Platform for Innovation of Procurement
and Procurement of Innovation

D6.6 Report 1 from workshops

PiPPi

GA No 826157

December 2020

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1. Purpose of document

The purpose of this document is to present the objectives of the workshops with the stakeholders, the methodology used and results obtained in the two workshops carried out on 16th September 2020 and 1st October 2020. This first series of workshops are held within the framework of WP6 "Business model, plan and operating model" which focuses to ensure the sustainability of the PIPPI platform.

First of all, a description of the objectives of the workshops is done in Section 2. Afterwards, an explanation of the previous work carried out to collect the information needed to prepare the workshop is gathered in Section 3. Section 4 describes the methodology and tools employed, as well as the workshops agenda and the list of the participants of both workshops. Finally, the main results and conclusions of both workshops are described in Section 5.

The document has three appendixes: the first enlists the minutes of the interviews carried out as a previous work to the workshop. The second appendix shows the list of gains and pains identified in those interviews. The third appendix includes the mock-up mural as a result of the test of the workshop with Vall d'Hebron participants. To conclude, the fourth appendix includes the two murals obtained as a result of the workshops activities.

2. Objectives of the workshops

The main objective of the workshops is to define the value proposition of the PIPPI Platform, which can at the same time be divided in three specific objectives:

O1. Identify the needs of the potential users of the platform (technological offer and health-care system members) when it comes to their public procurement of innovation (PPI) processes.
O2. Propose solutions to fulfil those needs.
O3. Define a service portfolio for the PIPPI platform that responds to the previously identified needs.

3. Preparation and previous work

To ensure the success of the workshop, the following preparation activities were carried out:

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3.1.   Presentation Workshops

Firstly, a series of workshops were organized with different stakeholders clusters (healthcare providers, citizens / patients, policy makers, payers, research community, industry and enablers) to extract information on different specific topics. One hundred twenty nine people in 5 partner sites (Barcelona, Rotterdam, Stockholm, Wien and Milan) participated in the presentation workshops. Stakeholders were divided into working groups with the aim of obtaining enablers and stoppers for each of the steps of PIPPI process, which include key processes of the identification and definition of the needs inside the innovation process. Specifically, different focus groups were held to extract enablers and stoppers for the following topics:

1. Need sharing
2. Need priorization
3. Further detailing into the need
4. Concluded definition of the need
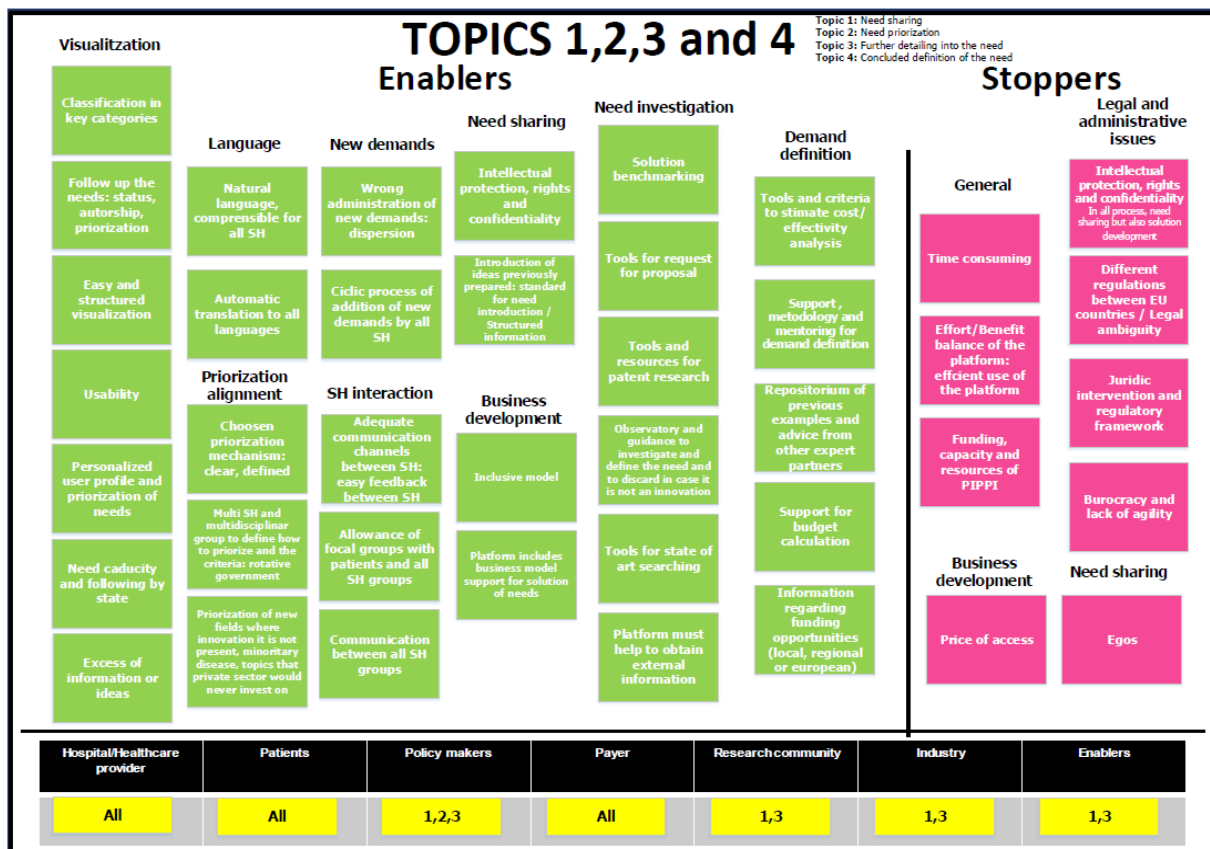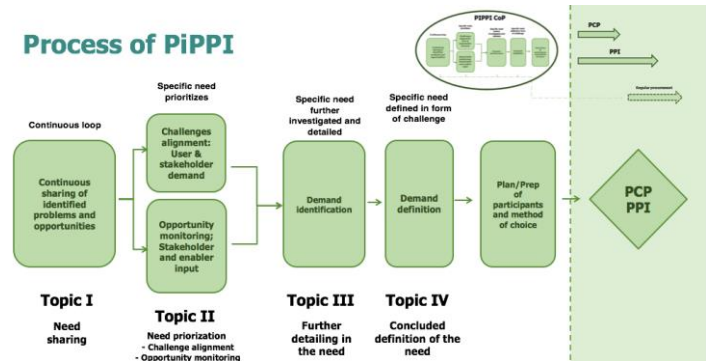
Participants also discussed the requirement for each stakeholder group to be involved in each step of the process. In general, the results of this first interaction with stakeholders are shown in the following illustration.

The results obtained on these workshops series was used to prepare the interviews with selected stakeholders. Further explanation of this workshop can be found in Annex 3 of deliverable 2.4. Moreover, a deep analysis on this workshop series will be submitted in deliverable 2.1.

3.2. Interviews with stakeholders

With the aim to understand the needs of both technology providers and healthcare professionals during the preparatory phase of a Public Procurement of Innovation Process, nine interviews were carried out with representatives of both areas. The interviewees were selected considering their experience in PPI. The following table shows the names and positions of the interviewees:

Name	Entity	Position
Caterina Sampol	Hospital de la Santa Creu I Sant Pau (HCP)	Transformational change and value-based procurement manager
Ramon Maspons	Agència de Qualitat i Avaluació Sanitàries de Catalunya (AQuAS)	CIO
Francesc Iglesias	Institut Català de la Salut (ICS)	Deputy director ICS
Sonia Cortés	Hospital Universitari Vall Hebron (HUVH)	Economic Director
Alicia Cano	Medtronic	Market Development
Xavier Catasus	Eurecat	Business Development Manager
Izabel Alfany	Leitat	Business Development Manager
Dr. Carlos Molina	HUVH	Ictus Specialist
Dr. Albert Salazar	HUVH	CEO

Appendix 1 contains the minutes of the carried out interviews.

3.3. Mock-up workshop with members of Vall d'Hebron Hospital (HUVH)

A mock-up workshop was carried out in September 14th with members of HUVH to ensure that both the designed dynamic exercises and the virtual tools were considered comprehensive and user-friendly for the participants. As a result, constructive feedback was gathered from the participants, which serves as key input to make modifications and define

the final workshop methodology.

The result in a mural format was generated from this test of the workshop performed with members of HUVH, which is included in appendix 3 of the present document.

4. Development of the workshop

4.1. Technological tools

Considering the situation derived from COVID-19 pandemic outbreak, it was decided to conduct the workshop remotely.

The following tools were used:

Microsoft Teams

Microsoft Teams is the centre for teamwork in Office 365. It is an online system used both for exchanging files and maintaining appropriate virtual communication.
This tool includes the next features:

Google Meet

Google Meet is similar to Microsoft Teams. In the first workshop, a problem was encountered with several participants with Teams connection, and it was decided to change to this communication platform.

GoToMeeting

GoToMeeting is also similar to Microsoft Teams. In the second workshop on 1st October, Microsoft Teams service was down worldwide for several hours due to technical reasons. For this reason, GoToMeeting communication platform was used instead of Microsoft Teams.

Mural

Mural is an online workspace tool for visual collaboration, inspiration and innovation. It provides blank spaces to create and share digital walls where everyone can jot down and organize ideas. In both workshops, Mural was used as a facilitation tool, permitting that all the participants could propose their ideas using the real-time editing tools. The voting tools of Mural were also used.

4.2. Participants

4.2.1. First workshop (16th September)

16 people representing both technological providers and healthcare professionals were invited to the workshop. Finally, 9 of them participated in the workshop, apart from the team members, from VHIR and IDOM:

- Ramón Maspons (AQuAS- Enablers; governmental agency)
- Sònia Cortés (HUVH- Healthcare providers; hospital)
- Caterina Sampol (HCP – Healthcare providers; hospital)
- Anna Monistrol (ACCIÓ- Enablers; governmental agency)
- Carlos Grande (Pëtri Laboratorio de ideas - Enablers; innovation consulting agency)
- David Magem (Catsalut – payer/insurer of the Catalan health system)
- Alicia Cano (Medtronic - Industry)
- Izabel Alfany (Leitat – Research community; technological centre)
- David Pérez (Telefónica - Industry)
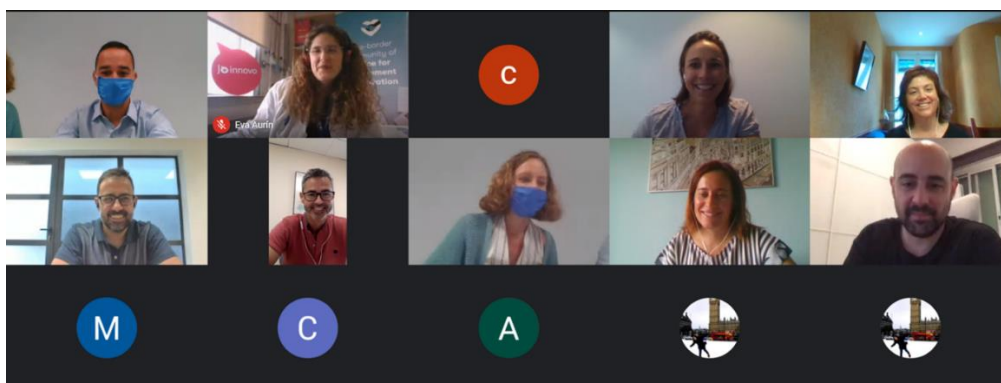
4.2.2. Second workshop (1st October)

In the second workshop, people who were not capable to assist to the first workshop or had connection problems were invited once again. After sending the invitations, 10 of them

accepted to participate:

- Meritxell Cucala (HCP- Healthcare providers; hospital)
- Soledad Romea (HUVH- Healthcare providers; hospital)
- Carme Diez (HUVH- Healthcare providers; hospital)
- Jorge González (TicBiomed - Industry; SME)
- Joan Escudero (Pulso- Enablers; consulting agency)
- Cristian Pascual (Mediktor- Industry; SME))
- Xavier Casadesus (Eurecat - Research community; technological centre))
- Alex Casadevall (Pulso- Enablers; consulting agency)
- Albert Salazar (HUVH- Healthcare providers; hospital)
- Ramón Maspons (AQuAS- Enablers; governmental agency)

4.3. Methodology and agenda

The methodology of the workshop was based on two tools:

- The Business Model Canvas[1], designed by Osterwalder, A. & Pigneur, Y. This methodology is aimed at developing new business models or innovating existing business models, in a creative manner. It is interesting because it gathers in a one-pager canvas all the elements that must be defined when designing a business model. It permits to visualize the impact of a change in one of the elements that integrate the business model on the other elements.

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[1] Osterwalder, A: & Pigneur, Y. (2010): "Business Model Generation".

Socios clave	Actividades clave		Propuesta de Valor	Relación con clientes	Segmento de clientes
	Recursos clave			Canales	

Estructura de costos	Fuentes de ingresos

- The Value Proposition Canvas[2], created by the same authors. This method is aimed at ensuring that a product or service responds to the needs of the customer. As visual as the Business Model Canvas, it is very useful when defining the value proposition of a new platform and translating it to a portfolio of products and services.
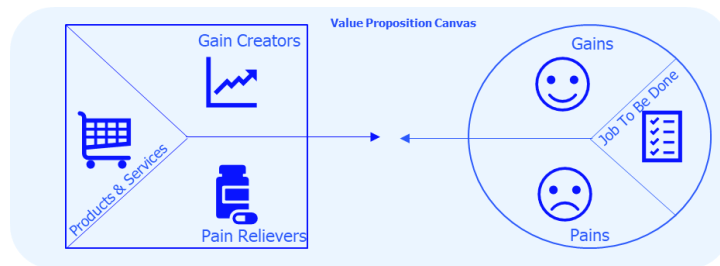
As a result of the application of this method, the Value Proposition its defined, which is the central element of the Business Model.

To apply the value proposition method, it is necessary to start by identifying the Pains (the negative experiences, emotions and risks that the customer experiences in the process of getting the job done) and Gains (the benefits which the customer expects and needs, what would delight customers and the things which may increase likelihood of adopting a value proposition) encountered by the PPI practitioners when it comes to start and manage a PPI

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[2] Osterwalder, A: & Pigneur, Y. (2014): "Value Proposition Design".

process, as well as the Job to be done (the functional, social and emotional tasks customers are trying to perform, problems they are trying to solve and needs they wish to satisfy).

Once the Pains, Gains and Jobs are identified, it is necessary to define the Gain Creators (how the product or service creates customer gains and how it offers added value to the customer) and Pain Relievers (a description of exactly how the product or service alleviates customer pains), to finally specify the Products and Services (the products and services which create gain and relieve pain, and which underpin the creation of value for the customer).

It is important to remember that the workshop was virtual, because the situation derived from COVID-19 made not possible to celebrate a face-to-face workshop in HUVH. According to the team members' experience, virtual workshops cannot take more than two hours, because it is very difficult to maintain participants' attention for a longer period.

To develop the Value Proposition method from scratch in a two hours workshop is not feasible, so the team decided to analyse pains and gains previously, considering the opinions of experts that were interviewed. With those insights, a list of pains and gains was carried out, and presented as a starting point in the workshop.

The detail of the methodology followed in the workshop was as follows:

1. Presentation of the pains and gains from the perspective of the technology providers (companies and technological centres) and health system representatives. The list of pains and gains identified in the interviews is included in Appendix 2.
2. Debate to identify other pains and gains and complete the previous list.
3. Prioritisation of Pains and Gains: to focus on the most important pains and gains from the perspectives of both technology providers and health system entities, a prioritization exercise was carried out. The method used was as follows: each representative of companies and technology centres had 7 votes that could distribute, giving one vote to each of the 7 pains and gains considered the most important ones, or even giving more than one vote to some of them, and distributing the rest. In the demand side (representatives of health system entities), 10 votes were assigned to each participant.
4. At the end of the voting session, a list of pains and gains, organized by importance, was obtained.
5. Then, a brainstorming session was done, to generate ideas of possible gain creators and pain relievers for the main pains and gains according to the prioritization exercise. A lot of proposals were obtained in each of the workshops, and a debate

was promoted in order to ensure the understanding of all the proposals and to group those that were similar or related.

The workshop was planned to be done in a two-hour period, according to the following agenda:

> *11h. Introduction and presentation of participants*
> *11:15h. Dynamic exercise to learn how to use the technology platform MURAL*
> *11:25h. Presentation of gains and pains, debate and prioritization of pains and gains*
> *12:00h. Brainstorming: pain relievers and gain creators*
> *12:30h. Debate and proposal of products and services*

5. Results

The results of the two workshops are detailed in the following subsections. In addition, a graphic result in a mural format was generated from both workshops, which are included in appendix 4 of the present document.

5.1.   First workshop (16th September 2020)

5.1.1.   Identification of additional gains and pains

After the presentation of the identified gains and pains, some participants contribute identifying additional gains/pains which they consider that were missing in the list. Finally, the outlined pains were included in the list and were taken into consideration for the prioritization activity:

- Priorities conflict.
- Excessive bureaucracy in the process.

5.1.2.   Prioritization of gains and pains

Nine pains and gains were prioritized by the participants of the workshop using the voting tool available at Mural platform:

1. **Gain 26:** Sharing risk with suppliers (7 votes)
2. **Gain 21:** Sharing needs within the health sector (7 votes)
3. **Pains 14/43:** PPI processes are lengthy, not agile and without traceability (7 votes)
4. **Pain 36:** Lack of prioritization of the needs (5 votes)

5. **Pain 39:** Difficulty in identifying financing channels (4 votes)
6. **Pain 13:** Lack of co-responsibility in PPI projects (3 votes)
7. **Pain 11:** Unrealistic budgets (3 votes)
8. **Gain 3:** Co-creation to define comprehensive PPI projects (3 votes)
9. **Pain:** Excessive bureaucracy in the process (3 votes)

All votes are reflected in the following screenshot taken from the mural employed during the workshop.

- Technological Supply Prioritization:
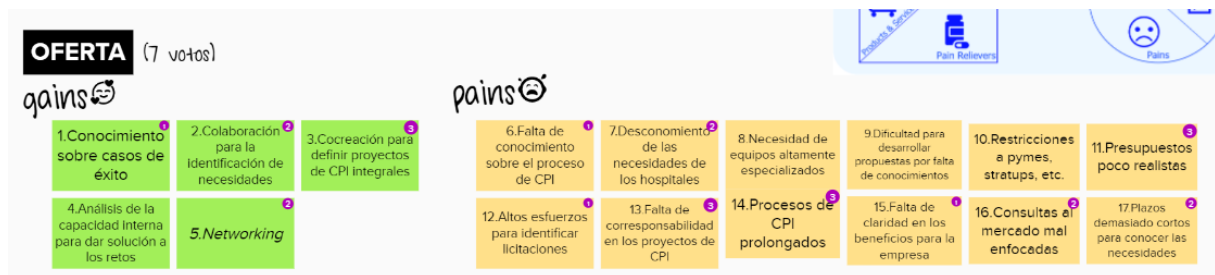
- Technological Demand Prioritization:

5.1.3. Gain creators and pain relievers for the prioritized gains and pains

Finally, additional solutions and tools were proposed by the participants to achieve PIPPI goals, by maximizing the prioritized gains or, on the contrary, minimizing the pains.

As main solutions, the participants proposed to:

- Maximize "sharing needs within the health sector" establishing periodic meetings, aimed at identifying shared needs between hospitals. Further discussion between hospitals should be promoted for a better definition/specification of the needs.
- Minimize "difficulty in identifying financing channels" via specialized training and continuous update on the different channels of financing can be offered in PIPPI platform. A specific area publishing related PPI calls can be also performed.
- Foster "sharing risk with suppliers" by understanding new and successful collaboration models shared in the platform. In addition, a specific discussion area can be offered to discuss about benefits/disadvantages of the different relation models.
- Reduce the "lack of co-responsibility in PPI projects" by aligning the objectives between supply and demand and putting the tender focus on what will be achieved as a result of the commitment of all the parties.
- Facilitate the "co-creation to define comprehensive PPI projects" offering an open communication channel between all actors through interactive platform between the users.
- Minimize the fact that "PPI processes are lengthy, not agile and without traceability", sharing successful examples and materials in the platform, as well as practical tools created to facilitate process guidance and standardization.
- Minimize "lack of prioritization of the needs" by introducing different ways/systems to assess the needs by means of a better prioritization, including different metrics that could estimate economic and social impact, among others.

5.2. Second workshop (1st October 2020)

5.2.1. Identification of additional gains and pains

Before the prioritization, participants discussed on the inclusion of additional pains and gains that were considered missing in the list. As a result, the following gains and pains were added to the list:

- Credibility of commitment to scale-up the solution developed
- Give visibility to the technological supply to hospitals
- Transition between PCP and scale-up
- Poor coordination with the Information Systems Unit (ICT)
- More recognition of the contribution of knowledge led by the hospital

Additionally, some doubts of the participants regarding the gains and pains identified were solved during the workshop. Thanks to the raising of these doubts, pain number 13 was

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renamed for a better definition from "Lack of co-responsibility in PPI projects" to "Loss of control over IP rights"
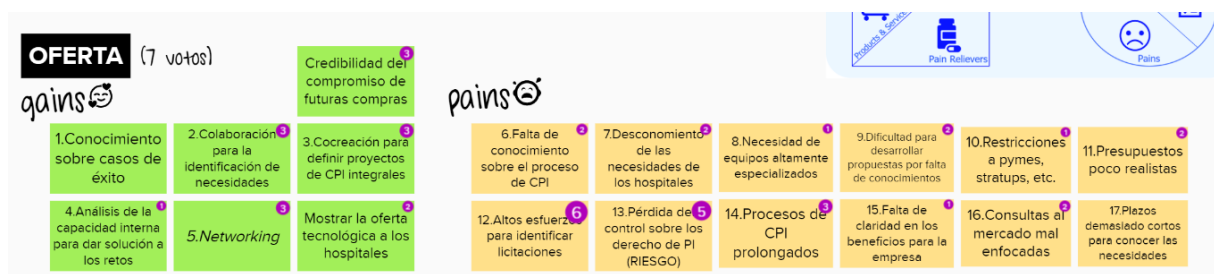
5.2.2. Prioritization of gains and pains

The nine following pains and gains were prioritized by the participants of the workshop, using the voting tool from Mural platform:

1. **Pains 14/43**: PPI processes are lengthy, not agile and without traceability (10 votes)
2. **Gain 26**: Sharing risk with suppliers (9 votes)
3. **Gain 21**: Sharing needs within the health sector (8 votes)
4. **Pain**: Transition between PCP and escalation (8 votes)
5. **Pain 39**: Difficulty in identifying financing channels (7 votes)
6. **Pain 12**: High efforts in order to identify tenders (6 votes)
7. **Pain 13**: Loss of control over IP rights (5 votes)
8. **Pains 45/46**: Poor alignment of key indicators with suppliers and lack of homologated indicators (6 votes)
9. **Gain 5**: Networking (3 votes)
10. **Gain 3**: Co-creation to define comprehensive PPI projects (3 votes)
11. **Gain**: Credibility of commitment to scale-up the solution developed (3 votes)
12. **Gain 2**: Collaboration for the identification of needs (3 votes)

However, all the votes of the participants of the workshop are shown in the next screenshot of the Mural platform.

- Technological Supply Prioritization:

- Technological Demand Prioritization:

5.2.3. Gain creators and pain relievers for the prioritized gains and pains

After the prioritization activity, participants of the workshop were encouraged to ideate some of the solutions/tools that PIPPI Platform could offer in order to maximize/minimize the gains/pains prioritized.

The most relevant actions proposed during the session were to:

- Maximize "networking", offering a PIPPI platform with a space for hospitals and technology providers to share project ideas. Also, a specific section regarding innovation hubs and news about innovation in the health sector can be useful.
- Maximize "credibility of commitment to scale-up the solution developed". The platform members can act as a lobby to change how the overall PPI process is performed. Moreover, sharing the strategies of the hospitals in the platform can be a great idea in order to gain credibility.
- Maximize "collaboration for the identification of needs", by arranging/scheduling open innovation days or sessions in order to promote matchmaking between the technology offer and the demand side.
- Minimize "high efforts in order to identify tenders", through a new tender alert system creation with various functionalities, which should permit to filter by keywords or categories.
- Minimize the fact that the "PPI processes are lengthy, not agile and without traceability", by providing tools to facilitate standardization of the process, such as manuals, guides or success stories, providing specialized training among others.
- Foster the "co-creation to define comprehensive PPI projects" sharing the strategic lines of the different hospitals, as well as the processes/areas for improvement of the hospitals should be published to allow the alignment of the PCP and PPI chain.

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- Maximize the "sharing of needs within the health sector", enabling a tool for challenges and problems exchanging in the sector, that will allow to share the different needs of hospitals in an open and continuous way. This will also enhance the implementation of collaborative projects (between hospitals).
- Minimize the "misalignment of key indicators with suppliers and the lack of approved indicators", by sharing studies from different hospitals to obtain homogeneous indicators and provide specific training in reference to indicators and tools to measure PiPPis activities' impacts.

5.3. Conclusion

In conclusion, the results of the two workshops reflect a clear prioritization of gains & pains in the whole innovation process by the different stakeholders. Among the most notable gains prioritized are the sharing of needs within the health sector and the sharing of risk with providers. On the other hand, among the most prioritized pains by the different stakeholders are the high efforts to identify tenders, the loss of control over IP rights, the difficult transition between PCP and escalation and slow and long-lasting PPI processes.

It should be noted that the prioritization of pains and gains is made mainly from two different sides with specific needs, the side of supply and the side of demand. However, some of the pains and gains prioritized are shared by these two groups of stakeholders, such as the huge difficulty in the management of PPI/PCP processes in terms of time and resources.

The results of these workshops will serve as inputs for deliverables D6.1 and D6.3, referring to the business model and operating model of the PIPPI platform. In this sense, the results obtained will allow the PIPPI business model to be improved, maximizing the value proposition for all stakeholders and ensuring a sustainable business model. Some of the proposed solutions to satisfy the needs prioritized that were identified during the development of the workshops will be incorporated in PIPPI's business model. For example, the digital tool for personalized advice regarding PPI/PCP process and the dashboard for monitoring the PPI/PCP process are potential services that can be included in PIPPI's portfolio services or tools.

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Appendix 1. Interviews carried out to prepare the workshop

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Interview with MEDTRONIC (July 20, 2020, 8.30am)

Participants:
- Alicia Cano- Medtronic
- Marta Albertí and César Colmena- IDOM
- Victòria Valls- Vall d'Hebron Institute of Research (VHIR)

Main topics:

About Medtronic

Medtronic is a company dedicated specifically to medical devices, specifically pacemakers and other heart devices. A few years ago, it joined another international company, with a global presence, and because of this union Metronic has been expanding its activities, going from being a device supplier to a solution provider. A solution is often a product accompanied by a service, a methodology, work procedures, etc. In order to provide solutions, close collaboration between healthcare institutions and industry is necessary.

Medtronic experience at PPI

They have participated in innovative public procurement. That is, in the purchase of an existing solution, in an innovative way, in which the payment was linked to the achievement of certain objectives. This purchase was made by Hospital de Sant Pau, and they participated in it in collaboration with the Abbot company.

For Medtronic, the ICC should allow co-creating with healthcare providers a solution that is useful for healthcare providers and especially for patients.

They do not like the PPI model that SERGAS has implemented in Code 100, since SERGAS keeps all the results and there is no co-responsibility (for example, they put out to tender a telemedicine system that had to be integrated into their systems, so that the company already lost all control over the system).

The PPI process

In the Hospital de Sant Pau, in the PPI Stop & Go process, they had a need and they raised it with the companies with which they collaborated on a regular basis. These conversations allowed them to see the possibility of launching the purchase not only of supplies but of a whole process of healthcare improvement, with payment linked to objectives (co-responsibility).

The difficulty that Medtronic encountered when participating in this process was having to put all its knowledge to good use. It was no longer enough to propose technical specifications of a product and a price, but it was necessary to demonstrate the ability to achieve this improvement in the healthcare process. It helped them a lot to have previous experience in European projects.

The ideal PPI process would be one in which a hospital could simply say in which area it wants to improve, and companies propose solutions. An indicator of the success of a

contract is that, at the end of it, the institution decides to get another one (solution).

Difficulties of the PPI process

The main difficulty is getting hospitals to change the traditional purchasing paradigm.

Often the consultations to the market arise because there has already been a dialogue between the companies and the health institutions, through which the hospitals have intuited that there may be solutions to their needs. However, this type of relationship is frowned upon, it should be normalized.

Alicia Cano is unfamiliar with the concept of early demand maps, but once explained, she thinks they can be interesting. However, for SMEs, the time horizon in which they can envision a sale has to be short, as they need it for their survival.

Market inquiries are made with too little time margin.

Business problems (Pains)

- Know how to respond to a functional, non-technical specification and develop an operational plan (it would help to have examples).
- Need to collaborate with different commercial houses (find partners). Medtronic has ongoing conversations with SMEs to identify those that can provide complementary products or services to its own. In this sense, they do not mind about sharing information (sometimes they don't even sign an NDA) and believe that it is only very large companies that are reluctant to share that information.
- To be able to know all the ongoing tenders. In the case of Catalonia, they know them because they have very frequent contact with hospitals. For the rest of Spain, they pay a tender information service. In the rest of the world, they don't have that information.
- Often in the market consultations, the problems or needs are not described, but the solutions. That limits innovation.
- As consultations to the market are done so quickly, there is no time for discussion between companies. They usually find out about the result when it is published, or if a clinician tells them how it went. In this sense, the platform could help by generating discussion forums.
- Usually the solution is built together but not the budget, and often the budgets with which the tenders come out are unrealistic because they consider only the price of the devices, not the services.

Others

Recommends interviewing Francisco de Paula, from Medtronics, whose background at a professional level goes through the management of different hospitals.

Interview with HOSPITAL DE SANT PAU (July 21, 2020, 1:00 p.m.)

Participants:
- Caterina Sampol- HCP
- Marta Albertí, César Colmena and Maitane Arrondo- IDOM
- Victòria Valls- VHIR

Main topics:
Hospital de Sant Pau experience at PPI
Caterina Sampol begins the meeting by clarifying that the Hospital de St. Pau does not use the PCP or PPI purchasing model but they have participated in innovative public procurement, that is, in the purchase of an existing solution in an innovative way the one that the payment is tied to the achievement of certain objectives.

Specifically, Caterina explains to us that they (Hospital de Sant Pau) see technology as a utility. In this sense, the hospital does not have the resources to develop new technological and innovative solutions. For this reason, the hospital establishes many agreements with technology providers (outside of public procurement), whether they are companies or technology and research centers.

Before the PPI process
Innovation ideas can come from a clinician, from a company making a proposal, or from strategy. In the latter case, there is usually already a budget available, while in the former, the search for financing can be a significant barrier.

Before beginning any innovative public purchasing process, Hospital de Sant Pau analyzes the needs in depth and searches the market to see if there is any solution that can cover this need. In this regard, before starting any purchase, the internal work team performs a cost analysis, a market consultation, a study of the financing model, an analysis of the sustainability of the solution, among others, to determine the order and magnitude of the purchase.

On the other hand, the Hospital de Sant Pau has an internal system for managing unsolicited proposals, which is carried out by the Procurement Department. In this sense, there is also a section on the hospital's website to capture ideas where anyone can present innovation proposals. These proposals must be reflected in an idea sheet that will be analyzed and prioritized by the Innovation Department of the Hospital de Sant Pau.

During the PPI process
After the internal analysis prior to the process, the team tries to delve into the identified need, establishing what the minimum requirements of the solution would be, what would be its impact on the health/well-being of patients, etc.

Once this deepening is carried out, they make the decision on whether to proceed with the Public Procurement process. The next step they carry out is the Pre-Market Consultation in

order to improve the specifications that they will later draft. In this Consultation process, individual interviews are carried out to find out the viability of the solution, if the budget proposed by the Hospital can fit with the offers of the providers, among others.

In relation to the monitoring of the entire PPI process, it is carried out from the Hospital's Procurement Department, where the Generalitat de Catalunya's Procurement Platform is mainly used. It also has functionalities for the Market Consultation process.

Finally, for the monitoring of indicators, the implementation of an information system is incorporated in the specifications in order to automate the evaluation of the different indicators.

Job to be done

Caterina considers that the PIPPI platform can be very useful in stages prior to the PPI process, where it highlights the following characteristics or functionalities:

- Bank of technological solutions on the market: it can be of great help in the preparation and definition of needs stage.
- Community of Practice: they find it very valuable that experiences, problems, good practices, etc. can be shared. in reference to the PPI process. In this section, technology providers should share their success stories.
- Networking platform in order to establish relationships with other agents and to share valuable information
    - o Sharing of information/needs: in order to share and know what the needs of the different participants are. In this case it is also interesting to be able to contact potential bidders directly in order to have a first point of contact.
    - o Joint purchases: they would be interested to know if other hospitals are pointing towards innovations similar to theirs, in order to be able to raise aggregate demand and joint purchases
    - o Joint Venture (not PPI): in order to present themselves together with other participants to calls in competitive competition for R&D projects

Others

She considers that PIPPI could end up being a very interesting data bank, both in terms of solutions and their performance indicators.

The Hospital de Sant Pau would not pay for the PIPPI service (it considers that technology providers should pay for this service). They could only get to pay for the service if it greatly simplifies any of the processes or activities they currently carry out.

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Interview with LEITAT (July 22, 2020, 12:00h)

Participants:
- Izabel Alfany- Leitat
- Marta Albertí and César Colmena- IDOM
- Victòria Valls- VHIR

Main topics:

Leitat's experience at PPI

In MedTech they have had several attempts at PPI without success, due to the fact that the TRL of their developments is lower than the one usually requested. That has prevented them from leading proposals. In other sectors such as Manufacturing, they have been more successful in PPI processes.

At the regional level they have a lot of experience in PPI processes but at the international level not so much. In this sense, they do have the capacities to face an PPI process at the international level, but they do not have the knowledge of the legislative peculiarities of the different countries.

In reference to Pre-Market Consultations (CPM) they do have experience. From Izabel's point of view, companies are much more reluctant to share information openly in this process. In this sense, Technological Centers are more open to sharing information. Leitat in particular focuses on sharing its development capabilities and at a technological level they share information with little level of detail. In these CPMs, both researchers/technicians and the "Business Promotion & Management" team usually work.

Regarding the management of the PPI process, Leitat has a highly trained internal team to carry out the administrative part of tenders, follow-up, etc. They also have internal resources for measuring results.

Job To be Done
- Considers that it would be very interesting if the PIPPI platform could map unmet needs (in advance) with the collaboration of the different stakeholders (essentially hospitals). This could help them successfully cope with many PPI processes. In this regard, Izabel also refers to the importance of generating an impact matrix, in which the impact of the project in various areas could be easily and visually determined, such as, for example, the well-being of citizens, the patient, Hospital.
- Being able to include possible public sector tenders in the platform prior to the entire process (early demand), so that Leitat would have more response time and, for example, could increase the TRL of a specific technology in foresee a future tender.
- The possibility of being able to access the platform to search for possible partners (preferably private companies) is highlighted, since as a technology center they do not go to tenders alone, but with a client (which is a company). Leitat is currently

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looking for partners through associations / platforms such as eitHealth, ETPN, among others.

Others

From Leitat, they would be willing to pay for an information service for open or planned PPI tenders.

EIT Health is updating its agenda, and the new approach is geared towards generating aggregate demands.

Interview with EURECAT (July 22, 2020, 1:00 p.m.)

Participants:
- Xavier Catasús- Eurecat
- Marta Albertí and César Colmena- IDOM
- Victòria Valls- VHIR

Main topics:

Eurecat experience at PPI

They have extensive experience in PPI at the local level (Catalonia), for example, they have participated in the recent Public Procurement of Innovation in Health Program by entities of the Catalan public health system network (SISCAT), where 18 projects have been financed of innovation in order to improve the quality and efficiency of healthcare. On the other hand, they also have a lot of experience in Pre-commercial Public Procurement at a local and international level.

The PPI process

The first step in the process that Eurecat follows is the identification of unmet needs in the public health system. In this case, Eurecat has enough networking to meet these needs (they belong to a very broad and active ecosystem, especially at the local level). In any case, they have an internal team that identifies tenders at national and international level using information systems (payment) that notify about tenders and business opportunities.

The next step consists of delving into the need, analyzing the internal capacity of the CCTT to be able to provide a solution, what response capacity they have, who may be possible partners for development, among others.

They also have experience in Pre-Market Consultations, although from Xavier's point of view, these Consultations are not entirely beneficial for the Technological Offering side. A lot of time is wasted in the process and most of the time participating in them does not bring any benefit for the tender. He considers this to be one of the processes that they spend the most time on.

When it comes to preparing the tender, in relation to administrative tasks they have a specialized team and in relation to the preparation of technical and economic documentation they have a lot of expertise (although it emphasizes that they are always laborious tasks).

Problems (Pains)

- There is no possibility of knowing the needs prior to the CPM, when the process is already more advanced. In this sense, they consider useful to have a repository of needs in which all the agents involved could participate.
- From Xavier's point of view, the great problem with the current PPI model is that hospitals do not have an efficient Contracting service, so administrative management

becomes very slow and this leads to lengthening the process more than necessary.

- From the point of view of open information sharing, he would like to learn more about the solutions offered by other technology centers (but he finds it very difficult for entities to share information on the platform and also by Eurecat)
- The search for partners is usually done by contacting clients/companies in their current portfolio and they do not usually contact other potential new partners. They see positive being able to find new partners that can complement their activity through the PIPPI platform (it must be at a stage very prior to the PPI process to have enough time to establish a new relationship).

When projects are large, the type of companies that can participate in them is very limited. Consider tenders in batches better, because establishing large partnerships is very complex.

Others

- Considers that this process could be substantially improved by monitoring the results of PPI projects using a platform such as PIPPI.
- It is very interesting to be able to share information on the management of PPI processes (for example: success stories, problems, etc.) in a CoP within PIPPI
- It considers that Eurecat could pay to use the PIPPI platform only if it provided a quality service with high added value.

He recommends interviewing a colleague from the Contracting Unit who knows the entire PPI process very well (he will put us in touch).

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Interview with INSTITUT CATALÀ DE LA SALUT (July 24, 2020, 9:30 a.m.)

Participants:
- Francesc Iglesias- ICS
- Marta Albertí and César Colmena- IDOM
- Eva Aurin and Victòria Valls- HUVH and VHIR

Main topics:

Francesc's experience in PPI

Francesc has not participated directly in PPI processes but has participated in a collateral way, collaborating with people such as Eva Aurin (HUVH) and Ramon Maspons (AQuAS). He has participated in many projects within the Horizon 2020 framework. Francesc works at the ICS in a much more strategic and organizational scope.

About the PPI process

Unfortunately, Francesc believes that a new innovative culture has not evolved that integrates the ICC into the different organizational structures. In this sense, the different entities do not tend to leave their comfort zone and never analyze the opportunity cost of not using the PPI instrument in their organizations. In addition, other innovative forms of purchase such as payment for value, payment for results are not being used and it is still difficult to share the risk when innovating.

In reference to ICS, he thinks that other entities are organizing themselves better and much faster when implementing PPI projects. ICS is an organization that is not focused on innovation but on management, so they lose agility and consequently many opportunities in terms of PPI. Currently, Francesc sees the ICS as a recipient of proposals (by technology providers) rather than as generators of challenges / needs. In this regard, many companies find it difficult to channel these proposals to applicants, which could be a very good opportunity for the PIPPI platform.

Gains
- Considers that the legal framework that exists today offers a multitude of possibilities/opportunities and is not being used efficiently. The law is often used as an excuse not to proceed with a PPI process but it is due to ignorance of said legal framework.
- In the same way as in the previous point, to execute the Preliminary Market Consultations there are many tools that today are unknown by most entities.

Pains
- The main problem that exists today is that the PPI is not strategically integrated within organizations. In this sense, the PPI is not being taken into account in the definition of the business models of the organizations, so it is very difficult to carry out PPI projects.

- The identification of unmet needs is sometimes not well led and is very chaotic. In this regard, the needs (prioritized) should be communicated together with an approximate budget in order to carry out a correct financial and resource planning.
- Needs are not adequately prioritized.
- A model for the implementation of the PPI has not been defined within the ICS.
- The technological offer is not channeled efficiently to healthcare professionals.
- PPI processes become timeless and many of the activities that are included are not carried out in an agile way.
- The most appropriate purchase method is not chosen due to ignorance and little training in this regard.
- A general problem is that KPIs are not being measured in many entities, so the results of a PPI project cannot be compared with previous data.
- Today it is not possible to know what the next "macro" purchases will be in the medium and long term. Francesc believes that it can be very interesting to make known in advance what these future "macro" purchases will be during the next year, which can speed up the process for both technology applicants and suppliers.

Job to be done
- PIPPI as a community of practice (CoP): transparency about the success of different organizations in PPI should be promoted, but it should also try to reduce competitiveness when it comes to demonstrating who is more successful. Ideally, the entities that share success stories or experiences can be very helpful to the other entities that participate in the platform.
- PIPPI as a dissemination and pedagogical element: the platform is a very useful tool to promote the PPI so that the different units of the organizations are aware that the ways of pruchasing must be changed if one wants to continue advancing. Currently many organizational units within the health sector are not aware of the advantages of the PPI and PIPPI can be a very interesting training and information platform.
- PIPPI to facilitate the management of the PPI process: the platform could provide guidance to improve the traceability and maturation of PPI projects. Thus, the status of a project at any time and the main difficulties/problems could be identified. In addition, many internal processes could be streamlined and simplified by demand.

Interview with Agència de Qualitat i Avaluació Sanitàries de Catalunya (AQuAS)

(July 31, 2020, 9:00 a.m.)

Participants:
- Ramón Maspons - AQuAS
- Marta Albertí and Ignacio Castro - IDOM

Main topics:
AQuAS's experience
Management and coordination of results of the Catalan health system
They receives the mandate to manage the info-structure at the data level. AQuAS is the one who manages and makes available to the many healthcare providers and research centers the data relating to 7 million 500 thousand citizens who are part of the Catalan health system, plus the medical imaging system, therefore all the exploitation of data.
By mandate of the department of health and Catsalud who is working on the mechanisms of adoption of innovation in its different forms, either from new collaboration schemes (public - private or some third sector) to the generation of new instruments such as purchase of innovation or social impact bonds, up to the promotion of innovation within what are the other areas of activity of AQuAS, such as innovation in evaluation processes and therefore the transition towards evaluation models in real time and world environment, real time evaluation and real world evidence, going through evaluation mechanisms of digital therapies and the needs to link in the area of results, the capacity of a provider with the results obtained and their impact in the financing mechanisms that are developed in relation to the program contracts between the public insurer and the different healthcare providers.
Counseling with public insurance and the health department, responsible for the design of policies and their operationalization, supporting a total strategy developed by Catsalud.
Design and/or selection of instruments (within the Public Procurement of Innovation) most appropriate for each of the project types.
Evaluation/metrics that allow aligning the need for the system derived from the health care providers' strategy, which metrics must be implemented to be able to award contracts and help identify which projects and in which areas and how to build them. To the extent that there are public calls, AQuAS also develops the evaluation evaluation activity of these calls in the following two lines:
1. The evaluation of the call itself
2. The evaluation of each of the projects to ensure their scalability at the level system.

In the case of projects that could have system characteristics, AQuAS may act, commissioned by Catsalud as a contracting body, being able to initiate Public Procurement of Innovation processes. Especially in projects that can impact across the entire health system and health

providers.

About AQuAS experience in PPI

AQuAS has different casuistry depending on the area in which the project is developed. In their experience, bottlenecks are different depending on the type of innovative public purchase that is being carried out and in the area in which the project is being carried out.

Regarding the type of instrument: AQuAS develops PPI projects and Pre-commercial public purchase.

CPP - One of the main problems is trying to go beyond the state of the art and adjust the evaluation mechanisms to the characteristics of that instrument, because they are going to buy something that does not exist and that they do not know where it is going to go a priori the solution proposal (they can intuit that they are going to have to measure the possibilities of this solution to award contracts, and this has to do with measuring technical feasibility, business model proposed by companies, measuring terms related to the quality of the solution). Another important fact in PCP is related with the the propoery rights, how they are going to be managed (IP strategy). It will also depend on the typology of projects (ICT, Medical, Bio, data, etc.). They have the challenge to go one step beyond the state of the art and think about how they are going to measure all this in order to award contracts.

PPI - The key element is the measurement of key results to guarantee the deployment of innovation and in this case it is often related to the information systems that healthcare providers have and sometimes the problem is much more of information systems that allow measure everything that they want to award or that they want to resolve in the way and time in which they would like to resolve it.

In this project system, the second major derivative is the reimbursement mechanism, and therefore the possible change of payment system by the public insurer that justifies or is aligned with the characteristics of the project and the deployment necessary to be able to scale the project.

Difficulties are found above all in evaluation

In Pre-commercial Public Procurement projects, one of the main bottlenecks is the evaluation and analysis of the state of the art. The market is being asked for a solution that currently does not exist and they do not know if it has the capacity to develop, therefore if it does not exist and they do not know under what conditions the market will offer that solution.There is a very important part in this typology of projects, which is the development of an analysis of the state of the art previously carried out by AQuAS, which is the one that identifies which technologies could be adjusted to the needs that they are going to plan. However, it may be found that a company appears with a different technology, so that the evaluation scheme must be designed for any solution or technology that is offered at any time and this is done in the initial layer of the PCP project. In PPI projects the evaluation is made directly into the final phase.

How the PIPPI platform can help.

When they talk about metrics and indicators, a good part of these indicators are results, most of them clinical, in this activity the joint work of the different providers and specialists is key since it is not only a clinical discussion, but once the clinical discussion has been done, this discussion must be held with the companies. They also have to evaluate the identifying system indicators from the different points of view that are needed, what indicators are providers capable of achieve and under what conditions. Somehow, they have to be able to measure who is adding value, what value is adding, where and how it is being contributed. For this discussion this PIPPI platform is key.

2nd key element. If the strategy is more of a systemic nature, the platform is key as a discussion mechanism on how this strategy can be made operational. If the strategy comes from the healthcare provider (bottom-up), the platform is an instrument to carry out this discussion. If the project is born from a technological offer of the company to a system need, the platform is also a very interesting discussion tool.

- Macro level - More strategic discussion
- Micro level - At project level (specialties, themes, etc)

The platform could operate at a segments or group level.
- Existence of a culture of innovation or its non-existence in the organization
  - Support projects that require multidisciplinary work with important clinical leadership, support from the field of innovation, contracting, legal services, etc. It is a situation of clear differentiation between different institutions and even from different situations within the same hospitals.
- Existence of clinical leaderships
- These clinical leaderships are key and must exist within the hospital (champions at the hospital level). Within hospitals there are situations in which sometimes not all possible project stakeholders want to get involved, management wants to carry out the projects and the clinical leader does not want

Interview with HUVH (Sonia Cortés) (August 19, 2020, 9:00 a.m.)

Participants:
- Sonia Cortés - HUVH
- Marta Albertí, Ignacio Castro and César Colmena - IDOM

Main topics:

Experience of the HUVH at PPI

Sonia confirms that they do have experience in PPI and highlights a recent project called ICTUS that aims to optimize efficiency in the comprehensive care of stroke patients. In any case, in terms of PPI she considers the Hospital de Sant Pau a reference thanks to their PPI project related to pacemakers.

About the PPI process

Administrative/economic management of PPI projects in HUVH is carried out by the Department of Economic Management (budgets, procedures with the public administration, requirements, etc.). In any case, in each of the PPI projects a leader is identified (commonly a clinical professional) who leads the project at the level of design, idea, etc. This project leader is very important and key in the process, he must have a global vision and be clear about all the requirements at the care level, equipment, information systems, work, etc.

The first step of identifying needs is carried out informally mainly by clinical professionals and they go directly to the Economic Directorate, from where a study of the feasibility of the idea is carried out. In this regard, some sessions are also held periodically to identify unmet needs where the projects that are being carried out in the different areas are also shared. First of all, an attempt is made to describe the idea in detail (broad description, forecast of expenditure, planning, description of resources, etc.), the possible improvement for the patient is quantified and the types of financing available are evaluated. Once the appropriate and detailed financing method has been chosen, the project as a whole proceeds to open Preliminary Consultations to the Market while the granting of the financing is resolved. It is only decided to open the Consultations to the market if the project is strategic; if it were not, the Consultations are not opened until the grant is approved. These queries are answered partially or totally by interested suppliers and can be complemented with roundtables (and with the preparation of their corresponding minutes). At the end of the entire Consultation process, a short report is made with limited information due to confidentiality issues.

Regarding the identification of funds and grants, the HUVH uses the institution AQuAS as its main source of information, whom it considers to be a reference in PPI. Sonia comments that without the help of Ramon Maspons and his team they could not have launched PPI projects from the Vall d'Hebron.

In relation to the Preliminary Consultations to the Market, she considers that they are essential to be able to correctly prepare the specifications. Thanks to this mechanism, they can adjust to what the market can offer them and they have been successful in the latest PPI

projects in HUVH. One of the keys to PPI for Sonia is to be able to share the risk with the suppliers, where they usually participate with 10% of the risk. In addition, suppliers usually work in association with other suppliers (usually 3, 4 or 5) and from Sonia's point of view, one of the suppliers must take the initiative and be the main interlocutor in order to streamline communication and decision making. In this sense, providers are often uncomfortable with taking the initiative and taking this leadership role.

Once the consultations have been made, the specifications are drawn up in detail, which are published on the Generalitat's Contracting Platform. In this sense, Sonia considers that most of the leading technology providers from abroad have a presence in Catalonia and have the resources to be able to keep updated of any business opportunity.

Job to be done

- PIPPI as a community of practice (CoP): the platform could share good practices and success stories in order to help institutions like HUVH to avoid making mistakes in the PPI process. In this regard, HUVH initially used the RITMOCORE project specifications of the HCP as reference documents. Sonia considers that the fact of belonging to this community could avoid many errors, especially in audits and interventions. For example, in the area of economic management for HUVH, sharing experiences could add a lot of value to avoid mistakes and know which criteria are used.

- PIPPI as a networking platform: it is interesting that the platform is a tool that allows establishing contacts not only for buyers but also for technology providers themselves, who can meet potential partners with whom they can jointly offer solutions. In addition, for the economic and project managers themselves it can be very interesting to be able to share concerns and needs within the health sector.

Other relevant information

- Sonia considers that both companies and hospitals would be interested in paying a subscription to use a platform such as PIPPI that could establish closer contact between the buyer and the technology providers. On one hand, hospitals could disseminate their projects much more directly and internationally, obtaining much more impact and, on the other, providers would have more unified evidence about the potential projects in which they can participate.

- Regarding the aggregate demand, Sonia shares that collaborative projects such as RITMOCORE of the HCP have already been carried out. HUVH in particular tried to carry out a collaborative project with the ICTUS project but was unsuccessful due to coordination problems. In this sense, she thinks that it is feasible to make aggregate demands with hospitals across Europe, where PIPPI can play an important role in establishing synergies between hospitals with common needs and interests. In this regard, Sonia informs that, although they have developed individual projects, they are required to make all their projects scalable and replicable to other organizations.

- One of the main gains for clinicians participating in a PPI project is being able to

improve their image and prestige within the sector. On the other hand, having to dedicate extra hours to be able to participate in PPI projects is one of the biggest pains of it.

- Sonia believes that HUVH has not been very aggressive with penalties to technology providers and it should be established in a much more specific and detailed way to what extent a provider is responsible.

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Interview with HUVH (Albert Salazar) (September 8, 2020, 4:15 p.m.)

Participants:
- Albert Salazar - Manager of HUVH
- Eva Aurin and Victòria Valls – HUVH and VHIR
- Marta Albertí, Ignacio Castro and César Colmena - IDOM

Main topics:

Experience in PPI

First, Dr. Salazar reports that his experience in Public Procurement of Innovation processes is abundant, thanks mainly to the experience obtained during his management at the Hospital de Sant Pau.

Specifically, he comments on projects such as the following:
- Stop&Go: healthcare intervention and research project focused on promoting a healthy lifestyle and physical activity.
- Ritmocore: evolution in the treatment of patients with bradycardia who need a pacemaker. The proposed approach promotes a comprehensive model of care.

On the other hand, the doctor informs that in HUVH they are going to build a Technical Office dedicated exclusively to PPI projects that will be managed directly from the Hospital's Economic Management. The manager of HUVH thinks that the PPI should be promoted because it involves innovation from many areas (organization, focus, type of service, way of buying, technology, etc.).

About the PPI process

He firmly believes that the reason for starting a PPI project should always be to improve patient care, focusing on the healthcare process. It should also be clear that the PPI process is a novel type of contract. In addition, this new process (and type of contract) also represents a change in the way of working of clinicians, managers, providers, etc. so it is important to do good change management.

The doctor emphasizes that the leader and promoter of the project must be the clinician, although they must be assisted throughout the process (for example, in administrative matters). In this regard, if the project idea is pushed from the Economic Directorate, it does not usually have the same probability of success as if it is promoted directly by a clinician.

Gains

- He is interested in knowing which PPI projects have been carried out in other hospitals internationally.
- It is very positive that the platform can provide resources to absorb workload (for example, administrative) in some parts of the general PPI process.
- One of the gains that clinicians can experience within the PPI process is having concrete examples (success stories, good practices).

Pains

- This change in mentality and way of working implies a high effort for clinicians and providers, the PPI translates into much more work for both (they must dedicate more hours than in traditional purchases).
- He highlights that there is a limitation for small companies due to the reduced capacity for work and dedication that they can support in this types of projects.
- Some of the PPI projects get grants from European Comission, which complicates the project management.

Job to be done

- One of the most important tasks to be done is to define the metrics to evaluate the results of the projects. The clinician is key to defining these metrics.
- Identifying needs is an important key task to perform in the process, in which clinicians must actively participate. However, needs may also arise from management or even technology providers.

Other relevant information

- In matters of transparency and information sharing (such as indicators), he does not see any problem that these data could be shared both internally and externally. In this sense, he comments that the Pre-Market Consultation mechanism is a transparency formula that is very important.

Interview with HUVH (Carlos Molina) (September 10, 2020, 10:30 a.m.)

Participants:
- Carlos Molina - Coordinator of HUVH Stroke Unit
- Victòria Valls - VHIR
- Marta Albertí, Ignacio Castro and César Colmena - IDOM

Main topics:

Experience in PPI

Dr. Molina has a lot of experience in the OneStep Ictus project that deals with optimizing efficiency and safety in comprehensive patient care through direct thrombectomy. Today they are in the phase of drafting the specifications and Dr. Molina highlights that in this project they have had to implement a scalability plan that guarantees the future of the project and that can be replicated by other institutions/hospitals.

At Hospital HUVH they have tried to develop PPI projects 3 times, but they have only been awarded the OneStep Ictus project.

In reference to best practices in relation to PPI, the first name that comes to mind is Hospital de Sant Pau, who manage the entire process incredibly efficiently. In addition, he comments that the Vall d'Hebron has close contact with Ramón Maspons from AQuAS.

About the PPI process

The doctor highlightes that the mentality is the first thing that has to be changed in order to promote PPI. In this regard, he thinks that the available innovation model should be changed to a model similar to the one they have in the Nordic countries.

In reference to the Pre-Market Consultations, he considers that this process helps them a lot to properly prepare a PPI project. They have very good experience in CPM (pre-market consultations) within the projects in which they have been able to participate. However, he believes that these consultations do not benefit smaller companies.

On the other hand, Dr. Molina comments that the aggregate demand in PPI is possible but that it is currently very difficult to carry out this "joint purchase" at the international level since the PPI mechanisms are very different depending on the country where you are located. For this reason, he thinks that a common legal structure should be created.

He considers that the tender process is another tedious process within the PPI, but that it has to be done thoroughly so that the tender documents can be understood in the best possible way.

Gains

- He values training/formation positively, specifically for specific topics such as payment for success, payment for objectives, shared risk, among others.
- Another positive assessment of what the PIPPI platform can offer is a repository of best practices.

- Dr. Molina believes that one of the greatest satisfactions of the process is finishing the project knowing that the care process for patients has been significantly improved and, consequently, their well-being and quality of life.

Pains

- One of the main difficulties encountered in the process is that in order to start a PPI project "for real" there are a lot of previous processes. For this reason, the solution/technology does not begin to develop after many months, or even years, of the kickoff.
- Related to the previous point, the planning of the PPI project are generally not met, for example, in Pre-Market Consultations or in the drafting of Specifications.
- Procurement should be more regulated since companies (such as SMEs) have many more limitations to participate in PPI projects.

Other relevant information

- He highlights that many doctors/clinicians promote (or try to promote) PPI projects since they consider that improving the care process for patients falls under their own responsibility.
- Dr. Molina considers that all the information (indicators, objectives, technologies used, etc.) should be public from the moment the gran is approved at the kickoff of a PPI project.

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Appendix 2. List of identified gains & pains

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SUPPLY SIDE

- *Gains (Alegrías)* ☺

Nº	Pain/gain	Description
1	**Knowledge about success stories**	Know examples/references of cases of technology provider companies that have participated in PPI processes successfully.
2	**Collaboration for the identification of needs**	Share information among the different stakeholders in order to identify needs in a much more efficient way.
3	**Co-creation to define comprehensive PPI projects**	Co-create between hospitals and technology providers in such a way that innovative complete solutions are created (and that are not just supplies).
4	**Analysis of internal capacity to provide solutions to challenges**	Internal analysis process in order to determine the capacity (operational, technological, financial, etc.) to face the different challenges to be solved through the PPI.
5	**Networking**	Establish and maintain relationships with reference hospitals and other technology providers. Being able to increase the network of contacts, business opportunities, establish temporary union of companies, etc.

- *Pains (Frustraciones)* ☹

Nº	Pain/gain	Description
6	**Lack of knowledge about the PPI process**	General lack of knowledge of the PPI process and its different stages. Little or no culture of innovation.
7	**Lack of awareness of the needs of hospitals**	Have little or no information regarding the needs (current or future) not covered by hospitals.
8	**Need for highly specialized teams**	Need of professionals specifically trained in the specific need to be solved through the PPI project
9	**Difficulty developing proposals due to lack of knowledge**	Require specialized technical training in management, administration, legal, etc. related to the PPI.
10	**Restrictions on SMEs, startups, etc.**	Smaller companies such as SMEs and startups often have barriers to being able to participate in PPI processes (lack of professional profiles, solvency, availability, low TRL, etc.).
11	**Unrealistic budgets**	The tenders do not include comprehensive budgets in accordance with all the works/services to be performed by the technology providers (they only include the cost of the technology and not the services).
12	**High efforts to identify tenders**	The identification of tenders is not carried out efficiently by the suppliers and there are no tools to facilitate this identification.
13	**Lack of co-responsibility in PPI projects**	Lack of co-responsibility in PPI projects so that the company loses all control over the system/rights/IP.
14	**Long lasting PPI processes**	Inefficient and long lasting PPI processes mean that a sale is

		not in sight in the short term, creating discouragement for suppliers.
15	**Lack of clarity on the benefits for the company**	Doubts about the specific advantages and benefits of the PPI compared to traditional purchasing due to the extra effort required throughout the process.
16	**Misfocused market inquiries**	Pre-market consultations usually focus on solutions rather than needs, thus limiting creativity and innovation on the part of technology providers
17	**Short time in order to meet the needs**	Technology providers often have little time to understand the unmet needs of hospitals.

DEMAND SIDE

- *Gains* **(Alegrías)** ☺

Nº	Pain/gain	Description
18	**Share good practices and success stories**	Learn about successful PPI projects from hospitals, both local and international. Share methodologies and tools used in successful cases.
19	**Supporting in the PPI process**	Possibility of obtaining support/help to be able to efficiently manage PPI projects.
20	**Networking that helps initiate PPI projects**	Possibility of increasing the relationship capacity between different hospitals and technology providers as a starting point for a possible PPI project.
21	**Sharing needs within the health sector**	Communicate in an open and transparent way the different needs not covered by the different areas of the hospitals, both internally and externally.
22	**Definition of new projects to be launched**	Transfer the identified needs to specific projects in order to anticipate the planned contracting plans to the market (Early Demand Map).
23	**Use of platforms**	Get the maximum advantage of existing platforms to optimize the management of PPI projects, such as the catalan gobernment's contracting platform.
24	**Visibility of professional profiles**	Increase the notoriety/visibility of the different participants within a PPI project, both internally and externally.
25	**Share projects from different areas**	Increase the dissemination of projects in a much more direct and open way to obtain more national and international repercussion.
26	**Share the risk with suppliers**	Possibility of sharing with companies the risks associated with the R&D necessary to develop innovative solutions.

- *Pains* (Frustraciones)☹

Nº	Pain/gain	Description
27	**Difficulty in selecting leaders**	Complications in finding and promoting leaders who are knowledgeable and promoters of PPI projects.
28	**Rivalry generated between the different leaders**	Different project leaders can disagree due to different points of view.
29	**Lack of knowledge of the state of the art of the technology**	Not being aware of the current situation in terms of news, trends and cutting-edge technological solutions.
30	**Translate demands into a financial, resource and feasibility plan**	Having difficulties to translate the demands into a formal plan defined in time and that collects all the necessary resources and their viability.
31	**Reduced reports and partially answered inquiries**	The reports received from the offer are limited and the pre-market inquiries are partially answered due to confidentiality issues.
32	**Lack of knowledge of platforms to launch queries**	The platforms that exist to launch pre-market inquiries are not known.
33	**Lack of knowledge to measure the viability of the proposals**	Not having the tools to measure (anticipate) the technical feasibility and quality of the solutions received.
34	**Project leaders lack a holistic view of the PPI process**	Leaders often lack knowledge that integrates their expertise in the specialty area with the general knowledge of the PPI process.
35	**Needs identification process poorly organized**	The identification of needs is not properly structured or there are not even tools/processes to identify them.
36	**Lack of prioritization of the needs**	After the identification of unmet needs, there is no structured and efficient prioritization of them.
37	**Problems defining the most appropriate PPI modality**	Having difficulties when deciding which specific purchase modality best fits, differentiating, for example, between the public procurement of innovation or pre-commercial procurement (PPI, PCP, etc.).
38	**Lack of knowledge of PPI processes**	General lack of knowledge of the PPI process and its different stages. Little or no culture of innovation.
39	**Difficulty in identifying financing possibilities**	There are many complications in finding different alternatives for financing PPI projects.
40	**Bad communication with suppliers**	Have an unclear and fluid dialogue with the different providers of the solution. It is preferred to maintain a communication with a single interlocutor.
41	**Repetitive errors within the administrative process**	It is common to make the same (or similar) mistakes in administrative management in different PPI projects.
42	**Unknowledge of the legal framework**	The legal framework and the local legislative particularities regarding the PPI process are not known.
43	**PPI processes that are not very agile, lengthy and without traceability**	Little or no systematization of the PPI, which leads to inefficient and prolonged processes.
44	**Low TRLs solution proposals**	Solution proposals are received with very early levels of technological maturity. Ideas need more time to mature.

45	**Misalignment of key indicators with suppliers**	Traditional indicators for project monitoring are often poorly aligned with providers and not very much oriented to measuring improvement in healthcare processes.
46	**Lack of certified/validated indicators**	Have standardized indicator baselines to measure the impact in various areas (patient, hospital, social, etc.)
47	**Lack of tools to measure impact in various areas**	The tools and/or mechanisms that exist to measure the impact of the project are unknown.

Appendix 3. Mural obtained from the mock-up workshop

Platform for Innovation of Procurement
and Procurement of Innovation

European Commission

Horizon 2020
European Union funding
for Research & Innovation

Appendix 4. Murals obtained from the workshops

PROYECTO PIPPI - WORKSHOP