial project phase, represent a solid starting point for the project. Moreover, the high number of user organizations involved proves the efficacy of the lean-multi actor approach, which is based on the participation of a high number of end users, ensuring that the market needs are at the base of the project, moving towards well-paved path to reach project results.

During this systematic series of actions directed to the UCWPs creation and filling in process, we got the opportunity to have a detailed insight into each use case, learning about their challenges, field of expertise and envisaged outcomes by close collaboration with all partners involved.

The future steps include sheer volume of predefined actions, among which the most substantial ones are process of installation and deployment of components, customization, and integration.



ANNEX 1



USE CASE **X.X** WORK PLAN

Tuesday, August 8, 2017

TABLE OF CONTENTS

| | | |
|-----|---|-------------------------------------|
| 1. | List of Abbreviations | 23 |
| 2. | General Use Case Description | 24 |
| | 2.1 Promotion Material | 25 |
| 3. | Partners Involved | 26 |
| 4. | Use Case Work Plan | 27 |
| 5. | Technical Requirements | 28 |
| | 5.1 Architecture Sketch | 28 |
| | 5.2 Involved Actors (Users) | 28 |
| | 5.3 Deployed Components | 28 |
| | 5.4 Re-usable Components | 29 |
| | 5.5 Communication Standards and Formats | 29 |
| | 5.6 Data Gathering | 29 |
| | 5.7 Are there some constraints to data privacy and security? ... Error! Bookmark not defined. | |
| | 5.8 Area/Facilities Deployed | 30 |
| 6. | Economic Approach | Error! Bookmark not defined. |
| 7. | Collaboration with other Use Cases | 32 |
| 8. | Use Case Impact | 33 |
| 9. | Deliverable and Milestones | 36 |
| | 9.1 Deliverables | 36 |
| | 9.2 Milestones | 36 |
| 10. | Risk Management | 37 |



1. LIST OF ABBREVIATIONS

WP – Work Package
IoF2020 – The Internet of Food and Farm 2020
UC – Use Case
TRL – Technology Readiness Level
M – Month
PM – Person Month
KPI – Key Performance Indicator

2. GENERAL USE CASE DESCRIPTION

| | | | |
|----------------|-------------------------------------|-----------------|----------------------------|
| U.C.X.X | Use Case Name: | | [Insert Trial Logo] |
| | Use Case Coordinator(s) and e-mail: | | |
| | UC Starting Date: | UC Ending Date: | |

| | | | |
|--|---------------------|--|---------------|
| General Goal | | <i>[Please describe use case general goal]</i> | |
| Short Description | | <i>[Please explain the core idea. Max 250 words]</i> | |
| Use case specific challenges | | <i>[Please describe use case specific challenges]</i> | |
| Use case envisaged outcomes | | <i>[Please describe use case envisaged outcomes]</i> | |
| Use Case Characteristics | | | |
| Sector | | <i>[Please describe the sector that the use case focuses on in few words]</i> | |
| Conventional/Organic | | | |
| Benefits to organic agriculture | | <i>[Please describe how this Use Case is applicable to organic agriculture and what are the benefits for organic agriculture, if not organic, could it be applicable to organic agriculture and please explain how]</i> | |
| Countries of Implementation | | | |
| TRL | Value | Current | Target |
| | Organic | | |
| | Conventional | | |
| Value Chain Coverage | | <i>[Indicate here what parts of the value chain this use case covers and which business processes are targeted at:] Farming => Processing => Logistics => Consumer</i> | |
| Problem Description | | <i>[Please describe here:</i> <ul style="list-style-type: none"> - <i>The problems that this specific sector faces</i> - <i>If different for organic/conventional, please specify</i> - <i>How these problems can be solved</i> - <i>How this relates to the goals of your use case</i> - <i>What are the objects of the business processes (e.g. land parcels, stables, machinery, crops, animals, containers)</i> <i>Support this with appropriate references where needed (cited in the text and listed at the end of this document)]</i> | |
| Innovation | | <i>[Please describe here how your use case will create innovation in the target group:</i> <ul style="list-style-type: none"> - <i>What is the current state-of-the-art?</i> - <i>What is innovative about the use case compared to existing state-of-the-art?</i> | |

| | |
|----------------------------------|--|
| | <p>- Which are the main actors using the envisaged innovation/ related solution for which purpose? Support this with appropriate references where needed (cited in the text and listed at the end of this document)]</p> |
| Functionalities/ Services | [Please list the main functionalities and/or services that will be provided to the stakeholders] |

1.1 Promotion Material

| | |
|---|--|
| Quote | [How will your trial pave the way for the use of IoT technologies in your sector? One sentence] |
| Photos | [If possible, provide photos of your UC in .png or .jpg formats] |
| Public Disclosure of Use Case Progress | [Please specify if the use case progress can be communicated publicly (social media, newsletters, website, interviews) or if the information about the case should only be available to project partners until a certain time] |
| Online presentation | [In case you have online presentation of your Use Case please provide link of website/ social media page/handle etc.] |

3. PARTNERS INVOLVED

| | | |
|--|--|---------------------------------------|
| Partner 1 | | <i>[Please insert partner's logo]</i> |
| Organization name/short name | | |
| Country/Region | | |
| Address | | |
| Contact person name/E-mail | | |
| Type | End-user / Technology provider / Research Institute / ... <i>[Please choose or add organization type]</i> | |
| Role description | <i>[Please describe the role of this partner in the use case]</i> | |
| Type of actor: Conventional/organic | <i>[Please specify if the partners' activities are within the organic or conventional framework]</i> | |
| Responsibilities | <i>[Please describe what is/are the responsibility/ies of this partner]</i> | |
| Person months | <i>[Please specify the person months for this partner in the use case]</i> | |
| Other comments | | |

| | | |
|--|--|---------------------------------------|
| Partner 2 | | <i>[Please insert partner's logo]</i> |
| Organization name/short name | | |
| Country/Region | | |
| Address | | |
| Contact person name/E-mail | | |
| Type | End-user / Technology provider / Research Institute / ... <i>[Please choose or add organization type]</i> | |
| Role description | <i>[Please describe the role of this partner in the use case]</i> | |
| Type of actor: Conventional/organic | <i>[Please specify if the partners' activities are within the organic or conventional framework]</i> | |
| Responsibilities | <i>[Please describe what is/are the responsibility/ies of this partner]</i> | |
| Person months | <i>[Please specify the person months for this partner in the use case]</i> | |
| Other comments | | |

| | | |
|--|--|---------------------------------------|
| Third party involved | | <i>[Please insert partner's logo]</i> |
| Organization name/short name | | |
| Country/Region | | |
| Address | | |
| Contact person name/E-mail | | |
| Type | End-user / Technology provider / Research Institute / ... <i>[Please choose or add organization type]</i> | |
| Type of actor: Conventional/organic | <i>[Please specify if the partners' activities are within the organic or conventional framework]</i> | |
| Role description | <i>[Please describe the role of this partner in the use case]</i> | |
| Responsibilities | <i>[Please describe what is/are the responsibility/ies of this partner]</i> | |
| Person months | <i>[Please specify the person months for this partner in the use case]</i> | |
| Other comments | | |

**Please copy paste the table/s if needed to add more partners of the Use Case.*

4. USE CASE WORK PLAN

| | | | | | | |
|--|---|----------------------|------------------|----------------------|------------------|----------------------|
| Task 1 | Start month | MX | Duration | XM | Total PM | XX |
| Title | [Please provide the task name] | | | | | |
| Partners involved | Partner 1 | Partner 2 | Partner 3 | Partner 4 | Partner 5 | |
| | [Please provide organization name] | | | | | |
| Person months | [Please insert PM] | | | | | |
| Third parties involved: [Please provide names of third parties involved in task] | | | | | | |
| Goal: [Please give a short description of the task goal] | | | | | | |
| Activities Description [Please describe the activities in details. At least 10 lines per activity] | | | | | | |
| Subtask 1.1 | [Please, if there are subtasks, provide the subtask name and brief description] | | | | | |
| Subtask 1.2 | | | | | | |
| ... | [Please, add or remove rows for subtasks, if needed] | | | | | |

| | | | | | | |
|--|---|----------------------|------------------|----------------------|------------------|----------------------|
| Task 2 | Start month | MX | Duration | XM | Total PM | XX |
| Title | [Please provide the task name] | | | | | |
| Partners involved | Partner 1 | Partner 2 | Partner 3 | Partner 4 | Partner 5 | |
| | [Please provide organization name] | | | | | |
| Person months | [Please insert PM] | | | | | |
| Third parties involved: [Please provide names of third parties involved in task] | | | | | | |
| Goal: [Please give a short description of the task goal] | | | | | | |
| Activities Description [Please describe the activities in details. At least 10 lines per activity] | | | | | | |
| Subtask 2.1 | [Please, if there are subtasks, provide the subtask name and brief description] | | | | | |
| Subtask 2.2 | | | | | | |
| ... | [Please, add or remove rows for subtasks, if needed] | | | | | |

*Please copy paste the table if there are more tasks to define in the Use Case.

5. TECHNICAL REQUIREMENTS

5.1 Architecture Sketch

Please draw a sketch (block diagram) of the systems deployed in this Use Case.

5.2 Involved Actors (Users)

Please fill in the table below outlining the main actors using the systems deployed in this Use Case.

For each actor, please explain which kind of input/output data is accessed by the actor (and when) – and which are the main user interfaces (e.g. web-based dashboards, mobile apps, warnings received by e-mail or SMS, etc.).

| Actor Name | Main features provided to the actor | Main data input/output actions | Main User interface(s) used |
|------------|-------------------------------------|--------------------------------|-----------------------------|
| | | | |
| | | | |
| | | | |

*Please, add or remove rows if needed.

5.3 Deployed Components

Please fill-in below the main components deployed in this use case. Please be consistent with names used in the sketch (Section 5.1).

| Name | Description | Supplier (brand) + Model | Number of Units | Deployment Site(s) |
|-----------------------------------|---------------------------------------|---|--|--|
| [Please name deployed technology] | [Please describe deployed technology] | [Please provide deployed technology supplier/brand and model] | [Please insert the number of used units] | [Please refer to No. from Area/Facilities Deployed table (see Section 5.8 of this document)] |
| | | | | |
| | | | | |

*Please, add or remove rows if needed.

5.4 Re-usable Components

Please specify, among the components above, if any of the components above are available/appropriate for re-use. If so, please specify the web page of the component, its license (for Software) and explain its potential for re-use.

| Name | Web Page | License | Potential for re-use |
|------|----------|---------|----------------------|
| | | | |
| | | | |
| | | | |

*Please, add or remove rows if needed.

5.5 Communication Standards and Formats

Please list all the communication standards and formats used in the Use Cases. Please be consistent with names used in the sketch (Section 5.1).

| Interface Name | Standard(s) | Notes |
|----------------|-------------|-------|
| | | |
| | | |
| | | |

*Please, add or remove rows if needed.

5.6 Data Gathering

| Data That Will Be Gathered | | | | | | | |
|----------------------------|------|-----------------------|--|-----------------------------|------------------------------|---|--|
| No. | Data | Measurement Technique | Deployment Site(s) | Crops/animals used for task | Frequency of Data Collection | Task No. | Associated data model/format |
| 1 | | | [Please refer to No. from Area/Facilities Deployed table (see Section 5.8 of this document)] | | | [Please refer to the Task number from the section 4 of this document] | [e.g. for each reading: weight measured (kg) – serialized in a custom JSON frame + ISO 8601 timestamp] |
| 2 | | | | | | | |
| 3 | | | | | | | |

*Please, add or remove rows if needed.

5.7 Are there some constraints to data privacy and security?

[Please provide information about possible constraints to the data privacy and security]

5.8 Area/Facilities Deployed

| Area/Facilities Deployed | |
|--------------------------|---|
| Deployment site 1 | <i>[Please provide site name]</i> |
| Type | <i>[Please define type of Deployment Site (dairy farmer, vineyard, etc.)]</i> |
| Description | <i>[Please describe the Deployment Site in terms of geography, topography, weather conditions, environmental conditions, etc. (max. 200 words)]</i> |
| Geographic coordinates | <i>[Please insert geographical coordinates of deployment site in DMS format – degrees, minutes, seconds, N and W]</i> |
| Country/Region | |
| Contact person/e-mail | |
| Comments | |

| | |
|------------------------|---|
| Deployment site 2 | <i>[Please provide site name]</i> |
| Type | <i>[Please define type of Deployment Site (dairy farmer, vineyard, etc.)]</i> |
| Description | <i>[Please describe the Deployment Site in terms of geography, topography, weather conditions, environmental conditions, etc. (max. 200 words)]</i> |
| Geographic coordinates | <i>[Please insert geographical coordinates of deployment site in DMS format – degrees, minutes, seconds, N and W]</i> |
| Country/Region | |
| Contact person/e-mail | |
| Comments | |

**Please copy paste the table if needed to define more area/facilities deployed in the Use Case.*

6. ECONOMIC APPROACH

| Business Model | |
|----------------------------------|--|
| Currently Favored Business Model | <i>[Please, describe how the use case exploit the final product or service] min 5 lines, max half page</i> |
| Exploitation Partner | <i>[Please state company names]</i> |
| Licensing Partner | <i>[Please state company names]</i> |

| MVP Planning | |
|----------------------------|---|
| Date of first MVP | <i>[When is your first MVP version ready]</i> |
| Features of first MVP | <i>[Please describe the features of your first MVP]</i> |
| End-user feedback you need | <i>[Please state the type of feedback you require]</i> |

| Market Entry | |
|-------------------------|---|
| Targeted Market Segment | <i>[Please, describe how the use case will create an impact, from an economic point of view] min 5 lines, max half page</i> |
| Targeted End-User | |
| Targeted Geography | |
| Targeted Farm Size | |
| Current Test Farms | <i>[Please state the addresses of your test areas]</i> |

7. COLLABORATION WITH OTHER USE CASES

Please explain in the table below whether collaboration opportunities with other use cases has been already identified. Please specify especially if you identified some potential for sharing components or approaches or some potential for integration of data/services.

| Use Case Name and Number | Potential for sharing components or approaches identified ¹ | Potential for integration of data/services identified ² |
|--------------------------|--|--|
| | | |
| | | |
| | | |
| | | |

*Please, add or remove rows if needed.

¹ Examples: common hardware solutions are needed in both UCs, common software features are necessary, common technologies are already in use, etc.

² Examples: data or services that could be made available by another UC or as general development and that could benefit your UCs (or vice-versa). Please also mention if you think that the integration may generate new value, also beyond the goals of your UC.

8. USE CASE IMPACT

| Economic Impact | |
|-----------------------------|---|
| Economic Impact Description | <i>[Please, describe how the use case will create an impact, from an economic point of view] min 5 lines, max half page</i> |

| | | |
|-----------------------|---|--------------------------------------|
| KPI 1 | <i>[Please provide KPI name]</i> | |
| Measurement Technique | <i>[Please explain how will you measure this KPI]</i> | |
| Values | Current Value | Target Value |
| | <i>[Please add current KPI value]</i> | <i>[Please add target KPI value]</i> |
| Comments | | |

| | | |
|-----------------------|---|--------------------------------------|
| KPI 2 | <i>[Please provide KPI name]</i> | |
| Measurement Technique | <i>[Please explain how will you measure this KPI]</i> | |
| Values | Current Value | Targeted value |
| | <i>[Please add current KPI value]</i> | <i>[Please add target KPI value]</i> |
| Comments | | |

| | | |
|-----------------------|---|--------------------------------------|
| KPI 3 | <i>[Please provide KPI name]</i> | |
| Measurement Technique | <i>[Please explain how will you measure this KPI]</i> | |
| Values | Current Value | Target Value |
| | <i>[Please add current KPI value]</i> | <i>[Please add target KPI value]</i> |
| Comments | | |

**Please copy paste the table in order to define all the Economic KPIs of the Use Case.*

| Environmental Impact | |
|----------------------------------|--|
| Environmental Impact Description | <i>[Please, describe how the use case will create an impact, from an environmental point of view] min 5 lines, max half page</i> |

| | | |
|-----------------------|---|--------------------------------------|
| KPI 1 | <i>[Please provide KPI name]</i> | |
| Measurement Technique | <i>[Please explain how will you measure this KPI]</i> | |
| Values | Current Value | Target Value |
| | <i>[Please add current KPI value]</i> | <i>[Please add target KPI value]</i> |
| Comments | | |

| | | |
|-----------------------|---|--------------------------------------|
| KPI 2 | <i>[Please provide KPI name]</i> | |
| Measurement Technique | <i>[Please explain how will you measure this KPI]</i> | |
| Values | Current Value | Target Value |
| | <i>[Please add current KPI value]</i> | <i>[Please add target KPI value]</i> |
| Comments | | |

| | | |
|-----------------------|---|--------------------------------------|
| KPI 3 | <i>[Please provide KPI name]</i> | |
| Measurement Technique | <i>[Please explain how will you measure this KPI]</i> | |
| Values | Current Value | Target Value |
| | <i>[Please add current KPI value]</i> | <i>[Please add target KPI value]</i> |
| Comments | | |

**Please copy paste the table in order to define all the Environmental KPIs of the Use Case.*

| Other Impacts (Social Impact) | |
|-----------------------------------|--|
| Other Impact (Social) Description | <i>[Please, describe how the use case will create an impact, from a social point of view] min 5 lines, max half page</i> |

| | | |
|-----------------------|---|--------------------------------------|
| KPI 1 | <i>[Please provide KPI name]</i> | |
| Measurement Technique | <i>[Please explain how will you measure this KPI]</i> | |
| Values | Current Value | Target Value |
| | <i>[Please add current KPI value]</i> | <i>[Please add target KPI value]</i> |
| Comments | | |

| | | |
|-----------------------|---|--------------------------------------|
| KPI 2 | <i>[Please provide KPI name]</i> | |
| Measurement Technique | <i>[Please explain how will you measure this KPI]</i> | |
| Values | Current Value | Target Value |
| | <i>[Please add current KPI value]</i> | <i>[Please add target KPI value]</i> |
| Comments | | |

| | | |
|-----------------------|---|--------------------------------------|
| KPI 3 | <i>[Please provide KPI name]</i> | |
| Measurement Technique | <i>[Please explain how will you measure this KPI]</i> | |
| Values | Current Value | Target Value |
| | <i>[Please add current KPI value]</i> | <i>[Please add target KPI value]</i> |
| Comments | | |

**Please copy paste the table in order to define all the Other (Social) KPIs of the Use Case.*

9. DELIVERABLE AND MILESTONES

9.1 Deliverables

| Deliv. No. | Deliverable Name | Task No. | Nature ³ | Due Date (DD/MM/YYYY) | Comments |
|------------|--|--|---------------------|-----------------------|----------|
| | <i>[Please provide deliverable name]</i> | <i>[Please refer to the Task number from the section 4 of this document]</i> | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

**Please, add or remove rows if needed.*

9.2 Milestones

| Milestone No. | Milestone Name | Due Date (DD/MM/YYYY) | Comments |
|---------------|--|-----------------------|----------|
| | <i>[Please provide milestone name]</i> | | |
| | | | |
| | | | |
| | | | |
| | | | |

**Please, add or remove rows if needed.*

³ R – document, report; DEM – demonstrator, pilot, prototype; DEC – website, patents filling, press and media, videos; OTHER – software, technical diagram.

10. RISK MANAGEMENT

| Description of Risk | Task Concerned | Proposed Risk-Mitigation Measures |
|----------------------------------|---|------------------------------------|
| <i>[Insert Risk Description]</i> | <i>[Insert Task Number from the section 4 of this document]</i> | <i>[Insert Mitigation Measure]</i> |
| | | |
| | | |
| | | |

**Please, add or remove rows if needed.*