



Platform for Innovation of Procurement
and Procurement of Innovation

D2.1 Report on stakeholders identities and role

PiPPi

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Executive Summary

Healthcare's digital transformation requires collaboration between stakeholders from both the public and private sectors to co-design and co-create digital solutions that meet clinical demands. The Platform for Innovation of Procurement and Procurement of Innovation (PIPPI) project will create a cross-border Community of Practice and will bring together experts from the demand side to identify common clinical needs that could be addressed using digital healthcare solutions. Based on these identified unmet needs, the Community of Practice will prepare a cross-border pre-commercial procurement (PCP/PPI) for a selected clinical need. At the same time, the Community of Practice will provide tailored assistance on procurement to other hospitals within and outside the member group.

The PIPPI consortium consists of seven leading European university hospitals (K, EMC, HUVH, HUS, MUW, OSR, KCH FT) and AQuAS, a relevant player in the adoption of PCP/PPI procurement instruments, including their affiliated academic institutions and the European University Hospital Alliance - EUHA (www.euhalliance.net), an organization that identifies and collaboratively tackles issues that impede the optimal functioning of healthcare delivery. Consortium members and supporting institutions combine expertise on digital healthcare, patient-centred care and procurement, with a shared goal of solving common challenges. The idea is that creating a cross-border Community of Practice, focusing on procurement of innovation in the short-term, will have a long-term impact on innovation procurement.

The present document belongs to WP2, which aims to ensure that all relevant stakeholder groups are analysed in terms of their value to be able to build a sustainable CoP. This deliverable focuses on reporting the mapping and analysis on stakeholder clusters that have already been completed and have been and will continue being while building and growing PIPPI CoP. This deliverable explains (1) the procedures to map stakeholders and need identification that have been performed, (2) the clusterization of different stakeholder of the CoP, (3) the levels of engagement expected by stakeholder cluster at each step of PIPPI process and (4) the processes created for analyzing members of PIPPI CoP.

In conclusion, the key identified points that could contribute to the sustainability of PIPPI are:

- The importance of the identification of our members aims and values to be able to engage them and create a CoP and a platform that can help all members.
- Adequate level of engagement of each stakeholder cluster at each step of the process to include their knowledge and experience to tackle unmet needs
- The need of co-creation with our members to validate and engage during the process.

List of abbreviations

AQuAS - Agència de Qualitat i Avaluació Sanitàries de Catalunya

BM- Business model

CoP - Community of Practice

D – Deliverable

EMC - Erasmus University Medical Center Rotterdam

EUHA - European University Hospital Alliance

HUVH - Hospital Universitari Vall d'Hebron

HUS - Helsinki University Hospital

IP – Intellectual Property

I&R – Innovation and Research Community

MUW - Medizinische Universität Wien

OM – Operating Model

OSR - Ospedale San Raffaele

K - Karolinska University Hospital

KCH FT - King's College Hospital NHS Foundation Trust

PCP- Pre-Commercial Procurement

PIPPI- Platform for innovation procurement and procurement of innovation

PPI - Public Procurement of Innovation

T - Task

WP - Work Package

Glossary

Community of Practice: gathering of individuals motivated by the desire to cross organizational boundaries, to relate to one another, and to build a body of actionable knowledge through coordination and collaboration. More colloquially, a CoP is a group of people who share a concern or passion for something they do, and learn how to do it better as they interact regularly.¹

PCP: Pre-Commercial Procurement (PCP) challenges industry from the demand side to develop innovative solutions for public sector needs and it provides a first customer reference that enables companies to create competitive advantage on the market. PCP enables public procurers to compare alternative potential solution approaches and filter out the best possible solutions that the market can deliver to address the public need.²

PIPPI Platform: Technical enabler of PiPPI CoP functionalities

PPI: Public Procurement of Innovative solutions (PPI) facilitates wide diffusion of innovative solutions on the market. PPI provides a large enough demand to incentivise industry to invest in wide commercialisation to bring innovative solutions to the market with the quality and price needed for mass market deployment. This enables the public sector to modernize public services with better value for money solutions and provides growth opportunities for companies.³

Unmet Need: means a condition for which there exists no satisfactory method of diagnosis, prevention or treatment authorised in the Community or, even if such a method exists, in relation to which the medicinal product concerned will be of major therapeutic advantage to those affected.⁴

⁴ https://ec.europa.eu/health/sites/health/files/files/eudralex/vol-1/reg_2006_507/reg_2006_507_en.pdf

⁴ https://ec.europa.eu/health/sites/health/files/files/eudralex/vol-1/reg_2006_507/reg_2006_507_en.pdf

⁴ https://ec.europa.eu/health/sites/health/files/files/eudralex/vol-1/reg_2006_507/reg_2006_507_en.pdf

⁴ https://ec.europa.eu/health/sites/health/files/files/eudralex/vol-1/reg_2006_507/reg_2006_507_en.pdf

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Purpose of document

The following document relies in T2.1 *Define and map the stakeholders and detail their relevant scope and role of WP2 Stakeholder identification, enrolment and engagement.*

This document describes the procedures and learnings that have been and will be used to identify, select and recruit different stakeholders clusters throughout the PIPPI Project. These procedures and learnings are likely to be further developed during the development and following establishment of the Community of Practice (CoP).

1. Introduction

The **digital transformation** of healthcare asks for the procurement of innovative solutions for which public-private collaborations are essential. These collaborations are often reactive and not fully connected with the real needs and specifications of the healthcare professionals and patients. To address this challenge, healthcare providers should be in the driver seat regarding innovation procurement in healthcare. Therefore, the PIPPI project aims to create a cross-border CoP of European university hospitals that will bring together experts from the demand and supply side to identify common clinical unmet needs for digital healthcare solutions and procurement of innovation.

The consortium includes **seven major European university hospitals** offering expertise on digital healthcare, patient-centred care and procurement with the ultimate aim to solve shared clinical challenges. The project will engage relevant stakeholders involved throughout the innovation procurement process at a regional, national and European level. The consortium with its network partners such as industry and payers of healthcare, will gather best practices, and develop structural capital and tools around procurement. These results will be shared through a knowledge platform on a European level by actors involved in, planning or interested in procurement of innovation. The consortium will identify major clinical unmet needs from seven university hospitals spread around Europe and compile a short-list of challenges that are suitable to solve with digital solutions and for procurement of innovation. This shortlist will be the base for a feasibility study and preparation of a concrete cross-border PCP or PPI. To ensure the future use of project results, including long-term assessment and monitoring of outcomes, the PIPPI project will develop a business and implementation plan with the ultimate goal to make the platform sustainable and improve patient outcome, decrease healthcare costs, create growth for European life science industry and create new markets.

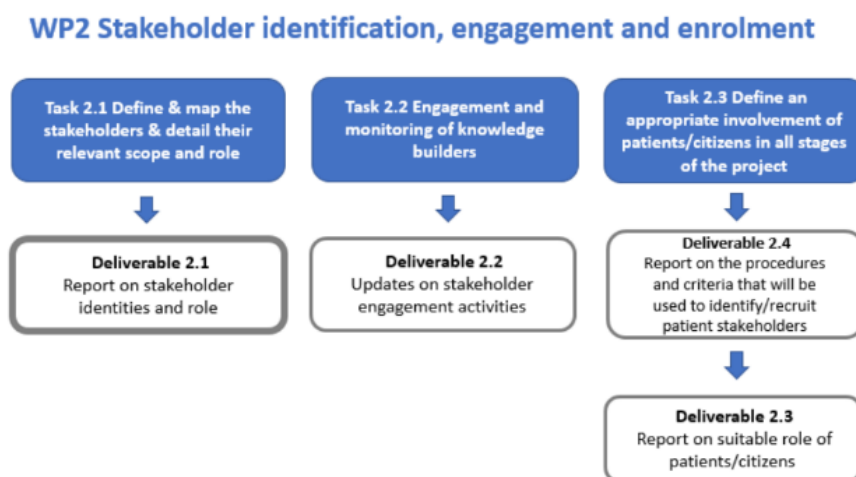
The PIPPI project consists of seven **Work Packages (WP)**, each with a set number of tasks, of which several are clearly linked with each other. WP2 aims to ensure that all relevant stakeholder groups must be analysed in terms of value provided, incentives,

and involvement, to be able to build the planned CoP, and ensure that the principles of an open innovation ecosystem are applied and provide sustainable value. This deliverable will provide answer to *T2.1 Define and map the stakeholders and detail their relevant scope and role* (Figure 1) that focus on defining and detailing the roles of engagement of each stakeholder cluster. It directly responds to the first PIPPI objective which aims *to establish an ecosystem of stakeholders and partners, with aligned purposes and incentives to improve health care, by enabling & growing the use of value-based innovation procurement.*

The identification and mapping of stakeholders is a key step to define the CoP and will contribute to the rest of PIPPI objectives stated below:

1. Establish, leverage and scale a shared set of tools and practices for the common benefit of healthcare providers, patients/citizens, private sector, and policy-makers.
2. Establish an open access web-platform for multi stakeholder communication and collaboration.
3. Complete a feasibility study and preparation of a cross-border PCP (Pre-Commercial Procurement) for digital health services, based on identified health care needs.
4. Establish an implementation & maintenance plan and development of structures and processes to ensure that the value of the PIPPI activities continues after the duration of the project.

Figure 1. WP2 structure and relationship between tasks and deliverables

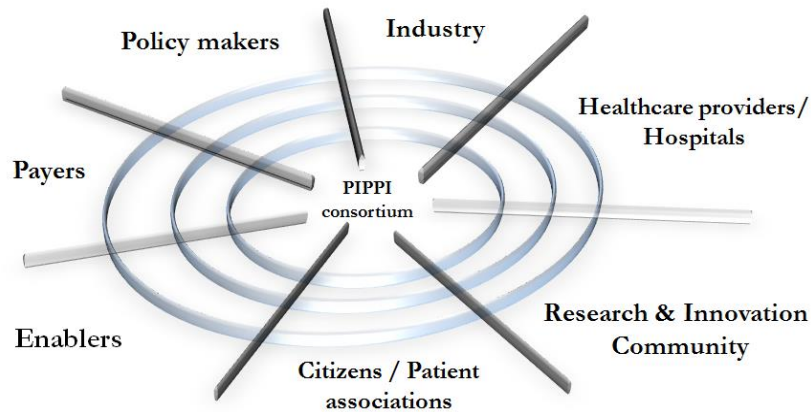


In this D2.1 we will discuss the identities and role of all different stakeholder groups, detailed information regarding Citizens/Patient stakeholder cluster can be found in D2.4. The information included due to reviewers questions in D2.4 *Appendix 2.3 Interaction summary* have been updated and completed in this deliverable.

In figure 2 we have draft all stakeholder clusters identified to participate in PIPPI CoP:

policy makers, industry, healthcare providers, research and innovation community, enablers, payers and citizens&patients associations. Each cluster will be detailed in this deliverable.

[Figure 2.](#)

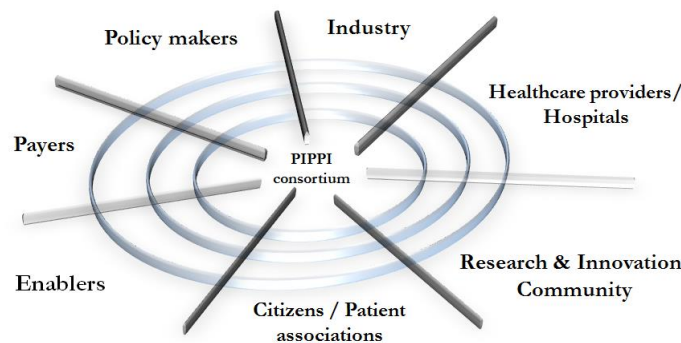


[Stakeholder clusters identified to participate in PiPPI Community of Practice](#)

2. PIPPI CoP and stakeholder engagement

By creating this new network, and the engagement with all relevant stakeholders, PIPPI will connect knowledge builders and disseminators relevant for innovative procurement needs and create a favorable framework for implementation of PCP/PPIs. This will be key for the development and sharing of structural capital, based on input from different stakeholders throughout

the procurement dissemination, communication sustainability. Furthermore, cross-border work as an



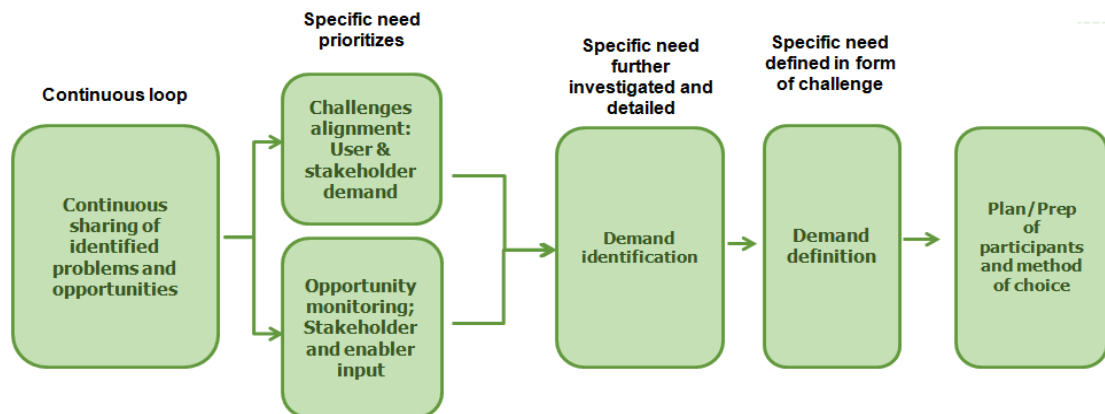
process, and and the resulting CoP will then accelerator

for PCP/PPIs on a European level, where procurers will be able to get the correct input

for each stage from initiation to implementation.

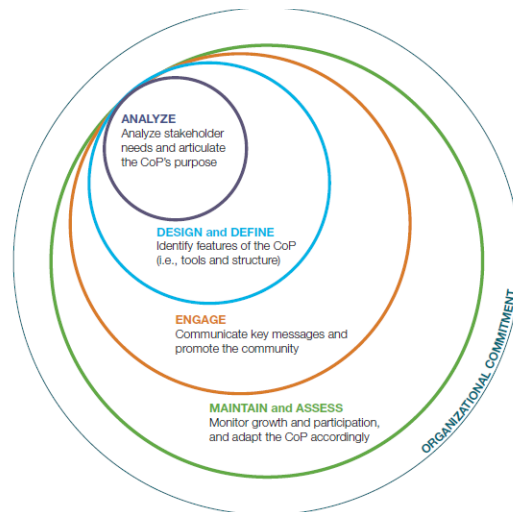
The PIPPI project (Figure 3) aims to create a CoP in which information, skills and experience it is shared between groups to improve professional outcomes. The members of the CoP will co-create during the process to define unmet needs thanks to their experience and expertise. The main value of the CoP is the increase the effectiveness of its members, by allowing each member to deliver better against his or her own individual performance objectives, by giving them access to the knowledge base of the community. The knowledge shared within the CoP might include ideas, innovative practices, best practices, experiences, tools or resources in a practical manner.

Figure 3. The main process of the CoP both for the duration of the PIPPI project and the CoP once established



Based on the Health Quality Ontario guidelines, and focused on *How to Build and Sustain a Community of Practice*, the process for developing a sustainable CoP is shown on Figure 4 and have been previously explained D3.1. The first phase includes the analysis of stakeholder needs, followed by the identification of features, the engagement by communicating and promoting the community and finally, by maintaining and assessing the growth and the participation.

Figure 4. CoP development framework



A key step for PIPPI project and for PIPPI CoP has been the identification and engagement of the relevant partners in the value chain. Altogether, with the aim of improving healthcare and innovation procurement and ensuring, it can fulfil its role in the future healthcare system. Further information on stakeholder involvement and engagement in the CoP will be provided in *4.PIPPI CoP levels of engagement and participation values*.

3. Stakeholder mapping: role and scope of stakeholders clusters involved in the PIPPI project

Stakeholders of PIPPI Community of Practice have been mapped and analyzed. Before starting the project, PIPPI partners had already highlighted particular stakeholder clusters which engagement in the CoP are key. Moreover, during the project these clusters have been better mapped and defined. This process will continue during next months, leading to modifications in the future.

The PIPPI consortium will attract and enroll already identified stakeholders, as well as, new stakeholders within the local ecosystems in all the relevant stakeholder clusters to ensure that all steps of value-based innovation procurement are taken. The aim is to activate a strong and credible stakeholder network which can be scaled beyond the project scope and duration, establishing a sustainable and successful open innovation ecosystem centred on the CoP vision.

3.1 Methodology and procedures for identifying stakeholder clusters

The mapping and analysis process have been done following these steps:

- 1) Analysis to identify the continuum of stakeholders that would be influenced by the CoP
- 2) Stakeholder need assessment to better understand how PIPPI CoP can support their members.

3.1.1 Analysis of the stakeholders influenced by the CoP

The performed stakeholder analysis aimed to identify those stakeholders potentially interested in public procurement of innovation and influenced by PIPPI CoP, including the analysis of internal and external stakeholders.

We have defined internal stakeholders, those who are from partner institution but can be highly related with PIPPI consortium or not. On the other hand, external stakeholders are those who are CoP members belonging to non-partner institutions.

The following actions were taken to analyze stakeholders:

Figure 5: Partner analysis of their ecosystem template



a) Stakeholder mapping of each partner site

Stakeholder identification process started by the identification of external and internal stakeholders by each partner by using the following template (Figure 5) to assess and help to identify all important stakeholders of their ecosystem. This process has led to identification known internal and external stakeholders and the creation of a first inventory of contacts by partner site. For the generation of the inventory the following template was shared with all partners (Figure 6). This template was included in an excel file that was filled up containing specific information of each stakeholder cluster. Each stakeholder cluster has an adapted structure. This inventory has not been shared

between partners because of privacy reasons but it has been used to invite stakeholders to PIPPI events and workshops and will continue being used with the aim of involving new stakeholders in the CoP. Furthermore, the inventory at each partner site was used to prepare the consortium meetings to properly define clusters and subclusters of the CoP.

The resume of each partner site numbers by stakeholders cluster has been shared in *Annex 4 of Deliverable 2.4*.

Figure 6: Inventory template for industry cluster

b) Consortium working meetings to define cluster and subclusters of the CoP (Barcelona-Stockholm Dec-Jan 2020)

Different working face-to face and virtual meetings were held with the participation of different members of WP2, WP3 and WP7 from different partner sites to work on the definition of cluster and subclusters. It has been and it will keep being a process of continuous improvement. We started from the first clustering present on the proposal: Industry, Academia, Patient representation and payers.

Identification			Contact information 1					Approach		Description		Engagement / expertise		Issues			Requirements	
Organisat	*Name of the organisation*	*Address of identification*	*Key contact: Name*	*Key contact: Role*	*Email*	*Phone*	*Best way to contact*	*Level of approach*	*If regional/territorial, specify*	*Site*	*Ownership*	*Type*	*If other, please elaborate*	*Type*	*If other, specify*	*Previous experience in asset identification*	*Previous experience in PIPPI*	*Specify other relevant experience for the project*
101	Apptis/Pharma	Pharmaceutical industry	Peter van der Meer	Key Account Manager Pharma	ppm@pharma.com	+31201234567	Phone	National	Spain	By representation (COO Pharma)	Pharma	Owner/Signer of engagement		Mismatch	Unknown	No		

The continuous iteration has led to the current stakeholder mapping drafted in figure 2 and explained in *3.2 Identification and role of each stakeholder cluster*. The process has included consortium meetings and input from workshops validate to validate with internal and external stakeholders.

c) Workshop to validate clustering with external stakeholders (Barcelona, Rotterdam, Stockholm, Wien and Milan Jan-March 2020 and Barcelona September-October 2020)

The clustering updates were validated step by step in the different workshops held by consortium partners. In the first pilot events of the presentation workshop in Barcelona and Rotterdam, external and internal stakeholder input was included to create a new updated version of the mapping that was validated in the second round of Presentation workshops in Wien, Milan and Stockholm. In deep information of the methodology and results of the Presentation workshop it is included in Appendix 1. Finally, by using the input gathered in the Business Model and Operating model workshops held virtually in September-October 2020 (methodology and results included in D6.6) further modifications were included.

This process will continue and updates on stakeholder mapping will be included, with the aim of better knowing and better addressing CoP members needs.

3.1.2 Stakeholder need assessment

The purpose of the stakeholder needs assessment is to better understand if and how PIPPI CoP and its platform can support its target members. It is a continuous process that will continue through the project and after, to ensure its sustainability.

a) Presentation workshop with external stakeholders (BCN, Rotterdam, Stockholm, Wien and Milan Jan-March 2020)

Different stakeholder needs were assessed in five workshops that were held by Consortium partners. In-depth information of the methodology and results of the Presentation workshop is included in Appendix 1. External and internal stakeholders worked and discussed around 2h in groups where members of different stakeholder clusters were present. All 7 stakeholder clusters were present on the events. Their discussion was focused on:

- Stakeholders' needs at each step of the PIPPI process (Figure 3)
- Stakeholders' cluster participation at each step of the process

b) Business and operating model interviews and workshop with internal and external stakeholders (BCN July, September-October 2020)

In July 2020 we held 10 personal interviews to gather input on stakeholder needs to prepare the BM and OM. In September 2020, we held two virtual workshops to work on the development of the BM and OM. The main objective of the workshops was to define the value proposition of the PIPPI Platform, which can be divided into three specific objectives:

- 1) 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.
- 2) Propose solutions to fulfil those needs.
- 3) Define a service portfolio for the PIPPI platform that responds to the previously identified needs.

Further information, regarding the interviews and the BM and OM workshop, can be found at deliverable D6.6. Overall, stakeholder discussion during the workshop was very important to learn specific needs of the stakeholder clusters invited: Industry, Innovation and Research Community, Healthcare providers (procurers) and enablers.

c) CoP List update

Since last January 2021, we have been managing a first version of a registration form and CoP list. Further information of this list will be provided later in this *deliverable in 6*.

Analysis of stakeholders registered to the CoP. This list has helped us to pilot the information needed and used from CoP members by the CoP to be able to provide an adequate service. Altogether, helping us to define clusters and sub-clusters that we are currently using.

3.2 Identification and role of each stakeholder cluster

PIPPI project have highlighted particular stakeholder clusters, with which communication is important from the beginning. Our aim it is to use the best methodology to involve them in the planned CoP. Moreover, it is also important to ensure the flexibility as the CoP will grow and influence all actors. Altogether, the CoP should be prepared and should allow potential shifts in relationships and knowledge exchange.

The grouping of important partners into clusters allow the PIPPI project to develop a specific toolbox and a communication strategy without the risk of it becoming too narrow. Involving different stakeholder clusters ensures that we will be able to create better patient outcomes at a lower cost.

Furthermore, PIPPI project needs to understand and evaluate the different stakeholders' competencies and components for innovation procurement as a tool for the development of healthcare. This analysis of the different stakeholders clusters will allow the understanding of their value for the CoP and the value of the CoP and the PIPPI project for them.

The current stakeholders clusters and subclusters mapped and involved in the CoP are:

1. Healthcare providers (procurers): it includes all healthcare providers that provides healthcare services to citizens/patients. We can cluster this group in two levels of different subclusters that provides us important information:

Sub-cluster I: type of Institution

- a. Hospitals: it includes primary, secondary and tertiary hospitals
- b. Primary care: it includes institution that provide primary care to citizens
- c. Socio-sanitary centers: it includes socio-sanitary centers
- d. Others: it includes other institution that provide healthcare services (i.e: Dental or Public Health Institutions)

Sub-cluster II: type of professional

- a. Healthcare professionals: it includes all professionals that

- provide care to patients (i.e: doctors, nurses...)
 - b. Administration and Innovation professionals: all professionals working for healthcare providers involved in innovation and administrative tasks
 - c. Procurers: it includes professionals working in the procurement units of healthcare providers.
2. Citizens and patient associations: It includes all citizens that can potentially receive medical treatment and their relatives. We can cluster this group in two levels of different sub-clusters that provides us important information:

Sub-cluster I:

- a. Citizens: citizens, patients or caregivers who not represent an organization by being CoP members.
- b. Patient organizations: citizens, patients or caregivers who represent an organization

Sub-cluster II:

- a. PCAG members: it indicates the members who are part of the Patient Citizen Advisory Group.

3. Payers: it includes the entities that pays or administers the payment of healthcare in the different countries and regions. We can cluster this group in two levels of different sub-clusters that provides us important information:

Sub-cluster I:

- a. Public: it includes public organizations
- b. Private: it includes private organizations

Sub-cluster II:

- a. Regional: entities that administers healthcare payment at regional level
- b. National: entities that administers healthcare payment at national level

4. Policy makers: Institutions and professionals that are responsible of creating new healthcare policies and recommendations at local, regional, national or pan European level. We can cluster this group in

two levels of different sub-clusters that provides us important information:

Sub-cluster I:

- a. Local/Regional: it includes entities that have responsibility at local and regional level
- b. National: it includes entities that have responsibility at national level
- c. European: it includes entities that have responsibility at European level

Sub-cluster II:

- a. Procurer: it includes institutions that can act as procurers

5. Industry: Professionals and companies including start-up, small, medium and large companies involved in technology development. We can cluster this group in two levels of different sub-clusters that provides us important information:

Sub-cluster I: following the Commission Regulation (EU) N 651/2014,⁵ we have defined this sub-cluster

- a. Start-up / SME: is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding €50 million, and/or an annual balance sheet total not exceeding €43 million
- b. Large companies: is made up of enterprises, which employ more than 250 persons.

Sub-cluster II:

- a. Pharma: it includes companies that their main business is to research, develop, market and/or distribute drugs.
- b. Medtech: it includes companies that their main business is to research, develop, market and/or distribute technological solutions.

6. Research and innovation community: it includes all types of institutions involved in basic, translational and applied research. It is an important cluster that includes basic and translational research, technological

⁵ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0651&from=EN>

development and procurement expertise. It includes researchers, administration and innovation professionals. We can cluster this group in sub-clusters that provides us important information:

Sub-cluster I:

- a. Technological centers & Technological Universities: it includes entities from academia and technological centers that do research and develop and provide technological solutions
 - b. Basic and Translational Research centers & Universities: it includes academic entities and research centers focus on basic and translational biomedical research.
 - c. Procurement experts: it includes academic entities who are experts in procurement.
7. Enablers: A diverse cluster that includes several institutions or companies present in the healthcare ecosystem and important in procurement processes, e.g. agencies, consulting firms. We can cluster this group in two levels of different sub-clusters that provides us important information:

Sub-cluster I:

- a. Governmental agencies: it includes any governmental or regulatory body, political subdivision, agency, instrumentality or authority.
- b. Non-Governmental agencies: it include non-governmental agencies important for eliciting innovation and procurement
- c. Consulting firms: entities that can provide expertise in the public procurement journey
- d. Investors and business angels: professionals who invest in the development of new solutions.
- e. Others: entities that cannot be classified in the previous groups

Sub-cluster II: Agencies can be clustered in:

- a. Local / Regional: it includes agencies that have responsibility at local or regional level
- b. National: it includes agencies that have responsibility at national level
- c. European: it includes agencies that have responsibility at European level
- d. Procurer: it includes agencies that can act as a procurers

However, during the process until defining the current clusters and sub-cluster, different modifications have been occurring by including input from internal and external stakeholders (Table 1). Probably, together with the development and growth of the CoP, new changes will be included in the future to better define stakeholders and be able to better define the CoP services, values, communication and engagement pattern.

It is also important to mention that we have created clusters in a manner to define members of the CoP with similar values and interests. However, we have detected interdependencies between different clusters or diversity in one cluster. Therefore, further work remains to be done to improve the mapping at cluster and sub-cluster level.

Innovation and Research Community as an example, it is an important cluster that includes technological developers, procurement experts and basic and translational research. All of them are doing research in different institutions but their needs and value regarding PIPPI platform may be different. Therefore, the definition of sub-clusters have been key to better approach all stakeholders in the future.

Table 1: Evolution of the stakeholder clustering and sub-clustering through PIPPI project

Before the project	January 2019	March 2020	May 2021		
Clusters	Clusters	Clusters	Clusters	Subcluster I	Subcluster II
Hospitals	Hospitals	Healthcare providers	Healthcare providers (procurers)	Hospitals	Procurers
				Primary care	Administration and Innovation professionals
				Hospitals Socio-sanitary center	Healthcare professionals
				Others	
Patient representation	Patients	Patients	Citizens & Patient Organization	Citizens	PCAG members
				Patient Organizations	
Payers	Payers	Payers	Payers	Public	Regional
				Private	National
		Others	Policy-makers	Local/Regional	Procurers
				National	
				Transnational	
Industry/Supply chain	Industry/Supply side	Supply side	Industry	SME / Start-up	Pharma
				Large companies	Medtech
Academia	Academia	Universities and research centers	Research and Innovation Community	Technological centers & Technological Universities	-
				Biomedical Research centers & Universities	-

				Procurement experts	-
	Enablers	Enablers	Enablers	Governmental agencies	Regional
					National
				Non-governmental agencies	European
					Procurer
				Consulting firms	-
				Investors	-
				Others	-

In the following tables each stakeholder cluster involved in PIPPI CoP have been briefly described including their role, the value that the CoP offers to each, their value and expertise, attitudes and major interests.

3.2.1 Healthcare providers (procurers)

Table 2: Healthcare provider cluster description, values and interests

Stakeholder	Healthcare Provider			
Who	All types of institutions that provide healthcare (public / private, university / non-university) services to citizens/patients. It includes healthcare professionals, procurers, administrative and innovation professionals			
Sub-Clusters	Hospitals	Primary care	Socio-sanitary centers	Other
Sub-Clusters II	Healthcare professionals	Procurers	Administration and innovation professionals	
Agents	Public hospitals, University Hospitals, Socio-sanitary centers, Primary care, Public Health institutions. It is also possible that other public institutions can act as a procurer.			
Value added by PIPPI	<ul style="list-style-type: none"> Identify and share unmet needs, addressing the needs of the market and science community Co-creation and validation of needs and new ways to address them particularly with a patient-centric approach, across caregiver levels Knowledge, assistance, and potential joint to innovative public procurement processes Possibility of share unmet need and see the opportunities that already exist Knowledge of Best practices and regulations in different countries and finally guided to PCP/ PPI process Assistance with and access to PCP/PPI info & potential joint processes 	Particular for PROCURERS <ul style="list-style-type: none"> Partnership or collaboration with existent initiatives (i.e: eafip) Assistance with knowledgeable personnel and entities Collaboration with other procurement units Specific training for procurement units Management of the PPI/PCP process using the monitoring and evaluation dashboard (long-term development) 		
		Healthcare professionals <ul style="list-style-type: none"> Specific training for healthcare professionals 		
Value added by SH to the CoP	<ul style="list-style-type: none"> Detection and sharing of the real needs Experience in unmet needs and challenges. Previous experience in PCP/PPI processes. Procurers in the future PCP/PPI processes of PIPPI Engagement and knowledge for looking for potential solutions to needs 			
Attitudes	Strong engagement in solving needs to robustly define the demand			
Major interests	Searching for facts and figuring out solutions to needs, assisting patients and colleagues, promoting learning, personal development.			

3.2.2 Citizens / Patient organization

Table 3: Citizen/Patient organization cluster description, values and interests

Stakeholder	Citizens / Patient organization	
Who	It includes all citizens that can potentially receive medical treatment and their relatives. Therefore, this cluster includes all citizens, patients and patient association involved in healthcare processes.	
Sub-Clusters	Citizens	Patient organization
Sub-Clusters II	PCAG member	
Agents	Citizens, patients, caregivers and patient association representatives	
Value added by PIPPI	<ul style="list-style-type: none"> • Being a partner of healthcare providers to co-create new solutions. • Identify and share unmet needs • The platform may be a channel to address patient/citizen needs towards policy-makers and other organizations to give them the possibility of Improving the outcome and satisfaction, join the Community of Practice (CoP), empowerment, sharing unmet needs, cost-saving (with right costs at the right place by right people) • Participate in understanding how to remove obstacles for realizing new innovative solutions. • Learn about the healthcare system and public procurement by following the process from the unmet need to the solution. 	
Value added by SH to the CoP	<ul style="list-style-type: none"> • Experience of illness, social circumstances, attitude to risk, values and preferences • Experience of wellness • Detection and sharing of the real needs • Engagement for looking to potential solutions to needs 	
Attitudes	Enthusiastic about the involvement in the process, communicating unmet needs, detailing the unmet needs	
Major interests	Looking for improving their quality of life by looking for solving their needs	

3.2.3 Payers

Table 4: Payer cluster description, values and interests

Stakeholder	Payers	
Who	Payers are any entity that pays or administers the payment of healthcare in the different countries and regions e.g., regional and national healthcare budgets, public or private insurance.	
Sub-Cluster I	Public	Private
Sub-cluster II	Regional	National
Agents	Public agencies and private Insurance companies	
Value added by PIPPI	<ul style="list-style-type: none"> • Being a partner of Healthcare providers to detect unmet needs and co-create new solutions. • Be able to monitor new needs and opportunities • The platform may be a channel to be informed and address payers and other stakeholders clusters needs and have the possibility of Improving the outcome and satisfaction, join the Community of Practice (CoP), sharing unmet needs, cost-saving (with right costs at the right place by right people) • Address the health economics of unmet needs 	
Value added by SH to the CoP	<ul style="list-style-type: none"> • Experience in unmet needs and challenges detection and prioritization • Previous experience in CPI/PPI processes. 	
Attitudes	Strong engagement in detecting and prioritizing needs that could improve healthcare system	
Major interests	Interested in solving unmet needs in a cost-efficient manner	

3.2.4 Policy makers

Table 5: Policy-maker cluster description, values and interests

Stakeholder	Policy makers		
Who	Institutions and professionals that are responsible of creating new healthcare policies and recommendations at regional, national or pan European level.		
Sub-Clusters I	Local/Regional	National	European
Sub-Cluster II	Procurer		
Agents	Public agencies and private Insurance companies		
Value added by PIPPI	<ul style="list-style-type: none"> • Being a partner of Healthcare providers to co-create new solutions. • The platform may be a channel to be informed and address policy-makers and other stakeholders clusters needs and have the possibility of Improving the outcome and satisfaction, join the Community of Practice (CoP), cost-saving (with right costs at the right place by right people) • Be able to monitor new needs of healthcare system and create new policies for adressing unmet needs agreed by other important stakeholders such as citizens, patients or healthcare providers 		
Value added by SH to the CoP	<ul style="list-style-type: none"> • Experience in solving previous unmet needs with impact in society 		
Attitudes	Strong engagement in understanding unmet needs to be able to adress them and help by creating new policies and regulations		
Major interests	Interested to understand unmet needs that needs news policies and regulations to be able to act.		

3.2.4 Industry

Table 6: Industry cluster description, values and interests

Stakeholder	Industry		
Who	Professionals and companies including start-up, small, medium and large companies involved in technology development		
Sub-Clusters I	Start-up and SME		Large companies
Sub-cluster II	Pharma		Medtech
Agents	Start-up	SME	Large companies
Value added by PIPPI	<ul style="list-style-type: none"> Understand unmet needs addressed by healthcare providers Help to define and make the unmet need explicit Validate they are in the right path on their look for needs (and solutions) Learn how to incorporate the innovation procurement tools used by public organizations in their business models Understand better the requirements in PCP/PPI provided by training programs and personalized support Translating research into advanced prototypes, evaluate and determine efficacy and or efficiency. Taking Insights from unmet needs to be addressed in research. Cases to study (performance, cost-benefit analysis, etc) Understanding of the real environment and conditions for addressing needs and opportunities. Solving the right problem. Validating efficiency and efficacy. Insight in true needs and future demand, Collaboration around problems/needs, Finding market opportunities, Finding partners for solution development, Co-Development of solutions Validation that they are in the right track. 		
	Particular for START-UP and SME <ul style="list-style-type: none"> Enhance communication particularly with start/up and SME that sometimes are out PPI/PCP Finding of funding that allow them to develop a solution and continue in the process of PPI /PCP 		
Value added by SH to the CoP	<ul style="list-style-type: none"> Experience in technology and processes to solve challenges and unmet needs. Potential risk-sharing and new solutions for solving unmet needs. Previous experience in CPI/PPI processes. Make unmet need explicit adding value to the unmet needs Updates in the state of art of technologies 		
Attitudes	Willingness to work to solve real unmet need of the healthcare system. Creating solutions that can be help and be sold in different regions		
Major interests	Need-driven interest		

3.2.6 Innovation & Research Community

Table 7: Innovation & Research Community cluster description, values and interests

Stakeholder	Innovation & Research Community		
Who	They are all types of institutions involved in basic, translational and applied research. It is an important cluster that includes basic and translational research but also technological development. This includes research, administrative, and innovation professionals.		
Sub-Clusters I	Technological centers & Technological Universities	Basic and Translational Research centers & Universities	Procurement experts
Agents	Technological centers	Research Centers	Academia
Value added by PIPPI	<ul style="list-style-type: none"> • Understand unmet needs addressed by healthcare providers • Help to define and make the unmet need explicit • Validate they are in the right path on their look for needs (and solutions) • Learn how to incorporate the innovation procurement tools used by public organizations in their business models • Understand better the requirements in PCP/PPI provided by training programs and personalized support • Translating research into advanced prototypes, evaluate and determine efficacy and or efficiency. • Taking Insights from unmet needs to be addressed in research. Cases to study (performance, cost-benefit analysis, etc...) • Understanding of the real environment and conditions for addressing needs and opportunities. Solving the right problem. Validating efficiency and efficacy. • Insight in true needs and future demand, Collaboration around problems/needs, Finding market opportunities, Finding partners for solution development, Co-Development of solutions • Validation that they are in the right track • Enhance communication particularly with Technological centers & Technological Universities that sometimes are out PPI/PCP • Finding of funding that allow them to develop a solution and continue in the process of PPI /PCP 		
	Particular for BASIC AND TRANSLATIONAL RESEARCH		
	<ul style="list-style-type: none"> • Identify and share unmet needs 		
Value added by SH to the CoP	<ul style="list-style-type: none"> • Experience in technology and processes to solve challenges and unmet needs. • Potential risk-sharing and new solutions for solving unmet needs. • Make unmet need explicit adding value to the unmet needs • Updates in the state of art of technologies • Updates and knowledge related to basic and translational research 		
Attitudes	Strong enthusiasm to share problem descriptions and adding research findings to deepen challenge, scope; understand opportunities to initiate awareness and interest; provide a horizon scan view of future directions of technology/innovation; mentor in the light of their expertise		
Major interests	Knowledge building, innovation, analyzing health related data.		

3.2.7 Enablers

Table 8: Enablers cluster description, values and interests

Stakeholder	Enablers				
Who	It is a diverse cluster that includes several institutions or companies present in the healthcare ecosystem and important in procurement processes, e.g. agencies, consulting firms.				
Sub-Cluster I	Governmental agencies		Non-governmental agencies		Consulting firms
Sub-Cluster II	Regional	National	European	Procurer	Others
Agents	Governmental agencies	Non-governmental agencies	Innovation accelerators		Different specialized consulting firms
Value added by PIPPI	<ul style="list-style-type: none"> • Being a partner of Healthcare providers to detect and co-create new solutions. • The platform may be a channel to be informed and address enablers and other stakeholders clusters needs and have the possibility of Improving the outcome and satisfaction, join the Community of Practice (CoP). • Understand unmet needs addressed by healthcare providers • Participate in understanding how to remove obstacles for realizing new innovative solutions 				
	Particular for INVERSORS <ul style="list-style-type: none"> • Investors can participate in understanding how to remove obstacles for realizing new innovative solutions and how to enable public-private partnerships. • Being a partner of Healthcare providers to co-create new solutions. • The platform may be a channel to be informed and address enablers and other stakeholders clusters needs and have the possibility of Improving the outcome and satisfaction, join the Community of Practice (CoP). 				
Value added by SH to the CoP	<ul style="list-style-type: none"> • Experience in processes to solve challenges and unmet needs. • Previous experience in CPI/PPI processes and digital solutions. • Knowledge on the regional, national or european innovation ecosystem • Expertise in particular areas of PCP/PPI process that can help to continue through the process 				
	Particular for INVERSORS <ul style="list-style-type: none"> • Access to funding and previous experience • Interest in finding new opportunities 				
Attitudes	Enthusiasm to effectively become part of the innovation from the very beginning				
Major interests	Finding and understanding new opportunities, sharing they knowledge and participating in solving needs				

4. PIPPI CoP levels of engagement and participation values

The process of identification of stakeholders, their knowledge and how best access and contact them it is important for the sustainability of PIPPI CoP. The engagement of the different stakeholders through PIPPI process (Figure 3) will follow a dynamic process according to the stage of the CoP, the stakeholder cluster and the profile and role of each CoP member. It will also take in to consideration, each stakeholder cluster and subcluster needs to elicit the involvement and participation in the CoP.

Different levels of stakeholder engagement can be defined, by following the classification proposed by the International Association for Public Participation (IAP2) Patient Participation Spectrum (International Association for Public Participation, 2014). Three different levels of engagement are considered relevant for PIPPI project:

1.Inform: CoP members will be provided with objective information to assist them to understand the needs, situations, opportunities... Stakeholders receive the information, they may be present but have no role in contributing. Stakeholders may receive the information through emails, newsletters or the webpage. This is the lowest level of engagement in the project.

2.Participate: CoP members provide their input to ensure their views are understood and considered. Feedback on how stakeholders input have influenced or impacted in the decision will be shared. Therefore, stakeholders provide their views, thoughts, feedback, opinions or experiences but without a commitment to act on them. Stakeholders input will be obtained through quantitative or qualitative methods (such as focus groups or surveys).

3.Collaborate: CoP members input will be seek in each aspect of the decision. Therefore, stakeholders are engaged to influence the co-creation process (e.g. commenting, advising, ranking, voting, prioritising, reaching consensus). Stakeholders provide information which directly influences the process, but without direct control over decisions. Stakeholders input will be obtained through quantitative or qualitative methods (such as focus groups or surveys). Collaboration is the highest level of engagement in PIPPI CoP.

PIPPI project core values to encourage stakeholder participation were adapted from IAP2 Federation's Core Values for Public Participations.

- 1) Stakeholder participation is based on the belief that those who are affected or have a need have the right to be involved in the co-creation process and the decision-making process
- 2) Stakeholder participation includes the promise that their contribution will influence the final decision

- 3) Stakeholder participation promotes sustainable decisions by recognizing and communicating the needs and interest of all participants including decision makers.
- 4) Stakeholder participation in the PIPPI project seeks and promotes the involvement of those potentially affected or interested in a decision or solution.
- 5) Stakeholder participation in the PIPPI project seeks input from them in designing how they participate
- 6) Stakeholder participation in the PIPPI project provides stakeholders with the information they need to participate in a meaningful way.
- 7) Stakeholder participation in the PIPPI project will communicate to stakeholders how their input affected the decision.

5. Level of engagement depending on the phase, role and stakeholder type

Each stakeholder cluster and sub-cluster, and each organization it is composed by a variety of profiles and roles. Roles included in each interaction of have been decided and selected depending on the purpose and aim of the interaction. Therefore, in future interactions it will vary depending on the purpose we want to achieve with the interaction and the process of the CoP they are involved (Figure 3). This is the reason why if necessary, we will include in the CoP different profiles and roles of each institutions or company.

In table 9 you can find the dynamic process of level of engagement by stakeholder cluster and sub-cluster at each step of PIPPI process. It may be updated in the future while the CoP grows, new interactions with stakeholders take place and the challenge is validated.

In all steps of PIPPI project, all stakeholders will be actively encouraged to engage through personal contacts, events and dissemination actions. Moreover, each step of the process requires different type of engagement and roles:

0) Development, procedures of PIPPI CoP and platform

It includes the alignment with all stakeholder clusters to know their needs and develop a platform that can help fulfilling PIPPI project aims. For this continuous process, we need the collaboration of all stakeholders clusters and sub-clusters by gathering their input through by face-to face and virtual workshops, personal interviews, surveys, platform testing... The preferred roles at this stage are direction and management because of their previous experience in PCP and PPI and influence in their organization. In general terms, we have had and will have the collaboration of all clusters. However, there are specific sub-clusters such as investors that we still have to introduce them into the process.

1) Need sharing: continuous sharing of identified problems and opportunities

In the identification of unmet needs, the key stakeholders are Healthcare providers and Citizens& Patients associations. Usually, they are the ones that identify the needs in their daily routine. Therefore, their collaboration will be key in the CoP. We would need to include all different types of healthcare institutions and encourage professionals and others staff to share their needs.

However, other stakeholder clusters and sub-clusters such as governmental agencies, payers or policy-makers in particular occasions can act as procurers and share their needs.

The need sharing process have been done through WP5 by using a template form and in the future platform it will done through a form. The pilot process starting in need detection until the preparation of the PCP/PPI it is being addressed, monitored and explained in detail in WP5.

2) Need prioritization: challenge alignment & opportunity monitoring

In this step the main stakeholders are Healthcare providers and Citizens&Patients associations, as owners of most needs. However, the input from industry and R&I Community it is needed to provide the available solutions that can help us to reach our goal. Moreover, payers and policy-makers will also be important to determine final need prioritization.

All roles are important in this step of the process, as diverse input from stakeholders it is needed. In fact, technical information it is very important to be up to date in last opportunities.

3) Specific need further detailed and investigated: demand identification

In the demand identification, the main stakeholders are healthcare providers. In this step, procurers and administration and innovation professionals are the most important roles, always gathering the input from citizens and healthcare professionals. Moreover, the input from payers, policy makers and enablers (consulting firms and governmental agencies) it is important to proceed with the process.

4) Specific need defined in form of challenge: demand definition

To finally define the demand, the main stakeholder cluster are healthcare providers. In this step, procurers are the most important ones. Other professionals of the healthcare provider and citizens will collaborate. The rest of the stakeholders clusters will be informed but their collaboration in general terms it is not necessary.

5) Plan, prepare PCP/PPI

In this step of the process the key stakeholders are procurers from the healthcare institution or healthcare institution responsible of the PCP/PPI.

Table 9: Stakeholder engagement levels in each step of PIPPI process.

PIPPI Process step	Stakeholder cluster	Engagement level	Important stakeholder subcluster involved	Role
0. Development, procedures of PIPPI CoP and platform	Healthcare providers	Collaborate	All	Preferred direction and management profiles
	Citizens & Patients associations	Collaborate	All	
	Policy-makers	Collaborate	All	
	Payers	Collaborate	All	
	Industry	Collaborate	All	
	R&I Community	Collaborate	All	
	Enablers	Collaborate	All	
1. Need sharing: continuous sharing of identified problems and opportunities	Healthcare providers	Collaborate	Healthcare professionals, Innovation professionals and Procurers	Professionals and management roles are important
	Citizens & Patients associations	Collaborate	Citizens and Patient organization	
	Policy-makers	Collaborate	It depends on the political model of the region/country in each situation	
	Payers	Collaborate	It depends on the payment model	
	Industry	Participate	-	
	R&I Community	Collaborate	Basic and Translational Research centers & Universities	
	Enablers	Collaborate	Governmental agencies	
2a Need prioritization: challenge alignment by all stakeholders	Healthcare providers	Collaborate	Healthcare professionals, Innovation professionals and Procurers	All, depending on the task
	Citizens & Patients associations	Collaborate	Citizens and Patient organization	
	Policy-makers	Collaborate	It depends on the political model of the region/country in each situation	
	Payers	Collaborate	It depends on the payment model	
	Industry	Participate	All	
	R&I Community	Collaborate	Technological centers & Technological Universities	
	Enablers	Collaborate	Governmental agencies and Investors	
2b Need prioritization: opportunity monitoring	Healthcare providers	Collaborate	Healthcare professionals, Innovation professionals and Procurers	All, depending on the task
	Citizens & Patients associations	Collaborate	Citizens and Patient organization	
	Policy-makers	Collaborate	It depends on the political model of the region/country in each situation	
	Payers	Collaborate	It depends on the payment model	
	Industry	Collaborate	All	
	R&I Community	Collaborate	Technological centers & Technological Universities	
	Enablers	Collaborate	Governmental agencies	

			Investors	
3. Specific need further detailed and investigated: demand identification	Healthcare providers	Collaborate	Procurers and innovation professionals from the healthcare institution responsible of the PCP/PPI	All, depending on the task
	Citizens & Patients associations	Collaborate	Citizens and patient organizations affected by the challenge	
	Policy-makers	Collaborate	It depends on the political model of the region/country in each situation	
	Payers	Collaborate	It depends on the payment model	
	Industry	Inform/Participate	All	
	R&I Community	Inform/Participate	Procurement experts	
	Enablers	Inform/Participate	Consulting firms and governmental agencies	
4. Specific need defined in form of challenge: demand definition	Healthcare providers	Collaborate	Procurers and innovation professionals from the healthcare institution responsible of the PCP/PPI	All, depending on the task
	Citizens & Patients associations	Participate	All interested	
	Policy-makers	Inform	All interested	
	Payers	Inform	All interested	
	Industry	Inform	All interested	
	R&I Community	Inform	All interested	
	Enablers	Inform	All interested	
5. Plan, prepare PCP/PPI	Healthcare providers	Final decision	Procurers from the healthcare institution responsible of the PCP/PPI	All

6. Analyses of stakeholders registered to PIPPI CoP

The list of CoP members was created after the Presentation events held during the first term of 2020. This list has been growing thanks to new events and dissemination strategy and by dissemination using each partner internal inventory that contain all their external stakeholders contacts (Deliverable 2.4 Annex 3).

From January 2021, a temporal registration to actively become member of the CoP was made available through PIPPI webpage until PIPPI platform it is ready to include it (Figure 7). Registration of new members, was allowed and encouraged in our interactions or dissemination activities.

The registration and management of the CoP list has been very helpful to map stakeholders and improve both processes in the future PIPPI platform.

The current list of CoP member contains information from each member regarding:

1. Partners site or first event registration
2. Name and Surname
3. Organization
4. Role
5. Working country
6. Stakeholder cluster and subcluster
7. Type of stakeholder
8. Status

The CoP members list, it is monitored and analyzed each month to study gaps in countries, stakeholder cluster, roles and status. The status it is analyzed by WP2 and WP3 to keep the engagement and collaboration of all members and keep the value of the CoP.

Figure 7. Screenshot from the registration process in PIPPI webpage to the CoP and newsletter

The figure displays three sequential screenshots of the PIPPI registration process:

- Left Screenshot: Personal data**
 - Section: **PIPPI Newsletter and CoP Registration**
 - Section: **Personal data** (required fields)
 - Section: **Please keep me informed about news and events organized by PIPPI**
 - Fields: E-mail address, Family name, Prefix (e.g. van), Initials (e.g. E.F.J.), First name, Organization, Role within the organization, Working country, Stakeholder cluster, How would you describe your role towards healthcare procurement and innovation, Other, namely.
 - Link: [Click here to read our data use agreement](#)
 - Checkbox: I accept the terms of the data use agreement
 - Button: **CONTINUE**
- Middle Screenshot: Terms and Conditions**
 - Section: **PIPPI Newsletter and CoP Registration**
 - Section: **Become a member of the PIPPI Community of Practice**
 - Text: **Yes, I want to become a member of the Community of Practice** that PIPPI is organizing as part of the project and contribute with information and ideas. I consent to the data obtained during interactions being used, stored and processed by the PIPPI project and its consortium parties, particularly in order to further develop the PIPPI knowledge base. I consent to the processing of my personal data and having my contact details stored in the PIPPI contacts directory. I also agree to being contacted by representatives of the PIPPI project as regards PIPPI activities, news and events. I have been informed that I can exercise, limitation, and deletion of my information at any time through the email address: office@h2020-ippdi.eu
 - Text: **No, I don't want to become a member of the PIPPI Community of Practice**
 - Buttons: **PREVIOUS** and **CONTINUE**
- Right Screenshot: Your registration**
 - Section: **PIPPI Newsletter and CoP Registration**
 - Section: **Your registration**
 - Text: **Please check your registration details below and click on the submit button to complete your registration.** You will receive an automatic e-mail. If you do not receive an automatic e-mail, please log in the registration application again and click on the submit button on this page to register.
 - Text: To print your registration form use the print option in your browser.
 - Buttons: **CANCEL** and **SUBMIT**
 - Section: **Participant**
 - Fields: E-mail address, Family name, Prefix (e.g. van), Initials (e.g. E.F.J.), First name, Organization, Role within the organization, Working country, How would you describe your role towards healthcare procurement and innovation, Other, namely.
 - Section: **Settings**
 - Text: **Yes, I want to become a member of the Community of Practice** that PIPPI is organizing as part of the project and contribute with information and ideas. I consent to the data obtained during interactions being used, stored and processed by the PIPPI project and its consortium parties, particularly in order to further develop the PIPPI knowledge base. I consent to the processing of my personal data and having my contact details stored in the PIPPI contacts directory. I also agree to being contacted by representatives of the PIPPI project as regards PIPPI activities, news and events. I have been informed that I can exercise, limitation, and deletion of my information at any time through the email address: office@h2020-ippdi.eu

In the following sections, we will show the actual status of the CoP list at 5th of May 2021. The list includes 196 members already registered.

6.1 Stakeholder analysis by cluster and subcluster

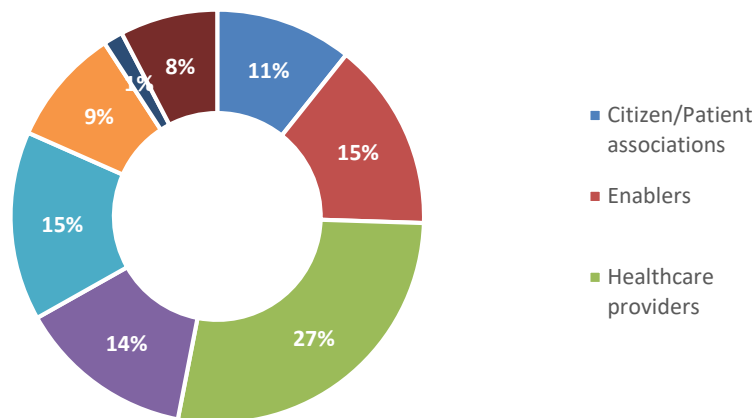
In table 10 and figure 8 we can observe that healthcare providers and industry are the biggest clusters in our CoP. Moreover, an important growth (133%) on the citizens/Patient organization cluster has been observed due to related actions organized, like as the open call for recruiting the patients' citizens' advisory group (PCAG) and a workshop to involve different stakeholders in PIPPI challenges (D5.2). Moreover, we observe the need of involving payers and policy-makers in our CoP. Our dissemination actions have not worked well with these specific clusters. Therefore, concrete actions will take place in the future months to include them in the CoP.

Table 10. List of CoP members by stakeholder cluster in December 2020 and May 2021.

Blue highlight indicates most relevant observations.

Stakeholder cluster	Total n of org		Growth (%)
	December 2020	May 2021	
Citizens / Patients organization	9	21	133
Research & Innovation community	15	18	20
Industry	27	56	29
Enablers	21	29	38
Policy makers	15	15	61
Healthcare providers	42	54	27
Payers	2	3	50
Total	141	196	38

Figure 8. Distribution of CoP members by stakeholder cluster in May 2021



In table 11 we show the current state of the numbers specifically per stakeholder subcluster at 5th of May 2021. This view allow us to find out more details of the distribution of CoP members. First of all, healthcare providers in the CoP are mainly hospitals, therefore other healthcare institutions need to be included in the future. Moreover, we can observe that procurers can be found in healthcare providers, but also in other public institutions depending on the situation. Another relevant aspect, it is that healthcare providers procurers have been involve in our actions to know their needs (workshops, interviews, surveys...), however not all of them have been registered to the CoP. PiPPI CoP in the near future, will organize specific actions to have them registered and up to date in all information. Finally, we observe a lack of investors in our CoP. This sub-cluster will be approach soon, once the CoP it is launched to be able to show our value. Specific actions will be organized to approach them in form of webinars, workshops and particular talks. The launch of the CoP in September will be an important action that will help to involve all stakeholder cluster being able to show our value in a better manner.

Table 11. List of CoP members by stakeholder subcluster in May 2021. Blue highlight indicates most relevant observations.

Cluster	Subcluster		Subcluster II		Total N of org by cluster		
		N of org		N of org			
Citizens / Patients associations	Citizen	10	PCAG	10	21		
	Patient association	11					
Research & Innovation community	Basic and translational Research Centers & Universities	8			18		
	Procurement experts	2					
	Technological center & Technological Universities	8					
Industry	Start-up/SME	29	Pharma	7	56		
	Large Companies	27	Medtech	49			
Enablers	Consulting firms	10			29		
	Governmental agencies	11				Regional	9
						National	5
						European	4
	Non-governmental agencies	6				Procurers	1
						Investors	0
Others	2						
Policy makers	Regional	6	Procurers	4	15		
	National	9					
	European	0					
Healthcare providers	Hospital	50	Procurers	4	54		
	Primary care	3					

	Sociosanitary centers	0	Healthcare professionals	5	
	Public Health Institution	0	Administration & Innovation professional	28	
	Other	1			
Payers	Public	3	Regional	2	3
	Private	0	National	1	
Total					196

6.2 Stakeholder analysis by working country

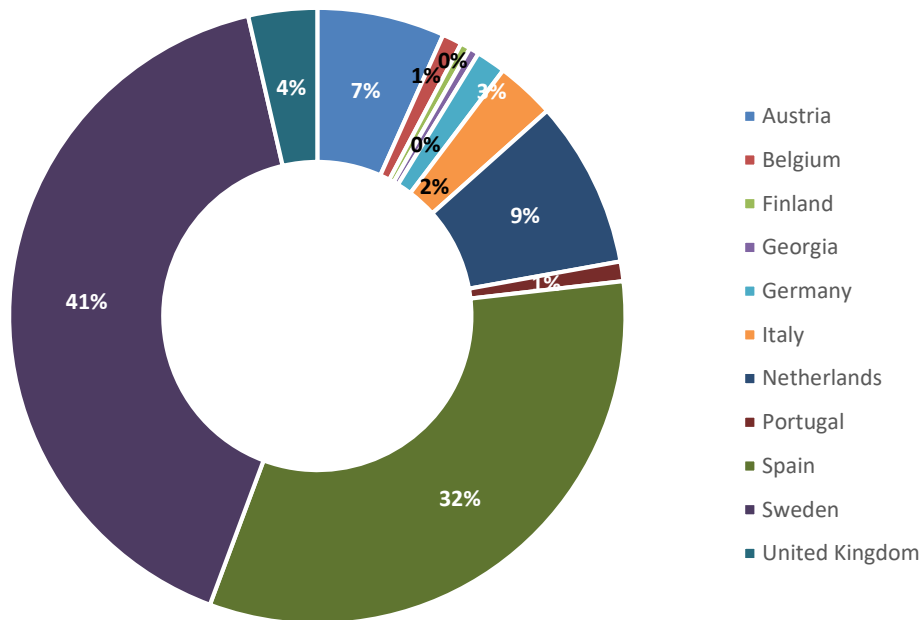
In table 12 and figure 9 we show that thanks to dissemination and communication actions held during the first term of 2021 we have new CoP member in new countries such as Belgium, Georgia, Germany and Portugal. However, there is still work to do in partner countries as the distribution of CoP members it is mainly focus in Sweden and Spain. Actions to improve dissemination in other partner countries will be taken as a consortium.

Finally, in the future registration in the CoP we will include the NUT code, in a manner to better determine the distribution of CoP members by regions. The inclusion of the NUT code in the registration will allow us to check regional distribution of our members.

Table 12. List of CoP members by working country in December 2020 and May 2021

Working country	Total n of org	
	December 2020	May 2021
Austria	11	13
Belgium	0	2
Finland	0	1
Georgia	0	1
Germany	0	3
Italy	4	6
Netherlands	16	17
Portugal	0	2
Spain	42	65
Sweden	64	79
United Kingdom	4	7
Total	141	196

Figure 9. Distribution of CoP members by working country in May 2021



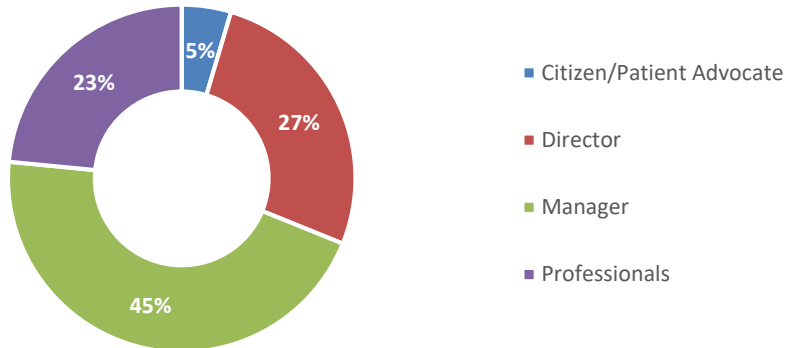
6.3 Stakeholder analysis by role typology

In table 13 and figure 10 we can observe the role typology present in our CoP. As previously mentioned, depending on the situation we need different roles, from professionals to directors. Therefore, it is important that the CoP includes all roles and has the ability to contact and include the preferred profiles and roles at each step. In figure 10 we can see that we have the diversity we are looking for inside the CoP.

Table 13. List of CoP members by role typology in December 2020 and May 2021

By role typology	Total n of org	
	December 2020	May 2021
Citizen/Patient Advocate	1	9
Director	36	52
Manager	74	89
Professionals	30	46
Total	141	196

Figure 10. Distribution of CoP members by role typology in May 2021



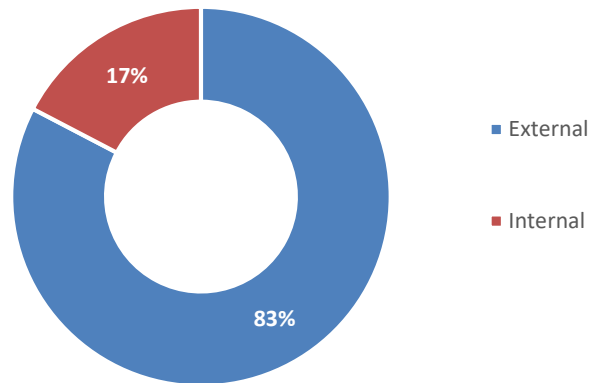
6.4 Stakeholder analysis by type of stakeholder

In table 14 and figure 11 we can observe the representation of internal and external stakeholders in our CoP. We consider internal any member from partner institutions and external members of the CoP from other institutions. It is important to observe that the growth of the CoP have been done in external members. Moreover, the internal group it is composed by PIPPI consortium members (6 in May and 3 in December) and the rest are members of the partners institution that not work routinely in PIPPI project. It is important to highlight that not all members involved from partners institutions have been registered in the CoP, in fact, the invitation to events such as interviews, workshops or surveys it is through direct contact (Table 16,17,18 and 19).

Table 14. List of CoP members by type of stakeholder in December 2020 and May 2021

By type of stakeholder	Total n of org	
	December 2020	May 2021
External	110	162
Internal	31	34
Total	141	196

Figure 11. Distribution of CoP members by type of stakeholder in May 2021



6.5 Stakeholder analysis by status

In table 15 and figure 12 we show the status of the CoP members. As previously explained in D2.4 we consider:

- Active: have been actively participated in survey and workshops during last 12 months
- Involved: member registered to the CoP
- Communicated: People informed of PIPPI project. It includes stakeholders registered to PIPPI newsletter and not to CoP. There are part of communicated stakeholders through conferences and social network that are not registered but further information can be found in D7.1.

Here, we can observe that active members of the CoP have been reduced since December due to three main issues related to covid out-break and virtual events:

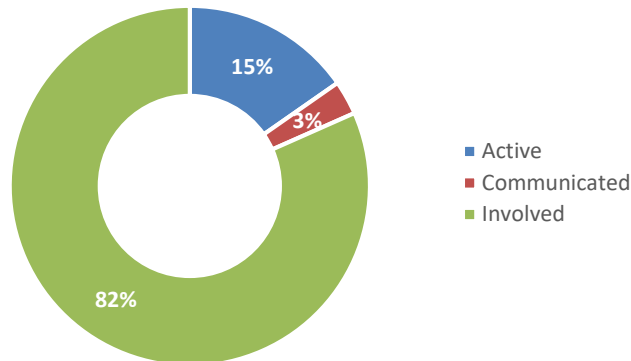
- Reduction of the number of events
- Reduction of the number of people involved by event
- Stakeholder involvement in surveys and workshops did not require being PIPPI CoP member (more information in Table 16,17,18 and 19).

The number of active number will fluctuate during the process, and by itself it is not a problem to be reduced, when keeping all members involved engaged. Therefore, our main aim once the CoP it is launched will be to keep the engagement of all stakeholders already in the CoP to be able to involve them when their input it is most valuable. In conclusion, we aim to involve and engage key stakeholders to obtain a valuable input and show the CoP value.

Table 15. List of CoP members by status in December 2020 and May 2021

By status	Total n of org	
	December 2020	May 2021
Active	137	30
Communicated	4	6
Involved	0	160
Total	141	196

Figure 12. Distribution of CoP members by status in May 2021



6.6 Overall discussion

Thanks to the different actions that have taken place during these months, the growth in CoP members have been 27% during the first four month of 2021. Therefore, our aim to go further in communicating and disseminating PIPPI project and the CoP has been achieved. However, we have still work to do in the near future to achieve our *aim to build a community with aligned purposes and incentives to improve healthcare, by enabling & growing the use of value-based innovation procurement.*

6.7 Stakeholders interactions in PIPPI project and CoP membership

Previously, it was mention that our interactions have been broader than inside registered PIPPI CoP. Part of our interactions have been open to be able to find the proper stakeholder and to achieve our aim of dissemination. Therefore, the following tables will show the numbers of registered stakeholders to the four first webinars of 2021, the workshop for validation of the challenge (WP5) and the survey for validating CoP evaluation (*deliverable 3.3*)

Table 16. Numbers of registered stakeholders to the webinars in January, February, March and April 2021 including the type of stakeholders and the members of the CoP

Webinars	January		February		March		April	
	Total	CoP members	Total	CoP members	Total	CoP members	Total	CoP members
Total	92	12	81	20	74	10	70	9
External	84	12	70	20	70	10	60	9
Internal (do not include PIPPI consortium members)	8	0	11	0	4	0	10	0

Table 17. Number of stakeholders who register in two or more webinars

CoP member recurrent to webinars	Recurrent to webinars (not CoP members)
21	14

In table 16, we can clearly see that the number of CoP members registered in the CoP it is low. Therefore, we can conclude that we are achieving our aim of disseminating but we need to implement actions to recruit the attending stakeholders. Therefore, we will start with the following actions:

1. Improve our webinar registration process to be able to better analyse registration list
2. Communication during the webinar and through email of the registration process to the CoP. The personal contact will start by contacting the recurrent stakeholders who are not members of the CoP (Table 17).

Finally, we can say that 11% of the registered stakeholders are recurrent (at least registered twice to a webinar), showing that even the diversity in topics, the engagement of stakeholders independently of being or not registered to the CoP.

Table 18. Number of responders to the survey including type of stakeholder and membership to the CoP

Surveys deliverable 3.1		CoP members
Total	23	6
External	10	6
Internal (including PIPPI consortium members and not)	13	0

Table 19. Number of registered stakeholders including type of stakeholder and membership to the CoP

Challenge workshop		CoP members
Total	50	6
External	26	6
Internal (including PIPPI consortium members and not)	24	0

Again, in table 18 and 19, we can see that we are involving members broader than the PIPPI CoP, with the aim of finding the stakeholders that can provide more value to the process. However, it also confirms action 2, regarding the dissemination of the registration to the CoP



to be able to increase our recruiting capacity.

Finally, regarding internal stakeholders, the dissemination it is still through internal contacts, as previously stated. However, in the near future, several actions will be taken in each partner site to define the best process to manage platform registration.

Appendix 1. Co-creation process of the CoP with different stakeholders groups.

1. Introduction

The presentation workshop was held in five partner localization including Barcelona, Rotterdam as pilots, and Stockholm, Milan and Wien with a total of 129 participants. Furthermore, London workshop was stopped due to Covid outbreak.

Our aims for the presentation workshops were:

- Presentation of the project to the ecosystem of each partner site
- Obtain input from different stakeholder clusters to improve our knowledge of their needs in public procurement of innovation processes
- Obtain input from different stakeholder clusters to know the different point of view of the PIPPI project and the future platform
- Obtain input of participants to know and evaluate they interest in participating in the project
- Validation of stakeholder cluster involved in the CoP

To achieve our aims of including all stakeholders point of view, we invited 2-3 stakeholders per cluster at each partner site. In cases of not availability or cancellation prior to the event, other stakeholders of their cluster were invited.

Furthermore, organization particularities were included in Barcelona and Stockholm sites due to the high acceptance rate and interest generated by the event. We accepted stakeholder registration with special interest even if not personally invited and adapted to new situation to allow all stakeholders to participate and engage with the project.

2. Methodology & Workshop overview

After a brief welcome and presentation of all stakeholders, an initial survey was answered by all stakeholders. This first survey gather general input on previous experience of all attendees in PCP/PPI processes, their motivation to participate and their thoughts on their contribution to PIPPI CoP.

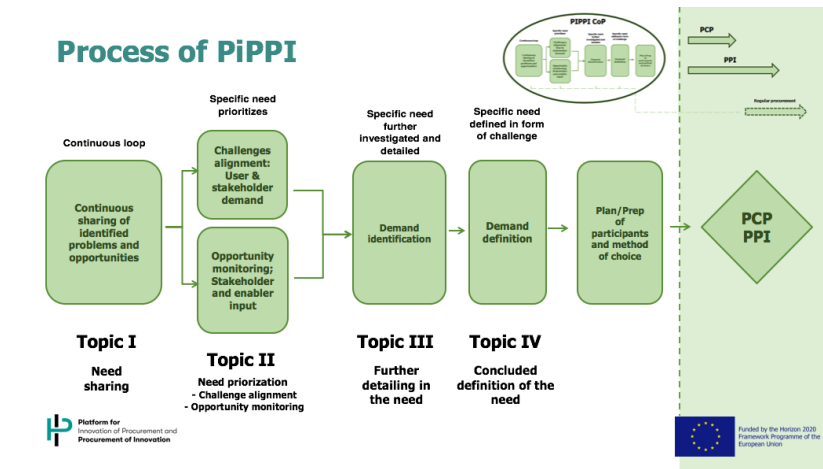
It was followed by PIPPI project presentation information, including an introduction to PCP/PPI and the most important issues that the project will tackle.

After that, a dynamic activity to break the ice helped to create good atmosphere to collaborate. It was followed by a brief coffee break before starting the proper workshop.

After the coffee break PIPPI process was explained (Figure 13)



Figure 13: The main process of the CoP both for the duration of the PIPPI project and the future CoP once established



The workshop included work in groups composed by 4 to 7 stakeholder members from different clusters. Each site, adapted depending on the number of attendees and the stakeholder clusters, but the aim was to include several clusters in each group to open discussion on their different needs and problems in procurement processes and to know more about what PIPPI platform may help to improve.

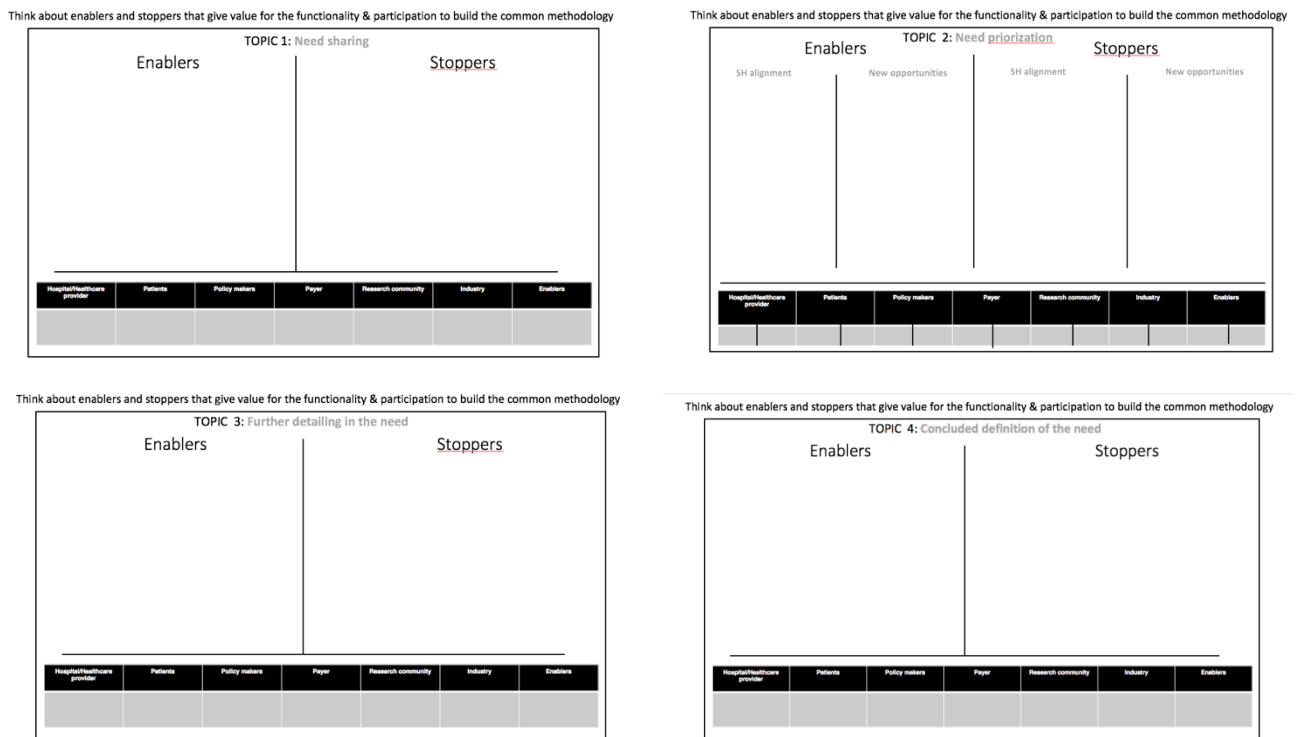
Each group had an external dinamizer and notekeeper to keep track of the conversation and discussions. Each group discussed around 20 minutes each of the 4 topics already commented of PIPPI process: Need sharing, Need prioritization, Further detailing in the need and demand definition.

Their discussion was focus on enablers, stoppers and stakeholders cluster that may be included in each phase (Figure 14). We considered enablers, aspects that will help to PIPPI CoP/platform to achieve the aim of improving, potentiating and optimizing PCP/PPI processes. Furthermore, we considered stoppers, all aspects that could stop PIPPI CoP/platform to achieve its aim.

Finally, after a debriefing a final survey was answered by all participants to know they satisfaction rate and to analyze their participation on the project.

All the information gathered in the surveys and during the workshop was analysed by using qualitative methodology.

Figure 14: Templates for filling up per group and topic, including enablers, stoppers and stakeholder clusters

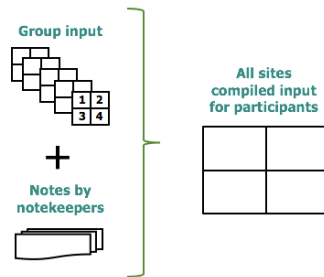


3. Information compilation from all stakeholder sites

All information gathered during the presentation events was compiled, as you can see in figure 15, by compiling and digitalizing all posters and notes. Moreover, an excel file including all information clustered by topic and type of enabler/stopper and the suggested functionality was generated at each site. Therefore, each partner site was responsible for validation, unification and clusterization of the information in their event.

The input have been used for the preparation of the proposal of BM and OM model (D6.1 and 6.3) and validated in the BM and OM workshops (D6.6). Furthermore, it has been used to detail platform functionalities for its development (D4.2)

Figure 15. Unified process of compilation of all information from presentation stakeholder workshop at each site



Cluster	Enablers/stoppers	TOTAL			Topic 1 Need sharing			Topic 2 Need prioritization			Topic 3 Further detailing into the need			Topic 4 Concluded definition of the need			First suggested functionality	Other comments
		Total n° of citation	Total n° of citation as enabler	Total n° of citation as stopper	total n° citation	n° of citation enablers	n° of citations stoppers	total n° citation	n° of citation enablers	n° of citations stoppers	total n° citation	n° of citation enablers	n° of citations stoppers	total n° citation	n° of citation enablers	n° of citations stoppers		
Search	Time consuming	0	0	0	0			0			0			0				
	Expectation control	0	0	0	0			0			0			0				
		0	0	0	0			0			0			0				
		0	0	0	0			0			0			0				
Language		0	0	0	0			0			0			0				
		0	0	0	0			0			0			0				
		0	0	0	0			0			0			0				
		0	0	0	0			0			0			0				

4. Results

4.1 Initial survey

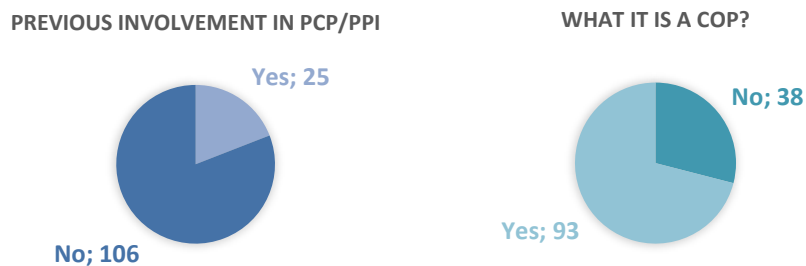
The aim of this survey, was to analyze previous knowledge, experience and objectives of PIPPI project from participants in the workshop. We obtained 131 answers including all partners sites. You can find the survey in the following link: <http://bit.ly/WSPIPI1>.

The results obtained showed that most of the attendees have not previous experience in PCP and PP (106 out of 131) (Figure 16). Moreover, we also learned that 93 out 131 knew what is a CoP and its aims. In fact, they showed interest in participating in *PIPPI CoP to share and learn best practices and experiences*.

Finally, their share their thoughts on their contribution to PIPPI CoP with the knowledge they had before starting the workshop were:

- Participate in PPI and PCP
- Listen to others to improve need identification
- Resources and technological support
- Network and connection with other public and private stakeholders
- Dissemination of the results
- Share knowledge and experiences in PCP and PPI
- Share their technical knowledge and expertise
- Share their stakeholder perspective and point of view
- Need of further information.

Figure 16: Results from the survey including previous experience to the workshop.



4.2 Workshop

The information gathered in 5 partner sites to each step (topic) of the process can be consulted below. We have included in the following analysis the most important enablers/stoppers, which are defined as suggested by 40% or more groups at each partner site. As a limitation of the analysis, we can mention that the criteria for including statements have been the same but it has been variability in the number of groups by site. Therefore, in the event where we have less groups, their statements are probably more represented.

Topic 1: Need sharing

In table 17 we can see the different enablers and stoppers that were suggested by 40% or more groups at each site in topic 1. Moreover, we have included also, the comments regarding stakeholder clusters.

Table 17. Enablers, stoppers and stakeholder mentioned in topic 1 in the presentation workshop at different sites.

Cluster	Enabler	Site
Structure information / Profile visualization / Platform	<ul style="list-style-type: none"> - Classification in key categories - Follow up of the needs: status, autorship, prioritization - Easy and structured visualization - Usability - Personalized user profile and prioritization of needs 	Barcelona
Language	<ul style="list-style-type: none"> - Natural language, comprehensible - Automatic translation to all languages 	
Need sharing	<ul style="list-style-type: none"> - Intellectual protection, rights and confidentiality - Introduction of ideas previously prepared: standard for need introduction / Structured information 	
Business development	<ul style="list-style-type: none"> - Platform includes business model support for solution of needs - Inclusive model 	
Overall	<ul style="list-style-type: none"> -Time consuming -Effort/Benefit balance of the platform: efficient use of the platform 	
Information sharing, communication, collaboration	<ul style="list-style-type: none"> - Clear communication - Communication platform - Clear problem definition - Specific rules of play - Quality criteria - Standardized format - Feedback mechanism 	Wien
Trust & confidence	<ul style="list-style-type: none"> - Constructive criteria - Trust / confidence - Transparency of the process and GDPR 	
Design Thinking, innovative	<ul style="list-style-type: none"> - Future Lab 24/7 	

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spaces		
Project / planning	- System for determining project leads - Competencies / responsibilities	
Process	- Defined process - Single platform - Platform / community creation - Clear and shared business strategy - Diffusion of similar technologies on consumer markets - Detailed analysis: groups of end-user, families, nurses, patients, doctors, bodies, CE	Milan
Stakeholder engagement	- Events (webinars, workshops, info day)	
Regulations	- Regulatory requests	
Stakeholder alignment	- Dedicated sharing moments	
Enabling conditions	- European legislation (directives, regulations)	Stockholm
Platform	- Allow for test and collaboration environments - Easy searchable. - Usability - Existing infrastructure relevant Meetings important	
Needs perspective	- Needs description from clinical perspective - External-outside perspective / patient perspective - Patient contribution in education - Understanding competition issues	
Stakeholder network	- Access to research & stakeholder (patient) involvement - Procurers network - Collaboration and trust with co-creation parties - Collaboration with enabling parties (political, financial etc) - Connection need owners with other need owners - Help to prioritize ideas and ROI	
Communication	- New digital communication channels	
Trust	- Trust / confidence - Transparency and clear frames for ideas - Protection of the ownership of the idea	Rotterdam
Cluster	Stopper	Site
Need sharing	- Intellectual protection, rights and confidentiality - Ego	Barcelona
Business development	- Price of the access	
Need sharing	- Black hole of ideas	Rotterdam
Business development	- Too much competition and commercial focus	
Agreements	- Too many rules and agreements	
Financial considerations	- Development costs - Budget	Wien
Legal, political considerations	- Contract creation - Legal constraints	
IT / technology aspects	- IT constraints	
Trust & confidence	- Privacy - Confidentiality - Dystopia - Competition	
Information sharing, communication, collaboration	- Lack of communication	
Project / planning	- Complexity	
Process	- Business model - Corporate hierarchy - Resistance to change management	Milan
Awareness	- Lack awareness, knowledge and information	
Regulations	- Regulatory constrains - Regional regulations - Confidentiality and non-disclosure agreement - EU authorizations	
Stakeholder alignment	- Lack of competence - Language - Need of training	
Accessability to knowledge	- Accessability to data and knowledge - Stakeholders not an active part during the whole process - Accessability to clinical part/competence - Solution disappears in the general noise - Narrow scope of end users needs and problems - How to value evidence / effectiveness - Time and resources - Maturity level healthcare and industry	Stockholm
Culture	- Fear of touch between health care and industry and authority	



	<ul style="list-style-type: none"> - Values, status, hierarchy - False representation of patients role - Mindset "we are unique" while many share common needs 	
Finance and business perspective	<ul style="list-style-type: none"> - Willingness to pay - Lack of sufficient funding - Fear and resistance based on commercial grounds - Payment models don't align with innovation (value realized elsewhere) 	
Regulatory, policy and legal aspects	<ul style="list-style-type: none"> - Competition between activities on regional and national levels - Procurement is a hinder to speak freely - Regulatory/legislation and its differences between countries - Long timelines for procurement process - Understanding of procurements 	
Stakeholders		
Healthcare provider	Needs collection and needs formulation All the system: network also including primary care	
Patient	Needs collection and needs formulation Inclusion of families and association of families Patients should be able to submit needs and have new ways to consult needs	
Policy maker	Balance and prioritize	
Payer	Balance and prioritize Insurance companies	
Research Community	Separate research center from universities and technological center Academia should provide evidence-based research	
Industry	Include different type of industry: start-up, SME, medtech, pharma Industry sponsors should sponsor needs assessments	
Enablers	Should be facilitators	

Topic 2: Need prioritization

In table 18 we show the different enablers and stoppers that were suggested by 40% or more groups at each site in topic 2. Moreover, we have included also, the comments regarding stakeholder clusters.

Table 18. Enablers, stoppers and stakeholder mentioned in topic 2 in the presentation workshop at different sites

Cluster	Enabler	Site
Priorization alignment	<ul style="list-style-type: none"> - Chosen priorization mechanism: clear, defined - Multi SH and multidisciplinary group to define how to prioritize and the criteria: rotative government - Priorization of new fields where innovation it is not present, minority disease, topics that private sector would never invest on - Wrong administration of new demands: dispersion - Ciclic process of addition of new demands by all SH 	Barcelona
Stakeholder interaction / Feedback	<ul style="list-style-type: none"> - Adequate or not communication channels between stakeholders: easy or complicate feedback between SH 	
Priorization mechanism	<ul style="list-style-type: none"> - Accepted method of assessment and shared set of criteria, (i.e Market potential, how many people are helped with it, impact & reach, impact on society vs impact on patient, promising potential, impact on QALYs.) - Independent assessors - Priorization of new ideas 	Rotterdam
Information sharing, communication, collaboration	<ul style="list-style-type: none"> - Communication between stakeholders: buyer to buyer and to procurer - Ranking of needs - Definition of stakeholders and quality requirements 	Wien
Trust & confidence	<ul style="list-style-type: none"> - Transparency 	
Design Thinking, innovative spaces	<ul style="list-style-type: none"> - Future labs - Incubators 	
Project / planning	<ul style="list-style-type: none"> - Shortened procurement process 	
Legal, political considerations	<ul style="list-style-type: none"> - Medical device registration leads to priorization 	
Process	<ul style="list-style-type: none"> - Time to market - Cost-benefit analysis 	Milan
Stakeholder engagement	<ul style="list-style-type: none"> - Dedicated board with multidisciplinary skills 	



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	- Coaching for the user and particularly patients.	
Regulations	- Regulatory requests and policy at all levels	
Stakeholder alignment	- User feedback	
Tools	- Events (webinars, workshops, info day)	
Challenge understanding and definition	- Understanding challenges and challenge implementation - Value/Business relevance	Stockholm
Co-creation & Process understanding	- Co-creation, creativity that drive collaborations and change together - Use and understand knowledge from other areas - Co-creation / collaboration with health care staff and patients - Create new ways to identify needs. (design thinking)	
Culture and mindset	- Courageous decision making - Innovation mindset - Patients and caregivers willingness to take a larger responsibility for their own care	
Knowledge regarding regulatory/ policy	- Acting within policy boundaries - Understanding and addressing policy hinders	
Cluster	Stopper	Site
Priorization alignment	- Priorization can differ from stakeholder cluster	Barcelona
Priorization alignment	- Priorization method not accepted by all stakeholder clusters	Rotterdam
Information sharing, communication, collaboration	- Path dependency	Wien
Legal, political considerations	- Political time factors	
Trust & confidence	- Self- interest - Ego	
Project / planning	- Project length and complexity	
Process	- Identification of KPIs - Business models	Milan
Stakeholder engagement	- Heterogenous interest and prioritization	
Regulations	- Regulatory constraints	
Stakeholder alignment	- Specialist language	
Conflict of interest	- Ethic conflict - Those who are set to prioritize are too involved in existing solutions - Unclear insight regarding problems/needs amongst those who prioritize - Not true patient involvement	Stockholm
Culture	- Fear of failure - How to shift in disruptive innovations (CD to Spotify) - Too strong barriers and different point of view between stakeholders (public/private, procurers, industry...)	
Finance and business perspective	- Need for economic compensation - Too small business in the end - Contracts with hospitals not aligned with innovation (e.g. payment)	
Poor needs / Problem identification	- Unclear challenge description - Prioritized problems/needs does not fit existing environment	
Stakeholders		
Healthcare provider	Sharing content with patients and payers Prioritizing Sharing benefits Take care of internal organization structures Value for professionals	
Patient	Sharing content with hospitals and payers Prioritizing Sharing benefits Value for patient	
Policy maker	Stakeholders can provide legal requirements	
Payer	Sharing content with hospitals and patients Sharing cost information with industry Reimbursement payer Oriented in a healthcare system based in value Tools to align/priorize	
Research Community	Evidence provision	
Industry	Determine costs and sharing cost information with payers Support on the prioritization: knowledge	
Enablers	Accelerators: knowledge Agencies to evaluate criteria Bet of business investors	



Topic 3: Further detailing in the need

In table 19 we show the different enablers and stoppers that were suggested by 40% or more groups at each site in topic 3. Moreover, we have included also, the comments regarding stakeholder clusters.

Table 19. Enablers, stoppers and stakeholder mentioned in topic 3 in the presentation workshop at different sites

Cluster	Enabler	Site
Stakeholder interaction feedback	<ul style="list-style-type: none"> - Adequate or not communication channels between SH: easy or complicate feedback between SH - Allowance of focal groups with patients and all SH groups - Communication between all SH groups 	Barcelona
Need investigation	<ul style="list-style-type: none"> - Solution benchmarking - Observatory and guidance to investigate and define the need and to discard in case it is not an innovation - Tools for request for proposal - Tools for state of art searching - Tools and resources for patent research - Platform must help to obtain external information 	
Need investigation	<ul style="list-style-type: none"> - Money - Consensus 	Rotterdam
Trust	<ul style="list-style-type: none"> - Commitment 	
Information sharing, communication, collaboration	<ul style="list-style-type: none"> - Identify patient needs - Solution database including evaluation - Market data - Platform for sharing published and unpublished evidence of needs or solutions - Use of PROMS 	Wien
Technology aspects	<ul style="list-style-type: none"> - Include mobile phone version - Open access 	
Process	<ul style="list-style-type: none"> - Financial resources - Adequate and easy methodology - Co-creation process 	Milan
Stakeholder engagement	<ul style="list-style-type: none"> - Involvement of end-users - Involvement of experts 	
Diversity of stakeholders	<ul style="list-style-type: none"> - Encourage the devils advocate in the process - Multi stakeholder group - Trust 	Stockholm
Deep understanding of the need	<ul style="list-style-type: none"> - Deep understanding of needs - Identifying future needs (that are not yet known) 	
Vision and goal	<ul style="list-style-type: none"> - Common goal and problem understanding - Synchronizing & leverage with other initiatives/bodies 	
Cluster	Stopper	Site
Visualization	<ul style="list-style-type: none"> - Excess of information or ideas 	Barcelona
Legal considerations	<ul style="list-style-type: none"> - Intellectual protection, rights and confidentiality 	
Diversity	<ul style="list-style-type: none"> - Divergent initiatives 	Rotterdam
Information sharing, communication, collaboration	<ul style="list-style-type: none"> - Negative results not published - Rare disease - Risk to not identification of real needs 	Wien
Legal, political considerations	<ul style="list-style-type: none"> - IP property concerns 	
Technology aspects	<ul style="list-style-type: none"> - Tool acceptance 	Milan
Process	<ul style="list-style-type: none"> - Final resources - End-user acceptability - Time availability - Technology reaction time 	
Stakeholder engagement	<ul style="list-style-type: none"> - Engagement of external partners 	Stockholm
Business perspectives	<ul style="list-style-type: none"> - Fear of sharing IP - Uncertain business benefit for commercial part 	
Knowledge / Competence	<ul style="list-style-type: none"> - Out of competence scope - Time, knowledge, skills - Clarify how PPI and PCP will work in practice 	
Process complexity	<ul style="list-style-type: none"> - Too complicated processes may hinder innovation - Complexity many stakeholders - Complex language & processes hinder mutual understanding - How to clarify STOP / GO - Unable to see the results/impacts - Lack of communication between systems 	



Proper need identification	- Silos delimitate needs understanding - Risk to identify too narrow needs/challenges	
Stakeholders		
Healthcare provider	Definition of real needs	
Patient	Definitions of real needs Provide specifications and evaluations of needs / solutions	
Policy maker		
Payer	Provide costs Costs should be low	
Research Community	Studies to assess needs scientifically and feasibility studies	
Industry	Help to finance studies	
Enablers	Seed money funding National eHealth funding National funding agencies Addition of patent office in the SH group in this topic	

Topic 4: Demand definition

In table 20, we can see the different enablers and stoppers that were suggested by 40% or more groups at each site in topic 1. Moreover, we have included also, the comments regarding stakeholder clusters.

Table 20. Enablers, stoppers and stakeholder mentioned in topic 4 in the presentation workshop at different sites

Cluster	Enabler	Site
Structured information / Profile visualization	- Follow up of the needs: status, autorship, prioritization - Easy and structured visualization - Need caducity and following by state	Barcelona
Concluded need definition	- Tools and criteria to stimate cost/effectivity analysis - Support , methodology and mentoring for demand definition - Repositorium of previous examples and advice from other expert partners - Support for budget calculation - Information regarding funding opportunities (regional, local or european)	
Information sharing, communication, collaboration	- Shared vocabulary - Good communication - Smoth transition to procurement procedure	Rotterdam
Information sharing, communication, collaboration	- Feedback loops allowed - Enable joint ventures	Wien
Trust & confidence	- Decision by unbiased representatives	
Design Thinking, innovative spaces	- Prototypes, pilot projects and future lab	
Project / planning	- Multi- stage tender procedures	
Legal, political considerations	- IP issues	Milan
Process	- Document functional and technical specifications	
Stakeholder engagement	- Communicating the process to all the actors involved	
Crossborder dialogues	- International solution provides both risk & opportunity - Method of early dialogue	Stockholm
Multistakeholder involvement	- Don't forget patient who need proper Non-digitalization - Inclusion of all relevant stakeholders: Include patients organizations and disability rights organizations, include companies - Multi stakeholder workshops	
Business model	- Common discussions regarding levels of importance, complexity, etc - Identify solutions that will bring most "bang for the Buck" as soon as possible. - Value vs difficulty to implement	
Cluster	Stopper	Site
Legal regulations and administrative issues	- Intellectual protection, rights and confidentiality - Different regulations between EU countries / Legal ambiguity - Juridic intervention and regulatory framework - Burocracy and lack of agility	Barcelona
Business model	- Funding, capacity and resources of PiPPi	
Information sharing, communication, collaboration	- Overselling solutions - National versus international repository	Wien

Legal, political considerations	- IP and GDPR issues - Brexit	
Financial considerations	- Lack of resources	
Process	- Need for methodology - Organization structure too vertical	Milan
Stakeholder alignment	- Language and terminology used	
Stakeholder engagement	- Adequate communication to target audience - Approval process by actors who are not involved in the process	
Communication	- Difficulties for different stakeholders to understand each other	Stockholm
Finance / Resources	- Lack of resources	
Lack of methodology	- Risk for limiting problems to much which will lead to isolated solutions - Important to invest time and energy to understand problem/need thoroughly - Stay with the needs and don't go into solutions - Too narrow delimitation of need	
Stakeholders		
Healthcare provider	Cost-efficiency analysis	
Patient	Development of patient-centered pathways PROMs	
Policy maker	Internal and external policies	
Payer		
Research Community	Cost analysis / Economic health assessments	
Industry	Business opportunity Market share	
Enablers	Support organizations Public Sector	

Discussion and main outcomes of the workshop

Need sharing

In this first step on the process, the sharing of needs three different important clusters of enablers/stoppers were suggested and commented in the different sites. All three clusters were suggested as enablers if done properly and stoppers if they are not solve properly. Therefore, we can conclude that there are relevant aspects to consider in the creation of PIPPI platform and CoP:

- 1) Language and communication: to use an understandable language for all stakeholder clusters.
- 2) Visualization and usability: to provide a standard and easy form for providing the unmet need information that allows a correct need definition. To avoid unstructured information and too much noise that do not allow to find the information of interest.
- 3) Regulations and IP protection: it is important to have the trust and confidence of members, to understand the competition between them and protecting the ownership of the unmet needs. It is an important issue that will need follow up in the future and it appeared in almost all debates in all the steps of the process.

Regarding stakeholders clusters, the most important points were related to the importance of healthcare providers and citizens in sharing needs.

Need prioritization

In the second step of the process, need prioritization several clusters were commented in different sites as enablers or stoppers:



- 4) Priorization mechanisms: PIPPI project should define clear mechanisms to prioritize unmet needs. It is important to consider that the heterogenous interest between all stakeholders may lead to differences in priorization. The best manner to avoid conflict of interest in the priorization process it is to have an objective criteria.
- 5) Feedback between stakeholders: it is important that PIPPI platform allows adequate communication channels between stakeholders. It is important that the co-creation process that drives creativity and collaboration it is enhanced.
- 6) Mindset: it was mentioned the importance of the mindset of CoP, as it should be courageous to decision making and open-minded to allow innovation to occur.

In the stakeholders section we can highlight again the importance of healthcare providers and citizens cluster. This are the key clustrs in this step, and the priorization should consider the value for them. The other stakeholders cluster are very important to provide information needed to work on better solutions

Further detailing in the need

In this step on the process, to detail the need, several clusters were commented. It is important to mention that aspects regarding IP protection and trust appeared again. Furthermore, at this point, stakeholder interaction process it is again very important. PIPPI platform should allow adequate communication between stakeholders to be able to share knowledge and work in multidisciplinary teams leading to a sincronization process of all involved stakeholders. In this topic, it was also commented that:

- 7) Need investigation: to further understand the unmet need the platform should help in obtaining information. For that it is important the information that specific stakeholder cluster can provide regarding the state of art and benchmarking (industry, enablers, R&I Community) and also, the information provided by payers related to costs. Moreover, the platform may also help in looking for the state of art.
- 8) Innovation guidance: PIPPI platform should avoid create too complicated processes that may hinder innovation and also, need to define a manner to support and guide their members to define innovative solutions and inform if no innovation it is observed.

Regarding stakeholder involvement, in this topic it was mention the importance of keeping citizens in this step, together with the importance of the information that can be provided by enablers, industry, I&R Community, Payers and policy makers to further detail the unmet need.

Demand definition

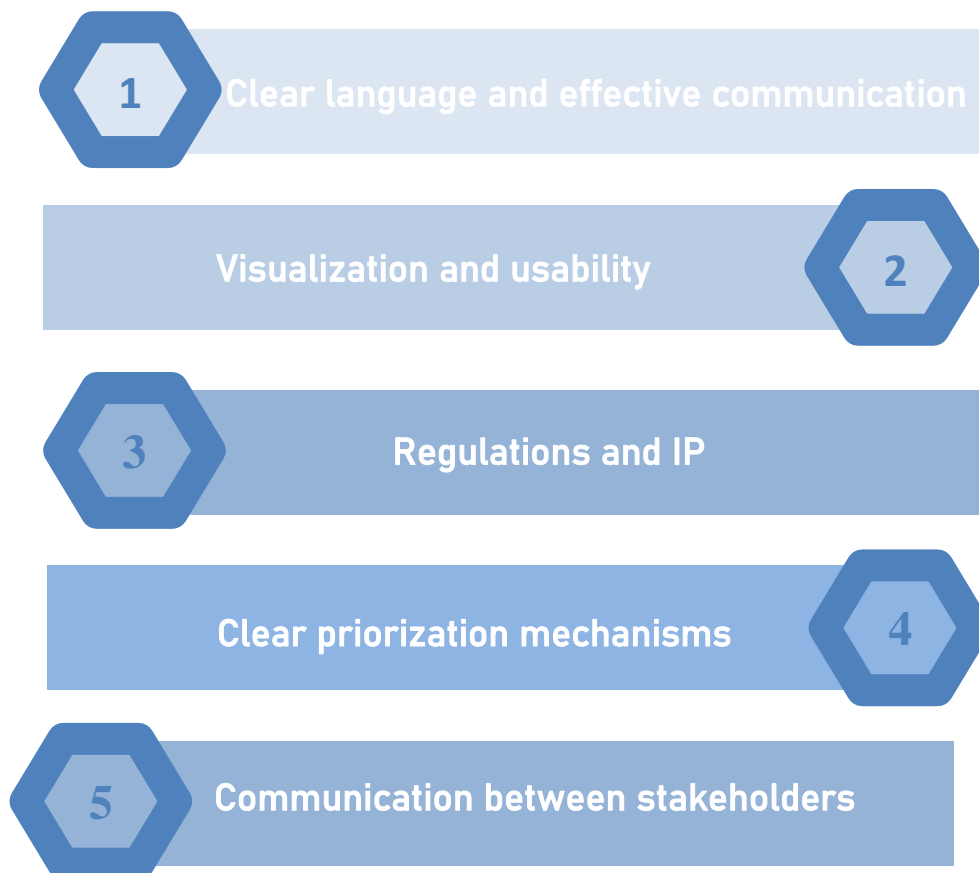
Finally, demand definition it is the last step treated on the workshop. Several aspects



appeared again regarding the multi-stakeholder communication, regulations and international discrepancies and language to communicate between all. However, two new aspects appeared consistently:

- 9) Business model and finance resources: it was mentioned the importance of PIPPI sustainability by itself and the fees for access. It will be an stopper for some companies and institutions. Furthermore, it was also commented the importance for PIPPI CoP to have accessible funding resources for new shared needs. Therefore, pointing out the importance of the presence of investors and experts in EU and other funding resources. Finally, it was also mentioned, the importance of having input on cost-efficiency and cost-benefit analysis of unmet needs.
- 10) Lack of methodology: it is important that PIPPI CoP allow to understand the need in deep, avoiding going to early to solutions that may already be in the market. It is important to invest time in understanding the unmet need.

Figure 17: 10 learnings from the Presentation workshop





4.3 Final survey

Before ending the event, we carried out a survey to further gather information from stakeholders including the following questions:

- 1) How do you think you or your organization can contribute in the process?
- 2) Focusing in the process (see image), in which steps do you think your organization should be involved?
- 3) Summarizing the workshop from your point of view what are the most significant enablers and stoppers to participate?
- 4) Do you (or your organization) want to participate in further activities?
- 5) Open comments and feedback on the workshop (improvements, suggestions...)

The survey can be consulted here <http://bit.ly/WSPiPPi2>. We obtained 75 answers from stakeholders from different clusters.

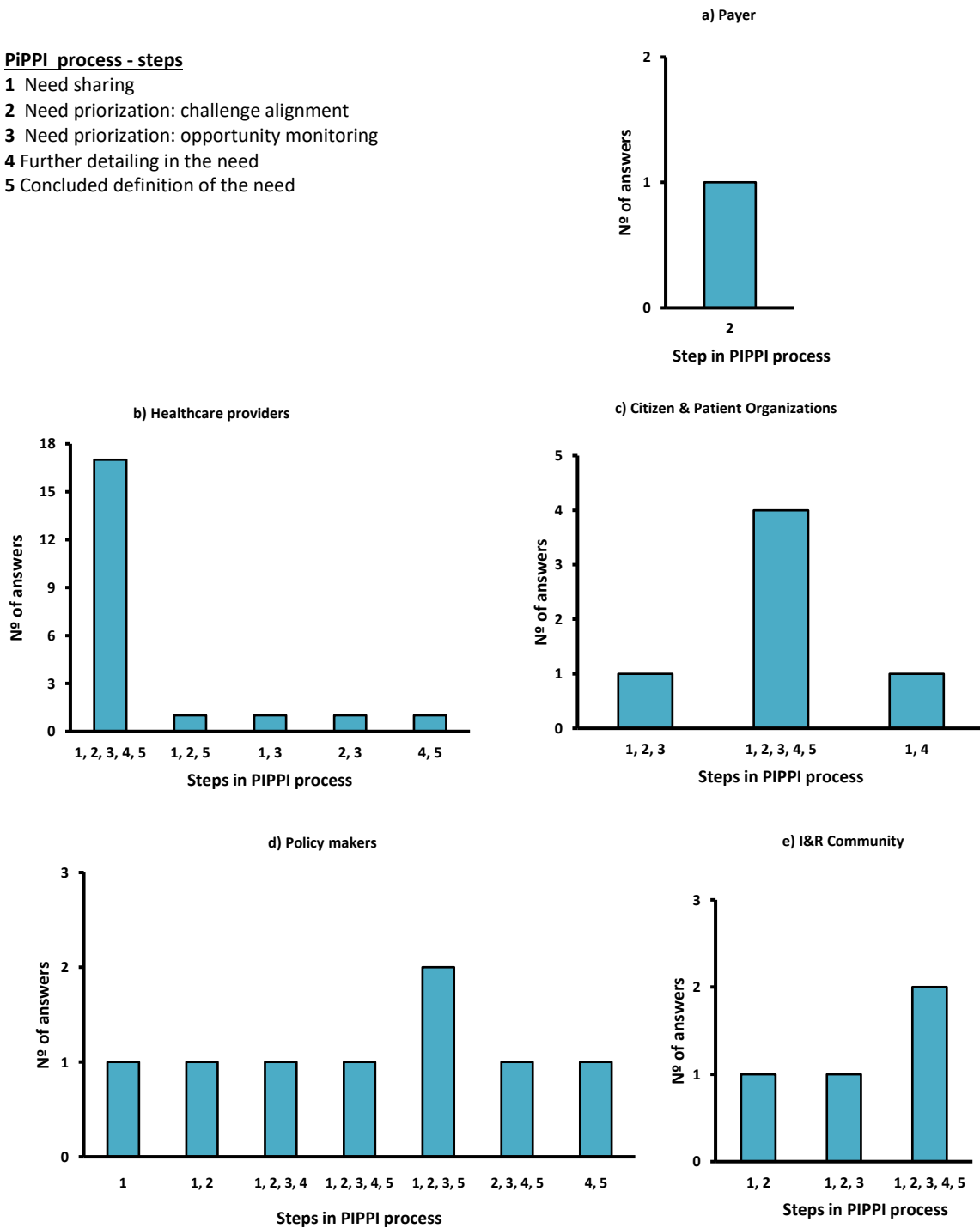
The first two questions (1 and 2) were useful to confirm the information that was previously gathered during the workshop. Obviously, the answers were specific considering stakeholder cluster and, as expected, depending on their expertise and their company or institution

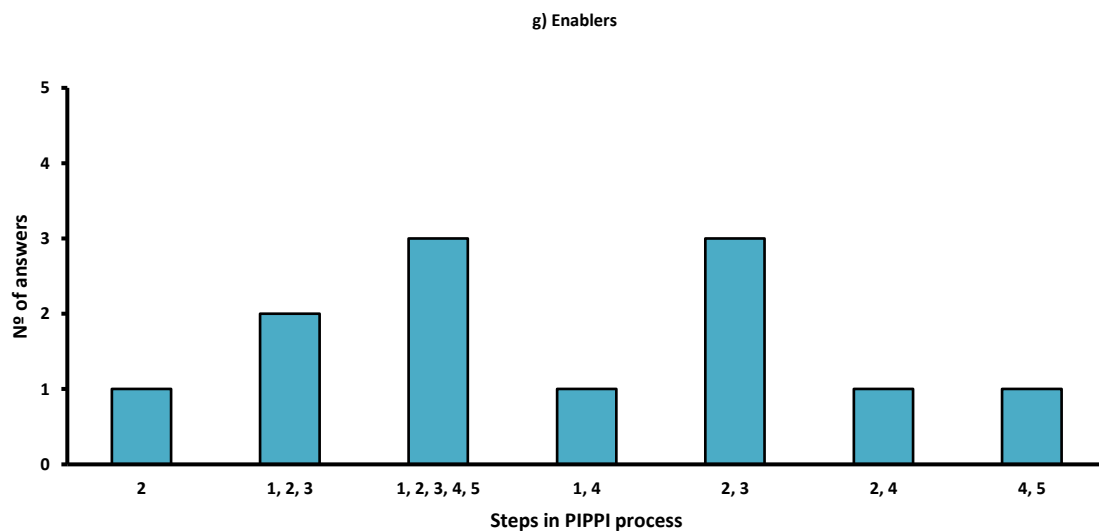
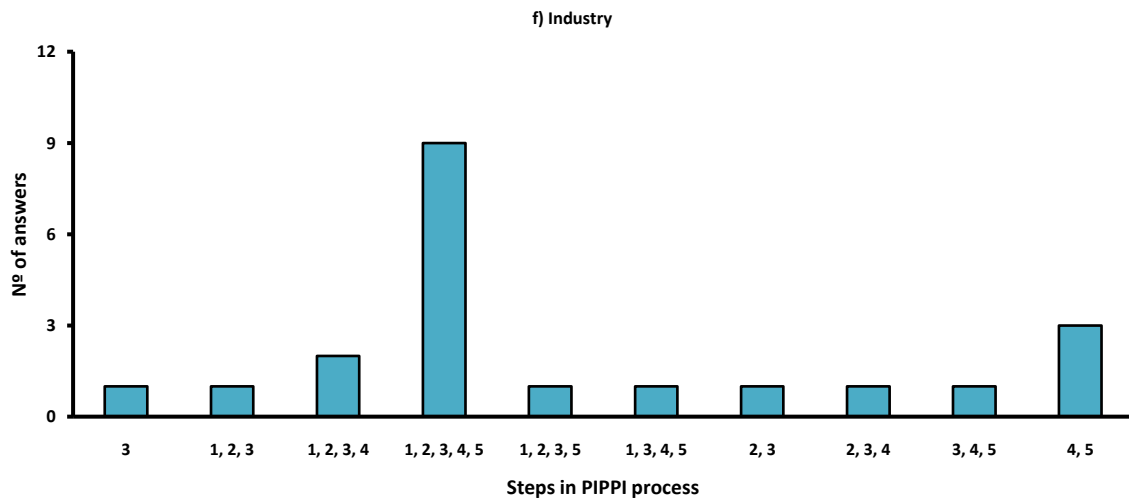
expertise. Therefore, depending on the variability inherent in each stakeholder cluster we obtained the following answers to their involvement in PIPPI (Figure 18)

Figure 18. Steps in the PIPPI process in which each stakeholder cluster visualize their intervention. Y axis indicates de number of answers per group, X axis indicates the steps of the process

PiPPI process - steps

- 1 Need sharing
- 2 Need prioritization: challenge alignment
- 3 Need prioritization: opportunity monitoring
- 4 Further detailing in the need
- 5 Concluded definition of the need





Healthcare providers (procurers) (Figure 18b) and Citizens&Patient Organization (Figure 18c) are willing to participate in all steps of the process. Industry as a diverse group including different expertise, we observe variety in the answers (Figure 18f). Industry, in general terms would like to have access to all information, but PIPPI CoP would have to specify rules at each step to make it work. Enablers, as a cluster, much more diverse and including even more specific expertise should be analyse probably in subcluster view (Figure 18g). Depending on the nurture of the institution or company they represent, they hold an specific expertise that will be usefull and important at specific steps. That diversity it also observed in policy-makers(Figure 18d). For I&R Community (Figure 18e), we would need more answers, however we can say that they visualize themself during the first steps of the process. Finally, for payers we would need a bigger sample to conclude (Figure 18a). The answer to final survey, together with the information gathered during the workshop has been very important to define the level of engagement at each PIPPI process step.

In question 3, each stakeholder responded with their own enablers and stoppers. The results obtained were similar to the previously commented in workshop results including: motivation to improve the healthcare system, time consumption of the CoP, financing, IP and trust issues, multistakeholder collaboration and co-creation. Altogether confirming that the results that appeared in the previous discussion were the most important issues to consider for PIPPI project.

Finally, only 1 person from 75 was not willing to participate in future events, therefore 99% of the participants were happy to continue engaged with PIPPI project. All input and comments received in this survey have been included to improve the future events. However, most not positive comments were related to the fact of being too theoretical and abstract in the discussion, related to the fact of being the first contact with the project.

5. Overall interaction discussion

Overall, we can conclude that even the methodological limitations in the analysis of the interaction in different sites due to different number of groups, we have been able to detect the important aspects for future PIPPI platform users. This information has set the roots for the development of PIPPI platform and PIPPI business and operating model apart from being fundamental in the WP2 for mapping stakeholders and deep in their unmet needs.

