Report on the design and planning of the UIS interface scheme pilots

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ABBREVIATIONS AND DEFINITIONS

APPI	Application Programming Platform Interface
EEN	Enterprise Europe Network
ETN	European Training Network
IPR	Intellectual Property Rights
KPI	Key Performance Indicator
MSCA	Marie Sklodowska-Curie Action
NCP	National Contact Point
OI	Open Innovation
R&D&I	Research, Development & Innovation
RTO	Research & Technology Organisation
SaaS	Software as a Service
SDN	Software Defined Network
SME	Small and medium-sized enterprises
S2S	Science 2 Society
TRL	Technology Readiness Level
UIS	University-Industry-Society

1 EXECUTIVE SUMMARY

Science2Society is developing, describing and assessing the mechanisms through which universities, research organisations, society and industry collaborate to create value. Key element considered in Science2Society is the university-industry-society interface schemes (UIS interface-schemes) that take substantial advantage of Open Innovation and Science 2.0. These UIS interface schemes will be applied to seven concrete use cases (so-called pilots) of university-industry-society cooperation tailoring and adapting their building blocks to different contexts, sectors and applications.

The objective of this report is to describe the design and the plan for implementation of the pilots in detail. The description is composed of a comprehensive outline of the pilots addressing

- the motivation,
- the goals,
- why the respective pilot is an open innovation scheme,
- the content,
- the expected results and
- the uniqueness of the respective pilot.

and structured description detailing the relevant stakeholders and actors, the process and timing of the implementation as well as the expected results, key performance indicators and critical success factors. This document will be continuously updated with the recent findings of each pilot as mean to collect all information required by WP 2 for modelling the pilots.

Keywords: Outline of the pilots, Structured description of the pilots, Implementation of the pilots

2 OVERALL OBJECTIVES

2.1 General

Science2Society is developing, describing and assessing the mechanisms through which universities, research organisations, society and industry collaborate to create value. Key element considered in Science2Society is the university-industry-society interface schemes (UIS interface-schemes) that take substantial advantage of Open Innovation and Science 2.0. These UIS interface schemes will be applied to seven concrete use cases (pilots, see Fig. 1) of university-industry-society cooperation tailoring and adapting their building blocks to different contexts, sectors and applications. The overall objectives of the piloting exercise are to i) validate the UIS interface schemes and their application (regarding identified success factors and approaches as well as regarding how relevant bottlenecks and hurdles for open innovation, Science 2.0 and co-creation can be overcome) and ii) to validate the policy recommendations in support of the UIS interface schemes.

The objective of this report is to describe the design and the plan for implementation of the pilots in detail. The description of each pilot does not concern the innovation experience as such, but rather the set-up and development of the innovation relationships and their results.

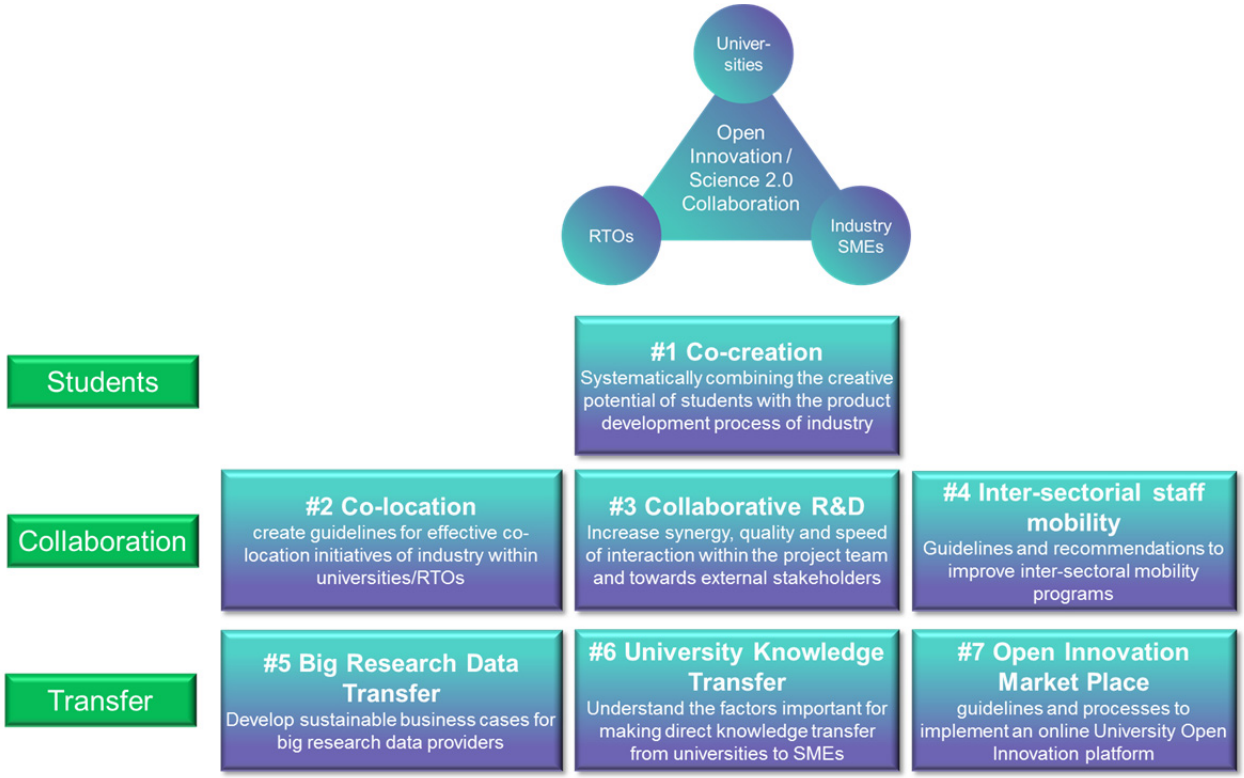


Figure 1: The seven UIS interface-scheme pilots

2.2 Conceptual introduction to Open Innovation

Open Innovation and Co-Creation is a concept developed since the early 2000s by Henry Chesbrough. This concept has been taken up at high political level (Carlos Moedas, European Commissioner for Research, Science and Innovation confirms that “We need open innovation to capitalise on the results of European research

and innovation. This means creating the right ecosystems, increasing investment, and bringing more companies and regions into the knowledge economy [1].

Henry Chesbrough defines Open Innovation as the purposeful outflow and inflow of knowledge into the innovation process [2] and as a strategic decision of the innovating company to increase and accelerate innovativeness and/or efficiency by using external resources. OI 2.0 moves towards ecosystem innovation through a step change in research, development and innovation infrastructure and innovation behaviour, which determine the way knowledge is produced and exchanged in the ecosystem and the way the innovation process is shared, nourished and implemented. Knowledge transfer refers to the circulation of knowledge between innovating organisations (academic, research and industry) for innovation purposes meeting specific market goals or more general societal goals.

Open innovation and knowledge transfer in general require a change in mind-set and approach moving from a linear and one-dimensional way of interacting (innovation shopping and collaboration) to an articulated, reticular process involving very different types of players in the innovation chain and in the context in which it takes place. The players involved may go beyond the mere innovation activity and involve governmental organisations, citizens, social interest groups, etc.

The co-creation approach to OI is more than the sharing of resources, knowledge and risk, but targets the integration of the entire innovation ecosystem to jointly develop knowledge in partnerships.

The effort of businesses on the one hand, is to build approaches and structures to improve the absorptive capacity of external knowledge. On the other hand universities and RTOs need to go beyond the mere supply of knowledge and innovation talents, but develop approaches and structures to understand and incorporate user needs. Both innovating categories will thus enhance their co-creation capabilities.

The S2S pilots, as they have been designed, are fully consistent with this approach, aiming at developing and testing best practices for the innovative cooperation of academia, research and technology organisations and industry / SMEs.

2.3 Approach of designing the pilots

For designing the seven pilots, a two-step approach was applied. First, a comprehensive outline of each pilot was elaborated among all participating partners detailing

- the motivation,
- the goals,
- why the respective pilot is an open innovation scheme,
- the content,
- the expected results and
- the uniqueness of the respective pilot.

This comprehensive outline forms the 1st section of each of the following pilot description. From these outlines, also one-pagers were derived for communication and marketing purposes to be used in WP 4. The respective one-pagers can be found in the appendix to this report.

In a second step a detailed guideline how to describe the individual pilots was elaborated in close collaboration with WP 2. The derived structure for describing the pilots reflects the needs of WP 2 for getting the relevant information required for modelling the UIS interface-schemes from the pilot implementation phase. The derived pilot description contents of the following elements:

a) Definition of the relevant stakeholders and actors

   For each pilot the relevant stakeholders should be identified and visualised in a stakeholder map. Furthermore, the different actors involved in a pilot should be identified and categorised as core and supporting team. The relationship between the actors needed to be visualised as well. For each actor their role, specific activity, objectives, relationship inside the pilot as well as expectations should be elaborated and summarised in a table.

b) Process design of the pilot

   For each pilot a flow chart of the consecutive steps of the implementation should be elaborated. The starting point of the pilot as well as the individual steps should be briefly described together with the timing when each step should take place. Furthermore, measurable results needed to be detailed. In addition the blue print of each pilot and the specific touchpoints should be described in form of tables.

c) Quantitative and qualitative description of indicators

   For each target group the benefits should be elaborated, prioritised and visualised. Furthermore, preliminary key performance indicators (KPI) should be defined which could be used for the later evaluation of the each pilot.

d) Critical success factors for each pilot

   Finally, for each pilot the success and hampering factors should be identified and described in a table.

The elaboration of the respective pilot description was supervised by WP 2 and iteratively refined. However, in course of elaborating the pilot descriptions it turned out that for some pilots the above listed elements can only be defined during exercising the respective pilot, without affecting the overall design and planning of the pilot. In these cases, the visualisation and tables were left open for this report. Since this report will not only be used to outline the design and planning of each pilot but also to follow up the implementation and to provide the required input to WP 2, the respective figures and tables will be added later. As such, this report will be used as “living” document continuously being updated with the findings of each pilot. The final maps and tables of each pilot will be reported in deliverable D 2.1.

In the following chapters, the comprehensive outlines as well as the structured description of each pilot will be presented.

3 PILOT 1: CO-CREATION - PRODUCT DEVELOPMENT WITH FUTURE USERS IN A VIRTUAL IDEA-LABORATORY

3.1 Objectives

Including customers into early stages of product development is a proven success factor. However, current approaches of user integration often only focus on single spots like customer surveys or product testing ("test users"), whereas the systematic integration of (current or future) customers along the product development process is often left out.

On the other hand there exist a huge creative potential combined with already good knowledge within the group of engineering master students. As these students are future users of many products of different product categories there exists great potential in including those students into early stages of product development. This is why the objective statement of Pilot #1 is defined as follows:

We want to enable engineering student groups to develop highly relevant products with a big innovation potential through combining their huge creative potential with a strong co-creation innovation process and specific product development methods.

In term of Open Innovation pilot project, master students of mechanical engineering are used as external innovation sources for industrial companies. Through manifold ways of collaboration and a systematic approach it is ensured that the creative potential of the involved students which represent future user of later products are integrated into early stages of the innovation process.

To ensure project success an innovation process will be created which allows student groups as future user of products to co-create with relevant stakeholders (especially including even younger people as future user within ideation and evaluation of innovative products). To ensure sustainability of this innovation concept this approach will be integrated into the curriculum of the masters' program for mechanical engineering at the Karlsruhe Institute of Technology (KIT). Additionally a detailed strategy will be developed to allow transferring this innovation scheme to other universities and disciplines.

In order to enable the whole group of students to co-create they will use an innovation platform and other different software tools and media in a way that they are able to work as a virtual project team. As many stakeholders will profit from pilot 1 in different ways pilot 1 is able to create a win-win situation:

- For industrial company: Mock-ups representing innovative products designed by students
- For students: Huge knowledge gain in the field of practical product development
- For universities: Serving a Live-Lab for researching new processes and methods within the field of product development
- Other Stakeholders: Guidelines how to implement an adapted versions of this co-creation approach

Including students into innovation projects, using innovation platform and other virtual communication tools to enable co-creation across locations and organizational boarders in order to develop relevant products with a big innovation potential is the unique selling proposition of pilot #1. According to the dissemination activities in WP4 of Science2Society the Pilot #1 core team has a big focus on the scientific publication of the Open Innovation and Science 2.0 aspects of Pilot #1. A publication agenda for Pilot #1 will be prepared within the second year of Science2Society.

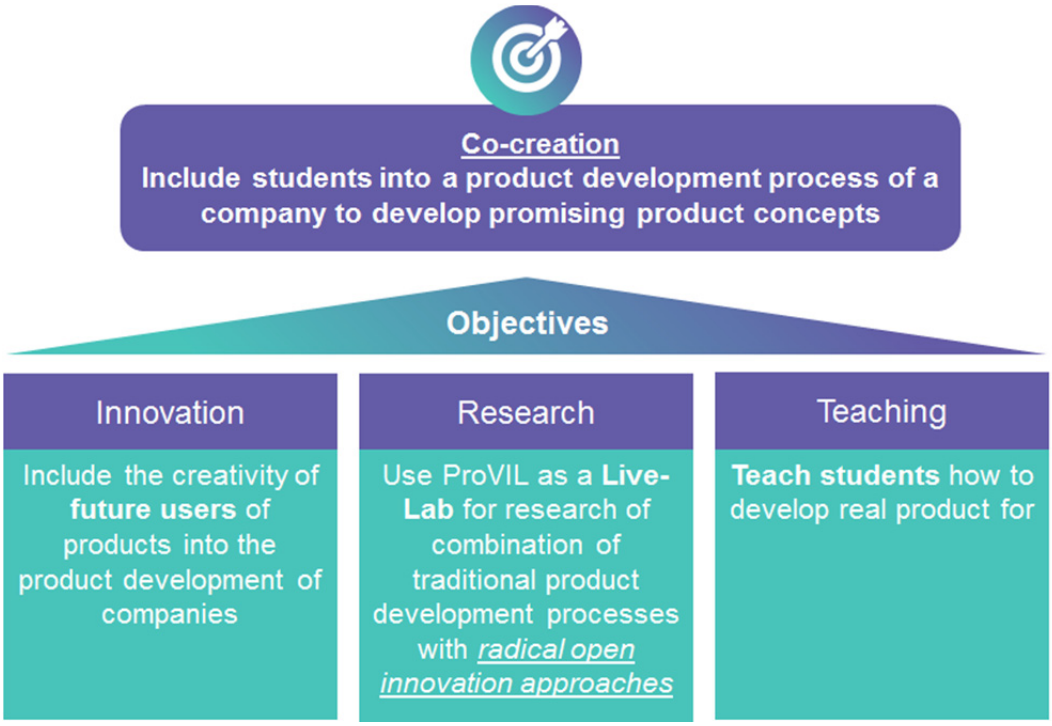


Figure 2: Main objectives of Pilot #1

Background

"ProVIL – product development in the virtual idea laboratory" is an innovation project, which uses the creative power of students and a structured and highly agile product development process to develop innovative products for industrial companies. As actual and future user of products, students bring new impulses and highly relevant perspectives into product development. Within ProVIL, they directly work at a task assignment in the area of product development, which is provided by the industrial company, and collaborate directly with product developer from the companies. As process owner the IPEK – institute of product engineering provides the innovation methodology (processes and methods), harmonizes the collaboration and guides the students through the whole project.

ProVIL follows a structured innovation process, which is divided into four project phases: Starting with the *research phase*, over the creation of *product profiles* and the generation of *product idea*s to the *product concepts* as an experiencable mockup. By working mainly on an innovation platform, the students represent virtual teams.

Besides as an innovation project ProVIL is designed as a Live-Lab. Within specific studies during the project, methods and processes for the collaboration of teams across locations are researched. It is planned to extend ProVIL to a co-creation-environment, to even strengthen the implementation of students of technical studies into the product development process of industrial companies.

As new products and solutions will be more and more developed across locations the concerned team members are dependent on the newest media and software tools to execute their tasks. For example they are necessary for develop market-relevant product profile ideas, associate project risks or exchange practical knowledge. Nowadays, there are many difficulties in the collaboration in the virtual reality. The main reasons are on the one hand the lack of education of engineers in the area of teamwork across boundaries. On the other hand, the location independent teamwork fails because of the missing developing methods.

Within Pilot #1 the described problems with the project ProVIL will be counteracted. The overall set-up is the collaboration of students and project partner from industry to enable innovation projects and close the gap between theory and practice. Therefore, developed and researched methods from IPEK are used. The key for

success of ProVIL is the support of innovation projects across locations through the transfer of creative methods into the virtual reality. During the project progression, scientists evaluate and refine new developing methods that are specific for the use in virtual developing teams so the lack between pure laboratory and pure field studies in the research can be closed. That´s why IPEK understand ProVIL as a live lab.

As a pre-pilot during the summer semester 2016, 32 students worked in ProVIL as a team of four persons on the developing task “digital services for the customers of tomorrow” provided by the Porsche AG. For this, the students used the innovation platform SAP innovation management as a central element. Thereby 10 innovation coaches supported the students. These are students of economic engineering at the Hochschule Karlsruhe – Technic and economy (HsKA). The innovation coaches worked as moderators and process-enablers. The students developed 8 innovative and customer-centered product concepts for the project partner Porsche AG. Therefore, they worked inside the virtual reality on an innovation platform from SAP. To develop the 8 project concepts the students analysed in 16 research fields the situation of the market and competitive products. In the profile phase, the students generated more than 200 product profiles by using creativity methods on the innovation platform. Further, they selected 64 different product profiles and substantiated them into user story videos. The project partner selected 16 product profiles, which were developed further and afterwards reduced to 8. The students generated and structured functions on the innovation platform for an application and designed three screens for the mock-up. In the concept phase they realized the functions by developing and evaluating a mock-up which was finally presented to all stakeholders in the closing event.

International experiences serving as best practice examples for the pilot

The pilot could profit very much from multiple experiences in the fields of virtual teams and virtual reality, which might arise in the future. E.g., the EU-research project I3CON [www.i3con.org] is a good example for successful communication and presentation of results. Achievements of research and development could make visible and tangible through virtual reality (VR). The project constitutes an information system for building users that give disclosure about electricity and water consumptions with their arising costs. Some advices are given to save energy. It´s developed in cooperation of the Fraunhofer IAO and the city administration of Madrid EMVS where the prototype was implemented and tested by inhabitants. The idea to disclose the informations and work with transparency is the same as at the innovation platform. Share knowledge, ideas, advice and develop further. In contrast to this project, our pilot takes place primary in one country. I3CON is an example for successful international teamwork with different stakeholders that pursuit a common goal.

In the engineering department of Standford University, Hasso Plattner, Christoph Menel and Larry Leifer researched Desgin Thingking. The question here is what tools, systems and methods really work to get the innovation you want when you want it. Design Thingking “blends an end-user focus with multidisciplinary collaboration and iterative improvement to produce innovative products, systems, and services. Design Thinking creates a vibrant interactive environment that promotes learning through rapid conceptual prototyping” [3].

Social, economic, ecological or technological trends influencing the pilot

One of the two most important influences of trends on the pilot is the digitalization. More and more software tools are available. Digital natives are used to online teamwork. Therefore, the obstacle of using these tools willl be reduced ever more. The second huge trend that influences ProVIL is the globalization. Through changing working conditions even more people are dependent on teamwork across regional and transnational boundaries. Because of ecological and financial reasons business trips are to be minimized. Product development in virtual teams is therefore a topic of the future.

3.2 Map of Actors

Pilot #1 brings together many different stakeholders from universities and industry. To ensure for innovation success in the sense of Pilot #1 it is necessary to have access to excellent and highly motivated students and innovation coaches. As leading institute in the area of product engineering KIT-IPEK can guarantee this access. To ensure for innovation success on the industry side you need a strong industrial partner as advisory board and source of a highly relevant task assignment. This role is represented by CRF. Besides this a strong innovation process partner is needed as well as a strong software partner. These are represented as shown in the figure.

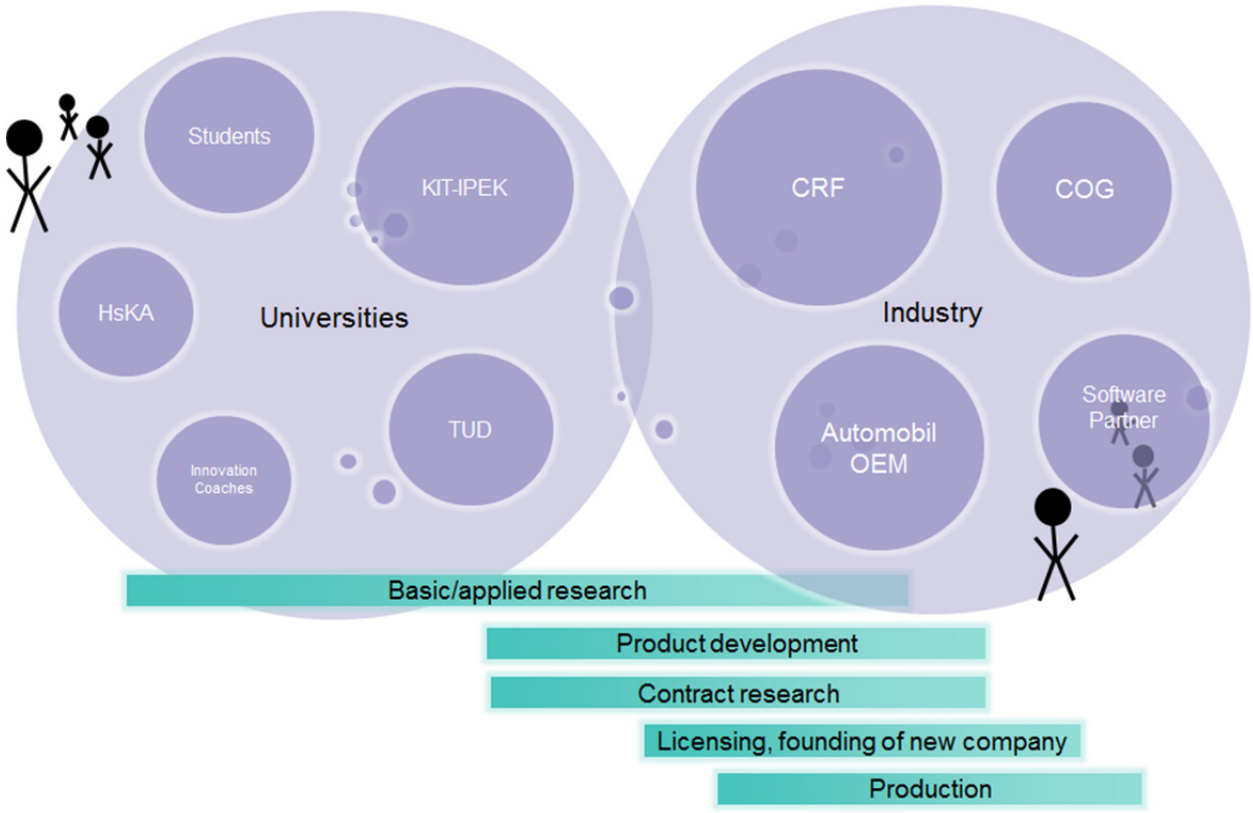


Figure 3: Stakeholder Map of Pilot #1

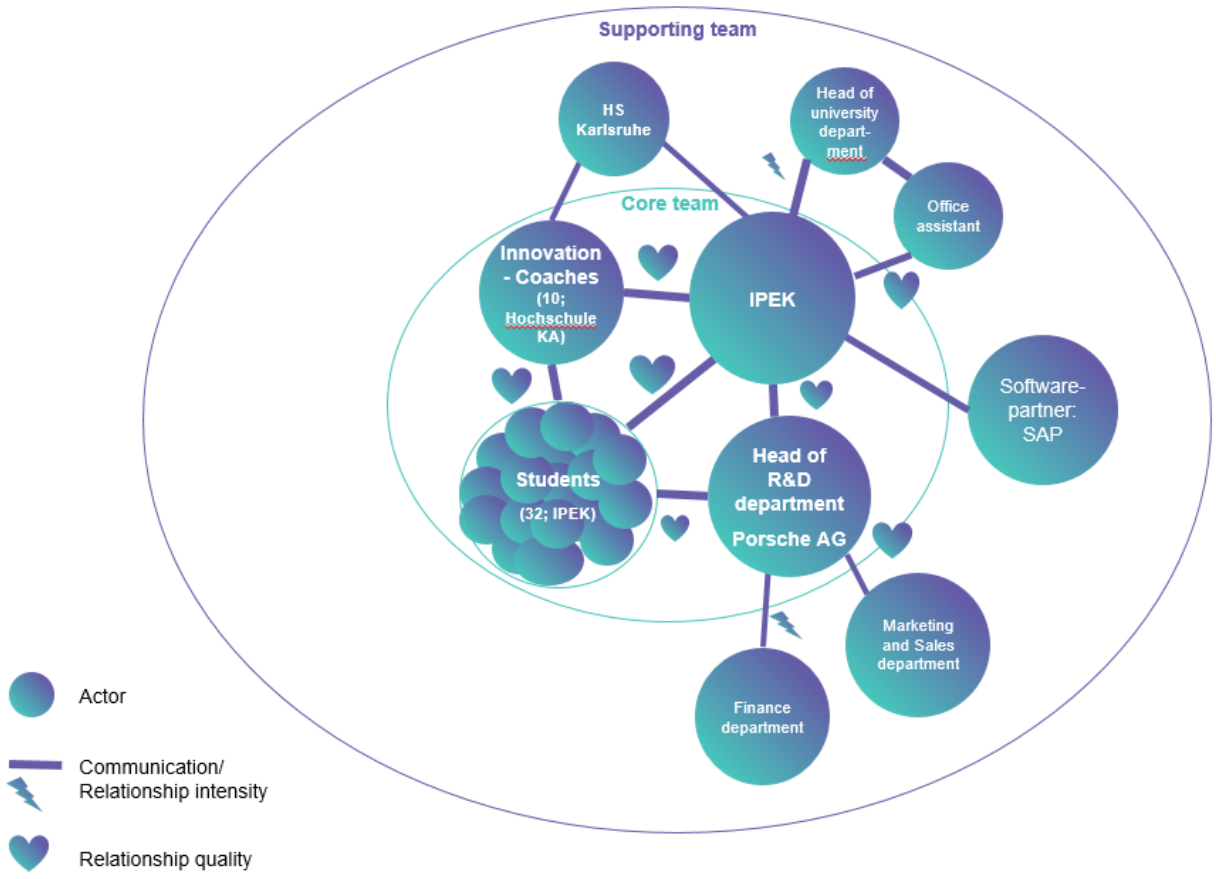


Figure 4: Map of Actors of Pilot #1

Table 1: Table of Actors of Pilot #1

Actors/Role	Institutions	Activities specific to the group/ competencies	Objectives (qualitative and quantitative)	Relationships inside the pilot	Expectations on other actors
Students (32) Specialized internship	University KIT	Background: mechanical engineering Market research Analysis of customer requirements (also based on interviews) Creation of product profiles (using creativity methods) Generation of videos of product profiles Generation of product ideas Developing of mockups	Acquiring and witnessing close up of comprehensive competence in the fields of product development Learning and applying of methods of product development Getting in deep contact with industrial companies	Teached by professor and institute members Working with other students to develop concepts, product profile ideas and mockups Being supervised by the Inno-Coaches Close collaboration and coordination with the project partner	**On Head of R&D department: Porsche AG:** • Guidance • Connections • Insight into the real processes • Sharing innovation experience **On IPEK:** • Guidance • Input • Reputation **On Software Partner: SAP:** • Functional innovation platform
Innovation- Coaches (10) Tutor of the students of the KIT	HsKA (University of applied science)	Background: economic sciences Leading of creativity methods Quality checks: Evaluating quality of results Market analysis	Supporting of students through methods Coaching	Moderation of creativity sessions for students Process coaching	**On Students:** • Successful participation of workshops **On HsKA :** • Recognition of their performance (ECTS) • Reputation • Input • Guidance **On IPEK:**

Actors/Role	Institutions	Activities specific to the group/ competencies	Objectives (qualitative and quantitative)	Relationships inside the pilot	Expectations on other actors
					• Guidance • Input
IPEK Guidance Project organization, management	Institute of the KIT	Cooperation, agreements with project partner Consultation at formulation of requirements of project partner with students Agreement with SAP Close contact with HsKA Preparing, leading of workshops for students	Developing of feedback methods for development teams in virtual-reality for further competence development (presentation skills) Advancement of students Researching Process development Collaboration of virtual development teams	Interaction with SAP to improve the innovation platform and seek for a longterm cooperation Defining of the project exercise and selection the generated ideas together with Porsche AG Guiding and teaching of the students of the KIT and HsKA Doing research together with the office assistants Collaboration with the head of the university department	**On Students:** • Active participation • Generation of product concepts • Learning methods of product development **On Inno-Coaches :** • Supporting of students during the project **On Head of R&D department: Porsche AG:** • Close cooperation • Financing **On Software Partner: SAP:** • Functional innovation platform • Close cooperation • Longterm collaboration **On HsKA:** • Sharing innovation experience • Longterm collaboration

Actors/Role	Institutions	Activities specific to the group/ competencies	Objectives (qualitative and quantitative)	Relationships inside the pilot	Expectations on other actors
					On Head of R&D department: Porsche AG: • Support **On Office assistant:** • Organization • Preparation of material
Head of R&D department: **Porsche AG** • Project partner, customer		Cooperation, agreements with IPEK Formulation of requirements (in consultation with IPEK) with students Selection of ideas and reduction of product profile ideas Gaving hints for development the specific product profiles	Product inventions with high potential of innovation Learning from different methods (mile stones, quality checks) Output: mockups	Close cooperation with IPEK about the frame conditions Guiding of the students by analysing and rating of the product profiles	**On IPEK:** • Long-term cooperation is aimed • Learning methods of product development **On Students:** • Creation of new and innovative product concepts
Software-partner: SAP • Provision of the Innovation tool		Agreement with IPEK Close contact with Inno-Coaches	Improving of the innovation tool	Collaboration with the IPEK by providing the innovation platform Collaboration with the HsKA by teaching the Innovation-Coaches	**On IPEK:** • Supporting and promoting of the innovation platform • Giving hints for further development **On Students:** • Evaluation of the innovation platform • Giving hints for improvement

Actors/Role	Institutions	Activities specific to the group/ competencies	Objectives (qualitative and quantitative)	Relationships inside the pilot	Expectations on other actors
Head of university department • Determination of framework conditions	KIT	Organization of framework conditions	Pilot project: Implementation of specialized internships	IPEK: cooperation	**On IPEK :** • Succesful implementation of ProVIL • Adavancement of students
Office assistant • Project assistant	KIT, IPEK	Generation of presentations Further developing of development methods Appointment organization	Smoothing running of their project Processing of innovation platform	To all stakeholders: agreements, organization	**On IPEK:** • Supporting by research • Learning methods of product devlopment **On Head of R&D department: Porsche AG:** • Getting pratical experience
HsKA • Partner university	HsKA (University of applied science)	Training of the Inno-Coaches	Advancement and education of students IPEK: cooperation?	IPEK: cooperation	**On IPEK:** • Long-term cooperation

3.3 Implementation / Process Design

Process visualisation

Pre-Pilot Phase

- Applications of students (single / tandem)
- Arrangements with software partner (SAP)
- Arrangements with project partner (Porsche AG)
- Arrangements with faculty management (ProVIL allows for a specialized internship; possibility to realise this pilot project)
- Process development (assistant of IPEK)
- Analysis of applications in general and specific for SAP Application Platform (assistant of IPEK)
- Confidentiality agreement (How do we organize keeping secret of our pro ject?)
- Clarification of Intellectual Property issues

Step 1: Research Phase – Collect information

- Understanding of the technological and economic background of the task assignment
- Getting to know platform
- Getting to know participants
- Researching inside research fields
- Presenting research results to the project partner (face-to-face)

Step 2: Profile Phase – Identify market potentials

- Understanding customers
- Conduction of interviews
- Generation of product profiles
- Combination, evaluation and selection of product profiles on the innovation platform

Step 3: Idea Phase – Develop alternative solutions

- Develop product ideas
- Feedback from experts
- Discovering of market potentials
- Exchanging with experts of the project partner
- Selecting of the best product ideas

Step 4: Concept Phase – Solutions specify

- Implementation of the product ideas in a first concept
- Executable mockups
- Validation of the mockups
- Preparing and holding of final presentations

Timing

Step 0: Pre-Pilot Phase

- Started
- Until 04/2017

Step 1: Research Phase – Collect information

- Kickoff: 03.05.2017
- Milestone: 18.05.2017

Step 2: Product Profile Phase – Define customer and company benefit

- Kickoff: 19.05.2017
- Milestone: 07.06.2017

Step 3: Product Idea Phase – Generate Ideas, develop solutions

- Kickoff: 12.06.2017
- Milestone: 06.07.2017

Step 4: Concept Phase – Build a mock-up

- Kickoff: 07.07.2017
- Milestone: 25.07.2017 (project close out)

Measurable Results

Step 1:	Research results	16 presentations, 32 Participant descriptions
Step 2:	Product profiles	16 Product profile videos derived from 64 worked out product profiles
Step 3:	Idea phase	8 product ideas including models (functional structure, system model, sequence diagram)
Step 4:	Concept phase	8 product concepts with final mock-ups

Blueprint of the Pilot

Table 2: Blue print of Pilot #1

	Pre-Pilot Phase	Pilot Starting Point	Step 1	Step 2	Step 3	Step 4
Physical evidence (Touchpoints)	• E-mail • Workshops • Meeting	• Meeting	• Innovation platform • Skype • Meeting	• Innovation platform • Skype • E-Mail • Mobile phone • Workshop • Meeting	• Innovation platform • Skype • E-Mail • Mobile phone • Meeting	• Innovation platform • Skype • E-Mail • Mobile phone • Meeting
Actors and their actions	• IPEK • Project partner • Software partner • HsKA	• IPEK • Project partner • Software partner • Innovation-Coaches • Students KIT	• Students KIT • IPEK • Project partner • Innovation-Coaches	• Students KIT • IPEK • Project partner • Innovation-Coaches	• Students KIT • IPEK • Project partner	• Students KIT • IPEK • Project partner
Supporting actor (Backstage contact person)	• Legal department KIT		• Software partner	• Software partner	• Software partner	• Software partner
Supporting processes	• Integration of product engineering model to generate a plan ProVIL process	• ProVIL process plan	• ProVIL process plan • Feedback methods	• ProVIL process plan • Creativity methods • Persona-Methode	• ProVIL process plan • Soundingboard method	• Local media (newspapers, etc.) • ProVIL process plan • Validation of methods
Quality criteria	Early interaction with all stakeholders		Motivation of all partners	• Technical feasibility • Economic feasibility • Creativity	Full exploiting of creativity potential	• Creativity • Feasibility • Criterias of project partner

Touchpoint Analysis

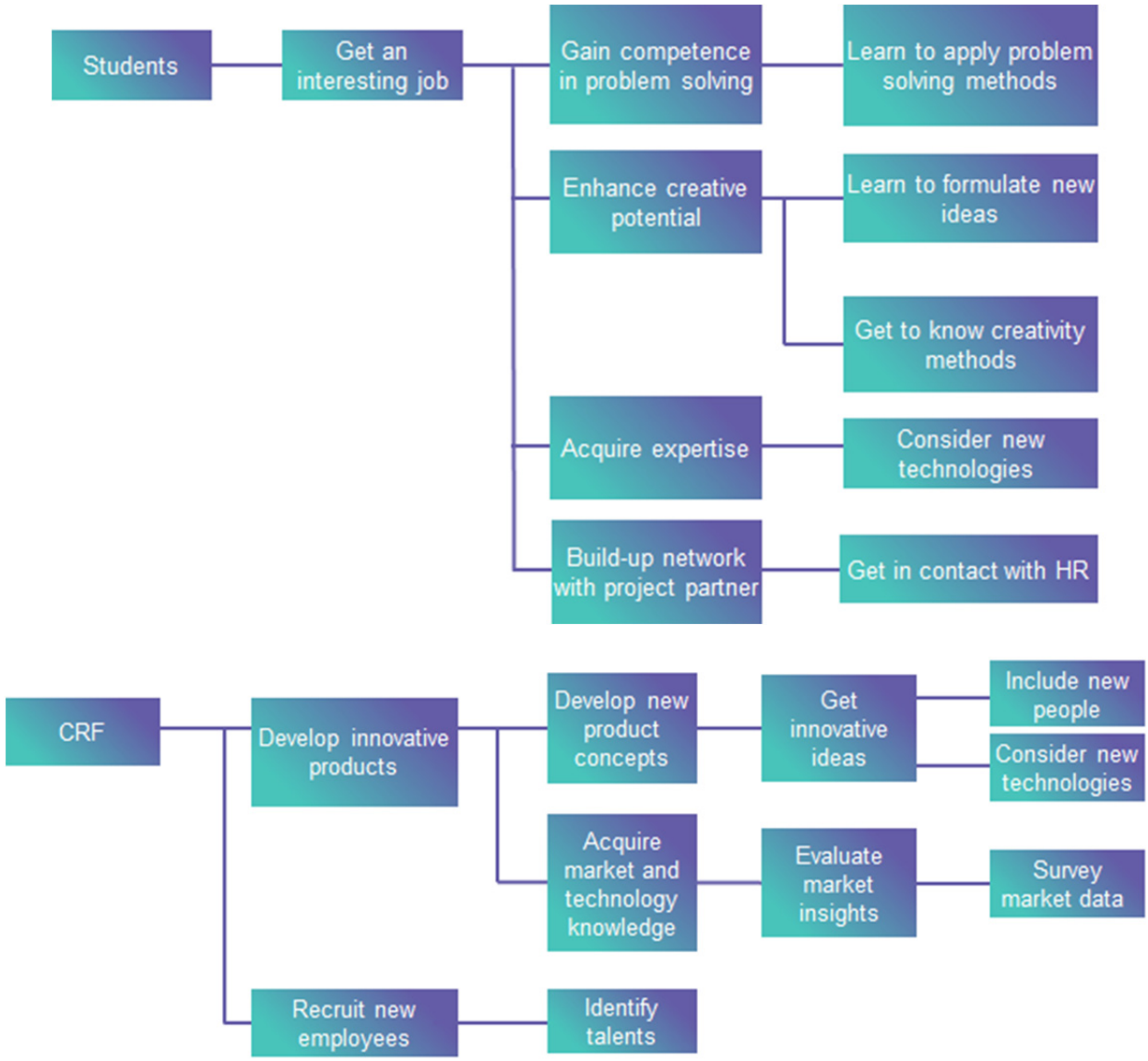
Table 3: Touchpoints of Pilot #1

Touchpoints	Frequency within pilot	Love-, OK-, and Hate-Moments
Skype	high	**Love-Moments:** • Super interesting virtual discussions • Location independent → flexible • Creative sessions: active virtual teamwork **OK-Moments** • Monitor sharing **Hate-Moments:** • Uncertainties of virtual feedback • Technical problems → motivation decreases for arrangements, complicated, ineffective
Workshop	medium	**Love-Moments:** • Personal contact, • Whiteboards • Simple and efficient arrangements; using of associations (more than in digital environment • Effective further development • Systematic discussion **OK-Moments:** • Different horizon of experience
E-Mail	medium	**Love-Moments:** • Building a fixed structure for emails, which were sent to the students **OK-Moments:** • Reminder for the online surveys **Hate-Moments** • Sometimes to many e-mails
SAP Innovation Management	high	**Love-Moments** • High-grade connected cross-team collaboration • Using of „Intelligence of Crowds“ • Creation of ideas and product profile ideas • Laboratory of validation (check of mockups) • Location independent from (App on mobile phones) **OK-Moments** • Data storage • Data sharing • Evaluation possibilities **Hate-Moments** • Technical problems (slowly, disorders by teamwork) • Limited willingness to work in virtual room
Mobile phone	medium	**Love-Moments** • Access to SAP Innovation Platform **OK-Moments** • Agreements, organization of social meetings through popular messenger

Meeting	low	**Love-Moments:** • Personal contact with the other stakeholders • Feedback of the project partner and the IPEK • Motivational speeches of the IPEK **OK-Moments:** • Structured lecture • Presentation of the ToDo‘s and the results of a project phase

3.4 Quantitative and qualitative description of indicators (KPIs)

Quantitative and qualitative benefits for each target group



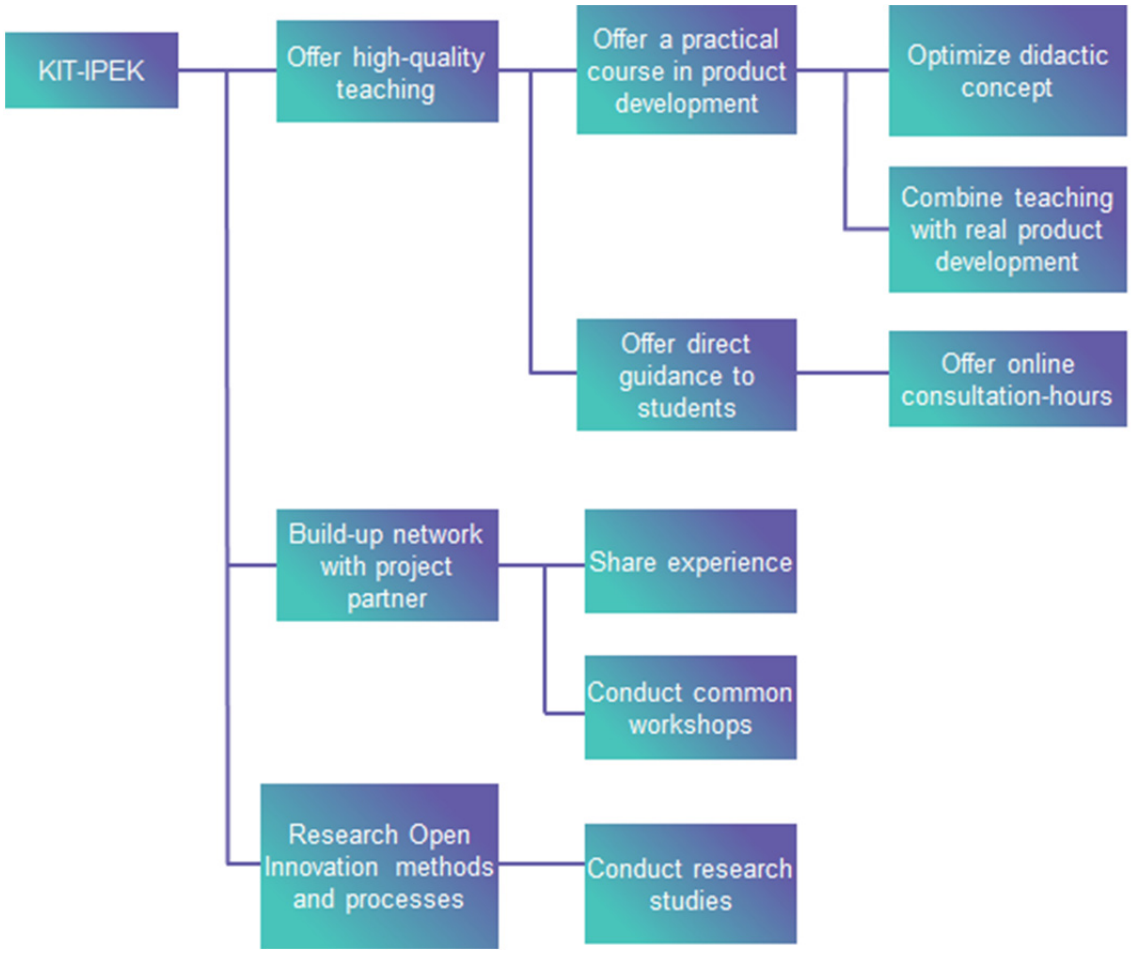


Figure 5: Objectives and benefits of relevant actors of Pilot #1

Preliminary Key Performance Indicators (KPI)

Indicator A satisfaction of students (KIT-Evaluation):

- 3 to 6: bad performance
- 3 to 1,5: good performance
- from 1,5: very good performance

Indicator B satisfaction of project partner:

- up to 75: bad performance
- 75 to 90%: good performance
- from 90%: very good performance

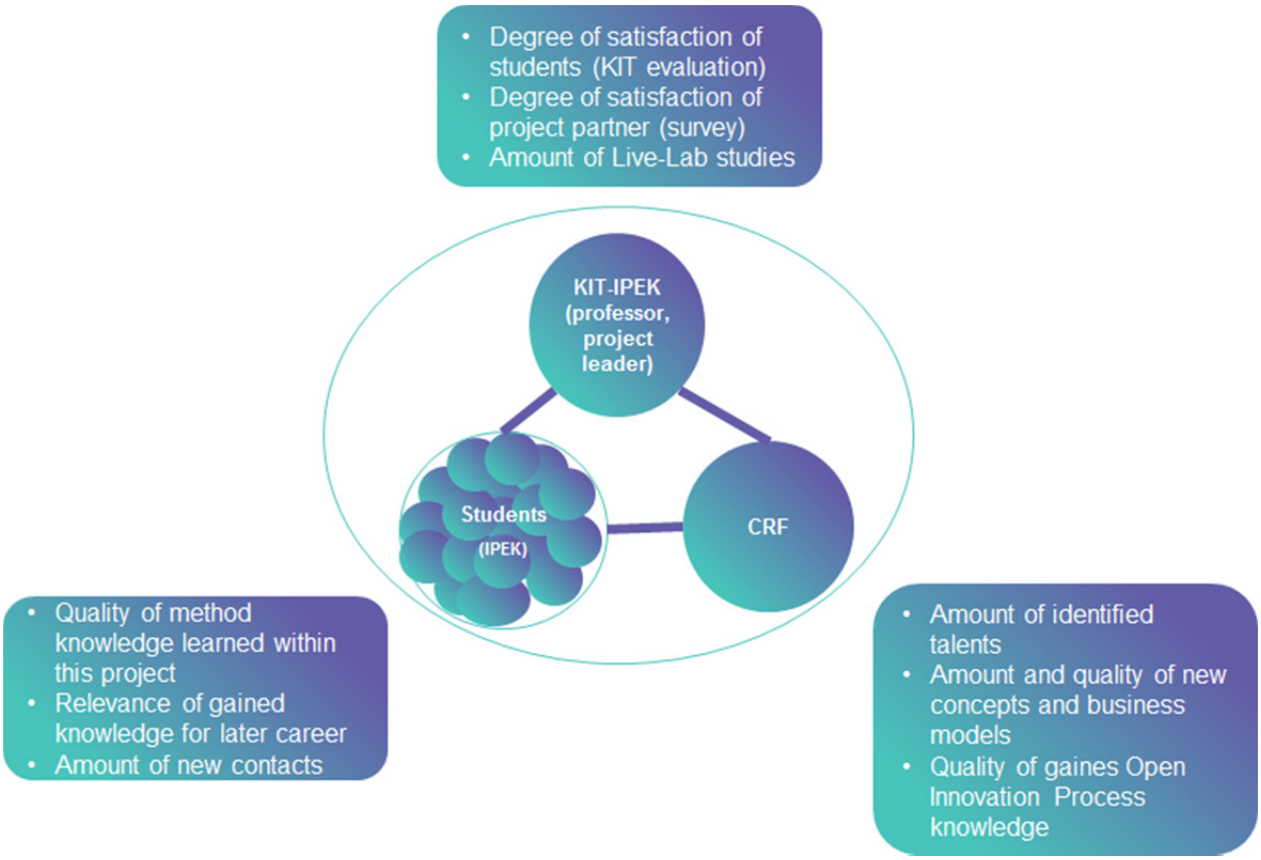


Figure 6: Qualitative KPIs of Pilot #1

3.5 Critical success factors for the Pilot as a whole

Table 4: Critical success factors of Pilot #1

	Pre-Pilot Phase	Pilot Starting Point	Step 1	Step 2	Step 3	Step 4
Enabling factors	• Confidentiality agreement • Project contract					
Hampering factors	• Project partner • Lack of motivated students • Unclear task description • Missing commitment from project partner • Implementation of the project as a master course into the curriculum	• Number of students • Lack of motivated students • Unclear task description • Missing commitment from project partner	• Number of students • Number of Inno-Coaches • Lack of motivated students • Unclear task description • Missing commitment from project partner	• Number of students • Number of Inno-Coaches • Lack of motivated students • Unclear task description • Missing commitment from project partner	• Number of students • Number of Inno-Coaches • Lack of motivated students • Unclear task description • Missing commitment from project partner	• Number of students • Number of Inno-Coaches • Lack of motivated students • Unclear task description • Missing commitment from project partner

Technical success factors	• Powerful, functional and integrated software landscape • Fast internet connection	• Powerful, functional and integrated software landscape • Fast internet connection	• Powerful, functional and integrated software landscape • Fast internet connection	• Powerful, functional and integrated software landscape • Fast internet connection	• Powerful, functional and integrated software landscape • Fast internet connection	• Powerful, functional and integrated software landscape • Fast internet connection
Organisational success factors	• Clearly defined process model • Early harmonisation between all stakeholders • Using this innovation project as Live-Lab in order to evaluate new methods for virtual teams in the area of product development	• Clearly defined process model • Early harmonisation between all stakeholders • Using this innovation project as Live-Lab in order to evaluate new methods for virtual teams in the area of product development	• Clearly defined process model • Early harmonisation between all stakeholders • Using this innovation project as Live-Lab in order to evaluate new methods for virtual teams in the area of product development	• Clearly defined process model • Early harmonisation between all stakeholders • Using this innovation project as Live-Lab in order to evaluate new methods for virtual teams in the area of product development	• Clearly defined process model • Early harmonisation between all stakeholders • Using this innovation project as Live-Lab in order to evaluate new methods for virtual teams in the area of product development	• Clearly defined process model • Early harmonisation between all stakeholders • Using this innovation project as Live-Lab in order to evaluate new methods for virtual teams in the area of product development
Contextual success factors	• Highly motivated institute members • Matching of students into groups according to personal indicators	• Other lectures of students • Highly motivated institute members • Matching of students into groups according to personal indicators	• Other lectures of students • Highly motivated institute members • Matching of students into groups according to personal indicators	• Other lectures of students • Highly motivated institute members • Matching of students into groups according to personal indicators	• Other lectures of students • Highly motivated institute members • Matching of students into groups according to personal indicators	• Other lectures of students • Highly motivated institute members • Matching of students into groups according to personal indicators
Process to overcome critical points	• Thread analysis • Continuous survey with students (once a week) • Weekly telco between project leader at project partner's side and project leader at institute's side	• Thread analysis • Continuous survey with students (once a week) • Weekly telco between project leader at project partner's side and project leader at institute's side	• Thread analysis • Continuous survey with students (once a week) • Weekly telco between project leader at project partner's side and project leader at institute's side	• Thread analysis • Continuous survey with students (once a week) • Weekly telco between project leader at project partner's side and project leader at institute's side	• Thread analysis • Continuous survey with students (once a week) • Weekly telco between project leader at project partner's side and project leader at institute's side	• Thread analysis • Continuous survey with students (once a week) • Weekly telco between project leader at project partner's side and project leader at institute's side

4 PILOT 2: CO-LOCATION: ESTABLISHING INDUSTRY INNOVATION LABS WITHIN UNIVERSITIES

4.1 Objectives

Pilot #2 is focussing on Co-location that is establishing industry innovation labs within universities. The product innovation process is a knowledge creation process that thrives on the sharing of tacit and explicit knowledge. Furthermore, successful innovation is underpinned by partnerships across sectors and disciplines where collaboration and rapid sharing of knowledge within and across different functions and disciplines becomes essential and which is facilitated by Co-location. Co-location enables the integration of this knowledge between the University and the Company, enriching both organizations with knowledge that they cannot produce by internal means. Co-location initiatives also remove the physical separation and the intermediaries between researchers in academia and in industry.

As such, the aim of this Pilot #2 is to identify the main advantages and bottlenecks of establishing a research collaboration between a multinational company with distributed R&D labs/teams, RTOs and one or more universities. Ultimately, guidelines will be provided to effectively establish (international) co-location schemes between industry and academia using design thinking.

The pilot will work on the following aspects:

1) Improve efficiency of communication within distributed R&D networks;
2) Effective staffing of R&D projects (different departments, roles, team-sizes, etc. within the research collaboration network);
3) Rise the market application and dissemination of research activities by early interaction with first potential customers

and focusses on three main use cases :

- A particular research project on Software Defined Networks (SDN)
- A new subject at the University where groups of 4 students work on challenges presented by companies
- Joint leadership in the creation of a Center of Excellence: we plan to analyse and model a current experience at the Universitat Politècnica de Catalunya (UPC)

The main actors of this pilot are CIT-UPC and CA. Given the fact that the co-location programme is already running for CIT-UPC and CA, the initial phase will focus on analysing the historical interaction and co-location between the two. This phase will be followed by a trial phase, in which the best practices extracted will be applied to a co-located R&D team addressing adding intelligence to monitoring systems for Software Defined Networks (SDN) in order to distil the guidelines for efficient remote collaboration. After the initial and the trial phase, the validity of co-located collaborations will be assessed and the possibility of establishing new co-located collaborations for Fraunhofer LBF will be explored.

The expected outputs of this Pilot include:

1) An advanced set of recommendations and guidelines for the effective collaboration between single R&D labs of a big multinational company and local universities to strengthen the dissemination an application of R&D results;
2) A report containing interviews of the different stakeholders involved in the collaboration;
3) Dos and don’ts;
4) A detailed set of final KPIs to be monitored;
5) Relevant information to feed the project toolkit.

As a result, the Pilot #2 should enable the integration of knowledge between the University team and the Company team, enriching both organizations with knowledge that they cannot produce by internal means. It refers to a new form of partnership between University, Industry and Society to innovate. Furthermore, it also fosters the partnership between different companies, even competitors.

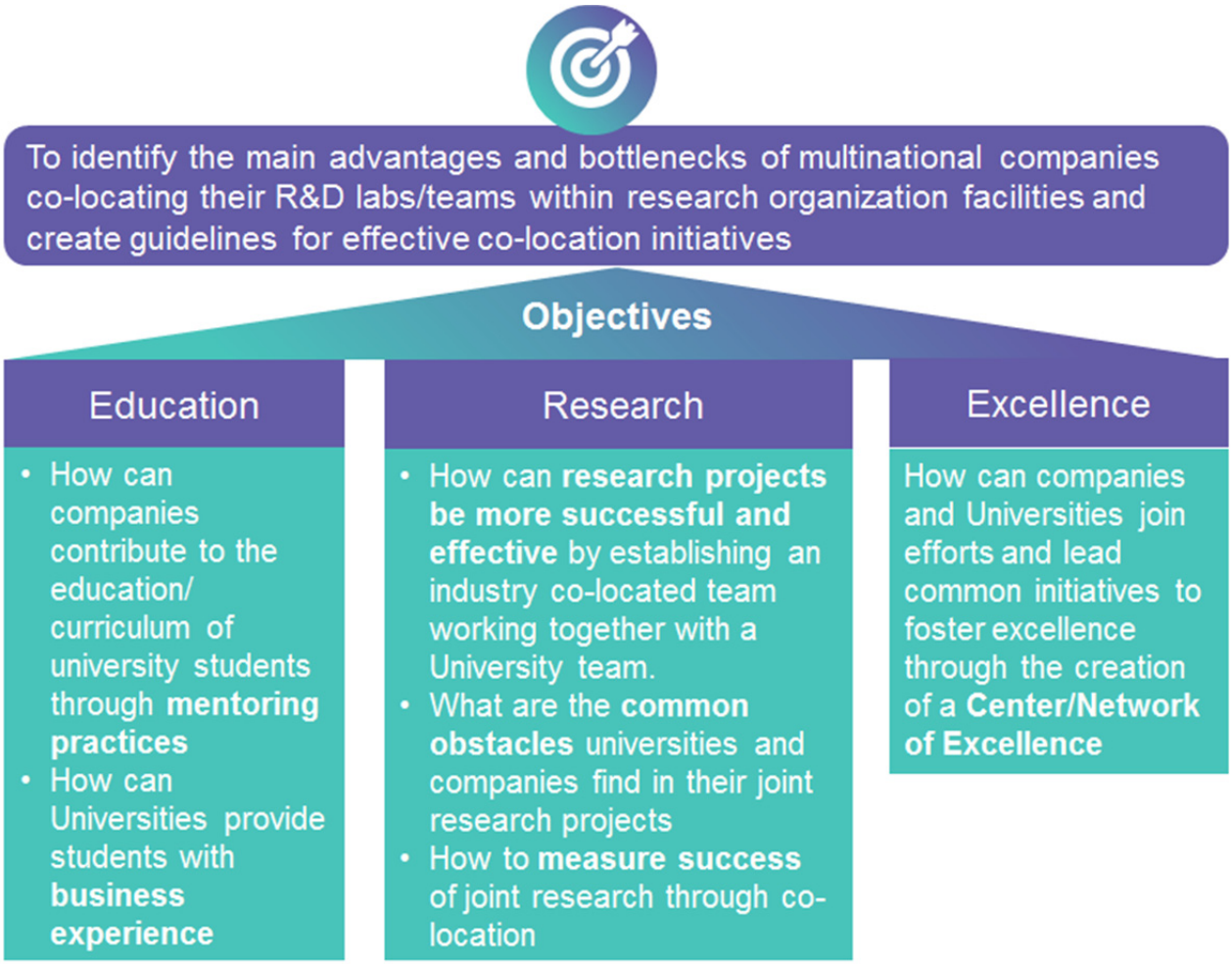


Figure 7: Main objectives of Pilot #2

Background

None

International experiences serving as best practice examples for the pilot

CA Technologies has a research collaboration agreement with Stonybrook University (http://www.stonybrook.edu/). It has a co-located office, the CA Technologies Innovation Center at the Center of Excellence on Wireless and Information Technology (CEWIT) of Stonybrook University. Within Pilot #2 the experience made by CA Technologies will be analysed to learn its similarities and differences with this pilot.

Social, economic, ecological or technological trends influencing the pilot

none

4.2 Map of Actors

The main actors of this pilot are the Universitat Politècnica de Catalunya (UPC), the Technology Center of the UPC, in charge to do the liaison between the research groups of UPC and the companies, and CA Technologies, a multinational company with the headquarters in USA and R&D labs distributed worldwide. The other relevant stakeholders are ACCIÓ, the main actor of the government of Catalonia, in charge to foster the international business relationships, and Enterprise Europe Network (EEN), as a net to improve the technology transfer around Europe.

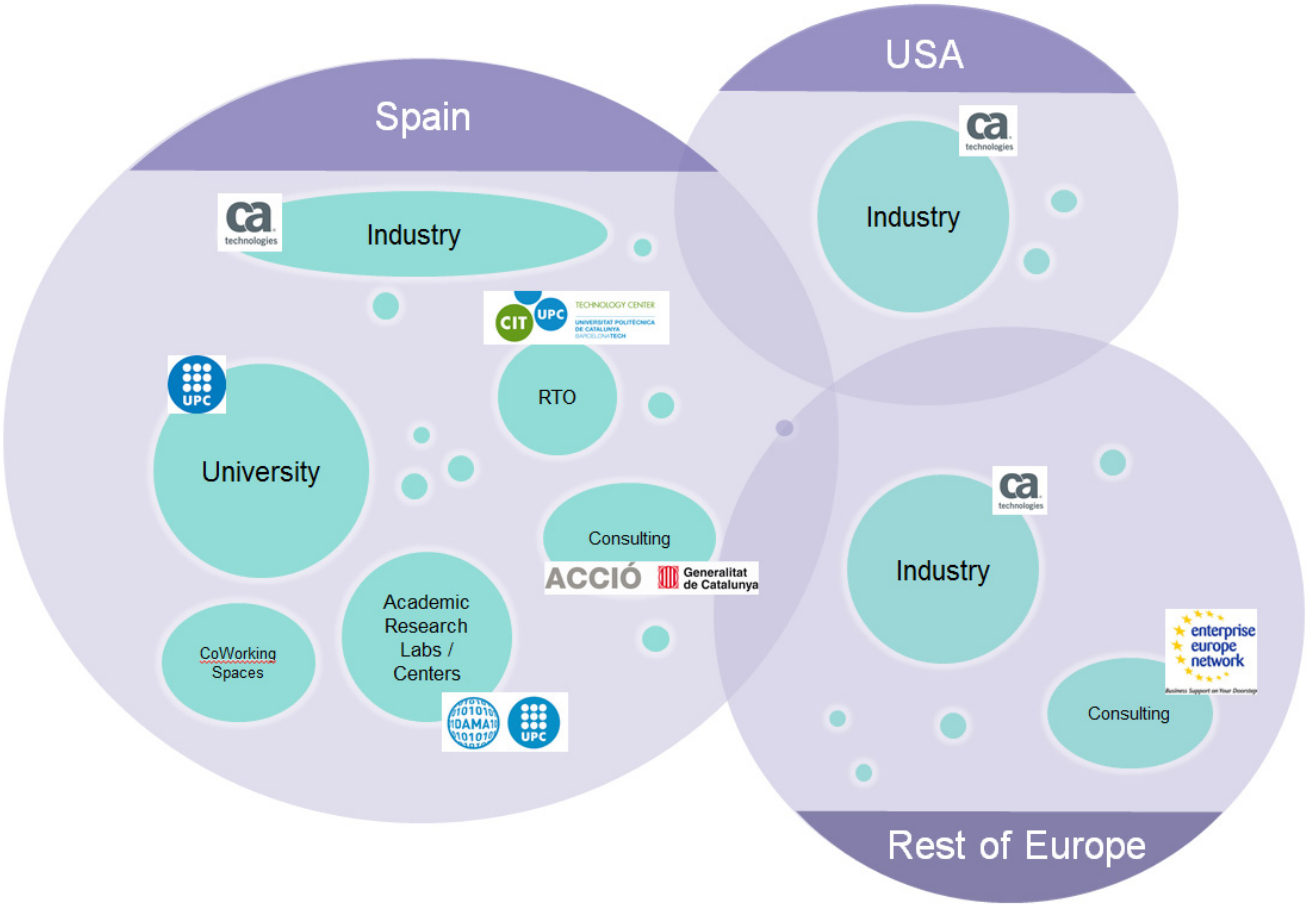


Figure 8: Stakeholder Map of Pilot #2

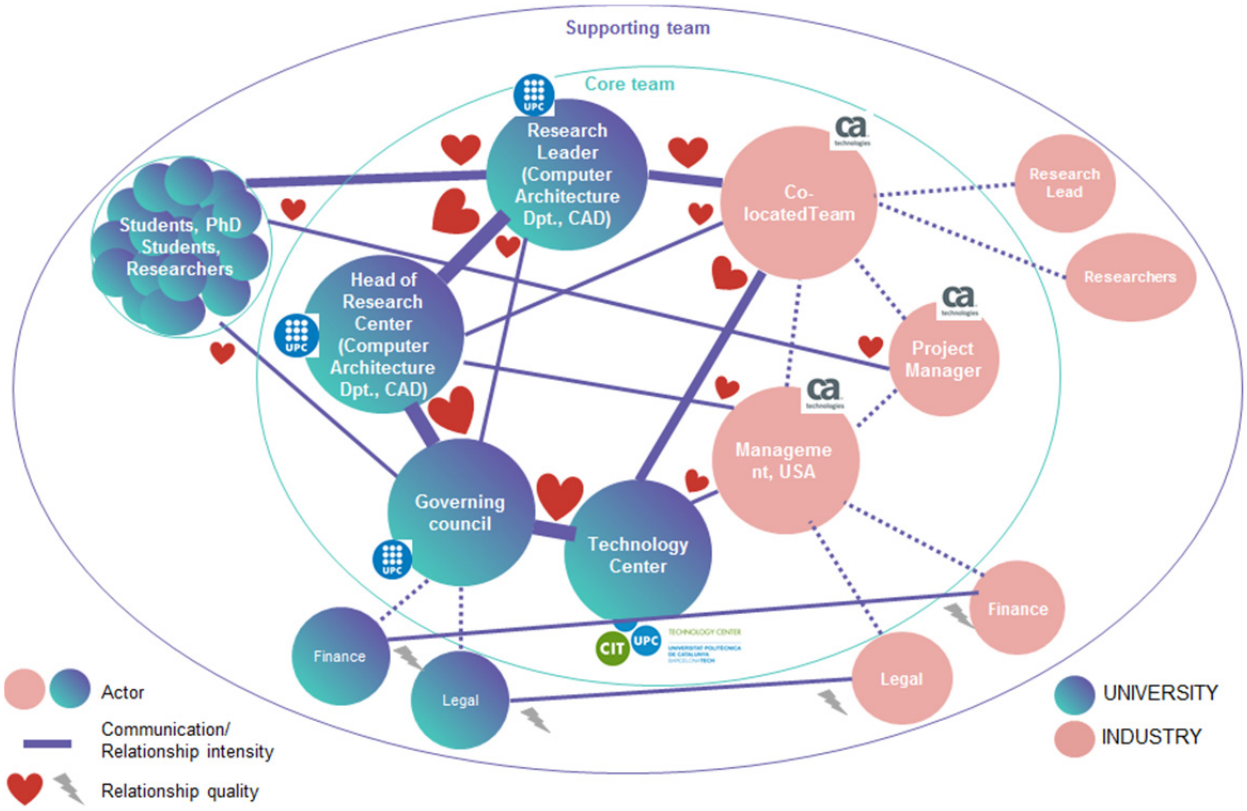


Figure 9: Map of Actors of Pilot #2 – Research Collaboration Framework

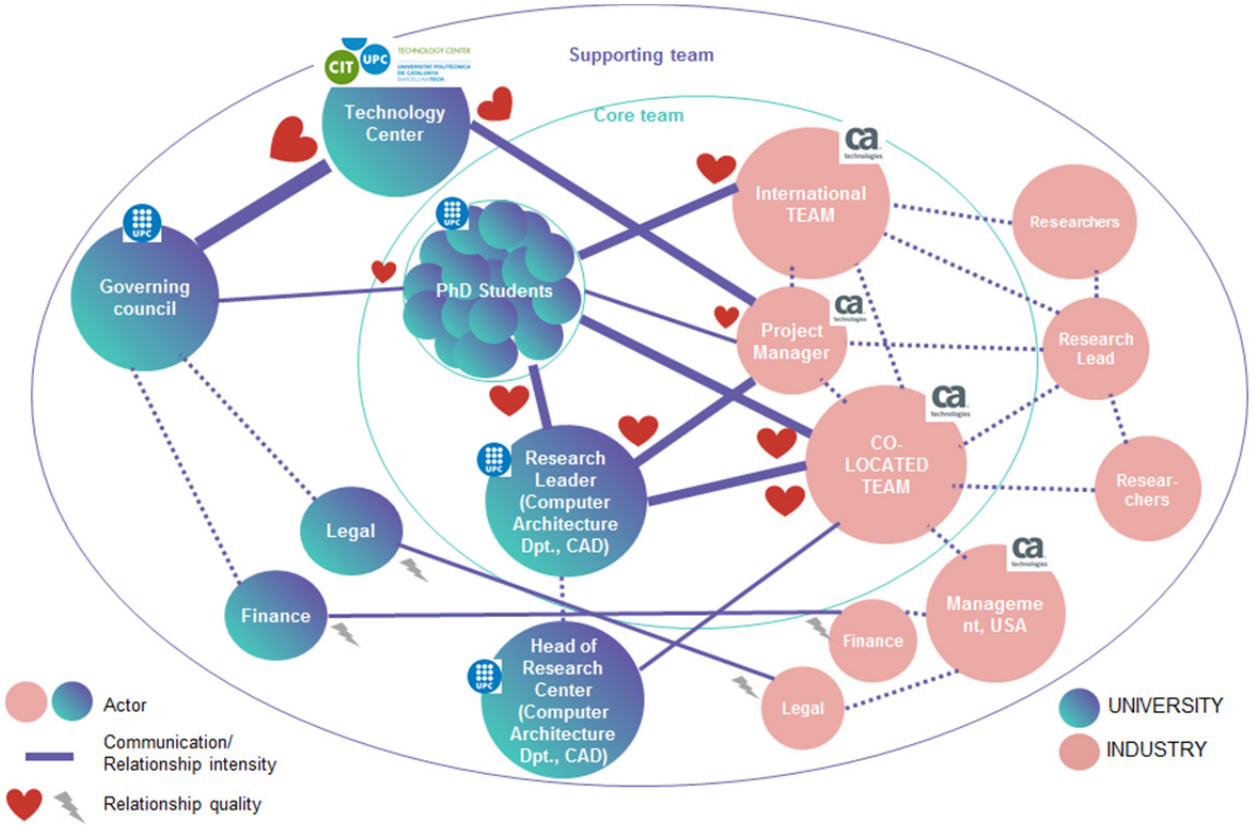


Figure 10: Map of Actors of Pilot #2 – Software Defined Networks

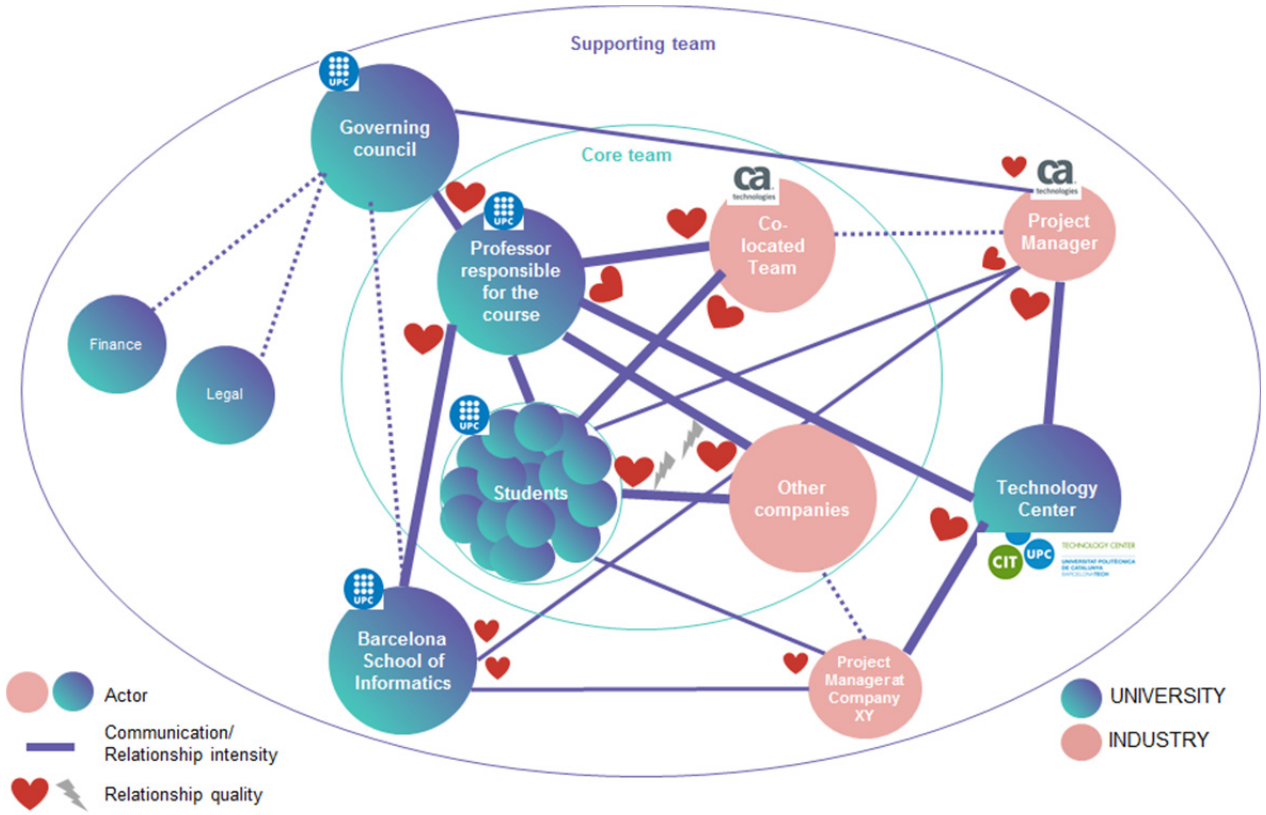


Figure 11: Map of Actors of Pilot #2 – Applied Engineering Project Course

Table 5: Table of Actors (Pilot #2) - Software Defined Networks

Actors/Role	Institutions	Activities specific to the group/ competencies	Objectives (qualitative and quantitative)	Relationships inside the pilot	Expectations on other actors
CIT-UPC Technology center of UPC	RTO	Technology transfer between UPC and companies	Promote the interest of companies in research activities from UPC. Promote the technology transfer between UPC and companies.	Promote the research services of UPC to companies. Identify potential companies interested in the research of UPC. Support companies to identify research groups at UPC working on specific topics.	**On professor:** • Bilateral identification of leads of potential stakeholders. **On company:** • Clear definition of the research services they require.
UPC Governing Council: Legal Department Protect UPC on legal issues	University	Oversee University relations with companies	Promote the research collaboration between UPC and companies while protecting UPC on legal aspects.	Write, negotiate, approve and sign the framework for collaboration with the company. Protect UPC's IP.	**On Students/Researchers:** • Gain experience by collaborating with companies. **On company:** • Protect authors' IP. Exploit the results as agreed.
UPC Governing Council: Finance Department Accounts receivable	University	Receive and track payments	Oversee financial aspects at UPC	Ensure UPC gets payments on time	**On company:** Make payments when set by agreement.
Students/PhD Students/Researchers • Complete their course of studies/PhD Do research	University	Deliver concepts and ideas Develop research tasks	Increase their experience in a business environment Increase their technical capacity Behavioral expertise Find a job	Work with other students/researchers to develop research tasks Interact with the company researchers Present the results to UPC research leader	**On Professor/Research Leader:** • Guidance • Input • Reputation • Academic output • Sharing innovation experience **On Company/Co-located team:** • Clear expectations

Actors/Role	Institutions	Activities specific to the group/ competencies	Objectives (qualitative and quantitative)	Relationships inside the pilot	Expectations on other actors
					• Feedback • Interaction **On Company/International team:** • Clear expectations • Feedback Interaction
Professor/Research Leader Do research	University	Oversee the research Guarantee the quality of the output	Keep good relationship with "customers", increase R&D agreements Develop knowledge Develop expertise	Work with and guide the research team (students, PhD students and/or researchers) Coordinate with the company representative	**On Students/PhD Students/Researchers:** • Good quality results • Achieving their objectives (bachelor, master, PhD, research goals) **On Governing Council of UPC:** • Legal framework (agreement) signed on time **On company:** • Research topics relevant to his/her line of research • Frequent supervision **On CIT-UPC:** • Potential companies with research requirements in his/her line of research. **On Comp Arch Dpt (CAD):** Institutional support to carry out the project.

Actors/Role	Institutions	Activities specific to the group/ competencies	Objectives (qualitative and quantitative)	Relationships inside the pilot	Expectations on other actors
Computer Architecture Department Responsible for master and a doctorate programs Do research	University	Manage master and doctorate programs Do research	Increase the research projects portfolio Increase the quality of research results	Give institutional support to the research leader	**On Professor/Research Leader:** • Fulfill the expectations of the company on the results of the project. **On Company (co-located team):** Perform research in topics relevant for the Department's research portfolio
CA Management: Legal Department Protect UPC on legal issues	Company	Oversee CA's relationships with external partners	Promote the research collaboration between CA and external partners while protecting CA's interests on legal aspects.	Negotiate, approve and sign the framework for collaboration with UPC. Protect CA's IP.	**On UPC Governing Body (Legal):** • Be open to discuss IP issues. Be agile in making decisions.
CA Management: Finance Department Accounts payable	Company	Track payments to be made and make payments	Oversee financial aspects at the office of the CTO	Ensure payments are made for approved transactions. Get support documentation to make payments	**On UPC Governing Body (Finance):** To receive the invoice supporting the payment to be made.
CA Research Leader	Company	Coordinate with Professor/Research Leader Oversee research collaboration	Gain expertise in a specific research area Keep a good relationship with the University Detect talent	Agree on a research roadmap with the Professor/Research lead Explain the project to his research team Supervise the research collaboration	**On CIT-UPC:** • Find the research groups with expertise in the concrete area **On Professor:** • Motivation • Expertise in the area **On Research Staff:** • Good research results • Proactiveness **On Project Manager:** • Analyse the relationship and

Actors/Role	Institutions	Activities specific to the group/ competencies	Objectives (qualitative and quantitative)	Relationships inside the pilot	Expectations on other actors
					improve the process when needed.
CA Co-located team (Researchers)	Company	Perform research on topics relevant for the company Have an impact in the company with their research	Improve their technical results and background with the collaboration Get to know research at the academic level	Collaborate with University Research Staff Collaborate with other researchers in the company Leverage research opportunities and expertise	**On Company Research Lead:** • Guidance on project goals and expectations **On Professor/Research Lead:** • Expertise in the area **On University Research Staff:** • Expertise • Motivation Collaborative attitude
CA Project Manager	Company	Ensure proper legal and research framework Review results of the relationship Apply measures to improve effectiveness	Maintain a good research collaboration with University	Ensure an effective relationship Successful results for the research team Improve future research collaborations	**On Research Staff:** • Motivation **On Professor/Research Lead:** • Information sharing • Logistics coordination **On CIT-UPC:** Administrative support
CA International Researchers	Company	Collaborate in the research projects with their expertise	Improve their technical results and background Get to know research at the academic level	Collaborate with University Research Staff Collaborate with other researchers in the company Leverage research opportunities and expertise	**On Company Research Lead:** • Guidance on project goals and expectations **On Professor/Research Lead:** • Expertise in the area **On University Research Staff:** • Expertise • Motivation Collaborative attitude

Table 6: Table of Actors (Pilot #2) - Applied Engineering Project Course

Actors/Role	Institutions	Activities specific to the group/ competencies	Objectives (qualitative and quantitative)	Relationships inside the pilot	Expectations on other actors
Students Study Complete their course of studies	University	Deliver concepts and ideas	Increase their experience in a business environment Increase their technical capacity Behavioral expertise Find a job	Work with other students to develop concepts Interact with the industrial partner Present the results to the professor	**On Professor:** • Guidance • Input • Reputation • Academic output • Sharing innovation experience **On Company:** • Clear expectations • Insight into the real processes • Feedback Guidance
Professor Teach Do research	University	Oversee the research Guarantee the quality of the output	Keep good relationship with "customers", increase R&D agreements Develop knowledge Develop expertise	Work with and guide the student team Coordinate with the company representative	**On Students:** • Good quality results • Achieving the objectives of the course **On Governing Council of UPC:** • Legal framework (agreement) signed on time **On company:** • Interesting challenges • Quality in guidance and support to students **On CIT-UPC:** • Potential stakeholders leaders.

Actors/Role	Institutions	Activities specific to the group/ competencies	Objectives (qualitative and quantitative)	Relationships inside the pilot	Expectations on other actors
					On School of Informatics: Support to carry out the course
Company representatives (Project Manager) Oversee the relationship	Company	Ensure proper legal and research framework Review results of the relationship Apply measures to improve effectiveness	Maintain a good research collaboration with University	Ensure an effective relationship Successful results for the research team Improve future course calls	**On Students:** • Motivation to collaborate with the company **On Professor:** • Information sharing • Logistics coordination **On CIT-UPC:** • Administrative support **On School of Informatics:** Provide a research framework
Company representatives (Co-located Research Team) Set the challenges for the students Guide the students towards on the business side	Company	Propose research challenges • Provide feedback and guidance to students	Detect talent at early stages Solve specific problems • Collect new ideas for innovative solutions/products	Prepare and present the challenge to the professor and the students Work with students to develop solutions to the challenge	**On Students:** • Guidance • Support in understanding the business environment **On Professor:** • Reputation • Expertise in the area **On Project Manager:** • Provision of a framework to collaborate • Ensure all legal aspects are taken into account Maintain the relationship with the University

Actors/Role	Institutions	Activities specific to the group/ competencies	Objectives (qualitative and quantitative)	Relationships inside the pilot	Expectations on other actors
CIT-UPC Technology center of UPC	RTO	• Technology transfer between UPC and companies	• Promote the interest of companies in research activities from UPC.	Promote this new course to companies. Identify company leads to the professor.	**On professor:** • Bilateral identification of leads of possible stakeholders. • Manage the relationship with companies successfully. **On company:** To propose industrial challenges.
Governing Council Provide high education	University	• Oversee the research relationship between the professor and the company		Approve and sign the framework for collaboration with the company	**On Students:** • Gain experience by collaborating with companies. **On Professor:** • Quality of the course. **On company:** • Useful challenges for students to learn Ensure authors' IP is properly protected
School of Informatics Provide high education on Computer Science	University	• Oversee the research relationship between the professor and the company		Create the framework for collaboration with the company Oversee the collaboration	**On Professor:** • Alignment with School's mission and vision **On company:** • Interesting challenges Quality in guidance and support to students

4.3 Implementation / Process Design

Process visualisation

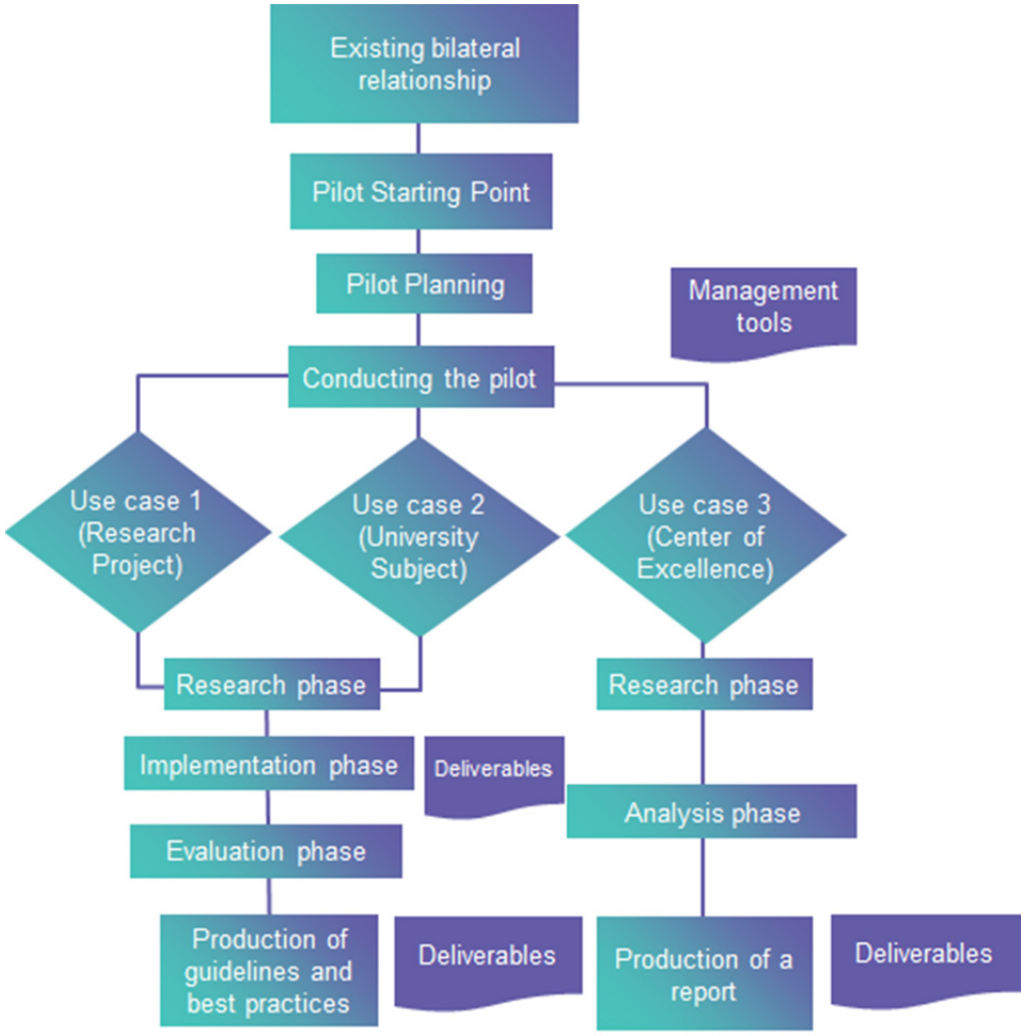


Figure 12: Implementation process of Pilot #2

The Starting Point is the existing collaboration between UPC and CA (Research Master Collaboration). The motivating factor of the pilot is to understand what are the advantages and bottlenecks found in this collaboration and try to implement a process to increase effectiveness and success of this type of collaborations.

Pilot Starting Points

- Existing documentation of the collaboration (old projects, Master Collaboration Agreement,…)
- Use cases in Work Package 3 description
- Initial kick-off meeting between CIT-UPC and CA

Pilot Steps:

USE CASES 1 & 2

Step 1: Research Phase – Collect information

Step 2: Implementation Phase – Start use cases implementation

Step 3: Evaluation Phase – Identify potential bottlenecks and refinement of applied process

Step 4: Closing Phase - Production of guidelines and best practices

USE CASE 3

Step 1: Research Phase – Collect information

Step 2: Analysis Phase – Analyse experiences

Step 3: Closing Phase - Production of a report

Measurable Results

- KPIs and success metrics
- Guidelines and Best Practices

Timing

Pilot Use Cases 1-2

Step 1: Research Phase – Collect information

- Collect information on use cases
- Understand the background of the existing collaboration
- Get to know main actors
- Draft KPIs

Step 2: Implementation Phase – Start use cases implementation

- Understand main actors
- Conduction of interviews
- Evaluation of objectives and expectations
- Definition of KPIs and success metrics
- Identify potential replication possibilities

Step 3: Evaluation Phase – Identify potential bottlenecks / refinement of applied process

- Feedback from actors on KPIs
- Identification of bottlenecks
- Refine the process to increase effectiveness
- New feedback from actors on KPIs
- Evaluate success metrics
- Involve potential replication stakeholders

Step 4: Conclusion Phase – Guidelines

- Development of best practices and guidelines
- Write a report on the activities developed in the pilot
- Prepare and hold final presentations

Pilot Use Case 3

Step 1: Research Phase – Collect information

- Analyse other experiences
- Choose experiences to study in the pilot
- Get to know main actors
- Start conversations with relevant stakeholders

Step 2: Analysis Phase – Analyse experiences

- Continue conversations with stakeholders
- Understand the characteristics and the processes of the experiences
- Analyse possibilities of replication

Step 3: Closing Phase - Production of a report

- Development of a replication model
- Write a report on the activities developed in the pilot
- Prepare and hold final presentations

Blueprint of the Pilot

Table 7: Blue print of Pilot #2

	Pre-Pilot Phase (Existing bilateral relationship)	Pilot Starting Point (Meetings to enrol the company into a Co-located Scheme)	Step 1 (Definition of the Research Master Collaboration Agreement)	Step 2 (Conduct the pilot)	Step 3 (Assess SDN project)	Step 4 (Assess course)
Physical evidence (Touch-points)	Literature review summary	Email Meetings Phonecalls	Meetings Email Phonecalls	Meetings Email Phonecalls	Meetings Email Phonecalls	Meetings Email Phonecalls
Actors and their actions	Commercial from the RTO CTO of the company	Governing council of the University. CTO of the company	Governing council of the University CTO of the company	University&RTO: Students, Researchers, Company: Co-located team, Project Manager	Research Leader and PhD students of the university PM and Co-located team of the company	Professor Students Co-located team Other companies.
Supporting actor (Back-stage contact person)	Researchers already working with the company R&team of the company. Research metodology	Researchers already working with the company R&D team of the company.	Legal and Finance of both parties.	University & RTO: Commercial, Governing council. Company: CTO, International team	University & RTO: Commercial, Governing council. Company: CTO, International team RTO review meeting	University & RTO: Commercial, Governing council. Company: CTO, International team RTO review meeting
Quality Criteria				Increase of Staff involved Increase in the budget invested by the company.	New open lines of research Staff hired by the company after the end of the R&D Project	Staff hired after the course.

Touchpoint Analysis

As the pilot is ambitious and broad, some aspects have not been completely developed and processed. This is the case of touchpoint analysis, that will be further developed during the implementation. The next table is just a very initial draft that will be improved later, as the pilot evolves.

Table 8: Touchpoints of Pilot #2

Touchpoints	Frequency within pilot	Love-, OK-, and Hate-Moments
E-Mail	High	Love-Moments: • All actors may use this not intrusive and effective way of communicating into manage all the activities.
Meetings	Medium	OK-Moments All actors are expected to be ok with a small number of meetings as long as the agenda and aims are clear and relevant.
Telephone Conference	Low	OK-Moments We expect phonecalls, if used sensibly, to be ok for both University and Company.

4.4 Quantitative and qualitative description of indicators (KPIs)

Quantitative and qualitative benefits for each target group

Following the timeline of implementation (see timing in the previous section), the interviews with actors jut started to identify their objectives when getting involved in co-location schemes, both in the existing co-location between UPC and CA, as well as in the different case studies. So, right now, it is not possible yet to determine quantitative and qualitative benefits for each target group.

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Figure 13: Objectives and benefits of relevant actors of Pilot #4

Preliminary Key Performance Indicators (KPI)

The aim is to interview as many actors as possible, in order to understand what are their objectives and expectations when participating in one of our use cases. These real objectives and expectations will directly lead to the definition of the KPIs that should be analysed in pilot #2. However, preliminary KPIs has been identified as follows:

- Budget Involved (€)
- # Staff Involved
- # Staff hired by the company after the end of the R&D project
- # Students enrolled in a joint PhD program between the University and the Company
- # Patents submitted
- # Published papers
- # Spin Offs created
- Time to Contract Start
- # New open lines of research

4.5 Critical success factors for the Pilot as a whole

The following critical success factors have been preliminary defined:

- Be able to understand well the objectives and the expectations of each party to successfully model a useful UIS scheme based on co-location.
- Involve company representatives that understand research at the University and University representatives that understand business requirements and tempos, to model schemes that take into account as many aspects as possible.
- Gather highly relevant and adequate experiences of the existing relationship between UPC and CA in order to identify the success stories of a co-location experience.
- Model these results in the form of specific guidelines and best practices connected to potential replication cases.
- Be able to identify relevant Key Performance Indicators for a co-location experience to assess performance, impact and value for all stakeholders, to foster the replication of co-location schemes.
- Engage relevant stakeholders in the field in order to get guidance and feedback.

Once the implementation of the pilot is more advanced these will be refined and listed in table form like for the other pilots.

5 PILOT 3: COLLABORATIVE R&D&I PROJECTS BETWEEN UNIVERSITIES, INDUSTRIES, RTOS, SMES AND PUBLIC SECTOR ENTITIES

5.1 Objectives

Publicly co-funded R&D projects are a common instrument to bring together and use the knowledge of different organizations from academia and industry. However, their design, implementation and exploitation can still be improved in order to optimize outcomes in terms of e.g. speed, marketing of results or fitness for exploitation. The purpose of this pilot is to develop good practices generating concrete benefits for the design, implementation and exploitation of collaborative R&D&I activities to be submitted to public research and innovation funding of EU H2020 or equivalent instruments at national or local level. The specific goal of the pilot is to increase synergy, quality and speed of interaction within the project team and towards external stakeholders. This will be reached by the following objectives (see Figure 14):

- Extraction of key success factors from existing R&D&I activities to amplify buy-in from participating people
- Identification of main drivers to facilitate and motivate cross organizational teams using valuable opportunities of the digital world
- Validation of good practices on use case projects to elaborate pragmatic/effective guidelines and KPIs

The pilot per definition enables Open Innovation since collaborative work as a process of shared creation across various organizations takes place in three dimensions: (i) Intersectorial mobility (link to Pilot#4), (ii) Exchange of knowledge (collaborative work on existing projects) and (iii) Exchange of ideas (for future collaborations). This is also reflected in the rather general Stakeholder Map for collaborative projects shown in Figure 15. The combination of developed good practices with collected success stories throughout the project makes the OI aspect visible during the pilot's development and traceable for future pilot enhancements.

To reach the above objectives, publicly co-funded collaborative research projects (EU/national) are analyzed using questionnaires and interviews in order to extract key success factors of collaborative projects and to identify the main drivers facilitating and motivating cross organizational teams. This is mainly done based on questionnaires and interviews with project coordinators and project team members. Derived good practices are validated on use case projects to elaborate effective guidelines and key performance indicators.

The result of this research will be guidelines and KPIs for project teams and stakeholders on:

- How to initiate, facilitate and motivate cross organizational research teams using valuable opportunities of the digital world
- How to profit from effective communication patterns, trust building elements and reflective learning
- How to reconcile individual motivations in one common goal

A special focus thereby lies on industrial partners as central stakeholders in collaborative Open Innovation projects. The pilot tries to identify organizational preconditions and "hidden" skills necessary in conducting collaborative R&D&I projects in the context of "Open Innovation". This is a rather unique approach, supporting industrial partners with Open Innovation collaborations in the future.

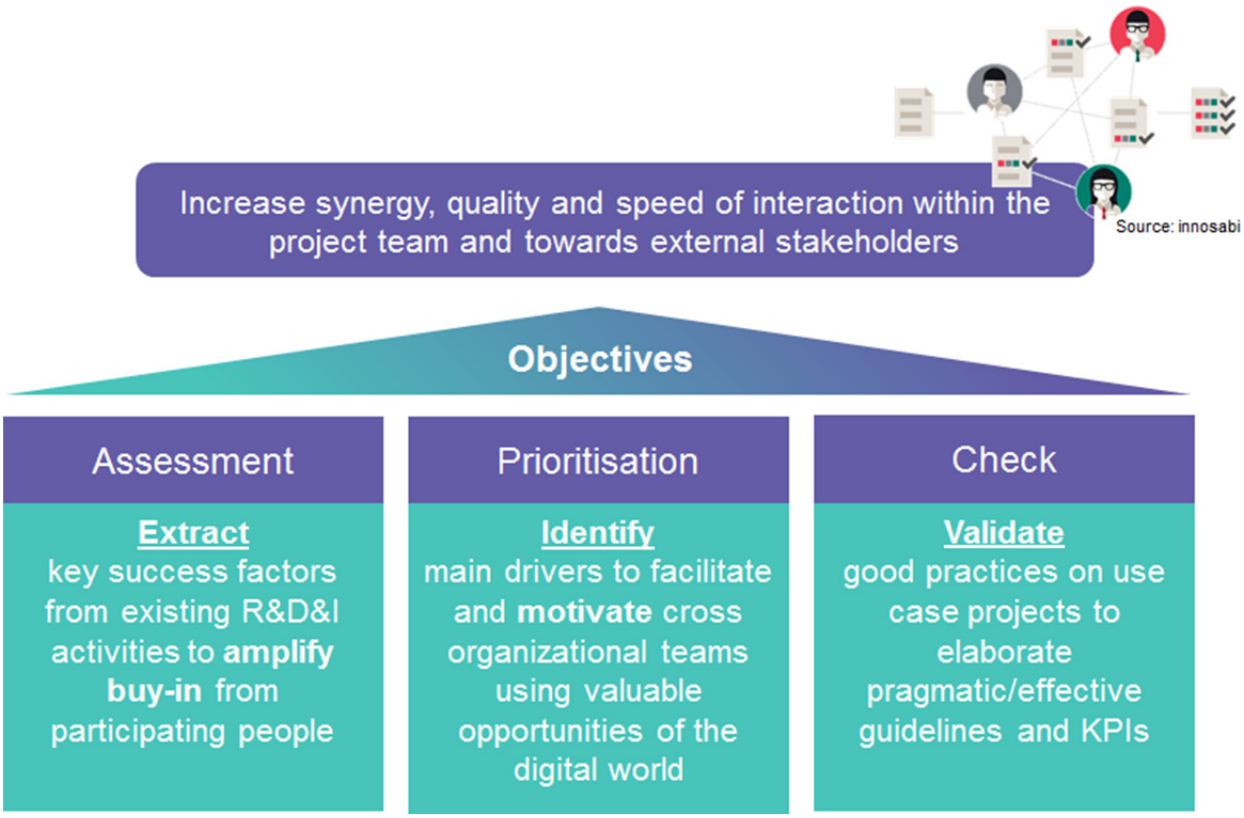


Figure 14: Main objectives of Pilot #3

Background

The described pilot does not focus on technologies permitting efficient collaboration but rather on organizational preconditions and "hidden" skills necessary in conducting collaborative R&D&I projects in the context of "Open Innovation". Some efforts already have been conducted in formulating guidelines that turn principles of collaborative research into action [4]. These information is very useful in getting the pilot started. In advance, the collection of application cases and personal experiences of the pilot's stakeholders will give special emphasis on practical traps and bottlenecks in collaborative projects and will advance existing guidelines.

Collaborative work per definition is Open Innovation, taking place in three dimensions, also reflected in the rather general Stakeholder Map shown in Figure 14:

- Intersectorial mobility (link to Pilot#4)
- Exchange of knowledge (collaborative work on existing projects)
- Exchange of ideas (for future collaborations)

The combination of identified good practises with collected success stories makes the OI aspect visible during the pilot's development and traceable for future pilot enhancements.

International experiences serving as best practice examples for the pilot

none

Social, economic, ecological or technological trends influencing the pilot

none

5.2 Map of Actors

The stakeholder map in Figure 15 gives a generic view on considered interactions of core players within the S2S project regarding collaborative R&D&I projects between universities, industries, RTOs, SMEs and public sector entities. As the project evolves, also this generic map might be modified according to the findings during the work. The basic idea of this graph is that there is a core group across all organisations that collaborate on the operative and/or technical level. Various departments inside each stakeholder group support and influence the act of collaboration towards internal interests and strategies. The society does not directly cooperate with the professional stakeholder group, but there could be interaction with the core group across links, e.g. Fab-Labs.

The collaboration between the core group of stakeholders uses three major dimensions (see Figure 15) that span up the field where “Open Innovation” in the sense of H. Chesbrough takes place:

- intersectorial mobility (detailed in Pilot #4)
- exchange of ideas to start future collaborative projects and
- exchange of knowledge to collaboratively work on existing projects.

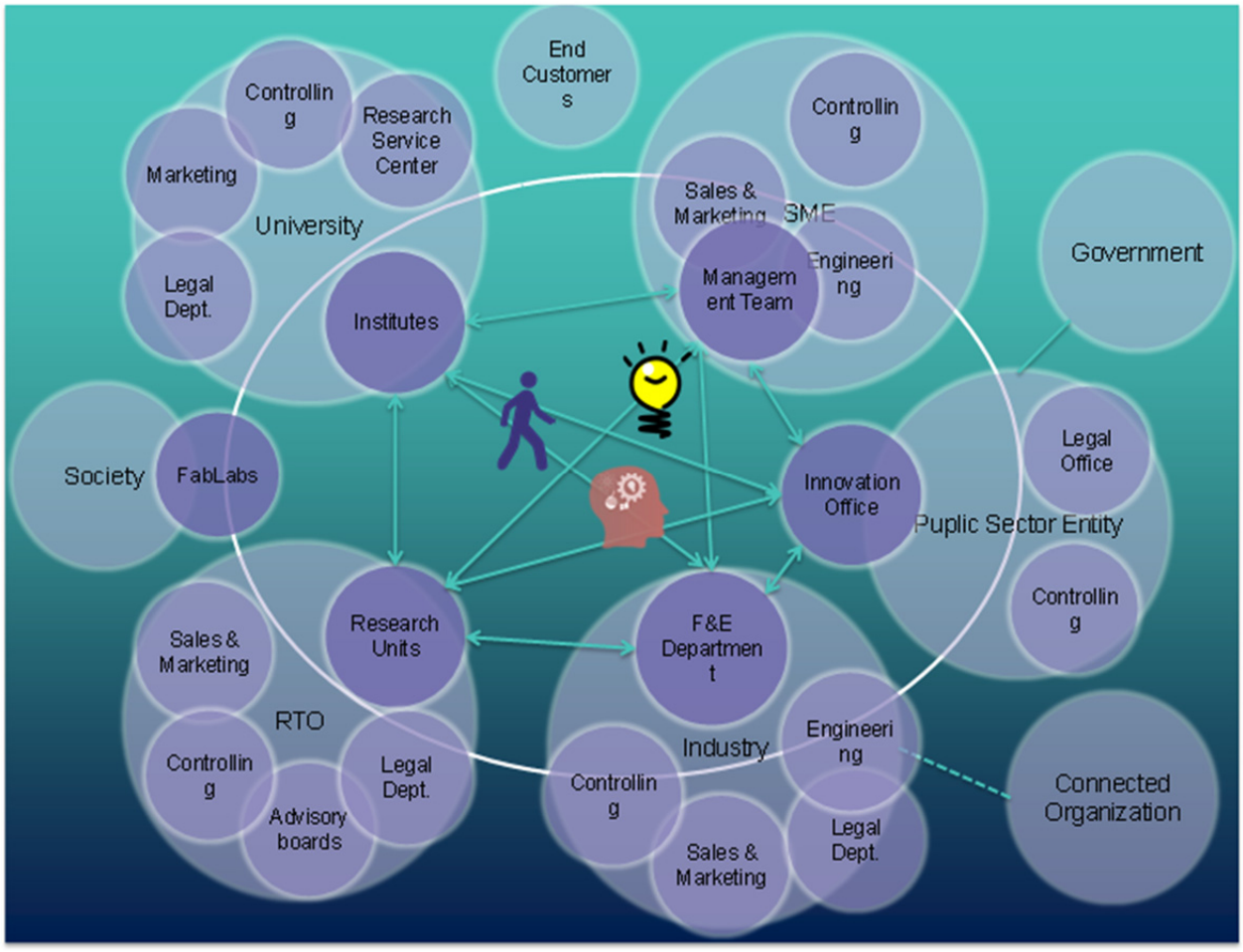


Figure 15: Stakeholder Map of Pilot #3

Beside this rather general stakeholder map of collaborative projects, the considered use cases with this pilot are described using “Maps of Actors”. Figure 16 exemplarily shows such a map for “Use Case 1” of the pilot, a collaborative project initiation phase. Here there is a core team, consisting of the coordinator, 1 university, 1 SME and 4 RTOs, defining and performing the core part of the work. The supporting team consist of the industrial partners, the funder/NCP and a consultant. Each member of the core team is related to one or more specific

topics of the collaborative work (e.g. a workpackage). Within this constellation, no industrial partner is directly involved in the core team but the role of each industrial partner is to support the core team members according to specific knowledge and information needed. So every core-team member collaborates with one or more industrial partners but also with RTOs, SMEs and universities. The supporting consultant is tightly connected to the project coordinator who manages all the information paths.

This is one example of a Map of Actors to describe one Use Case. Several more use cases are currently defined and will be analyzed.

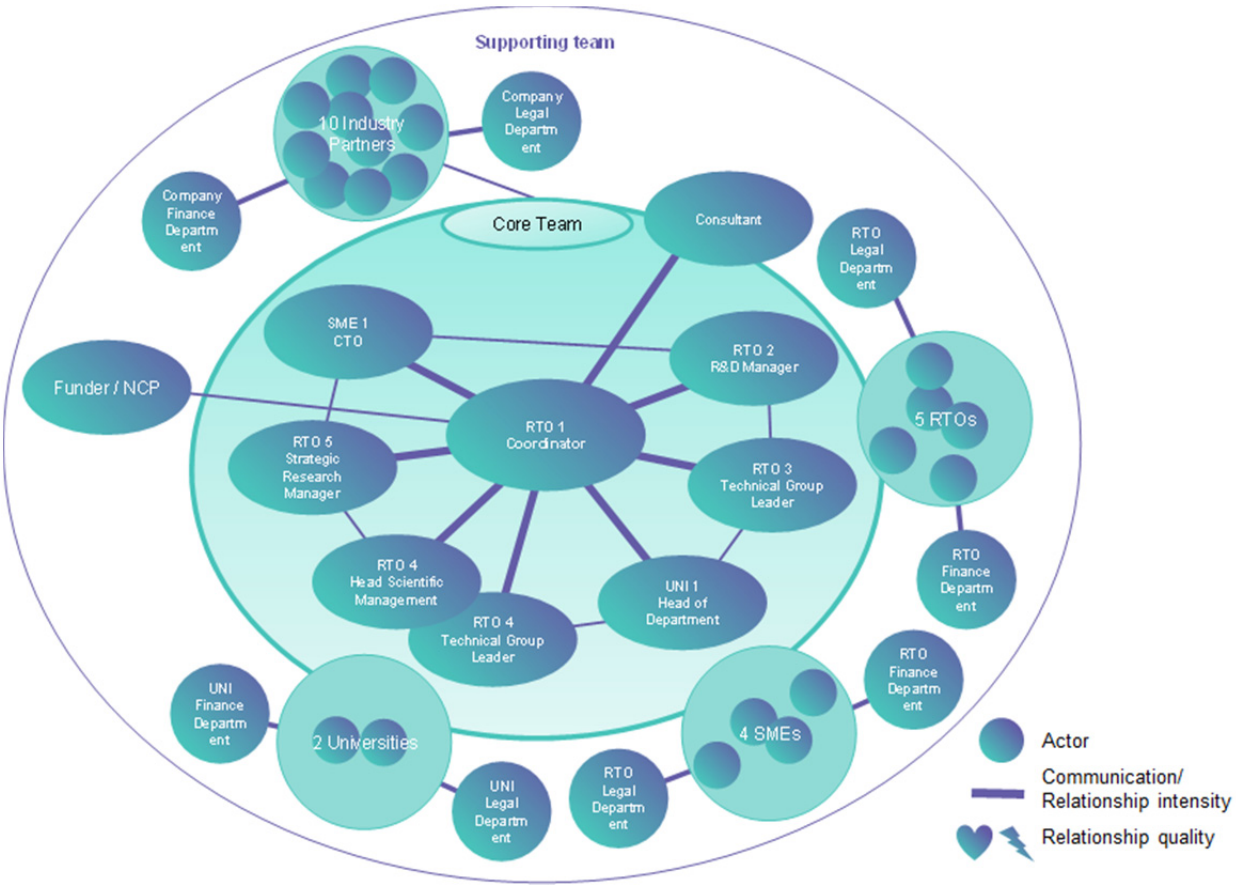


Figure 16: Map of Actors of Pilot #3

Table 9: Table of Actors (Pilot #3)

Actors/Role	Institutions	Activities specific to the group/ competencies	Objectives (qualitative and quantitative)	Relationships inside the pilot	Expectations on other actors
Coordinator • Coordinate proposal preparation Submit final proposal	RTO	• Project Management Skills • Align objectives and intends among the partners • Define and provide collaborative working environment	• Align objectives to own R&D activities • Build a collaborative network to enhance R&D in specific field • Develop and submit a successful proposal • Enhance specific knowledge	• Collaboration with all project partners • Coordinates the work of consultant • Receives advice from Funder / NCP	**On core team:** • Definition of research objectives • Support on technical and management issues • Exchange of experiences and best practises • Support on organizational issues • Support on decisions • Provide Content **On Industry Partners, RTO, SME, UNI:** • Definition of research objectives • Support on technical and management issues • Exchange of experiences and best practises • Support on Decisions • Share Content **On Consultant:** • Support in management • Supoort in proposal writing • Sharing of best practises **On Funder / NCP:** • Support on interpretation of call text

Actors/Role	Institutions	Activities specific to the group/ competencies	Objectives (qualitative and quantitative)	Relationships inside the pilot	Expectations on other actors
					Alignment of objectives
Core Team • Support the proposal preparation Advice and guidance on specific research topics	RTO, UNI, SME	• Provide specific technical input One core team member for each research topic	Develop a successful proposal	• Provide information to the coordinator Collaborate with all project partners to develop content	**Coordinator:** • Clear structure and organisation • Decision making • Collaborative working environment **On other Industry Partners, RTO, SME, UNI:** • Sharing knowledge and ideas Collaboration on individual tasks
Industry, SME Partners • Provide research objectives Provide market insights	IND, SME	• Provide research objectives Maximise company-specific exploitable research activities	• Co-finance internal R&D • Access novel fields of R&D Collaboration	• Collaborate with coordinator Collaborate with all project partners to develop content	**Coordinator:** • Clear structure and organisation • Decision making • Collaborative working environment • Understanding the partner's special intend **On other Industry Partners, RTO, SME, UNI:** • Respect IPR Sharing their product and service portfolio to understand the partner's offers
Consultant Support proposal prepa-	SME	• Reflect and sharpen research objectives	• Sell service • Generate experience	• Collaborate with the project coordinator	**Coordinator:** • Clear structure and organ-

Actors/Role	Institutions	Activities specific to the group/ competencies	Objectives (qualitative and quantitative)	Relationships inside the pilot	Expectations on other actors
ration		• Write content • Support proposal preparation management Supervision of meetings and discussions	and knowledge Expand network	Collaborate with all partners if necessary	isation • Decision making • Collaborative working environment **On all partners:** • Provide requested information
Funder / NCP Supervise Funded Projects	Funding provider	• Support on interpretation of call text	• Receive outstanding, innovative and relevant proposals	Cooperate with the coordinator	**Coordinator:** • Clear objectives • Detailed summary of the proposal

5.3 Implementation / Process Design

Process visualisation

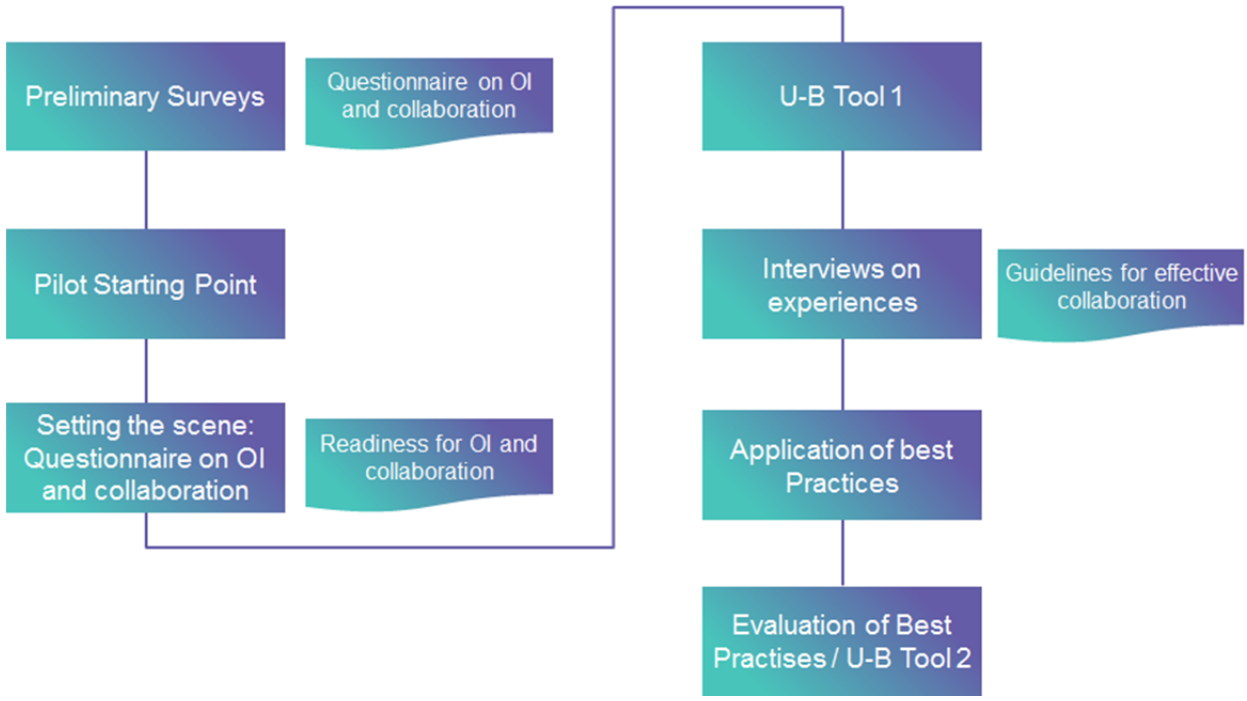


Figure 17: Implementation process of Pilot #3

The starting point is the formation of a common understanding of “open innovation” and “collaboration” among the project team and to stress the sensitivity on these issues. This is done through the

- design of a questionnaire gathering information on communication, relationships, collaborations, openness and diversity and
- performing semi-structured interviews with the pilot’s core-team on OI and collaboration

As a starting, feedback from the “questionnaire on OI and collaboration” from the Pilot #3 core team will be produced. This will leads to first inputs on major issues on collaborative projects and provides a basis for the selection of “piloting projects”.

The pilot will involve the following activities on selected projects (“usecase projects”):

Step 1: Setting the scene - Questionnaire on OI and collaboration

- Perform interviews and/or send out questionnaire on OI and collaboration to participants of selected piloting projects

Step 2: U-B Tool 1

- Gather information on objectives and expectations at the outset of the collaboration of the selected piloting projects

Step 3: Interviews on experiences

- Performing interviews on personal experiences with collaborative R&D&I projects with the participants of the piloting projects
- Condensing all information from questionnaire and interviews

- Collection of success stories

Step 4: Application of Best Practices

- Formulation of guidelines for effective collaboration
- Application of guidelines to piloting projects

Step 5: Evaluation of Best Practises / U-B Tool 2

- Assessment of effects of guidelines on objectives and expectations at the current state/end of the collaboration of the piloting projects for selected Indicators

Timing

Figure 18: Timing of Pilot #3

Blueprint of the Pilot

The blueprint of the pilot will be developed ongoing from Step 1. It seemed not applicable to generate this information in the pre-pilot-phase already. Once the information is available, this will be listed in form of a table like for the other pilots.

Touchpoint Analysis

The touchpoint analysis of the pilot will be developed ongoing from Step 1. It seemed not applicable to generate this information in the pre-pilot-phase already. Once the information is available, this will be listed in form of a table like for the other pilots.

5.4 Quantitative and qualitative description of indicators (KPIs)

Quantitative and qualitative benefits for each target group

The benefits for each stakeholder (Figure 19) are enhanced during Step 1 of the implementation phase for every use case. The information from every use case partner / stakeholder is necessary to define them. As such, Figure 19 shows only a preliminary definition for the quantitative / qualitative benefits in case of the Use Case 1 of Pilot #3.

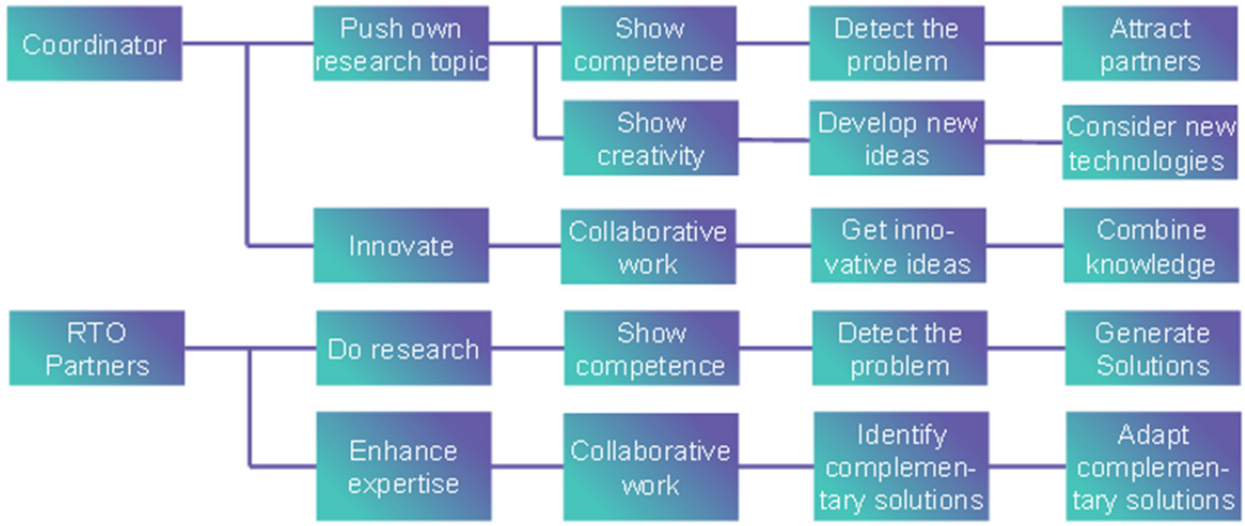


Figure 19: Objectives and benefits of relevant actors of Pilot #3

Preliminary Key Performance Indicators (KPI)

The KPIs are evaluated during Step 1 of the implementation phase since they need to be aligned with the participants of the considered use cases. However, preliminary KPIs have defined as follows:

Indicator A: Quality of the achieved solutions (evaluated by the coordinator)

Indicator B: Added value in terms of outcome generated vs invest (time, manpower …)

Indicator C: Response days ratio, total number days in which internal or external requests are accomplished in full

Indicator D: Number of deliverables on time in full

Indicator E: Number of attendance at meetings on time in full

Indicator E: Increase of R&D capacity through collaborative project in the consortium

5.5 Critical success factors for the Pilot as a whole

The critical success factors for the pilot as a whole will be developed ongoing from Step 1. It seemed not applicable to generate this information in the pre-pilot-phase already. Once the information is available, this will be listed in form of a table like for the other pilots.

6 PILOT 4: INTER-SECTORIAL MOBILITY AS AN ENABLING TOOL FOR OPEN INNOVATION/SCIENCE

6.1 Objectives

Inter-sectoral (industry-RTO-academia) mobility is driven by industry looking for novel ideas and state of the art of scientific insight or descriptions; academia and RTOs looking for dissemination of their research and application areas for their novel ideas so to help the state of the art technology to advance; funding agencies looking for ways to accelerate knowledge influx into industry to gain a competitive advantage and people willing to push themselves to be on the forefront of academic research and technological advancement. This leads to open innovation benefits such as increased efficiency of knowledge circulation, increased knowledge build up and training in innovation behaviour and is as such known to be an enabler for Open Innovation/Science. Currently inter-sectoral mobility is already implemented in various European, national and regional (co-funded) programmes and as such is a vital part of the open innovation infrastructure.

This pilot has as goal to boost inter-sectorial mobility of researchers as key enabler for open innovation by fully exploiting on its potential. The design and implementation of inter-sectoral mobility programmes can still be improved, lowering barriers and removing overhead bottlenecks, to allow beneficiaries to fully leverage on the inherent potential of bringing cooperating people from a different sector together. Best practise guidelines on how to use mobility of staff for boosting open innovation and policy recommendations to help bridge de gap between education/training (MSCA, Erasmus Mundus, …) and high TRL industrial research (LEIT, SC) will be derived.

The degree to which the current inter-sectoral mobility programmes enable open innovation will be analysed through one-on-one interviews with stakeholders in a set of past and current inter-sectoral mobility programmes (EU/national/regional). Collection of past experiences from both the different parties involved in the programmes as the same parties in different stages of the programme, will allow to compile bottlenecks and facilitators for open innovation. The pilot will bring together a unique mixture of cross-sectoral, cross-regional, cross-programme and cross-cultural experiences, all feeding into open innovation guidelines for future programmes and best practices on

- how to initiate, facilitate and reward staff mobility;
- how to deal with barriers and overhead bottlenecks;
- how to profit from staff mobility as individual and organization;
- how to further improve on existing staff mobility programmes.

To validate the guidelines, a part of the guidelines will be applied in pilot-cases, depending on the guidelines derived, the opportunities present at the pilot partners and the running programmes or call for programmes.

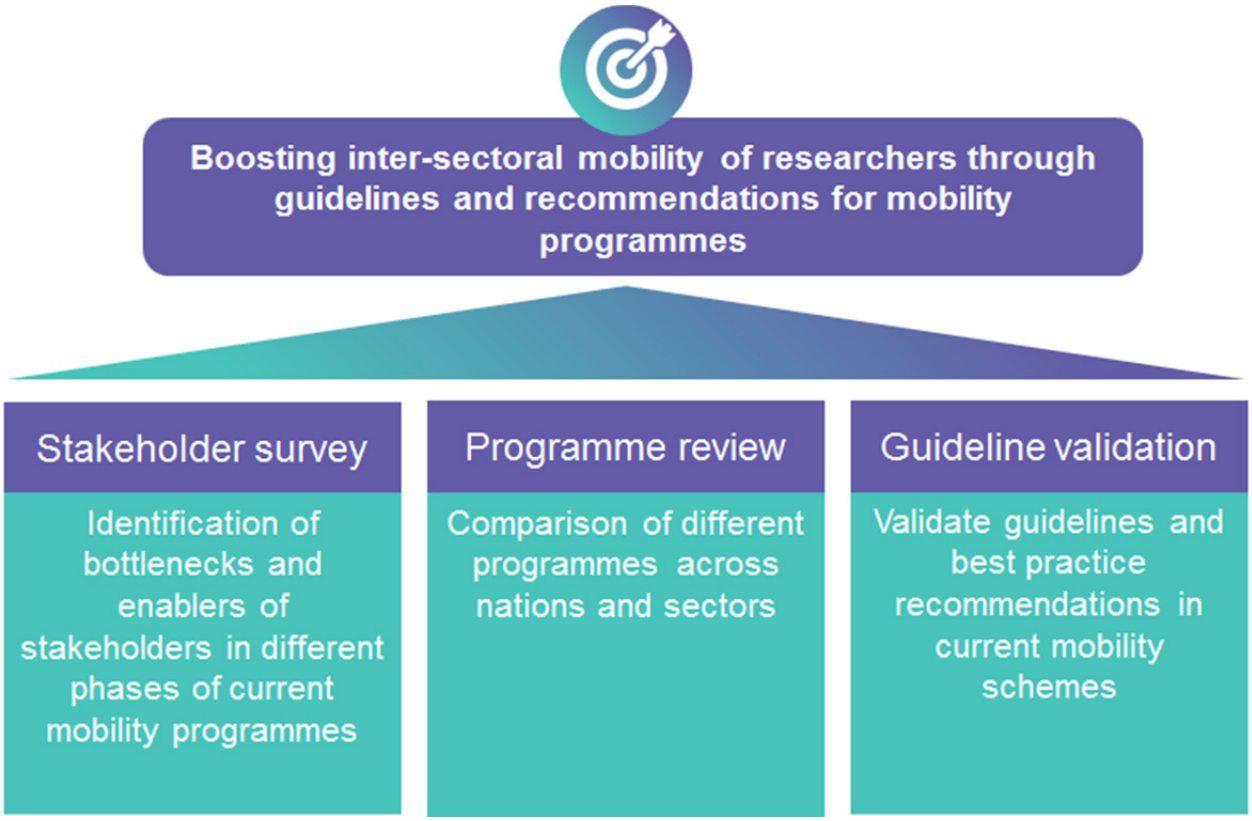


Figure 20: Main objectives of Pilot #4

Other innovation experiences and global trends for the pilot

There are multiple examples of existing staff mobility programmes that exist. Two examples, which also will be investigated within pilot 4, are the MSCA actions and the Baekeland-mandates. Both schemes are aiming at innovation through inter-sectoral staff exchange, the first on a European level, the second on a federal level and are as such directly in scope of Pilot 4.

Marie Sklodowska-Curie actions (MSCA): There are MSCA grants for all stages of a researcher's career, from PhD candidates to highly experienced researchers, which encourage transnational, inter-sectoral and interdisciplinary mobility. Endowing researchers with new skills and a wider range of competences, while offering them attractive working conditions, is a crucial aspect of the MSCA. In addition to fostering mobility between countries, the MSCA also seek to break the real and perceived barriers between academic and other sectors, especially business. Prime focus in pilot 4 will be on the MSCA initiatives that promote the involvement of industry etc. in doctoral and post-doctoral research such as the Research networks (ETN) and Research and Innovation Staff Exchanges (RISE).

(http://ec.europa.eu/research/mariecurieactions/about_en)

Baekeland-mandates: Baekeland mandates are personal grants of the Flemish government to support basic research in collaboration between a university and a company, that – if successful – has clear economic objectives and offers added value to the company involved in the project. However, the research should be directed towards achieving a doctorate (PhD) diploma and meet the accepted criteria for doctoral research. In other words, the project should fit within strategic basic research with an economic finality, defined as high quality research that is innovative and provides the PhD student with ample intellectual properties. It aims to build up scientific or technological knowledge as a basis for economic applications.

(http://www.iwt.be/english/funding/subsidy/BM)

With respect to global trends, the push towards a knowledge driven industry, calls for further open innovation and cross sectoral collaboration. The biggest risk for many of the current running programmes is the growth of protectionist measures, which might hamper transnational collaboration.

6.2 Map of Actors

Figure 21 represents the stakeholder map of pilot 4. The core group corresponds to the stakeholders of University, RTO and industry, including small SMEs, who can participate in the inter-sectoral mobility. As external stakeholder, firstly the society as a whole has a stake, on the hand by the education component of the mobility and on the other hand by the technological advantages and the job creation due to the innovation. Secondly, innovation advances industry in general since it will lead to economic growth through strengthening the knowledge-based economy and bring more oxygen for novel companies and spin-offs. The growing economy and the education of society is of importance of the governments, which in their turn support inter-sectoral mobility through funding actions.

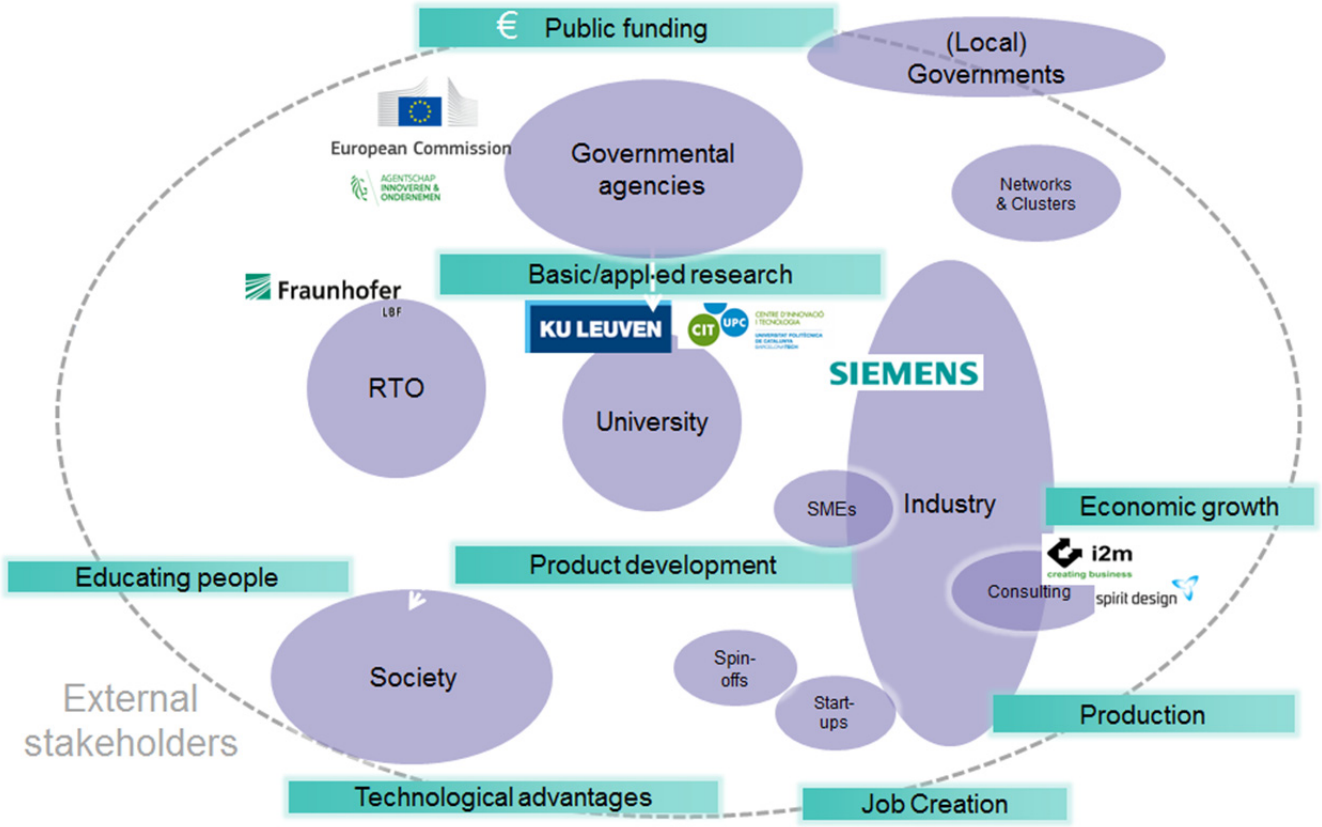


Figure 21: Stakeholder Map of Pilot #4

Upon investigation the map of actors, a different map can be made for each kind of inter-sectoral mobility programme. Based on a set of map of actors for Baekeland-mandates, MCSA-ETN and MCSA-Rise programmes, a generic map of actors is derived and presented in Figure 22. The core team always incorporates an academic supervisor and a mobile researcher, depending on the nature of the implementation of the team, the mobile researcher can also be in close interaction with the research group of the university, of the company, or both.

The activities of, objective of, relationships between and expectation on the core actors of the generic inter-sectoral mobility map of actors are expressed in Table 10.

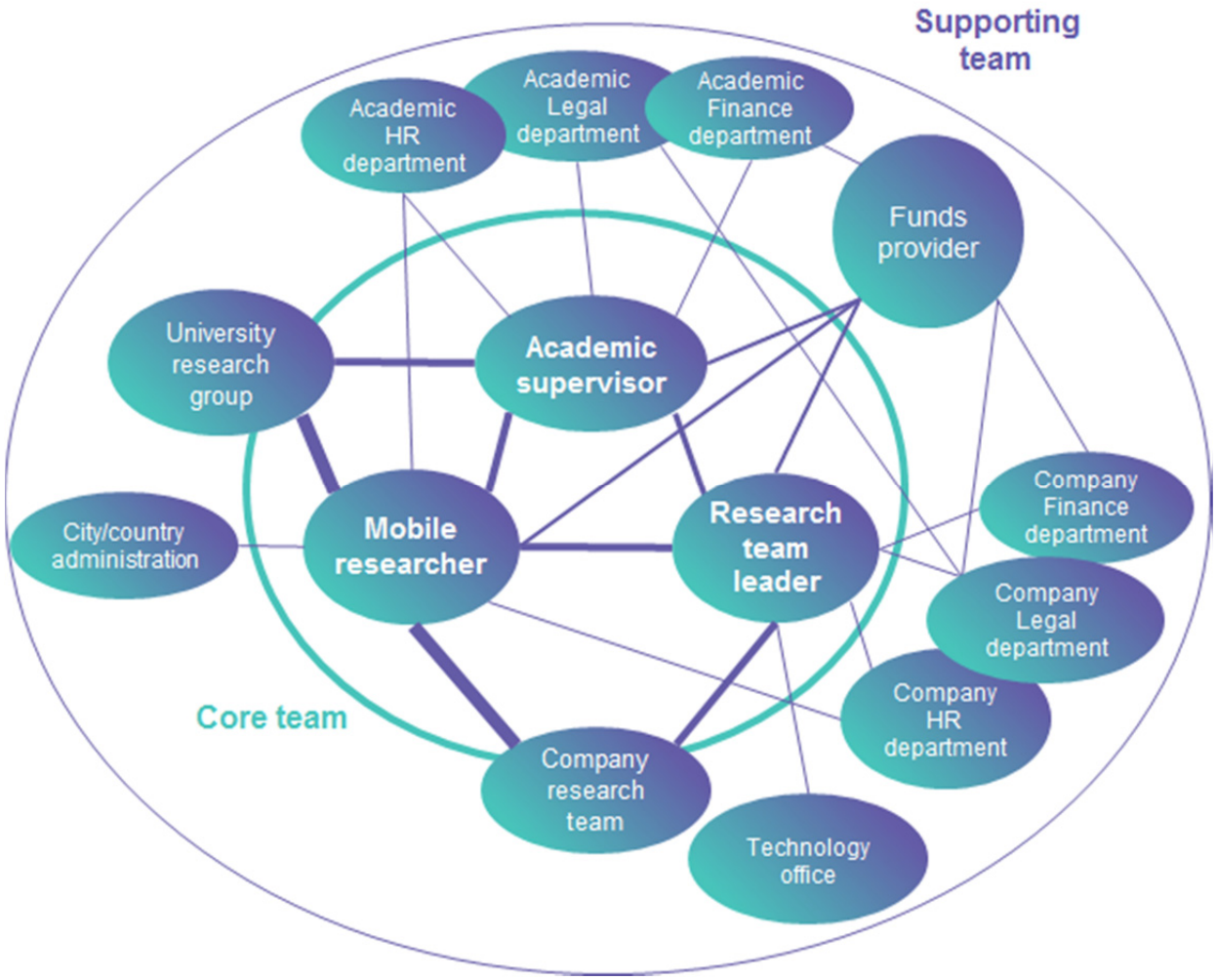


Figure 22: Map of Actors of Pilot #4

Table 10: Table of Actors (Pilot #4)

Actors/Role	Institutions	Activities specific to the group/ competencies	Objectives (qualitative and quantitative)	Relationships inside the pilot	Expectations on other actors
Mobile researcher (MR) • Do research Communication liaison	University /industry	• Deliver concepts and ideas Gain detailed knowledge	• Increase their experience • Build thematic capacity Build a CV	• Interact with other researcher at the university and the company • Interact with the industrial partner Interact with academic supervisor	**On RTL:** • Guidance • Industrial connections • Insight into the real processes • Sharing innovation experience **On AS:** • Guidance • Input Academic connections
Academic supervisor (AS) • Guide his research group • Teach • Enable research Do consulting	University	• Oversee the research • Guarantee the quality of the research Point out direction of research	• Publish • Develop good relations with “clients”, increase contracts (R&D) • Get funding • Develop knowledge Develop expertise	• Guide the researcher Coordinate with the RTL	**On MR:** • Academic output • Exposure to industry **On RTL** • Industry connections Indicate relevant research directions
Research team leader (RTL) • Align research with the company goals • Facilitate research Guide research team members	Industry	• Oversee the company relevance of the research Provide access to technological info and use cases	• Collect new ideas for innovative solutions/products • Train possible employees Gain technologic credibility	• Guide the researcher Coordinate with the AS	**On MR:** • Input of new ideas • Enabling academic research for industry **On AS:** Propose conceptual ideas for innovation

6.3 Implementation / Process Design

Process visualisation

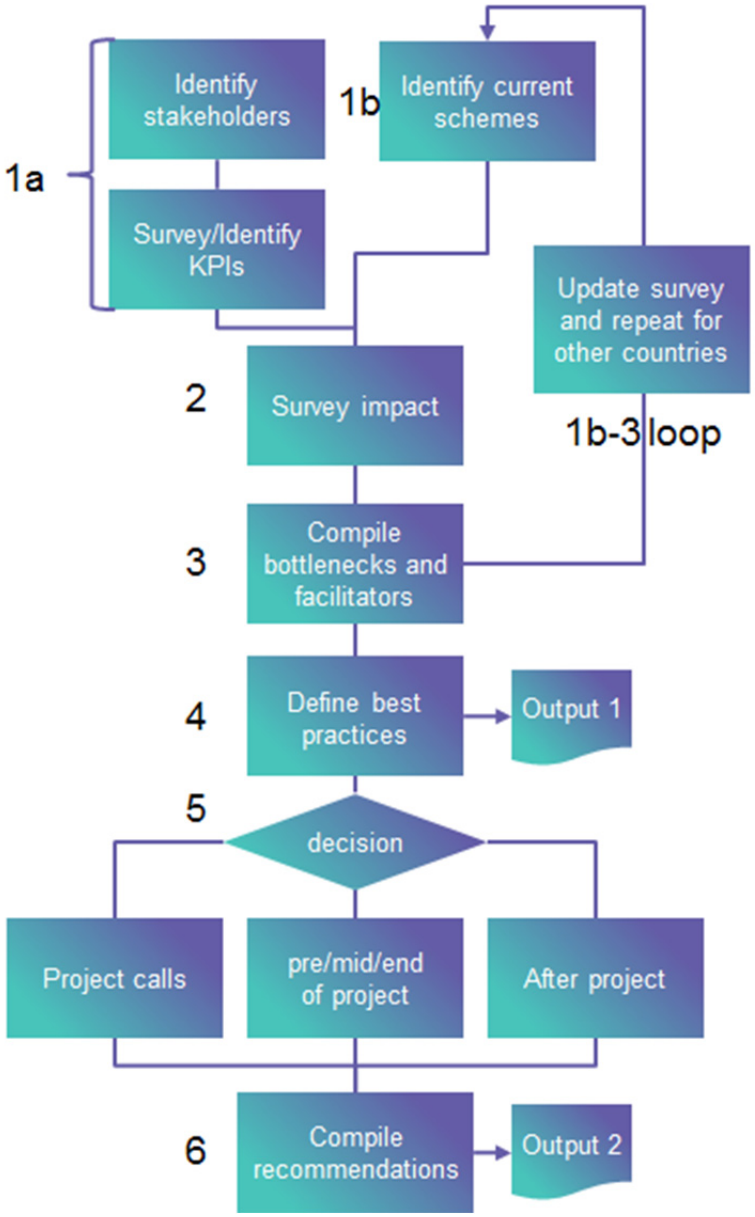


Figure 23: Implementation process of Pilot #4

Step 1a: Stakeholder identification and identify KPIs

- Identification of the stakeholders in cross sectoral mobility to enable open innovation
- Identification of performance Indicators to measure the success of a scheme

Step 1b: identify schemes

- Identification of the current schemes which are used for cross sectoral open innovation

Step 2: impact survey

- Survey the stakeholders from different schemes

Step 3: compile bottlenecks and facilitators

- Investigate common trends
- Evaluate effectiveness of the survey and update if required
- Repeat the process, starting from step 1b, for schemes for different countries

Step 4: Define best practises

- Define the best practices and set up guidelines

Step 1b-4 loop: Repeat for different countries

- If necessary, update the survey based on the outcome of the first round
- Repeat the procedure for different countries/schemes

Step 5: Decisions and pilots implementations

- Based on the learned best practises and the opportunities present at the pilot partners, a set of guidelines will be applied in schemes and validated

Step 6: Evaluation

- Evaluate the best practices applied
- Compile the recommendations

Measurable Results

- Surveys: 15 or more stake holders in cross sectoral mobility schemes will be interviewed
- Guidelines on best practice on how to use mobility of staff for boosting open innovation
- Policy recommendations to help bridge de gap between education/training (MSCA, Erasmus Mundus, …) and high TRL industrial research (LEIT, SC).

Timing

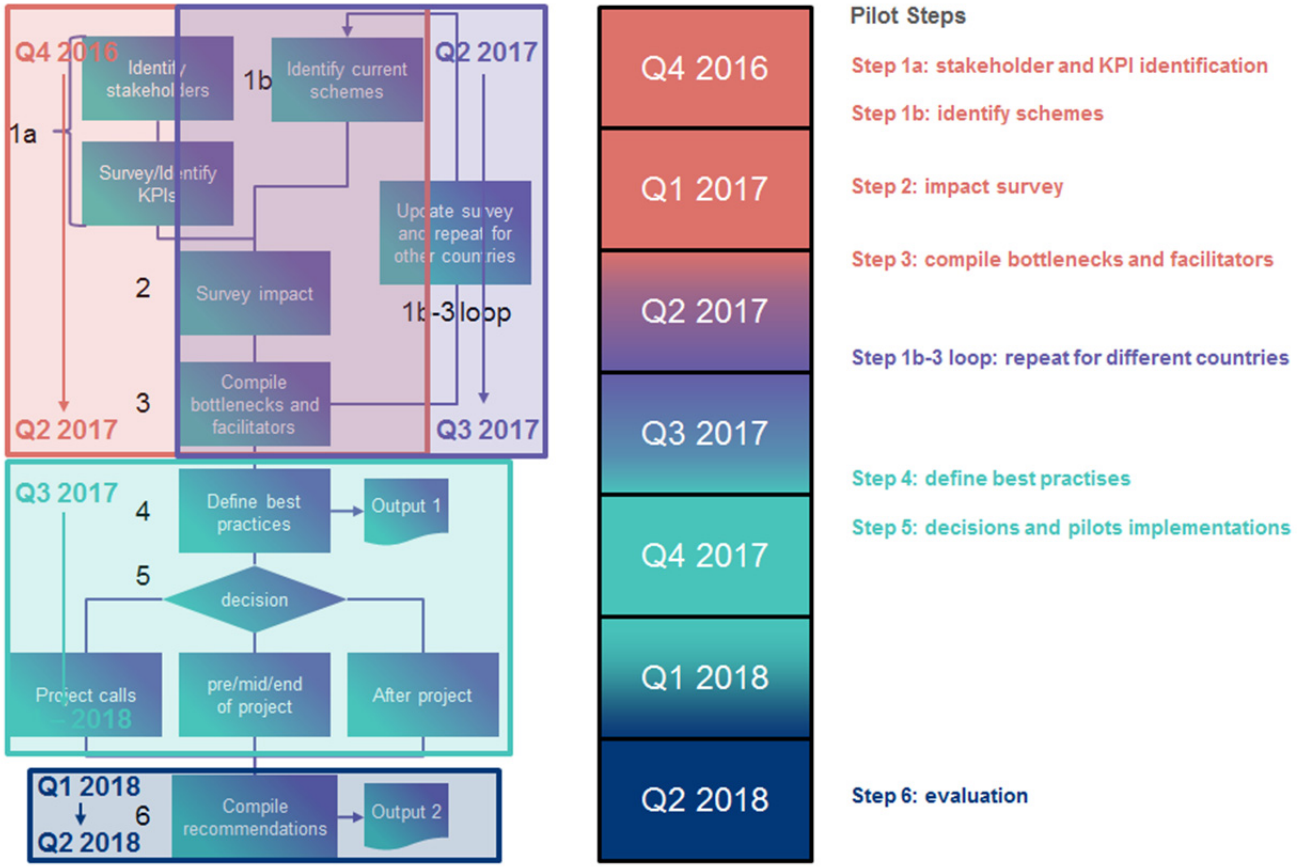


Figure 24: Timing of Pilot #4

Blueprint of the Pilot

The nature of Pilot #4, focussing more on interviews and analyses, makes that in the first phases, the actors of inter-sectoral mobility are only approached for interviews. For the phase of the pilot including the validation step, the actors will be more actively involved. The blueprint will be updated during the preparation of the validation step based on the kind of guidelines derived and the validation actions that will be undertaken.

Table 11: Blue print of Pilot #4

	Step 1a-1b	Step 2	Step 3	Step 4	Step 5	Step 6
Physical evidence (Touchpoints)	Internal meetings Live-interviews Skype interviews	Live-interviews Skype-interviews	Meetings … …	Meetings … …	(depending on the type of guidelines)	Meetings workshop
Actors and their actions	RTL, AS and Funding agencies to participate in interviews	RTL, AS, MR, Funding agencies, Support teams to participate in interviews	/	/	RTL, AS, MR with the action depending on the kind of guideline to be validated	Participate in the workshop or read the guidelines
Supporting actor (Backstage contact person)	- … … …	… … …	… … …	… … …	… … …	… … …
Supporting processes	… … …	… … …	… … …	… … …	… … …	… … …
Quality criteria	… … …	… … …	… … …	… … …	… … …	… … …

Touchpoint Analysis

The amount of contacts with the actors for the survey phase are limited to well-prepared interviews in order to get information and will depend on their willingness to contribute to participate in the interview. Therefore it is expected that this will be no burden for the actors.

For the validation step, the interaction can become more frequent, however, this will depend on the kind of guidelines derived within the pilot. Therefore, this part will be updated in form of table like the other pilots when that information is available.

6.4 Quantitative and qualitative description of indicators (KPIs)

To set the key performance indicators (KPIs) of the inter-sectoral mobility programmes, a first trial is done by the pilot 4 members based on the quantitative and qualitative benefits for each target group, as presented in Figure 25. This resulted in a list of preliminary KPIs. These KPIs will be enriched based on the stakeholder interviews, where explicitly will be asked for innovation KPIs, Open innovation KPIs and inter-sectoral mobility KPIs, as well as for feedback on the set of KPIs already derived at the moment of the interview. This document will therefore be continuously updated based on the interviews.

Quantitative and qualitative benefits for each target group

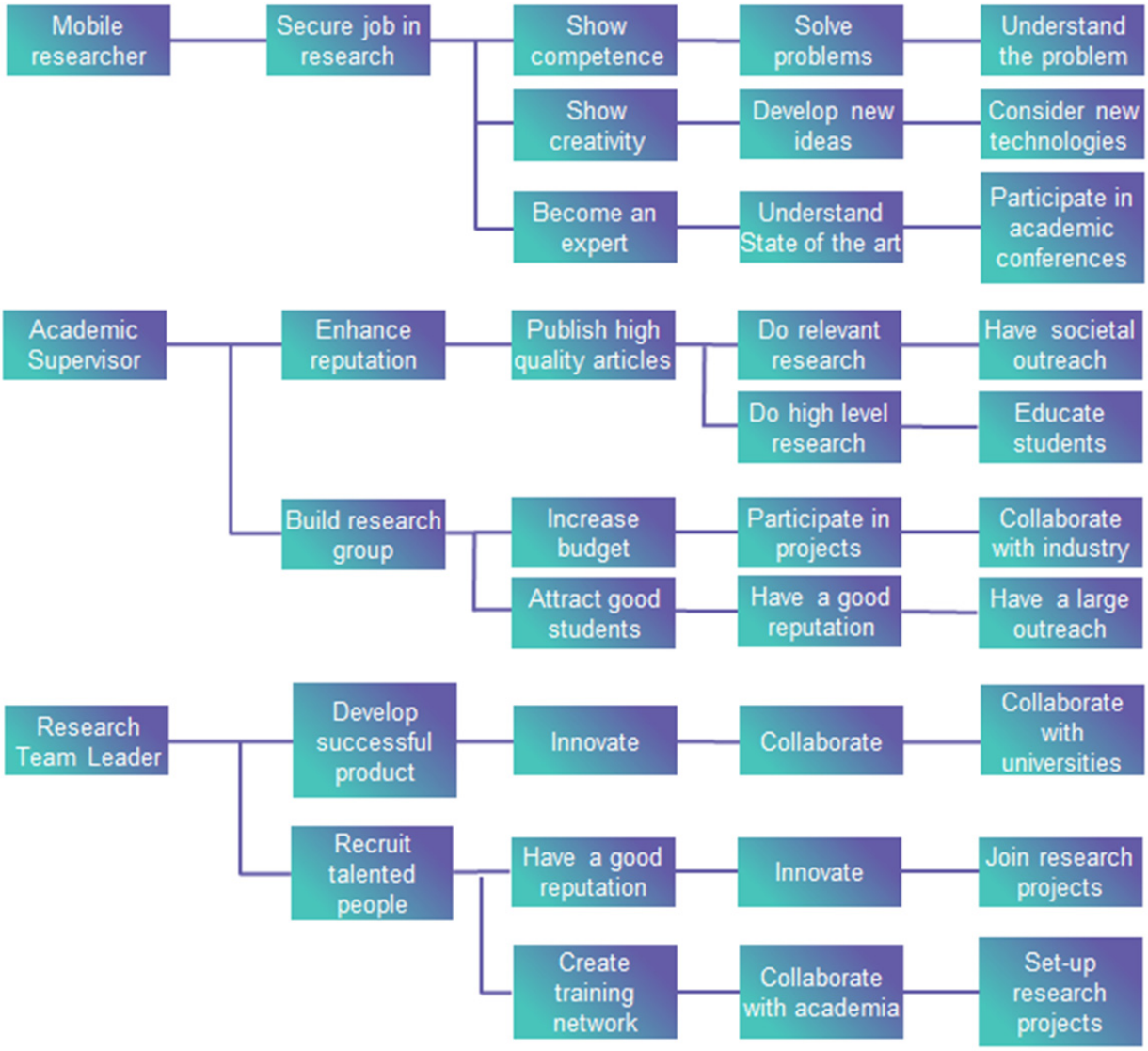


Figure 25: Objectives and benefits of relevant actors of Pilot #4

Preliminary Key Performance Indicators (KPI)

A preliminary set of KPIs have been defined which will be updated based on the stakeholder interviews:

Mobile Researcher

- Papers published
- Patents filed
- Conference participations

Academic Supervisor

- Successful PhDs
- Follow-up projects
- Publications in non-scientific journals

Research Team Leader

- Joint patents
- Joint publications
- Follow-up projects

6.5 Critical success factors for the Pilot as a whole

The pilot's focus is on the one hand on interviews and analyses and on the other hand on validation of the findings, therefore the critical success factors are related to gathering enough stakeholders for the one-on-one interviews and having projects in which the validation study can be rolled out. Table 12 lists these success factors.

Table 12: Critical success factors of Pilot #4

	Step 1a-1b	Step 2	Step 3	Step 4	Step 5	Step 6
Enabling factors	Network in the pilot 4 consortium and the project consortium	... … …	... … …	... … …	Network in the pilot 4 consortium and the project consortium	... … …
Hampering factors	... … …	- Agenda of the Actors - Willingness of the actors to participate in interviews	... … …	... … …	- Time available for Validation - Availability of programmes in Which can be intervened	... … …
Technical success factors	... … …	... … …	... … …	... … …	... … …	... … …
Organisational success factors	- ... … …	... … …	... … …	... … …	... … …	... … …

Contextual success factors	...	...	...	...	...	...
	…	…	…	…	…	…
	…	…	…	…	…	…
Process to overcome critical points	...	...	...	...	...	...
	…	…	…	…	…	…
	…	…	…	…	…	…

7 PILOT 5: COLLABORATION THROUGH BIG DATA AND SCIENCE 2.0

7.1 Objectives

Existing research data would enable people in institutions and enterprises to develop new forms of policy, businesses and applications which are data driven. However, useful big data is limitedly available at large scale due to scientists perceiving little benefit of opening their research data – which is their source of scientific reputation. If the scientists would open their research data repositories for others – institutions and enterprises to exploit, this would strengthen open innovation through enabling wider utilization of research data repositories and thus enhanced potential to develop new ideas and solutions to scientific and societal challenges.

The Pilot #5 tackles the challenge how to motivate scientists to open their research data repositories and investigates how to develop sustainable business cases for big research data providers. In order to achieve this key objective, pilot #5 will make a literature review and two case studies. The literature review is to provide the baseline of existing experiences and best practices regarding big data and science 2.0. Aalto University is responsible of conducting this literature review. The objective of the case studies are to provide in-depth understanding of the different stakeholder needs and wants related to the specific use case, revealing possible problems and issues for opening database and finding solutions how to overcome these problems. Two use cases have been selected – one is a closed invention database (Aalto responsible) and the other one an open health-related database (Atos responsible) whereby a dynamic process approach to the case studies will be taken. The main activities in the case study are to collecting primary data about the use case through interviewing key stakeholders and secondary data from web sites and reports. The other key activities include the analyses of interviews/secondary data, comparing different use cases with each other and developing conclusions on the case study and pilot #5 as a whole.

The overall aim is to facilitate a co-creation process between the database owners and the potential users in order to build a commonly acceptable open ecosystem around the database. The uniqueness of the pilot project is in its approach to solve the major challenge to boost open innovation in research front – how to motivate researchers to open their research data repositories in a way that affectively boost open innovation. Both literature review and the two dynamic case studies are utilized to come up with the generic proposal in this challenge. Figure 26 presents the key objective of Pilot #5, and its approach to achieve the objective.

As a result of a literature study and a case study, Pilot #5 is to be able to define and illustrate sustainable business cases for big research providers that support open innovation. These best practices will further been developed into policy guidelines. The success factors of Pilot #5 are to identify relevant use cases and existing literature on big data and science 2.0., which support understanding the key factors and models underlying the research topic. Other key success factors are related to the internal collaboration and external collaboration in the project – how well partners are to work together and to get the external stakeholders motivated to contribute to this project. The partners have good potential and the basis to make the following contributions:

1) To develop best practices and policy guidelines that support the opening of big research data repositories and ultimately thus to boost open innovation,

2) To support the use cases to make a business case for opening their big research databases (to understand the underlying requirements, costs and benefits) based on which they are able to make the decision on opening big research data and implementing that decision.

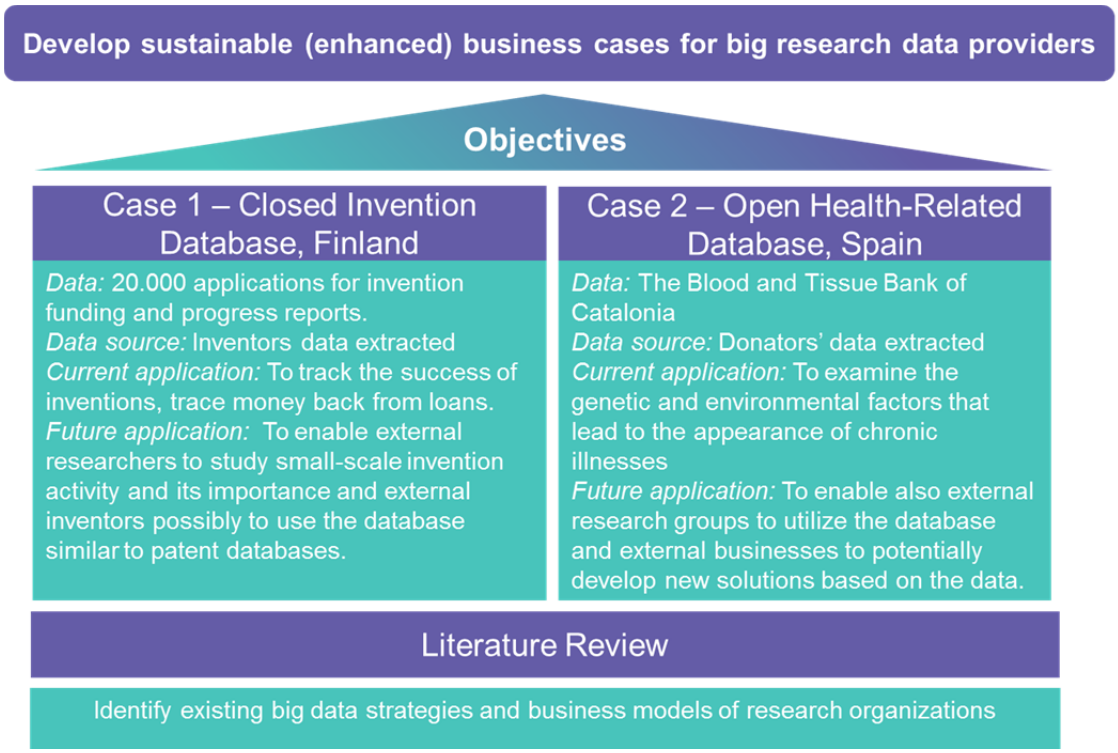


Figure 26: Main objectives of Pilot #5

International experiences serving as best practice examples for the pilot

- There are many initiatives and actions all around the world to open government data to boost open innovation and the development of new applications. For further information: Why should government data be open? [5]. Best practices of opening government data for public use. International best practices [6] and local guides [7].
- The Commission is running a flexible pilot under Horizon 2020 called the Open Research Data Pilot (ORD pilot). The ORD pilot aims to improve and maximize access to and re-use of research data generated by Horizon 2020 projects and takes into account the need to balance openness and protection of scientific information, commercialisation and Intellectual Property Rights (IPR), privacy concerns, security as well as data management and preservation questions [7].
- OpenAIRE2020 will assist in monitoring H2020 research outputs and will be a key infrastructure for reporting H2020's scientific publications as it will be loosely coupled to the EC's IT backend systems. 50 partners, from all EU countries, and beyond, will collaborate to work on this large-scale initiative that aims to promote open scholarship and substantially improve the discoverability and reusability of research publications and data. [8]
- A local initiative – Vienna principles for scholarly communication [9].
- Big Data & Innovation: Data-driven business models © Univ. of Cambridge [10] and [11]
- A Big Data Case Study © Univ. of Cambridge [12].

7.2 Map of Actors

Regarding the closed invention database we have the following key stakeholders – database owner and potential users such as universities, research institutes, enterprises and individual inventors. These are the main actors together which we conduct the interviews and together develop a solution to sustainable business model for the database. In addition to key stakeholders, we have also a supporting team meaning we may need also potentially to contact the IT consultant that is running the database, the information management specialist that has in-depth knowledge about the database contents and IPR specialist that understands the legal and IPR concerns related to opening of the database.

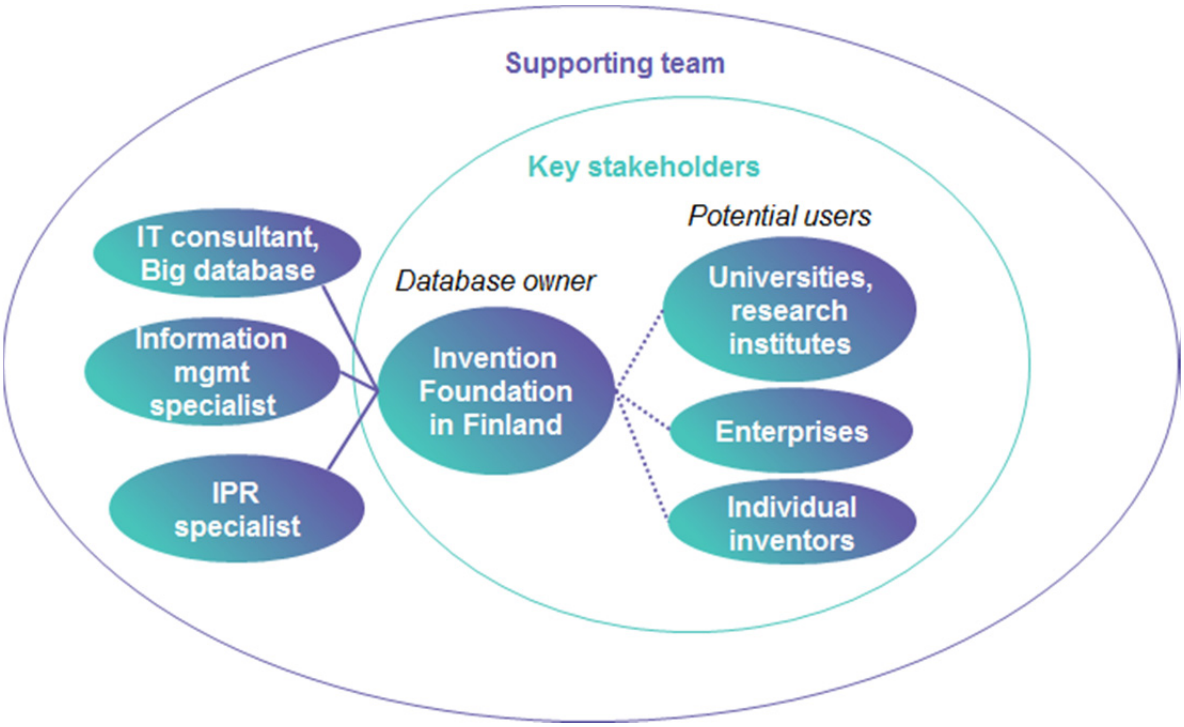


Figure 27: Stakeholder Map of Pilot #5

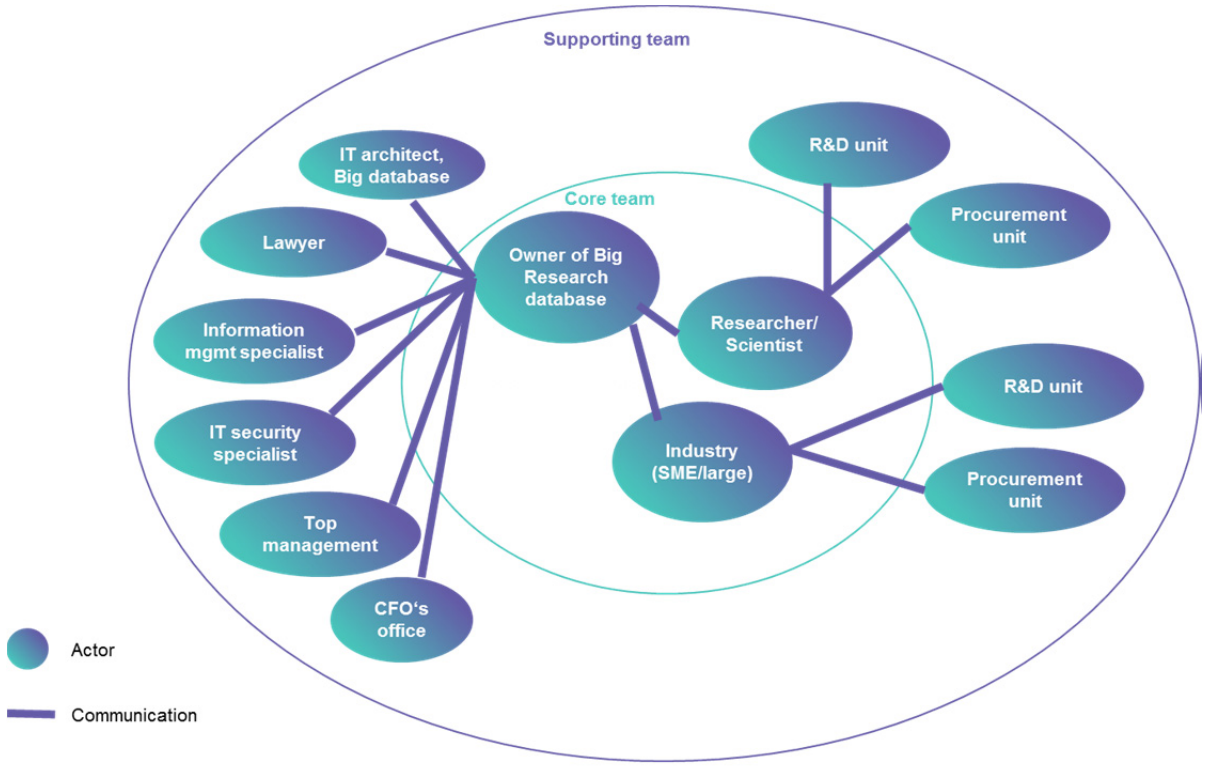


Figure 28: Map of Actors of Pilot #5

Table 13: Table of Actors (Pilot #5)

Actors/Role	Institutions	Activities specific to the group/ competencies	Objectives (qualitative and quantitative)	Relationships inside the pilot	Expectations on other actors
Professor / Research Manager Representing the owner for big research data repository	University / Research Institute / Foundation	Managing the big research data repository	To develop high quality publications / patents / inventions based on the big research database	• Mainly in contact with pilot #5 project members • Common workshops	• To understand the needs and wants of external parties to use the database • To understand the requirements, costs and benefits related to opening the big research database
Researcher / Scientist Possible user of big research database	University / Research Institute	Conducting research (basic or applied)	To develop high quality publications / inventions based on the big research database	• Mainly in contact with pilot #5 project members • Common workshops	• To learn more about the big research database • To be able to access the database in a sustainable manner
Industry (SME / large) Possible user of big research database	Enterprise (small, medium-sized, large)	Developing / manufacturing / delivering / selling products / services to external customers	To develop new innovations based on the big research database	• Mainly in contact with pilot #5 project members • Common workshops	• To learn more about the big research database • To be able to access the database in a sustainable manner

7.3 Implementation / Process Design

Process visualisation

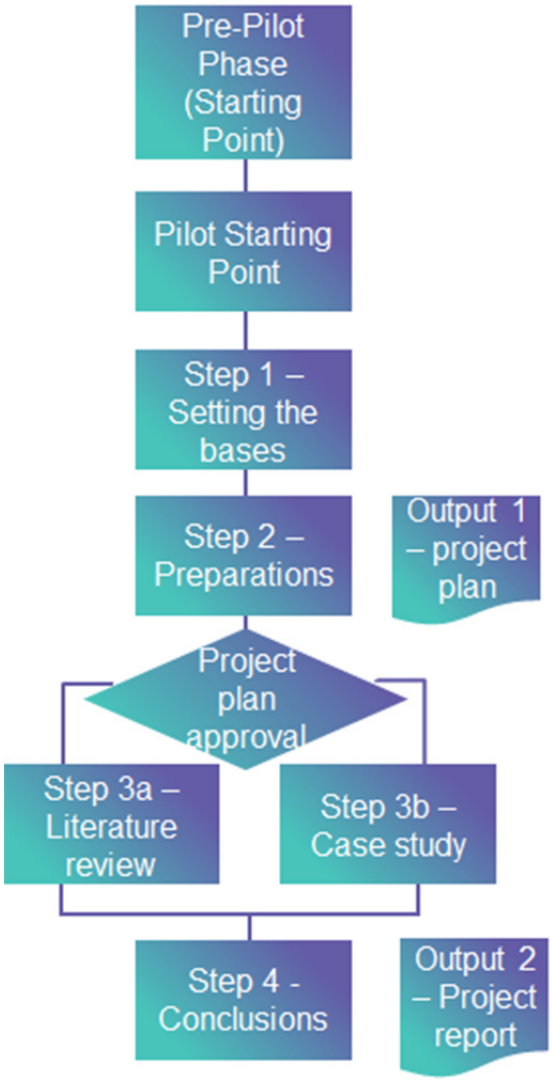


Figure 29: Implementation process of Pilot #5

Step 1: Setting the bases for pilot #5

- Define inclusion criteria for potential cases for big research databases
- Identify potential cases, and look for their key characteristics
- Finalize project plan

Step 2 : Preparations

- Select three cases that fulfill the defined inclusion criteria and provide potential to discover real challenges of opening existing big research data
- Develop an interview questionnaire incl. requirements for background data for cases

Step 3a : Literature review

- Identify existing big data strategies and business models

- Identify obstacles that hinder researchers to open up their databases, and related best practices to cope with challenges

Step 3b : Case study

- Collect background data to understand how cases are currently operating
- Conduct 10-15 interviews per case with different stakeholders.
- Develop and define a sustainable business case for each case
- Compare different cases with each other

Step 4 : Conclusions

- Develop guidelines and best practices based on a case study and the literature review regarding how to open big research databases to boost open innovation and increase value added to all parties

Measurable Results

- The results of steps 1-2 are a project plan for Pilot #5 and two interview questionnaires – one for database owners and the other one for potential external users.
- The result of steps 3a is a literature review, 20-30 page reporting presenting the key findings from the literature.
- The results of steps 3b are two reports – one for the invention database case study and the other one for health-related database that describe the process, mid-results, the final proposal and the factors that have determined the related positive or negative outcome.
- The result of step 4 is a report that presents our findings from literature review and case studies as guidelines and best practices to open big research databases to boost open innovation.

Timing

Figure 30: Timing of Pilot #5

Blueprint of the Pilot

Table 14: Blue print of Pilot #5

	Pre-Pilot Phase	Pilot Starting Point	Step 1	Step 2	Step 3	Step 4
Physical evidence (Touchpoints)	E-mail, telcos	E-mail, telcos	E-mail, telcos	E-mail, telcos workshop	E-mail, telcos	E-mail, telcos
Actors and their actions		• Suggestions on use cases 8Aalto, Atos, ViF, JIIP, CA)	• Define inclusion criteria and agree on project plan (Aalto, Atos, ViF, JIIP)	• Finalize plan, develop draft questionnaire (Aalto) • Select use cases	• Writing literature review (Aalto) • Conducting case study (Aalto, Atos, ViF, JIIP)	• Writing report on best practises and policy guidlines (Aalto, Atos, ViF, JIIP)
Supporting actor (Backstage contact person)			WP 1 - Approaches	WP 2 – Pilot modelling		
Supporting processes						
Quality criteria					• Use case results / satisfaction	• Contribution to existing literature on big data & science 2.0 • Use case results / satisfaction

Touchpoint Analysis

Table 15: Touchpoints of Pilot #5

Touchpoints	Frequency within pilot	Love-, OK-, and Hate-Moments
E-Mail	high	Love-Moments: All pilot #5 partners to have direct access to the latest news, reports, decisisons, meetings … OK-Moments: … Hate-Moments: E-mails can be lost or overseen, as each of us gets plenty of them

Workshop	low	Love-Moments: Workshops are good for brainstorming, making joint contributions. Workshops are good discussing difficult and challenging issues and find joint solutions OK-Moments: … Hate-Moments: It takes time to travel, which is away from all other work
Telephone Conference	medium/	Love-Moments: It is easy to share thoughts in telcos and express possible concerns. … OK-Moments: … Hate-Moments: Not everyone can make it to all telcos

7.4 Quantitative and qualitative description of indicators (KPIs)

Quantitative and qualitative benefits for each target group

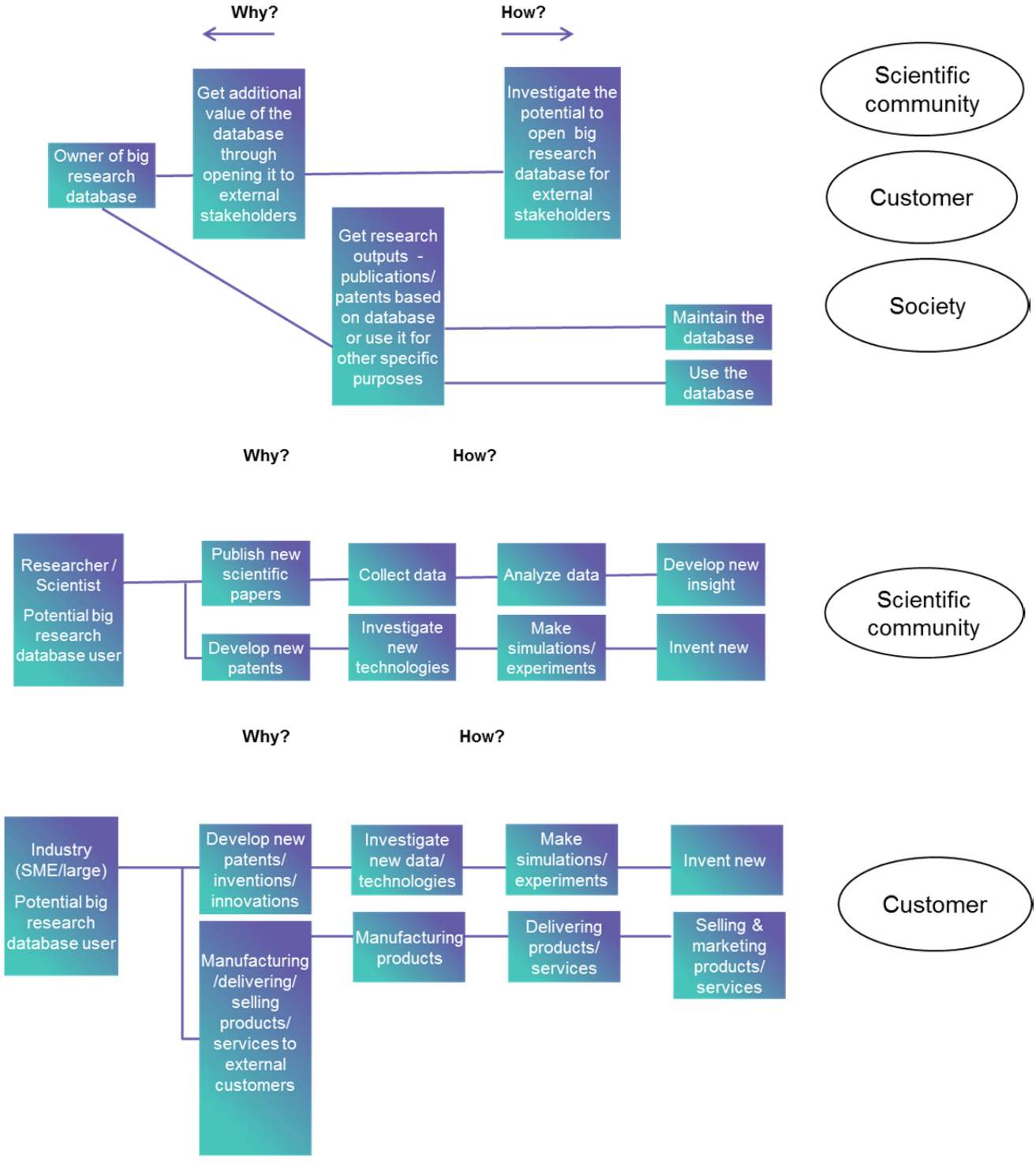


Figure 31: Objectives and benefits of relevant actors of Pilot #5

Preliminary Key Performance Indicators (KPI)

Indicator A = Number of business cases developed (max. 3)

Indicator B = Contributions to existing best practices (compare with literature study)

Indicator C = Contributions to existing policy (compare with literature study)

Indicator D = Value added for opening research database or enhancing the business model of currently open database in case studies

Case 1 = Value added for the Invention Foundation in Finland & potential users due to the open ing of the database

Case 2 and 3 = Value added for the database owners and users due to enhancement of the da tabase business model based on increased understanding of the user needs and wants

Indicator D is evaluated based on the survey to the owners and potential/existing users of the database regarding the value added after the case study.

Indicator E = Value added as guidelines and best practices developed in Pilot #5 to motivate researchers to open their big research data repositories

Indicator E is evaluated based on the survey to the leading specialists in the field of big data and open science to assess the contributions made in Pilot #5 in terms of guidelines and best practices

7.5 Critical success factors for the Pilot as a whole

Table 16: Critical success factors of Pilot #4

	Pre-Pilot Phase	Pilot Starting Point	Step 1	Step 2	Step 3	Step 4
Enabling factors				Good existing contacts with the owners and users of research data-bases	Good knowledge on the topic within project	Good knowledge on the topic within topic
Hampering factors			Project parties busy with many other tasks in S2S project	Project parties busy with many other tasks in S2S project	Project parties busy with many other tasks in S2S project	Project parties busy with many other tasks in S2S project
Technical suc-cess factors						
Organisational success factors				• Internal collabo-ration Motivating case studies partners to contribute	Internal and exter-nal communication	

Contextual success factors		• Identify relevant use cases	Identify relevant literature
Process to overcome critical points			

8 PILOT 6: DIRECT UNIVERSITY COACHING AND TRAINING TO SMES

8.1 Objectives

The particular purpose of this Pilot is to explore and map knowledge transfer in the form of direct (1 to 1) engagements from academia to SMEs. The specific **goals** of the pilot are to understand the role of the way technology management knowledge is packaged (e.g. tool), the knowledge transfer process, and the facilitator in effective coaching and training of SMEs. There have been a few academic studies that have looked at the role absorptive capacity plays in determining the capability of an SME to access and make use of external knowledge [13-15]. There have been even fewer studies on how SME are best supported in knowledge transfer activities. Some initial studies had indicated [16] that SMEs:

- SMEs vary greatly and "tipping points" or critical events in their life cycle have not a predictable pattern.
- Most "tipping points" are related to commercial rather than technology issues.
- An SME's ability to growth depends on „*the absorption of knowledge and solutions to successfully traverse the tipping points*" .

The overall aim of this Pilot is therefore is to explore what limits knowledge transfer from academia to SMEs and propose possible solutions and improvements in current practices.

The main activities of the pilot are expected to be as follows:

- Literature review to identify existing knowledge transfer mechanisms, enablers and barriers from academia to industry and specifically SMEs. The knowledge transfer will not include technology transfer as this is addressed by other pilots in this consortium, but it would rather concentrate in technology management knowledge transfer.
- Design of the pilot. The design will include considerations such as type of SME (traditional versus high growth), type of knowledge (strategic versus operational) and type of interaction (existing or new collaborations with academia). The design will also need to consider what information about the pilot needs to be collected and the timing and frequency of data collection.
- Suitable SMEs will need to be identified and enrolled into the pilot. This will exploit existing networking events both i2m, B&W, Spirit Design and IfM ECS have with local industry to identify SMEs willing to participate in the knowledge exchange.
- A range of different interactions will be conducted and monitored e.g. initial engagement, issues addressed, initial and future innovation capability. Three main aspects of the interaction will be addresses such as interaction process, tools used during the interaction and facilitator leading the interaction. The degree in which each SME has implemented the learnings from the interaction and has achieved business results will also be monitored.

Data will be collected and analysed according the methodology agreed in the pilot design to elicit the main enablers and barriers for knowledge transfer from academia to SMEs and recommendations for future improvements.

IfM ECS, i2m, B&W and Spirit Design have extensive experience in working directly with industry and especially SMEs. For example, over the past ten years IfM ECS has worked directly with over 500 SMEs in the UK and has experience in dealing with resource-limited small companies. This has led to IfM ECS codifying the knowledge transferred in time efficient "tools" (e.g. charts, templates, paper and on-line questionnaires etc.) to help SMEs access and utilize the knowledge. So far, there is only anecdotal evidence of how to best codify

knowledge and engage successfully with SMEs. This pilot will offer the first analytical evidence of which approaches are successful and why.

The SME success factors would be around two main categories; SME growth (increase of revenues and/or number of employees) and SME innovativeness (new products/services offered). The overall success factor for the whole pilot would be in achieving Organisational and/or Behavioural changes demonstrated by SMEs (based on feedback) after a period of time (12-18 months).

International experiences serving as best practice examples for the pilot

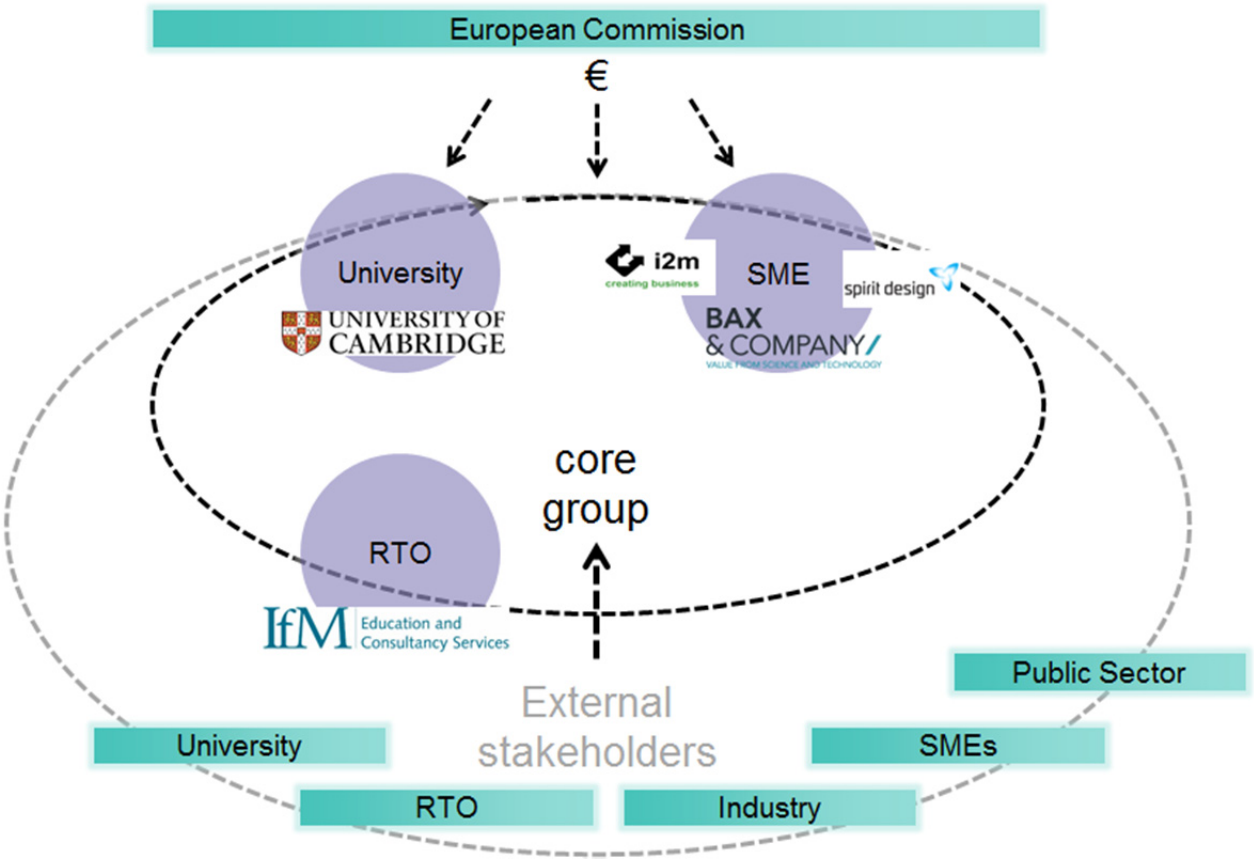
To our knowledge, there are not many European universities that have being actively involved in knowledge transfer in the form of business processes (e.g. strategy process, innovation process) to SMEs. Therefore, there are not many comparative studies like this proposed pilot. There have been a small number of academic studies in knowledge transfer to SMEs that have looked into the transfer of organised knowledge and know-how as well as the required communication for enabling this type of transfer [17-20]. The importance of one-to-one interaction was raised over twenty years ago as a key issue [21].

There have been several government support initiatives for SMEs but these have not necessarily have involved direct transfer of academic research and knowledge. The Enterprise European Network is a European initiative supporting SMEs and there are various national initiatives. For example, in the UK there have been Business Link, the Manufacturing Advisory Service (MAS) and more recently the Growth Accelerator programmes. These services frequently involve the provider to both diagnose and implement improvement actions for the recipient SMEs, although the knowledge transfer is often implicit rather than explicit. Often, in these initiatives the provider is a professional organization providing services on a commercial basis rather than an academic institution or an RTO.

8.2 Map of Actors

The main actors for this Pilot are the Centre of Technology Management academics in the University of Cambridge as a „developer“ of technology management knowledge, the RTO (IfM ECS) as a facili-tator for knowledge transfer from academia to SMEs and the recipient SMEs. Three project partners i2m, B&W and Spirit Design are having a dual role. They are both assisting with the application of the Pilot into different European countries and are also beneficiary SMEs i.e. receive knowledge, training and coaching and feedback their experience to help enhance academic research.

Other external actors are the wider University and academics who may have an interest in the Pilot findings, other RTOs, Industry including SMEs and the public sector that maybe interested in the out-puts from this Pilot.



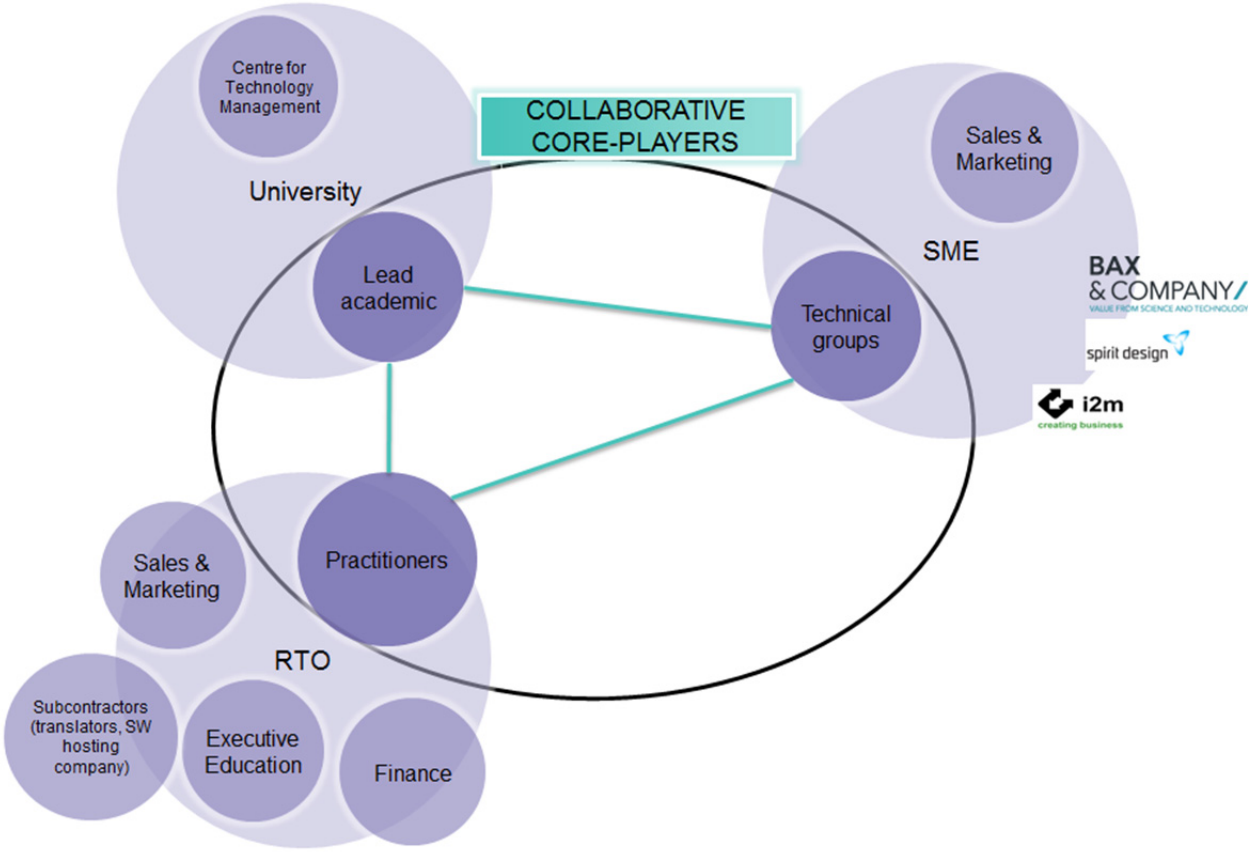


Figure 32: Stakeholder Map of Pilot #6

The main stakeholders for this Pilot are the lead academics predominantly from the Centre of Technology Management as the originators and IP holders of technology management knowledge, the practitioners within the RTO (IfM ECS) as the facilitators for knowledge transfer and the management and/or technical groups within the recipient SMEs including the three project partners i2m, B&W and Spirit Design. Other important stakeholders are other Centre of Technology Management academics, the wider University of Cambridge, a support team from IfM ECS such a s the sales & marketing, finance and executive education teams, and other groups within the recipient SMEs such as Sales and Marketing teams.

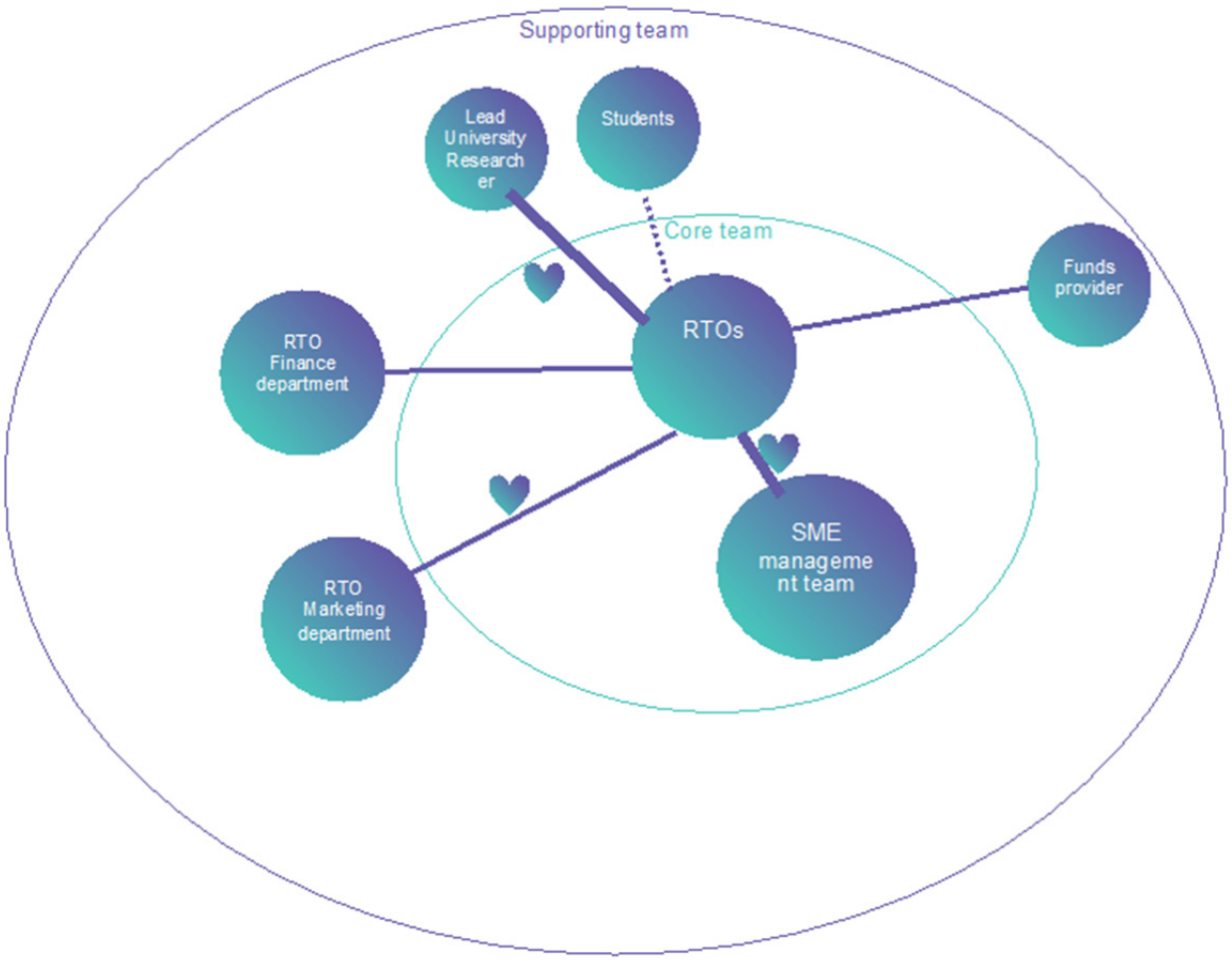


Figure 33: Map of Actors of Pilot #6

The main two actors in this Pilot are the RTO (IfM ECS) and the management/technical team of each recipient SME. These are supported by the lead university researcher as the originator and IP holder of the knowledge, tools and methodologies, the RTOs internal team such as sales & marketing, admin, finance and executive education, and the funders. The pilot may be also indirectly supported by university students who may either implement action plans derived from the knowledge transfer exchange within each SME or conduct some research where gaps in the academic knowledge have been identified.

Table 17: Table of Actors (Pilot #6)

Actors/Role	Institutions	Activities specific to the group/ competencies	Objectives (qualitative and quantitative)	Relationships inside the pilot	Expectations on other actors
Industrial Practitioners • Translate knowledge into transferable packets (tools) • Develop suitable process for knowledge transfer Apply knowledge to many SMEs	RTOs	• Apply latest knowledge • Educate SMEs in latest management concepts and techniques Support SMEs in their growth	• Increase the research impact through knowledge application Inform academic research with industry-relevant issues/topics	• Work directly with SME's management team • Liaise with lead academic lead to ensure that the appropriate amount of knowledge is transfer Co-ordinate student placements (when appropriate) to enhance knowledge transfer	**On SME Management:** • Provide time • Provide required business data • provide feedback **On Lead Academic:** • Provide guidance • Provide academic input Reputation
SME Management • Ambition to improve the business • Recognise the need for external assistance • Being open to work with an RTO Implement the results from the engagement	SME Company	• Actively engage with the RTO • Provide company information and data as required • Communicate internally on interaction and actions agreed Implement actions and outputs	• Improve business growth and innovativeness • Establish collaboration with RTO	• Work with Industrial practitioners (RTO) Coordinate with company the employees	**On RTO:** • To be supportive To be impartial
Lead academic • Conducts relevant research for SMEs • Willing to transfer knowledge to industry Willing to support dissemination activity	University	• Conducts research Reviews outputs from SME dissemination and informs new research topics	• Collects new ideas for innovative research themes Generates next round of dissemination themes	• Works with RTO personnel Supports work with SME team if required	**On SME Management:** • Provides insights **On RTO:** • Provides feedback on dissemination process • Provide academic reputation

Actors/Role	Institutions	Activities specific to the group/ competencies	Objectives (qualitative and quantitative)	Relationships inside the pilot	Expectations on other actors
					Provides knowledge on tool refinements or modifications

8.3 Implementation / Process Design

Process visualisation

This pilot is a collaborative process between an RTO and an SME. The RTO disseminates to the SME the latest academic knowledge (in the form of tools) on business improvement. The SME provides feedback on the effectiveness of the approach and informs academic research as to the relevance of the tools and underpinning research to SME needs as well as new research required on specific areas of interest to an SME. The sequence of steps for this pilot are shown below.

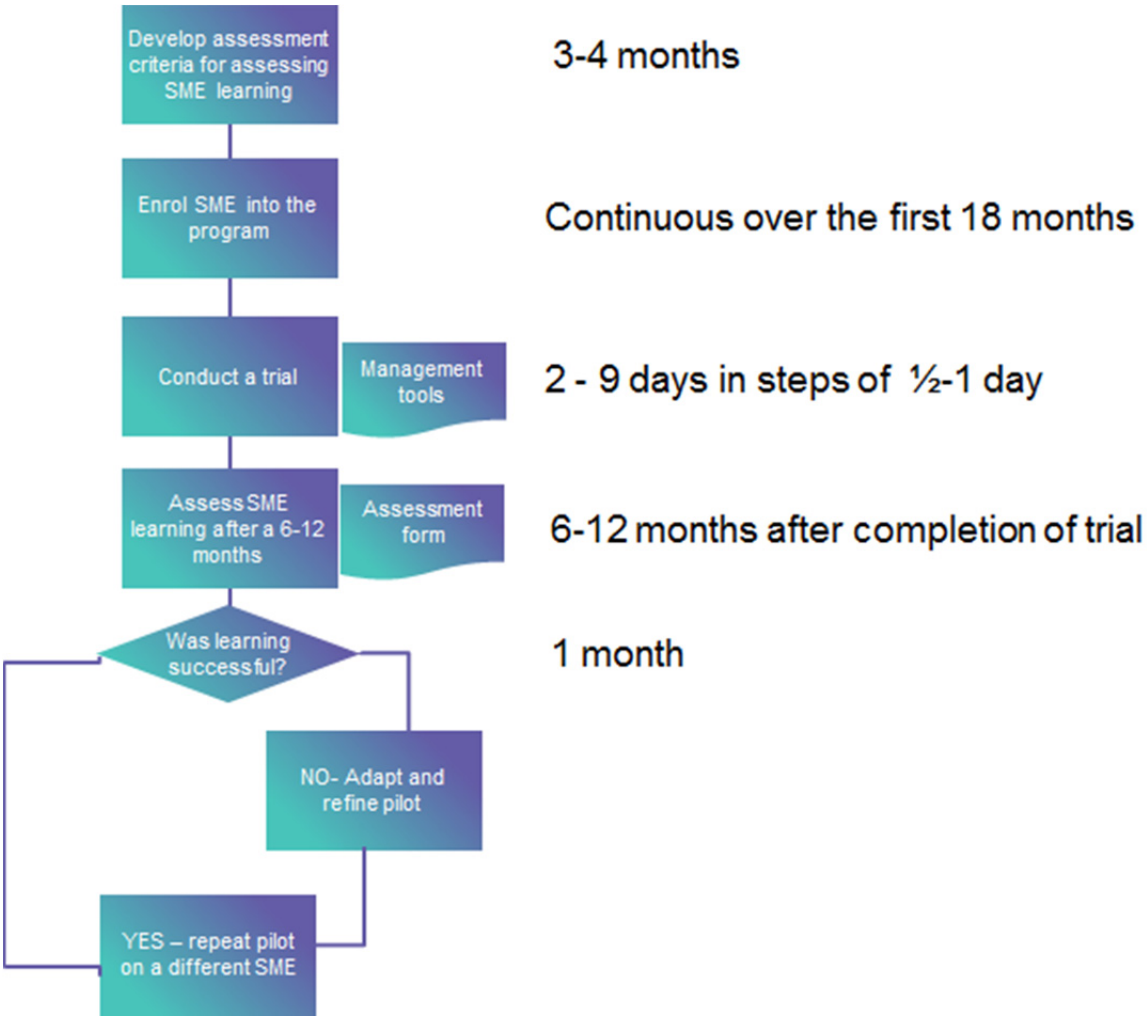


Figure 34: Implementation process of Pilot #6

The starting point would be to understand the factors that affect SME learning and its Absorptive Capacity. For this the following activities will take place:

- Literature review of research on SME learning and absorptive capacity
- Define the type of SMEs to participate in the pilots
- Design an assessment questionnaire to evaluate the knowledge transfer and learning of each SME.

The next step would be to enrol suitable SMEs into the program. For this a variety of approaches will be used, such as direct communication with our SME network, emailers, networking events etc. The aim is to engage with at least 10 SMEs.

The pilot will involve the following activities:

- An initial discussion (face-to-face or via phone) with the company about the program. Identification of the most pertinent company need.
- Organise the first engagement and select the most appropriate knowledge packet (tool) to enable the company to discuss/address the key problem.
- Collect initial feedback on the engagement
- Three-to-six months later ask the company to fill in the assessment form. Assess company learning and possible business improvement in terms of growth and innovativeness.

Measurable Results

- Direct outputs will be evaluated in terms of innovativeness (number of new products/services offered) and growth (increase in number of employees and/or turnover)
- Indirect outputs will be evaluated in terms of learning knowledge and behavioural changes

Timing

See Figure 34

Blueprint of the Pilot

Table 18: Blue print of Pilot #6

	Pre-Pilot Phase	Pilot Starting Point	Step 1	Step 2	Step 3
Physical evidence (Touchpoints)	• Literature review summary Assessment questionnaire	• Email • Meetings Phonecalls	• ½ -1 day workshop Initial assessment form (stages 1 & 2)	• Assessment form (stages 3 & 4)	• Refined tool (new tool templates) • Refined process (new facilitation steps and slides) New guidance notes for RTO facilitators
Actors and their actions	• Lead academic Industrial practitioners from RTO	• RTO • SME	• RTO • SME	• RTO • SME	• RTO • Lead academic
Supporting actor (Backstage contact person)	• Other university academics …	• RTO Marketing	• RTO Finance • Funders …	• RTO Finance	• Other university academics …
Supporting processes	• Research methodology		Specific workshop process (depending on tool used)	• RTO review meeting	• RTO/University meeting RTO tool development process
Quality criteria		• Growth (number of employees & revenues) Innovation (products/services offered)	• ... • … …	• Growth (number of employees & revenues) • Innovation (new products/services offered) Behavioural changes demonstrated by SME	

Touchpoint Analysis

Table 19: Touchpoints of Pilot #6

Touchpoints	Frequency within pilot	Love-, OK-, and Hate-Moments
Literature review	low	Love-Moments: • RTOs and Lead academic will like this activity as it will form the foundation of the pilot design. OK-Moments:

		SMEs maybe interested in understanding the background information about the pilot but it is not expected that they would extremely interested.
E-Mail	high	Love-Moments: We expect all actors to like this activity as it is not intrusive and is an effective way of communicating and organising the activities.
Workshop	medium	Love-Moments: • Based on past experience, we expect SMEs to like the workshops and the one-to-one interactions as these are the main dissemination activity. We will be using the assessment forms to identify any issues that may arise during each pilot. OK-Moments: For RTOs workshops can be very demanding as they require both detailed preparation and active engagement with the client SME to ensure that knowledge transfer is effective and contextualised for each individual company.
Telephone calls	low	OK-Moments: • We expect phonecalls, if used sensibly, to be ok for both SMEs and RTOs Hate-Moments: The Academic Lead may dislike receiving phonecalls from SMEs.
Meetings	low	OK-Moments: All actors are expected to be ok with a small number of meetings as long as the agenda and aims are clear and relevant.
Assessment form	Medium	Love-Moments: • RTOs and the Academic Lead will like this activity as it will provide relevant data to improve the dissemination interaction with the SME. is not intrusive and it is an effective way of communicating and organising the pilot. Hate-Moments: Past experience has indicated that SMEs are reticent in providing feedback, so the assessment form will need to be designed to be short and effective, without compromising data quality.
Refined tool (new tool templates)	Medium	OK-Moments: We expect all actors to be comfortable with new template designs that facilitate the transfer of key academic knowledge on a particular business issue.
Refined process (new facilitation steps and slides)	Medium	OK-Moments: We expect all actors to be ok with any process refinement that reduces repetition and encourages active participation.
New guidance notes for RTO facilitators	Low	Love-Moments: RTOs will like updated guidance notes on how to organise one-to-one engagements, workshops and structured interactions with SMEs as well as new template designs as these can have an important impact on dissemination effectiveness.

8.4 Quantitative and qualitative description of indicators (KPIs)

Quantitative and qualitative benefits for each target group

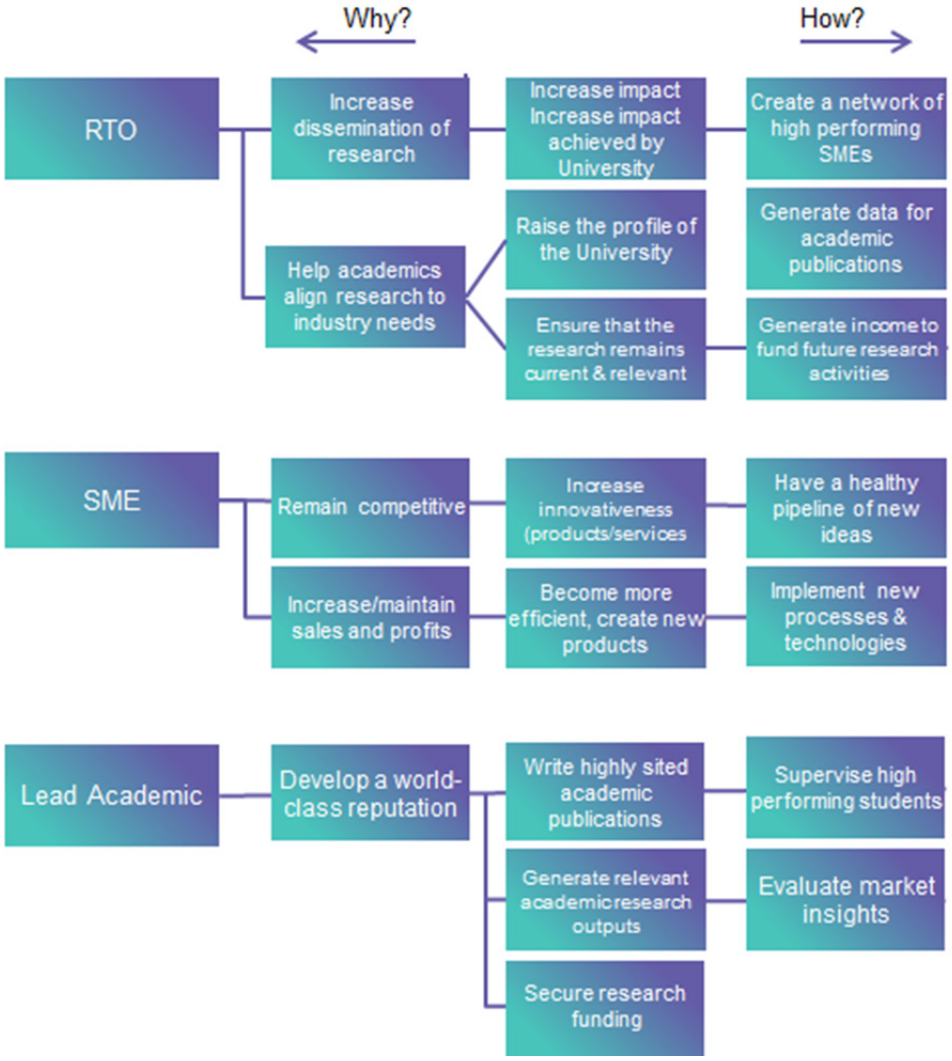


Figure 35: Objectives and benefits of relevant actors of Pilot #6

Preliminary Key Performance Indicators (KPI)

Indicator A: Innovativeness (new products/services/processes/markets):

- up to 0: bad performance
- 1 to 2: good performance
- from 3: very good performance

Indicator B: Growth (number of employees and/or turnover and/or profit)

- up to 0: bad performance
- 1% to 5%: good performance
- from 5%: very good performance

Indicator C: Organisational and/or Behavioural changes demonstrated by SME (based on feedback)

- up to 2: bad performance
- 3: average performance

- from 4-5: very good performance

8.5 Critical success factors for the Pilot as a whole

Table 20: Critical success factors of Pilot #6

	Pre-Pilot Phase	Pilot Starting Point	Step 1	Step 2	Step 3	Step 4
Enabling factors	• Having support from academic colleagues Having a small number of trials with SMEs to test the questionnaire	• Having a clear message about the pilot to enrol SMEs Having a clear understanding of SME issues	Allowing enough time to complete pilot		Having support from academic colleagues	
Hampering factors	• Design pilot to provide useful data			• SME does not complete questionnaire		
Technical success factors	• Comprehensive literature review					
Organisational success factors		• Good marketing campaign to existing database				
Contextual success factors						
Process to overcome critical points	• Define the profile of the SME (size, type etc.)			Organise different approaches to collect data e.g. face-to-face meeting, online or email		

9 PILOT 7: ONLINE KNOWLEDGE MARKETPLACES CONNECTING UNIVERSITIES, RTOS, INDUSTRIES, SMES AND START-UPS

9.1 Objectives

The main objective of this Pilot #7 is to develop guidelines and processes to implement an online University Open Innovation platform for technology transfer in order to support to Universities in terms of enabling direct connections between their community of researchers and external partners (e.g. Industrial companies or RTOs).

This will be achieved by setting up the online Open Innovation platform for TU Darmstadt (TUDA) to facilitate the transfer of Research results, patents and Knowhow (Technology Offers) generated by its Research Groups. Furthermore, trusted external partners will be invited from relevant stakeholder groups including Large Enterprises, SMEs, RTOs, Startups, Business Angels and Venture Capitals to present their innovation and R&D investment capacity while posting their needs for Innovation (Technology Calls) in front of the TUDA research community and other members of the platform. For this, the InnogetCloud SaaS tool, www.innogetcloud.com[1] will be used as the ICT tool to setup the TUDA OI Platform, allowing partners to not only benefit from an existing SotA platform specifically developed for managing technology and knowledge transfer but also from the possibility to automatically open its access to the international community by automatically connect it to the global open innovation, science and technology network of www.innoget.com[3]. An introduction video about the role of the InnogetCloud within the pilot is available on: https://www.youtube.com/watch?v=DD41WXlKqBg

The specific goals are to learn how to:

- **Manage** an online Open Innovation platform for technology and knowledge transfer
- **Create** high-quality level content
- **Operate** under a peer-to-peer platform in order to become a partner of choice for other members of the community
- **Generate** more and better contacts and collaboration projects.

The overall aim is to demonstrate that the TUDA Open Innovation platform can provide a simple and secure means of making trustworthy contacts, initiating projects and sharing knowledge about technologies between the Academic community and the Business sector with guaranteed protection of Intellectual Property and confidentiality. Furthermore the aim is to identify, analyse and understand what are the underlying success factors from getting such a system up and running.

The critical success factors of the pilot are:

(I) The volume, accuracy and quality of content created (Technology Calls and Technology Offers).

(2) Handling of confidentiality and Intellectual property issues.

(3) The size and engagement of the Open Innovation Platform community.

[1] www.innogetcloud.com The cloud-based collaborative platform for sharing intellectual property and innovation under a secure environment.
[2] www.innoget.com is the trusted global Open Innovation, Science and Technology Network. The Innoget user community consists of thousands of specialists in their fields from 180+ countries who benefit from free access to both innovation opportunities and innovative technologies published by leading organizations from the scientific community and the business world.
[3] www.innoget.com is the trusted global Open Innovation, Science and Technology Network. The Innoget user community consists of thousands of specialists in their fields from 180+ countries who benefit from free access to both innovation opportunities and innovative technologies published by leading organizations from the scientific community and the business world.

Since it will be possible to benchmark against historical data from other organizations that operate under similar UIS such as Innoget.com, it will also be possible to estimate and build on a set of forecasts and recommendations as well as compare KPIs.

Furthermore, it is planned that S2S stakeholders will join the Open Innovation Platform during the second phase of the pilot and hence increase the volume of content and the community size significantly.

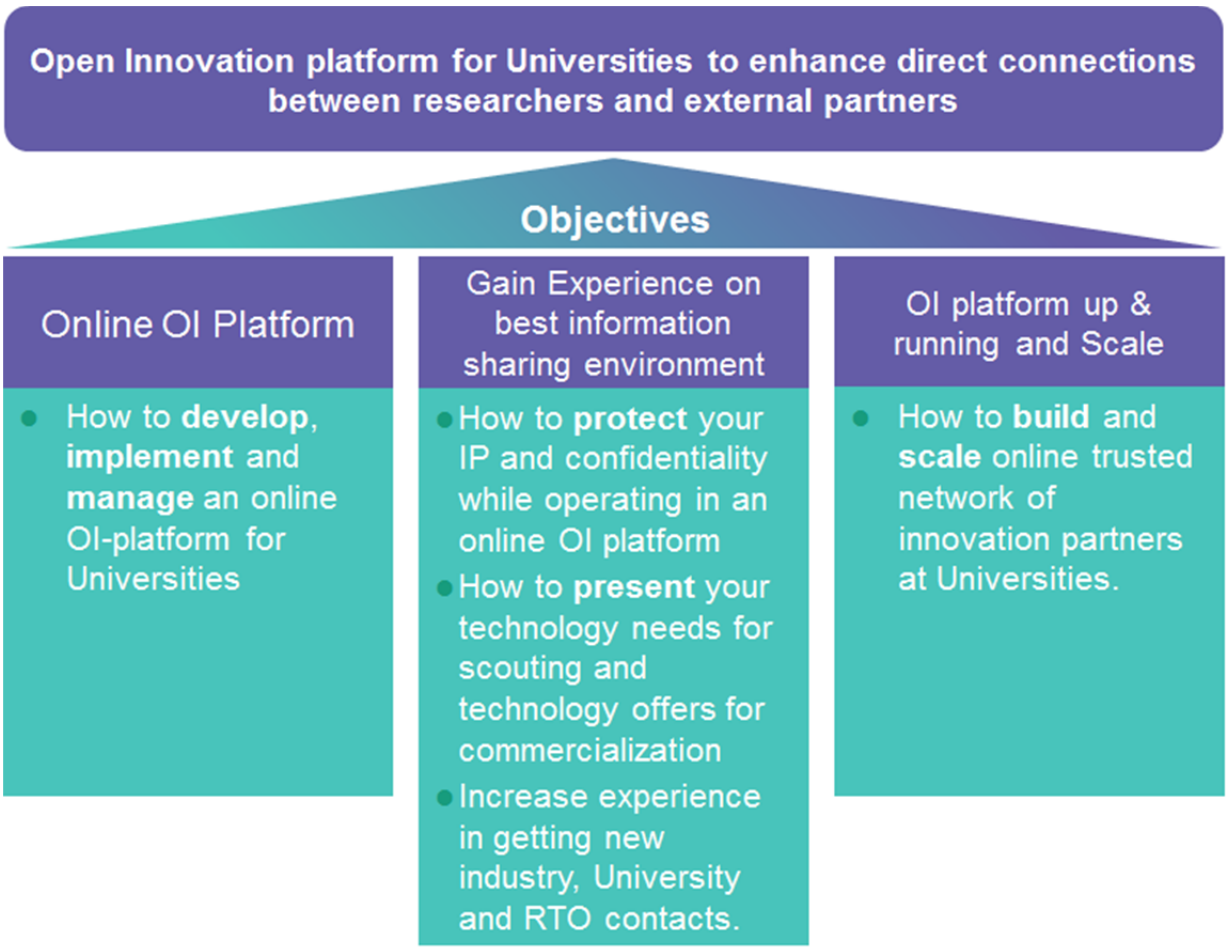


Figure 36: Main objectives of Pilot #7

Background

The InnogetCloud is a SaaS tool specifically developed by Innoget to manage technology and knowledge transfer within any organization. It has different modules:

- Community Management: The administrator of the tool can invite new members as well as approve any request to become a member so they get full control about their community.
- Content creation: There are three main categories of content to post, Technology Calls, Technology Offers and Organization Profiles. The tool offers access to online templates that helps users to write self-comprehensive content while keeping their Confidentiality and Intellectual Property Rights well protected.
- Matchmaking: The connections between content generated by members and the rest of the community are created automatically according to the selected keywords and navigation patterns of the InnogetCloud users.

- Connections: Connections occur directly between members of the community. Users have access to online templates that will assist them regarding how to write a good proposal or request for information and hence improving the connection efficiency. Users learn on how to fill in the connection template properly while protecting their Intellectual Property Rights.
- Information and content Management: The administrator of the tool can control the entire flow of information among all the users so as to approve, reject, send back to modify any content that any of their users is willing to post. Moreover, it can act as a contact point /broker between any user of the Platform and the rest of the community.
- Online Support: All users get access to a support center that can assist them on any request.

International experiences serving as best practice examples for the pilot

There are several international experiences from private and public sector similar to this pilot, being the most well known in Europe is the Enterprise European Network Database (EEN):

The Enterprise European Network (EEN), the world's largest support network for SME businesses, manages one of the Europe's largest database of business opportunities. Unregistered users can search the database for technology offers, calls and research requests. Registered users can also post technology offers as well as technology or research request and set alerts on specific keywords and topics. The database is also an instrument for national EEN experts for active matchmaking between the technology offering organisations and organisations searching for technology or research partners.

As well as in the pilot all requests and offers follow a certain structure for the description of the technology. Therefore, templates made available by the EEN national experts, which are also working as a quality control instance that has to approve every request or call before they publish them in the database.

In contrast to the pilot, all technology offers or technology/research requests are fully anonymous for the users. This means the offering or requesting organisation is not named or otherwise visible for the platform users (except the EEN experts). In addition, the matchmaking process in the first step is anonymous. All contact requests are forwarded to the potential partners through the national EEN expert. Compared to the pilot there is no restricted access to the EEN database. Every type of organisation (industry, research and academia) can register or is able to post request and offers. Also in contrast to the pilot, there is no direct access to the database to publish requests or offers. The user has no online account to manage requests and calls of the organisation. All request and calls will be evaluated and published by the national EEN expert. Beside all the similarities the pilots' significant advantage over the EEN database is that the users could easily manage their organisation profile as well as all their requests and offers by themselves, without waiving an evaluation quality control process.

Besides the EEN, there are other market reference initiatives as for instance:

- From the University: AUTM Global Technology Portal (US): www.**gtp**.**autm**.net
- From The industrial sector: Connect&Develop (P&G): www.pgconnectdevelop.com
- From Intermediaries: Innoget.com, Innocentive, NineSigma

Since having access to real data about the results from these experiences above is very limited, the pilot will be benchmarked against overall figures from historical data provided by Innoget about their www.innoget.com global community.

9.2 Map of Actors

The Stakeholder Map shows two innovation eco-systems that are connected through the TUDA Open Innovation platform.

On the left side, the green circle represents all the actors that are members of the OI platform and directly interact via the platform. TUDA can expand their network of partners by constantly inviting trusted organizations (RTOs, SMEs, Start-ups, other universities, Industry…) to become members of the platform which is very important to enhance the transfer of knowledge to a broader audience and find new routes to maximize the research value that is created within the University.

The right side of the map represents how TUDA can extend internationally their existing network of trusted partners by automatically connect their Open Innovation platform with the global open innovation network of www.innoget.com and their affiliates.

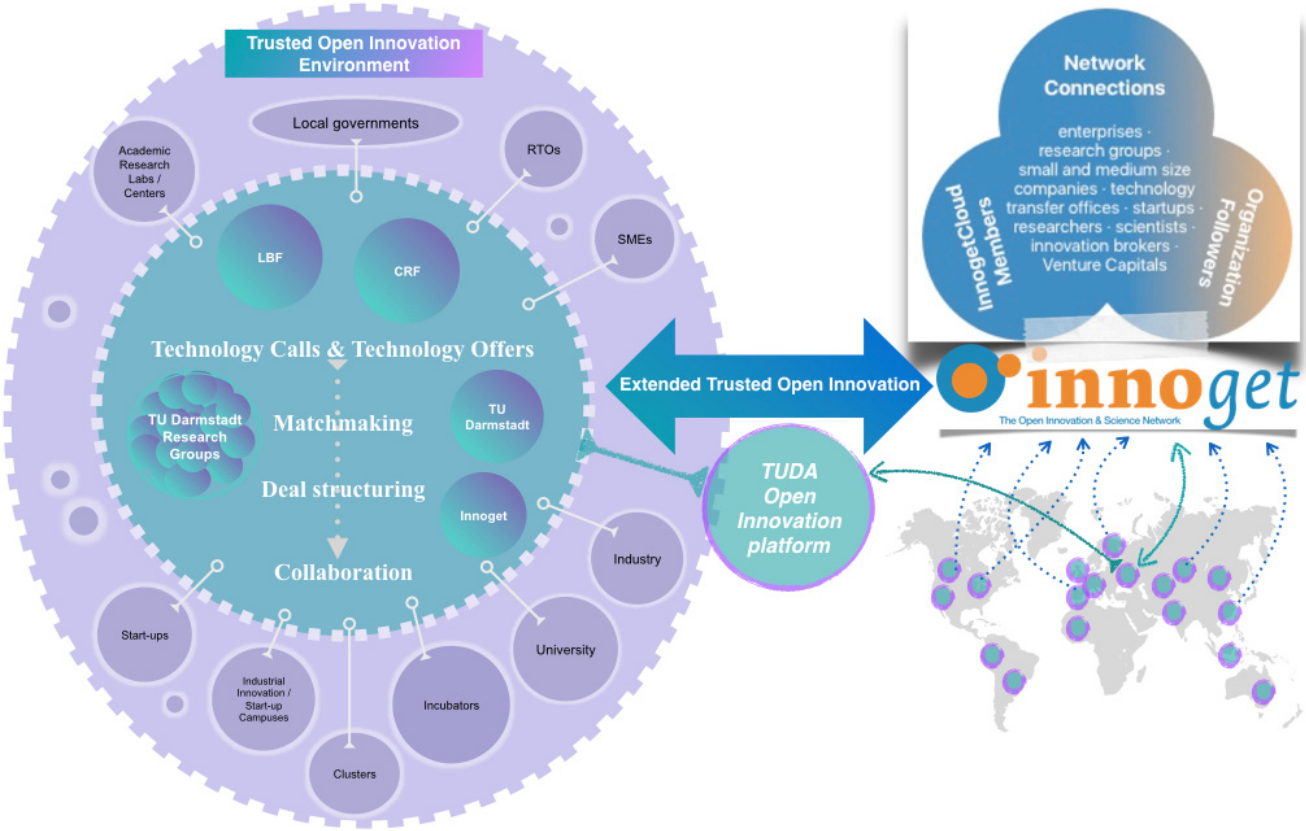


Figure 37: Stakeholder Map of Pilot #7

The Map of actors shows in the center the core team of the pilot that is represented by CRF, LBF, TUDA and Innoget. Core team members are the kickstarters for TUDA OI platform to be appealing enough for other stakelholders to join. They are responsible for design, set up and content creation for the first version of the TUDA open innovation platform.

Each core team actor is supported by their internal teams to deal with intellectual property, confidentiality and other legal aspects related to their participation in the Pilot and technical issues related to the OI platform customization.

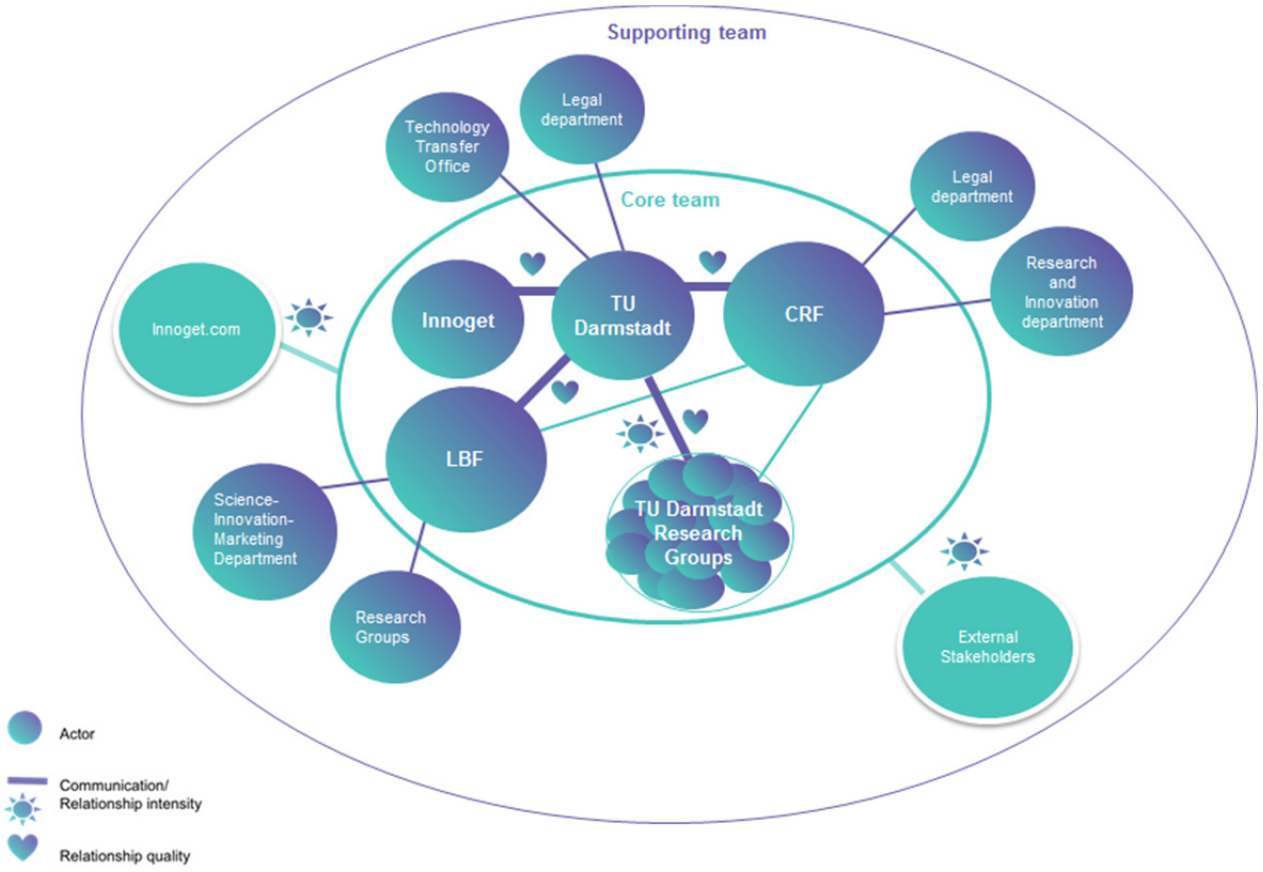


Figure 38: Map of Actors of Pilot #7

Table 21: Table of Actors (Pilot #7)

Actors/Role	Institutions	Activities specific to the group/ competencies	Objectives (qualitative and quantitative)	Relationships inside the pilot	Expectations on other actors
TU Darmstadt • Research • Teaching • Cooperation with industry • Knowledge transfer	University	• Run the open innovation platform • Check posted tech-calls and tech-offers for quality before they go online • Invite reseachers and companys to the platform	• Increase experience in getting new industry contacts • Develop new processes for collaborations between science and industry • Keep the platform alive	• Management of the open innovation platform • Create a research community and keep it alive • Possible research partner for collaborations with LBF and CRF	**On Innoget:** • Get support on running the platform **On LBF, CRF:** • Feed the platform with tech-calls **On all pilot members:** • Be active on the platform • Actively invite researchers and industry
TU Darmstadt Research Groups • Research • Teaching • Cooperation with industry • Knowledge transfer	University	• Post tech-offers on the platform • Invite reseachers and companys to the platform	• Get science-industry contacts • Post tech-offers on the open innovation platform to promote own reseach • Increase experience in getting new industry contacts • Actively using the platform	• Direct communication with possible research partners	**On TU Darmstadt:** getting invited to the platform **On other platform users:** • Be active on the platform • Be open for innovations we made during our research • Invest in our innovations
LBF • Research • Science & Industry cooperation Technology Transfer	Research & Technology Organization	• Post attractive tech-offers on the platform If available post attractive tech-calls on the platform	• Get science-industry contacts • Promote research results • Increase experience	Possible research partner for TUDA, CRF and industry partners	**On TUDA**: • Post tech-offers and tech-calls • Support on using the platform

Actors/Role	Institutions	Activities specific to the group/ competencies	Objectives (qualitative and quantitative)	Relationships inside the pilot	Expectations on other actors
			in getting new industry contacts Actively using the platform as a tool for technology transfer and science-to-business collaboration enabler		**On CRF**: • Post tech-calls and tech-offers **On Innoget:** • Providing technical support on the OI platform **On all (upcoming) platform members**: Post tech-offers and tech-calls that LBF can respond on
Innoget • Platform provider • Technical & software development support • Access management to Innoget.com	Enterprise	• Platform set up support • Guidance on how to present content • Community engagement support • Deliver KPIs data from platform users' activity	• Deliver an Open Innovation platform to TU Darmstadt • Develop guidance and recommendations on how to set up and mange and on-line Open Innovation platform for Universities • Develop new process for University – Industry collaboration under confidential information sharing environment	• Support TU Darmstadt team to set up and manage the OI platform • Coordinate content creation with CRF, TUDA and LBF • Monitor Matchmaking process with CRF, TUDA and CRF	**On TUDA:** • Full Platform administrator function • Post tech-offers • Invite TUDA research community to the platform **On LBF and CRF:** • Post tech-offers and tech-calls • Respond on tech-calls and tech-offers posted by other platform members
CRF • Innovation • Knowledge transfer	Research & Technology Organization Centre of a Large Indus-	• Post Tech-calls on the platform • Post tech-offers on the platform	• Support the development of new processes for University-Industry collaboration	Direct communication with possible partners for research & innovation	**On all TUDA and other users:** • Be active with the platform

Actors/Role	Institutions	Activities specific to the group/ competencies	Objectives (qualitative and quantitative)	Relationships inside the pilot	Expectations on other actors
• Cooperation with other industrial companies • Cooperation with Universities & Research institutes	trial Enterprise	Asses tech-offers posted on the platform by other users	under confidential information sharing environment Increase experience in getting new contacts in universities and research institutes		• Evaluate tech-offers with respect to the needs of industry **On Innoget & TUDA:** • Provide support for the development of the platform to fully exploit its potential for the needs of industry

9.3 Implementation / Process Design

Process visualisation

The Pilot has two main OI components, which are highly inter-connected:

- Trusted Network creation: TUDA will be able to implement a tool that will allow their Technology Transfer Office to “know what they know”. By bringing their research community into the Platform they are offering their researchers are offered a simple way to update their scientific profile as well as directly present their research output and initiate contacts with the industry.
- Extended Trusted Network access: Innoget will develop an APPI to connect the TUDA Open Innovation Platform automatically to the global open innovation, science and technology network www.innoget.com

The sequence of steps for this pilot is shown below.

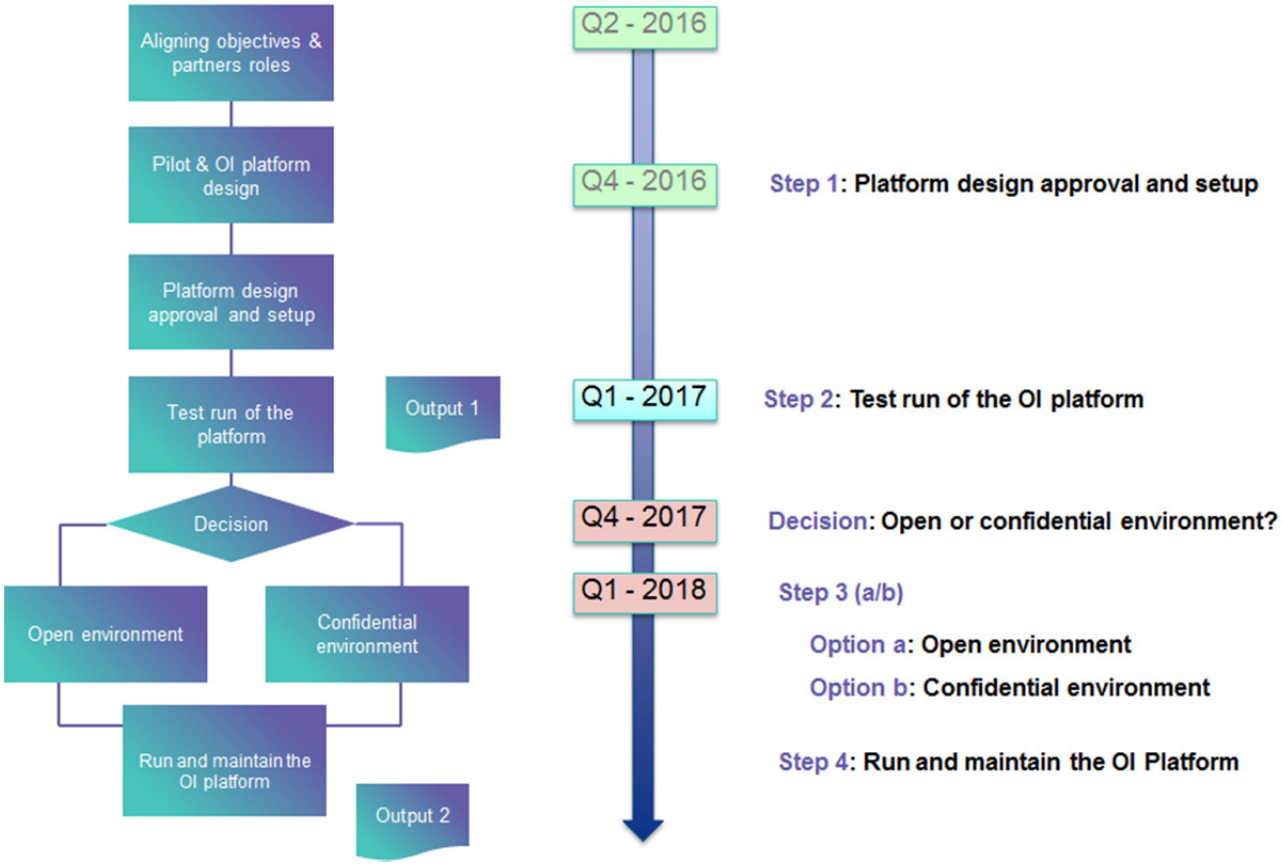


Figure 39: Implementation process of Pilot #7

Pre-Pilot Phase

- All pilot actors believe that collaboration in R&D and technology transfer mostly happen between trusted partners so we wanted to create a process backed by an existing cloud based open innovation platform to facilitate research groups and academics to get feedback about their research output from the industry and easily make trustworthy contacts and initiate join projects.
- TUDA wants to enhance technology transfer between their research groups and external partners from the industry and R&T Organizations.
- Innoget wants to provide its InnogetCloud platform as the tool to bring all the actors under a secure environment and measure its overall performance according to KPIs set by the group. Furthermore, Innoget

wants to open up the process to allow platform actors to exchange confidential information as well as link the TUDA Open Innovation platform to Innoget.com

- CRF & LBF aim to enhance the technology transfer to industry partners on one side and on the other side intensify the research collaboration with academia.
- CRF wants to support the development of new processes for University-Industry collaboration under confidential information sharing environment

Pilot Starting Point

- Draft design of the TUDA Open Innovation platform and platform demo to all partners by Innoget: www.tuda-openinnovation.innogetcloud.com
- Set up the rules of the game:
  - Initially there will only be non-confidential information exchange among TUDA OI platform members and
  - The TUDA OI platform won't be connected to www.innoget.com

Step 1: Platform design approval and setup

- Setup of the platform by Innoget and TUDA
- OI Platform demo session to pilot partners
- Agree on how to invite users to the platform and formulate an invitation text by TUDA
- Chose TUDA as a platform administrator
- Harmonize the platform's design with the TUDA corporate design

Step 2: Test run of the OI platform

- Invite pilot partners to join the OI platform
- Posting of Technology Calls and Offers on TUDA OI platform by TUDA, CRF and LBF
- Posting of TUDA, CRF and LBF Organization's profile.
- Invite TUDA researchers to join the OI platform by TUDA
- Monitor matchmaking process
- Analyse matchmaking results and connections
- KPIs and users questionnaire analysis

Decision: Open or confidential environment?

Option **a/** open environment: share of only non-confidential content

Option **b/** closed environment: share also of confidential content

- Debugging of the Platform?

Step 3 (a/b)

Option a: Open environment

- Invite companies, universities and RTOs to increase the number of active users
- Connect TUDA OI platform to Innoget.com

Option b: Confidential environment

- Develop a process and refine TUDA OI marketplace to allow Pilot partners share confidential information.

Step 4: Run and maintain the OI Platform

- Evaluate user satisfaction and adapt the platform
- Benchmark analysis

Measurable Results

Output 1:

- results of the KPIs
- results of the questionnaire (user satisfaction)
- Report on OI platform implementation process, recommendations, DOs and DONTs

Output 2:

- results of the KPIs
- results of the questionnaire (user satisfaction)
- Report on OI platform implementation process, recommendations, DOs and DONTs
- Full operative OI platform for TUDA

Timing

See Figure 39.

Blueprint of the Pilot

Table 22: Blue print of Pilot #7

	Pre-Pilot Phase	Pilot Starting Point	Step 1	Step 2	Step 3	Step 4
Physical evidence (Touchpoints)			• TUDA corporate design team • Innoget IT & design team	• Email alerts to OI platform members on new postings • Chat messages from platform members • Webex • General Assembly meetings Email	• KPIs Dashboard • Questionnaire • Webex • General Assembly meetings • Email	• Email alerts to OI platform members on new postings • Chat messages from platform members • Webex • General Assembly meetings • Email
Actors and their actions	• All pilot members: get involved into the pilot	• Innoget: OI platform demo to all partners • All pilot members: agree on the framework and the process of the OI platform and each partner's role.	• Innoget: supply of InnogetCloud SaaS plaftorm • TUDA: harmonize the design with TUDA corporate design • TUDA and Innoget: Setup the OI platform • LBF and CRF to collect tech-calls and offers	• TUDA: run the platform and invite reserachers • TUDA: post tech-offers • LBF and CRF: Post technology offers and technology calls • LBF and CRF: Evaluation of science/ industry contacts and corporations • Innoget and TUDA gather information for KPIs analysis • LBF and CRF: Review of technology offers and calls based on KPIs during step 2 to identify areas of improvement	• All pilot members: meet the decision on open or confidential environment • All pilot members: define new process according to the decision • Innoget: Adjust the OI platform to meet new requierements	• TUDA: run the platform and invire new members • TUDA: post tech-offers • LBF and CRF: Post technology offers and technology calls • LBF and CRF: Evaluation of science/ industry contacts and corporations • Innoget and TUDA gather information for KPIs analysis • LBF and CRF: Review of technology offers and calls based on KPIs during step 4 to identify areas of improvement
Supporting actor (Backstage contact person)			• TUDA corporate design team • Innoget IT & design team	• TUDA research Groups • LBF research groups, Science Manager and Innovation Man-	• TUDA research Groups • LBF research groups, Science Manager and Innovation Man-	• TUDA research Groups • LBF research groups, Science Manager and Innovation Man-

			ager • CRF Research & Innovation Department • Innoget IT Team	ager • CRF Research & Innovation Department • Innoget IT Team	ager • CRF Research & Innovation Department • Innoget IT Team
Supporting processes			• LBF and CRF: implement a process for continuously providing technology offers and technology call out of research results and demands • Joining of TUDA reserach groups on the palftorm • Innoget: Data analisys dashboard		• LBF and CRF: Running the process for continuously providing technology offers and technology calls to the platform • TUDA:: OI platform management
Quality criteria		• Meet the corporate design of TUDA Innoget OI platform quality assurance	• KPIs • Questionnaire	• KPIs • Questionnaire	• KPIs • Questionnaire

Touchpoint Analysis

Table 23: Touchpoints of Pilot #7

Touchpoints	Frequency within pilot	Love-, OK-, and Hate-Moments
E-Mail	High	**Love-Moments:** • Fast sharing of files and comments among the actors to keep lively discussions about the pilot development and analysis. **Hate-Moments:** • Long response time
OI Platform email alerts	Medium	**Love-Moments** • Receive alerts from the OI platform with technology calls and Offers of users' interest **OK-Moments** • Receive alerts periodically. OI Platform members will have the option to

		select weekly or monthly alerts. **Hate-Moments** • Receive alerts with technology calls and offers which are not of user's interest.
Chat messages from OI platform members	Medium	**Love-Moments** • Receive good contacts from other members of the OI platform in response to my posted technology offers and calls **OK-Moments** • Have good and fast chat communication. **Hate-Moments** • Get no replies to my posted technology calls and offers.
Workshop/ General Assembly	Low	**Love-Moments** • Personal interaction/ discussion and join decisions about the pilot. **Hate-Moments** • Maybe fast decisions without having the time to overthink the topic in detail.
Projectplace	Medium	**Love-Moments** • Possibility of file sharing to a large community • Centralized information platform (access to all project relevant information) **OK-Moments** • Sometimes it's hard to follow all the comments on postings and files to get the relevant information **Hate-Moments** • Information overload • Closed environment (e.g. no link between (office) calendar and meeting schedule within
Telephone Conference/ Webex	Low	**Love-Moments** • Good teleconferencing tool is key to follow up on pilot development, personal discussion and interaction among actors. **OK-Moments** • Maybe not all relevant partners are attending the phone conferences. No joint decision possible

KPIs Dash-board	Medium	**Love-Moments** • We will share KPIs evolution among pilot partners through an open dash-board and we expect updated and accurate data. **Hate-Moments** • Pilot partners not having access to the dashboard.
Questionnaire	Low	**Love-Moments** • We will send out a quality questionnaire to OI platform members through Google Forms and we expect a high level of participation. **Hate-Moments** Having a low participation level and low quality inputs.
E-Mail	High	**Love-Moments:** • Fast sharing of files and comments among the actors to keep lively discussions about the pilot development and analysis. **Hate-Moments:** • Long response time

9.4 Quantitative and qualitative description of indicators (KPIs)

Quantitative and qualitative benefits for each target group

The visualization of the benefits for each group will become available once test run of the OI platform is completed and when the research groups feedback is available collected through a questionnaire

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Figure 40: Objectives and benefits of relevant actors of Pilot #7

Preliminary Key Performance Indicators (KPI)

KPI	Output	Type	What measures	Pilot Phase	How to measure	Target value
Active TC and TO	Total #	Quantitative	Total # of active (and accepted) tech-calls and tech-offers	Pilot only	InnogetCloud	> 100
# contacts/ active TC and TO	Ratio	Quantitative	Average # contacts per tech-call and tech-offer	All	InnogetCloud	> 5
# successful cooperations/ #TC and TO	Ratio	Qualitative	How many % of the TC/ TOs lead to a successful cooperation	All	@Questionnaire	> 10%
Time to first response	Time	Quantitative	Average time it takes to receive a first contact for a posted TC/ TO	All	InnogetCloud	< 14 days
# Platform members	Total #	Quantitative	Total # of platform members	All	InnogetCloud	> 200
# accepted invites/ # sent invites	Ratio	Qualitative	% of invites to join the platform that are accepted	All	InnogetCloud	> 20%

Figure 41: Preliminary KPIs of Pilot #7

9.5 Critical success factors for the Pilot as a whole

Table 24: Critical success factors of Pilot #7

	Pre-Pilot Phase	Pilot Starting Point	Step 1	Step 2	Step 3	Step 4
Enabling factors	• Actors goals and objectives alignment	• Actors goals and objectives alignment	• InnogetCloud OI platform	• Active invitation of TUDA researchers • Quality and quantity of Technology calls and Offers • Active support of the platform by the operator (e.g. invitations, new technology offers)	• Actors goals and objectives alignment	• Active invitation of external members • Active invitation of TUDA • Quality and quantity of Technology calls and Offers • Critical mass on technology offers and calls • Good user experience/ user satisfaction (reaction time, established cooperation) • Active support of the platform by the operator (e.g. invitations, new technology offers)
Hampering factors	Competing goals between the actors	Competing goals between the actors	• Wrong OI platform setup • Bad OI platform design • Unclear message to TUDA researchers community about the OI platform benefits	• Handling of confidentiality and Intellectual property issues. • Low number of new members (Low TUDA researchers engagement) No critical mass on good quality technology offers and calls	Competing goals between the actors	• Handling of confidentiality and Intellectual property issues. • Low number of new members (External and internal) • No critical mass on good quality technology offers and calls • Missing growth of the platform Industry partners will not post technology calls or stay

						interested in technology offers
Technical success factors		Adoption possibility of the backend and functions of the existing Innoget-Cloud OI platform	Reliable server to host the OI Platform	• OI Platform framework Reliable server to host the OI Platform	Adoption possibility of the backend and functions of the existing Innoget-Cloud OI platform	• OI Platform framework Reliable server to host the OI Platform
Organisational success factors	• Communication between pilot partners • Milestones Responsibilities	• Communication between pilot partners • Milestones Responsibilities	• Communication between pilot partners • Milestones Responsibilities	• Sharing of information • Milestones Responsibilities	• ... • … …	• Sharing of information • Milestones Responsibilities
Contextual success factors	• Active communication Compromises	• Active communication Compromises	• Active communication Compromises	• Active communication • Mutual assistances between the pilot partners Activating partners within the pilot actors to provide technology offers/calls		• Implementing a process for continuous provision of attractive technology offers on the research side and business world sides. TUDA OI Platform connection to www.innoget.com? • Develop new process to share confidential information among OI platform members • Mutual assistances between the pilot partners
Process to overcome critical points	• Actors goals and objectives alignment	• Actors goals and objectives alignment	• InnogetCloud OI platform	• Active invitation of TUDA researchers • Quality and quantity of Technology calls and Offers • Active support of the platform by the operator (e.g. invitations, new	• Actors goals and objectives alignment	• Active invitation of external members • Active invitation of TUDA • Quality and quantity of Technology calls and Offers • Critical mass on technology offers and calls

		technology offers)	• Good user experience/ user satisfaction (reaction time, established cooperation) • Active support of the platform by the operator (e.g. invitations, new technology offers)

10 MONITORING AND EVALUATION

In order to guide the validation of the pilots, an Evaluation Board (EB) will be established, composed of senior staff from the partners JIIP, B&W, CRF, and LBF, and the pilot leaders (IPEK, CIT-UPC, VIF, KUL, AALTO, IFM-ECS, INNOGET). This EB will monitor the progress of the implementation and provide suggestions to tailor/optimise the approach of each pilot. As such it can be ensured that each pilot provides the maximum information for the best practices and guidelines (WP2).

The main purpose of the evaluation is to assess the contribution of each pilot to the open innovation process and to the specific scientific and innovation goals of the participants. The seven pilots will be evaluated mainly using qualitative surveys at the beginning and at the end of the pilot, comparing the results. For this evaluation, the qualitative KPIs as listed in the previous sections will be used, in combination with the framework of the U-B tool by EUA (ubtool.eua.be). As such, the evaluation is a comparison of qualitative and quantitative achievements against previously set objectives, of achievements against expectations. However, the KPIs will be iteratively refined during implementation based on the feedback received from the EB and the Industry Advisory Board. From this, a number of KPIs will be derived being common for all pilots so that each pilot can be compared with the other pilots. Furthermore, the pilots will be benchmarked according their effectiveness and impact. In doing so, recommendations can be derived how the various approaches and elements of open innovation and co-creation can be applied most effectively in future use. The findings will be given as feedback to WP2 to improve the best practices, guidelines and blueprints for UIS interfacing schemes developed there.

11 CONCLUSIONS

This report describes the design and planning of the UIS interface scheme pilots. The description was set-up in such a way that it allows continuously monitoring the implementation and collecting information required by WP 2 for the modelling of these pilots. Each pilot is being described through a comprehensive summary of the objectives, expected results and uniqueness of the respective pilots complemented by a timeline of the implementation, an identification of stakeholders and actors as well as key performance indicators and critical success factors. The latter was provided in form of visualisation and tables.

Due to the nature of the pilots, the design of the pilots is presented with different grades of details but still providing a clear overview how the pilot is designed and how it will be implemented. In course of the implementation, this document will also be used to collect and refine data on stakeholders and actors, on the key performance indicators as well as on success factors, bottlenecks and touchpoints that are needed for WP 2.

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A. APPENDIX – PILOT ONE PAGERS

COLLECTING EXPERIENCE

Co-Creation 1

Science 2 Society

Motivation:
Including customers into early stages of product development is a proven success factor. However, current approaches of user integration often only focus on single spots like customer surveys or product testing ("test users"), whereas the systematic integration of (current or future) customers along the product development process is often left out.

Goal:
Systematically combining the huge creative potential of students in mechanical engineering with the strong product development process of industrial companies → Development of highly relevant products with a big innovation potential

What we do:
- Create an innovation process, which allows integrating students into product development activities of companies
- Integrate this approach as practical course into the curriculum of universities
- Develop a detailed strategy, which allows transferring this approach to other universities and disciplines

Expected results:
- For industrial companies: Mock-ups representing innovative products designed by students
- For students: Huge knowledge gain in the field of practical product development
- For universities: Serving a Live-Lab for researching new processes and methods within the field of product development
- Other Stakeholders: Guidelines how to implement an adapted versions of this co-creation approach

Uniqueness of the pilot project:
Including students into innovation projects, using innovation platform and other virtual communication tools to enable co-creation across locations and organisational boarders in order to develop relevant products with a big innovation potential.

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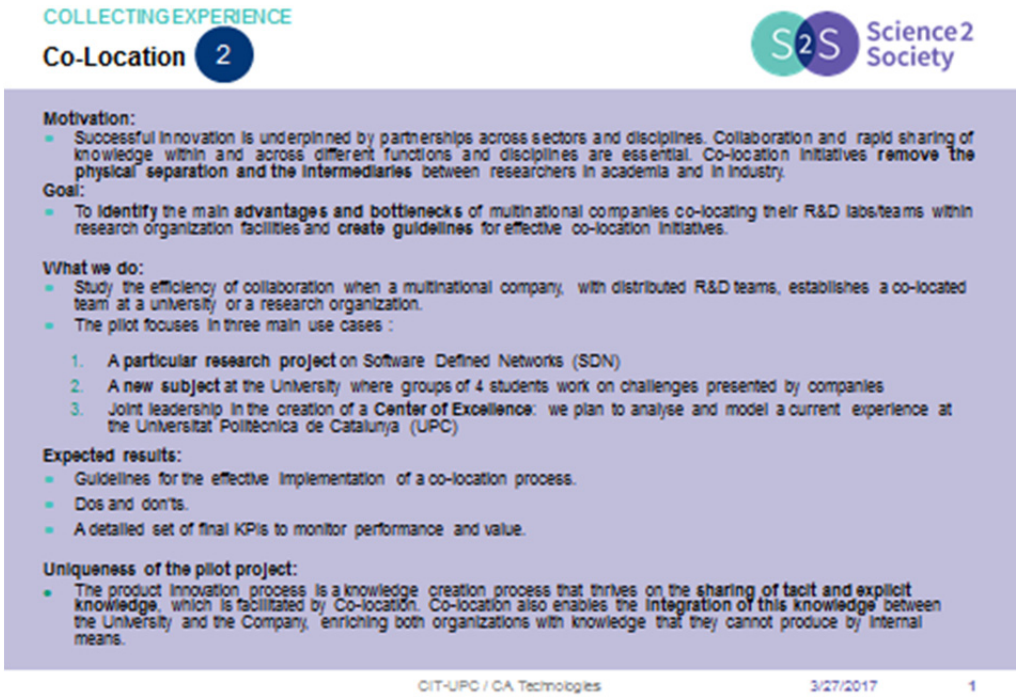

COLLECTING EXPERIENCE

Co-Location 2

Science 2 Society

Motivation:
- Successful innovation is underpinned by partnerships across sectors and disciplines. Collaboration and rapid sharing of knowledge within and across different functions and disciplines are essential. Co-location initiatives **remove the physical separation and the intermediaries** between researchers in academia and in industry.

Goal:
- To **identify** the main **advantages and bottlenecks** of multinational companies co-locating their R&D labs/teams within research organization facilities and **create guidelines** for effective co-location initiatives.

What we do:
- Study the efficiency of collaboration when a multinational company, with distributed R&D teams, establishes a co-located team at a university or a research organization.
- The pilot focuses in three main use cases :
  1. **A particular research project** on Software Defined Networks (SDN)
  2. **A new subject** at the University where groups of 4 students work on challenges presented by companies
  3. Joint leadership in the creation of a **Center of Excellence**: we plan to analyse and model a current experience at the Universitat Politècnica de Catalunya (UPC)

Expected results:
- Guidelines for the effective implementation of a co-location process.
- Dos and don'ts.
- A detailed set of final KPIs to monitor performance and value.

Uniqueness of the pilot project:
- The product innovation process is a knowledge creation process that thrives on the **sharing of tacit and explicit knowledge**, which is facilitated by Co-location. Co-location also enables the **integration of this knowledge** between the University and the Company, enriching both organizations with knowledge that they cannot produce by internal means.

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COLLECTING EXPERIENCE

Collaborative R&D Projects 3

Science 2 Society

Motivation:
Publicly co-funded R&D projects are a common instrument to bring together and use the knowledge of different organisations from academia and industry. However, their design, implementation and exploitation can still be improved in order to optimise outcomes (speed, marketing of results, fitness for exploitation).

Goal:
Increase synergy, quality and speed of interaction within the project team and towards external stakeholders

What we do:
- Analysing publicly co-funded collaborative research projects (EU/national)
- Testing good practices to boost motivation/ buy-in of participating people for achieving outstanding outcomes

Expected results:
Guidelines for project teams and stakeholders:
- How to initiate, facilitate and reward cross-organisational research teams
- How to profit from effective communication patterns, trust building elements and reflective learning
- How to reconcile individual motivations in one common goal

Uniqueness of the pilot project:
blueprints developed push for introducing opportunities of the digital world (e.g. social, mobile, analytics/big data, consumerisation of IT, cloud) into collaborative projects

Footer: Company - Speakers name 07.06.16 1

COLLECTING EXPERIENCE

Intersectoral staff mobility 4

Science 2 Society

Motivation:
Intersectoral (industry-RTO-academia) mobility of staff is known to be an enabler for Open Innovation/Science and is implemented already in various European, national and regional (co-funded) programmes. However, the design and implementation can still be improved.

Goal:
Boosting inter-sectoral mobility of researchers through guidelines and recommendations to improve inter-sectoral mobility programmes

What we do:
- Analysing existing staff mobility programmes (EU/national/regional)
- Collecting past experiences from all parties involved
- Deriving and testing good practices

Expected results:
Guidelines for stakeholders (individuals, organisations and governments):
- How to initiate, facilitate and reward staff mobility
- How to deal with barriers and overhead bottlenecks
- How to profit from staff mobility as individual and organisation
- How to further improve on existing staff mobility programmes

Uniqueness of the pilot project:
The pilot will bring together a unique mixture of cross-sectoral, cross-regional, cross-programme and cross-cultural experiences, all feeding into guidelines for future programmes.

KUL – Claus Cibeys 07.06.16 1

COLLECTING EXPERIENCE

Big Research Data Transfer 5

Motivation:
Existing research data would enable people to develop new forms of data-driven application, businesses and policy. However, useful Big Data is limitedly available at large scale due to scientists perceiving little benefit of opening their research data – their source of scientific reputation.

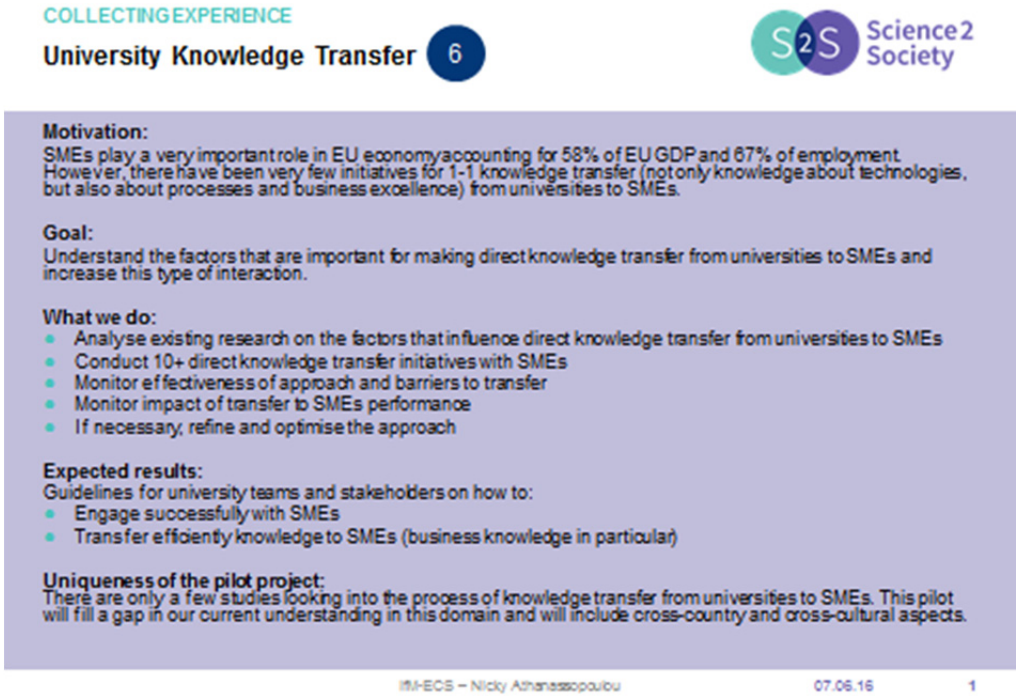
Goal: Develop sustainable business cases for big research data providers through better understanding of key stakeholder needs and wants

What we do:
- Literature review to identify existing big data strategies and business models of research organizations
- Three case studies, ~30-40 interviews, with key stakeholders, to discover their underlying needs and wants for data exploitation and identify value derived from opening big research data repository.

Expected results:
- Guidelines and best practices for transferring research big data between researchers, industry and society.
- Three sustainable business cases that define and illustrate the value derived from opening big research data repository

Uniqueness of the pilot project:
- Pilot #5 tackles to solve the biggest challenge for open innovation in research front – how to motivate researchers to open their research databases in a way that effectively boosts open innovation

Aalto University – Mona Roman 27.02.17 1



COLLECTING EXPERIENCE

University Knowledge Transfer 6

Motivation:
SMEs play a very important role in EU economy accounting for 58% of EU GDP and 67% of employment. However, there have been very few initiatives for 1-1 knowledge transfer (not only knowledge about technologies, but also about processes and business excellence) from universities to SMEs.

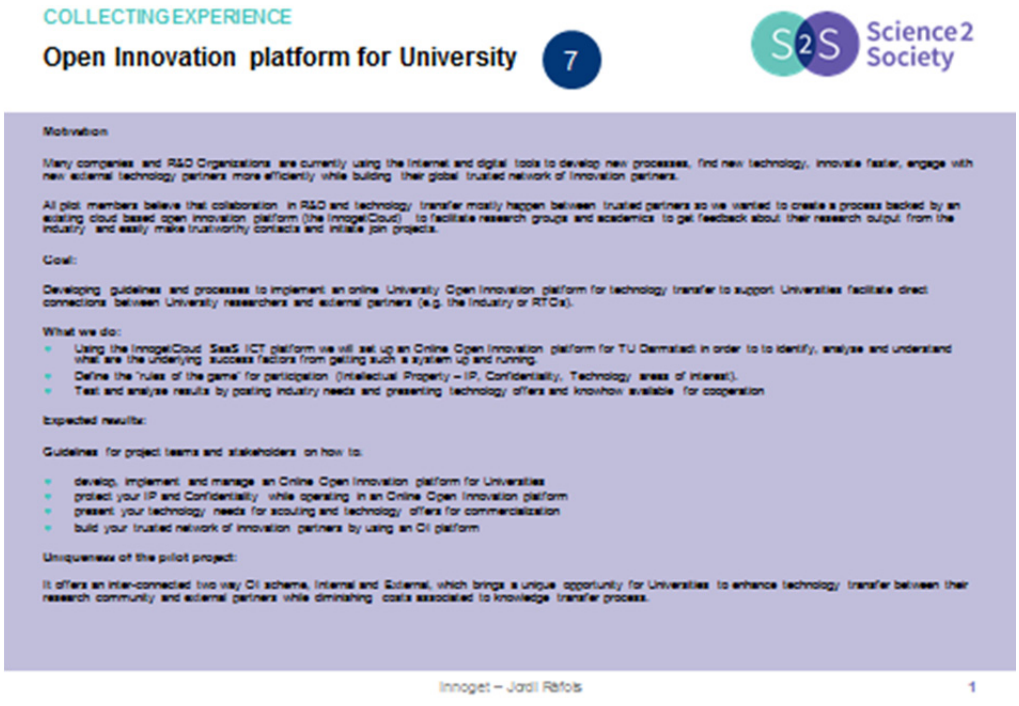
Goal:
Understand the factors that are important for making direct knowledge transfer from universities to SMEs and increase this type of interaction.

What we do:
- Analyse existing research on the factors that influence direct knowledge transfer from universities to SMEs
- Conduct 10+ direct knowledge transfer initiatives with SMEs
- Monitor effectiveness of approach and barriers to transfer
- Monitor impact of transfer to SMEs performance
- If necessary, refine and optimise the approach

Expected results:
Guidelines for university teams and stakeholders on how to:
- Engage successfully with SMEs
- Transfer efficiently knowledge to SMEs (business knowledge in particular)

Uniqueness of the pilot project:
There are only a few studies looking into the process of knowledge transfer from universities to SMEs. This pilot will fill a gap in our current understanding in this domain and will include cross-country and cross-cultural aspects.

IfM-ECS – Nicky Athanassopoulou 07.06.16 1



COLLECTING EXPERIENCE

Open Innovation platform for University 7

Science 2 Society

Motivation

Many companies and R&D Organizations are currently using the internet and digital tools to develop new processes, find new technology, innovate faster, engage with new external technology partners more efficiently while building their global trusted network of innovation partners.

All pilot members believe that collaboration in R&D and technology transfer mostly happen between trusted partners so we wanted to create a process backed by an existing cloud based open innovation platform (the innoget Cloud) to facilitate research groups and academics to get feedback about their research output from the industry and easily make trustworthy contacts and initiate join projects.

Goal:

Developing guidelines and processes to implement an online University Open Innovation platform for technology transfer to support Universities facilitate direct connections between University researchers and external partners (e.g. the industry or RTOs).

What we do:

- Using the innoget Cloud SaaS ICT platform we will set up an Online Open Innovation platform for TU Darmstadt in order to to identify, analyse and understand what are the underlying success factors from getting such a system up and running.
- Define the "rules of the game" for participation (Intellectual Property – IP, Confidentiality, Technology areas of interest).
- Test and analyse results by posting industry needs and presenting technology offers and knowhow available for cooperation

Expected results:

Guidelines for project teams and stakeholders on how to:

- develop, implement and manage an Online Open Innovation platform for Universities
- protect your IP and Confidentiality while operating in an Online Open Innovation platform
- present your technology needs for scouting and technology offers for commercialization
- build your trusted network of innovation partners by using an OI platform

Uniqueness of the pilot project:

It offers an inter-connected two way OI scheme, Internal and External, which brings a unique opportunity for Universities to enhance technology transfer between their research community and external partners while diminishing costs associated to knowledge transfer process.

Innoget – Jordi Rifols 1