



**Platform for
Innovation of Procurement and
Procurement of Innovation**

PiPPi – The European Community of Practice for Healthcare Innovation

Driving Advancement in the Development of Interdisciplinary
Transformation through Procurement of Innovation



Supported by EU Horizon 2020



“Meeting unmet healthcare needs identified by multidisciplinary professionals and end users through procurement of innovation, or innovation procurement”

(PiPPi Mission, 2022)

With acknowledgement



Foreword



David Konrad, Managing Director, Perioperative Medicine and Intensive Care, Karolinska University Hospital, Sweden

“Historically, as physicians and healthcare providers, when we identify problems that need medical technology or innovation to help solve, we tend to go to the market to find something. Sometimes, we opt for a commercial, off-the-shelf product which is rarely perfectly suitable and often requires heavy compromise. In many cases, similar problems occur in different areas of the same hospital or healthcare system and the searching exercise results in the sudden, inappropriate abundance of solutions.

From my experience of being involved in procurement projects across Europe, I have learnt that at the beginning of the process you might feel confident you have understood the problem, you think you are addressing the whole iceberg and you have the right solution in hand. However, when the work starts progressing and you dive under the water, you realise you have only solved the very tip of the iceberg and there beneath exists a larger, more complex problem which won't be solved by your proposed solution. This is when you realise you have not identified the true root causes and that procurement innovation cannot be solved on your own.

Distilled, PiPPi has a simple aim: the ability to put out an open request to discover if anyone else locally, regionally or across borders has experienced the same issue as you. It has grown into a Community of Practice that supports, guides and creates a space for healthcare providers, researchers, the market, funders, patients and citizens to come together. PiPPi is there for them to share competences and experiences, fine-tune a problem, define it, develop it and evaluate the early prototypes realised from the market.

We are all part of a unique ecosystem and for far too long have been distanced from the other competences around us who can help to define a problem and face it in an interdisciplinary way, with multiple perspectives.

The PiPPi platform that supports the CoP offers the potential to interact within areas of interest. It gives the flexibility to jump in to help teams when your expertise is needed, to use tools and resources designed to help guide teams through the PCP/PPI process and to facilitate collaboration with experts whose perspectives are all essential to address the body of the iceberg. To be part of it now is a worthwhile investment of time for better solution development in the future.

I hope you will enjoy reading more about the findings and conclusions of this great European cross-border initiative and feel inspired by the values and the work of the PiPPi Community of Practice where you can find partners to share insights along your procurement journey and drive innovation in healthcare all together!”

A handwritten signature in blue ink that reads "David Konrad". The signature is fluid and cursive, written in a professional style.

David Konrad

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Executive Summary

There is a complex problem which persists in health ecosystems across borders: the inability to truly meet the needs of healthcare professionals, patients and citizens who require innovative solutions in order to address challenges and achieve better outcomes.

The problem is complex because it is multi-dimensional. It is caused by fragmentation and a lack of knowledge of how to procure innovation, especially in the preparation of PCP¹/PPI² methods. Procurers are rarely in the driving seat for innovation procurement and processes within healthcare providers are limited, sporadic and often hampered by constraints and lack of resource. This, in turn, causes work to be led by individual champions, increasing the risk of silos and minimising input from experts from across the spectrum of healthcare and innovation.

PiPPi – the *Platform for Innovation of Procurement and Procurement of Innovation*, has been developed to address this problem. It is a collaborative Community of Practice for joint innovation in healthcare, designed to put the demand-side front and centre. PiPPi offers a combination of components that, together, help its members achieve their goals and advance the development of innovative solutions, with successful preparation and planning for procurement.

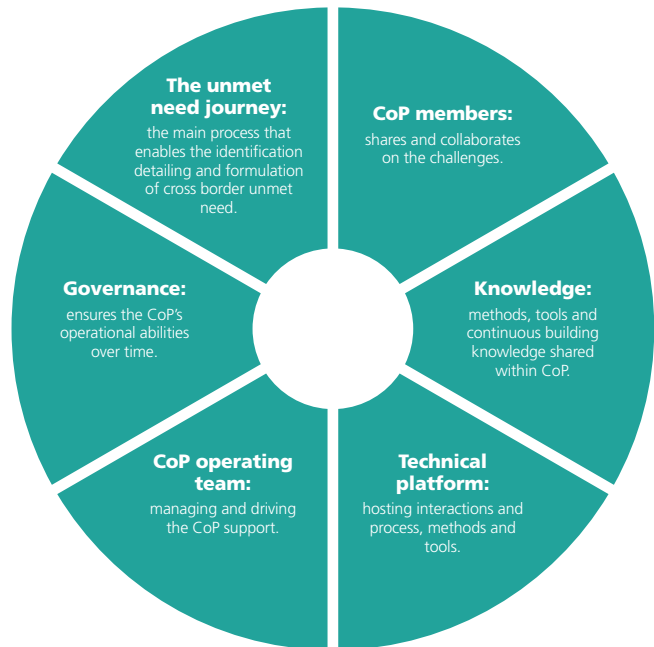


Figure 1:
A visual to show the components of PiPPi

Key benefits for Healthcare Providers:

- Accessing a platform for interacting, sharing unmet needs and collaborating in real-time to solve the right problems
- Accessing a knowledge-base with tools and resources to help with public procurement of innovation (including a concrete step-by-step process for the preparation of PCP/PPI)
- Sharing unmet needs across borders, and identifying common problems that exist and pooling resources to raise the level of ambitious research and development acquired, through given PCP/PPI
- Contacting and collaborating with other stakeholders internationally including patients and sell-side partners
- Gaining insight into unmet needs and challenges faced by other healthcare providers and health professionals
- Finding market opportunities and future partners
- Tailoring support and guidance as needed from the PiPPi Operating team
- Continuously supporting and collaboration beyond innovation procurement procedures

PiPPi applies a rigorous approach to solving the challenges faced by the health ecosystems as perceived by service providers and users in several countries. It increases opportunities for health and care service providers to address unmet need and drives innovation to empower faster digital transformation and increase trust between stakeholders.

In this White Paper, you can find more information about the components of PiPPi, how they have been developed and how they can deliver value to all individuals and organisations that are interested in delivering better patient outcomes, through innovation.

¹ PCP Pre-Commercial Procurement

² PPI Public Procurement of Innovative solutions

Introduction

The Problem

Healthcare providers should be in the driving seat for the digital transformation of healthcare, with patient voices included and actively heard.

The digital transformation of healthcare requires collaboration between stakeholders from both the public (health and social care providers, patients, citizens, policy makers, researchers, payers etc.) and private (industry partners, developers, etc.) sectors to co-design and co-create digital solutions that meet clinical demands. These collaborations are often reactive and not fully connected with the needs and specifications of healthcare professionals, and without input from patients and citizens. As a result, procured solutions cannot be scaled, do not make it to market and do not deliver better patient outcomes.

The European Commission's **procurement of innovation instruments** such as *Pre-Commercial Procurement (PCP)* for Research & Development purposes, are not widely adopted. This is due to the fact that the necessary know-how and expertise are not easily accessible and the fact that the end-users and future buyers are not often leading this work.

The PiPPi Project

Putting the demand side in the driving seat: a collaborative Community of Practice for joint innovation in healthcare.

The PiPPi (*Platform for Innovation of Procurement and Procurement of Innovation*) project has been set up to address this multi-faceted problem. It aims to put the demand side in the driving seat for innovation procurement in healthcare and ensure standardised processes to tackle lack of know-how against procurement instruments, with the following benefits:

- A rigorous approach to solving the challenges faced by the health ecosystems as perceived by service providers and users in several countries
- Increased opportunities for health and care services providers to address unmet needs
- Reduced fragmentation of service providers' demands and enhanced collaboration
- Concrete preparation of a cross-border PCP/PPI

Definitions	
Innovation	The implementation of a new or significantly improved product, service or process, including but not limited to production, building or construction processes, a new marketing method, or a new organizational method in business practices, workplace organization or external relations with the purpose of helping to solve societal challenges (1).
PCP	Pre-Commercial Procurement (PCP) can be used by procurers when there are no near-to-the-market solutions yet that meet all the procurers' requirements and new Research and Development is needed to get new solutions developed and tested to address the procurement need . PCP can then compare the pros and cons of alternative solutions approaches and de-risk the promising innovations step-by-step via solution design, prototyping, development and first product testing (2).
PPI	Public Procurement of Innovative solutions (PPI) can be used by procurers when challenges of public interest can be addressed by innovative solutions that are nearly or already in small quantity on the market . PPI can thus be used when there is no need for procurement of new Research and Development to bring solutions to the market, but a clear signal from a sizeable amount of early adopters/launch customers that they are willing to purchase/deploy the innovative solutions if those can be delivered with the desired quality and price by a specific moment in time (3).

Table 1: Definitions of innovation and procurement methodologies

Unmet needs must be identified first and foremost by healthcare providers and the patients and citizens they serve, with input from the supply side critical to the continued development of a workable solution. Therefore, the PiPPi project has created a cross-border Community of Practice (CoP) that brings together experts from the demand and supply side to identify common unmet needs for digital healthcare solutions and procurement of innovation knowledge, led by the demand-side. Members of the Community of Practice can prepare a cross-border, pre-commercial procurement (PCP/PPI) for the selected unmet need. A step-by-step process to enable this has been designed, in addition to the development of tools and resources to support knowledge-building amongst members in the preparation for procurement.

To enable the Community of Practice, a digital PiPPi platform has been created housing the processes and functions for this to take place.



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The aims of the PiPPi project further detailed in the chapters of this White Paper are as follows.



Establish a CoP

Establish a Community of Practice with stakeholders and partners who have shared purposes and incentives, to improve innovation of procurement for better value-based healthcare.



Set of tools and practices

Establish, leverage and scale a shared set of tools and resources for the common benefit of all the CoP members.



Preparation for a PCP/PPI

Solve an identified challenge using the PiPPi procurement methodology.



Sustainability Plan

Ensure the sustainability of the CoP through the development of a business model and alignment with the identified stakeholder needs.

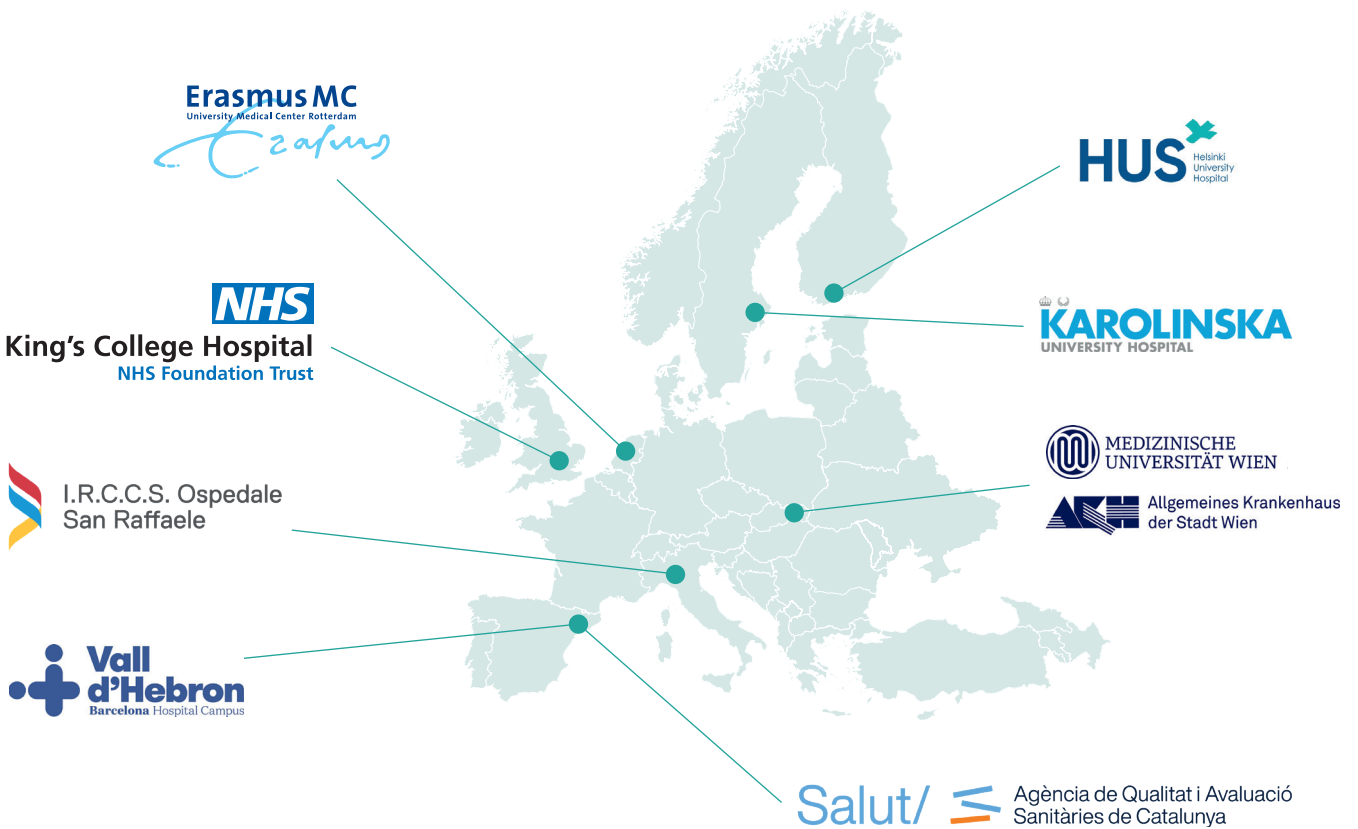
Ethics have been integrated into all the aspects and activities of the PiPPi Project. Ethical assurance has been particularly guaranteed through the development of a PiPPi data management plan.



The PiPPi Team

A consortium of six leading European University Hospitals (Karolinska University Hospital, Erasmus Medical Centre, Vall d’Hebron University Hospital, Helsinki University Hospital, San Raffaele Hospital, King’s College Hospital NHS Foundation Trust), one University (Medical University Vienna) and AQUAS, a Public Agency for innovation and assessment, was set up to fulfil the project objectives. The Community of Practice was provided funding by the EU Horizon 2020 Research and Innovation Programme, under Grant Agreement No 826157.

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 by creating a cross-border Community of Practice, focusing on the procurement of innovation in the short-term, a long-term impact on innovation procurement will be developed that ultimately delivers better health outcomes.



 Funded by the European Union’s **Horizon 2020** research and innovation programme

Figure 2: A map of PiPPi team locations

6

LEADING EUROPEAN UNIVERSITY HOSPITALS

1

MEDICAL UNIVERSITY

1

PUBLIC AGENCY FOR INNOVATION AND ASSESSMENT

1

CROSS-EUROPEAN PATIENT AND CITIZEN ADVISORY GROUP

30+

TEAM MEMBERS WITH MULTI-DISCIPLINARY SKILLS INVOLVED IN THE CREATION AND DEVELOPMENT OF THE COP





Chapter One: Establishing the PiPPI Community of Practice (CoP)

In this chapter you can find information into the development of the Community of Practice, how it works, who it is for and how stakeholders have helped to build it using insights, previous experiences and recommendations.

Introduction

In a Community of Practice (CoP), participants share their ideas, examples, experiences of innovative or best practices and tools or resources with others, to help achieve an aim.

Through collaboration, a CoP helps its participants to develop lasting and effective relationships, and in healthcare, it can help to foster activity that addresses inconsistent practice and variation in outcomes and improves the overall quality of care.

A CoP usually functions by setting up rules of engagement and a structure validated by its members to help them understand how to participate in line with its function and purpose, which evolves over time. (4)

Transformation in healthcare requires collaboration between stakeholders in the public and private sectors, to co-design and to co-create digital solutions that meet clinical demands.

The PiPPi Community of Practice (CoP) gives every participant the opportunity to share information, skills and experiences to improve local outcomes and an opportunity to do the same across borders, on a regional or international scale. The wide expertise within the PiPPi CoP gives it the ability to effectively capture and define unmet needs within the healthcare ecosystem and address them with input from all members.

PiPPi Mission and Values

PiPPi's mission is to help its members by **“meeting unmet healthcare needs identified by multidisciplinary professionals and end users by procurement of innovation, or innovation procurement”**

(PiPPi Mission, 2022)

PiPPi values help the members to understand a common code of attitudes-to-embrace. Value keywords, which have been co-produced with the CoP participants, are summarised in the word cloud (Figure 3, right). (5)

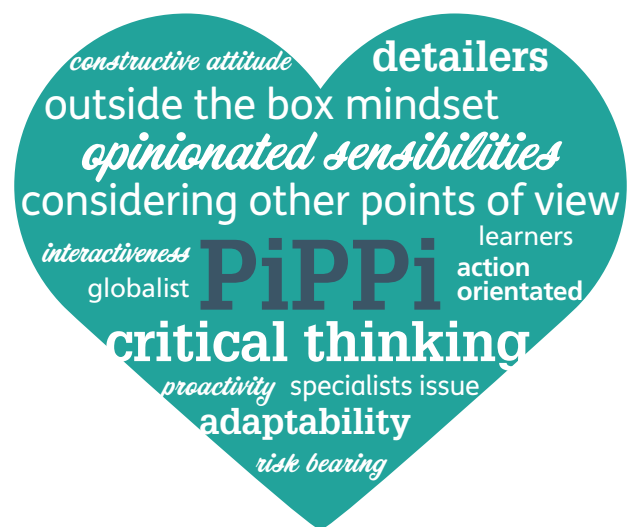


Figure 3: PiPPi values visual representation on a word cloud



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Building the Community of Practice (CoP)

The origination and subsequent evolution of the PiPPi Community of Practice (CoP) has depended upon planning, prototyping, regular testing and iterative development based on studied outcomes. Lean strategic thinking and Agile methodologies were employed “to make the biggest possible impact with the least possible resources”.

To start building the CoP, the Consortium members first had to establish a collective understanding of its purpose and aims. The guidelines developed by the *Health Quality Ontario on How to Build and Sustain a Community of Practice* (6) were selected by the experts as the most robust evidence to refer to.

As shown in Figure 4, according to these guidelines, the first phase of the work involved conducting a thorough analysis of the needs of the stakeholders and articulation of the underlying purpose of the CoP, followed by identification of the features (e.g., the supporting structure and tools) needed to fulfil the identified needs, the engagement by communicating and promoting the community and finally, by maintaining and assessing the growth and the participation.

Mixed methods were used to capture existing experiences and learnings from international networks, organisations and individuals to help develop the PiPPi CoP: 1.) an **environmental scan** on international offerings relevant to the project scope, 2.) a **survey** capturing knowledge and experiences of stakeholders that could contribute to the implementation and development of the PiPPi CoP and 3.) **interviews** with key **experts**.


 For more insights into the stakeholder needs analysis and methods used, consult PiPPi public resources (7)



Figure 4: Phases of growth and engagement of a CoP based on the *Health Quality Ontario Framework* (6)

Membership in the Community of Practice (CoP)

Who is the CoP for?

The PiPPi Consortium has identified groups of stakeholders within local ecosystems in all the relevant stakeholder clusters to ensure that wide representation for value-based innovation procurement is offered. This work aims to create a strong and credible stakeholder network that can be scaled beyond the project scope and duration, establishing a sustainable and successful open innovation ecosystem centred on the CoP vision.

Figure 5 visualises the stakeholder clusters identified as core members of the PiPPi CoP. Their degree of engagement has been differentiated, according to the classification of the International Association for Public Participation (IAP2) (8), in three different levels: **1. Inform 2. Participate 3. Collaborate.**



You can read more about the levels of stakeholder engagement in the CoP in the PiPPi public resources (9)

Associated definitions of the stakeholder clusters:

Healthcare providers/Hospitals: all healthcare providers that provide healthcare services to citizens/patients.

Citizen and patient associations: all citizens that can potentially receive medical treatment and their relatives.

Payers: entities that pay or administer the payment of healthcare in the different countries and regions.

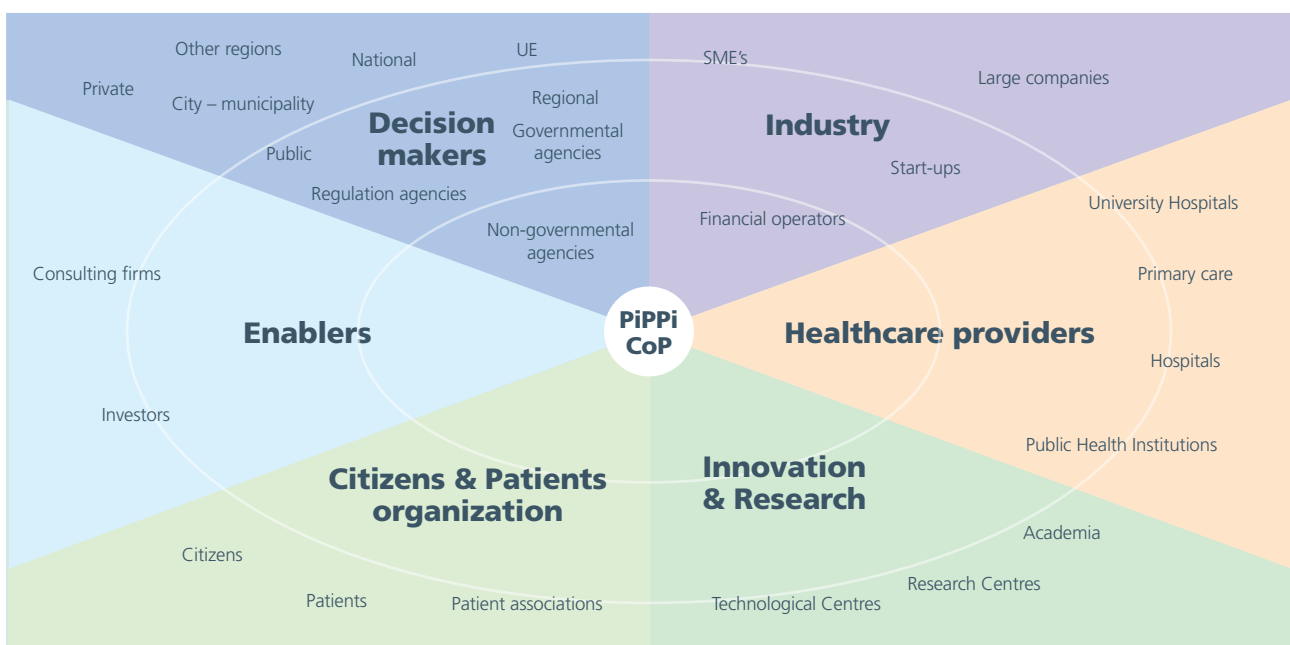
Policymakers: institutions and professionals that are responsible for creating new healthcare policies and recommendations at the local, regional, national, or pan-European level.

Industry: professionals and companies including start-up, small, medium, and large companies involved in technology development.

Research and innovation: all types of institutions involved in basic, translational, and applied research. It is an important cluster that includes basic and translational research, technological development, and procurement expertise. It includes researchers, administration, and innovation professionals.

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.

Figure 5: Live document with representations of the PiPPi stakeholder clusters and sub-clusters



What does the current CoP profile look like?

Initially, CoP members were identified through internal mapping and networking within the partner organisations. This resulted in the development of the CoP, captured by a membership database, and evolved in parallel with the creation of a supporting digital platform.

Stakeholder cluster

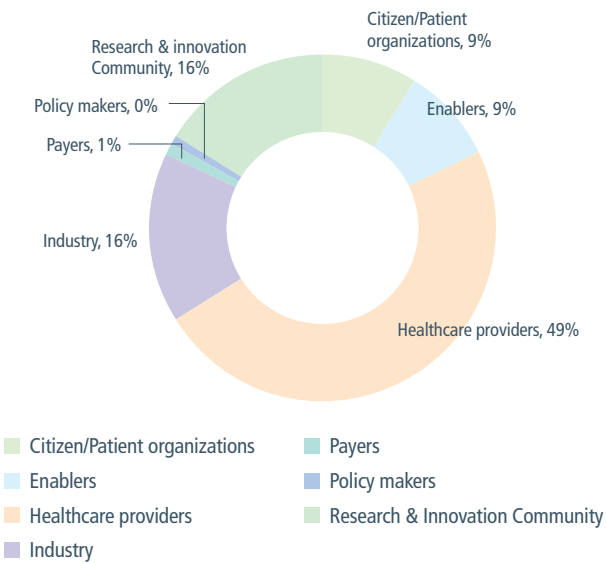


Figure 6: A breakdown of stakeholders by cluster, as of May 2022

Geographical distribution

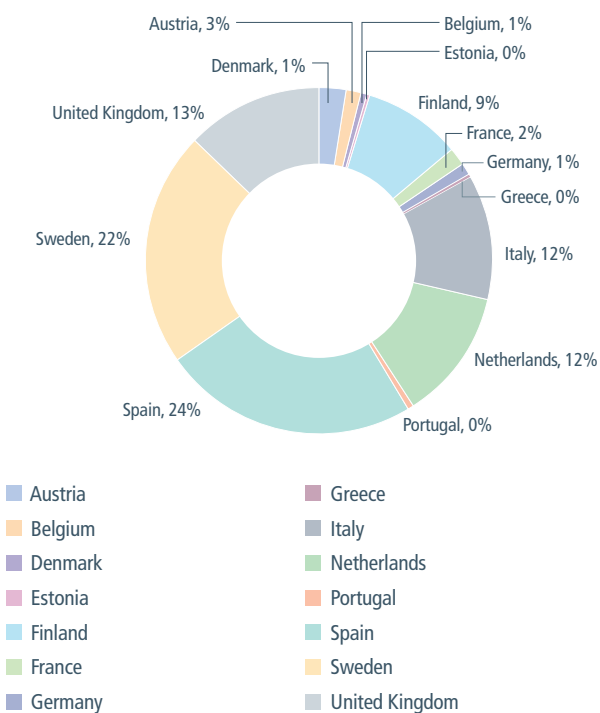



Figure 7: PiPPi CoP membership distribution by geography, as of May 2022

In the last update of the member base (May 2022), the CoP has counted 49% healthcare providers and 9% citizens and patients, both of them together representing 58% of the total membership. They represent the main drivers of the demand-driven challenges, however, the rest of the CoP will be equally important offering their experience and know-how to effectively address the unmet needs.

Figure 6 and Figure 7 left demonstrate the current membership distribution in the CoP, by stakeholder and geographic distribution.

The constant review of the membership database enables a set of advantages:

- Grouping stakeholders into clusters allows for a specific toolbox and communications strategy to be developed, without the risk of it becoming too narrow
- Involving different stakeholder clusters and assessing their needs, values and interests in the creation of the CoP also helps ensure the project facilitate better patient outcomes at a lower eventual cost in the long-term

 You can read more about the stakeholder clusters and their identified values and interests in the PiPPi public resources (10)

Patient Citizen Advisory Group

Patients and citizens are the main actors in healthcare processes and their inclusion in related procurement processes is key for the sustainability of the system as a whole. Due to the complex nature of unmet needs, the importance of involving all stakeholders in the work for a solution is clear. Patients offer great expertise on experiences of illness, whilst also influencing decision making and sharing their values and preferences to achieve outcomes that place patient needs at the centre.

In order to ensure the participation of patients throughout the PiPPi project, a specific group of patients and citizens (Patient Citizen Advisory Group) was established.

Patient Citizen Advisory Group (PCAG)

The Patient Citizen Advisory Group (PCAG) is a core membership group of the CoP, it includes patients and their representatives (such as family members) and citizens. Members of the group were recruited via an open call (using set inclusion and validation criteria) in February 2021 with the aim of providing feedback on the plan, performance and outputs of PIPPI Project.



Figure 8: A poster promoting the PCAG open call used to recruit members in February 2021

Mission: the PCAG’s mission is to be the representative body of citizens and patients through the different stages of development of PiPPi project.

Vision: Citizen and patient participation in PiPPi, together with other stakeholders, through patient associations or by individual patients/citizens, is key to guaranteeing quality, transparency, trust and efficiency of procurement processes, and therefore, the healthcare system.

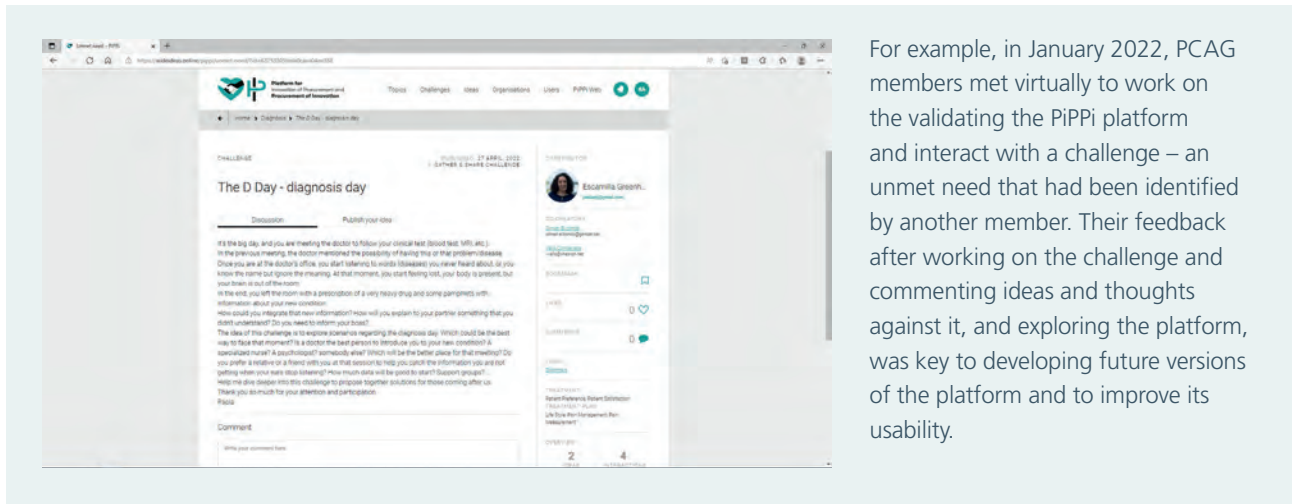
Main Tasks:

- Advise to ensure that the PIPPI project develops in accordance to patients’ and citizens’ needs, perspectives and expectations
- Provide orientation and feedback on strategies of dissemination and exploitation of the results of the project
- Work on a challenge inside the PiPPi platform and help to validate the platform as a whole

Values:

- Representability:** comprised to represent patients’ and citizens’ perspectives
- Participation:** decisions made based on active participation of their members
- Transparency:** information shared between PiPPi consortium and PCAG will be transparent
- Quality:** will promote efficient, sustainable and quality processes
- Co-responsibility:** will collaborate to guarantee the sustainability of procurement processes

The members of the PCAG have given their input for developing the procedures and functionality of the CoP, in order to ensure their concerns and aspirations are consistently understood and considered, and to provide feedback on the plan, performance and outputs of the PiPPI CoP.




For example, in January 2022, PCAG members met virtually to work on the validating the PiPPI platform and interact with a challenge – an unmet need that had been identified by another member. Their feedback after working on the challenge and commenting ideas and thoughts against it, and exploring the platform, was key to developing future versions of the platform and to improve its usability.

Figure 9: The D-Day, Diagnosis day shared in PiPPI platform

The overall PCAG journey has generated a series of findings and lessons learnt:

- We need more patients to be involved in the work as they have lived experience that can be valuable to the understanding of a problem, and the need to be resolved
- Patients and citizens are highly motivated to be involved in the process
- At the beginning, it was difficult to engage patients and citizens with the concept of the CoP
- A context for the challenge or unmet need needs to be clear to all stakeholders to get the best results

 You can read more about the development of the PCAG in the PiPPI public resources (11)

The key characteristics of the PiPPI CoP: a Charter for past and future development

Due to the complexity of the PiPPI project, its scope and its vision, participants need to understand its purpose and what is expected from them in the clearest possible manner. This helps them decide whether to participate and know how to contribute.

To help communicate this and the CoP's functions and processes, the Consortium and external stakeholders developed the PiPPI Charter through several workshops. It was established in eight main groups: *Background and purpose; Membership; Operating Model; Behaviours; Resources; Key Topics; Platform and Other Convening Venues; Measurement and ROI*. This has been adopted from *Building Community; A primer, 2018 update, World Bank Group*. (12)



The Charter is considered a live document and new information will be added to it on an ongoing basis. As the CoP grows and new stakeholders and their perspectives and needs are discovered, these will be reflected accordingly.



[You can read more in the PiPPi public resources \(13\)](#)

Findings and Conclusions

Establishing the CoP enables procurement approaches between healthcare providers to be shared and harmonised. The CoP Charter, agreed to by all stakeholders, further promotes consistency in approach. This addresses inconsistencies that exist due to wide-spread variation, without input from all key players.

Mapping key stakeholders and continuously adapting the membership profile keeps all key players involved with different levels of engagement to ensure co-production. This helps healthcare providers and procurers to lead on innovation procurement.

The inclusive membership of the CoP offers an interdisciplinary approach where members can create long-lasting relationships. This enables insight in needs and demands, market opportunities and the identification of partners for solution development, helping to tackle the cumbersome and expensive nature of achieving innovation procurement alone.

Patients and citizen involvement brings a patient-centric approach. It ensures unmet need definitions are considered from their perspectives and are inclusive of their experiences. Without this, there is the risk ineffective solutions could be developed from ill-defined unmet needs.

A cross-border CoP enables members to network internationally. This addresses the inability for healthcare providers to see similar problems that might exist in other healthcare systems, and learn from others.





Chapter Two: Enabling the Community of Practice

In this chapter, you can find information on the unmet need journey (the process designed by the CoP to achieve a procurement plan for PCP/ PPI), in addition to the PiPPI Platform where this process is hosted along with other tools and resources.

Introduction

It is becoming increasingly clear that innovation procurement has great potential for the digital transformation of healthcare. However as much as it is significant, the process is intricate and complex. It requires multiple stakeholders to work as multidisciplinary teams to collaborate, identify complex unmet needs and use consistent methodology.

The PiPPI Community of Practice (CoP) has been established to achieve innovation procurement for healthcare, and to aid this, a set of enablers have been established. These allow members to identify common needs for digital healthcare solutions and prepare for procurement successfully. Cross-border stakeholders from supply and demand-sides can connect and follow a documented path to achieve their procurement ends, using recommended tools and resources with the ability to interact rapidly using the PiPPI platform.

The Path to Procurement – the unmet need journey

As mentioned at the end of chapter one, lack of unification in the current path towards a PCP/PPI as well as lack of understanding or an established knowledge-base at healthcare providers, has led the PiPPi CoP to develop a consistent way for members to achieve this aim. This has been named the **unmet need journey**.

This process aims to help stakeholders identify, define and characterise an unmet need, working through the steps to develop a project plan. It has been designed to be led from the demand-side, with patients, citizens and healthcare professionals instigating the identification of an unmet need and the subsequent work through the steps.

Glossary

Unmet need	An unmet need is a challenge that does not have a known solution, or a good enough solution, currently in the marketplace.
Challenge	A challenge is an identified novel problem shared in the CoP by one and/or several members.

Table 2: Definitions of PiPPi terminology, unmet need and challenge

An unmet need in PiPPi terminology, is referred to as a “challenge” when it is initially identified and its description is shared on the PiPPi platform by its owner who can be an individual, an organisation or a group.



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Development of the unmet need journey

Mapping tools and best practices

The PiPPi unmet need journey was developed through identifying best practices from existing experiences and processes. Workshops were held at each partner institution to gather these and were then validated during local workshops in early 2020 and integrated accordingly.

The description of the unmet need journey

Each step of the PiPPi unmet need journey helps stakeholders identify an unmet need to the right level of detail by using different tools and resources. These vary at each stage and can be used more than once, as needed.

The tools, resources and methods have a dual-purpose: 1) to assist a team in their aim to define an unmet need for procurement and 2) to apply effective group working and develop a common understanding of the unmet need with others who have experience of it in a cross-border context, strengthening the overall approach.

The 6-step process is detailed below. Each of the 6 steps (in green boxes) aligns to a section which illustrates the main aims of this part of the process.

Guided by the process in the PiPPi CoP

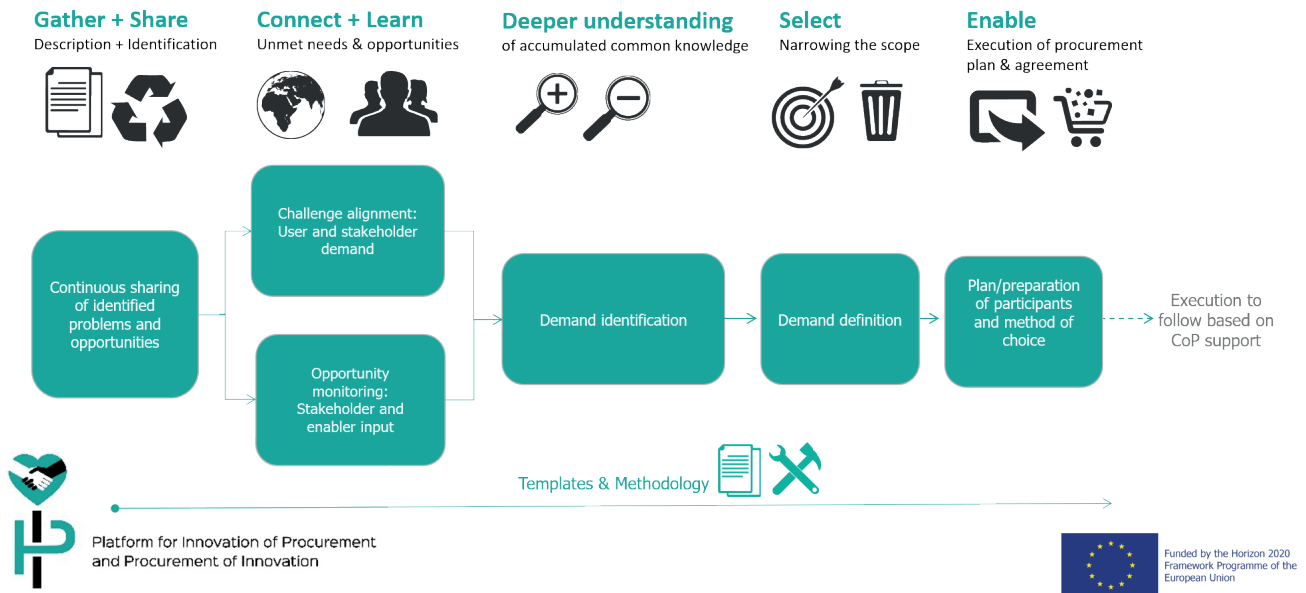



Figure 10: The PiPPi unmet need journey

 [For an interactive guide through the unmet need journey visit the PiPPi website \(14\)](#)

As mentioned above, the process also allows for the use of alternative methods to address an unmet need, where regular procurement methods or RIA (Research and Innovation Action) can be used at any point of the journey, after the demand identification. The goal of the unmet need journey is to reach a co-created solution through the adoption of procurement of innovation using PCP or PPI, with the flexibility of considering any other appropriate procurement method to be used according to the insights and details gathered along the journey.

Context and other procurement options to address challenges/unmet needs

Illustration of the PiPPi unmet need journey

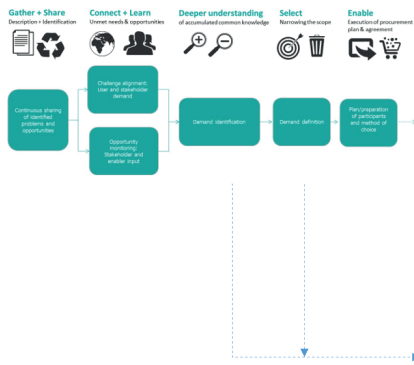


Illustration of the procurement execution options

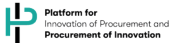
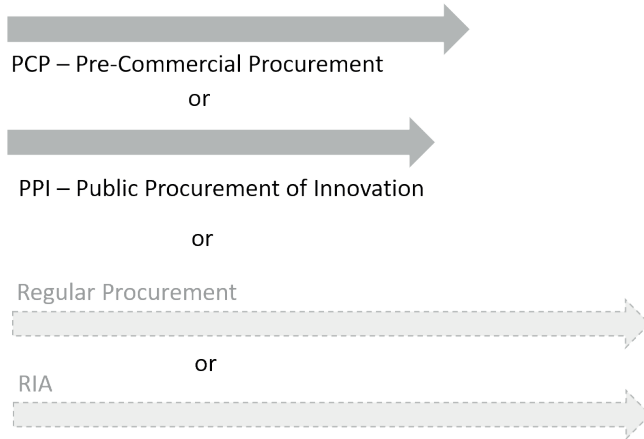


Figure 11: A visual to show the procurement paths possible using the unmet need journey

There are tools and resources provided by the expertise of the Community of Practice to help compile the necessary material for each step in the unmet journey. These include downloadable templates, suggested activities, facilitation tools and strategies to employ and stakeholders to involve at each step. Resources should be viewed as a possible menu to choose from as determined by each collaborating team for their specific setting and challenge. A “PiPPi Playbook” with resources and methods has been developed for the CoP members to be accessed at each stage of the unmet need journey.



The PiPPi Platform

The PiPPi platform first and foremost, is the overarching tool which enables the CoP. It houses the unmet need journey and hosts the associated tools and resources that exist within it. In the platform, there are also functions that allow members to share challenges (under predefined topics), generate ideas against these challenges and promote conversation via functionalities such as commenting, replying and liking. The platform also hosts additional supporting content such as webinars and videos created by the Consortium.

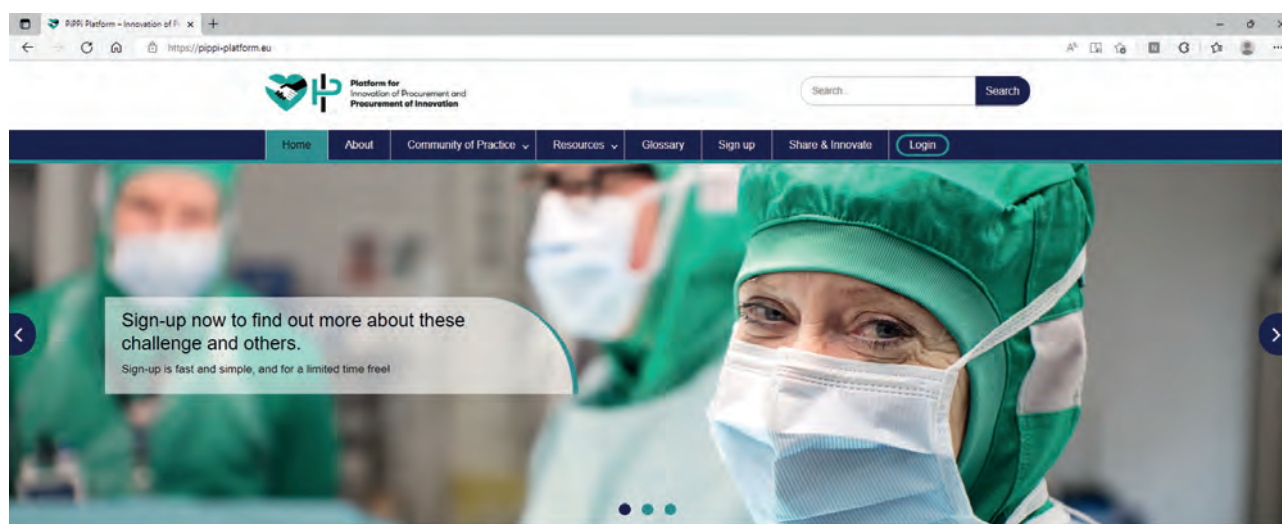


Figure 12: A visual of the PiPPi public web page

Developing the PiPPi Platform

To inform the PiPPi platform development, an investigation of the existing European platforms and tools available for procurers was conducted, followed by a business and stakeholder analysis. This was the critical groundwork which informed conversations about the PiPPi platform functionalities. Stakeholders' feedback (including from the Patient Citizen Advisory Group), multiple surveys, workshops and focus groups have contributed to the development of the platform's user journey and functionalities.


Hosting Interactions

The types of potential interaction members can have on the platform include:

- Post new challenges or ideas against one or more challenges*
- Filter topics, challenges or ideas to refine searches
- Subscribe to topics and stay notified on different levels of activity
- Comment on challenges or ideas and reply to or like other's comments
- Rate or bookmark or like challenges and ideas
- Search for, view and reach out to other members

*The highest level of interaction on the platform e.g. posting challenges, has been reserved to healthcare provider's members only to assure the demand-side is driving the journey towards the solution generation from the very beginning.

These functions make collaboration between members easier. Streamlining communications reduces discrepancies in methods and approaches. Conversations around challenges and ideas can be opened up to allow for members to interact and challenge owners gain wider perspectives and access to further knowledge and expertise. Members can contact other members directly and interactions happen in real-time, with the possibility of tailoring a user's experience of the platform to their specific needs or specialties.

 [If you would like more information on how to interact on the platform, please go to our manual online or request a user guide if member \(14\)](#)

Other resources in the form of webinars, videos, documents and bespoke consultations are offered by the PiPPi Consortium to help members get the most out of the PiPPi CoP. Some of these materials are hosted by the PiPPi platform and will continue to be developed to be as helpful as possible.

Findings and Conclusions

The PiPPi platform gives CoP members access to the functionalities, the process (the unmet need journey), tools and networking that enable a unified, consistent, reoccurring approach to procurement. It offers a set of established tools and functionalities to help members connect and define unmet needs effectively, assess their impact, identify all the geographies they exist in and find the common ground that exists across regional and international borders. It has established a common CoP process to enable its goal of developing a PCP/PPI project plan.

Multi-competence teams in the PiPPi CoP add complexity, value and robustness to challenges, in order to help develop a novel solution. This addresses the problem where approaches are led by individuals without input from across stakeholders and more generally, where ineffective definitions of unmet needs result in ineffective solutions.

The tools and resources that enable the CoP, including the six-step unmet need journey, webinars and other documents on offer, support the knowledge-base grow. This helps unmet needs become better defined and importantly, in the case of the unmet need journey, develops understanding of how to do PCP/PPI which is limited amongst healthcare providers and procurers.

The functionalities of the PiPPi platform enable a reoccurring approach; using consistent vocabulary and glossary terms. This addresses the confusing, discrepant terminology commonly used amongst stakeholders.

The PiPPi platform allows members to scan challenges and understand the common ground and opportunities that exist between them. These challenges can only be initiated and shared by healthcare providers. This addresses the common problem wherein healthcare providers and procurers do not lead on innovation.

In chapter 3, a case study offers insights into the practical use of the unmet need journey in addressing a challenge in a real-life context at Karolinska University Hospital in Sweden, including lessons learned.





Chapter Three: Using PiPPi to Address an Unmet Need

In this chapter, you can read more about the case study. This was done to address a challenge within healthcare and to test the feasibility of each stage of the unmet need journey.

Introduction

Within the scope of the PiPPi project was the identification of a challenge in a healthcare setting that required an innovative solution. In identifying this, and working to solve it, the PiPPi unmet need journey was tested to ensure its workability and ability to create value. The importance of testing the process was vital to inform the common processes in the CoP.

Monitoring and Early Detection of Deteriorating Patients: A Case Study



Step one – Continuous sharing of identified problems and opportunities

A team based at Karolinska University Hospital identified an unmet need and launched a “challenge” against it. The “Continuous Monitoring and Early Detection of Deterioration of Patients along the Care Path – in and outside of hospital” was prioritised among similar other challenges, after

collectively assessing and completing the one-pager and its criteria. This tool helped to provide context to the problem and assessed its suitability for a PCP/PPI. A cross-border clinical team was engaged to start working on the challenge, with a better definition and readiness of contents for procurement.

Monitoring and Early Detection of Deteriorating Patients

Brief Project Description		Cross Border PPI or PCP initial assessment	Y / N / Don't know
<p>Problem / Challenge / unmet need description Detection of early deterioration of patients with cardio-vascular/intensive care/infection/transplantation conditions is of great importance. There is a need for more advanced technical telemedicine solutions, including AI-decision support, for seamless and continuous monitoring and detection both along the whole care path – within as well as outside of the hospital.</p> <p>Health care at a distance and telemedicine is an area with a high potential; an area of high interest for Karolinska. Presently, we focus on remote monitoring, struggling with implementing basic solutions that work sufficiently enough today, but with a great potential for future improvements. One area for future improvements is decision support for earlier detection of deterioration, and one emerging technology of interest is AI or smart algorithms. Such improvements rely on a basic solution that can evolve over time with innovative solutions.</p> <p>Additional Challenges: Different health care systems, health care IT, reimbursement systems, regulations and legal issues, present remote monitoring system.</p> <p>Champion/Owner: Contact at Karolinska and confirmed interest in the areas of intensive care and cardio vascular, and potentially of interest in the areas of infection/inflammation and transplantation.</p> <p>Target stakeholder / beneficiary Patients, HC and society</p> <p>On-going and network: AI initiatives: EU project Nightingale, with an aim of additional funding for a multi-center study of the AI solution.</p>		Is the Challenge applicable to multiple partners (cross-boarder)?	Y
		Has market survey/interaction been carried out (RFI, other means)?	N
		The Challenge can be addressed by solutions already available on the market? (direct buy)	N
		Developments relevant to identified Challenge are on-going but no solution is currently available on the market? (PPI)	Y
		No solution on the market and there is an interest to stimulate development and testing of new solutions. (PCP)	Y/N?
	Estimated Values / Outcomes	Boundary conditions Analysis & Categorization	L / M / H
Estimated Values Baseline vs Future	Higher quality of care and more costs efficient care	Interoperability	H
Proposed outcome measurements	Cost, Patient outcome - mortality rate, complications, readmissions, less acute care, shorter hospital stay.	Data	H
		Patient empowerment – lack of	L

Figure 13: A completed one-pager used to help define the challenge and assess its readiness

2

Step two – Challenge Alignment

In this phase, the challenge owner (Karolinska) worked to align stakeholders from the demand and supply-side on the broader scope of the challenge.

They reached out to relevant clinical organisations and stakeholders, through the PiPPi Consortium and set up a series of key activities e.g. a digital workshop to understand the clinical need and scope of the challenge, a patient journey mapping exercise and a workshop to discuss the map and share knowledge with cross-border clinical and innovation teams.

The team started to develop a better understanding of specific needs within the challenge and were ready for broader interaction with external stakeholders. It is important to understand that step 2 and 3 can be iterated multiple times as new inputs are gathered.

3

Step three – Opportunity Monitoring: stakeholder and enabler input

At this stage, the level of interest in solving this challenge was investigated with different methods to collect data from clinicians, patients and industry representatives (surveys, workshops, questionnaires), including qualitative insights into the main benefits and obstacles. This activity had a secondary aim to raise awareness around the challenge and create energy amongst stakeholders to continue engaging with it.

Soon after, the scope of the challenge was assessed together with the ability for organisations to be involved. It became clear that when narrowing its scope (e.g., focus on cardiovascular conditions like heart failure and atrial fibrillation), the interest of some of the initial clinical stakeholders was compromised. Also, it became apparent that without external funding to support the challenge, the engagement and ability to participate was decreasing. The challenge owners started looking for funding that could potentially align with the scope of the challenge and matched with an EU Research and Innovation Action (RIA) call (see step 4 of the unmet need journey), which reinforced the engagement and enabled a broader stakeholder consortium to be formed.

Example of collected feedback from the stakeholders

“Reuse as much as possible...it doesn't make any sense creating a step counter software when there are already thousands on the market. Collaborate with technology and environment (health) partners. Data sharing, privacy agreements and data standardisation is key”



4**Step four – Demand Identification**

During this step in the journey, the unmet need was described in detail, to align all stakeholders involved. A multi-disciplinary team with specialists in different areas (clinical and technical) was formed and activity was catalysed by the common interest of submitting a proposal for the EEU Horizon Europe call and enabled a specific focus to be defined.

5**Step five – Demand Definition**

In respect to this case study, work on the identification and detailing of demands was iterative. The team narrowed the scope of the project and desired outcomes. In this specific case, at step 5 of the PIPPI journey, the challenge resulted in an EU RIA proposal document.

6**Step six – Plan or Preparation for Procurement Method of Choice**

At this point, a detailed plan was put together using a set template and work was undertaken to agree the best procurement model.

There is an interesting approach explored in this case, aimed to combine the actions of cutting-edge research funded by an RIA with the PPI of specifically valuable, readily-available marketed products, adding value and enhancing the research and innovation actions.

The specific procurement procedure most suitable for this type of PPI related to the RIA was 'competitive dialogue' with a pre-selection based on fulfilment of specific criteria. Essentially, the pre-selection was made by invitation of the most relevant sensor providers in Europe which matched the scope of the RIA. Potentially three companies could be rewarded the contract for the participation and contribution to the RIA work and the potential final delivery of the sensors to the respective healthcare providers.

After step 6 of the unmet need journey, the plan for the potential execution of a PPI Innovation partnership within the scope of the EU RIA project was developed. The documented plan includes the background (step 1-5) and defines a potential way forward for addressing the challenge post-PIPPi project. The proposed way forward is dependent on specific factors (mainly the potential RIA funding), but nevertheless shows a good example of challenges like this that can be progressed through the unmet need journey with more information and insights continuously added.

Measuring Success

A dedicated team of procurement experts and outcome researchers compiled and validated a core set of outcomes to be applied generally to PCP/PPI projects to measure their success. The feasibility of this generic list was reviewed against this specific unmet need and related PPI described above.

Through a combination of mix methods (e.g. experts, literature review and survey), results highlighted that outcomes relating to patients (e.g. patient-reported outcome measures or patient-reported experience measures) were perceived by the project team as the most valuable as in every advancement in healthcare, whether it be innovation or procurement aimed to help doctors or IT specialists, and should inevitably result in an improvement for the patients.

On the other hand, many of the metrics typically collected by organisations already encompass quantifiable system attributes (e.g. readmission rates, maintenance costs, cost per code or procedure etc.). This domain has not been recognised as particularly important to measure project success. Hence, there must be a broader alignment within organisations so that outcomes collection is useful and provides valuable feedback to project staff, while balancing organisational needs.



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Findings and Conclusions

From the case study developed to test the PiPPI unmet need journey, several findings can be drawn:

- It is valuable to share and connect around identified challenges early on. When a deeper understanding of a challenge has been established it is easier to act upon external funding opportunities that could arise or to engage in internal investment strategy discussions.
- Multi stakeholder engagement is critical for the deeper understanding of a specific challenge, and how it may be addressed.
- If a shared challenge has a broad scope, it is important to be open to changes in scope and participants, and how incentives may vary between actors throughout the unmet need journey.
- Be open minded about how a challenge may be composed of multiple different components which could be addressed in different ways and in combination. In the case study the fact that an RIA could be a good vehicle for combining research and implementation focused activities like a PPI is a great learning that will be valuable for future challenges.
- Patient outcomes matter the most as a measure of a project's success.

The idea of using separate steps in the unmet need journey, with specific characteristics in each one, is to help challenge owners to progress through the journey and reach the desired aim of assembling a procurement plan. The case study demonstrates that the linear process visualised in the unmet need journey is in many cases iterative and flexible. It can be concluded that the unmet need journey and supporting resources enable the progression of a challenge toward the end goal.

The six-step unmet need journey and available expertise within the CoP helps teams achieve procurement goals and establish a knowledge base for future procurements. This addresses the limited understanding that exists of how to do a PCP/PPI and puts healthcare providers in the driving seat for this.





Chapter Four: Sustainability Plan

In this chapter you'll find information about the sustainability of the PiPPi project and how, through procurement of innovation, it will be continuously developed with the ultimate aim to improve patient outcome and cost-effectiveness. This will create growth for European life science industry and create new markets. Here, you can also find a summary of the overall value PiPPi has for its members.

Introduction

The PiPPi CoP aims to provide a solution to the problems faced by the public health sector and other stakeholders where procurement is not driven by the needs of the demand-side, nor is there readily accessible knowledge on how to proceed in that manner or use the PCP/PPI instruments. To do this, the services of the CoP are aligned with the needs of the different stakeholders, to assure the future benefits for all of its members.

The Future of the PiPPi Community of Practice (CoP)

To secure the future of the PiPPi CoP, it has been important to develop a robust picture of the value it offers to its members, alongside developing a business and implementation plan.

The Value Proposition

The participation of its members has been vital for every stage of the CoP, from its development, through its evolution and at the post-project stage. PiPPi members were surveyed to understand what the most valuable aspects of the CoP were to them, inform the CoP value proposition and ensure the most important aspects were retained and developed for the future.

As result (see Figure 14 below), healthcare providers and other demand-side representatives expressed that it is the network the CoP offers which is highly attractive, alongside the interactions and knowledge-sharing made possible through the PiPPi platform. Supply-side representatives mirrored this, with acknowledgement of an added benefit for them, the value of a better understanding of the unmet needs faced by healthcare providers.

PiPPi CoP members will continue to be asked for feedback to develop and modify the value proposition. Listening to and acting on their feedback is a critical part of its future development.

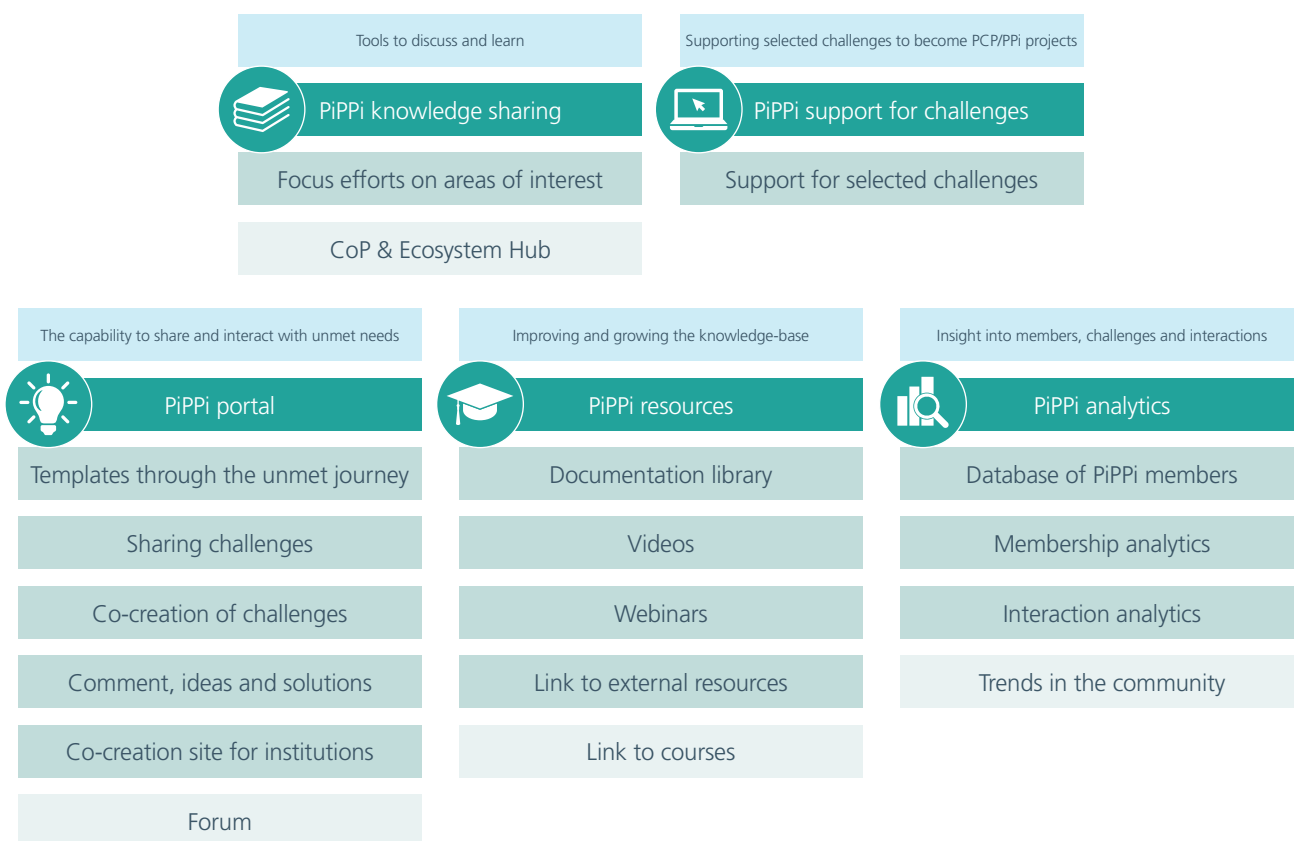


Figure 14: Breakdown of the features of the CoP value proposition

The Sustainability Plan

The necessary elements to create, capture, deliver and exploit the value offer of PiPPi have been included in the Business Plan. The plan integrates knowledge and information from the operational plan and business model, including its services and the technical and economic viability of the PiPPi activity, its prospects and the strategies necessary to achieve future goals (Table 3). A market segmentation and sizing have also

been completed to better understand the commercialisation of the PiPPi CoP. Free membership has been preserved for citizens and patient organisations.

Partnerships have been recognised to be an important part of the Community's income, tailored depending on the needs of customers.

Idea and Business Opportunity			
Commercial and Communication Plan	Operational Plan	Organisation and Management Plan	Financial Plan

Table 3: A graphic to show elements of the Business Plan

Findings and Conclusions

In order to operate and provide the service it wants to and to truly meet the needs identified by its members, the PiPPi project has had to start as a minimal product and grow. Starting simply, both in approach and related function and focusing on what gives members the highest value, has been crucial to stay focused on delivering a product that retains demonstrable value.

Key benefits for PiPPi Members:

- Accessing a platform for interacting, sharing unmet needs and collaborating in real-time to solve the right problems
- Accessing a knowledge-base with tools and resources to help with public procurement of innovation (including a concrete step-by-step process for the preparation of PCP/PPI)
- Sharing unmet needs across borders, and identifying common problems that exist and pooling resources to raise the level of ambitious research and development acquired, through given PCPs/PPIs
- Contacting and collaborating with other stakeholders internationally including patients and sell-side partners
- Gaining insight into unmet needs and challenges faced by other healthcare providers

- Finding market opportunities and future partners
- Tailoring support and guidance as needed from the PiPPi operating team
- Continuous support and collaboration beyond innovation procurement procedures

The shaping of the future of the CoP by its members ensures processes stay up-to-date, with healthcare members being consulted and engaged, keeping them in the lead role for procurement.

The existence of a PiPPi operating team, and plan for sustainability, enables the CoP to grow in number and develop resources to grow knowledge. This addresses the lack of a knowledge-base and know-how available to be able to do innovation procurement.

The creation of an Idea and Business Opportunity Plan helps to show members that the CoP is a long-term offer that has started as a minimum product and will grow, as defined by its members. This helps avoid the problem where knowledge becomes static and does not improve or adapt over time.

In both cases the survey results confirmed the importance of developing in the future a service that offers personalised advice and support to all members. The nature of the CoP is iterative and will change and improve in the future with the ongoing input of members who not only shape its direction, but define its intentions and overall impact.

Conclusion

As stated in the introduction of this White Paper, the problems PiPPi has been developed to solve are as follows:

1. **Increased opportunities for health and care services providers to address unmet needs**
Through: Knowledge sharing within the CoP and collaborating with other members, enabled by the PiPPi platform
2. **Reduced fragmentation of service providers' demands and enhanced collaboration**
Through: The PiPPi platform and its associated functionalities, and knowledge sharing with other CoP members.
3. **Concrete preparation of a cross-border PCP/PPI.**
Through: The six-step unmet need journey housed on the PiPPi platform, and the available tools and recommended resources at each step.
4. **A rigorous approach to solving the challenges faced by the health ecosystems as perceived by service providers and users in several countries**
Through: The combination of components, including governances to ensure the smooth- running and evolution of the CoP over time.

Figure 15: A matrix to highlight the benefits of PiPPi

Benefits VS Value		The problems										
		Variation in approach without input from all key players	Ineffective definitions of unmet needs	Inability to see similar problems, or learn from others	Healthcare providers and procurers not leading innovation	Lack of knowledge base for innovation procurement	Limited understanding of PCP/PPI	Confusing, discrepant terminology	Procurement led by individual champions	Static knowledge that does not improve or adapt over time	No existence of a community for innovation procurement	Innovation procurement is cumbersome and expensive to achieve alone
PIPPi Benefits	Reduces inconsistencies and fragmentation											
	Involves key stakeholders and interdisciplinary members											
	Improves unmet need definitions											
	Uses the six-step unmet need journey											
	Identifies opportunities and commonalities across challenges											
	Enables cross-border networking											
	Promotes healthcare provider leadership in procurement											
	Stays up-to-date											
	Offers webinars, videos, documents											
	Is a long-term offer that continuously improves											

How to read the matrix



PiPPi Sustainability
The business model including governance and operational plans



PiPPi Process and Support
The PiPPi platform and its functionalities, tools, resources and other support



PiPPi Membership
The members, their roles, geographies, knowledge and experiences they bring to teams and the CoP overall

PiPPi offers all its members the potential to produce better digital solutions for unmet needs in health and social care.

PiPPi itself can be viewed as a digital solution to an unmet need. It has been developed by a collaborative, interdisciplinary team and through co-creation with all stakeholders, who have brought multiple competencies and resources together. It provides a solution to a problem that is complex and resource intensive, with the aim of reducing this for its members. **It has been built using the same principles it promotes.** Its members will continue to take the lead to ensure it helps them achieve their goals at the early stages of the innovation procurement process.



To learn more about the PiPPi Community of Practice and the value it has for you, contact office@h2020-pippi.eu.



“To be part of PiPPi now is a worthwhile investment of time for better solution development in the future.”

David Konrad, Karolinska University Hospital, Sweden (May 2022)

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