



D4.7: VALIDATION OF BUSINESS MODELS IN IoF2020 USE CASES

WP 4

9 June, 2021

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PROJECT SUMMARY

The internet of things (IoT) has a revolutionary potential. A smart web of sensors, actuators, cameras, robots, drones and other connected devices allows for an unprecedented level of control and automated decision-making. The project Internet of Food & Farm 2020 (IoF2020) explores the potential of IoT-technologies for the European food and farming industry.

The goal is ambitious: to make precision farming a reality and to take a vital step towards a more sustainable food value chain. With the help of IoT technologies higher yields and better-quality produce are within reach. Pesticide and fertilizer use will drop, and overall efficiency is optimized. IoT technologies also enable better traceability of food, leading to increased food safety.

Thirty-three use-cases organised around five trials (arable, dairy, fruits, meat and vegetables) develop, test and demonstrate IoT technologies in an operational farm environment all over Europe, with the first results expected in the first quarter of 2018.

IoF2020 uses a lean multi-actor approach focusing on user acceptability, stakeholder engagement and the development of sustainable business models. IoF2020 aims to increase the economic viability and market share of developed technologies, while bringing end-users' and farmers' adoption of these technological solutions to the next stage. The aim of IoF2020 is to build a lasting innovation ecosystem that fosters the uptake of IoT technologies. Therefore, key stakeholders along the food value chain are involved in IoF2020, together with technology service providers, software companies and academic research institutions.

Led by the Wageningen University and Research (WUR), the 100+ members consortium includes partners from agriculture and ICT sectors and uses open source technology provided by other initiatives (e.g. FIWARE). IoF2020 is part of Horizon2020 Industrial Leadership and is supported by the European Commission with a budget of €30 million.

EXECUTIVE SUMMARY

In the original planning of IoF2020, the use-cases were expected to launch their products in the form of minimum viable products (MVPs). Moreover, use cases needed to reach the market to validate their business offer and to further improve the products, services and solutions according to market feedback. In practice, many companies launched the products, services and solutions only when these were fully developed, as protecting their brand integrity is key for many companies. In the IoT solution development processes, most companies worked with test farms that received the product for free or at lower price in return for valuable feedback. Despite the promising progress, many products and services of IoF2020 use-cases were unable to enter the market during the project as the practice of launching MVPs officially to the market is not applied in the agri-food sector.

The IoF2020 business team mainly focussed on the development of coherent business models together with use-case consortiums and their test farms by providing over 2.500h of individual business support, 30 webinars and assisting with over 500 user acceptance assessments. Although due to circumstances the business models were not validated in a real market scenario, we have developed comprehensive business models for each use-case and a concept of standard business model components to compose new digital business models in the agri-food sector.

According to the technology and business maturity, the IoF2020 business support team adapted its approach and focused next to the individual support of the use-cases on the development of interactive tools to tackle four major barriers for innovation in the agri-food sector that were identified in the work with the 33 IoF2020 use-cases:

1. Missing insights into successfully data-driven business models in agri-food
2. Lack of tools and concepts to compose own business models
3. Difficulties to find international collaboration partners for synergies, distribution, marketing etc.
4. Time-consuming search for test farms and lack of professional validation

Considering the circumstances of limited validation of business models and the go-to-market barriers mentioned above, the business support team decided to alter its deliverable D4.7 from a classic report towards a toolbox of interactive business applications that includes:

1. Interactive business model visualizations for 30 IoF2020 use-cases
2. Business Model Component Builder based on IoF2020 learnings
3. Agri-food Ecosystem Navigator that maps all relevant innovation actors and their relations
4. European Digital Test Farm Network to sustainably offer professional product validation

This deliverable gives a quick statistical overview on business models and the impact of the IoF2020 business support and explains in more detail the functionality of the different online tools. The deliverable sequentially answers the following questions:

1. What is the intended purpose of the tool or service from IoF2020 perspective?
2. What information and added value can the tool or service provide to the users?
3. What is the intended impact of the tool or service on the agri-food ecosystem?
4. Where and/or how can the tool or service be used?



Please note that most of the tools of the business model toolbox is in continuous development and will due to its open source nature be further extended and complemented in other projects.

RESULTS OF IOF2020 BUSINESS MODEL SUPPORT

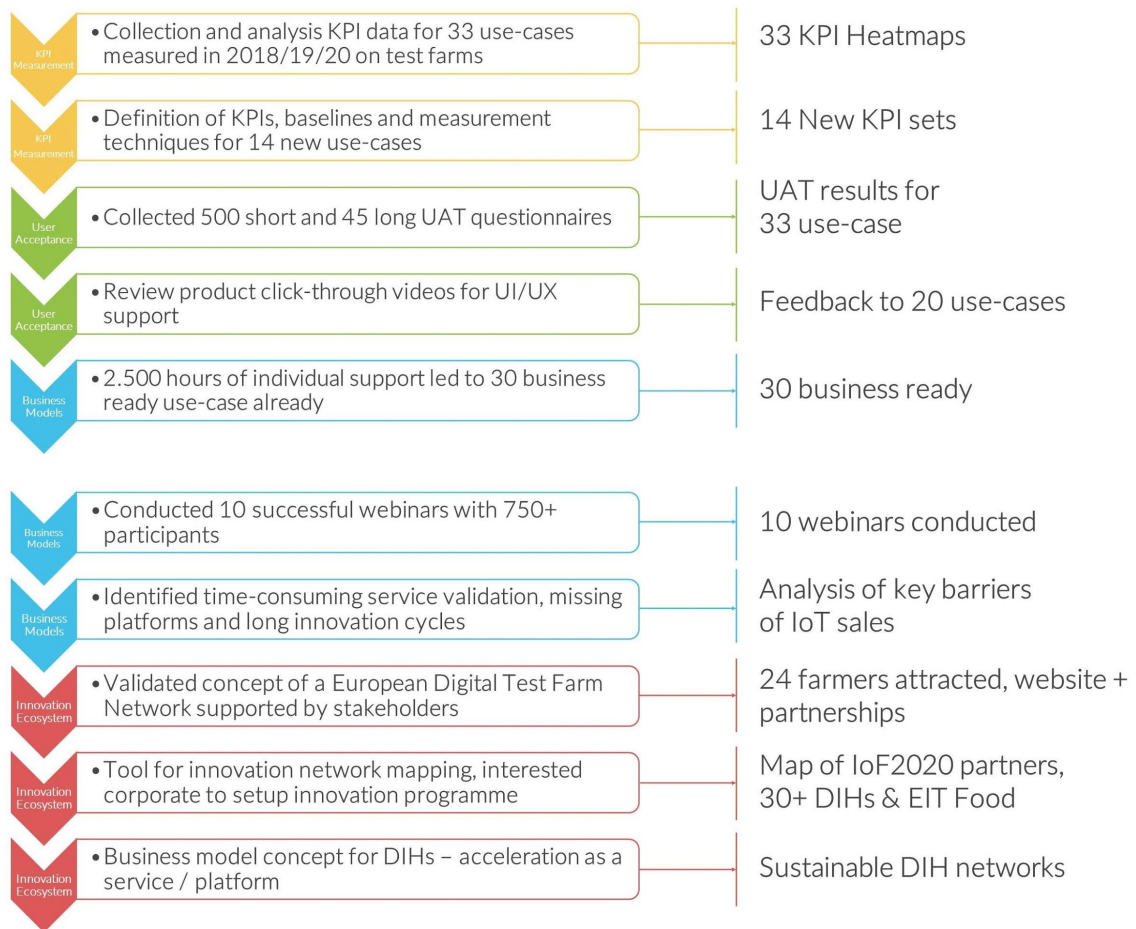
The IoF2020 business team offered various support during the 4-year of the project lifetime and successfully achieved that 29 out of 33 use-case will launch their IoT solutions developed during the project to the market. 31 out 33 use-cases developed comprehensive business models for their solutions and are well prepared to sustainably offer their service or product on the market.

IoF2020 supported its use-cases also with significant financial investments with €13.9M for 19 use-case at the beginning of the project and another €6M through an open call round in 2019 for 14 more use-cases. Through its successful investment support, the use-case of IoF2020 could successfully perform or acquire further private investment of €42.7M. This results in 2,31€ for every 1€ initial investment by the European Commission.

The business support developed also various education material in form of webinars, business model canvas templates, a business model component concept and workshop formats. In the first place, this material was developed to provide the IoF2020 use-cases with all the necessary knowledge and tools to build successful business models for their digital IoT solutions. However, all this material was also made freely available via the SmartAgriHubs portal to other innovation projects and actors like digital innovation hubs.

RESULTS OF BUSINESS SUPPORT

The intensive business support right from the beginning of the project helped the use-cases to identify proper value propositions for their research and innovation outcomes and in some cases, it led to alterations of the original plan to achieve a higher market fit. As an example, please see in the following what business support activities the team performed only in the last year of IoF2020:



Due to the large number of use-case after the open call, the business support team restructured the individual business support of the use-cases from an individual support for every use-case with specific business model expert by use-case to more general support teams:

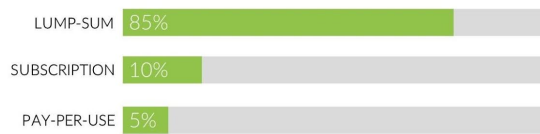
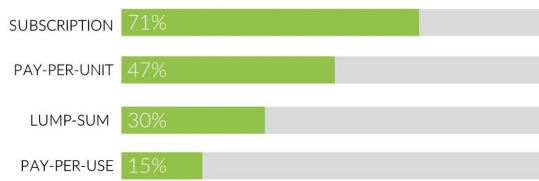
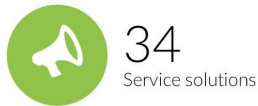
- Distribution Support
- Investment Support
- Business Webinars

For all remaining business support topics, a team of 3 business model experts stayed available to provide individual business support on topics not covered by the general support. In order to better dedicate the support to the most promising UCs and the business model experts rated the use-case at the beginning of the year by their business and ecosystem potential. The following list was the result:

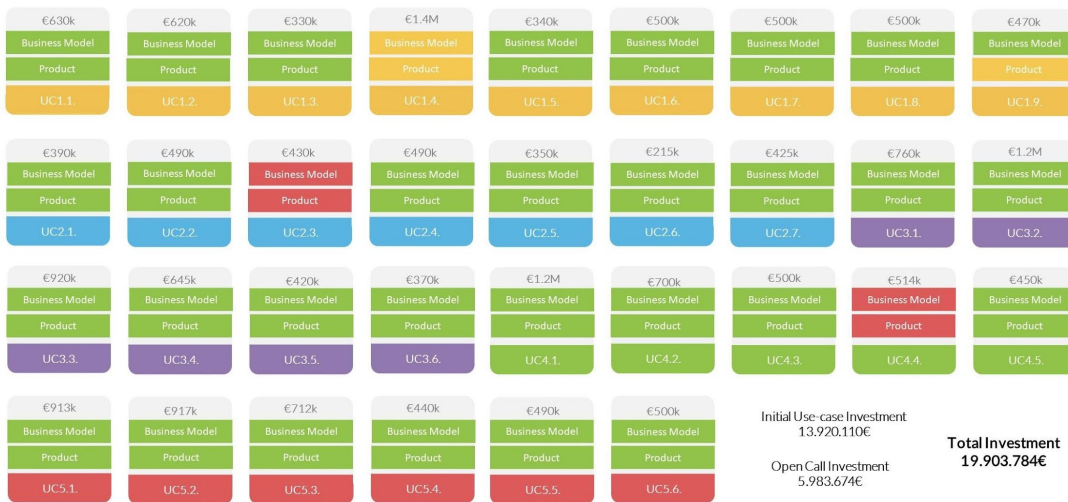
- Star (UC1.4, UC2.2, UC2.4, UC3.4, UC5.1, 4.1)
- Potential (UC1.5, UC1.6, UC1.7, UC1.8, UC2.1, UC5.3, UC5.4, UC5.5, UC3.2, UC1.1, UC1.3, UC1.9, UC2.5, UC3.6, UC4.3, UC4.5, UC5.6, UC2.7)

The team scheduled calls with all UC business model experts who previously supported them as well as with all use cases coordinators. Every month the team had 30 mins calls to coordinate and extract the outcomes of tasks involved.

BUSINESS MODEL STATISTICS



INVESTMENT IMPACT



THE IOF2020 BUSINESS MODEL TOOLBOX

In order to make the usage of the educational material more valuable for companies and innovation actors, the business support team developed a business model toolbox in form of a website. This tool offers interactive exploration of business models of IoF2020 use-cases as well as the opportunity to create own business models based on the business model component concept used in IoF2020.

INTRODUCTION

The business model experts within IoF2020 Work Package 4 (WP4) have developed several models and tools that can be used in business discussions relevant to IoT applications with key components and considerations for decision-making. Together with the use case leaders, the experts have explored, developed and refined individual business models. These tools and models are integrated in a toolbox of business models to provide an overview and a quick guidance to use cases and start-up initiatives (D4.11).

THE PURPOSE

The purpose of this toolbox is to provide an overview of business model validations, used business models and ecosystems realized by the use cases within IoF2020. The toolbox highlights business opportunities and challenges of IoT applications in agri-food. The toolbox can be used to extract experiences of IoF2020 use cases in types of business models the future-oriented solutions fit. Last, but not least, the toolbox briefly discusses the added value for potential end-user's market opportunities and revenue streams.

BUSINESS MODEL TOOLBOX

In IoF2020, thirty-three use cases, with the support of WP4 Business support team, worked hard to make their IoT solution market-ready with a promising business model. Through constant testing and refinement along MVP cycles, use cases have learned many lessons and gained deep insights into market-readiness of the developed solutions. Along this journey, WP4 business model experts have been challenged to provide quick, simple and clear guidance to the use cases. Through contributing practical tools and consulting best practices, WP4 business experts nudged each use case to improve their products and find the best fitting business models. The developed tools, models, best practice examples, consulting results, and guides have been integrated in this business model toolbox.

CURRENT AND POTENTIAL USERS OF THE TOOLBOX

The toolbox was primarily developed for IoF2020, but the idea is that in the future it can be very well used for EU funded projects as DIHs in SmartAgriHubs.

SmartAgriHubs is an EU project in the European agri-food sector under the Horizon 2020 instrument. The project aims to realise the digitisation of European agriculture by fostering an agricultural innovation ecosystem dedicated to excellence, sustainability and success. Digital Innovation Hubs
The EU proposed Digital Innovation Hubs (DIH) as a key priority in the Digitising European Industry Initiative. DIHs are one-stop shops that help companies become more competitive regarding their business/production processes, products or services using digital technologies.

The DIH and SmartAgriHubs continuously develop their own projects on the path set out by IoF2020, have an interest in learning experiences and insights from IoF2020 quickly, easily and clearly can benefit from this toolbox by distributing among their own target groups.

In addition, the toolbox can give individual start-ups quick insight into what has already been developed elsewhere within their field of interest and where they can possibly provide added value with their own IoT solutions and business model.

EXPLORE AND/OR CREATE

In this toolbox, two perspectives are used that allows to explore the existing use case journeys and gives opportunity to take steps in creating own business model. In the first part (chapter 2), the results achieved in all the individual use cases from the IoF2020 process are presented, viewed from a business model perspective. In the second part (chapter 3), developed business model tools are included. These can be used by interested parties to explore business model ingredients and steps needed to be taken for own business model development.

BUSINESS MODEL VISUALIZATION

WHY VISUALS FROM IOF2020 PERSPECTIVE?

At the end of the IoF2020 project, we (WP4) want to focus on the impact that the developed business model solutions can have on the current participating use cases and the agricultural ecosystem in Europe.

In doing so, we created comprehensive business models tailored to the use cases' needs. Soon enough we realized that visualizations were needed in addition to the written description. Visuals illustrate in a simple way both the developed business model of the use case and the functioning of the offered solution. A picture says more than 100 words. The visualization of each individual business model can help the reader to quickly understand what the offered solution is, what the IoT elements in this use case are, and how this creates value for the end user.

WHAT INFORMATION AND ADDED VALUE CAN VISUALS PROVIDE TO THE USER?

The visualization of the business model can help the reader to quickly understand what the solution offered is, what the IOT elements in this use case are, and how this creates value for the end user.

Each used visual consists of 5 elements:

1. insight into the solution that is provided,
2. the IoT aspects,
3. how this creates value for the end user and
4. the ecosystem
5. revenue stream.

Because IoT solution is often complex and not easy to explain shortly to various partners, the visuals are useful due to the following advantages:

- The visuals can be used to explain the IoT solutions more quickly and comprehensibly to the potential customers.
- Investors and potential partners can understand the value proposition faster.

- Visuals are given for free to use for their own publicity purposes and for their business pitch.

EXAMPLE OF A VISUAL

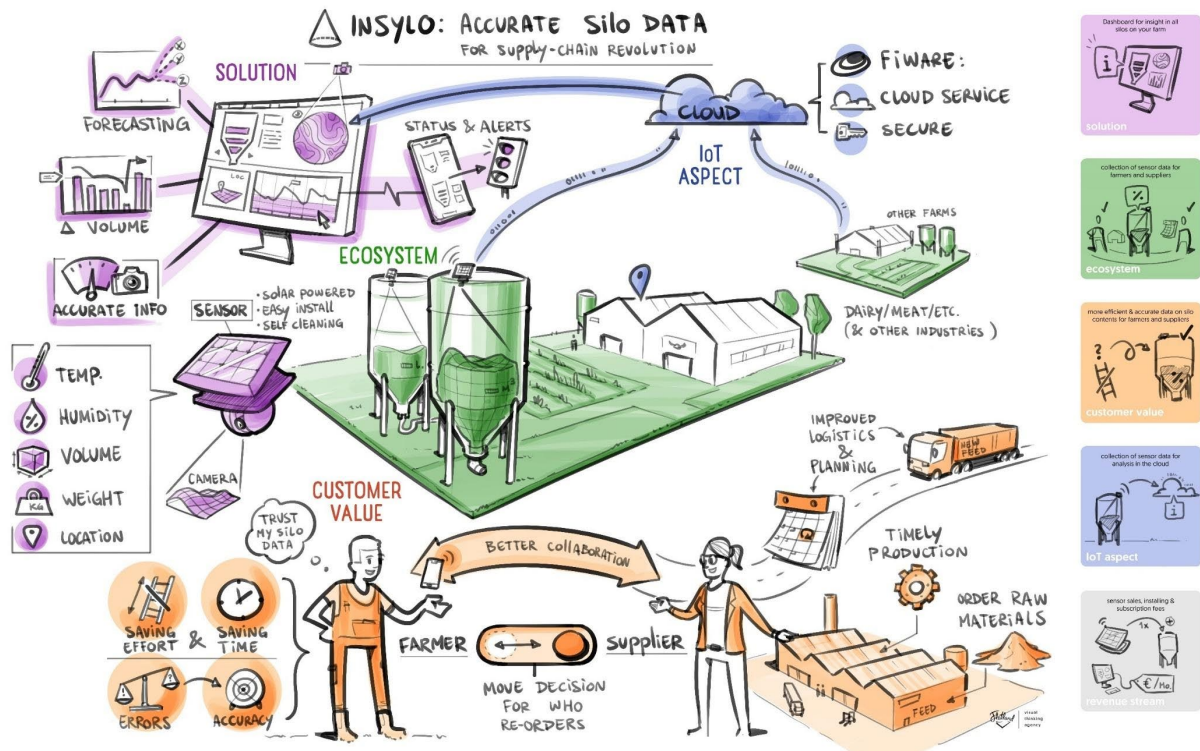


Figure 1. Visualization of use case 5.5. Feed supply chain management. It shows the five business model components in different colours: purple – solution, blue – IoT aspect, orange – customer value, green – eco-system, and grey – revenue stream.

Figure 1 shows the entire use case artistically visualized. The visuals are created by highly trained artists during the call with use case leaders. The call took about one hour. During the call the artists (who are purposefully not specialised in agri-food or have any knowledge in IoF2020) asked questions and drew the visuals as the story was told. The processed visuals are sent to the use cases for correction and confirmation. If needed, changes were adopted.

WHERE AND/OR HOW TO FIND THE TOOL?

The first prototype of an interactive version of the IOF business model visualization can be viewed via the link <http://bmt.berlin-thinking.com/> under "explore" business models. It is a first impression of how the tool can work. The tool is still too complex to use independently without guidance from an IOF2020 business model expert.

This section is also represented by the first webinar in which the "Business model Toolbox" is introduced and tested in IoF2020 with the participants present.

http://berlin-thinking.com/upload/iof2020/20200624_iof2020_webinar_Business_Toolbox.mp4?mc_cid=14cc3b017a&mc_eid=23e83d6694

BUSINESS MODEL COMPONENT BUILDER

WHAT IS THE INTENDED PURPOSE OF THE TOOL FROM IOF 2020?

The aim of the tool is to support start-ups in exploring and drawing up a first draft of a new business model themselves. Using a structured model, these companies can explore what information they already have and where there are still blind spots in their business model to be developed.

WHAT INFORMATION AND ADDED VALUE CAN THIS TOOL PROVIDE TO THE USER?

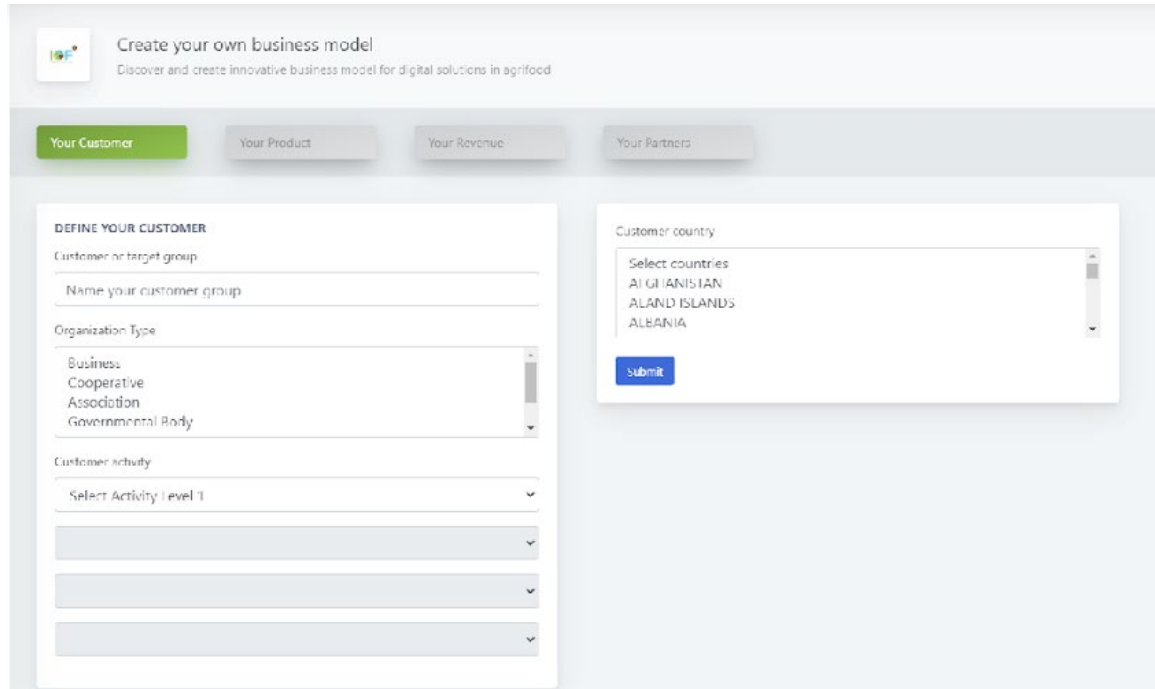
The added value for start-ups via this tool lies in providing a structure to run through all the necessary business model aspects in the right order and sometimes giving examples of the components of the relevant step.

During this process of going through the steps, the start-up discovers what it has already thought about well and what parts of its business model still need to be worked out in more detail.

WHAT DOES THE RESULT LOOK LIKE IN PRACTICE?

The tool uses the main buttons to identify the different business model aspects that need to be investigated according to the Canvas business model approach.

Then, for each main button, it goes into more detail on the aspects that need to be determined by the start-up in question.



WHERE AND/OR HOW TO FIND THE TOOL?

The first prototype of an interactive version “Develop your own business model” can be viewed via the link <http://bmt.berlin-thinking.com/> under "create" business models. It is a first impression of how the tool can work. The tool is still in its early stages and requires fundamental development.



This section is also represented by the first webinar in which the "Business model Toolbox" is introduced and tested in IoF2020 with the participants present.

http://berlin-thinking.com/upload/iof2020/20200624_IoF2020_webinar_Business_Toolbox.mp4?mc_cid=14cc3b017a&mc_eid=23e83d6694

AGRIFOOD ECOSYSTEM NAVIGATOR

WHAT IS THE INTENDED PURPOSE OF THE TOOL FROM IOF 2020?

In today's market, companies pushing innovative business models to market dramatically increase their chances of market success with at least an acute awareness of the ecosystem in which they operate, and at best, a sound and active ecosystem building strategy that allows them to leverage their network and fill gaps by pursuing the right partnerships.

Built using Data Scouts (www.datascouts.eu) The IoF2020 Ecosystem Navigator is an ecosystem mapping and intelligence platform of almost 1000 European Agri-food Innovation actors that aims to help enable partnerships between those innovation actors. The core of this ecosystem is built based on the 33 Use Cases and their participating partners. In addition to geographically mapping the Use Case partners and listing them in a directory along with their products and services, the Ecosystem Navigator provides a network visualization for each Use Case.

WHAT INFORMATION AND ADDED VALUE CAN THIS TOOL PROVIDE TO THE USER?

From the core IoF2020 members organised in Use Cases, the Ecosystem team at IoF2020 (Task 4.5) started mapping and adding partnerships, collaborations and connections that IoF2020 and Use Case partners have outside of their own Use Case, whether it was with other Use Cases or with entities external to IoF2020. Mapping also includes notable multipliers within the EU ecosystem and other actors associated to them, such as the EIT Food accelerator and all its portfolio start-ups, as well as the investors into IoF2020 start-ups, and by extension their other investments, as well as some clients of some of the IoF2020 partners.

While not all information is available to all, the resulting enriched ecosystem allows Use Cases (mostly the exploitation partner in the Use Case) to:

1. Visualize their own network and that of their partner, to identify existing connections that can be leveraged from product development to market entry and expansion.
2. Identify gaps and build the relevant partnerships for any or all their efforts, from design & development to implementation, testing, validation, sales and distribution.
3. Leverage the existing network to reach partners they are seeking by uncovering existing connections or linkages.

In order to deliver on this, the ecosystem navigator is designed to maximize discoverability. The team behind Task 4.5 therefore developed a specific taxonomy, building on research from the MIT on Place-Based Innovation Ecosystems, to organize and classify actors in a way that makes it easier to discover potential partners. The taxonomy places importance on the roles that innovation actors play in helping

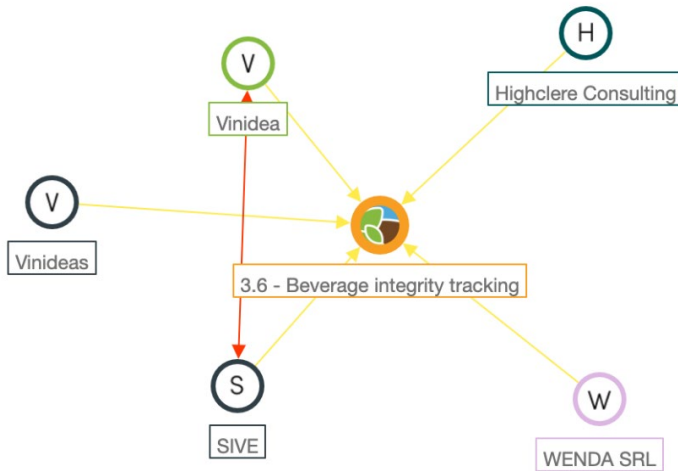
the ecosystem achieve its role, rather than only the types of actors, aiming to empower partnership brokers to match roles more effectively.

The team at task 4.5 believe that this ecosystem navigator and the taxonomy on which it was built can be the basis for a partnership's engine for Horizon Europe's **Soil Health & Food Mission**

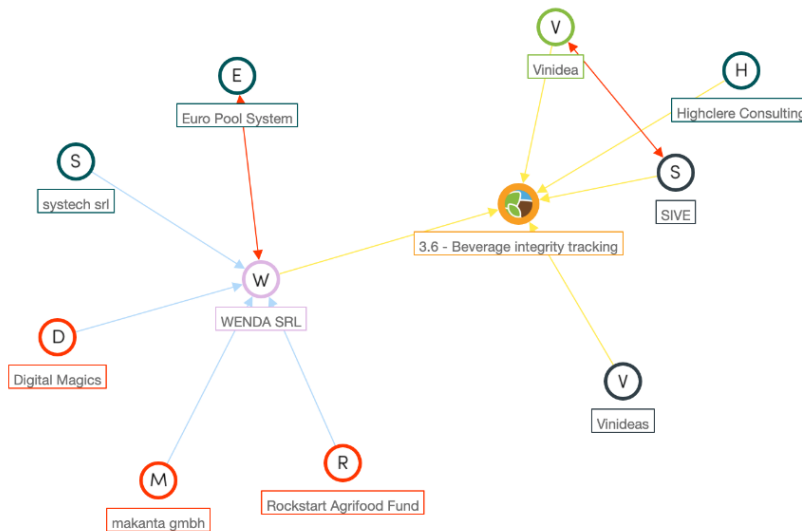
WHAT DOES THE RESULT LOOK LIKE IN PRACTICE?

Here is an example of how this could look like in practice:

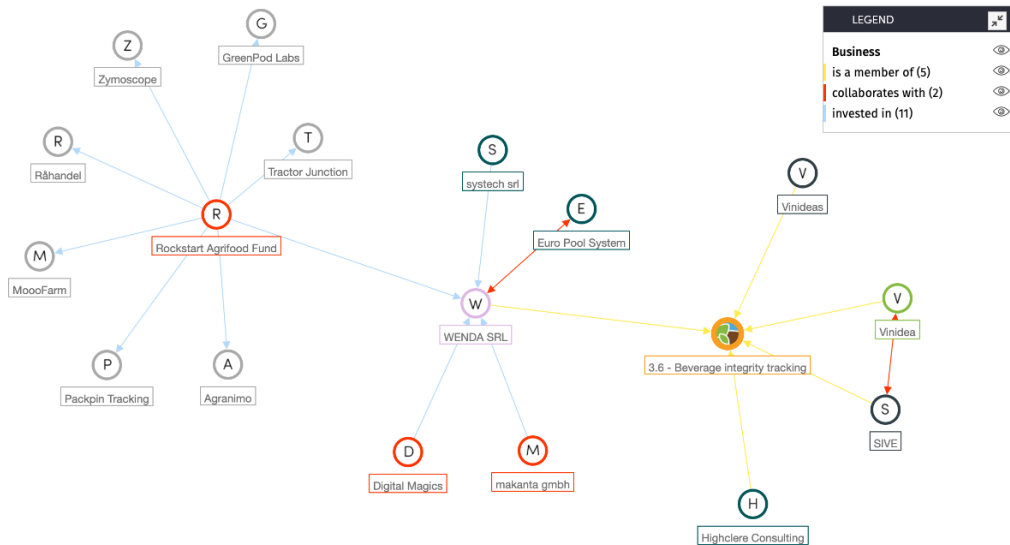
1. The network of core partners of Use Case 3.6.



2. The extended (limited) network of Use Case Partner WENDA.



3. The extended network (abridged) of a Start-up Accelerator that WENDA was part of, showing other Agri-food start-ups that went through it.



WHERE AND/OR HOW TO FIND THE TOOL?

The developed prototype is accessible via the IoF2020 site with limited functionalities.

<https://iof2020.datascouts.eu/dashboards/home>

This section is also represented by the first webinar in which the "Business model Toolbox" is introduced and tested in IoF2020 with the participants present.

<http://berlin->

[thinking.com/upload/iof2020/20200624_IoF2020_webinar_Business_Toolbox.mp4?mc_cid=14cc3b017a&mc_eid=23e83d6694](http://berlin-thinking.com/upload/iof2020/20200624_IoF2020_webinar_Business_Toolbox.mp4?mc_cid=14cc3b017a&mc_eid=23e83d6694)

USER ACCEPTANCE TESTING (UAT) TOOL

A major challenge within IOF2020 was to support all new initiatives to develop their business model to market readiness status as soon as possible. An important part of this is how the initiative is perceived by the end user.

Throughout the IOF2020 project, the WP4 user acceptance team supported the use cases in the design, implementation and analyses of these user acceptance tests. This provided valuable insights into the acceptance of the use case solutions.

For other EU projects to collect user feedback, the IOF2020 UAT survey template has been made available in the Reach Out platform as a re-usable tool.

WHAT IS THE INTENDED PURPOSE OF THE TOOL FROM IOF2020?

The purpose of this tool is to gather data from end users when they are testing or using Minimum Viable Product (MVP) versions or fully developed software or IoT related solutions in agri-food. ReachOut offers an agri-food template with questions about user acceptance concepts for the agri-food sector. These questions have been developed by a framework that integrates these user acceptance concepts, such as usefulness, ease of use, cost effectiveness, pricing and facilitating conditions based on a literature scan.

WHAT INFORMATION AND ADDED VALUE CAN THIS TOOL PROVIDE TO THE USER?

After the tool has been used by the innovators, the survey data collected can be analysed to see to what extent the users accept the solution and to focus feedback on key issues for the next development iterations.

The survey was replicated in a reusable form on the EU ReachOut platform to be able to address the specific features of IoT solutions, free of charge for other EU projects. ReachOut helps H2020 projects in the area of software technologies to concretely engage with their markets via beta testing campaigns. Here is what you can expect from ReachOut:

- The Beta Centre platform where projects can publish their beta testing campaigns.
- A set of recommendations and best practices for beta testing and market alignment.
- Face-to-face or online meetings to educate projects to align with market expectations.
- Support for setting up the beta testing campaigns and during their execution.
- Potential users, partners and complementors who will connect with projects.
- Money prizes as incentives for beta testers.
- And, as a result, market sustainable software ecosystems.

WHAT DOES THE RESULT LOOK LIKE IN PRACTICE?

For end users involved in testing, the result looks like a campaign (Figure 2) that takes the end user to a questionnaire.

IOF2020 Use Case Big Wine Optimization - Remote Wine Analysis product

What is the objective of the Remote Wine Analysis System?
 Perform remote frequent and inexpensive characterization of wine composition in order to preserve maximum expression of grape quality potential throughout winemaking phases.
 How does it work?
 A spectrophotometer reader – operating in the IR spectrum range IR – able to detect absorbance data of a wine sample in the winery, and send them to the cloud to be elaborated through a calibration curve based on a vast database, finally providing the winery the desired compositional parameters.

Project website:
<https://www.iof2020.eu/trials/fruits/big-wine-optimisation>

Remote Wine Analysis Phase 2

Estimated Test Duration: 2 hours

Incentives
 Testers participating in the campaign with take part in the ReachOut Lottery and may win a prize.

Target beta testers profile:
 Business users

Beta tester level:
 Beginner, Intermediate

Campaign objectives
 The testers are asked to use the system performing analysis during harvest period.

Requirements for this campaign
 Testers should perform analysis during harvest period.

Beta test instructions and scenario
 When you are done with the testing, please fill in the feedback questionnaire.
 Please note that filling in the questionnaire will be your ticket for incentives.

Incentives
 Testers participating in the campaign with take part in the ReachOut Lottery and may win a prize.

Campaign Mailing List

Figure 2. User Acceptance Testing Campaign.

For those who wish to engage end users, ReachOut offers an agri-food survey template as part of the platform in the form of a LimeSurvey template (LimeSurvey screenshot in Figure 3). After registering as a campaign manager and setting up a campaign, the template can be selected and UAT questions from IoF2020 can be re-used and customized.

Question ID	Question order	Code	Question	Question type	Group	Mandatory	Other
4107	1	U02TF	Usefulness of the product/solution	Array	Usefulness of the product/solution	*	
4123	1	US01	Ease of use	Array	Using the product/solution	*	
4103	1	TF002	What kind of meat do you produce?	List (radio)	About the test farm		
3864	1	G2	What is the product/solution? Please describe it in a bit more detail.	Long free text	General information	*	
3843	1	Y01	Age	List (radio)	About you		
4175	1	CPP1	How much do you pay (plan to pay) for the product/solution of our use case?	Long free text	About cost, productivity and profitability		
4141	1	UB01TF	Technical quality and infrastructure	Array	Usability of the product/solution		
4138	2	US02	Which features were complex for your personnel to understand?	Long free text	Using the product/solution		
4125	2	U02C	Usefulness of the product/solution	Array	Usefulness of the product/solution	*	
3865	2	G3	Are you working on a test farm or in a company?	List (radio)	General information	*	

Figure 3. Lime Survey development as part of UAT campaign.

Two examples of this are the finalized campaigns by UC3.2 and UC3.6 in IoF2020.

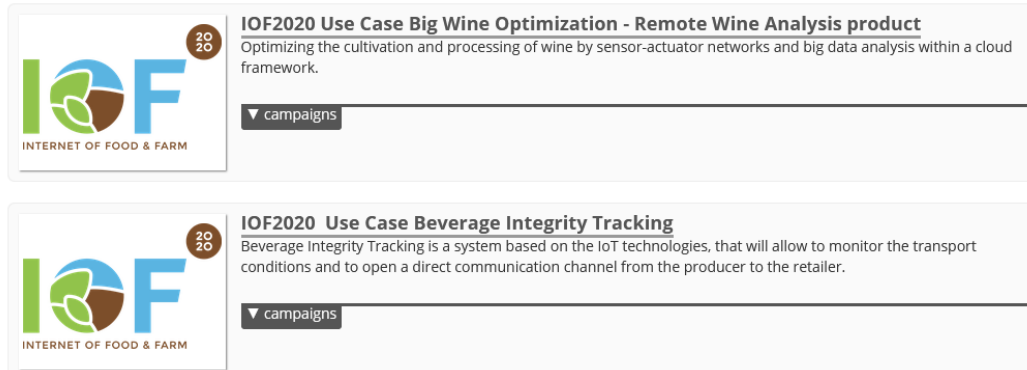


Figure 4. UC3.2 and UC3.6 UAT campaigns.

WHERE AND/OR HOW TO FIND THE TOOL?

The agri-food template is part of a ReachOut campaign on the ReachOut platform: <https://www.reachout-project.eu> on which many tutorials are available. Support was provided from Alexandre Lefebvre (UShareSoft) and Olivier Bouzereau (Ow2). The webinar '[Best practices and tools to evaluate user acceptance](#)' of UAT tools in IoF2020 is available as well.

All findings are described in the public report [D4.6 Validation of user acceptability in IoF2020 use cases](#). Please refer to this document for user acceptance test results.



OTHER BUSINESS CONCEPTS AND TOOLS

During IoF2020 many use-cases were confronted with various barriers in the market reaching from difficulties to find and maintain professional test sites for their product development over the identification of suitable partners for market entry in other countries

EUROPEAN DIGITAL TEST FARM NETWORK

WHAT IS THE INTENDED PURPOSE OF THE TOOL FROM IOF 2020?

Over the last 4 years, IoF2020 successfully pioneered in developing and validating over 55 IoT services from SMEs and corporates on over 140 test farms all over Europe. Significant funds from IoF2020 as well as private investments from partner flew into the equipment of farms and into the development of a validation methodology of comparable impact and performance indicators for IoT solutions.

A major learning was that the test farms played a crucial role in the product development especially for SMEs as it provided direct and iterative feedback from end-users. The short and intensive test and feedback cycles led to an acceleration of the product development and improved the user acceptance of the final service.

At the same time, the management of test farm relations is currently rather time consuming for both sides, the service provider testing products as well as for the farmer. After a rather long process of identifying a fitting farm and winning the farmer's trust to get involved with your solution, the relation with the farmer is in many cases based purely on the goodwill and interest of the farmer. This led also in IoF2020 to cases where farmers dropped out in the middle of the product development procedure causing severe delays in the go-to-market timeline.

Identification of fitting farms, winning farmer's trust and the management of test farm relations is time consuming leading to shaky relation mostly based on goodwill and interest of the farmer.

Furthermore, it proved to be very difficult in all sectors to win the farmer's trust on sharing data from his/her farm with external service providers and even more difficult with other partners in the agri-food value chain. Even so code of conducts for the ethical and fair exchange of data like the one provided by CEMA and Copa-Cogeca are already in place, it takes quite some effort for service providers to win the trust of the farmer for every step on the product development journey. This way it is especially difficult to establish traceability and transparency services across the whole value chain as these services only create their full value and distribute it back when all partners provide data.

Very difficult to win trust for data exchange across value chain partners.

Therefore, the business support team of IoF2020 and Berlin Thinking developed a concept on how existing test farms and test sites in the Agri-food innovation ecosystem can be turned into a sustainable European Digital Test Farm Network (EDTFN) offering a wide set of service for the agri-food tech ecosystem:

- Impact and performance validation for product development (Digital Service Providers)



- Independent and comparable validation of impact/performance of agri-food tech services (cooperatives, farmers associations)
- Data pool of digital farm twins to train machine learning algorithms (Digital Service Providers)

WHAT INFORMATION AND ADDED VALUE CAN THIS TOOL PROVIDE TO THE USER?

Informed IoT and digital investment decisions

One major value of the EDTFN is to provide independent and comparable performance and impact data for the most promising digital agri-food tech solutions on the market. To ensure the independence of the results, the testing process is not financed by the agri-food tech industry, but by cooperatives and farmers associations. The results are made publicly available to farmers and their advisors to make informed investment decision when it comes to IoT and digital tools.

Independent and comparable benchmarks for available digital agri-food tech solutions would finally trigger the needed investments to grow the sector and to steer public subsidies towards the most effective systems. Furthermore, the comparable impact and performance data would foster and accelerate competition by quickly identifying the best players in the market. This would lead to less parallel development of the same solutions for a problem but force a higher level of innovation and a clear benchmark for all new market players.

Improved and accelerated product development

By providing the ready set network of professional test farms, the EDTNF saves significant amounts of time and costs for turning innovations into market-ready products. Service providers receive more reliable feedback as farmers are trained and experienced in the process. Furthermore, EDTNF ensures a basic set of digital infrastructures on the farm which offers most necessary data inputs and allows the integration of third-party service into a FMIS

WHAT DOES THE RESULT LOOK LIKE IN PRACTICE?

The current version of the EDTFN and more information can be found in <http://www.edtfn.eu/> website.

FARM2FORK/SDG FITNESS PROGRAMME

WHAT IS THE INTENDED PURPOSE OF THE TOOL FROM IOF 2020?

When the IoF2020 had originally started the European Green Deal and the Farm to Fork Strategy was not yet developed, and the SDGs did not exist. With the renewed focus on sustainability and the effect of agriculture on the biosphere and on climate change the goal was to develop a program that would

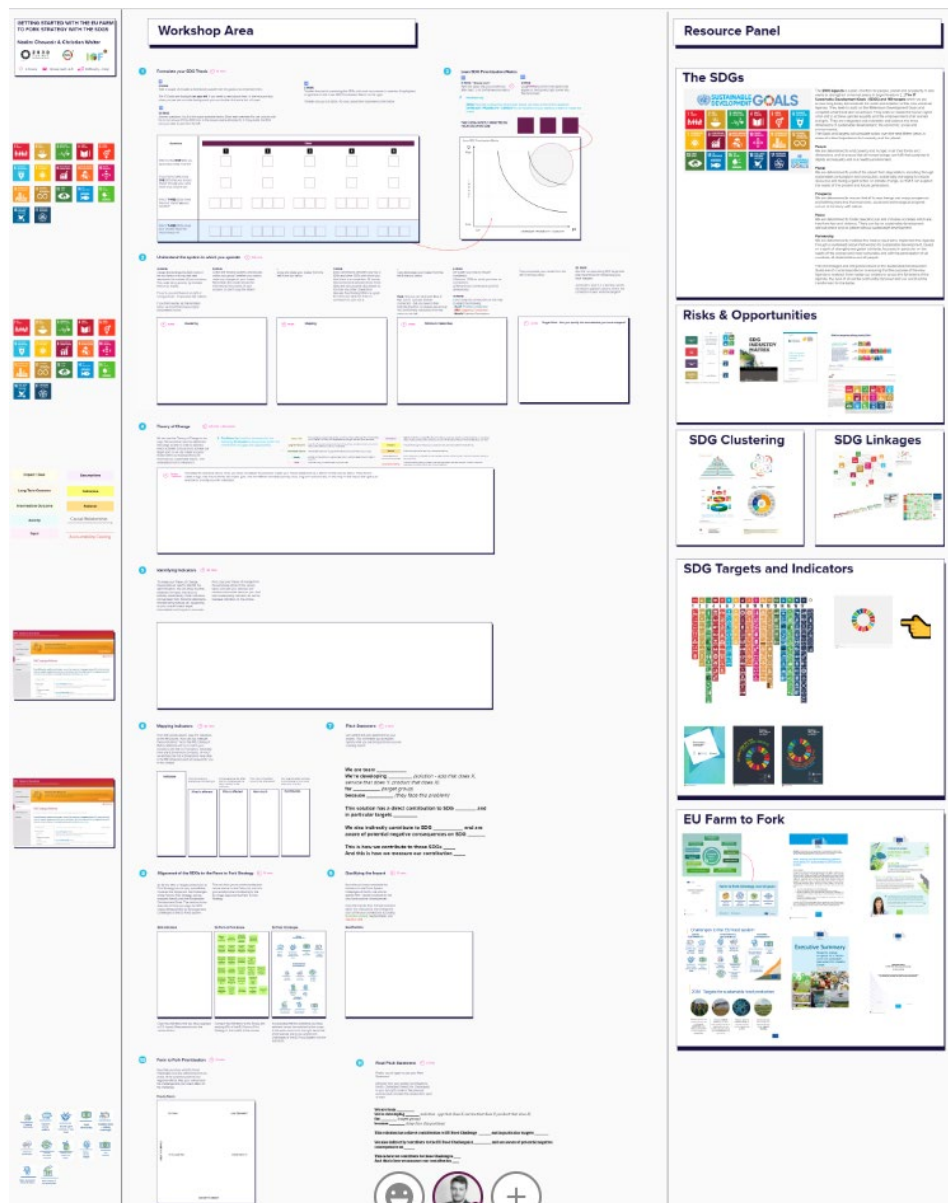
- a) Raise the awareness and knowledge among the Use cases (UCs) in terms of the Sustainable Development Goals (SDGs), the Green Deal and the Farm to Fork Strategy
- b) To enable the UCs to understand their contribution to the SDGs and the Green Deal and ideally start aligning their efforts and business models to the opportunities that the Green Deal provides.
- c) To enable UCs to have a higher chance when applying for future H2020 and now Horizon Europe programs as the EU communication outlined the requirements of

measuring and reporting on project contributions to the Green Deal and hence the Farm to Fork Strategy.

WHAT DOES THE RESULT LOOK LIKE IN PRACTICE?

Originally, we were hoping to provide the workshop in person but due to Covid-19 we had to provide the entire workshops online, which resulted in a three-step approach. 1) We did an online only live workshop via Zoom and Mural.co. 2) We developed a downloadable and print-out version with the course materials for those that were not able to participate in the workshop and lastly, an online video course that can also be used as a blended learning course, made available for everyone to via Google Classroom as well as access to the appropriate Mural Board to work on the content while watching the online course.

Below is a screenshot of the Mural board reflecting the workshop. The links to the actual online course and documents can be found in the next section.



This is the introduction video of the online course that was created. In total we created more than 30 videos to take users through the workshop.



WHERE AND/OR HOW TO FIND THE TOOL?

An H5 Magazine was created that includes all the Links to the course and materials. The H5 Magazine can be found here: https://iof2020.h5mag.com/edit-iof2020_farm_to_fork/cover?preview=c6d7531d-3348

In order to access the course, users/ interested parties need to sign up via an Online Form and we will provide the access. This is, because Mural and other Tools have a user-based payment mechanism, and we need to individually export the content for each individual request.

The individual links to the course content are:

Online Course (invitation link, needs to be accepted admin)
<https://classroom.google.com/c/MzEzMzk3MTI5NTA2?cjc=nghq7I3>

Downloadable PDF for the Offline Workshop:
<https://drive.google.com/file/d/1A4UZraHO6ZVn3wNqjJe3lc3q0W8D8j0-/view?usp=sharing>

Mural (Visitor Link, not editable):
<https://app.mural.co/t/wearecabinet0851/m/wearecabinet0851/1616487159564/bd6d1ed0eeee57728d-dd92bc187c2e282d760d23?sender=christianwalter1336>

BUSINESS MODEL DEVELOPMENT GUIDANCE

WHAT IS THE INTENDED PURPOSE OF THE TOOL FROM IOF 2020?

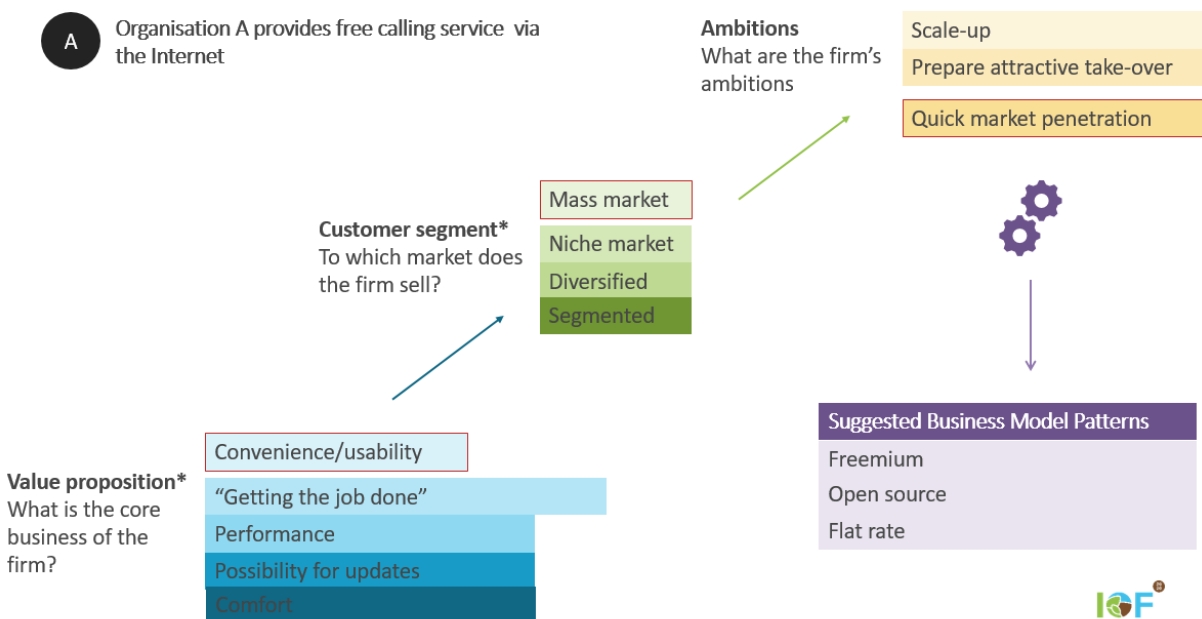
The intended purpose of the tool is to support start-ups in creating a business model. The goal is not too actually forming a business model, but to identify suitable business model patterns that align with the organization’s ambitions and characteristics.

WHAT INFORMATION AND ADDED VALUE CAN THIS TOOL PROVIDE TO THE USER?

- Creating a business model can be overwhelming. This tool is a low threshold approach to start thinking about it; it is a first step towards business model development.
- By suggesting compatible business model patterns, the tool can help start-ups to bring focus in their business model creation process.
- The tool educates start-ups on business model development by explaining the business model patterns most compatible for them.
- The tool saves time. The start-up does not have to do a lot of preliminary inquiry to find the right model.

WHAT DOES THE RESULT LOOK LIKE IN PRACTICE?

The tool distills compatible business model patterns by asking multiple choice questions. It could be compared with a decision tree that tries to clarify complex problems that have multiple variables. Questions in the tool are based on the most important facets in the in the business model creation phase. In Figure 1 two questions are based on the building blocks of the Business Model Canvas. However, this approach is limited, so other facets, such as ambitions, could also be considered. Based on the answer of the first question, the tool generates a second question etc., until enough data is generated to suggest some compatible business model patterns.





WHERE AND/OR HOW TO FIND THE TOOL?

This tool has not been developed yet and is therefore not publicly available. However, an exploratory white paper has been written which precedes the instrument. It is still in progress and will become available in spring 2021 through the IOF2020 website and the Wageningen library. The main question of the white paper is:

What are the main considerations in the journey of business model creation for start-ups when applying IoT technologies in the agri-food sector?

This paper will help us understand where start-ups operating in this context should focus on in their business model creation process, and therefore help us understand how the decision tree should be build up. Which indicators weigh more and should be asked at the start of the tool, and which are less important and can be asked later in the process?

CONCLUSIONS

The aim of this deliverable was to provide insight into developed business model validations in IOF2020 use cases. The report shows that all components are prototype concepts of work in progress. They are therefore snapshots of the current situation.

They have all been developed with the aim to support SMEs in facilitating their own business model process and thereby enabling them to go through the process faster, easier or with less learning costs, to eventually fully launch in the market.

The current state of the prototypes on the different parts developed indicates that this process is complex and requires further development for customer-friendly use.