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D2.1 ODIN co-creation workshop and end-user requirements

Deliverable No.	D2.1	Due Date	30/11/2021
Description	Report providing the end user driven functional and non-functional requirements and preliminary ODIN ecosystem mapping		
Type	Report	Dissemination Level	PU
Work Package No.	WP2	Work Package Title	Demand and supply cocreation: Reference UC and Catalogue Specifications
Version	1.0	Status	Final

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Abstract

This deliverable focuses on the establishment of a set of needs and requirements coming from stakeholders involved in the project ecosystem, which are mainly health providers (professionals and community workers), with the scope to extract needs and preferences to guide the technical requirements of the ODIN solution.

Statement of originality

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation, or both.

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1 About this deliverable

This report contains a set of needs and requirements coming from stakeholders involved in the project ecosystem, which are mainly health providers (professionals and community workers), and it has the goal to extract needs and preferences to guide the technical requirements of the ODIN solution.

In order to collect these needs and requirements, a series of [illegible] interviews are being organized to elicit dynamic positions at the hospitals towards needs and requirements.

This document provides an initial background information and a baseline scenario for future activities within the project. The feedback collected from the organization of these interviews will contribute to appinning dynamic user needs and requirements through an innovation framework.

During the interviews both initial and future positions towards needs and requirements in relation to technologies for smart hospitals are being explored. The questions and template created to support the interviews facilitate dialogues about specific needs and requirements. The aim is to guide interviewers in setting up and performing the interviews. The interviews will be further tailored to the specific hospitals use cases in collaboration with all partners thorough a workshop focused on stakeholders' requirements, needs and value proposition.

1.1 Deliverable context

Table 1. Deliverable context

PROJECT ITEM IN THE DOA	RELATIONSHIP
Project Objectives	Share and understand barriers, needs, requirements from stakeholders in each pilot
Exploitable results	Taxonomy of healthcare stakeholders, and IoT Services, that are part of the ODIN co-creation methodology.
Workplan	The deliverable reports the results of Task 2.1, paves the way T2.2 and related tasks. The deliverable will be used also for Task 9.2 to identify potential issues, barriers and needs in each pilot.
Milestones	M9: setting the basis for the identification of needs and requirements
Deliverables	D2.1 ODIN co-creation workshop and end-user requirements [MDT, M9]. Report providing end user driven functional and non-functional requirements
Risks	N/A

We want to change healthcare. Society is continuously evolving, and we need to be in the driving seat to try and accelerate changes as fast and appropriately as possible….
At San Carlos Hospital we very much deal with digital transformation of the healthcare system within society.
Dr Julio MAYOL, Medical Director and Head of the Innovation Unit

2 Positioning Innovation as new capability for healthcare providers

2.1 A key asset in their strategic roadmap

All our pilots' centres explained us how innovation is at the forefront of their medical strategy. They are all facing operational, clinical, and technical challenges that can be solved by Innovation. C-suits and Healthcare professional (HCP's) are pushing to accelerate innovative projects in order to improve patient's care, optimize hospital processes and care pathway. Robotics, AI, Data, e-health emerge as common priorities between our centres of excellence.

Although the pilots are all aligned on the value to accelerate innovation in their clinical departments, biomedical campus, or medical university, they are also facing the same difficulties once innovative projects must be scaled up. Difficulties start with the funding of Innovation since the reimbursement model does not allow a sustainable funding of Innovation. Robotics, as key enabling technologies, are now part of the new standards of care, but any legislation has yet authorized their reimbursement. Hospitals needs to be creative to look for external funds and imagine new collaborative business model to get access to the best-in-class technologies. However, looking continually for external funds takes time and resources. At the end, those efforts can impact its core activity and discourage healthcare professional. Winning a national or European open call is a challenging exercise with a very law success rate. The implementation or the industrialization of Innovation has also been pointed out as a common issue to accelerate the adoption of Innovation for healthcare providers.

CHARITE	AMIENS	SERMAS
- Chronic disease such as sleep disorder - Data / IA - Interoperability / data normalization - Telemedicine - Care pathway digitalization	- Robotics - Education / training for HCPs with the use of new technologies (simulation, VR....) - Care pathway / OR optimization - Digital health / telemedicine - Data / IA (We have lots of data, but we don't know what to do and how to use it)	- Data analytics - IT improvements - AI - Logistics - Aided logistic support

LODZ	ROMA	UMC UTRECHT
- Promoting modern standards of prophylaxis and treatment - building long-lasting cooperation with external stakeholders at regional, national and international levels - Training the HCPs of tomorrow	- Robotics - Aided logistics support - Disaster preparedness	- Healthy living - Biofabrication and disease modelling - Molecular science and therapy - Image guided intervention - Complex children care - Data science and e health - **Individualization of diagnostic,** prediction, treatment and prevention of diseases - AI and digital innovation. Make it possible to offer personalized care.

Figure 1. Pilot challenges that can be solved by Innovation

2.2 ODIN, an opportunity to foster innovation in our pilots' centres

Our pilots' centres are all agree to boost innovation in their healthcare institution, but they do not have the internal capabilities, resources, and skills to create a dynamic framework that will significantly transform their organization, care pathway and patient's outcomes. ODIN's expectations are high. ODIN will help them to reinforce their innovation footprint in their local, national market and create a network of innovative and dynamic hospitals, ready to share best practices, data, and create new standards of care in robotics, AI e-health.

ODIN is also an opportunity to our local Innovation teams to value and legitimate their department and work to the top managers of their institution. Being integrated in a European project bring a specific attention to their projects and create in return a new institutional approach to innovation.

At UMC Utrecht, we pioneer innovations and targeted research for the future. Our motto is: "*planning makes good ideas a reality*". Everything we do is aimed at putting scientific results into products and services of social value. We encourage and support talent, entrepreneurship, and innovation in a variety of ways.

3 ODIN operational mechanism

3.1 Innovation methodologies applied in the healthcare environment

Innovation is still an emerging topic in the healthcare environment. Some hospitals have created specific innovation units to facilitate the implementation of new projects in their clinical departments. Others do not have the chance to have dedicated resources to support HCP's in in their innovation's project. The situation is still diverse, and the methodologies applied are also different between hospitals. Nevertheless, common principles have been identified in our 6 pilot's centres which enable us to design a shared vision and framework to implement innovation in a healthcare environment.

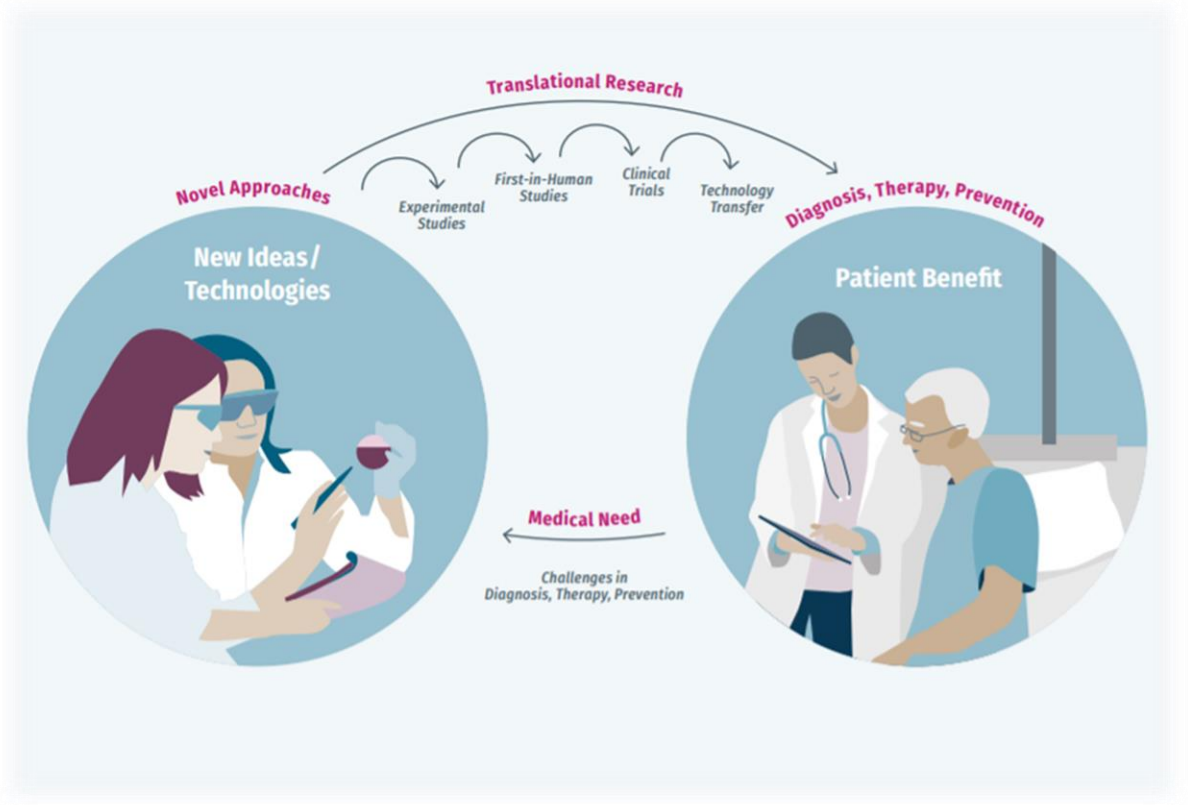


Figure 2. Translational approach at the heart of the pilot innovation strategy

Our pilots' centres have created specific organization to foster innovation in their clinical departments. To do so, they are facilitating multidisciplinary approach gathering complementary expertise and mindset, encouraging clinicians, engineers, start-ups and academics to work together as small innovation squat unit. Thus, they are accelerating the production of ideas. They produce as many ideas as possible than they are "killing them". Their purpose is to test in a short period of time an idea in the field with the end users: patients or HCP's. Their feedbacks help the engineers, researchers to better understand how a prototype behave in a clinical environment. Instead of thinking about the use cases, the product/solution they could cover, they benefit from direct insights and can manage to continually improve their prototype in order to maximise patient's outcomes and the business potential of their ideas.

Our pilots' centres have created **specific programs, events, facilities, or units** to connect and build an innovation community, develop new technologies, and provide clinical and technical services to foster innovation in their facilities.

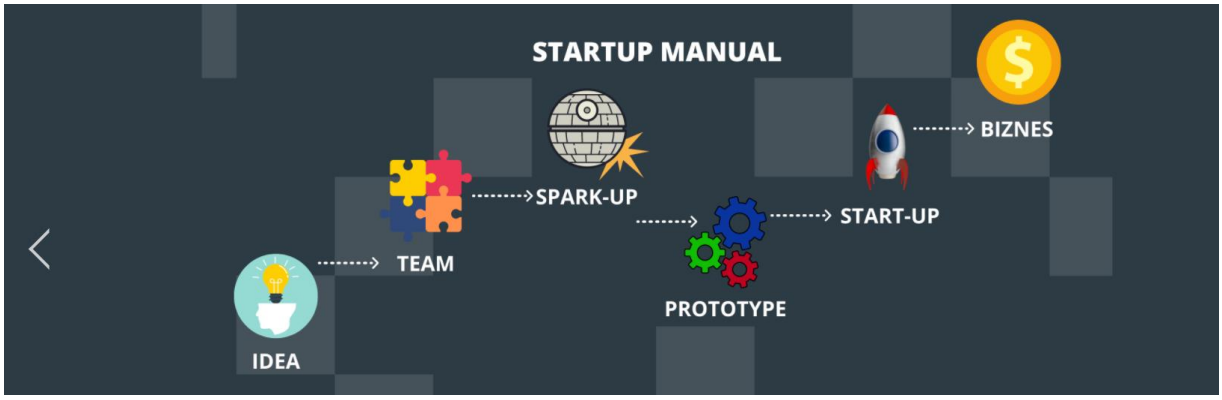


Figure 3. Start-up innovation process

IDEA CHALLENGE

In-house competition challenges everyone with a good idea to come up with a new concept, product, or technical invention that can improve healthcare. When a winner is selected, they receive coaching and seed capital to realize their idea and bring it to the patient.

OPEN INNOVATION PROGRAM

The goal of Pontes Medical is to develop new medical instruments. From UMC Utrecht, Pontes medical bridges the gaps between specialists, researchers, health care providers, businesses, and investors in order to develop and test new products and bring them to market.

INTERNATIONAL HEALTHTECH PROGRAM

Partnership between Healthcare institutions and international incubators to scout, test and develop pioneering health care solutions.

TECHNOLOGY TRANSFER INSTITUTE

Aiming to accelerate and catalyze the transformation of new discoveries and inventions into medical products, therapeutics and services that improve outcomes and benefit patients and society. Focusing on digital health – the convergence of new, digital technologies with biomedicine and healthcare – which allows us to add substantial value to innovations that improve patients' lives today and tomorrow.

INNOVATION UNIT

San Carlos Clinical Hospital in Madrid is a multidisciplinary initiative launched to design, develop, and implement innovative solutions within the healthcare sector. Partnering with industrials, the innovation unit is cocreating, for instance, an AI apps project, which is a high medical priority. AI helps them in manage patients, predict and improve clinical and patients' outcomes.

BOOTCAMP

The Bootcamp is an international project started in 2019 at the University of Cambridge. In this learning & doing expedition, participants are taking part to an intensive program of lectures, labs, and project work to acquire technical skills and soft skills in an international and stimulating environment. The Bootcamp enhances collaboration and bridges the gap between university and industry with a full program of practical activities that allow learning by doing.

DEPARTMENT OF ACCELERATION PROJECTS

Department of Acceleration Projects is a university-wide unit that supports the development of young enterprises in international cooperation with similar centers throughout Europe. We pursue our goals in conjunction with the pan-European EIT Health network.

INCUBATOR

The Business Incubator of the Medical University of Lodz is a university-wide unit that supports the development of local business entities and other entities of the socio-economic environment, including academic. The incubator aims to support the development of the healthcare SME sector and improve their competitiveness in the national and European market.

INNOVATION DAYS

Innovation days, i-Days promote health innovation among university students through dozens of one-day and two-days programs held in academic institutions around Europe. Students from all academic areas receive an introduction to practical health innovation tools and compete in teams to tackle real-life health challenges proposed by EIT Health, local organizations, private corporations, or start-ups.

All those initiatives converge in one goal: creating dedicated events and specific infrastructures which enable people, from different field, to work together, to discuss and learn by doing. Our pilots' sites are convinced that Innovation comes from crossing expertise and building up multidisciplinary teams composed of researchers, engineers, clinicians, or entrepreneurs.

3.2 Identification of barriers

PROJECT MANAGEMENT:

- "*Transversal projects are always difficult to implement. There isn't a clear pilot in the plane. We have to work closely, for instance, with IT, legal, contracting, clinical and research department … People with different mindset, approach, and goals. This unique environment can lead to new opportunities but, to do so, we need to have a structured methodology, a shared vision and above all a project management framework which clearly defines the roles and responsibilities*"
- We did not have any specific methodology to implement innovative projects and support our clinicians or researchers. We have worked with Dutch ministry of Health to create a new framework of collaboration to facilitate collaboration between engineers, clinicians and start-ups and create new process to transform an idea into a solution and then into a business.
- Implementing pilots is quite easy in my hospital but we have difficulties to transform a pilot into an industrialized solution which could benefit to all our clinical departments or be replicated in other hospitals. This "industrialization" phase needs specific resources and skills we do not have in a healthcare environment.

BUSINESS MODEL

- Difficulties to combine innovation funding with public procurement rules.
- Our institutions do not have specific innovation budget. We have to be creative and setup new business model with external partners or public funding to finance our projects.
- An innovation envelope can exist in some pilots' centres, but this envelope is scattered in all our clinical departments which limited our capability to fund ambitious and multiyear projects.

PEOPLE

- Lack of specific resources to support the implementation of innovative projects. "It's always an activity on top of our responsibilities"

INTEROPERABILITY

- Our EMR is regionalized in Spain. We have very limited capacity in the integration of new solutions in our regional IT system.

CONTRACTING

- Innovation procurements' models are unsuitable and complex.
- We do not know and use all the innovation contracting options such as competitive dialogue or specific initiative for innovative purchasing approach.
- Our purchasing department is overwhelmed in its daily work and lack of time or resources to test new way of purchasing medical products and equipments.

3.3 Key factors of success to implement an innovation project

DATA SHARING APPROACH

Alone, we have very limited capacity to play a significant role in the data-oriented healthcare of tomorrow. ODIN's success will depend on our capability to share structured data between our centres and create a translational database to allow us to test our applications, devices, key enabling technologies and evaluate patient's and clinical's outcomes.

ALIGNMENT WITH THE MEDICAL STRATEGY

Innovation needs to be aligned with the top priorities of our hospital. Before launching a new project, we always double check if the idea is fitting our medical strategy.

MULTIDISCPLINARY TEAM

Innovation does not come from a single person or mind, but needs to gather people from different expertise, field such as clinician, engineers, academics, start-ups or industrials. Our pilots' centres are experimenting new practices and methodologies to facilitate cross-fertilization effects and the creation of multidisciplinary team. They are organizing new educational programs to close the gaps between those functions and people or implementing bootcamps to foster collaboration and ideas.

ECOSYTEM OF PARTNERS

Our pilots' centres have all succeeded to elaborate an ecosystem of external partners. They are collaborating with start-ups, industrials, SME's and local, national, or European institutions to extend their opportunities and benefit from mutualization effect and critical mass approach. While opening tenders in their network, they can create coherent consortium to tackle a challenge and benefit from external funding to test and develop the projects.

BUSINESS ORIENTED APPROACH

Encouraging the creation of start-up companies directly linked to the medical and technological priorities of their institutions. This strategy ensures the placement of their researchers either through new spin-offs or by securing business relationships with local, national, and international companies.

RETURN ON INVESTMENT

An innovative project will have more chance to be funded if the KPI are clearly highlighted with a focus on the return on investment of the project. Innovation is not only a cost but can bring benefits to all the continuum of care while improving patient's outcomes, OR efficiency, decreasing hospitalization time or improving the working conditions for HCP's. All those outcomes need to be measured and integrated in a business plan to shift from a cost perspective analysis to a global value model.

MEMORANDUM OF UNDERSTANDING

Setting up a Memorandum of Understanding with our key stakeholders and especially our local health care partners. The creation of this local networks has enhanced the production of new ideas, products, and technology to deliver state-of-the-art healthcare services and improve care pathways.

At UMC Utrecht, we pioneer innovations and targeted research for the future. Our motto is: *"planning makes good ideas a reality"*. Everything we do is aimed at putting scientific results into products and services of social value. We encourage and support talent, entrepreneurship, and innovation in a variety of

4 Co creation methodology

4.1 Methodology

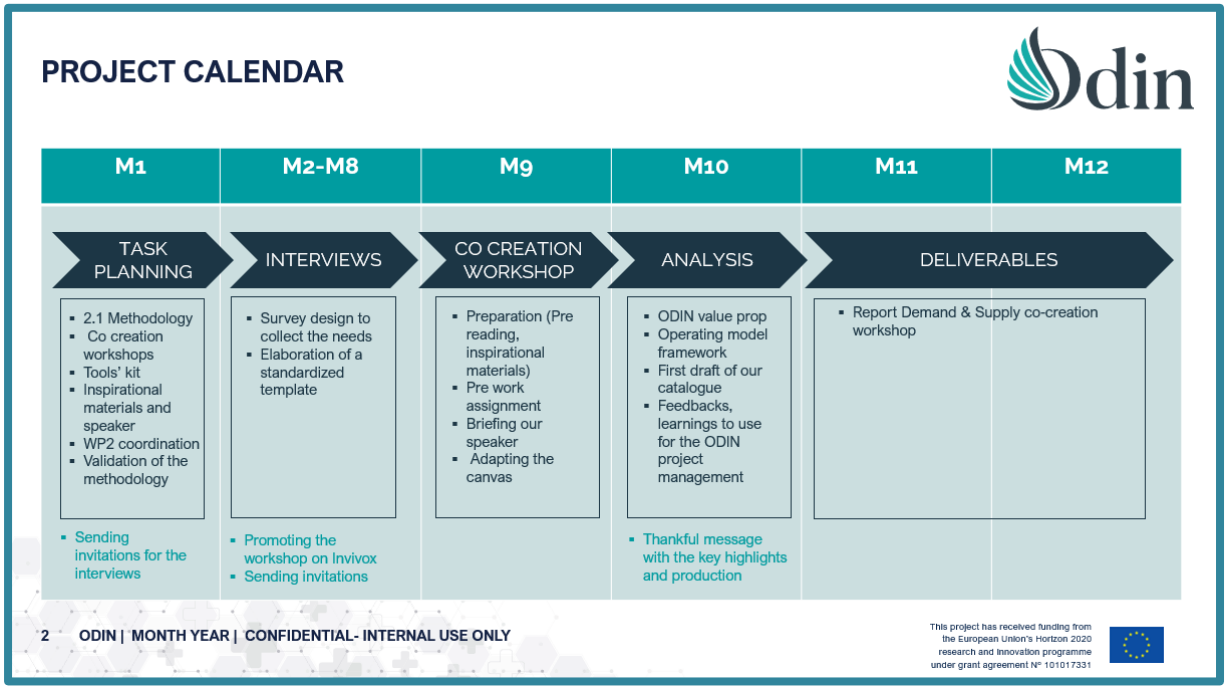


Figure 4. Project calendar activity task 2.1

4.2 1:1 in-depth interview with the hospital pilot sites

We have decided to start with a **1:1 in-depth interview** with our 6 pilot sites in order to deep dive in their innovation process, organization, and challenges. Those meetings lasted, at least 60 min, and enabled us to tackle all innovation issues and identify local specificities or tips and tricks which could impact our projects or needed to be shared with the other pilot sites as "inspirational food".

Innovation does not follow a standardized process or methodology, thereby we have created a template with opened questions in order to encourage the discussion and understand the context of our pilot sites regarding innovation. Then, we have elaborated a 1:1 interview template structured on **key topics** to address.

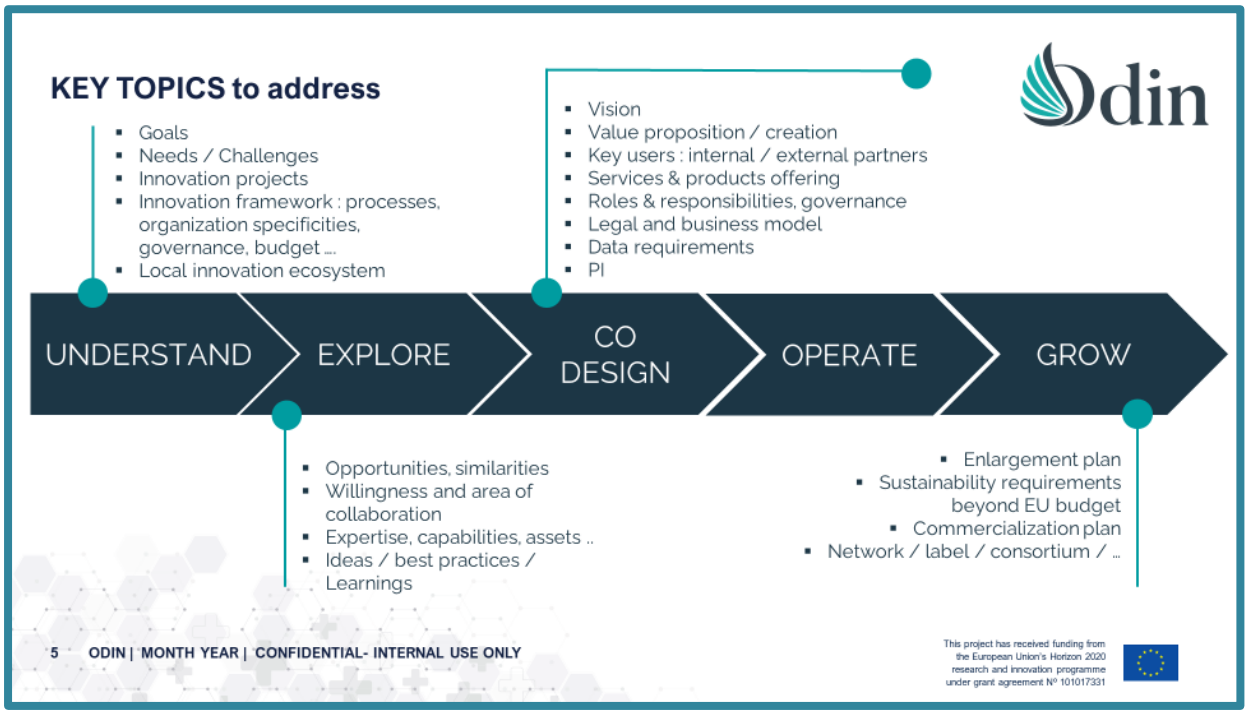


Figure 5. Key topics to address

With this method, we have been able to develop **a complete view of innovation** at a European level. Even though we have identified common grounds, values and vision, the operationnal machanism to implement in innovation can differ in the daily work and clinical wards from an hospital to another.

After this first round of discussion, we stepped back in order to analyze the content, understand the local specificities and identifying key learnings, best practices to leverage in our ODIN framework and management.

4.2.1.1 Interview's structure

The interview template for the different pilot sites has been structured around 3 key topics:

- INNOVATION. Our goal was to understand the innovation strategy and roadmap of the different pilot sites. We were also interested in digging into their innovation process, business model, and procurement model.
- USE CASE. Concerning the use cases, our goal was to discuss about the technological choices of the different pilot sites, understand their willingness to cooperate with our pilot sites and the capability to pursue the collaboration after the pilots' timeframe.
- ODIN PLATFORM. Regarding the ODIN platform, our goal was to define the value proposition of the platform and start identifying the services, solutions, products they aim to see in our ODIN portfolio. In this section, we also questioned their willingness to engage in the long run after the experimental phase. We asked for instance if they were interested in paying to get access to innovation services they could not find in their local or national ecosystem. We tried to position the ODIN platform as an enabler to boost innovation in their hospital and a new asset which could remove the barriers they have to deal with locally.

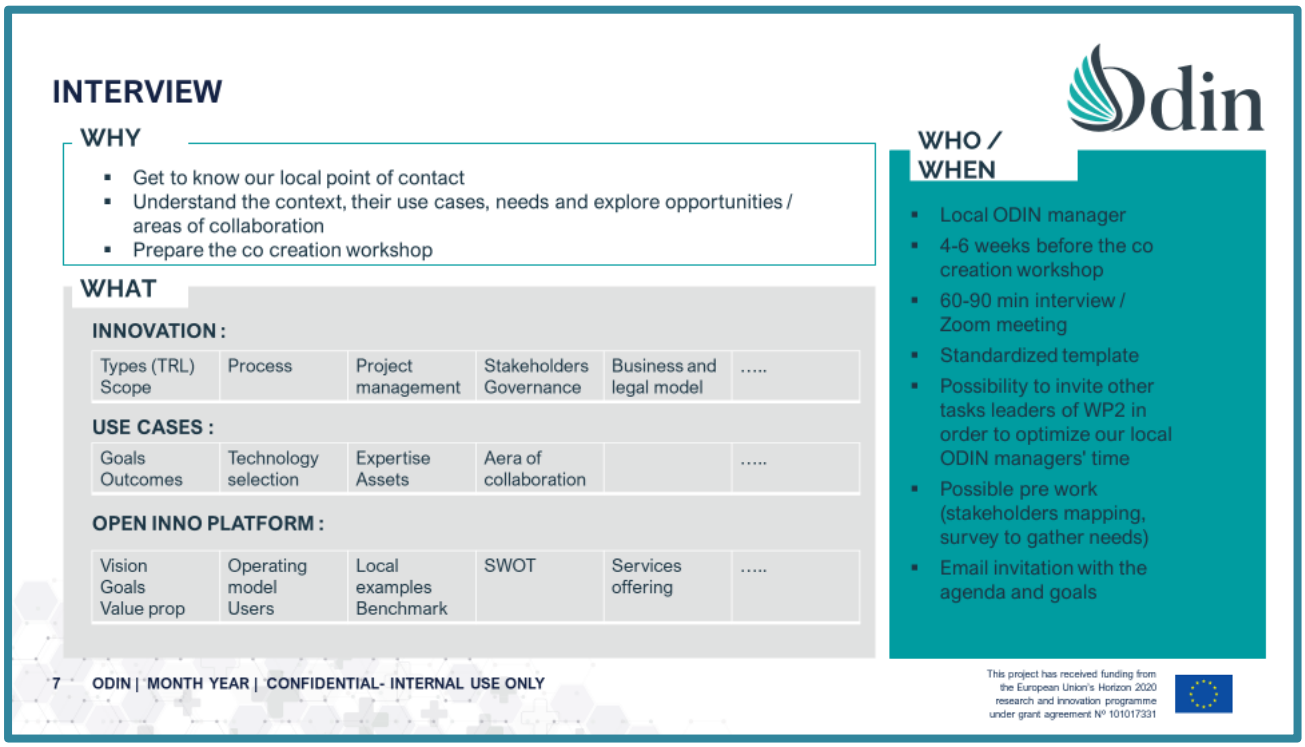


Figure 6. Interview readiness process

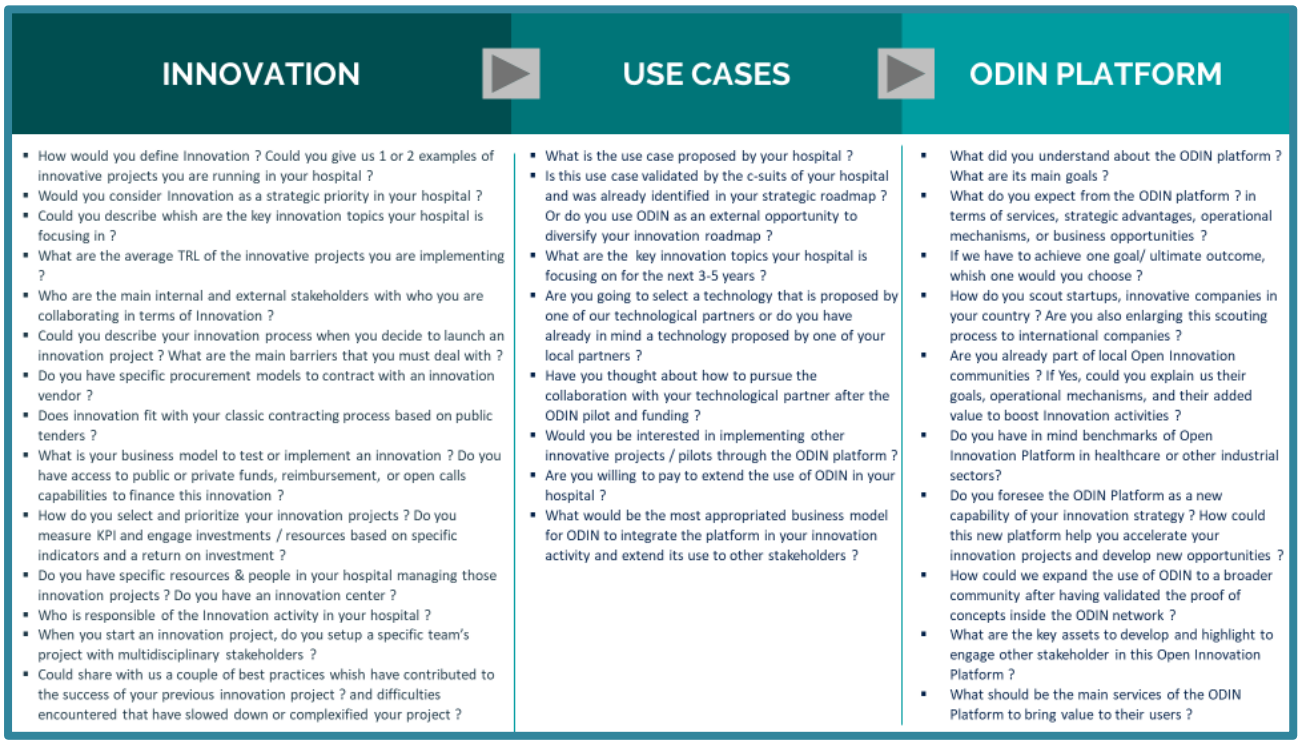


Figure 7. Interview questions

4.2.1.2 Previous preparation work

Before the interview, we asked our ODIN local manager to invite, if needed, other stakeholders to our 1:1 meeting in order to diversify the attendees and make sure we could obtain the maximum content and answers to our questions.

We also analysed public information we could get on the website of our pilot sites to start identifying in their reports, their innovation challenges, organization and other key information which will help us to lead our 1/1 interview.

Some pilot sites sent us materials or a presentation they have formalized to facilitate our preparation work.

We also analysed the work done by our colleagues from other work packages and tasks (T2.2, WP7…) to complete our understanding of our pilot sites and make sure we could benefit from our parallel approach, findings avoiding redundant actions regarding our pilot sites.

4.3 Co-creation workshop: Reinforcing the ODIN network and setting up a common playground for our ODIN platform

The cocreation workshop was an important moment and event in our task 2.1 methodology. Unfortunately, because of the COVID pandemic, we decided to shift from a physical meeting to a virtual workshop. The main objective of the workshop was to align on the future framework and services catalogue of our ODIN's platform. The 1:1 interviews allowed us to identify the strategic priorities of our pilot sites about innovation, their needs, their barriers, and key success of factors. After these individual meetings, we needed a collective moment to agree on the Value Proposition of our ODIN platform and its content in order to facilitate the implementation of our next challenges in WP 2 & 7.

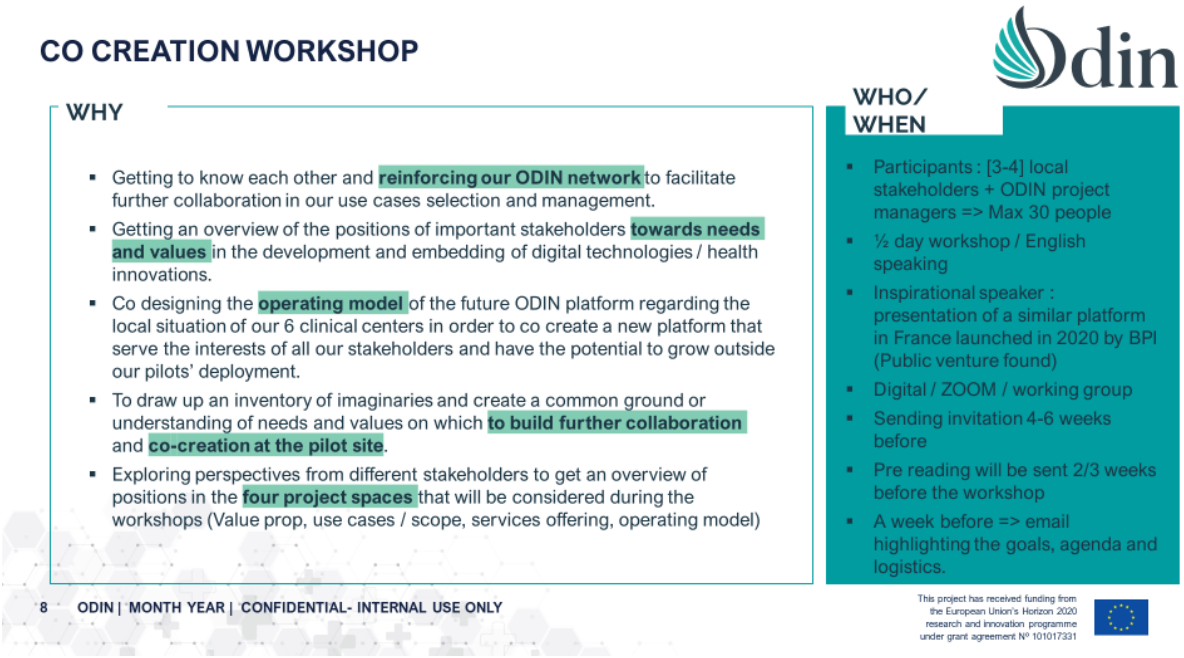


Figure 8. Co-creation workshop readiness

4.3.1.1 Co-creation workshop structure

We used standardized business canvas to structure our workshop and facilitate to our attendees their understanding of the workshop aim. We have adapted those canvas to our needs in order to tackle specific issues related to our ODIN projects, such as:

- Service catalogue _ We have collected the individual needs of the 6 pilot sites. The co creation workshop aimed to align on those needs and prioritize the content strategy of our catalogue. At the end of the workshop, we agreed on a shared Value Proposition for our ODIN Platform.
- The operational mechanism _ We identified in the 1:1 interview specificity in the way our pilot sites are organized and they are managing their innovation projects. The co creation workshop aimed to identify a clear and shared process that could fit with the organization of our 6 healthcare providers. We have understood that innovation can already be an issue, locally, in terms of management and delivery. Our operational mechanism needed to be simple, quick and coherent with the way our pilot sites are dealing with innovation.

Figure 9. Co-creation workshop structure

4.3.1.2 Preparation work

Before the workshop, we analyse all the information gathered in the 1:1 interviews and produce a first draft of report per pilot site with all the key information collected. This document highlights their innovation priorities, barriers, key factors of success, needs and describes their business and procurement models. We sent them this presentation to validate the content, share best practices and nurture their thoughts to be in the best state of mind for the workshop.

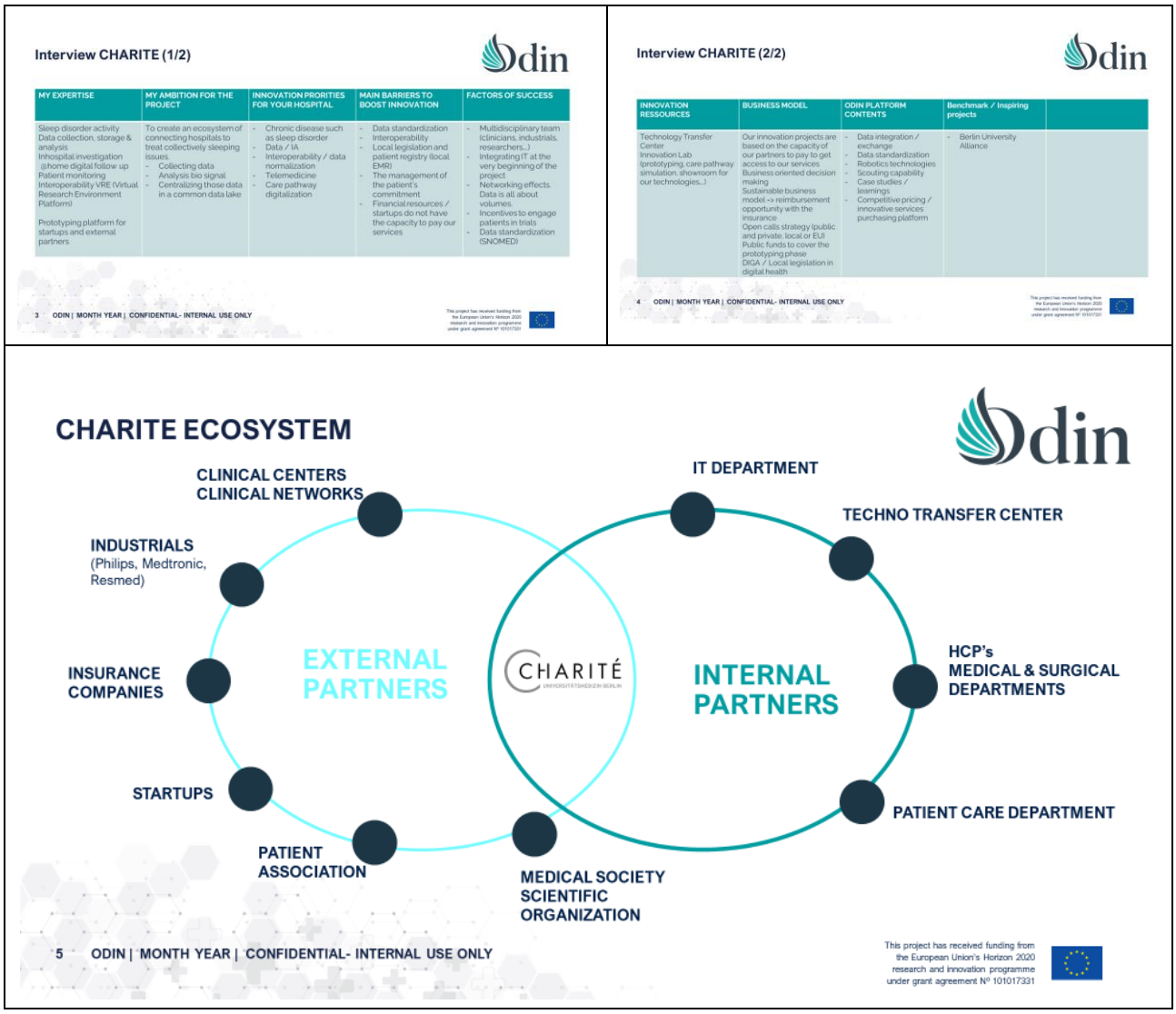


Figure 10. Charité interview overview

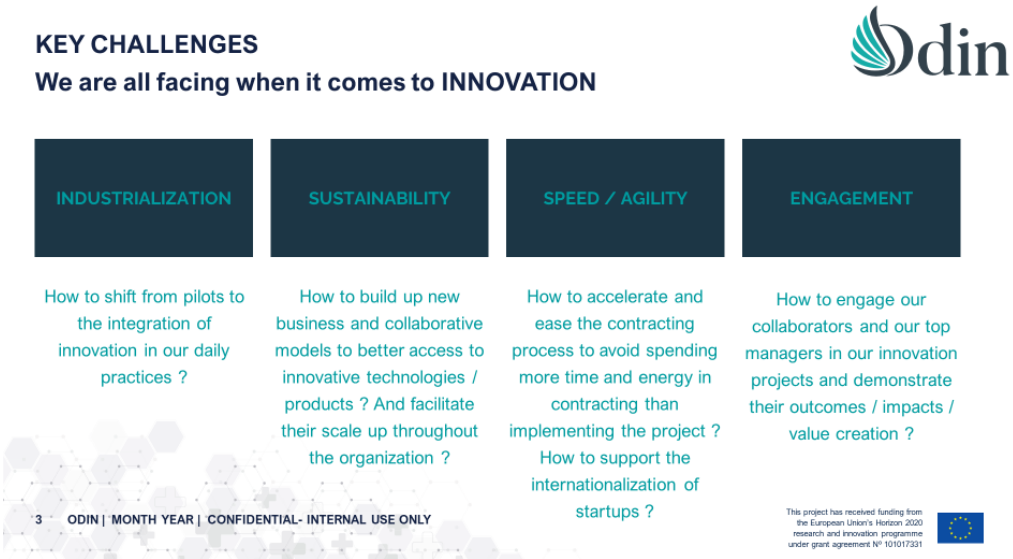


Figure 11. Charité key challenges

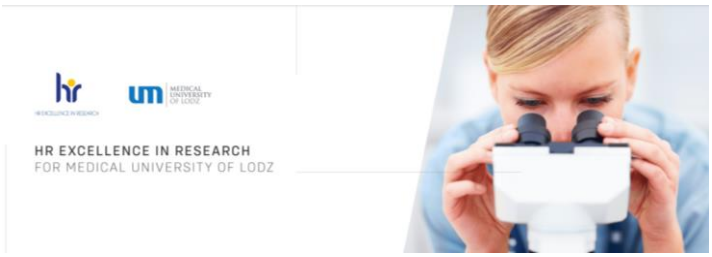
4.3.2 1:1 interview

4.3.2.1 SERMAS

Table 2. Sermas Pilot Summary Interview

CHALLENGES	▪ To create and implement the hospital(s) of the future. ▪ To accelerate the deployment of innovative / smart projects enabling to digitalize our healthcare processes and organizations. ▪ Data analysis as an instrument for improvement in hospital management and research.
DIFFICULTIES	▪ IT constraints. Our EMR is regionalized in Spain. We are very limited in the integration of new solutions to our IT system. ▪ Financial limits. ▪ Innovation procurement's models are unsuitable and complex. ▪ Poor culture of innovation in the country and the rigidity of legislation which hinders the transmission of research results in a successful manner.
KEY FACTORS OF SUCCES	▪ Innovation Unit. ▪ To encourage engineers, researchers, and clinicians to find productive means of collaboration. ▪ Strengthening Madrid's innovation ecosystem to institutionalize practical and meaningful opportunities to exchange ideas and to work together ▪ To build healthy networks to generate a virtuous circle between researchers, startups, companies, clinicians and patients. ▪ To find internal leadership that places innovation amongst the top priorities of the institution's strategies
BUSINESS MODEL	▪ Raising money strategy ▪ Open Calls ▪ Private partnerships
NEEDS / SERVICE CATALOGUE	▪ IA / algorithm projects to share data and create predictive model ▪ Security / Disaster preparedness to manage our daily 10000 people and visitors ▪ New equipment / monitoring solution (localization, KPI…) ▪ Catalogue of best-in-class technologies ▪ Sharing knowledge on Pilot/Test/Evaluation of innovative solutions / Technologies ▪ Creating a network of European centers of excellence to foster our innovation projects and create added value consortium

4.3.2.2 MUL



MEDICAL UNIVERSITY OF LODZ

Table 3. MUL Pilot Summary interview

CHALLENGES	- Aging population / chronic care. - The hospital is facing a lack of medical and nursing employees. - Developing solutions that could help us to face those both challenges to improve the efficiency and support our HCP's to deliver care. - Improving patients' experience (e-health, wellbeing). - Design new care pathways.
DIFFICULTIES	▪ Lack of adherence (reluctance) of our HCP's / Cultural gap / Skill's adaptation / fear of being replaced by new technologies / robots. ▪ Low robotic experience in Poland. ▪ Difficulty to fund innovative projects. ▪ Lack of knowledge and resources on innovative public procurement's models.
KEY FACTORS OF SUCCES	▪ Scientific template model. ▪ Innovation University Department. ▪ Technology Transfer Centre => looking for innovation that we try to implement in our hospital (Public and Private collaboration). ▪ EIT Health / European Open Calls.
BUSINESS MODEL	▪ European Open calls (EIT Health, Horizon). ▪ Internal, national funds (National Science Centre, National Centre for Research and Development). ▪ Private collaboration through our EIT Health ecosystem.
NEEDS / SERVICE CATALOGUE	▪ Share best practices / case studies / testimonials from other partners to demonstrate the value of a specific technology. ▪ Hospital of the future solution's repository. ▪ Get competitive prices / European Buying Consortium. ▪ Short list of potential best in class technologies per use cases / thematic / therapies. ▪ Benchmarking of solutions. ▪ Current usage of AI in the other clinical partners. Academy / webinars about new innovative projects.

4.3.2.3 CUB _ Charité University Berlin

Table 4. CUB pilot Summary Interview

CHALLENGES	▪ Develop a high-performance IT infrastructure and create digital platforms for research and healthcare. ▪ Create an ecosystem of connecting hospitals to treat collectively sleeping issues. ▪ Support systematic staff development and promote a collaborative, transformational management culture. ▪ Establish Charité as a central hub for the translational research ecosystem in Berlin as a 'science and health metropolis.
DIFFICULTIES	▪ Data standardization. ▪ Interoperability. ▪ Local legislation and patient registry (local EMR). ▪ The management of the patient's commitment. ▪ Financial resources / startups do not have the capacity to pay our services.
KEY FACTORS OF SUCCES	▪ Multidisciplinary team (clinicians, industrials, researchers….). ▪ Integrating IT at the very beginning of the project. ▪ Networking effects. Data is all about volumes. ▪ Incentives to engage patients in trials. ▪ Data standardization (SNOMED).
BUSINESS MODEL	▪ Business oriented decision making: Our innovation projects are based on the capacity of our partners to pay to get access to our services. ▪ Sustainable business model => reimbursement opportunity with the insurance. ▪ Open calls strategy (public and private, local or EU). ▪ Public funds to cover the prototyping phase. ▪ DIGA / Local legislation in digital health.
NEEDS / SERVICE CATALOGUE	▪ Data integration / exchange. ▪ Data standardization. ▪ Robotics technologies. ▪ Scouting capability. ▪ Case studies / learnings. ▪ Competitive pricing / innovative services purchasing platform

4.3.2.4 AMIENS UNIVERSITY HOSPITAL

Table 5. Amiens Pilot Summary Interview

CHALLENGES	▪ Establish a multidisciplinary center of excellence in robotic surgery. ▪ Improve the training and education studies, cursus, programs for HCPs and students with the use of new technologies such as our **simulation center, virtual reality tools, etc.** Improve and optimize our care pathway and OR ▪ Digitalize our organization, care pathway and patients' support activity with the development of telemedicine, digital follow-up, IoT, etc. ▪ Collect, analyze Data / AI and create new standards of care related to this new knowledge and meaningful information (We have tons of data, but we don't know what to look for and how to leverage this info into patients' care).
DIFFICULTIES	▪ In Amiens, we have a clinical research and innovation department which is focusing on mainly on clinical studies, evaluation process. We do not have the right organization and people to manage transversal projects mixing clinicians, researchers, companies, startups, or other external partners. "An external stakeholder is often assimilated as a third party or a vendor and not yet as a partner" ▪ Combining innovation grants with public procurement's rules is very complex and need to a have a strong knowledge of the contracting mechanism. ▪ Innovation "is always an activity on top of your responsibilities". We do not have specific resources dedicated to structure, develop, and implement Innovation in our hospital, clinical departments and local ecosystem.
KEY FACTORS OF SUCCES	▪ Implementation of multidisciplinary team (clinicians, industrials, researchers….) to transform ideas into concrete and high potential projects. ▪ Creation of a network of public and private partners to share expertise, setup consortium and engage your partners in ambitious and best in class projects.

	▪ Innovation project MUST be aligned with your strategic roadmap and medical priorities. ▪ Developing a business plan is compulsory in Amiens in order to evaluate the ROI of the project. We are not focusing on the cost of innovation, but we have a global view of the potential outcomes including financial impacts, clinical and patients' outcomes.
BUSINESS MODEL	▪ Open calls (local and international). ▪ Direct purchasing with our innovation envelope. ▪ Public funds. ▪ Private investments through our network of industrial's partners. ▪ Shared IP (AI, imagery & technology).
NEEDS / SERVICE CATALOGUE	▪ Catalogue of innovative technologies. ▪ Project management capability. ▪ Market study analysis. ▪ Funding support; Open calls expertise; Setting up consortium of interests. ▪ Implementation of challenges about innovative topics. ▪ Sharing best practices and knowledge.

4.3.2.5 UCMB _ University Campus Bio Medical Roma

Table 6. UCMB Pilot Summary Interview

CHALLENGES	▪ Deploy a user centric approach into our care pathway and daily practices offering the highest level of care and assistance to our patients every day. ▪ Creation of a new simulation institute to improve the training of HCP's and accelerate their learning curve. ▪ Deliver state-of-the-art healthcare services, computerize clinical pathways, and streamline the work of medical, health and administrative staff. ▪ Integration of robotics technology in our clinical wards to improve the quality of care and the working conditions of our healthcare professionals (nutrition, rehabilitation). ▪ Develop the Hospital 4.0: Personalized Health Services based on High Digitization and Automation of Health Processes.
DIFFICULTIES	▪ Cultural barrier to integrate new technology into a care pathway. Our HCPs can be at first sight afraid of changing their habits and protocols. ▪ Patient can also be reluctant to be treated by a robot instead of a nurse.
KEY FACTORS OF SUCCES	▪ Providing all departments and business units with strategic orientation and support, especially in terms of data sharing, so stimulating corporate synergy and generating institutional unity. ▪ Fostering an on-going relationship with stakeholders (employees, students, alumni, patients, family and citizens) and developing a specific plan of action to build a common set of long-lasting values. ▪ Helping our Research Units to join international excellence networks, especially by means of specific initiatives aimed at facilitating the mobility of research staff from and to high-quality international institutions.

	▪ Encouraging the creation of start-up companies directly linked to the lines of research pursued by our institution to ensure the placement of our researchers either through new spin-offs or by securing business relationships with local, national and international firms.
BUSINESS MODEL	▪ Participation in tenders at national, European and international level. ▪ Investing in fund raising activity.
NEEDS / SERVICE CATALOGUE	▪ Access to new technologies ▪ Creation of a network of centers of excellence. ▪ Share best practices and facilitate cross fertilization and knowledge management among the members of the ODIN network. ▪ Set new standards of care while demonstrating in best in class centers the impact of robotic assisted care ▪ Implement international and innovative projects while gathering top notch healthcare providers in a competitive alliance.

By using the knowledge and potential of people around us, through purposeful actions, we build a bridge between science and research and business…

…Medical University of Lodz is engaged in sustainably advance the fundamentals of healthcare and thus promote suitable future conditions for healthy living, active ageing and improved wellbeing of people across Europe

5 ODIN ecosystem mapping

5.1 The ODIN ecosystem approach

5.1.1 The Open Innovation model. Innovation comes from the association of complementary expertise.

Open innovation paradigm assumes that "firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as they look to advance their technology" (Henry Chesbrough, 2005; 4). Thus, the new logic makes possible to exploit the diffusion of knowledge and intellectual property, which represents a new asset class of the business model and, with it, a new way to generate additional value [Chesbrough H. Open Innovation: A new paradigm for understanding industrial innovation. In Copenhagen, Denmark; 2005. p. 28.]0. It makes use of the multiple pathways to the market and accesses and integrates external knowledge. In this way, the internal ideas of the company that had been forgotten can be driven by these external pathways or channels, becoming opportunities for new income and potential new business [Chesbrough HW. Open Innovation. The New Imperative for Creating and Profiting From Technology. Boston Massachusetts: Harvard Business School Press;]

Therefore, the cooperation of science, industry, countries, and many more, brings innovation forward. Mutual support and exchange among each other often make the difference between success and failure. For this reason, our pilots' sites strive for strategic cooperations and partnerships of various kinds and are either leading or contributing large consortium to implement Innovation at scale.

5.2 Platform Strategy

ODIN ecosystem is composed by different stakeholders, some of them already providing products or services to it, and others using or consuming the value.

The Platform Strategy is a strategy which aims to mobilise the value that is already created in the ecosystem or help in creating additional value. Thus, for ODIN projects and future exploitation activities, Platform Strategy is an appropriate approach to consider.

Platform Strategy is divided in four different phases:

1. Exploration. Existing context is understood, as well as strategic meaning and applicability of the platform strategy.
2. Strategy Design. Existing entities are clustered and mapped, and their individual context is understood, to explore their potential for exchanging their value among each other. Finally, Transaction Engines (set of channels and contexts design to facilitate interactions and exchanges between entities) and Learning Engine (set of support services and context that the platform owner/shaper provides and maintain for the ecosystem's participant to learn, improve and evolve) will be designed to select a high potential platform experience, along with a sustainability strategy.
3. Validation and Prototyping. Series of interviews are conducted to get feedback on the riskiest assumptions in the design. Eventually, the platform shaper makes a most valuable player (MVP).
4. Growth Hacking. The shaper applies tactics to help the strategy grow: growing supply and demand sides and generating network effects.

At this point of ODIN project, consortium and WP2 are working on phase 2 - Strategy Design. The very first step to start with the Platform Strategy design, it is to analyse thoroughly the entities and stakeholders that are part of the ecosystem. There are three different groups:

Table 7. ODIN Ecosystem Group Table

ENTITY GROUP	DESCRIPTION	ENTITY TYPE
IMPACT Entities	Entities not involved in the continuous interactions that are happening in the ecosystem	Platform Owners/Shapers Platform Stakeholders
DEMAND Entities	Entities that are interested in "consuming" the value produced in the ecosystem. Entities involved in continuous interactions.	Peer Consumers
SUPPLY Entities	Entities that are interested in "producing" the value consumed in the ecosystem. Entities involved in continuous interactions.	Partners Peer Producers

For doing so, it is important to understand the role of entity types to identify each of them in ODIN ecosystem:

PLATFORM OWNERS/SHAPERS

is the entity who owns the vision behind the realization of the market and ensure that the platform strategy exists, evolves, and thrives. It can be a team, an organization or sometimes is a set of teams throughout different organizations in a form of committee or a consortium.

EXTERNAL STAKEHOLDERS [ES]

External Stakeholders are entities that have a specific interest in platform success or failure, in controlling platform externalities and outcomes, in regulating it or in exercising rights in the platform governance.

PEER CONSUMERS [PC]

Peer Consumers (PC) who we may also call users, are entities interested in consuming, utilizing, accessing the value that is created through and on the platform.

PEER PRODUCERS [PP]

Peer Producers (PP) who we may also call producers, prosumers, and providers, are entities interested in providing value on the supply side of the ecosystem/marketplace, usually seeking for opportunities to improve their business and honing their capabilities towards a better performance.

PARTNERS [PA]

Partners (PA) are entities that seek to create additional professional value and to collaborate with platform owners on a stronger level of relationship.

5.3 Internal and external stakeholders mapping in ODIN

Making use of the information shared by partners in WP2's tasks and activities and considering the different entity groups and types described above, the ODIN ecosystem has been analysed (Figure 12). The entities contained in the ecosystem have been clustered under entity types to understand their roles within the ecosystem.

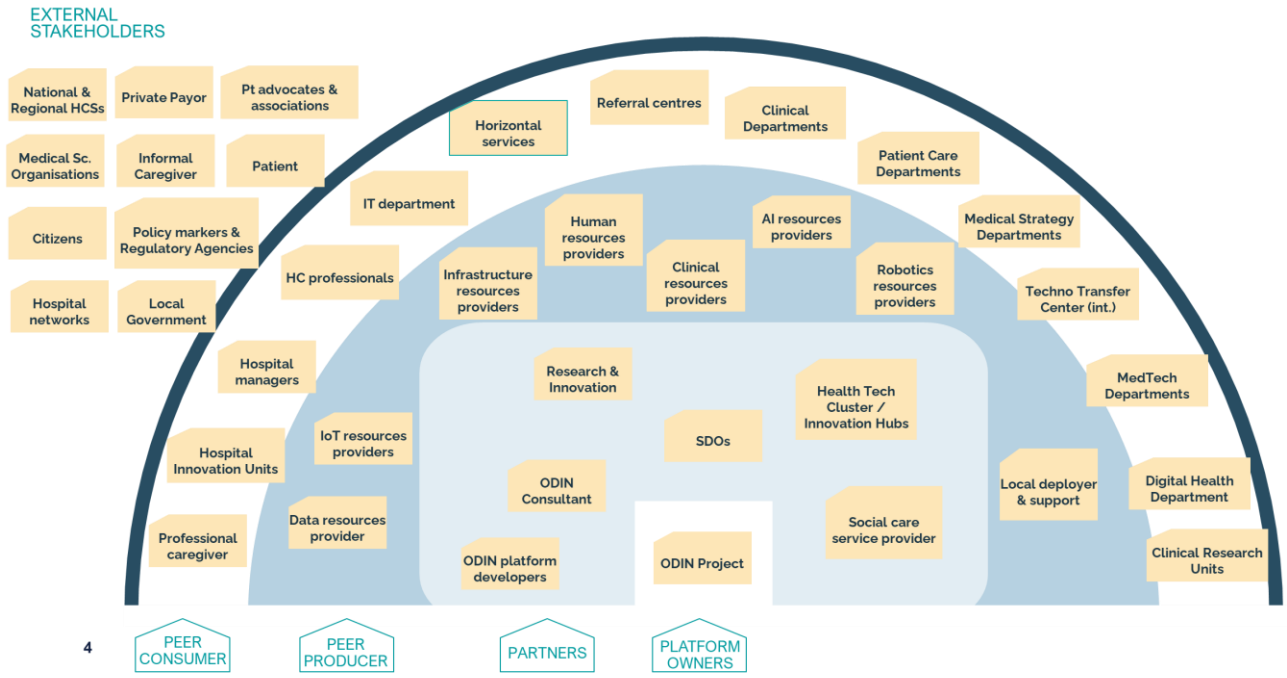


Figure 12. ODIN Ecosystem Canvas

5.3.1 Stakeholder mapping workshop

A workshop was carried out with all the partners to validate first assumptions made for the initial ecosystem classification. Partners were requested to go through three different exercises to classify themselves under entity groups and types, as well as to provide their opinion and thoughts about what elements and value they were looking for, as being part of ODIN ecosystem.

The workshop was held during ODIN 2nd plenary meeting in November 2021. All partners were invited to participate in the exercises proposed by WP2. The session was divided in two main slots (see **Error! Reference source not found.**):

- First session: *Description of methodology and types of entities*. Brief explanation of concepts such as ODIN ecosystem, Platform Strategy, entity groups and types (these concepts are already described in this section of D2.1),
- Second session: *GET DOWN TO WORK!* Partners were requested to actively participate in three different exercises. Miro was used as the online collaborative tool.
    i. Exercise 1 (10 min). The aim was to achieve the classification of the full consortium in entity types (platform owners, external stakeholders, partners, peer producer and peer consumer)
    ii. Exercise 2 (15 min). The aim was to achieve the classification of the full consortium in entity
    iii. Exercise 3 (15 min). Gain knowledge on the gains and values ODIN consortium is expecting from being part of ODIN ecosystem

Table 8. Agenda of the Stakeholder mapping workshop in ODIN 2nd plenary meeting

	Time	Topic
	15 min	Ecosystem description and methodology
GET DOWN TO WORK!	10 min	Partners' positioning (Entity group)
	15 min	Partners' positioning (Entity type)
	15 min	ODIN Ecosystem gains for partners

After the workshop was concluded, the following results and conclusions were extracted based on ODIN partners' answers. Answers from partners could be seen in from Figure 13 to Figure 22.

EXERCISE 1 & EXERCISE 2

Firstly, some people positioned themselves as *Platform Owners*. All of them are part of organisations related to provision of technology, which may mean *Platform Owner* is understood as "owner of technology". It is important to highlight that a *Platform Owner* is "the entity who owns the vision behind the realization of the market". Therefore, several consortium partners, especially those ones with business perspective must be aware of this.

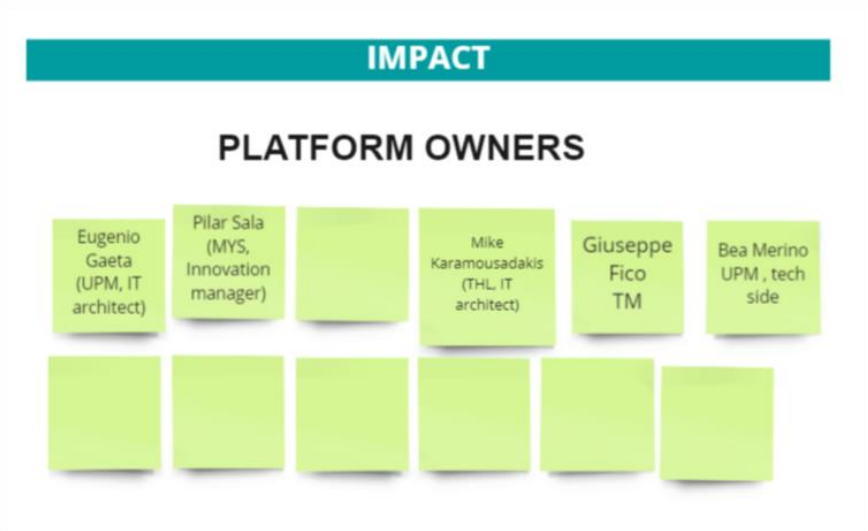


Figure 13. People identified as Platform Owners (entity group)

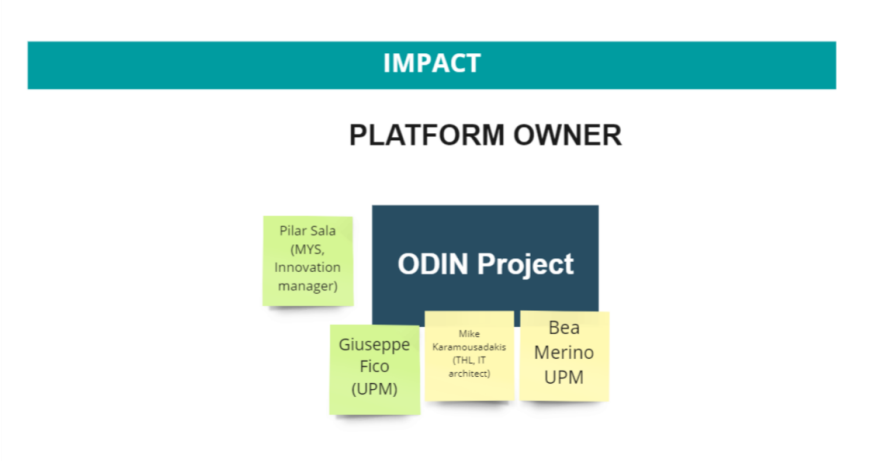


Figure 14. People identified as Platform Owners (per entity type)

In terms of *External Stakeholders* (Figure 15 and Figure 16), entities that have interest in platform's outcomes and might want to exercise their rights. Although, in Exercise 2 anyone was consider themselves as *External Stakeholders*, once the entity type was split in entities, some partners included their names. Within ODIN project we have Medical Scientific Organisations, Policy makers & Regulatory Agencies and some people that identifies themselves as Citizens. However, 50% of *External Stakeholders*'s entities are empty. This might mean there is not any representation of these entities within ODIN project, so as they are important to it and their opinion and perspectives have to be considered, they should be looked for externally.

Figure 15. People identify as External Stakeholders (entity group)

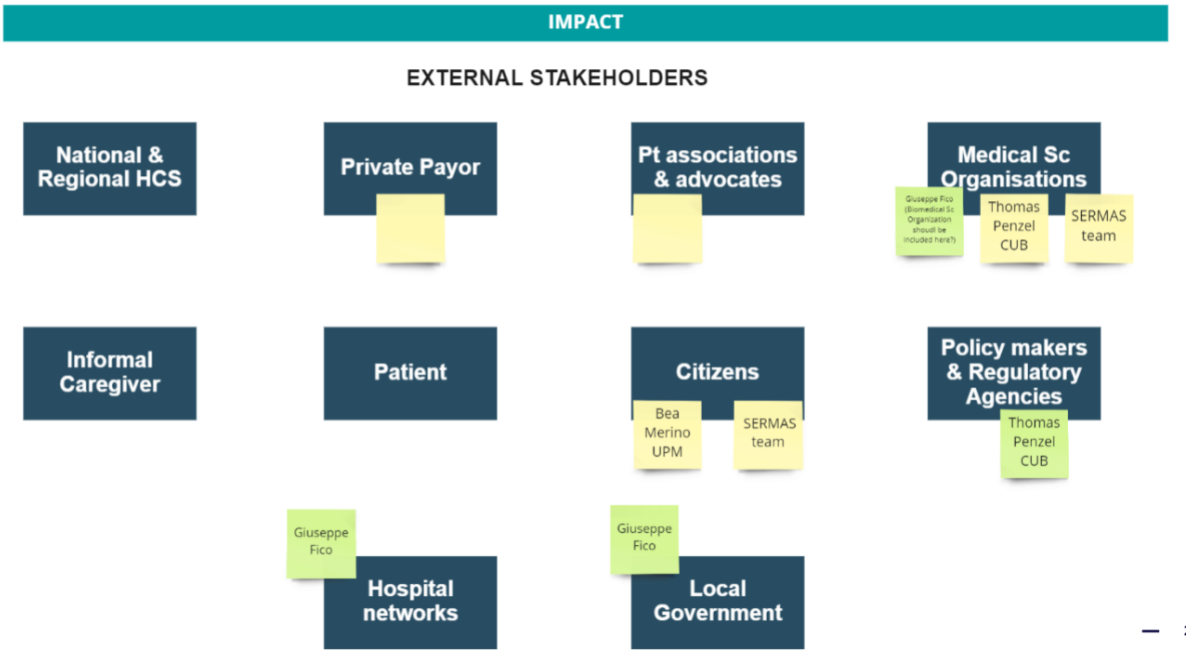


Figure 16. People identified as External Stakeholders (per entity type)

Moving forward with Supply entity group, *Partners* and *Peer Producers* have to be considered. Firstly, partners are those entities seeking to produce additional professional value to the ecosystem. As it can be observed in Figure 17 and Figure 18, 18 different people identified themselves as one of those. Based on consortium's members, *Partners* entity is the entity most represented in our ecosystem. Most people come from technology research and academia organisations and industries, considering themselves as ODIN platform developers (organisations familiar with operating systems and hardware components to create and optimise ODIN technological platform). Apart from that, some people selected *ODIN Consultant* (provide expert advice on specific topics), and *Health Tech Cluster/Innovation Hub* (network of companies, universities, research centres and other stakeholders which aims at innovating in health tech solutions). Finally, another entity left empty was *Standards Developing Organisations (DPOs)*, which might be crucial for future sustainability and exploitation of ODIN technological platform.

Figure 17. People identified as Partners (entity group)

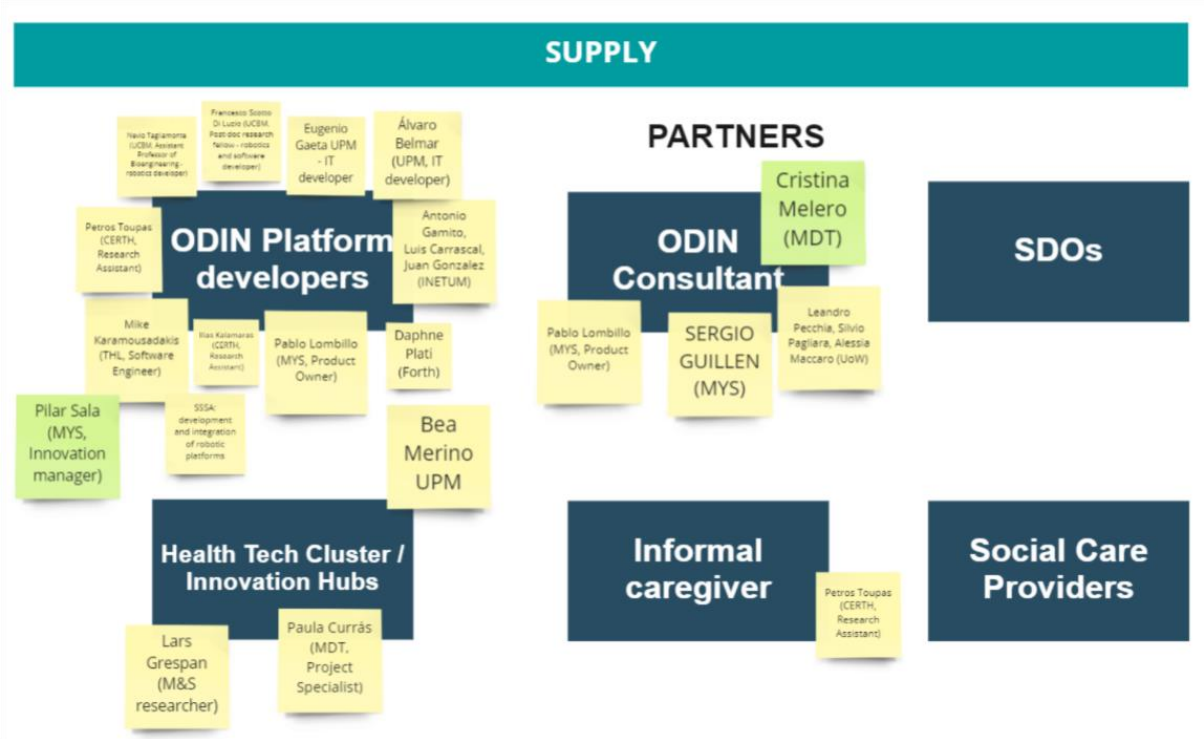


Figure 18. People identified as Partners (per entity type)

Classification as Peer Producer can be reviewed under Figure 19 and Figure 20. Participants who selected this entity group are either from technology research centres or companies. They considered themselves as IoT, infrastructure, robots and AI providers, as well as local? solution

local deployers & support. People from one of the hospitals of the consortium identified themselves as data resources providers. Any hospital could be identified as data resources providers, since they own clinical data from patients and clinical routines. Human and clinical resources providers are not represented in the consortium, based on workshop's participant answers.

Figure 19. People identified as Peer Producers (entity group)

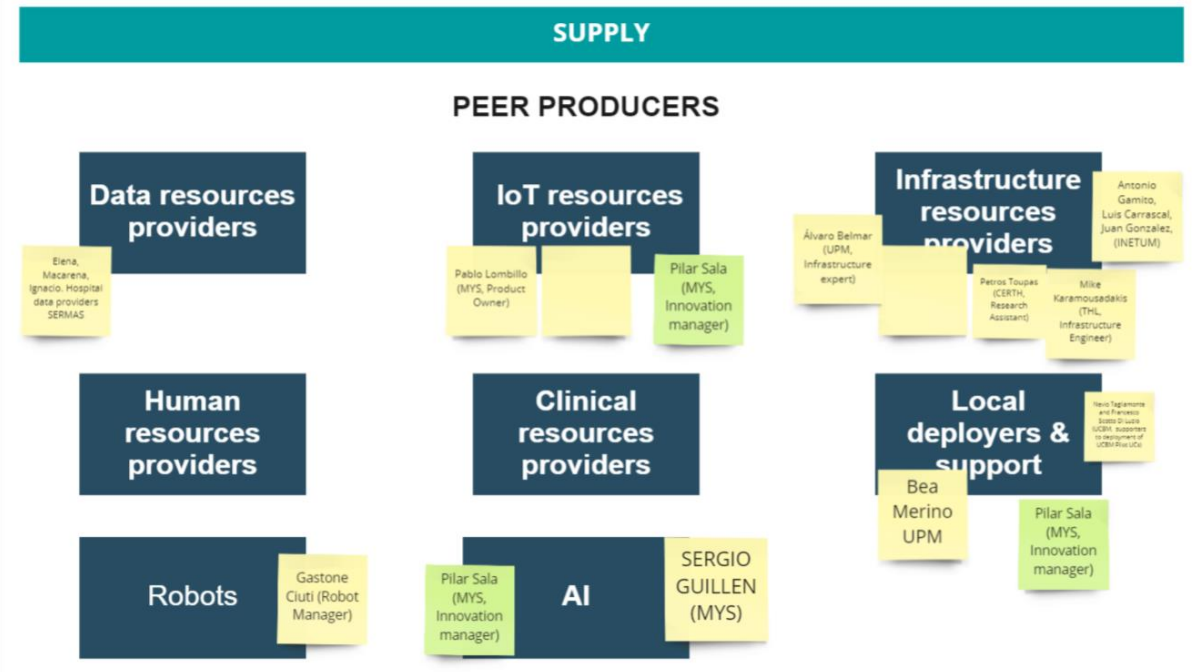


Figure 20. People identified as Peer Producers (per entity type)

Finally, 8 people selected Peer Consumer as, at least, one of their entity groups. As it can be seen in Figure 21, most of them come from the hospitals in the consortium. Besides, it is noteworthy

that some companies were positioned as Peer Consumer (Digital Health Department, Techno Transfer Center and MedTech Departments) motivated by the fact that they can consume the solutions, services and products provided by Peer Producers and Partners. Although almost of Peer Consumer's entity were populated by participants, IT Departments and Medical Strategy Departments were underrepresented. Both of them are crucial for future success of ODIN technological platform and solutions associated to it. So, an important action to be done is to properly engage those professionals to assure scalability and replicability of ODIN.

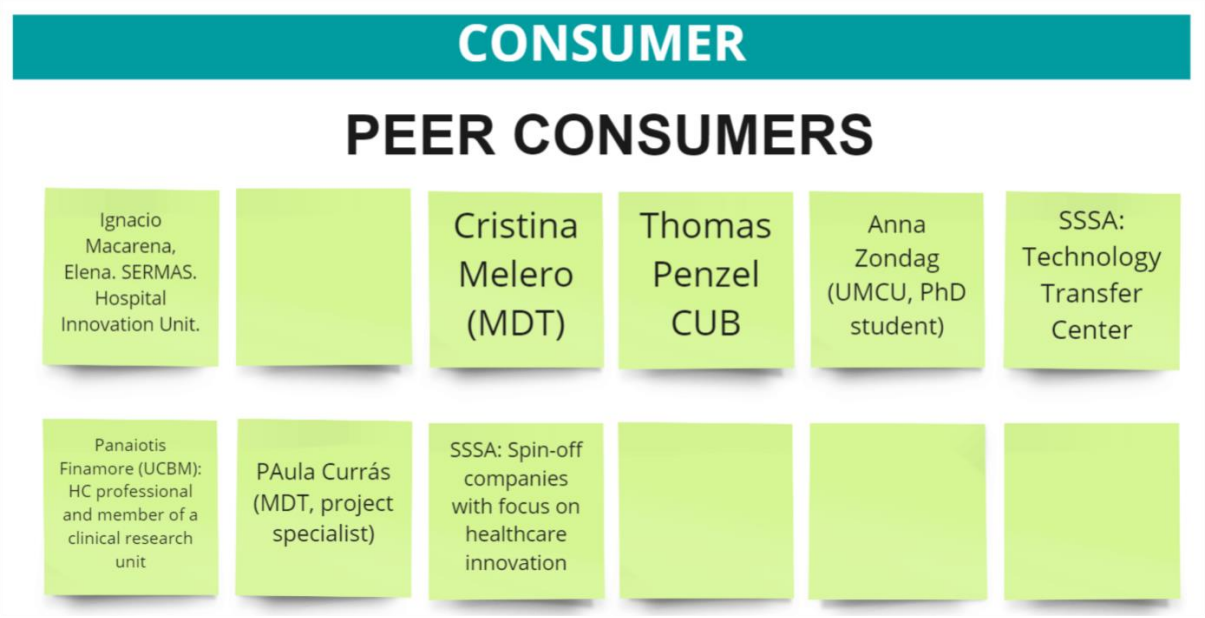


Figure 21. People identified as Peer Consumers (entity group)

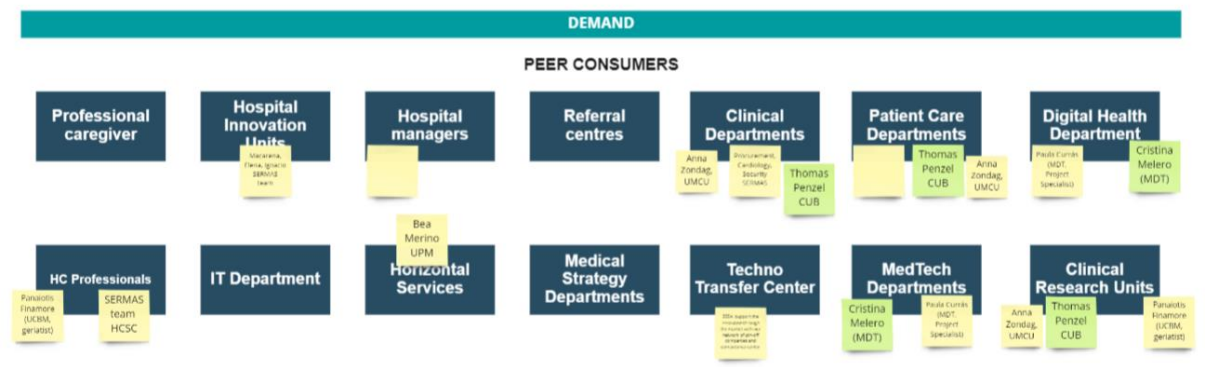


Figure 22. People identified as Peer Producers (per entity type)

Table 9. Number of participants and classification of answers per entity group and entity type

Number of people logged in Mirò				42
Entity	Entity group		Entity type	
Platform Owners	5	12%	4	10%
External Stakeholders	0	0%	8	19%
Partners	18	43%	20	48%
Peer Producers	7	17%	13	31%
Peer Consumers	8	19%	17	40%

EXERCISE 3

The Exercise 3 in this workshop aimed at gaining knowledge on the gains and values ODIN consortium are expecting from being part of ODIN ecosystem, and therefore the experience ODIN platform (model) should provide to them. To do so, three sets of questions were asked to the participants:

- Set 1: What are you looking for by joining ODIN ecosystem? What will you gain by entering ODIN?
- Set 2: What do the rest of the stakeholders in the ecosystem bring to you? What would it be ideal for you to get from the rest? Why is it interesting for you to join ODIN?
- Set 3: What exactly do you get out when entering in the ecosystem?

Table 10. Number of answers from participants per set of questions in Exercise 3

	Nº of answers
Set 1	19
Set 2	15
Set 3	13

Regarding first set of questions, 19 different answers were gathered. What consortium members are looking for by joining ODIN ecosystem is:

<u>Partners and/or Peer Producers</u>

- Expand the adoption of IoT, robotic and AI knowledge in real hospital environments, while ensuring their sustainability and easy access into the market
- Supply solutions and technologies compliant with ODIN platform
- Extensive and heterogeneous datasets to exploit and expand data-driven models
- Know-how and expertise on application of IT solutions in healthcare and being a reference in R&D&I in terms of ODIN-related KETs
- Find pilots available to open their environment to test technologies and work with them and other partners in other European projects and achieve successful relationships

- Understand the needs and requirements from hospitals

Peer Consumers

- Implement AI technologies to improve efficiency and solve problems in hospitals
- Recognize the work done by Innovation Units in hospitals

Considering Set 2 of this exercise, 15 different answers were collected. Their answers in terms of what the other stakeholders could bring to them are summarized as follows:

Partners and Peer Producers

- Bring new knowledge, know-how and complementary expertise to validate and implement technology in healthcare
- Establish partnerships with experts on smart hospitals to develop innovative solutions
- Get a broader understanding of real problems in hospital and the technologies (especially AI and IoT trend) that are needed to meet healthcare needs.

Peer Consumers

- New technologies (such as AI tools) and experience of technology companies to overcome hospital internal barriers

Finally, in Set 3, 13 answers were collected. The idea behind this Set was to understand the value partners are gaining by entering ODIN ecosystem. The answers were:

Partners and/or Peer Producers

- Knowledge transfer (research connected to market) thanks to a big consortium of experienced partners and potential partnerships
- Knowledge, tools, materials, know-how, best practices procedures and implementation guidelines for the Hospital of the Future
- A trusted platform to perform data and technology integrations and the data itself, to train or validate products or services in development
- Reshape and automatize processes to get better patients' outcomes and contribute to healthcare systems, understanding their needs
- Still not clear to some participants

Peer Consumers

- Improved patient care
- Improved staff satisfaction
- New opportunities to optimize current internal procedures and technologies

5.4 Next steps

The next steps with regards to ODIN ecosystem are:

- Following Platform Strategy and once we have better understood what kind of gains the stakeholders are looking for in the ecosystem, the next step in the methodology will be to analyse the exchanges of value that are being carried between partners in ODIN

ecosystem. This is an important activity to get to know value already exchange, channels used and leverage them properly in ODIN's exploitation and business activities. This could be developed under T9.2 Plans for dissemination, communication, and exploitation.

- Leveraging the potential of ODIN project in the ecosystem and engage external organisations and stakeholders through ODIN activities. This could be developed under T10.1 Trust building and Ecosystem Enlargement framework
- All the assumptions made within ODIN project must be validate externally with other organisations and people potentially in the ecosystem, potentially interested in being part of ODIN platform. This could be developed under T10.1 Trust building and Ecosystem Enlargement framework.

6 ODIN's platform content

6.1 Value creation

Value creation for the ecosystem is a key aspect to differentiate from the existing networks and bring new services to retain and attract members. There are several options to create a new ecosystem. We could either start from scratch while developing a new business environment which does not exists in our healthcare sector and in any countries represented or we could benchmark healthcare innovation ecosystems while analyzing their strengths, limitations and then decide to go a step further while capitalizing on the pilots' sites experiences and requirements. We have chosen this second option while analyzing our own local ecosystems, scrutinizing our partner's mapping, their business models, their procurements' approach, and their strategic priorities.

This section describes the initial plan for the building of the new ODIN Ecosystem and achieve a critical mass to sustain its further evolution and growth after the end of the project. The three pillars for this process of creation and market take-up are:

1. ODIN ecosystem. ODIN consortium is the seed of the Odin Ecosystem. The seed ecosystem members are jointly working around a common work plan and have achieved a high-level alignment towards global objectives. Now the process will be focused on the consolidation through long-term partnerships and alignments towards growing and expansion objectives; maturing the Value Proposition and Operating Leverage; and enlarging the network with new members to reach the critical mass.

2. Transforming pilots into standardized services into the ODIN catalogue. This is one of the most challenging actions in the ecosystem building plan due to the complexity, heterogeneity, and local political and regulatory frameworks of each pilot. However, the elaboration of the ODIN platform will support this expansion strategy and our capability to transform every use case into a standardized service for the members of the consortium.

3. Generating awareness of the value of our ODIN platform is a key part of our strategy to reach new members and open our ecosystem to other clinical partners, European healthcare universities, industrials, and SME's.

The workshop co creation approach was structured in 2 phases. The value creation phase allowed the participants to express their own understanding and vision of the ODIN platform. We identified key words, ideas and patterns in their value proposition writing to converge towards one shared vision between all the participants. After this alignment exercise, we defined the content of the ODIN's catalogue. Which services they would like to get access through ODIN. We have collected all their individual needs. Going from shared database to project management resources or innovation's procurement support. Then, we converge, once again, towards the identification of key activities to develop in the ODIN ecosystem and which will be the foundations of our ODIN catalogue.

6.2 One shared ODIN Vision

A value proposition is a promise of value to be delivered, communicated, and acknowledged. It is also a belief from the customer about how value will be delivered, experienced, and acquired. A value proposition can apply to an entire organization, or parts thereof, or customer accounts, or products or services (Kaplan and Norton 2004). In the case of the ODIN Ecosystem creation process, it means what is the value that the ecosystem can provide to its members, i.e. the companies, organisations and institutions engaged at the different stages of the Ecosystem creation and enlargement.

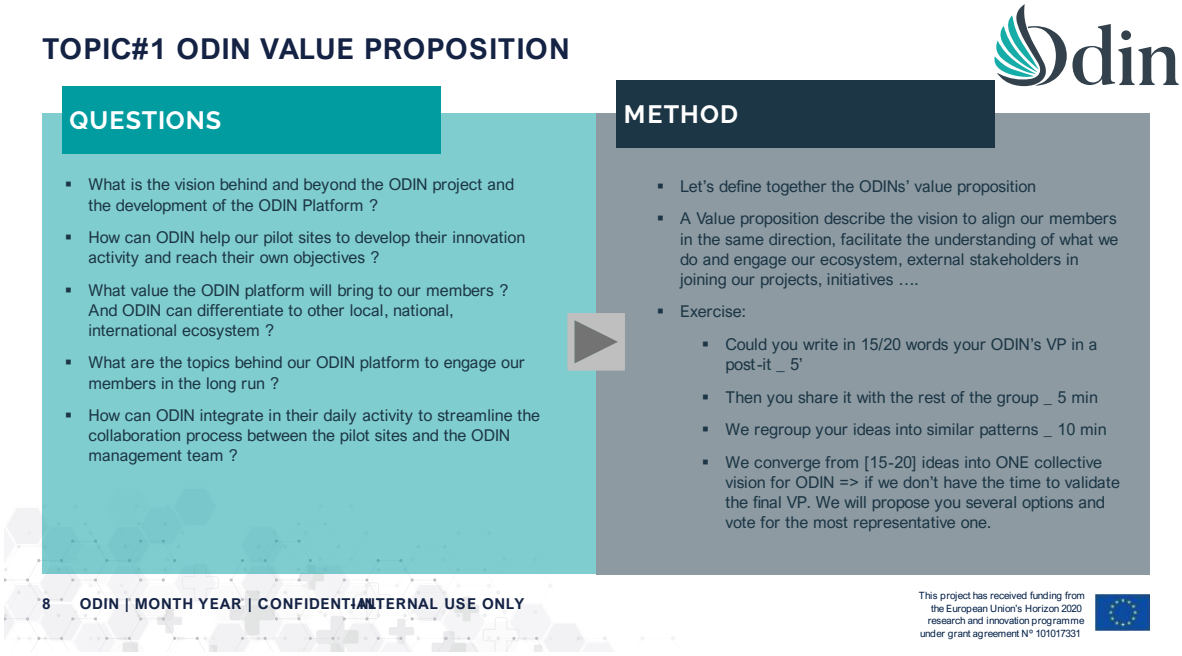


Figure 23. Topic 1. ODIN value proposition

To define the ODIN value proposition. We have asked to the participants to write down their own understanding of the ODIN vision. We have collected more than 20 proposals. We have then identified key topics, messages, ideas to converge progressively towards one shared vision.

Figure 24. Exercise 2

We did not have the time in the co creation workshop to transform 20 ideas into one shared value proposition. We decided to come back to our participants with 3 proposals representing their own visions and then we asked them to choose the value proposition which is the most representative of their work and embeds the right words to create a collective dynamic between the members.

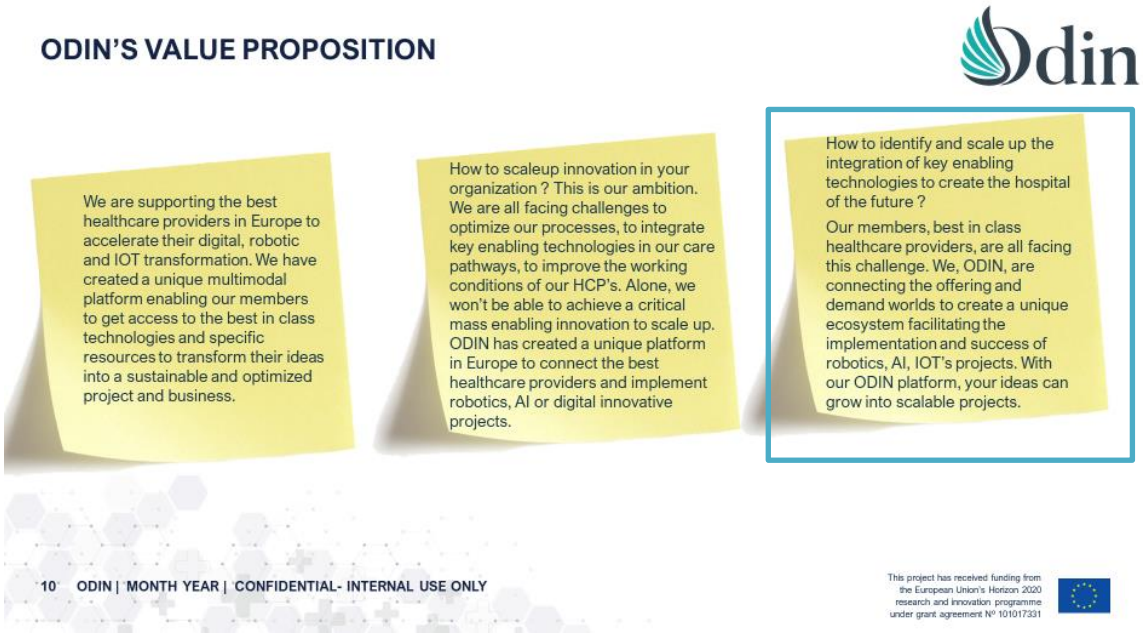


Figure 25. ODIN's value proposition

ODIN's Value proposition

How to identify and scale up the integration of key enabling technologies to create the hospital of the future?

Our members, best in class healthcare providers, are all facing this challenge. We, as ODIN, are connecting the offering and demand worlds to create a unique ecosystem facilitating the implementation and success of robotics, AI, IoT's projects. With our ODIN platform, the ideas can grow into scalable projects.

6.3 ODIN PLATFORM

Platform in the medical technology sector would be operating in a highly regulated and tremendously complex ecosystem, comprised of very different stakeholders. An effective platform must therefore understand who the various players are, as well as their different ambitions, characteristics, and needs.

Success does not rely only on the recruitment of diverse members representing clinical partners, industrial companies, academics, engineers. The success is defined by our capability to bring value to our members, to facilitate their relationships and create an environment enabling our members to grow, learn and accelerate their innovative projects and their innovation skills set.

ODIN should propose new added value services to its pilots' sites and members. We have planned to implement use cases which the first steps to create a new sense of belonging and prove to participants what ODIN can achieve and bring to them.

The second phase of the co creation workshop focused on transforming the needs of our pilot's sites into a catalogue of services which will be delivered by ODIN.

We have applied the same approach used in the first exercise. We asked all the participants to describe their needs and how ODIN could support their own innovation activity and differentiate in the healthcare market

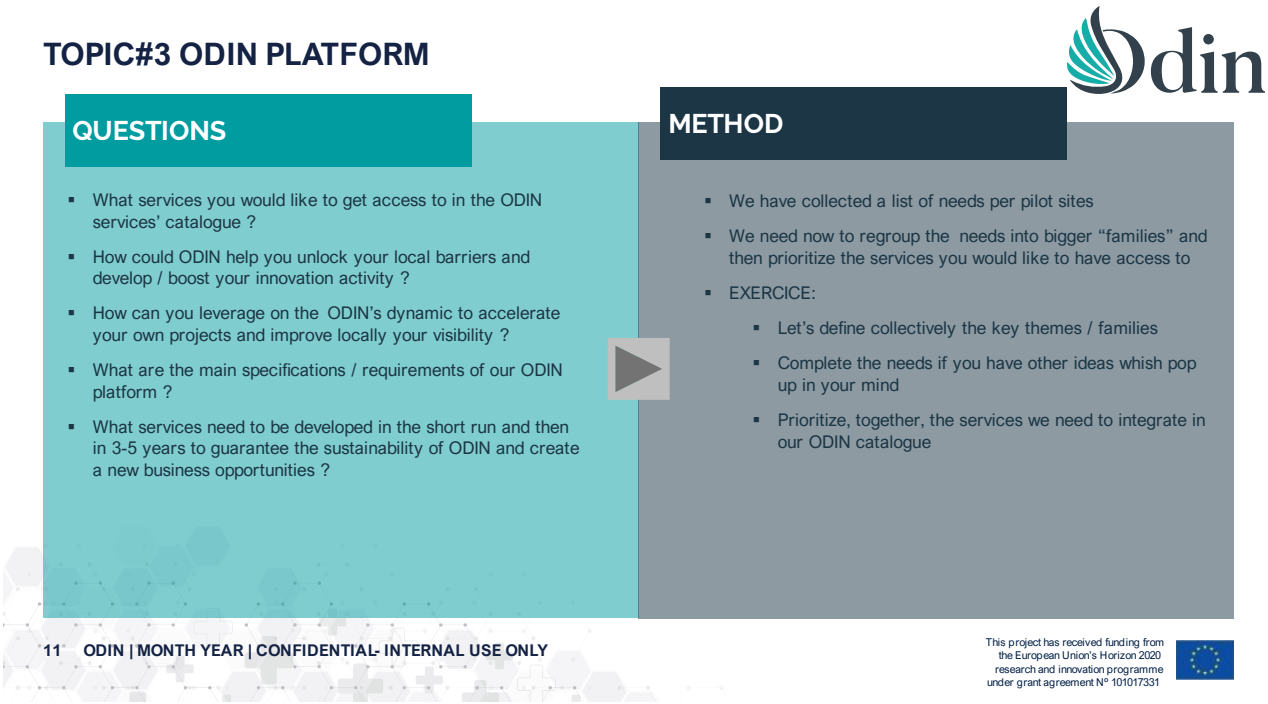


Figure 26. Topic 3. ODIN platform

To facilitate the identification of their needs, we started by presenting the key services each pilots' sites aiming ODIN to deliver:

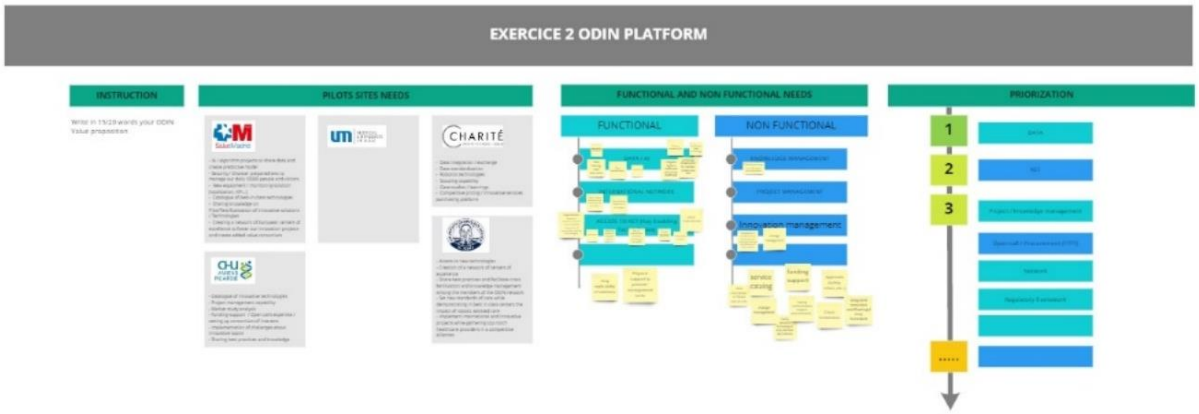


Figure 27. Exercise 2. ODIN platform

Then, we asked the participants to structure their needs into 2 categories: Functional and non-functional needs. In the functional category, 3 main topics were identified. Data and AI, International network and access to key enabling technologies. In the non-functional category, participants identified services they would like to get access relating to project management, knowledge management and innovation process.

Following the previous steps, we finally agreed on 4 key activities that have to be managed by ODIN and will bring value to its original members and future participants. The ODIN platform will be composed of 4 pillars in order to support the pilots sites in the implementation of their use cases and enable them to accelerate their innovation dynamic while getting access to the ODIN catalogue.

- Data is a common challenge for all the members of the consortium. They acknowledge the importance of sharing, structuring, and collecting data within the consortium to reach a critical mass and facilitate the scale up of their projects. All our pilots' sites are seeking for information, advises, guidelines and support to facilitate their data decision process making. ODIN will create a data & AI living lab for its members in order to facilitate the implementation of data projects and share between the members the outcomes of each data initiatives. We will grow collectively and enrich our knowledge about data management, collection, and usage to co-develop the hospital of the future.
- Key enabling technologies are everywhere. Our pilots' centers are overwhelmed with SME's, suppliers which are interested to organize a pilot in their hospitals. They do not have the resources to scout a European market to identify the best company to partner with, to audit the technical infrastructure or the financial sustainability of every startup. We have decided to support our members while developing a secured catalogue of KET related to robotics, AI and IoT in order to select best in class technologies, trustful partners that fit our technical and functional requirements.
- Innovation is not yet a structured activity in our pilot's center. The pilots are still struggling to shift from an experimentation approach to an industrialized model. Most of our members do not have dedicated team to implement innovative projects and support their medical and nursing staff into the implementation of robotics, AI or IoT initiatives. In the co creation workshop, we have realized they needed external support and resources in

terms of innovation management process. ODIN will organize innovation challenges, common open calls for its members in order to create new business opportunities inside the consortium and create a collective dynamic which will accelerate and consolidate locally their own innovation activity.

- ODIN will be also an innovation knowledge management platform. A place where the members can share best practices, ask for advice and benefit from the success and failures of its members. Our pilots' sites are building up their innovation activity. They are implementing for the first time, projects about robotics, IA, data and IoT to improve care pathway, automate traditional activities, improve patient and staff's experience. In this scenario, the ODIN ecosystem will also be a platform where they can learn from each other and accelerate their own learning curve about how to implement innovative projects in their hospital.

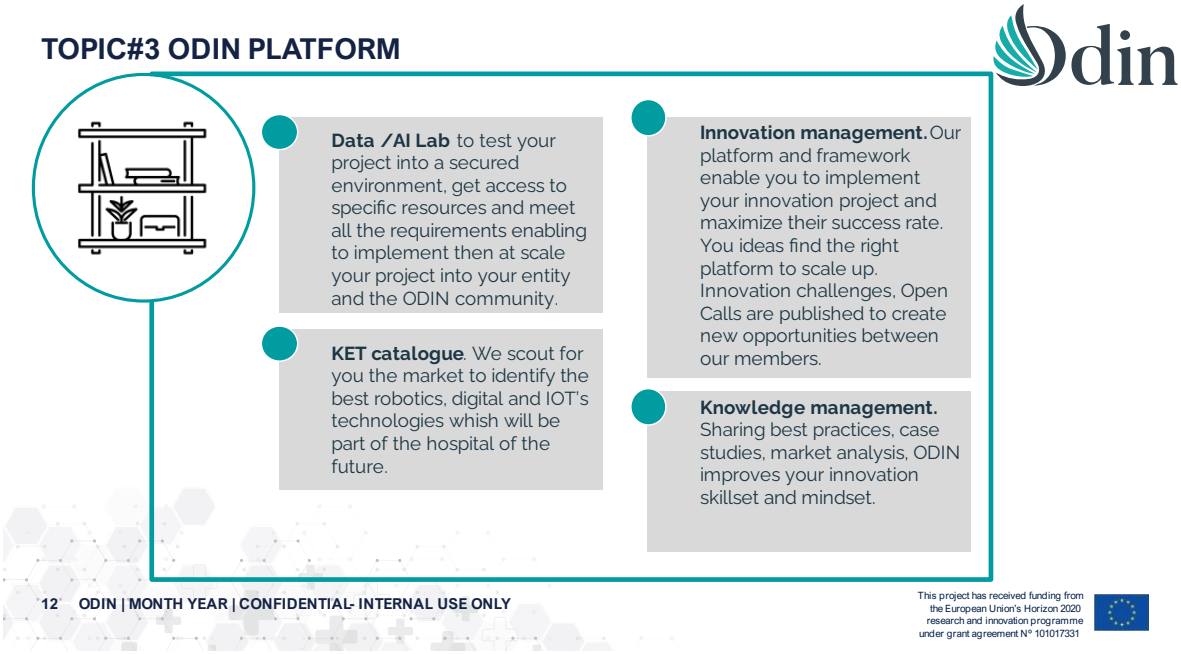


Figure 28. Topic 3. ODIN platform

7 Conclusions and future work

This deliverable is the first release of the insights of the stakeholders in ODIN project. The collection of the requirements has been done following a series of interviews that address specific questions. The interviews gather the challenges, pain points, main barriers, and key factors of success when the technology is incorporated or intended to be incorporated in the hospitals.

A second interaction was done with the pilots and the partners in the project to refine the value proposition of ODIN, based on data, key enabling technologies, innovation management and knowledge management

During this second iteration a specific workshop was organized to build the ODIN Ecosystem.

On this regard, as a next steps, we will have better understanding on what kind of gains stakeholders are looking for in the ecosystem. This will allow us to analyse the exchanges of value carried between partners in ODIN ecosystem, leverage the potential of ODIN project in the ecosystem and engage external organisations and stakeholders through ODIN activities.