THE *EAFIP* TOOLKIT

The *eafip* Toolkit aims to provide support to policy makers in designing PCP and PPI strategies, and to procurers and their legal departments in implementing such procurements. The Toolkit consists of three modules:

- Module 1: A strategic module addressed to policy makers, providing economic and case evidence about the impacts and benefits of PCP and PPI, together with concrete guidance on how to embed PCP and PPI into innovation strategies;
- Module 2: An operational module addressed to public procurers aimed at clarifying the pre-requisites and key steps to design and implement an innovation procurement process (PCP and PPI); and
- Module 3: A legal / operational module addressed to legal services aimed at clarifying legal issues and provide practical 'how-to' guidelines, supported by templates.

For further information regarding the Toolkit, such as the overall context, the disclaimers and authors thereof, please visit the *eafip* website at www.eafip.eu.

MODULE 2

Section 1: Introduction

Section 2: A step-by-step approach to innovation procurement

Section 3: Joint procurement

Section 4: Checklists for PCP and PPI projects

1 Introduction

1.1 Objectives

The objectives of Module 2 are to explore and explain:

- What form of innovation procurement a public procurer could choose;
- What are the main steps that public procurers should consider when preparing and implementing an innovation procurement procedure;
- Why each of these steps is important;
- How to implement each of these steps;
- How to implement joint procurement.

1.2 Important issues

The most important issues in Module 2 are understanding:

- the pre-requisites for a successful implementation of Pre-Commercial Procurement (PCP) and of Public Procurement of Innovative Solutions (PPI);
- how to prepare and implement a PCP and/or PPI procurement, covering the activities before and during the procurement procedure up to the award of the procurement contract(s); and
- how to manage and monitor an ongoing PCP and/or PPI procurement, covering the activities to be undertaken after the award of the procurement contract(s) and during the implementation of the PCP / PPI contract.

1.3 Links

There is a particularly strong link between Module 2, Module 1 and Module 3:

- Module 2 is based on and builds upon the content of Module 1, which sets the underlying rationale and benefits to undertaking innovation procurement, and explains the steps for the adoption of a national/regional innovation procurement policy.
- Module 2 outlines the steps to be followed in the implementation of PCP and PPI, in full compliance with the legal framework. However, more detailed insights into the legal rules applicable to PCP and PPI are available in Module 3.

1.4 Relevance

The information in Module 2 is important for the decision makers and the procurement officers involved in the procurement process. It will be of particular relevance to those professionals responsible for the planning and execution of the procurement and related activities (e.g. the conduct of market consultations, the design of technical specifications, the preparation of tender documentation, the evaluation of tenders and the selection of successful bidders, the management and monitoring of the procurement contract(s)).

2 A step-by-step approach to innovation procurement

Module 2 outlines the step-by-step approach to implement a PCP or a PPI procurement. This part of Module 2 is based on the applicable legal framework, reviewed literature, policy documents and lessons learned from innovation procurements (PCP and PPI) already implemented at both EU and national level.

More specifically, Module 2 explains how to best address each of the following 10 steps in the innovation procurement process:

- Section 2.1 Needs identification and assessment;
- Section 2.2 Prior art analysis
- Section 2.3 IPR search;
- Section 2.4 Analysis of the regulatory, certification, standardisation environment;
- Section 2.5 Drafting the business-case for the procurer to start an innovation procurement;
- Section 2.6 Open market consultation;
- Section 2.7 IPR and confidentiality strategies;
- Section 2.8 Drafting the tender documentation;
- Section 2.9 Conducting the procedure;
- Section 2.10 Monitoring and evaluating the contract performance.
- Section 2.11 Managing after contract issues.

Each of the above steps is addressed throughout the respective sections of this Module, by reference to the PCP and the PPI procedure, respectively. Specific factsheets and checklists addressing the key issues of interest are included as Annexes to this Module.

Most importantly, as opposed to traditional procurement, innovation procurement entails a greater deal of strategic planning, in light of the mid- and long-term objectives of the public procurer.

Whereas there is no 'one size fits all' procurement model that addresses the needs of all procurers, the image below could be used as guidance, to be considered and further adapted based on the characteristics of each project (e.g. the need identified, the type of the procurer involved, the budget and resources available, the timeframe envisaged etc.) and the legal pre-requisites in each country.

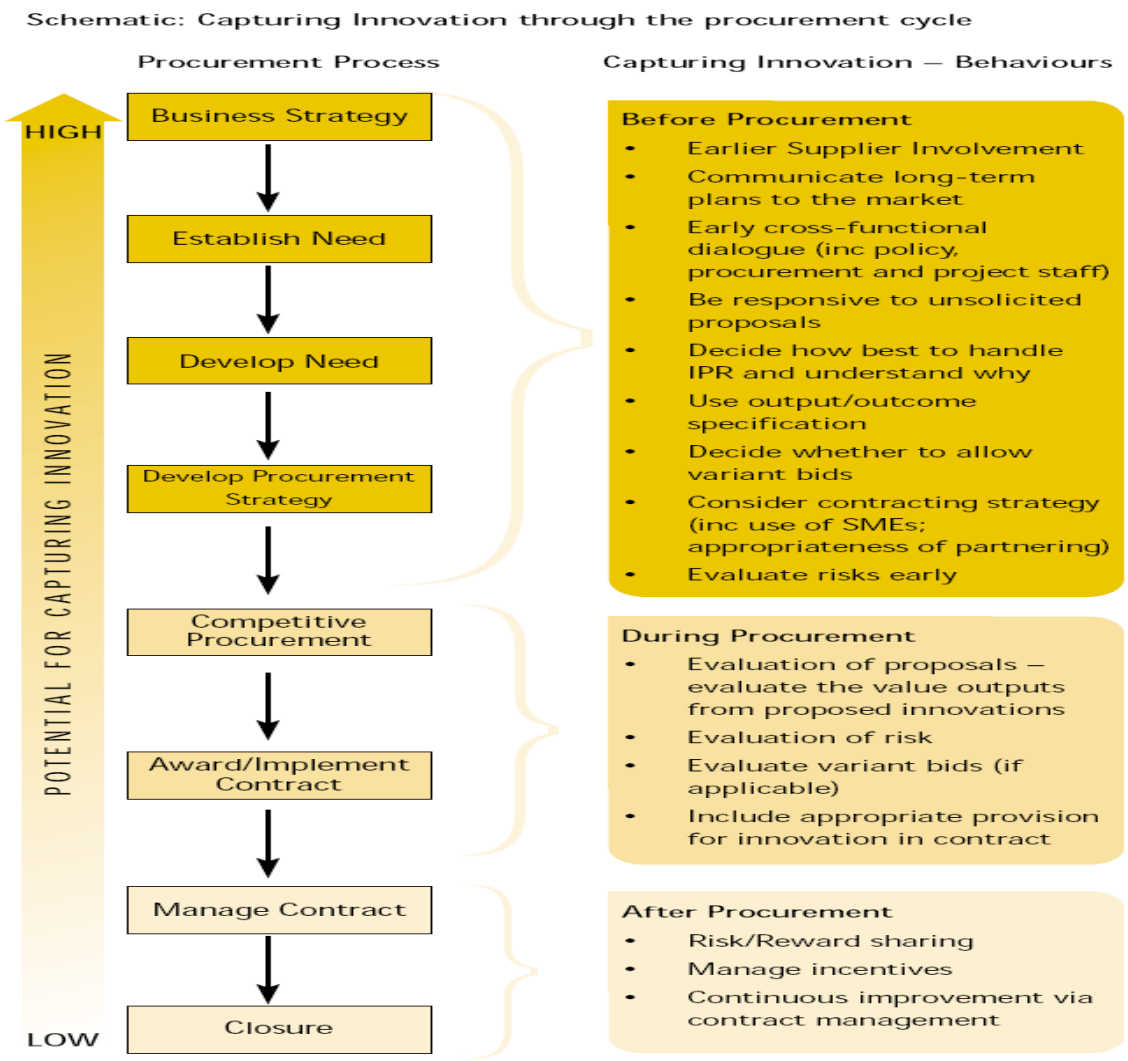
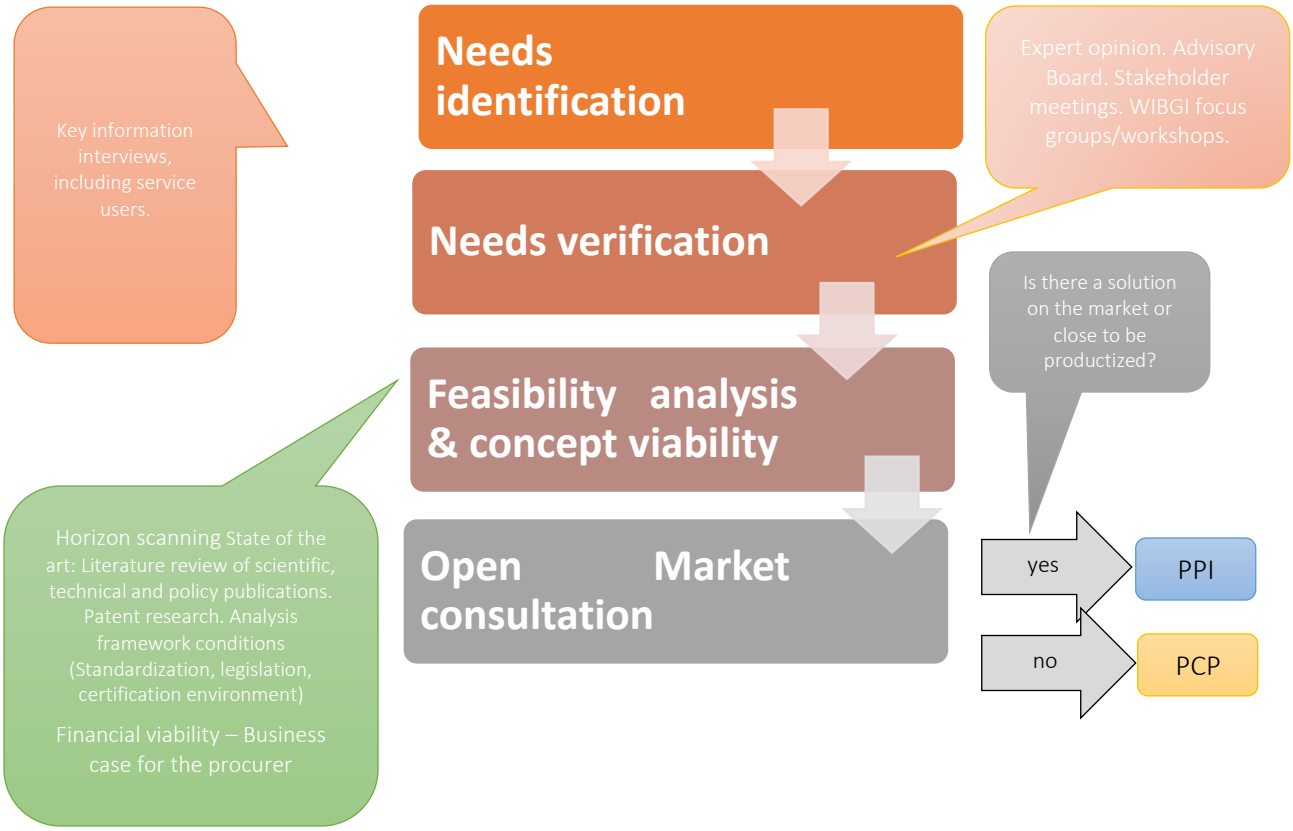


Figure 1 – Capturing innovation through the procurement cycle[1].

[1] Public Procurement for Research and Innovation, Expert Group Report "Developing procurement practices favorable to R&D and innovation" September2005, available at http://ec.europa.eu/invest-in-research/pdf/download_en/edited_report_18112005_on_public_procurement_for_research_and_innovation.pdf

The following sections describe a logical process to prepare an innovation procurement in steps:



2.1 Needs identification and assessment[2]

2.1.1 Understanding the importance of early identification of needs

Innovation procurement starts with an "unmet need" for innovative solutions, which is *"a requirement or set of requirements that you (public procurers) have now or (preferably) one that you will have in the future, that current products, services or arrangements cannot meet, or can only do so at excessive cost or with unacceptable risk."*[3]

[2] The PCP part in this section was drafted based on various resources, including Inspire EU project training material (PCP Academy) available at http://inspirecampus.eu/academy-access/overview/case-studies/; Italian national Guide line on PCP (see http://cordis.europa.eu/fp7/ict/pcp/docs/italy-pcp-v4.pdf) and various PCP preparation material and tender documentation designed and developed by Sara Bedin (email: sara.bedin@appaltoprecommerciale.it).

[3] The PPI part in this section draws in information from the Department for Business Innovation & Skills, "Delivering best value through innovation. Forward Commitment Procurement. Practical Pathways to Buying Innovative Solutions", November 2011, available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/32446/11-1054-forward-commitment-procurement-buying-innovative-solutions.pdf.

The starting point for innovation procurement is "*recognizing that you have an unmet need that needs a solution and then deciding to do something about it* ".

Gaynor Whyles, BIS Consultant FCP Programme Manager (JERA Consulting)

It all starts with a genuine, concrete need, aimed at improving the performance (quality and/or efficiency) of services of public interest offered and increasing long-term public expenditure effectiveness and efficiency.

Sara Bedin, Independent expert on innovation procurement

The idea of using public procurement as a vehicle for innovation is rooted in the recognition that the challenges faced by public procurers almost certainly give rise to sophisticated needs, whose fulfillment may not be viable merely by purchasing particular goods or services "off the shelf", for the simple reason that such products may not exist on the market yet.

An unmet need becomes apparent whenever existing solutions cannot address:

1. *A problem that already today negatively impacts the delivery of the service of public interest* (e.g. acute technical issue, budgetary/fiscal change, change in behavioural pattern of citizens that is creating an acute problem to deliver the service of public interest with the expected quality and/or efficiency).

EXAMPLE of a PCP driven by the need to address an acute problem

The EU funded CHARM Pre-Commercial Procurement Project addresses the acute problem of omnipresent traffic congestion on busy roads due to ever increasing car use. The PCP challenges companies to develop innovative modules for the next generation traffic management centers that provide more safe, fast and reliable road mobility.

The PCP is implemented by a consortium of road management authorities from England (Highways England - HA) and the Netherlands (Rijkswaterstaat - RWS) and the Department Mobility and Public Works - MOW (BE) to improve traffic throughput, road safety, CO_2 footprint and reduce the costs of traffic management by moving to an open modular architecture for Traffic Management Centers equipped with advanced traffic management, traffic prediction and cooperative systems.

First benchmarking results show that the move to such an open modular architecture with advanced modules can generate 20% cost savings on traffic management centres. Working with new innovative companies that develop novel approaches during the PCP has also revealed additional possibilities to reduce maintenance costs in other existing traffic management processes.

Source: http://www.rijkswaterstaat.nl/english/about-us/doing-business-with-rijkswaterstaat/charm-pcp/index.aspx

EXAMPLE of a PPI driven by the need to address an acute problem

The Austrian Mint, the entity responsible for coin production in Austria, required a new solution to treat the residual water (wastewater) left over from the production of coins, as at that time the treated water still contained high amounts of chemicals which exceeded legal limits. A thorough analysis of the market was conducted before tendering with market research indicating that three potential technologies were available on the market: chemical treatment of wastewater, filtration and vaporization. The Austrian Mint came to the conclusion that a vacuum vaporization based waste water recycling system would be the most sustainable solution and would also allow it to meet its ISO 14001 requirements.

The Federal Procurement Agency initiated the procurement for the Austrian mint for planning, delivery, installation and bringing into service a wastewater treatment plant (vacuum evaporation) including maintenance and service. A negotiated procedure was used that was split into three phases. In the first phase suppliers were invited to provide information on their qualifications as a company. After that suppliers submitted their first offer which included a calculation for the Life Cycle Costs (LCC) and a full report with detailed information on wastewater consumption and the savings of the proposed system as well as concentration of waste filtered. Based in the results of the study suppliers were invited to submit their final offer.

The contract was finally awarded to Schell GmbH, a family-run business with around 20 employees. The innovative solution is now used by the mint to clean water contaminated during the production of coins and notes. The new system reduces the need for fresh water by 97 percent, savings 4 million litres of water per year. The easy to install innovation can be used to filter a wide range of particles such as metal, galvanic, photo, print, pharmaceutical, food, etc., making it suitable for use in a variety of industries. A good example of how PPI procurement can improve the access to markets and foster the market uptake of innovations.

Source: http://ec.europa.eu/environment/gpp/pdf/news_alert/Issue58_Case_Study117_BBG_Austria.pdf

2. *A need/desire of a public procurer to improve the quality and/or efficiency of the service of public interest in the future or a new emerging operational requirement to provide new features in the future*. Such needs result from regular internal analysis of the procurer about how to improve its daily operations on the mid-to-long term (e.g. desire of hospitals to provide mobile patient monitoring and treatment to save more lives, improve the efficiency of doctor's appointments and reduce hospital admission costs).

EXAMPLE of PCP driven by the need/desire of procurers to improve the quality and efficiency of a public service

In the EU funded THALEA project, 5 hospitals from Germany, Netherlands, Spain, Belgium and Finland joined forces in 2014 to start together a joint PCP to get a highly interoperable telemedicine-platform developed for ICU (Intensive Care Unit)-patients at increased risk. The innovativeness lies in the fact that instead of working with several proprietary incompatible telemedicine solutions that focus only on a part of the patient care path, THALEA is focusing on getting one simple-to-use highly interoperable solution that provides a cockpit overview of the total patient situation to different doctors across different hospitals.

The motivation of the hospitals to start the PCP was the desire of the hospitals to increase the efficiency/reduce the costs of operations for the hospitals (to replace highly costly patient/doctor transports between hospitals by telemedicine treatment) and to improve the quality of the healthcare service for the patients (to reduce the mortality rate of this particular group of patients by providing faster access to highly specialised care from specialist doctors in other hospitals).

Ongoing testing shows promising results that reducing the costs and mortality rate with at least 13% are realistically achievable. The THALEA consortium is thus already preparing to start a follow-up PPI procurement to deploy these type of telemedicine solutions after the PCP finishes mid-2016.

Source: www.thalea-pcp.eu

EXAMPLE of a PPI driven by the need/desire of procurers to improve the quality and efficiency of a public service

In 2014 the Erasmus Medical Centre Rotterdam (the Netherlands) won the European PPI Award for the procurement of an innovative bed washing facility which uses modern robotics.

The Erasmus University Medical Centre started the procurement to find a more cost effective and environmentally friendly solution to disinfect the hospital's 70000 beds and mattresses. The public procurement successfully encouraged the market to offer a creative approach that uses high precision cleaning robots to disinfect the beds in a conveyor belt format, similar to the set-up employed by car manufacturers.

Through the facility, the cleaning costs per bed were lowered by 35 percent compared with the existing solution, and the CO2 footprint reduced by 65 percent.

Source: http://www.innovation-procurement.org/award/ppi-award-2014/

3. *Policy objectives to address mid-to-long term societal challenges* (e.g. need for procurers to look for greener/more energy efficient solutions to meet political ambitions to reduce the CO_2 footprint of the public sector by a specific percentage by a specific target date in the future).

EXAMPLE of PCP driven by national policy objectives

The Swedish Transport Administration, in consultation with Vinnova and the Swedish Energy Agency, has launched a large PCP for the development of innovative solutions for electrified roads. The need to launch this PCP was a consequence of the Swedish government's goal to have an energy efficient and fossil-free vehicle fleet by 2030.

11 providers were awarded PCP Phase 1 contracts. 4 of those went forward to PCP Phase 2 and produced detailed test track designs. Currently, 2 of those solutions are being tested in PCP Phase 3, with expected finalization in 2018. One solution regards a technique that involves an electric rail in the road itself, powering and charging the vehicle directly during its journey. The second solution is based on a technique that involves a pantograph on the roof of the lorry's cab feeding the current into an electric hybrid engine in the lorry. The aims of the project are:(i) to provide knowledge for government, industry and academia of the efficiency and environmental gains that electrified roads can provide and (ii) to enhance society's readiness to accept radical new solutions in transport and energy.

Source: http://www.trafikverket.se/en/startpage/about-us/news/2015/2015-6/sweden-to-test-electrified-roads-in-a-real-life-environment/

EXAMPLE of PPI driven by national policy objectives

In 2008, the Swedish energy agency finalised a market study that led to the conclusion that heat recycling systems for air ventilation are seldom installed in existing apartment blocks. Components and systems existed, but they required development and adaptation for installation in existing apartment blocks (mainly to reduce cost, size and noise). Fostering public procurement of such solutions was needed to start a market for such solutions and achieve the national goals for energy consumption. The study showed that there was clear potential to reduce cost for procurers and a large potential market size for vendors.

These findings led the Swedish Energy Agency to gather a potential buyers group (formed of five local housing companies, SABO <Swedish Association of Public Housing Companies>) that could bring the critical mass on the demand side to launch in 2010 a *technology procurement* that could spur the development of complete systems needed for recycling heat including all components and measures for ventilation air in an existing apartment block. In the Swedish technology procurement approach, the Swedish Energy Agency groups requirements from Swedish public procurers (in this case the local housing companies) for new energy efficient products and does most technical work to de-risk and prepare the PPIs to buy the actual solutions that the procurers will launch later themselves based on these common requirements specifications. The Swedish agency performs the open market consultation with industry, analysis of the business case for deployment, conformance testing and energy labelling, definition of model tender specs etc.

Main objectives of this heat recycling systems project included:

- Maximizing the efficiency of the energy used in existing apartment blocks by developing complete systems for the heat-recycling of ventilation air;

- Requirements related to air quality and thermal comfort are fulfilled together with good energy performance;
- Installation of units should be done with minimum disturbances to the occupants; and
- The design of components should be aesthetically acceptable and should not restrict the use of various areas in apartments.

The technology procurement (procurement of the R&D to test and compare solutions) coordinated by the Swedish Energy Agency was published in the OJEU in 2010 and involved the testing and demonstration of several concepts of heat recovery from ventilation exhaust air, in seven existing apartment buildings, with the building owners (the potential public customers).

Outcomes: The testing showed that it is possible to produce effective solutions for heat recovery from ventilation exhaust air in existing apartment buildings, and that costs can be reduced. This proved that it made sense for procurers in the buyers group to start the actual PPI procurements to deploy the solutions.

Note: this example will be updated with information regarding the outcome of the aforementioned PPI procurements in terms of energy efficiency and costs related gains.

Source: See ***Technical procurement of heat recovery systems in existing apartment blocks in Sweden***, available at http://proceedings.eceee.org/papers/proceedings2013/5A-104-13_Wahlstrom.pdf?returnurl=http%3A%2F%2Fproceedings.eceee.org%2Fvisabstrakt.php%3Fevent%3D3%26doc%3D5A-104-13.

See also http://www.bebostad.se/wp-content/uploads/2013/08/Heat_Recycling_Procurement_eng_invitation.pdf

4. ***Legislative/regulatory requirements to deliver higher quality/efficiency services of public interest in the future*** (e.g. national legislation requiring that a specific percentage of a specific public service offering is made more accessible to citizens with visual/hearing or other physical impairments by a specific date in the future).

EXAMPLE of a PCP driven by legislative/regulatory requirements

Käppala, a municipal association that has the task to treat the wastewater for its eleven member municipalities, had to find a new mercury-free analysis method for waste water because of the fact that the use of mercury was going to be banned in 2015.

Käppala therefore launched in 2014 a PCP to find a solution that is free of mercury and other potentially harmful chemicals listed in REACH, that can correlate with current COD analysis techniques to compare with historical values, international benchmarking, that can be used in the process models developed for the treatment plants, regardless of the municipality (correlation factor), that is faster than current methods (which take about three hours), that is working ecologically and environmentally appropriate to use and manage, and that can be used for on-line measurement and checked against laboratory analyses at regular intervals.

Three different solution approaches from three different vendors were developed, compared and tested. One solution meets the requirements of the procurers and is ready to be deployed.

Source: http://www.vinnova.se/sv/Resultat/Projekt/Effekta/2011-01793/Kvicksilverfri-metod-for-att-bestamma-innehallet-av-organisk-substans-i-avloppsvatten-och-restprodukter/
and
http://www.svensktvatten.se/forskning/extern-forskning-och-utveckling/mercury-free-cod---kvicksilverfri-cod/

EXAMPLE of a PPI driven by legislative/regulatory requirements

The County Hospital in Sucha Beskidzka, Poland, identified the need to reduce the temperature in the hospital rooms that are exposed to excessive sunlight in the summer. The temperatures recorded in these rooms in summer were up to 29ºC. The impact of high room temperatures on the staff and patients well-being and medical equipment were of increasing concern, and there was increasing evidence that heat-waves are likely to become even more common.

The need was reinforced by the legislative requirements. By the Ordinance of June 29, 2012, the Polish Minister of Public Health mandated all health care providers to install 'sun-blocking equipment in the patients' rooms exposed to excessive sunlight' by December 31, 2016.

The Hospital concluded that its need was unmet, due to the fact that the solutions available on the market were not complying with specific expectations expressed by the Hospital Board. For example, even though the installed shutters and blinds (see opposite) provide shading from direct sunlight, they still fail to address the build-up of excessive heat and also reduce daylight and obscure the outside views and simulations show that using air conditioning in the rooms overexposed to direct sunlight would generate annual costs of PLN 93 050 PLN (EUR 23 260).

The thermal comfort of patients and personnel with the lowest exploitation costs was identified as one of unmet needs of the Sucha Beskidzka Hospital. Through a lengthy process of market sounding (summer-autumn 2013), identifying potential suppliers (autumn 2013) and a technical dialogue (spring 2014) one solution was identified: photovoltaic awnings. The "regular" procurement process was initiated (Oct 2014) and a winner was chosen (Feb 2015). The photovoltaic awnings were place in 2016.

Outcomes: the project led to savings of approximately 46K euro a year.

Source: http://www.ecoquip.eu/news/15/59/Sucha-Beskidzka-Hospital-Poland-UPDATE.html;
http://www.ecoquip.eu/uploads/pdfs/presentation%20(in%20English).pdf;
and
http://www.ecoquip.eu/procurement-projects/cost-effective-and-low-carbon-solutions-to-maintain-the-thermal-comfort-of-patients.html

It is important for procurers to regularly identify unmet needs in their organization and to identify those needs as early as possible. An early, proper needs identification and assessment exercise will:

- allow time for an effective understanding of the needs;
- avoid the risk of unidentified unmet needs turning into urgent problems and avoid the risk of the procurer not being able to meet in time legislative or policy requirements or internal KPIs/objectives;
- create the right basis for subsequent step prior art analysis and IPR search (see section 2.3 below);
- facilitate a proper open market consultation afterwards (see section 2.5 below);
- ease the translation of the unmet need into outcome-based requirement specs for the PCP/PPI

2.1.2 Methods to identify unmet needs and to assess how relevant they are for the end-user

There are multiple methods to identify and assess a need. This has to be based on the premise that those who are best-placed to see the problems or the inefficiencies of a process or a service are those who work within the system delivering it on daily basis. To identify and assess the end-user relevance and the end-user requirements towards the unmet needs of its organisation, the public procurer (e.g. hospital) should initiate discussions with the relevant stakeholders, and in particular with the end-users[4] (e.g. nurses, doctors, patient/consumer organizations that would need to ultimately use the solution).
There are several methods available:

- Internal meetings / informal chats in which only representatives of the public procurer organization participate, as starting point for the brainstorming;
- Senior management workshops, needed especially from a strategic perspective, in order to receive support and approval for (additional) required financial resources for the procurement;
- Discussions structured into focus groups (targeting, for example, the different types of activities of the public procurer, the policy objectives), which could include both representatives of the public procurer organization, as well as external experts / key stakeholders;
- Surveys conducted by email, phone or post;
- Customers'/ end-users' workshops.

Keep in mind that:

Innovation procurement needs to be driven by end-user needs, otherwise the innovative solutions coming out of the procurement will not be accepted/used afterwards;

- the best positioned to identify the problems of, or the inefficiencies within, a process or a public service are the entities delivering and using the service (public procurers/end-users);

[4] The end-users and employees involved in delivering the service are typically too busy to consciously consider how the service could be transformed or could benefit from innovation, but they are skilled and perfectly prepared to do it. Therefore it is necessary to make time to take them out of their usual working environment to participate ad-hoc.

- if public procurers are not the end-users, involve the real end-users as well;
- ask the end-users to define their needs for innovation in terms of desired functions and performance, without identifying a specific solution.[5]

The main questions that need to be answered at this stage are:

- Who are the targeted end-users?
- What improvements in functionalities/performance/cost efficiency are they looking for?

Perceived inefficiency or need rarely relate to only one local procurer

The effective identification of end-user requirements and benefits of an innovation is best determined when the consultation about the relevance of the needs is directed at a group of end-users that is representative for the potential market size of the innovation. Indeed when a procurer perceives the need for a certain efficiency/quality improvement, he rarely is the only one struggling with this problem and he rarely is the only potential customer for a solution that could address his problem. This means it makes sense to involve in the needs assessment other procurers (even if not aggregated in a contractual group) or similar staff groups from multiple locations and from multiple organizations delivering similar services of public interest. Ensuring that the need is shared by multiple potential buyers/end-users will enable the development of solutions that are scalable, interoperable and more cost-effective. This type of pooling of demand and sharing of needs also secures economies of scale that is key to maximize the potential of innovation procurement.

When the innovation procurement is jointly implemented by public procurers from different countries, the above mentioned needs assessment methods could be applied first at the level of each participating public procurer, based on the analysis of their own strategies and policies. This first step can then be followed by a joint discussion among procurers to identify the shared needs and an assessment by end-users through specific workshops organized in each of the public procurers' countries.

In a joint procurement, ensure that the need/challenge is shared by all participating procurers

In case of a joint PCP, the challenge that is used for the PCP should be shared by all procurers (as joint procurement aims to share the cost of the PCP procurement among procurers and aims to create a market of suppliers that are able to address the shared need). In case of local differences in deployment situation, use only the common core functionality that is needed by all procurers as challenge for the PCP.

In case of a joint PPI, the core functionality of the procured solutions should be the same for each procurer (to create a market for solutions/providers with economy of scale benefits that reduce the cost of solutions for procurers), but there may be additional local specific features per country.

EXAMPLE Identifying and assessing the end-user needs
Voice of the customer technique to identify user needs across several procurers

[5] See http://www.smartatfire.eu/media/20782/smart_at_fire-presentation.pdf.

– SMART@FIRE PCP PROJECT

The EU funded Smart@Fire PCP project considered that it was important to:

- identify and understand the real needs of the end-users (in this case, fire-fighters, the intervention coordination officers, medical and physical trainers, maintenance crews, etc.), and
- to formulate these needs in functional terms.

To ensure that the needs identified by the procurers in the Smart@Fire project (FR and BE procurers) were aligned with the needs of fire brigades all across Europe, in total, 961 fire brigades from 16 EU countries were involved in the needs identification and assessment exercise.

The **needs identification** exercise was based on the following main question: "*How to increase the safety and reduce risks of first responders undertaking fire-fighting and other civil protection work?.*"

- The needs identification was conducted through: a large scale survey,
- face-to-face needs assessment meetings and interviews.

To contextualize the needs identification into the real working environment, short scenarios (use-cases) were outlined. These **use-cases** sketched a contextual situation with significant details, allowing a fire-fighter to unambiguously imagine the circumstances and assess the conditions. A good scenario comprises multiple elements. The subject of the scenario is mostly the specific end-user (in this case, the fire-fighter). There is also an action involved (e.g. falling down), as well as a positive conclusion of the scenario provided by the added value of a new feature or product (e.g. the fall detection sensor and signal, heartbeat sensor, oxygen level sensor). All this information is than stored in the following use-case construct:

As an *<actor>,* ***I can*** *<perform action/have capability>,* ***so that*** *<added value is created for me>*

The list of use-cases is typically constructed via interviews with selected relevant and-users. This can be both in a group workshop setting as in a one-to-one setting. Focus is on getting the details right: correct interpretation, expression, valuation is key. For example, a use-case on environmental parameter logging can be of critical importance in 1 country, while not at all important in another. Hence, when innovation procurement is performed by procuring entities from several Member States, it is important to perform interviews in each country.

The following stage, of **needs assessment**, consisted of a number of interviews with selected relevant end-users, meant to validate whether a certain need is correctly interpreted, expressed, assessed, and valued in terms of importance for the fire-fighters.

To ensure interview completeness, the ***Voice-of-the-Customer*** methodology was applied. The rationale behind the methodology is to get a deeper comprehension of the products, processes, services, equipment currently used by the end-user and to collect ideas / opportunities to improve the working environment of the end-user via innovative solutions. The relevant end-users are selected, based on a pre-defined profile. The interviews are in-depth conversations and are always carried out by a team of interviewers (2 persons). When the innovation procurement project is performed by procuring entities

from several Member States, an equal number of interviews should be performed in each country, in order to identify the shared needs.

The quality and usefulness of the results acquired from the interviews heavily depends on a good preparation and an optimal formulation of the questions, in combination with the experience and listening skills of the interviewers.
The needs assessment exercise showed that the following features of a smart Personal Protective Systems (PPS) are highly desirable for the surveyed fire-fighters:

- a **localization** of the firefighter and his team, in buildings and open areas, displayed on a map, made available to the firefighter and the intervention coordinating officer.
- **Remote parameter monitoring and historical logging**, making the info accessible via an intuitive dashboard for the officer (e.g. a map), enriched with the status of the team, their PPS, and the environment, enabling to set thresholds, generate (automatic) alerts.
- Monitoring the environment, more in particular **temperature, temperature evolution, hotspot detection and presence of explosive gasses**.
- General requirements as robustness under mechanical friction, maintenance, repair, cleaning, with easy mounting/dismounting of the ICT and ideally with self-assessment.

This exercise motivated the decision of Smart@fire to focus the scope of the PCP on the localization challenge that was shared and ranked as highly important by all surveyed fire-fighters.

For more information, see http://www.smartatfire.eu/ .

WIBGI methodology

Another effective method to identify innovation needs and validate them against their end-user relevance is the WIBGI methodology[6] developed by the English National Health Service (NHS). It uses collective brainstorm exercises with procurers/end-users to complete the sentence "Wouldn't It Be Great If….". It can be useful to have an experienced facilitator to conduct the WIGBI session, to draw out the main issues and ideas, and a domain expert who can guide the facilitator with respect to specialist technicalities.

EXAMPLE identifying user needs – NHS department Blood & Transplant Service in the UK
'Managing the blood donating efficiently' procurement

The WIBGI approach has been tested and applied by the NHS Blood & Transplant Service in UK. The clinical teams were challenged to think out-of-the-box (Think of the issue that is causing you the greatest discomfort / inefficiency in your daily work. Suppose you were Harry Potter, what would you wish magic could solve for you? Wouldn't it be great if magic could create me a solution for this …).

[6] For more information on the WIGBI approach: http://knowledge.nic.nhs.uk/Stages.aspx?stage=ID1&taskId=24.

The NHS Blood & Transplant Service had a long-lasting problem: more than 300 patients were fainting daily during blood donating process. The main issue was that the chairs used for the blood donating process did not have the position that helps to recover from fainting. This impacted negatively the time required for each donor and the efforts required from the hospital personnel to deal with these problems. The WIGBI brainstorming seminar identified the need to design a new chair for blood donating process which would match better the optimal position to recover from fainting.

950 sets of innovative chairs with the new design were successfully procured and deployed. The chair is more comfortable in use, provides all round support to the body in various conditions and is configured to conform to the new Gold Standard Clinical Pathway for Blood Donation. For efficient, safe and easy handling by staff, the chair breaks down and stacks on trolleys in sets.

For more information on this case study, please see http://www.renfrewgroup.com/portfolio/blood-donor-chair/ and http://inspirecampus.eu/wp-content/uploads/2014/09/INSPIRE_case_analysis-issues_-Blood_Donor_Chair3.pdf

Workshops with customers/end-users

For public procurers like Central Purchasing Bodies (CPBs) that are not the final end-users of the solutions they procure, the organization of workshops with customers / end-users enables them to collect new customer /end-user needs and to present future possibilities and plans for national and/or international joint procurement activities to end-users. This approach was used in INNOBOOSTER Life PPI project.

CASE EXAMPLE - INNOBOOSTER LIFE PPI – NEEDS ASSESSMENT APPROACH

EXAMPLE approach to needs assessment

The Innobooster inLIFE project (Innovation Booster in Light and Furniture") is an EU funded PPI project in which public procurers from different EU countries purchase new and improved solutions in the field of resource efficient lighting and innovative office solutions.

Most procurers in Innobooster are central purchasing bodies: e.g., BBG (CPB for the federal government of Austria), Hansel (CPB of the Finnish government), and not the final users of the solutions sought. Therefore, both for light and furniture, a first needs assessment was conducted through customer workshops. In these workshops, public authorities that were potential end-users/customers for the new lighting and furniture from the countries that participate in the project could voice their plans for change for the next years. Efforts were also done to find new potential customers and cross-check their user needs. The result of this first needs assessment was further shared with the technology vendors during Supplier Innovation Days organized throughout Europe.

***Note**: this example will be updated with information regarding the outcome of the procurement carried out based on the outcome of the needs identification exercise and of the market consultation.*

Source: See http://www.innobooster.eu/about-innobooster/.

http://inspirecampus.eu/wp-content/uploads/2014/09/INSPIRE_case_analysis_issues_INNOBOOSTER3.pdf.

2.1.3 How to describe the need / challenge

Once identified and assessed by the end-users, the need(s) should be clearly described for the next steps that follow (validation of the need through prior art analysis/IPR search and open market consultation). The identified needs would then be validated in comparative terms and prioritized, on the basis of their expected impacts and trends. The need will be detailed further after the open market consultation to clearly define the subject-matter and the technical specifications) for launching the call for tender.

For the purpose of organizing an open market consultation, a proper description of the need / challenge is important in order to ensure sufficient interest and response from potentially interested suppliers. As a general rule, when describing the unmet need for the open market consultation, take care to:

- Be clear and simple in the description
- Focus on describing the problem to be solved and defining clear outcomes that are required (functionality / performance / efficiency improvements) rather than prescribing technologically how the solution for the problem should be built.

EXAMPLE – technology neutral needs description

A requirement for 'electric vehicles' sounds innovative, but the technology neutral requirement is more likely to be a 'low carbon zero emission vehicle' (to give equal chances to solutions based on other technological approaches to compete on the market).

See Department for Business Innovation & Skills, "Delivering best value through innovation. Forward Commitment Procurement. Practical Pathways to Buying Innovative Solutions", November 2011, available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/32446/11-1054-forward-commitment-procurement-buying-innovative-solutions.pdf.

EXAMPLE – describing the problem instead of prescribing the solution

A London Borough identified a requirement for "a cost effective, on site waste management solution for non-recyclable waste, suitable for use in high rise flats and council housing in a densely populated

urban environment, that eliminates the requirement for waste collection, involves minimal management and is environmentally benign".

See Department for Business Innovation & Skills, "Delivering best value through innovation. Forward Commitment Procurement. Practical Pathways to Buying Innovative Solutions", November 2011, available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/32446/11-1054-forward-commitment-procurement-buying-innovative-solutions.pdf

- ## Don't over specify and allow the market to be creative

The use of functional and performance based requirements offers the opportunity not to pre-define the technical solution and to be open to alternative technical ways to address the needs. However this does not mean that needs definition should be short and very general. The only way in which solutions will meet performance targets and impact is if those expected outcomes are specified upfront, clearly and unambiguously. It is a simple fact that if functions and performances are not a stated criterion of the solution requirements then suppliers will generally not (strictly) consider them.

At the same time, in order to create a wide potential market (public and private) for the new solutions and to enable the desired economies of scale and cost savings, it is important not to fall into the hyper-description of the desired solution (i.e. excess customization and personalization) and to support scalability by requesting interoperability and open standards in the solution requirements.

To describe a need in functional and performance terms, we outline an innovation life cycle cost method that takes into account the cost and benefits of the innovative solution over the entire life cycle of the innovative solution. As innovation procurement is about obtaining higher quality at a lower "total" cost of ownership (not just at the lowest price per piece), it is crucial to direct innovation towards optimising the performance/quality and costs across the entire life-cycle of the solution. The method **TLC-PE**[7] (Total Life-Cycle - functional and PErformance description) creates associations between expected functionalities and quantified performance targets. It classifies functionalities and related performances along the solution life-cycle phases (production, delivery, installation, use, management, maintenance and disposal) in order to encourage suppliers to propose solutions with higher long-term performance and lower (total life-cycle) costs. A good example of TLC-PE method has been introduced in the Lombardy Region to conduct PCP[8] and PPI[9] projects.

[7] Sara Bedin, 2012, TLC-PE method developed and implemented in Lombardy Region for PCP and PPI projects. For more information about a PPI project in which this methodology was used, please visit http://www.probisproject.eu/.

[8] See http://inspirecampus.eu/wp-content/uploads/2014/09/INSPIRE_case_study_LOMBARDY_hospital_pcp3.pdf.

[9] More info are available at http://www.probisproject.eu/wp-content/uploads/2015/06/prospectus-150601.pdf

Owner requirements	Functional Requirements	Performance Requirements
Phases:		
Refurbishment	Windows installation with minimal disturbance for the users	Every window must be replaced in maximum 2 hours, excluding finishes.
	New condensing boilers installation on existing central heating system with minimal interventions and without service interruption.	Installation during no heating activity or temporary external system to ensure the temperatures in the heated spaces.
Management	Reduction of the thermal heat loss on the blind façades of the buildings.	Transmittance of the isolated component: ≤0,29 W/sq.m. °K
	Reduction of the thermal heat loss on the attic of the buildings.	Transmittance of the isolated component: ≤ 0,29 W/sq.m. °K
	Windows: reduction of temperature decline in heated spaces during the period of inactivity or attenuation of the heating system.	Windows with U_W ≤ 1,3W/sq.m. °K
	Easy access to information for the analysis of energy consumption and its split among the tenants.	Consumption check by Wi-Fi systems
Maintenance	Windows: durability and minimal maintenance.	Warranty: glazing's gasket sealing for ≥ 10 years, frames for 20 years, hardware for 15 years
	Heating central system: reduction of replacement of wearable parts.	Warranty of wearable components: ≥ 3 years
	External insulating system: no maintenance and high durability.	Warranty on the general functionality of the system and the characteristics of the finishes: ≥ 10 years
	No internal condensation due to thermal bridges.	Use of air ventilation devices
Disposal	Minimal environmental impact of components and products.	Specific warranties and certifications for every single product.

- ## Decide/evaluate whether to use a broad or a narrow need/challenge

  Public procurer(s) have to decide to formulate the need/challenge more broadly or narrowly. Both for PCPs and PPIs[10] this choice holds several important implications (for example on how to define effective award criteria and formula that allow effective/objective comparison of the tenders). Both for broadly

[10] For a PPI procurement, a broadly scoped challenge may be even more difficult (because in this case a public procurer needs to define award criteria/formula that enable to objectively compare actual performance and compliance for large scale deployment).

and more narrow formulated needs, award criteria and formula need to be defined in such a way as to allow objective comparison of the tenders.

The pros and cons of choosing a broad or narrow challenge are outlined in the table below.

BROAD NEED / CHALLENGE	NARROW NEED / CHALLENGE
➢ Could attract more bidders but could lead to less competition across suitable bidders (bids more difficult to compare)	➢ Could attract less bidders but could lead to more effective competition among suitable bidders (bids easier to compare)
➢ Less work needed to describe the need, but more difficult to evaluate the state-of-the art, conduct IPR search and open market consultation	➢ More work needed to describe the need, but easier to evaluate state-of-the-art, conduct an IPR search and open market consultation/ gap analysis
➢ For PCPs: could create the impression that there is no concrete deployment need (PPI after the PCP is less likely to happen). Could limit the competition for the PPI.	➢ For PCPs: more convincing for the market that there is a concrete deployment need (PPI after the PCP is likely to happen). Could result also in more competition for the PPI.
➢ For PCPs: a broad need description has a risk of illegal use of the R&D exemption (not clear on which elements a broad need requires real R&D).	➢ For PCPs: The risk of illegal use of the R&D exemption is mitigated as state-of-the art / IPR search/open market consultation identify on which aspects real R&D is needed.

EXAMPLE of a broadly formulated need for a PPI procurement

Nottingham University Hospital (NUH) NHS Trust translated their unmet need into a tightening of emissions standards

"The Trust needs to procure an innovative and integrated ultra-low carbon energy supply and management solution so that it is able to adapt to meet the Trust's power, heat and cooling needs now and in the future. The energy solution needs to be reliable, low maintenance, and flexible enough to meet the shifting demands of health care over the next 20 years. It should be cost effective, deliver progressive improvements and be future proofed i.e. take advantage of new and emerging technologies and anticipate increases in the cost of energy and carbon and in emissions standards".

See Department for Business Innovation & Skills, "Delivering best value through innovation. Forward Commitment Procurement. Practical Pathways to Buying Innovative Solutions", November 2011, available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/32446/11-1054-forward-commitment-procurement-buying-innovative-solutions.pdf

EXAMPLE of a narrowly defined need for a PCP procurement – Lombardy Region and Niguarda Hospital translated unmet need into a comprehensive list of requirements

Following a WIBGI exercise at Niguarda Hospital (Lombardy Region, Italy) the following need was identified. *"Wouldn't It Be Great If we had an automated system to move around hospital beds that could avoid collateral effects, such as accidents and functional limitations that affect nursing personnel and socio-health operators who are moving around hospital beds manually today!"*

The exercise lead to the identification of the primary need to develop a new and cost-effective automated universal medical device for moving hospital beds, that is easy to use and maneuver for a single operator, equipped with anti-collusion and safety systems. Using the TLC-PE method[7], Niguarda Hospital and Lombardy Region formulated in total 32 (minimum) requirements, all directed to assure a full scalability and wide adoption of the solutions.

Life cycle 1 – Installation, Start-up and management

1. The device must comply with general and design requirements set out in current regulations regarding safety at work and comply with current regulations as regards medical devices, such that there is no need for any modifications in order to obtain EC certification.
2. It must be very easy for operators to quickly learn how to use the device.
3. The device must be easy to install and use (with no need for calibration and adaptation).
4. Where the device is equipped with a power supply/recharging plug, the latter must be compatible with all types of mains electricity sockets used in European States.
5. Management and supervision of the device must not require any intervention on the part of specialised technical personnel.
6. The device must have recharging times that are as short as possible.
7. The device must ensure installation, management and operation costs are as low as possible.
8. The device must ensure zero or maximum reduction of any environmental impact.
9. The device must be provided with a utilisation data registration system (metres travelled, date and time of start and end of use etc.)

Life cycle 2 – Use and operation

1. The device must permit the movement of hospital beds, both those with electrical or mechanical movements, provided with wheels and, preferably, but not necessarily, also those with gurneys. The presence in the device submitted of a mechanism for also moving gurneys will be the subject of positive evaluation on the part of the Call for Tender commission.
2. The device must not require any modification of the beds i.e. the assembly of fixed parts and/or interfaces.
3. The device must be universal i.e. it must be intrinsically able to be adapted to all models of hospital beds in use at AO Niguarda and to the largest number of hospital beds commercialised in Europe (made by various manufacturers and commercialised by various suppliers), without it being necessary to develop ad hoc components i.e. the application of customised interfaces to the said device. Hence those solutions which involve customising the *mover* or the interface or other

components of the device relative to the bed model will be considered as failing to satisfy the criteria of the requested innovation.

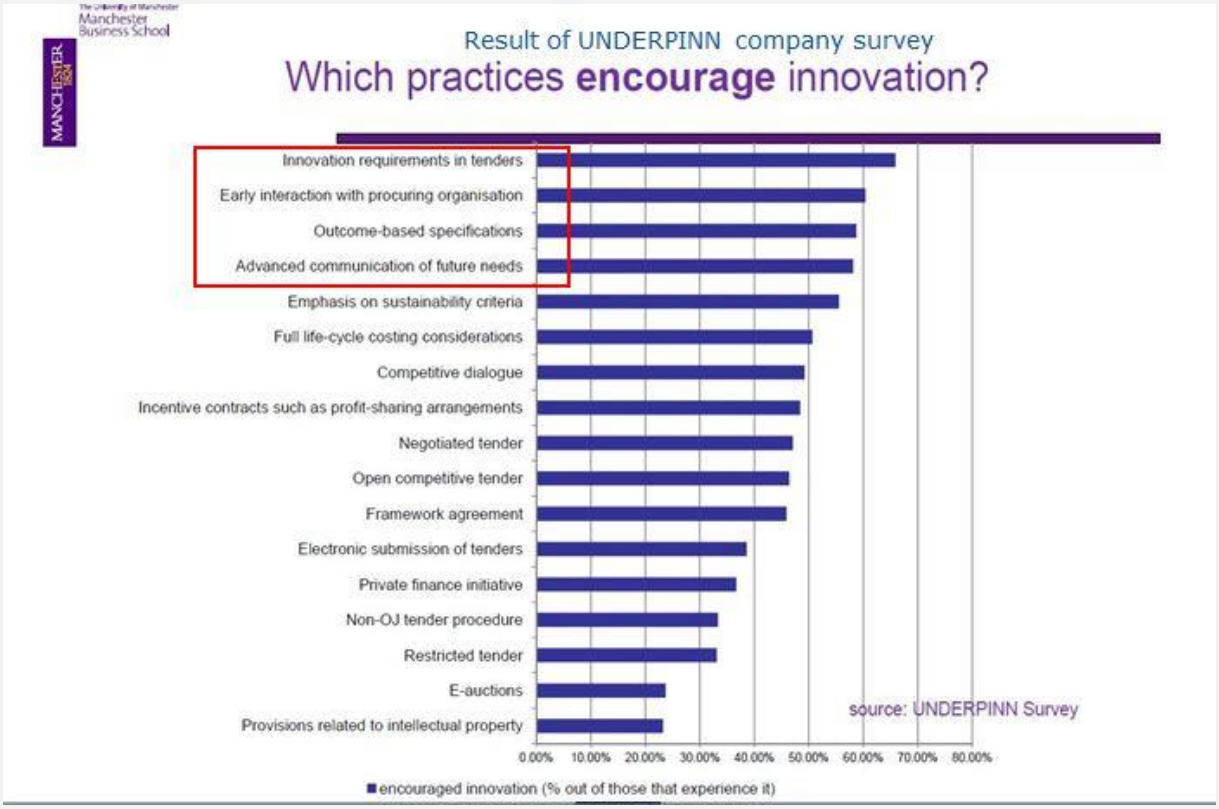
4. The device must have a safe system for attachment to the bed.
5. The device must be appropriate for handling an overall load of at least 330 kg (considering the weight of the hospital bed and the patient).
6. The device must be appropriate for moving hospital beds on non rectilinear routes which also lack tracks or guide lines.
7. The device must be able to be used in hospital rooms, corridors, lifts, in diagnostic wards that prepare patients and in any hospital ward, with the assistance and supervision of an operator.
8. The device must guarantee easy directional manoeuvrability and steering, including in tight spaces such as hospital rooms and lifts, and where mixed transport (vertical and horizontal) is required, as well as in situations involving slight gradients (up and/or down).
9. The device must be easy to use, including by just one operator.
10. The device must permit the operator to position himself in a comfortable and flexible manner, for example via the use of a remote control, to supervise and intervene in bed movement operations.
11. The device must exhibit high intrinsic safety and operational features e.g. via the provision of on board anti-collision systems, nearby objects acoustic warning, actionable by the operator, as well as standard braking and rapid emergency stop mechanisms.
12. The device must permit adjustable movement speed.
13. The device must be resistant to liquids.
14. The device must be as small as possible, especially in depth, to permit its use in lifts.
15. The device must guarantee high work autonomy on the part of the battery.
16. The device must have a warning system indicating battery residual power.
17. The device must also have an extractable battery for recharging as well as incorporate an emergency battery.
18. The device must be quiet.
19. Device running costs (as well as disposal costs) must be as low as possible.
20. The device must have zero or very little environmental impact.

Source: For extensive case description Lombardy case, see: http://inspirecampus.eu http://www.ecoprocura.eu/fileadmin/editor_files/images/EcoProcura_2014_-_Sara_Bedin_TEH_Ambrosetti.pdf,(slides) http://www.arca.regione.lombardia.it/shared/ccurl/497/198/ARCA_2013_02_Disciplinare.pdf (tender documents) http://www.forumpa.it/merito-innovazione-ed-efficienza/procurement-pcp-per-lo-sviluppo-di-sistemi-intelligenti-la-best-practice-di-regione-lombardia (in Italian)

Some surveys have also asked companies whether they prefer clear or widely defined innovation requirements from procurers.

Survey on which factors in public procurement encourage companies most to innovate

The UNDERPINN survey contacted a wide range of companies that have participated in innovation procurements and asked them to rank the practices that encouraged them to innovate mostly. Companies clearly position 'clear definition of the innovation requirements by the procurer in the tender documents' as the number 1 factor that had most impact on encouraging them to innovate. This suggests that narrowly defined needs are preferred by companies to broadly defined needs because narrowly defined needs provide a clearer view about the real market needs and wider commercialization potential, and thus provide a stronger impetus to companies to innovate. Note that early customer interaction, advanced communication of future needs (open market consultation) and the use of outcome based specifications are also in the top.



Source: UNDERPINN company survey on public procurement and innovation

2.2 Prior Art analysis

2.2.1 Why prior analysis is important

Once the needs of the public procurers have been identified, a prior art analysis should be conducted to confirm whether the identified need(s) are indeed "unmet" needs. Prior art analysis identifies "all"

information available in the public domain (existing products, ongoing product development and published ideas) whether IPR protected or not.

If the prior art analysis reveals that there are already solutions available on the market that can meet the need or will already become available before it is possible to complete the planned procurement, then there is no more need for an innovation procurement and an existing solution can be procured instead.

2.2.2 How to conduct a prior art analysis

It is essential to ensure that the individual or team responsible for the search has relevant technological, industry and scientific expertise, as it often requires specific knowledge to assess whether an existing technology or idea is functionally equivalent to the contemplated innovation expected from a PCP or PPI. The search should cover key online and offline forums for communication of new ideas and inventions[11]:

- Existing products and their roadmaps (Trade shows and exhibitions);
- New product developments (ongoing R&D projects, scientific studies)
- Published literature (news sites, Industry Journals, vendor specific publications, reports by industry sector analysts, academic publications and books, magazines and periodicals).

In addition to the above, a thorough search will also include meeting with people who may have relevant experience, such as directors of research at research institutions, retailers, buyers, and other people associated with the creation, buying or selling of innovative technology.

EXAMPLE – SMART@FIRE PCP PROJECT

A quite extensive prior art analysis was conducted in the SMART@Fire PCP project: for every company in the world active in the field of Protective Personal Equipment (PPE) for fire brigades and rescue workers, the project made a whole info fiche positioning ongoing R&D efforts on the Technology Readiness Levels scale (see Annex 10 on TRL/TRA) [12]:

SYSTEM LEVEL FACETS

INT-15: ELECTROMAGNETIC INTERFERENCE: SHIELDED SENSORS, MICROCONTROLLERS

Risk score: 8

Expert opinion and primary sources of risk:

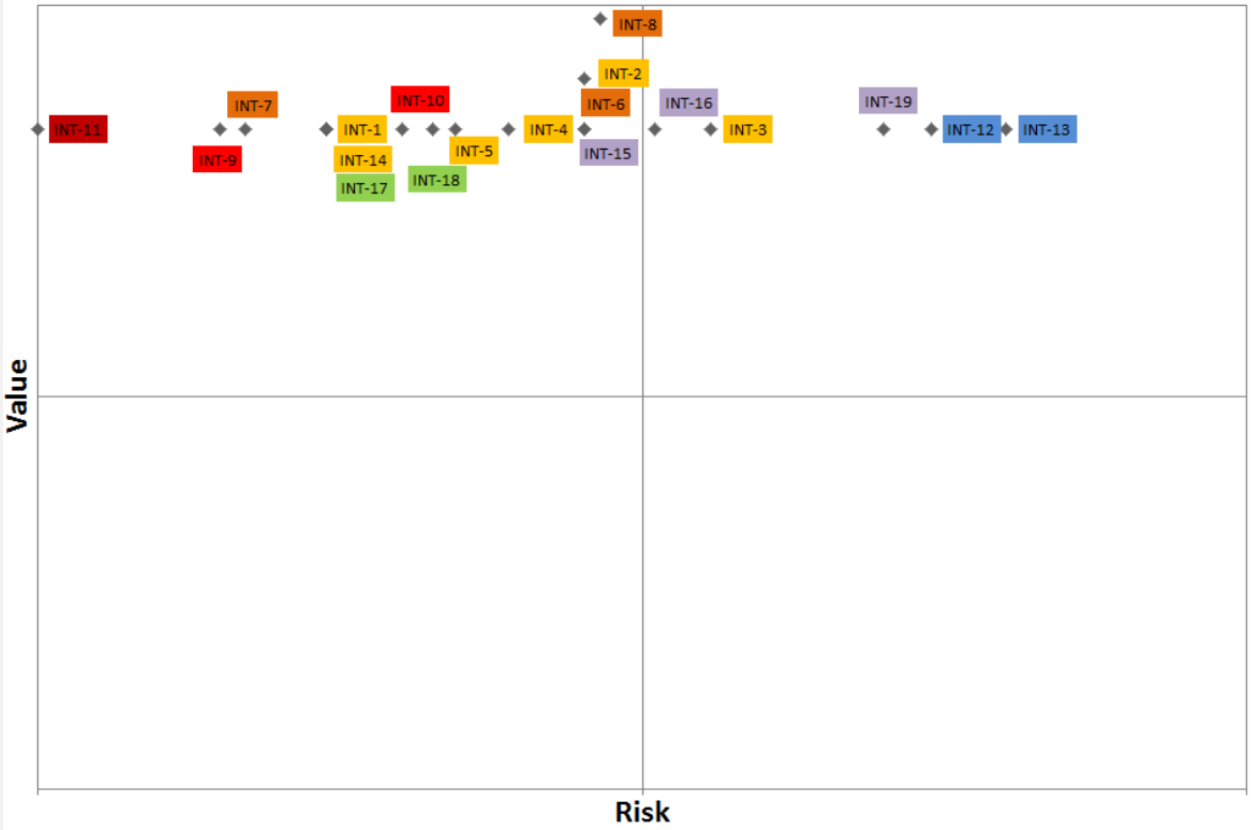
In case a sensor or microcontroller are brought at close distance to a broadcasting transmitter, all conductive part may saturate making the sensors 'deaf' and microcontrollers make unforeseen jumps between programmed states. The risk assessment reflects on the complexity to find a fitting balance between engineering effort, cost and additional weight for the intended fire and rescue applications and without evolving close to military-grade measures.

[11] see https://www.epo.org/learning-events/materials/inventors-handbook/novelty/searching.html

[12] http://www.smartatfire.eu/media/33066/final-innovation-platform-results.pdf

The project also checked out the status of all ongoing EU funded R&D projects in the field. The state-of-the-art study on PPE and ICT-solutions was carried out by Addestino to determine what kind of solutions already exist on the market and was complemented by info gathered by the University of Ghent and Centexbel to determine how ongoing standardization and certification work would influence the project.

The results were than virtualized as an 'info-graphic', which demonstrated the relationship between value and risk of various possible projects, taking into account "Expert Opinions" on the sources and magnitude of the risks. (For the definitions of the respective abbreviations, please see the Smart@Fire Market Consultation Document[12]).



The outcome of the prior art analysis was that for some aspects of PPE certain solutions already exist (e.g. some companies already developed integrated temperature sensors) and it made more sense to focus the PCP on those aspects of the unmet need for which there were no solutions yet. The decision to finally focus the PCP on the aspect of localization of firefighters in hazardous environments was taken as that would deliver the highest value whilst being reasonable to complete within available time and budget – acceptable risk.

See http://www.smartatfire.eu/media/20782/smart_at_fire-presentation.pdf

Conclusions of the Smart@fire prior art analysis: http://www.smartatfire.eu/media/33066/final-innovation-platform-results.pdf.

2.3. IPR search

2.3.1 Why IPR search is important

The IPR search finds out which of the information available in the public domain (existing products, ongoing product development and published ideas) is already protected by IPRs by searching for registered intellectual property held in a national or international database.

An IPR search is equally important to a prior art analysis. This is because it helps to:

- verify how innovative is the R&D (for PCP) or the innovative solutions (for PPI) to be purchased and whether there is still scope for protecting innovative efforts done in the procurement by IPR[13];
- reveal whether there are already entities on the market who own "key IPRs" that cannot be avoided to address the identified need(s), and whether the licensing policy of those entities is introducing such high risks/costs that there is no good business case to start the innovation procurement.

If an IPR search reveals that there is already an entity who owns relevant or 'overlapping IPRs'[14] needed to address the procurement need, then this may have significant consequences for the PCP or PPI project:

(1) First, it may indicate that the need is not sufficiently novel to justify the PCP or PPI in the first place.

(2) Second, it might indicate that PCP/PPI contractors may face IPR barriers when attempting to supply their solutions to the procurer (for a PPI) and commercialize their solutions after the PCP/PPI to other customers. This issue could be dealt with in advance by either:

   i. designing around the blocking IPR in drafting the tender requirements (for both PCP and PPI) and in the development of solutions while still in the R&D stage (for PCP); or

   ii. negotiating a license with the IPR holder in advance, well before commercialization.

If the IPR holder is unwilling to negotiate a license and it is not possible to design around blocking IPRs, then it might be concluded that the IPR risk is too great to start the project.

(3) Finally, the identification of a pre-existing IPR over the relevant solution may also create downstream problems when PCP/PPI contractors seek to IPR protect their inventions, as pre-existing IPR may end up being 'novelty destroying' against any subsequent IPR applications/registrations.

2.3.2 How to conduct an IPR search

'Registered intellectual property' refers to those intellectual property rights which are issued by a central agency and which require publication as part of the *quid pro quo* for the IP grant. However, not all IPR require registration in order to be effective. In Europe, for example, copyright is not a registered IPR, and there is no central database or publication requirement. Patents, trademarks and designs, on the other

[13] In DECIPHER PCP Project, between the analysis of the state of the art and the patent search, the consortium wanted to verify that the R&D to be done during the project is still innovative and can be protected by IPRs. See http://www.decipherpcp.eu/sites/default/files/attachments/decipher_d2.1_phase0needsassessmentreport_v2wb.pdf.

[14] IPRs owned by a third party that may be necessarily infringed by the use of the resulting solution because patent claims are not clearly distinct from patent claims contained in patents owned by the PCP/PPI partner.

hand, are registered IPR, and therefore are contained in public databases which can be easily searched. Below, techniques involved in searching for patents will be described. Following this description, a brief overview of how to search for other non-patent IPR will also be included.

A. How to search for patent type IPRs

We will focus first on conducting and interpreting a patent search. Since patents are often the most relevant registered IPR for technological R&D, patent searches are particularly relevant for PCPs.

IMPORTANT!

Patent searches should not merely be restricted to national databases, but should include all relevant patents, patent applications, and other published relevant work in all countries and at all times.

First, some basics: Patent law in all countries in the world adheres to a so-called '*absolute novelty*' standard. This means that the 'state of the art' is defined by all inventions in the public domain, whatever the country and whatever their antiquity. To this end, patent databases which include data from as many other countries as possible are strongly preferred over national databases. The European Patent Register's *espacenet* (http://worldwide.espacenet.com/?locale=en_EP) search tool contains 90 million patent documents taken from worldwide sources and dating from 1876. The USPTO's patent database (www.uspto.gov) is also searchable. In addition, Google patents (google.com/patents) allows searchers to trawl through over 7million US patents. Although there will be substantial overlap between these two databases, the difference in search algorithms means that it is often fruitful to use both.

Two options are available when conducting an IPR search:

(i) keyword searches; and

(ii) patent classification searches.

(i) Keyword searches

With both these search engines, searchers have the option to either search by 'keywords', to attempt to find relevant patents, or to search by patent classification codes, where it is possible to narrow down the scope of the search to particular areas of invention.

When using keywords, it is essential that the searcher attempts a number of different formulations and is not too specific in the wording used. For example, instead of searching for a 'mobile phone', searchers should select a broader query such as ' handheld telecommunications device', in order to review not only precisely relevant prior art but also 'competing'[15] prior art. There are also advanced search techniques which harness the power of 'Boolean operators' (e.g. AND, OR) - as shown in the practical examples in the boxes - but this is outside the scope of this brief introduction. Once a relevant prior art document is

[15] I.e., inventions which may have the same functional capacity but which use a different implementation approach, but which are nevertheless relevant to the novelty and inventiveness of new solutions.

identified, then the searcher can check the patent citations made in the patent or patent applications, and so follow her nose to uncover a broad view of the state of the art.

(ii) Patent classification searches

Instead of using keywords, searchers may also choose the narrower approach and sometimes more precise method of using 'patent classifications codes.' Patent codes divide technologies up into over 70,000 different categories. The base-line distinctions are eight, which label invention categories from A-H, and include such general classes as 'Chemistry', 'Physics', 'Textiles' etc. (see http://web2.wipo.int/ipcpub/#refresh=page). Searchers can initiate a classification search by referring to the 'Classification search' button on the espacenet website, (http://worldwide.espacenet.com/classification?locale=en_EP).

Patent classification searches have the advantage of being able to target specific technological areas such that irrelevant search results ('over inclusiveness') which may arise via a simple 'keyword' search are avoided. However, searchers should be aware that there may be some arbitrariness in how patents and patent applications are classified, meaning that results may sometimes be under-inclusive.

IMPORTANT!

Given that the respective drawbacks of keyword and patent classification searches are in some sense mirror-images, searchers are advised to use both methods to get the most relevant search results.

Once the searcher has identified some relevant prior art, the next stage is to interpret the results. Reading the patent or patent application 'Abstract' will provide searchers with a useful summary of the invention and may help searchers to immediately see if the invention is directly relevant or not. The key part of the patent document is the 'patent claims', which actually defines the scope of exclusivity which the patent is claiming. Reading this section of the patent is a technical activity and may require specific expertise. Consulting a qualified patent agent or attorney may be worthwhile if searchers find a reading of the patent claims to be a necessary part of determining the relevance of the patent document.

EXAMPLE – DECIPHER PCP PROJECT

DECIPHER PCP Project is funded under the European Commission 7th Framework Programme and is aimed to develop mobile solutions that enable secure cross-border access to existing patient healthcare portals and efficient and safe medical care of mobile patients in EU member states, targeting especially patients with chronic diseases or unplanned care episodes.

The lead procurer is the Agencia de Qualitat I Avalacio Sanitaries de Catalunya, a public agency attached to the Health Department of the Regional Government of Catalonia.

Part of the project feasibility analysis and concept viability stages of the aforementioned project, the project conducted a "Horizon Scan Analysis", with main goal to guarantee that the technological solutions developed during the project are novel and can be protected by IPRs. The Horizon Scan Analysis consisted of two activities:

(i) The analysis of the state of the art and the regulatory framework determining the boundaries/ the constraints of the services built on top of such technologies; and

(ii) the patent search whose results determine the protection and the exploitability of the technologies.

For the **Patent search**, the main focus has been on the United States of America patent database, UPSTO.gov - The United States Patent and Trademark Office and agency of the Department of Commerce – and the European Patent Register.

The Europe patent owner tends to publish their patents in the USA as a mean to secure access to the American market whenever a commercial product using their patent is published.

(1) In the case of the **United States of America patent database** the search strategy for relevant patents has been the use of an advanced search query: - (((((ABST/((health OR medical) OR Healthcare) AND ACLM/((electronic OR record) OR data)) AND (((((((((mobile OR software) OR ICT) OR technology) OR technologies) OR standard) OR standards) OR "common framework") OR interoperable) OR interoperability)) AND (((personal OR patient) OR person) OR persons)) AND (((((((("cross-border" OR regional) OR transnational) OR "country-specific") OR "long-term") OR chronic) OR adherence) OR mental)) AND ISD/2013). A total of 309 patents were identified. Based on subjective reading of the abstracts and claims, the relevancies were classified from highest to lowest. 56 patents were considered as very close to DECIPHER's goals.

(2) In the case of the **European Patent Register** the search strategy for relevant patents has been the use of different queries: - Search term(s): (txt = "health record" OR txt = "medical record") AND (txt = personal OR txt = patient) - Search term(s): (txt = semantic OR txt = translation) AND nm = Health - Search term(s): (txt = semantic OR txt = translation) AND nm = Medical - Search term(s): (txt = semantic OR txt = translation) AND ((((pd = 2009 OR pd = 2010) OR pd = 2011) OR pd = 2012) OR pd = 2013). In the case of the European Patent Register a total of 436 patents were identified. 76 patents were analyzed and 5 out of them were considered as close to DECIPHER's goals.

The results of these patent searches were used to determine the patentability and exploitability of the technologies arising from the project, as well as to help to streamline the tender documents so that they avoided any conflict with existing patents.

For more information, see Decipher PCP, Deliverable D2.1 Phase 0: Needs Assessment report, available at http://www.decipherpcp.eu/sites/default/files/attachments/decipher_d2.1_phase0needsassessmentreport_v2wb.pdf.

B. How to search for non-patent type IPRs

Other types of IPRs that are not patents can be relevant also, for example for PPIs that focus on non-technological innovation (e.g. process or design innovation). Therefore we will now focus on how to conduct and interpret an IPR search for those types of IPRs.

EXAMPLE of non-patent search (WAUTER PPI project)

Waterschapsbedrijf Limburg, the Dutch organization responsible for purifying and transporting discharge water from 17 waste water treatment plants, procured an innovative solution to centralize its monitoring processes and reduce maintenance costs. As part of the preparatory stage, Waterschapsbedrijf Limburg performed a desk research of the existing solutions and initiated discussions with sister organizations in order to identify copyright protected software. It subsequently tested this information during 2 rounds of open market consultation.

Source: Leon Verhaegen, Wauter project. The presentation of the Wauter project was provided during the *eafip* Paris major event, available here: http://eafip.eu/wp-content/uploads/2015/06/ParijsLV7.pdf

Below we focus particularly on design rights and trademark searches. Copyrights are not contained in a database and in any case, copyrights are rarely a block to technological development in PPIs and PCPs as long as the work is 'original'. This is because even if creative works (such as software or documentation) produced under PCP or PPI resemble existing works, they benefit from an 'independent creation' defense against any claims of infringement from third parties. Furthermore, copyright concerns - which may affect the novelty of proposed PCPs or PPIs - are better addressed in the 'prior art search' rather than the IPR search, since the expansiveness of the former is better suited to uncover copyrighted works which may challenge the project novelty.

How to search for registered Design Rights

Under EU law, designs- or aesthetic rather than functional components of a product- may benefit from special protection. A famous design right (which was also the subject of a legal dispute between Apple and Samsung) was the aesthetic components of the Apple IPad design. Designs may benefit from two different sorts of protection: Registered Community Design (RCD) and Unregistered Community Design (UCD). RCDs require that the design is registered before the product incorporating the design enters the market. It can be protected for up to 25 years, and is renewed in 5 year blocks from the date of filing. The RCD must be applied for at the Office for Harmonization of the Internal Market (OHIM), which also maintains a database of all registered designs. UCDs do not need to be filed for before the product enters the market, but its protection is limited to 3 years from the date the design is first published or made available. These designs are not searchable on the OHIM database.

If the innovations produced during a PCP or PPI are intended to benefit from design protection, or if the project participants would like to avoid potential infringement of RCDs, then they must undertake a RCD search on the OHIM database before the drafting of the tender documents.

The OHIM database may be searched for designs by using the DesignView search tool (https://www.tmdn.org/tmdsview-web/welcome), which contains data from all the EU's national design registration offices.

Searching for designs is not a simple task as the input search query is in text, rather than figures. If the name of the company or individual owning a design is known in advance and the purpose of the search is

to conduct a comparison of the intended design with already existing ones, then the search function 'advanced search' can be used, whereby the name of the RCD owner, Design number, and any other specific identifying information may be entered. The RCD searcher can then simply compare what aspects of the existing design are protected under the RCD in order to avoid infringement by their intended design, as well as to assess the novelty of their intended design.

If no specific information is known in advance about existing designs, then the 'quick search' tool may be used. This involves typing a search input in to the search bar, which should correspond to the type of product of interest, referred to as 'indication of product'. For example, the searcher might want to view all RCS corresponding to products indicated by 'mobile telephone' or 'computer'. This search query will result in a number of results of designs which share that product indication. Searchers should also be aware that RCDS may have product indications in a number of different European languages, so should aim to use a language translation program to widen the scope of results of a particular product indication.

How to search for registered Trade Marks

Trade Marks are signs used in trade or business which help customers identify products. They may be words or symbols or both, and they aim to in some way encapsulate the values of the company as well as to differentiate it from other companies and other companies' products. A well-known example of a registered trade mark of high commercial value is Apple's symbol of the apple with a bite taken out of it, which adorns every Apple product and informs consumers that what they are purchasing is a genuine Apple product.

Under EU law, Trade Marks may be applied for and registered either in individual European countries or across the entire EU. National trade marks only provide protection with a single member state, whereas a Community Trade Mark (CTM) provides protection throughout the EU and is registered at the OHIM.

Unlike patents or design rights, trade marks will most likely not form an essential part of the innovations produced during a PCP or PPI. This is because Trade Marks are generally more of a marketing tool than a genuine innovation so would often full outside the scope of PCP or PPIs. Nevertheless, since part of the raison d'etre of PPIs is to bring innovations onto the market place, consideration of trade marks might indeed form part of an overall commercialization strategy. To this end, it is important to have some notion of how to conduct a trade mark search.

As with RCDs, CTM are also in a database managed by the OHIM. The tool – TMView (https://www.tmdn.org/tmview/welcome) can be used to search for CTMs. 'Quick search' allows the searcher to enter simple strings corresponding to a 'trade mark name', and will deliver results corresponding to that name. Boolean operators (such as AND, OR etc.) may also be useful to further filter results. The 'wildcard' (*) can also be used in conjunction with a search string, and enables any text at all to register in the results which contains the search string. The 'advanced search' option also permits greater control over the results, by allowing specification of the country, name of the CTM owner, date of application etc.

2.4 The link to regulation, standardization, labelling and certification

PCP/PPI does not work in isolation. Procurers need to be aware of any relevant legislation, standards, labels[16] or certifications in the sector that could impact the objectives of their innovation procurement.

How to deal with existing legislation, standards, labels, certification schemes?

For what concerns legislation, the procurer has the obligation to require compliance of the solutions developed or purchased through PCP or PPI respectively with existing legislative requirements.

Standards/labels and certification are possible means of proof that the procurer can request from suppliers (procurer has the option, not the obligation, to impose them on suppliers) in his PCP/PPI tender documents to ensure that the procured solutions meet certain desired characteristics. Procurers should realize that not all existing standards and labels are supported by a transparent, objective and robust accreditation system, meaning one that provides vendor independent certification of the compliance of solutions with the standard/label (transparent certification is done by third party over which suppliers applying for the standard/label cannot exercise decisive influence) based on sounds scientific evidence (robust certifications respect stringent, measurable and state-of-the-art scientific data to assign compliance) according to standards/labels that are set objectively (objectivity is guaranteed when there is large participation of stakeholders in the definition of the standard/label, which usually includes representatives of industry, government, consumer and other sector associations, retailers etc.).

What if you need legislations, standards, labels, certification schemes that don't exist?

For radical innovations (in PCPs), there may be no existing legislation, standard, label or certification applicable to the innovation and the procurer may desire to take action himself to get new legislations, standards, labels and certification schemes defined. When the procurer discovers the need for new legislation or policy requirements to deploy new innovative solutions, the procurer can signal the need to the legislator and policy makers and can participate in preparatory consultation rounds of legislative bodies/policy makers that are responsible to define new legislation or policy requirements.

In the case of standards, labels or certification schemes, the procurer can play a more active role. The procurer can participate itself in standardization/labelling activities to define new standards/labels for its radical innovation and may appoint a certification body if there is no existing certification body yet that can verify compliance with his requirements. The procurer can also via its tender documents require / incentivize the PCP/PPI suppliers to actively engage in standardization / labelling / certification activities.

Below we outline the importance of legislation, standardization, labelling and certification and we explain how the procurer can interact with those activities in relation to PCP/PPI.

Legislation

[16] Standards and labels are means of proof that procurers can request to ensure that the supplies/works/services procured correspond to the required characteristics.

In some cases, existing legislative requirements may be a driver for procurers to start a PCP/PPI. Typical short term legislative requirements may trigger PPIs, but more forward looking longer term legislative requirements can also trigger PCPs (e.g. requirements to reduce CO2 emissions by x percent by 2030).

EXAMPLE link between legislation and PPI

The County Hospital in Sucha Beskidzka, Poland, identified the need to reduce the temperature in the hospital rooms that are exposed to excessive sunlight in the summer, with the aim to secure patient and personnel thermal comfort, by means of identifying a solution that protects from extensive sunlight and heat (for more information regarding the background of this project, see the description of the project in section 2.1.1 (4) above and at the following link: http://www.ecoquip.eu/procurement-projects/cost-effective-and-low-carbon-solutions-to-maintain-the-thermal-comfort-of-patients.html).
The need was reinforced by the legislative requirements: by the Ordinance of June 29, 2012, the Polish Minister of Public Health mandated all health care providers to install 'sun-blocking equipment in the patients' rooms exposed to excessive sunlight' by December 31, 2016, which turned the identified need into a future unmet need.
The Hospital defined the need as " Improvement of thermal comfort of patients and personnel of Sucha Beskidzka Hospital with the lowest (zero) exploitation costs.". The required outcomes of the sought solution included:

- reduction of excessive sunlight in patients rooms,
- thermal comfort for patients and personnel of Sucha Beskidzka Hospital,
- energetic self-sufficiency of a solution,
- meeting health and safety standards,
- comfort of usage;
- if possible, the purchased solution will improve thermal comfort in winter time.

The market consultation organized revealed 3 groups of potential solutions:

1. Solutions and devices limiting sunlight exposure in rooms.
2. Solutions of cooling, heating and air exchange in rooms.
3. Solutions regarding use of renewable sources of heat energy which will supplement the solution from group 2.

The project opted for the procurement of a solution from group 1 (this was announced Oct 2014) – photovoltaic awnings. The results of the tender were announced in February 2015 when the contract was also signed. Construction of the winning solution started in August 2015 and was finalized at the beginning of 2016. Feedback from end users (patients and hospital personnel) was positive: „*The sun is no longer so irritating, panels provide a nice shadow*"; "*awnings do not darken rooms at all, there is no difference and construction works do not hinder our daily duties*." Additionally, important cost savings were also achieved (see the same example in section 2.1.1 point 4 above).
This PPI project and the way the tender requirements were drafted showed that the procurer went beyond the minimum legislative requirements and opted for a more comprehensive solution.

The project proved successful as it delivered a working solutions meeting both the legal requirements as well as the identified needs.

Source: http://www.ecoquip.eu/procurement-projects/cost-effective-and-low-carbon-solutions-to-maintain-the-thermal-comfort-of-patients.html and http://www.ecoquip.eu/news/15/59/Sucha-Beskidzka-Hospital-Poland-UPDATE.html

In other cases, technology progresses faster than legislation and procurers may need to ask the legislator for new legislations to be able to use/procure innovative solutions (e.g. today in many countries public procurers are asking their governments to regulate the use of drones e.g. for police work).

Standardisation

Standardisation refers to the tacit or explicit process by which certain shared features between technologies may be used to foster interoperability between devices, data or software. Examples of standards- often referred to as 'interoperability standards'- include common document formats (such as .docx or .pdf), communication protocols (eg. 4G LTE, WiFi), or image compression formats (eg. JPG, PNG). Standardisation may also include minimum quality or safety requirements imposed by legislation.

Standardisation helps to reduce costs and encourage innovation, by allowing consumers (such as public procurers) to benefit from greater competition and avoid 'lock in' (due to greater number of compliant products to choose from), and allowing producers to focus their resources on producing products to a clear specification. Standards enable interoperability / compatibility between old and novel products, and they define test methods/measurement of the quality or safety of the products. Compliance with a standard increases the confidence of customers in the quality, safety or superior performance of innovations. They open markets for innovative companies and lead to lower costs of the new products.[17]

PCP and PPI can encourage standardization in pioneering or fragmented markets. Where PPI can help encourage wider deployment of solutions that meet existent standards, PCP can create new standards. PCP can push a wide range of suppliers to commercialize solutions that are compliant with interoperability requirements of the procurer in the PCP tender specifications. PCPs will often generate pioneering innovations. Given the strong network effects of first-movers in new market places, PCPs enable procurers to establish de facto standards . By contributing his requirements to official standardization bodies from the early stages of development of an innovation, the procurer may turn this de facto into a de jure standard. This helps achieve, already during the PCP, interoperability and product inter-changeability between alternative solutions under development in the PCP and on the market outside of the PCP. It helps ensure competition for the subsequent PPI and will prevent the risk that solutions will need to be made compliant with standards defined afterwards.

[17] R. Apostol, 'Formal EU Standards in Public Procurement: A Strategic Tool to Support Innovation (2010) PPLR 2.

What action can a procurer take with regards to standardisation?

Prior to a PCP/PPI, the procurer should check if there are existing standards applicable to the envisaged innovation. In the technical specifications for the PCP/PPI, the procurer may request suppliers to evidence their compliance with existing standards as means of proof for specific desired solution characteristics.

But the public procurer may conclude that existing standards are not comprehensive and new standards should be created (see V-CON example below) or new test procedures need to be created for testing the compliance of new solutions with existing standards (see Smart@Fire example below).

SMART@FIRE EXAMPLE - link between PCP and creating new test procedures for testing the compliance of new types of solutions with existing health and safety standards

The procurers in the Smart@Fire PCP project, required in the tender documentation that the Personal Protective Equipment (PPE) that is being developed in the PCP for fire brigades should at all times fulfill basic health and safety requirements. For existing PPE products on the market, compliance with these requirements is demonstrated through existing certification procedures. However, the procurers realized that the existing regulation did not require these standard testing procedures for ICT related products exposed to the same hazardous conditions.

As a consequence, in addition to the known standards and directives for PPE and for ICT related firefighting products and solutions, the procurers decided to define themselves new test procedures that are used in the PCP for those parts of the PPE for which there were no testing procedures available/mandated by legislation (e.g. for the testing of cabling/connectors in extreme conditions).

Source: The market consultation – summary, page 4, http://www.smartatfire.eu/media/33066/final-innovation-platform-results.pdf

If there is no existing standard for the envisaged innovation, procurers can let suppliers attempt to create a standard. However, when the market operates alone without public intervention, suppliers often face a significant 'coordination problem' to create a standard because each supplier has significant incentives for its own solution to be selected as standard. The procurer may address this problem by participating himself in formal de jure standardization bodies where standardization agreements may be reached. Examples of bodies include ETSI, CEN, CENELEC, IETF, ITU. However, due to their wide stakeholder consultation process, these bodies often involve slow, iterated negotiations between the main parties.

PCP can foster faster standardization by first creating *de facto* standards – or market driven standards- which can then later be transformed into a de jure standard. Indeed, PCP enables:
i) pioneering innovative solutions within a non-existent or fragmented market;
ii) requiring via the PCP tender specifications that vendors ensure interoperability on critical parts of the solutions and that vendors license IPR over the latter under FRAND conditions.

V-CON EXAMPLE - link between PCP and creating new de jure standards

The EU funded V-CON project on virtual modelling of road infrastructure identified the lack of standardised information exchange and sharing over the civil infrastructure sector as an important lacuna. The project team identified several developments, but concluded that there was no comprehensive, generally accepted standard immediately available. Therefore, the V-CON PCP is develop (part of the) required international open information standard during their PCP that is developing solutions for virtual, and procure the required, compliant software tools. The project team believes that this will stimulate others in the sector to follow.

From the above strategy, two primary objectives were derived. The first was to establish a draft version of a standardised information and data exchange structure. The second was to procure and test software systems in a PCP that comply with this structure. The results will be embedded in the procurement of two large infra projects, one in the Netherlands and one in Sweden. The result will be a draft version of a standard that will be used in the software that will be procured in the PCP part of the project.

Source: V-CON PCP project, http://www.rws.nl/english/highways/v-con

EXAMPLE – Shock wave traffic Jam PCP – How to ensure that parallel developments of different vendors on different components of a global end-to-end solution results in an interoperable integrated solutions (creating a multi component de facto standard)

Brabant province in the Netherlands deployed a PCPs with multiple lots to develop different components for an end-to-end solution to address the problem of shock wave traffic jams on highways. The procurer required in the PCP tender specifications open interfaces to ensure interoperability between the different components developed by vendors in different lots.

During the PCP implementation, the procurer met weekly with contractors from different lots to ensure interoperability was maintained as development in different lots progressed. In order to ensure that the resulting components developed in different lots were really interoperable, the contractors from different lots were requested test together the integrated solutions.

More info: http://ec.europa.eu/information_society/newsroom/image/document/2015-47/kerstjens_oene_12176.pptx

Public procurers may contribute themselves via their requirements to official standardization bodies, and may require via their PCP tender documents the R&D providers participating in the PCP to contribute as well to official standardization bodies to turn the de facto standard in the long term into a de jure standard. Since the IPR policy of PCP is that the public procurer can require the R&D providers to grant non-exclusive licenses over their IPR (under market conditions) to third parties, public procurers may have a strong role in ensuring the open development of interoperable follow-on and competitive technologies.

Procurers can align the timeline of creating a de facto standard during the PCP with the timeline to contribute to the official standardization process of standardization bodies, driving therefore simultaneously the creation of de jure standards out of ongoing industrial developments in the PCP. The

procurer should thus continuously map existing and ongoing standardization initiatives, in order to decide his own strategy for participating in standardization activities and to formulate clear contractual obligations for the providers to contribute as well to such standardization initiatives. The public procurer should check whether suppliers comply with such contractual obligations to contribute to standardization bodies and license out their related IPR on FRAND conditions, even after the completion of the PCP.

Certification and labelling

Certification tests the conformity of a product with certain requirements[18] deriving from legislation or from de jure/de facto standards. In the EU some products' characteristics (particularly related to safety, health, security, environmental protection) are regulated by legislation. The legislation defines broad performance requirements that are subsequently refined into European de jure standards. These standards define minimum performance and functionality requirements for the respective products. Certification of compliance with these standards provides a presumption of conformity with the respective legislation. But compliance with the legislation can also be demonstrated through alternative conformity assessment procedures that deviate from the standard's requirements but still comply with the legislative requirements. Demonstrated compliance with the legislation will entitle the producer to apply the CE mark[19] on the respective product. The CE mark is a requirement for commercializing such regulated products within the EU.

Labelling entails the application of a visible sign on the product that certifies conformity with certain requirements defined in standards (e.g. Fair Trade label) or in legislation (e.g. EU Energy Label). A label may be applied following a certification process.

Certification and labelling increase trust of private and public consumers in the product and encourage wide deployment of innovative solutions.

What action can a procurer take with regards to certification and labelling?

Public procurers have strong incentives to ensure wide deployment of the innovative solutions because economies of scale of production for vendors result in cheaper products for the procurer in the long run.

If there is no existing certification scheme for the innovative solutions targeted by the PCP or PPI, the procurer can assign an independent entity to perform the certification of the innovative solutions in his PCP/PPI (see Statoil/Gassnova example) or he can make an agreement with an existing certification body to create a new certification scheme (see Swedish Energy Agency example) or new certification packages in existing certification schemes for the innovative solutions in his PCP/PPI (see SMART@FIRE example).

[18] Certification is performed by independent accredited bodies. Accreditation is the assessment of the certification body against standards of impartiality, competence and consistency. A certificate of compliance is normally issued. A label could be applied on the product following certification of compliance with the respective requirements.

[19] The CE mark is a visible sign that suppliers are obliged to put on certain products in order to be allowed to sell those product on the EU internal market. By affixing a CE mark on a product the vendor declares to customers that his product has been assessed to meet the EU's safety, health, and environmental protection requirements.

EXAMPLE Swedish Energy Agency - link between certification, labelling and PPI

Since 1990, NUTEK (the precursor of the Swedish Energy Agency) has used technology procurement (Swedish name for PPI) in combination with certification and labelling to trigger producers to develop more energy efficient and thereby, more environmentally friendly products.

NUTEK has coordinated nearly 60 different technology procurements. It grouped public (and possibly private) buyers interested in innovations with the same e.g. environmental characteristics. An open market consultation with industry was then held to clarify what level of innovation requirements can realistically be achieved by the supply side in the deployment time frame of the procurers, and what the critical mass on the demand side needs to be to trigger industry to make then necessary investments to bring innovations to the market that meet the requirements of the procurers.

The energy agency then published the functionality, performance and cost requirements of the buyers group. Suppliers were invited to come forward by a certain predefined data (e.g. 6 months or 1 year) to demonstrate whether their solution met the requirements defined by the buyers group. Test/certification events were organized by the energy agency in cooperation with the procurers in the buyers group. Over the years, the energy agency certified and labelled a wide range of energy efficient appliances (light bulbs, washing machines, windows, heat pumps, refrigerators for public housing etc.). These were deployed gradually afterwards when the procurers in the buyers group launched individual procurements to deploy innovative solutions with a label that corresponds to the level of energy efficiency they each individually aspired to reach.

In total, the deployment of products resulting from all these technology procurements triggered by the Swedish energy agency has reduced Sweden's total dependency on nuclear energy with 10%.

Source: http://ec.europa.eu/newsroom/dae/document.cfm?action=display&doc_id=7935

EXAMPLE SMART@FIRE PCP - formulating new certification packages

SMART@FIRE needs certification of solutions developed in the PCP. Companies are asked to get there solutions certified by certification bodies in the PCP. SMARTFIRE needs on the long term also new certifications to be done by certification bodies to fully certify integrated PPE solutions: they contribute to development of new certification packages in working groups of existing certification bodies.

Source: http://smartatfire.eu

EXAMPLE Statoil/Gassnova PCP – assigning a new certification entity

For their PCP to develop new carbon capture solutions, Statoil and Gassnova discovered that there were no existing certification schemes yet suitable for the targeted innovation. So the procurers assigned a new independent entity (that was selected through a public procurement procedure) to certify compliance of the new carbon capture solutions with the procurer's technical and price requirements and legislative environmental and health requirements.

To reduce the risks of full scale implementation (PPI), suppliers that participated in the PCP and others on the market that did not participate in the PCP were invited to have their solutions certified, as certification would be a requirement for any subsequent procurement for deploying solutions. The certification concluded that all solutions the market could deliver at that time were still prohibitively expensive to justify moving towards deployment. As a consequence, the PPI has not been started yet.

Source: http://ec.europa.eu/information_society/newsroom/image/document/2014-47/statoil_and_gassnova_case_7934.pdf

2.5 Building the business case for an innovation procurement

2.5.1 Why draft a business case for an innovation procurement

Once all unmet needs have been defined in terms of which functionality/performance improvements they would generate, and those needs for which solutions already exist have been removed from the list, the next step is to analyze costs versus benefits of starting an innovation procurement for each remaining unmet need on the list.

This "business case" for the procurer: provides the economic justification (cost benefit analysis) to decide for which unmet needs it makes most sense to start an innovation procurement: it enables the procurer to prioritize unmet needs according to their highest potential impact versus costs.

EXAMPLE of needs prioritization based in business-case – Niguarda Hospital PCP

To be able to rank unmet needs based on potential impact, it is very important to evaluate first the historic past-performance of the process or service under consideration, using key performance indicators (KPI) as a measure (in the form of cost, headcount, time, outcomes). Procurers should subsequently analyze, by making the business-case for each unmet need, which needs can provide the biggest contribution to their KPIs and thus can improve the public service the most. Procurers should choose long-term KPIs that are related to the quality and efficiency improvements, and that can measure progress on achieving the targeted quality and efficiency improvements.

In the case of Niguarda Hospital in Lombardy region, for example, the decision to focus the PCP on the need for automated moving of hospital beds has been selected out of 10 initially identified stringent needs. This choice was based on the fact that finding solutions for this need would create the biggest impact on the KPIs that are important to modernize the hospital, namely expected improvements in productivity, the possible reduction of dedicated personnel to carry out bed movements (provided that in Italy the existing personnel is below the actual needs of hospitals) and, ultimately, the reduction of the total cost of the public service offered (due to accidents and time needed to move the beds), as well as the improvement of patient comfort and safety when moved.

The business case provides the procurer also with insights on how to practically organize his procurement to maximize expected impacts, whilst keeping the costs and risks to an acceptable level. For example, what should be the maximum budget and duration for the procurement to keep costs to an acceptable proportion of the expected benefits, how many vendors should be minimum engaged with to reduce the risk that nobody can deliver a working solution, how to set the "minimum" functionality / performance requirements to achieve the minimum quality/efficiency improvements needed, what are the benefits / drawbacks to split the procurement into lots and what are the dependencies between different lots, which test set-up is most suitable to check whether expected impacts are reached or not etc.

The business case also enables the procurer to perform a sensitivity analysis on each of these key project management parameters to quantify upfront what the positive/negative impact will be if one of these parameters changes during the project (worst/best case analysis). It is important to verify during the open market consultation the setting of the above parameters and their 'sensitivity to change' (that determines whether the assumptions to build the business case were realistic or not) and to modify thereafter the business case/the parameter settings for the procurement if needed (see the market consultation section for more information).

The business case is thus a tool to support investment and project management decisions before, during and after the project:

(i) **before the project:** to determine whether there is enough economic justification to start the procurement and to set key parameters for organizing the procurement set-up in such a way to maximise expected impacts, whilst keeping the costs and risks to an acceptable predefined level;

(ii) **during the project**: to decide how to best monitor vendors performance and to project-manage the procurement so to keep costs/benefits in balance; to decide how to best deal with unexpected events inside the project or changes in the environment around the project;

(iii) **after the project**: to assess whether the results achieved meet the public procurer's goals (based on expected impacts defined initially in the business case before starting the project); to draw lessons learned and better prepare future procurements (e.g. to prepare a PPI after a PCP).

During a PCP or PPI project, the business case is a major control tool that is referred back to on a regular basis by the project manager to make sure that the project remains viable.

To construct the business case the following points should be addressed:

1. How to build a business case for an innovation procurement? (section 2.5.2)
2. What are the expected benefits? (section 2.5.3)
3. What are the expected costs? (section 2.5.4)
4. What is the timeline for the project: How long is the procurement expected to take and what is the duration during which the innovative solution will be used and will generate benefits? (section 2.5.5)

2.5.2 How to build a business case for an innovation procurement

In what follows we first explain the main components of how to build a business case for an innovation procurement. Then we discuss how to use the business case to design the innovation procurement so that it is most effectively geared to achieve the desired impact within the acceptable levels of cost/risk.

UNDERSTANDING THE BASIC ELEMENTS TO BUILD A BUSINESS CASE

A business case makes a cost/benefit analysis for starting a project based on three financial indicators: the Net Present Value (**NPV**), the Internal Rate of Return (**IRR**) and the Return On Investment (**ROI**).

Understanding NPV

The NPV is used to assess the overall profitability of a project, at the time when the public procurer needs to decide whether or not to start a project. Although formulae for computing the NPV, IRR and ROI are provided in Annex 3 to this Toolkit, here we shall briefly explain how such indicators are constructed.

A common feature of PCP and PPI projects is that they typically take place over a medium to long period of time: Often investments need to be made before benefits (cost savings, quality/efficiency improvements in the public service) become available Therefore, to evaluate project profitability, comparison of monetary sums available at different stages/dates is needed.

NUMERICAL EXAMPLE

Is it worth starting an innovation procurement that costs 1€ investment today and will generate 1.1€ of benefits in 3 years from now, or is it better to leave this euro on my bank account? In other words is 1€ available today worth more or less than 1.1€ available in three years from now? The answer to such a question depends on market conditions. In particular, if leaving 1€ today in a bank, at the prevailing

yearly interest rate of $i = 1{,}5\%{,}\%$, generates $1.046€$ in three years, then starting the $1€$ an innovation procurement that generates $1.1€$ in 3 years is preferable to leaving the $1€$ on the bank today.

I am short of cash today. Is it worth borrowing money from the bank to start the innovation procurement? At $1{,}5\%$ interest rate the maximum amount that could be borrowed today and paid back to the bank in 3 years, with the $1.1€$ that will be generated by the innovation procurement in 3 years, is about $1.052€$ which is larger than $1€$. Indeed, borrowing $1.052€$ today at $1{,}5\%$ interest rate implies paying back in 3 years $1.1€$. So, with the low interest rates today borrowing money from the bank to start innovation procurements with a solid business case is interesting, as it can help procurers start modernizing public services already today, while paying back the money for these investments to the bank later from the benefits generated by the innovation procurement.

The above simple example suggests that comparison of the value of investing sums or not, available at different points in time, could only be made if they are shifted to the same date. Typically the date to which all project sums are shifted for comparison is $t = 0$, where t is the time index, namely when the public procurer needs to decide whether or not to start a PCP or PPI project. When this is the case we consider the so called *present value* of the relevant sums, on which NPV is based. In the previous numerical example, the *present* value of $1.1€$ available in 3 years from now is $1.052€$, while $1.046€$ will be the *future* value, of $1€$ available today.

In the above simple example there was only 1 cost/investment made at the start of the project and only 1 benefit obtained at one point in time 3 years later. In real-life innovation procurement projects, several costs and benefits may be expected at different points in time. The NPV of an innovation procurement project is then the sum of the present value of all the relevant monetary costs and benefits generated by the project, during its time horizon, where costs have a minus sign, while benefits a positive sign. To compute the net present value, alike in the simple example above, a prevailing market interest rate will have to be specified, together with the dates at which sums are available (dates at which the different costs and benefits are expected to occur).

EXAMPLE

For example, the future benefits of an innovation procurement project could be considered as $1000€$ of monthly savings for the procurer, or $100000€$ if instead a total of 100 procurers will eventually use the product once available.

In general an innovation procurement project would be considered worth starting if $NPV > 0$, that is when in present monetary terms the project generates a positive profit margin for the procurer, thus being financially self-sustaining. However, as we shall see below when discussing ROI, this may not be enough from a financial point of view.

EXAMPLE

For example, suppose an innovation procurement project needs an initial investment, at $t = 0$, of a $100€$ but after three years it would generate revenues equal to 110€. Then, at $i = 1{,}5\%$ yearly interest rate, the NPV of this project would be given by

$$NPV = 110\left(\frac{1}{1+0.015}\right)^3 - 100 = 105.2 - 100 = 5{,}2€ > 0$$

which suggests that the project would generate a positive profit margin to the public procurer. However, though $NPV > 0$ implies self-sustainability of the project this may not suffice to opt for it.

Notice that both in this and in the above numerical example to compute NPV we used a formula with compound interest $\left(\frac{1}{1+0.015}\right)^3$, to shift backward year by year, for three years, the future sum of 110 to the current sum 105,2.

Understanding IRR

The IRR is related to NPV and represents the interest rate for which the NPV of the project is equal to zero, that is $NPV = 0$. Namely the rate at which the costs of the project equalize its benefits, and profit margin is zero. In a sense, IRR represents the maximum interest rate a public procurer could afford paying back to a lender should it need to borrow financial resources to undertake the project. In the previous numerical example, the $IRR = r$ would solve the equation

$$NPV = 110\left(\frac{1}{1+r}\right)^3 - 100 = 0$$

leading to $r = 3\%$. Hence, at $t = 0$, in order for a loan to be paid back by the revenues a public procurer could afford borrowing $100€$ at an interest rate which at most might be 3%. Hence, if the prevailing interest rate on the market i is smaller than r the project NPV would be positive.

In case the NPV of a project is positive, it is also interesting to consider the date at which it eventually becomes positive, as an indicator of how long a public procurer should need wait before benefits compensate costs. If such waiting time is too long then the public procurer may consider not to start a PCP.

Understanding ROI

The last important financial indicator to compute is ROI, defined as the NPV of a project divided by the investments made. If C is the present value of all the costs then $ROI = \frac{NPV}{C}$ which in the previous example would be $ROI = \frac{5{,}2}{100} = 5{,}2\%$, meaning that each euro invested would generate additional $0.052€$. At the current market rate $i = 1{,}5\%$. From a strictly financial point of view the project should be started as it would provide a higher rate of return than depositing money in a bank.

Projects for which the NPV is positive but the ROI is lower than the interest rate on the bank the business case would suggest that, from a strictly financial point of view, those type of projects may not be started. To summarize, from a strictly financial point of view a public procurer should consider starting an innovation procurement project when the business case for it is positive, which typically corresponds to having a positive NPV and a ROI that is higher than the interest rate on the bank. If the expected interest rate in the economy is low (as is currently the case) and the expected benefits of the innovation procurement are high, then employing monetary resources in the innovation procurement becomes relatively more attractive

than, for instance, investing in financial assets. If the cost of the innovation procurement and the expected interest rate in the years to come on the market are high, than it is less attractive to start an innovation procurement as compared to putting the money on the bank.

However, financial viability is typically not the only consideration for a public procurer to take into account when deciding whether or not to start an innovation procurement. Indeed, beyond his own financial considerations a public procurer may need to include also broader policy considerations such as environmental and social aspects in the business case. If the benefits of those broader policy considerations cannot be fully quantified financially and brought into the business case computation, this may justify to undertake the project even when $NPV < 0$. Likewise, still for policy-related reasons, a public procurer may decide not to start an innovation procurement project even if $NPV > 0$. For example, an innovation procurement may be able to generate a 5% cost reduction over four years, but is that enough to start a financially demanding project when the procurers KPIs (Key Performance Indicators) are to reach a 10% cost reduction over four years?

HOW TO BUILD A BUSINESS CASE FOR AN INNOVATION PROCUREMENT

A business case compares the cost/benefits for three main scenarios:

(i) The *business as usual* scenario: this scenario computes the impacts of not undertaking the innovation procurement and taking the risk-averse approach of depositing the money instead in a bank account at the current interest rate (not opting for an innovation procurement, with a potentially higher return but also a higher risk of failure/monetary loss than a bank account).

(ii) The *best case scenario:* a computation for starting an innovation procurement and succeed; and

(iii) The *worst case scenario*; a computation for starting an innovation procurement project and not achieving its expected results.

To make the business case (and compute the NVP, IRR and ROI) the procurer needs to determine first:

1) the expected benefits from doing the innovation procurement (e.g. cost reduction in daily operations) versus the drawbacks of not doing it (e.g. rising costs in daily operations)
2) the expected costs needed to implement the innovation procurement
3) the expected time periods in which the costs and benefits (valued in monetary terms) occur
4) the interest rate to compare the project returns with putting the money on the bank instead,

To calculate the worst versus best case scenario the procurer needs to be able to estimate also the risks, i.e. the probability that the benefits, costs, time periods deviate from their "most likely" estimated value. The worst and best case scenario is then computed by calculating the business case for both the most pessimistic and the most optimistic values for the parameters 1, 2, 3.

2.5.3 What are the expected benefits?

EXPECTED INTERNAL BENEFITS - RELATED TO ADDRESSING THE PROCUREMENT NEED/CHALLENGE

To estimate the expected benefits the procurer will achieve internally from doing the innovation procurement, he should calculate the benefits from, thanks to the innovation procurement, successful modernization of the service of public interest that he is operating with innovative solutions that meet the

minimum functionality and performance improvements expected by the end-users (identified during the needs assessment phase).

Both PCPs and PPIs can bring direct benefits to the procurer in the form of.

- External quality improvements in the public service delivered to the citizen (e.g. improving traffic flow on roads, reducing hospital infections or providing totally new public services)
- Internal cost reductions and efficiency improvements in the daily operations of the procurer (e.g. replacing costly, time-consuming distributed paper based internal operational systems with cheaper, faster more centrally coordinated IT based systems)

For PCPs, besides these direct benefits that come from the tangible results produced by the PCP, there are also direct benefits from the intangible results of a PCP:
In PCP projects, public procurers do not keep exclusive ownership of IPRs but rather leave IPR ownership to the participating economic operators in return for:

- a financial compensation in the form of a lower price that suppliers charge to the procurer for performing the R&D, as compared to when the procurer would exclusively keep all IPR rights for himself or royalties on sales of R&D results to other customers made by PCP suppliers;
- license free right for the procurer to use the R&D results for internal use;
- the right for the procurer to request PCP suppliers to license out R&D results to other public administrations and vendors at Fair, Reasonable and Non Discriminating Conditions (FRAND).
- the right for the procurer to call back the IPRs in case PCP vendors fail to commercialize or abuse the IPRs. Additional information is available under the section 2.6 on IPR.

For PCPs there are also potential additional longer term benefits in the form of:

- Speeding up the time-to-market to modernize public services with the new solutions (in the business case this means faster deployment and faster cashing in the benefits of the quality/efficiency improvements generated by the innovative solutions in the daily operations of the procurer)
- Reduced risk of failure of the follow-up PPI procurement (due to de-risking the technologies in the PCP before committing to large scale deployment budget in a follow-up PPI. In the business case this means a significantly less negative worst case scenario for the costs/benefits of the large deployment/PPI).
- Structural benefits from creating a more competitive supply base with new players (better value for money products in the long run due to increased interoperability/standardization, avoidance of vendor lock-in and increased economies of scale (vendors can commercialize solutions widely as they keep their IPRs). In the business case this means reduction on the long term of the costs and increase in the benefits/quality of the solutions in large scale deployment/PPIs that follow after the PCP[20].

[20] US multi-competitor multi-phase R&D defense procurements evidence an average 20% product cost decrease.

EXPECTED EXTERNAL BENEFITS

When analyzing expected benefits, the following question can also be posed:

Besides the benefits strictly related to the public procurer's activities, what will be wider economic, environmental advantages from introducing the innovative solution into the society?

A procurer that wants to address this question can include in the business case a broader, economic, environmental and societal impact analysis that estimates benefits like raising employment/GDP, contribution to societal welfare and environmental protection, at local / national / international level.

Similar as for the direct internal benefits, the external environmental and social impacts of an innovation procurement occur over the long term. Thus both the immediate and future long term environmental and social benefits should be estimated for the business case.

PCPs for example can contribute to job creation in Europe by putting a place of performance requirement on vendors performing the R&D during the PCP. PPIs can also generate additional jobs in ancillary sectors (e.g. deployment of electric vehicle infrastructure by the government trigging the emergence of companies that deliver new services for electric vehicle car drivers).

The Organization for Economic Cooperation and Development (OECD) has formulated a number of indicators that can be used to quantify environmental impact/benefits in procurements. These indicators can be grouped in two main classes: on the one hand indicators for pollution while on the other hand indicators on the use of natural resources and natural assets[21]. The core set consists of ten key performance indicators, which have been selected because of their political relevance, analytical soundness and measurability. The indicators are:

- ✓ Climate change
- ✓ Ozone layer
- ✓ Air quality
- ✓ Waste generation
- ✓ Freshwater quality
- ✓ Natural resources and assets
- ✓ Freshwater resources
- ✓ Forest resources
- ✓ Fish resources
- ✓ Energy resources
- ✓ Biodiversity

Concrete methodologies for taking into account the environmental benefits over the entire lifecycle (from its creation to its disposal) of a product/production process already exist: Life Cycle Cost calculations (LCCC) and Life Cycle Costing Analysis LCCA), Product Life-Cycle Management (PLM) approach and the idea of Circular Economy (CE), focused on recycling components once products complete their life cycle. Using life cycle cost approaches enables the procurer to value the costs and benefits of products that leave a smaller

[21] OECD Key environmental indicators. See http://www.oecd.org/dataoecd/32/20/31558547.pdf.

environmental footprint across the product life cycle (e.g., it makes the business case more positive for products that can be recycled and have a residual value after recycling than for products that cannot be recycled and the procurer has to pay to dispose of the product).[22] When selecting the desired LCC-methodology, public procurers should be aware that some LCC-computations may take into account certain (or all of these) key indicators, while others may consider the emission of CO^2 only. Therefore, the public procurer should clarify its goals before constructing the business case.

2.5.4 What are the expected costs?

The expected costs for a PCP project business case

The costs of a PCP project can be split into two major categories:

(i) **The price to procure the R&D from suppliers (to get the product or service designed, developed and tested by all the PCP suppliers that are contracted in parallel)**: the budget for procuring R&D services should be sufficient to start the R&D process with enough suppliers to end up (given the R&D failure rate in that sector) with a competitive supply chain of minimum 2 working solutions / suppliers at the end of the PCP. The estimation of the overall R&D budget and its distribution across the different stages of project could be discussed with the interested economic operators during the market consultation (See Annex 1 – Numerical example).

When estimating the required budget for procuring the R&D services don't forget to take into account VAT. Note: for cross-border PCP projects, the currency and VAT set-up (which country's VAT rate applies) needs to be decided and announced upfront in the tender documents.

(ii) **The costs for the procurer to prepare and manage the PCP project**: these costs include the costs for conducting the prior art analysis/IPR search, organizing the open market consultation, drafting the tender documents, evaluating offers, monitoring the work done by suppliers during the PCP organizing the evaluations/call-offs between PCP phases, testing the products as procurer etc.

(iii) **The after-PCP costs (the expected costs for deployment, maintenance, disposal of the solutions):** make sure to estimate the TCO (Total Cost of Ownership): all costs of the solution during its entire lifetime not just during a snapshot of this period.

The costs for a PPI project business case

Similarly to the PCP scenario above, the costs of a PPI project can be split into three major categories:

(i) **The price for procuring the innovative solutions from suppliers (for delivery, deployment, bug fixing until smooth operation, after sales support)**: As PPI does not cover the procurement of R&D, the costs associated to PPI will not be R&D costs, but the cost for procuring the delivery, deployment of the innovative solutions to the needs of the public procurer. These costs should not include the costs made by suppliers for certification and standardization of the delivered solution.

[22] Up until now one Life cycle cost calculation that can be used is mandatory by the European Commission. This is regulated under article 68 of Directive 2014/24 EU. This article refers to annex XIII that refers to the directive for energy efficient vehicles (2009/33/EG. The European Commission is now in the process of adding directives to annex XIII.

(ii) **The costs made by the procurer for preparing and managing the PPI project**: The costs for preparing and managing the PPI include the costs for conducting the prior art analysis/IPR search, organizing the open market consultation, for any conformance testing/product labelling organized by the procurer before awarding PPI contract(s), for drafting the tender documents, for evaluating offers, for monitoring the work done by suppliers whilst the PPI is ongoing, the costs for adapting the procurers' internal systems and procedures to integrate the new innovative solutions and train its staff to use them and possibly also costs for disposing of outdated systems that are being replaced by the new innovative solutions etc.

(iii) **The after-PPI costs (the expected costs for maintenance, upgrading, disposal of the solutions)**: make sure to estimate the TCO (Total Cost of Ownership): all costs of the solution during its entire lifetime not just during a snapshot of this period.

For this reason, costs for a procurer in a PPI are more akin to those of public procurements contracts for buying existing off the shelf products regulated by the 2014 EU public procurement Directives[23].

2.5.5 How long will the project take?

When talking about the duration of "the project" in a business case, one means the entire lifetime during which costs (negative cash flow) and benefits (positive cash flow) are taking place that influence the total outcome of the business case. The duration of the project includes the duration that the procurement itself is expected to take (when mainly costs are being made) plus the duration during which the innovative solutions are going to be used after the procurement is finished (when benefits are generated).

Expected duration of a PCP procurement

A PCP project consists of 3 main phases (see section 2 of Module 1). The duration of each phase needs to be adapted to the complexity of the R&D work to be undertaken. Whereas compliance with the transparency principle requires that there cannot be major changes during project implementation, the total duration of the PCP affects the business case and the decision whether or not to start the PCP. Indeed, the longer it takes to develop the solution the higher the risks are that other solutions may arrive on the market earlier and the higher the benefits must be for the business case to be positive.

[23] Forward Commitment Procurement (FCP) is the UK brand name for PPI.

PCP PLANNING EXAMPLE

The different phases of a PCP project need to be planned in detail. The following could serve as guideline for the time planning of a PCP process:

STEP	TIMELINE[24]
Preparation period	2-8 months (incl. needs validation, prior art analysis, IPR search, regulatory/standardization framework assessment, business case compilation, open market consultation)
Tendering period	min 2 months (to give companies enough time to prepare high quality/innovative offers)
Evaluation of bids and contract award	4-6 weeks
Phase 1 R&D work	3-6 months
Evaluation of phase 2 bids and contract award	3-5 weeks
Phase 2 R&D work	6 – 12 months (or longer for complex projects)
Evaluation of phase 3 bids and contract award	3-5 weeks
Phase 3 R&D work	6 - 12 months (or longer for complex projects e.g. projects with testing in several locations)

- In calculating the time period between the different phases, the application of a stand-still period can be taken into consideration (usually, about 10 days between informing the tenderers whether their projects were awarded contracts or not and the signing of the next phase contracts)
- For every phase, the assessment of the bids of all vendors should take place at the same time, to ensure compliance with transparency and non-discrimination principle in the selection round for the next phase; this means that all participating economic operators must be given the same time to complete phase 1 and 2, regardless of the time a specific project actually needs, whereas the length of phase 3 may differ between the different projects, depending on the nature thereof (the procurer will indicate however a maximum length in the tender documents).
  The lengths of phases 1, 2 and 3 should be adapted on a case-by-case basis, taking into account the specifics of each PCP, the deployment time schedule of the procurers and the complexity of the R&D to be performed. However, as PCP aims to reduce the time-to-market the total length of a PCP should be set so that the PCP finishes before similar products are expected to arrive to the market (info that results from the prior art analysis). The duration for completion of the PCP to be filled in in the business case (after open market consultation) will typically vary between 2,2 to 4 years.

Expected duration of a PPI procurement

As above, the duration of a PPI project depends on the duration of the different steps to implement it.

[24] Time periods indicated in this table are merely examples (not legal requirements) to be customized for each PCP on a case-by-case basis.

PPI PLANNING EXAMPLE

The following could serve as guideline for the time planning of a PPI:

STEP	TIMELINE[25]
Preparation period	2-8 months (incl. needs validation, prior art analysis, IPR search, regulatory/standardization framework assessment, business case compilation, open market consultation)
Early-announcement of the intention to buy (if the market is able to produce solutions that meet the functional requirements by a date defined in the early announcement), possibly conformance testing, certification and/or product labeling at this date	6-12 months (should be set to give suppliers enough time to build solutions and prove that their solutions meet the functional requirements via conformance testing, certification or product labelling by the predefined date)
Analysis of the feedback received from the early announcement (incl. results of conformance testing, certification, product labelling) and subsequent decision to start procuring or not	1 month
Tendering period	min 2 months (to give companies enough time to prepare high quality/innovative offers)
Evaluation of bids and contract award	4-6 weeks
Deployment of innovative solutions	3-6 months (or longer for complex projects or projects with several lots or phased deployment)
Evaluation and possible bug-fixing of deployed solutions in real-life operation of the service	6-12 months weeks

- In order to give all vendors the same time for preparing their solutions and collecting proof of compliance with the requirements via conformance testing, certification or labelling, the early announcement of the intention to buy is published widely including as a PIN in the OJEU.
- The time duration for completion of the PPI (after the open market consultation) to be filled in in the business case will typically vary between 2 to 3,2 years (or longer for projects with several lots or phased deployment) (or possibly shorter for PPIs that follow after a PCP).

Besides the expected duration for completing the procurement, the procurer also has to estimate the expected lifetime during which the innovative solution is expected to be used once deployed: this to estimate the total value of the benefits that are expected to be generated by modernizing the public service with the innovative solutions over the entire lifecycle of the solution. More info in section 2.5.7.

[25] Time periods indicated in this table are merely examples (not legal requirements) to be customized for each PPI on a case-by-case basis.

2.5.6 What are the risks?

To complete the basic set of information to build the business case, the procurer needs to estimate the risks that in reality the value of the key parameters that determine the outcome of business case (estimated benefits, costs, and time to complete the procurement) may end up being larger or smaller than expected. A standard way for estimating those risks for the business case is by calculating for each parameter that determines the success of the business case the probability that the procurement will deliver in reality a solution that is less or more successful than initially expected[26].

Note that, in order to calculate the best and worst case scenario for the business case, not only the probability needs to be estimated that worse than expected results are achieved (risk of failure – risk of overestimating the results) but also the probability that better than expected results are achieved by the procurement (risk of underestimating the results). Normally a middle path in between worst and best case scenario is then finally used as the scenario that the procurer will steer the project realistically towards by drafting its tender specifications and monitoring suppliers during the procurement in such a way to achieve those minimum results within the timeframe and costs of the business case.

How can in particular the risk of failure be estimated?

Example: Estimating the risk of failure

The EU-funded INSPIRE project[27] developed an approach for this based on 5 questions:

Figure 2 – Methodology to determine the risks in a business case.[28]

1. How often could failure happen?
2. What would impact be?
3. When does it happen?
4. What is the main issue?

[26] Both in PCP and PPI projects all parameters in the business case (costs and benefits and expected duration) are "estimated/expected" values as they can all change in reality during implementation afterwards.
[27] www.inspirecampus.eu
[28] Ibid. 19.

5. What is the cost of the issue?

A public procurer ought to consider political, economic, operational and technical risks. For each type of risk, the public procurer needs to evaluate the different ways to mitigate the risk, its economic impact and likelihood of occurrence. The public procurer has also the option not to mitigate the risks, when adverse events may have a low probability to occur and mitigation measures might have high costs.

Risks of failure in a PCP

On a general note, the overall technological R&D risk and the investment risk of PCP failure is mitigated by the way the PCP approach is designed, as a competitive procedure with sequential elimination of R&D risks in phases, that puts providers under competitive pressure to exert their best effort to deliver best value for money solutions in order to win the competition.

Risks of failure in a PPI

Due to the nature of a PPI, it has to manage different types of risk compared to a PCP. Although the technological uncertainties are lower in a PPI (solutions closer to market), there are other risks in PPIs: risks of deployment failure (damages to operational installations, end-users), large scale production or delivery hick-ups, large scale project financing complexities, etc. As the potential damages of a PPI failure are higher than in a PCP failure (PPI is large budget project having impact on real-life operations), care must be exercised in verifying that the innovative solution effectively satisfies pubic procurers' need. This entails careful verification of market readiness to deliver solutions compliant with the requirements before awarding contracts (e.g. via conformance testing, product labelling and/or certification), choosing the right procurement award format (competitive tendering versus forms of negotiated procedures), the appropriate contract incentives (and lots division where applicable), anti-collusive and other measures as in the more standard procurement activities regulated by the 2014 EU Public Procurement Directives.

A particular technique that can be used to reduce the risk of failure of an innovation procurement is value engineering: value engineering requirements ensures that vendors need to keep on doing product improvement and/or cost reduction after contract award to ensure that the outcomes of the PPI fit the (changing) real-life reality/environment in which products need to be deployed and used. The public procurer needs to announce the intention to use value engineering into the tender documents to ensure compliance with the principles of equal treatment, non-discrimination and transparency. Moreover, the procurement contract should clearly define the conditions for the application of the value engineering approach, in order to prevent unwarranted modifications to the procurement contract.

Value engineering consists of activities and actions that aim to ensure that contractors keep on fulfilling their obligation to deliver best possible value for money for the public procurer after the contract has been signed. These activities target innovative results through a periodical cycle of assessment and improvement, which starts at the identification of Key Performance Indicators (KPIs) based upon a business-case. A value engineering model sets the conditions to implement changes that would improve the KPIs and add value to the initial business by encouraging the contractors to find creative solutions and to obtain an economic benefit from sharing the savings (between procurer and contractor) that the innovation will deliver. The goal of value engineering is to lower the total cost of ownership and improve return on investment, with a

focus on function analysis and function worth. As a result, the value engineering model increases value to both stakeholders (procurer and contractor).

A value engineering clause in a contract allows the contractor to present a value engineering proposal to be approved by the public procurer. The proposal should contain an innovative way to achieve additional desired functionality and produce savings compared to those in the initial business case of the procurer at the start of the procurement. A proper system of monitoring and assessing the performance of a contractor with value engineering at the core of the cycle, not only helps to reduce the risk of failure but also set the conditions to incentivize suppliers to deliver better results than expected by establishing the rules to share the benefits.

For an overview of how value engineering works and can improve the business-case during the execution of the contract see Annex 11 addressing Value Engineering related aspects.

2.5.7 How to design the procurement based on a workable business case

HOW DO I ARRIVE TO A WORKEABLE BUSINESS CASE

Having estimated the expected project duration (duration for completing the PCP/PPI + duration that the solutions will be used once deployed) and all the expected benefits and costs of the PCP/PPI in financial values (each with both their upper and lower best-worst case risk values), all this data is inserted in the formula's to calculate the NPV, ROI and IRR for the best and worst case scenario.

In addition, the business case is calculated for the business-as-usual scenario, the scenario of not implementing the innovation procurement. The potential financial gains are calculated of leaving the money on a bank account. The rising costs are estimated of the deteriorating quality / efficiency of the public service and any other negative side effects/risks (e.g. not taking the chance to optimize environmental and social impacts) of not modernizing the public service with innovative solutions. These potential benefits and costs of the business-as-usual scenario are calculated for the same time project duration as the best/worst case scenario for going ahead with implementing the innovation procurement.

Regarding which duration to use, we remind again that, alike for green procurements, the only way to estimate the real total cost and benefits of an innovation procurement is to estimate not only the immediate but also the future costs and benefits over the entire lifetime during which the innovation will be used and will impact the ultimate quality, efficiency and cost of the public service it is introduced in. This can be done by using a Total Cost of Ownership (TCO) approach to calculate the business case for the innovation procurement, which is similar to the Life Cycle Costing (LCC) approaches used in green procurement. Alike for green procurement, it is possible that for innovation procurements innovative solutions may appear more expensive than existing solutions when looking only at the short term, but the innovative solutions may often be cheaper than existing solutions when looking at the longer term (when the effects of the quality and efficiency improvements of modernizing the public service with the innovative solution are paying themselves back).

With the use of an TCO/LCC methodology, the total NPV of a project can be computed that includes not only the internal operational costs and benefits but also the external environmental and social costs and benefits. In this way, the procurer can choose to optimize a basket of different types of costs and benefits

(the innovation, environmental and social costs and benefits) using one and the same methodology. When using a certain life cycle calculation, public procurers should be aware of the underlying choices that have been made in during the underlying life cycle analyses. For the computation, public procurers must decide on the following:

- the scope of the business case (whether or not the business case cost/benefit calculations are made on the entire product, work or process, or only on a specific component of it);
- the life cycle of the product, work or service (the time during which it will be used, disposed of etc.);

For the first choice regarding the scope, TCO/LCC-calculations can be done on a product, work or service as a whole, or on the process required for creating/obtaining this product, work or service. Selecting the right LCC-calculation method therefore depends on the object of the procurement.

The second choice is the project duration (or life cycle) that is taken into account when computing the total costs and benefits. Taking into consideration the European Commission's goal of preventing burden shifting[29], a so called "cradle to grave" or "cradle to cradle" approach is recommended, which means that the desired TCO/LCC-calculation takes into account all costs and benefits from the creation of the product (as a whole) until its final disposal, and not just of some partial processes within the life cycle.

The third choice relates to the way the environmental, social and innovation benefits/costs enter the business case. This can be done by focusing on some key environmental /social/innovation indicators on which the procurer wants the procurement to reach an impact. These should be closely linked to the KPIs (Key Performance Indicators) for the procurer's overall operations.

HOW TO DESIGN MY INNOVATION PROCUREMENT SO THAT IT REALISES MY BUSINESS CASE

If the business case calculations show that it is clearly not a viable option to continue business-as-usual and it makes sense to seriously plan for starting an innovation procurement, then we take a deeper look into the business case to see how the design of the innovation procurement could be further optimized to end up with a final business case that is as positive as possible, but still realistic and workable.

There are several parameters in the design of the procurement approach that the procurer can still decide to change to optimize more the business case:

- to influence the benefits: the minimum quality/efficiency improvements that vendors are expected to achieve (the functionality/performance/price requirements in the tender specifications), measures to ensure wider commercialization of solutions can result in product cost reduction on the long term because of economies of scale (larger buyers group, promotion to outside procurers, standardization)
- to influence the costs: the total budget allocated to the PCP (the budget per PCP phase and the number of suppliers over the different phases to work with) or PPI procurement, the size of the buyers group (large purchasing power can obtain better value for money solutions from vendors for the PCP/PPI offers)

[29] European Commission, General Guide for Life Cycle Assessment – Detailed Guidance (ILCD Handbook), EUR 24708EN-2010, first edition p 5, available at http://eplca.jrc.ec.europa.eu/uploads/ILCD-Handbook-General-guide-for-LCA-DETAILED-GUIDANCE-12March2010-ISBN-fin-v1.0-EN.pdf.

- to influence the duration for reaping benefits: the time allocated to the suppliers to complete the R&D (PCP) or deployment (PPI), the time during which the solutions can be used after deployment

To optimize more the total expected benefits, the procurer can consider:

- toughening up the minimum functionality and performance requirements in its tender specifications (e.g. requiring vendors to come up with new solutions that achieve minimum 30% instead of 20% quality improvements/cost reductions in the procurer's operations) and/or
- reducing the time for vendors to deliver the solutions faster and/or require vendors to produce solutions that have a longer life expectancy so that the procurer can reap faster and longer the benefits from deploying the innovative solutions
- including incentives for vendors to keep improving the quality after contract award (e.g. bonuses)

To reduce more the total expected costs, the procurer can consider:

- toughening up the cost/price aspects in the tender specifications (e.g. requiring vendors to design the innovative solutions so they reduce operational and/or maintenance and/or product costs)
- shifting costs towards later time periods (paying vendors more upon completion of a milestone with smaller interim payments and/or no pre-financing instalments, divide the procurement in steps (is already standard in PCP, but staged deployment could also be used in PPI)
- reduce the duration and/or size of testing or using parallel instead of serial testing of competing solutions (if not jeopardizing the project objectives)
- ensuring that all costs to be borne by vendors are clearly mentioned in the contract so that no surprise costs will appear for the procurer during the project.
- Ensure via the contractual obligations that also vendors and not only procurers contribute to activities to achieve wider commercialization/economy of scale benefits (standardization, certification)
- including incentives for vendors to keep reducing costs after contract award (value engineering)

To reduce the risks of failure of a PCP, the procurer should consider:

- using as total budget for the PCP only a small portion of the expected benefits of the PCP
- work with a more skewed distribution of number of vendors over the phases (starting with more vendors in the earlier R&D phases reduces the risk that none will finally deliver a working solution. Start with enough vendors to overcome the typical R&D failure rate in the sector concerned.)
- foresee more resources for continuous monitoring/feedback towards vendors to keep them on track
- using very clear/objectively measurable indicators to measure progress of vendors towards achieving results, so that the PCP delivers clear lessons learnt about the pros and cons of alternative solutions and this knowledge can clearly reduce the risk of failure for the follow-up PPI.
- foresee resources to assess the credibility of the commercialization plan of vendors in the evaluations
- foresee resources to monitor vendors IPR portfolio carefully

To reduce the risks of failure of a PPI, the procurer should consider:

- before organizing the procurement carefully check and test whether the innovative product is really the solution to your problem.
- If after the check you are still not fully convinced that the product can solve your problem start with a pilot procurement, buying a limited number of units and see how they perform within your organization.
- To make sure the pilot procurement will provide you with reliable results do organize rigorous monitoring and, whenever possible, let different sections of your organization experience the innovation. This is to construct a meaningful, and diversified, sample to receive a statistically significant feedback.
- Analyse carefully the possibilities and differences in potential risks of using long versus short term contracts, framework contracts / agreements with several lots / vendors
- Check if and how value engineering could be introduced in the tender specifications for large scale deployment to counter the risk that vendors stop innovating and costs rise and performance drops after contract award.

In order to ensure that the innovation procurement will really achieve the expected benefits/cost reductions that are modelled in the business case, the procurer needs to:

- verify via an open market consultation whether the assumptions of the business case are realistically achievable by the market
- define minimum functionality/performance/cost reduction requirements in the technical specifications for the PCP/PPI that enable to select offers that best meet the expected benefits/cost reductions of the business case
- monitor vendor performance during the PCP/PPI in such a way that the whole procurement process is geared to steer vendors to really achieve the expected benefits/cost reductions of the business case

EXAMPLE business-case in a PPI

In 2014 Transport for London started open market consultations to get feedback from the market about its plans to deploy more energy efficient lighting systems for the London metro system. This exercise was conducted in the context of the EU funded PPI project PROLITE. Transport for London made a detailed business case that analyzed and compared the whole life cycle cost of deploying new (LED) versus existing technologies (T8/TL lamps – fluorescent bulbs) in different typical subway locations: above escalators, on metro platforms, in high and low access areas and at the back of house.

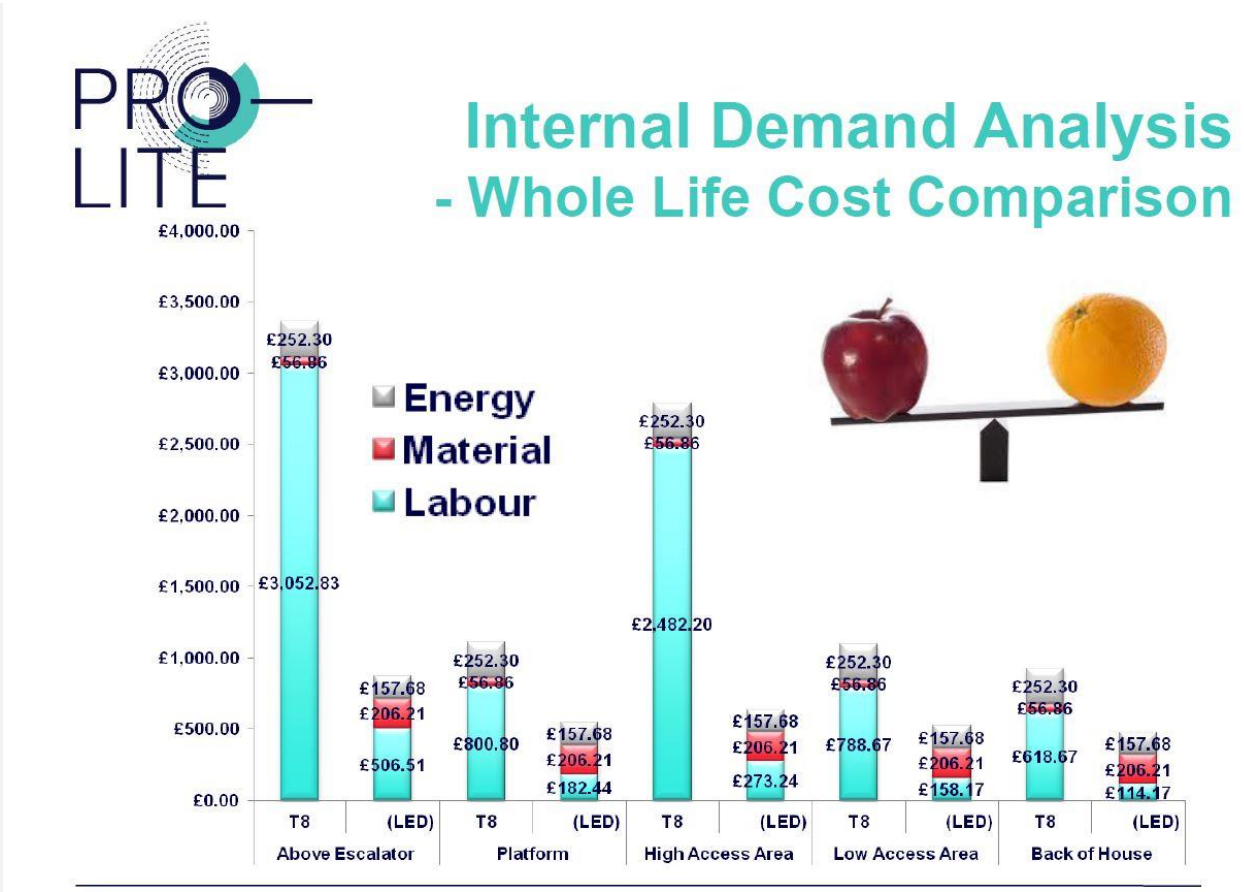


Figure 1: Whole life cycle cost analysis results for different typical subway locations

The whole life cycle cost analysis different types of costs associated with the current versus different new candidate LED solutions: installation costs, energy costs, carbon tariffs, cleaning costs, storage costs and maintenance costs. The analysis showed that the biggest savings would not come from short term capex / material costs, only to a small extent from long term energy cost savings, but to the largest extent from reducing the long term opex / labour costs (in increasing order of importance costs for cleaning, installation and maintenance). Calculating the business case enabled the procurer to really quantify the difference in benefits (see figure 1 that shows the cost savings) that can be obtained by installing innovative LED solutions in locations where it is very labour intensive to clean/install and do maintenance (e.g. above escalators and in high access areas) compared to locations that are less labour intensive to clean/install and maintain the lighting (e.g. on platforms, low access areas and back of house).

The business case finally enabled the project manager to convince his management to invest in the PPI because the whole life cycle cost calculation really proved that even though the short term costs of deploying innovative LED solutions is higher than for existing solutions (material cost), the mid to long term benefits of deploying LED innovative solutions more than compensate that (labour cost and energy savings). The business case also proved that the upfront investment risk could also be mitigated: indeed, if they would invest first in installing new LED lighting above escalators and high access areas, the payback time for deploying these innovations would be so short and the return on investment (cost savings) would

be so high, that with these cost savings they could later on also install LEDs in the other areas and still make further cost savings.

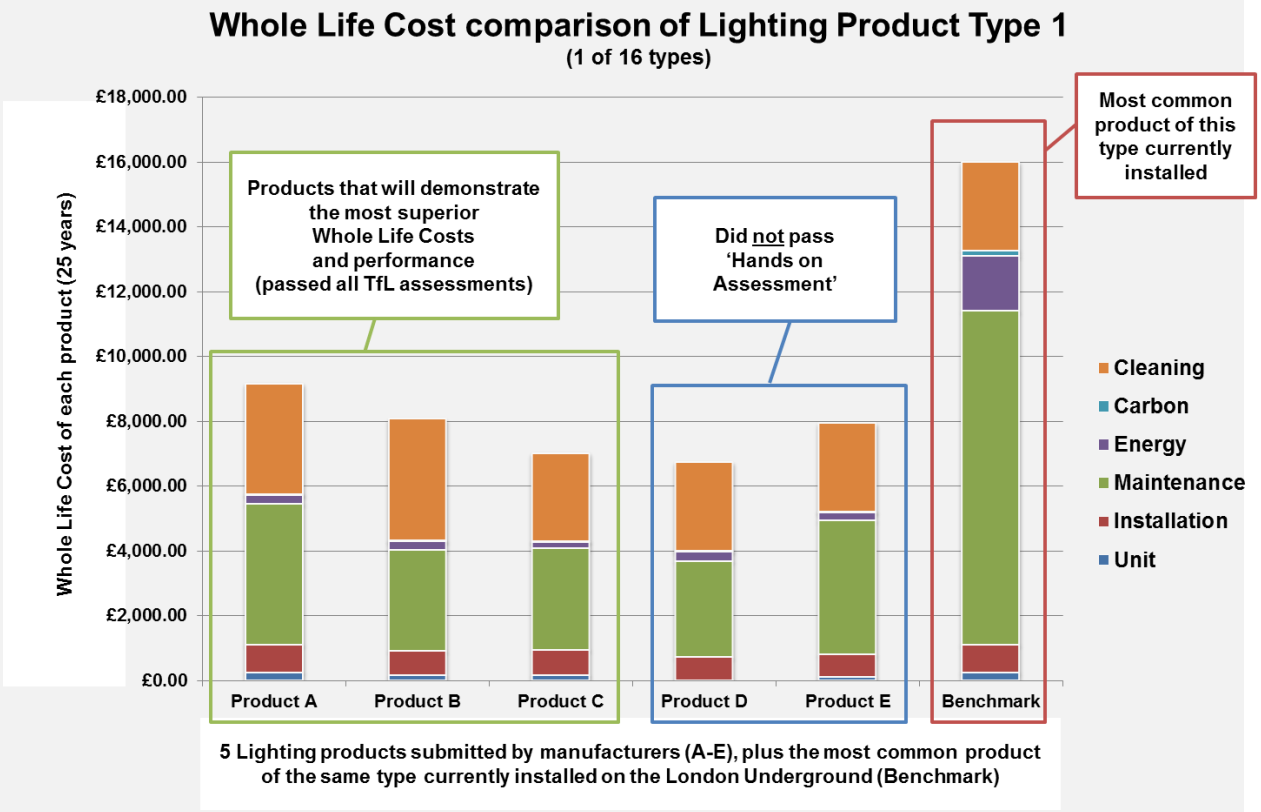


Figure 2: Results of benchmarking 5 new LED solutions with most common used solution

During the procurement process, Transport for London benchmarked new LED solutions offered by different vendors with the most common product currently installed at their premises. This benchmarking shows that, the introduction of LED lighting will generate 50% of total cost savings, worth millions of pounds, over the next 8 years that are covered by the 10 million £ framework contracts for the long term supply of the LED lighting solutions to Transport for London awarded in June 2016 (see figure 2).

Source: Leon Smith, project manager technologies & innovation Europe, Transport for London
http://www.prolitepartnership.eu/news/
www.prolitepartnership.eu/wp-content/uploads/2015/06/PRO-LITE-Lighting-for-Rail-Presentation.pdf

EXAMPLE business-case for a PCP

End of 2011, the Lombardy region (Strategic Planning, University and Research Directorate) identified together with Niguarda hospital, the largest hospital in the region, the need to improve the quality and efficiency of the delivery of healthcare services (healthcare accounts for 80% of the region's expenditure).

They carried out a needs assessment that pinpointed five mid-to-long term hospital needs for innovative solutions. Out of these, two needs were discarded after the prior art analysis and IPR search revealed that for those needs there were already patented solutions (there was little remaining scope for R&D/innovation – and the potential market for innovative solutions in those areas was also limited).

For the three remaining needs, the business case for the procurer was analysed based on the following expected costs, benefits and risks, which were rated as high, medium or low.

Current annual purchase cost of equipment to be replaced by the new solution	1 star = (low) below 500K€ 2 stars = (medium) between 500K€-1,5Mio€ 3 stars = (high) above 1,5Mio€
Current life cycle and other costs related to the traditional solution used and aimed to be reduced by means of innovative solutions	1 star = low cost, 2 stars = medium costs, 3 stars = high costs Other related costs include costs of personnel for maintenance, testing, inspection, control, development of the device / technology and costs for the management hospitalization processes and risks (illness, accidents)
(Expected cost savings due to) economies of scale/potential market volume	1 star = (low) solution is specific for procurer 2 = (medium) solution is relevant for all public and private procurers 3 = (high) solution is relevant even for individual buyers
(Current level of costs due to) supply side concentration	1 star = (low) current orders spread over more than 6 suppliers 2 stars = (medium) current order spread over 4-5 suppliers 3 stars = (high) current order spread over less than 3 suppliers
Potential to reduce supplier lock-in costs by expanding the world wide supply channel and tapping into skills of new providers	1 star = (low) hyper-specialized skills and poor industrial liveliness at national and international level 2 stars = (medium) multi-disciplinary skills and poor industrial liveliness 3 stars = (high) multi-disciplinary skills and high business dynamism
(Current costs due to) lack of open standards and interchangeability	1 star = (low) open standards exist that ensure interchangeability and supply undifferentiated from different suppliers 2 stars = (medium) absence of open standards and partial interchangeability of the devices manufactured by different vendors 3 stars = (high) presence of non-interchangeable proprietary solutions

Expected improvement of quality of the hospitalization and treatment services perceived by citizens and medical personnel	1 star = (low) the need is identified by the (internal) personnel but has no impact on the quality of the public service offered 2 stars = (medium) the need is identified by the personnel and has partial impact on the quality 3 stars = (high) the need is shared by patients and the benefits of solving the need and related cost savings have an immediate impact on raising the perceived quality
Clinical risks and technical complexity	1 star = (high) product has a direct and major correlation with the patient's health problem 2 stars = (medium) product has a direct correlation, but secondary to the patient's health problem 3 stars = (low) product improves or stabilizes, or has no effect on the patient's state of health

Source: Sara Bedin, (extract of) Innovation Needs evaluation tool, 2011

The outcome of this analysis was the following:

		Costs						Quality	Risks	
		Actual annual purchase cost of equipment to be replaced by the new solution	Actual life cycle and other related costs related to the traditional solution used and to be reduced with innovation	(Expected cost savings due to) economies of scale/potential market volume	(Current level of costs due to) supply side concentration	Potential to reduce supplier lock-in costs by expanding the world wide supply channel and tapping into skills of new providers	(Actual costs due to) lack of open standards and interchangeability	Expected improvement of quality of the hospitalization and treatment services perceived by citizens and medical personnel	Clinical risks and technical complexity	Sum
1	Automatic robotic systems for venipuncture	★	★★	★★	★	★★	★	★★★	★★	14
2	Automatic and universal bed mover	★	★★	★★	★★	★★★	★★★	★★	★★	17
3	Universal interface devices for home medical devices	★	★	★	★★	★★	★★	★★★	★★★	15

Source: Sara Bedin, (extract of) Innovation Needs ranking tool, 2011

Mid-2012 the Niguarda hospital and the Lombardy region organized an open market consultation to collect evidence from the market about the feasibility to address the three unmet needs by means of conducting a PCP. Need no. 1 received low user acceptance and was thus abandoned. The open market consultation together with the results of the business case confirmed that need no. 3 was less suitable to address at regional level because agreement among procurers across European countries is needed for getting universal interfaces for home medical equipment specified and developed and the duration needed to complete the R&D and homologation of products was 50% longer than for need no. 2. The open market consultation, complemented by an extensive market survey and in depth international patent search, confirmed a great potential to launch a PCP to address need no. 2. It also showed that it is important to take into account the whole life cycle costing in the tender procedure for the PCP to make sure that the procurer does not end up with a solution that looks cheaper at first sight (in terms of purchase cost) but proves to be more costly in the long run (e.g. due to usage, maintenance, cleaning, environmental/disposal costs etc.).

The detailed business case for need no. 2 quantified the expected benefits from proceeding with the PCP (e.g. savings cost in daily operations) versus the drawbacks of not doing it (e.g. rising costs in daily operations). This analysis was based on the following key elements:

The PCP addresses the current inefficiency of the overall service of moving hospital beds, which currently requires pushing or pulling by at least 2 (two) socio-health operators or nursing personnel. The PCP focuses on developing a new, more cost-effective automated universal medical device for moving hospital beds (and possibly also gurneys), that is easy to use and to man oeuvre for a single operator.

The average personnel cost is approximately 2400€ / month. The daily working time is 7 hours.
The estimated amount of bed movements to which the innovative mover applies is about 1600 / day.
The average (but prudential) duration of each movement is about 10 minutes. It means that a socio-health operator or nurse can do 42 shifts per day, rounded to 50 (to provide a prudential estimation).

It means that with one operator for moving each bed, there are 1600:50 = 32 operators committed full-time to bed-movements. Considering that today the bed moving is carried out by at least 2 (two) socio-health operators or nursing personnel, the estimated savings triggered by the efficiency increase in the use of personnel are equal to: 2400x32 = 76800€ / month or 921600 € / year. On top of these personnel efficiency related savings, the efficiency gains that can be achieved due to reduction of hospitalization days and reduction of injuries and accidents due to bed movements were also taken into account. The latter costs are also important: in the Niguarda Hospital alone, around ten accidents and collateral effects have been registered per year, leading to 15-20% invalidity and/or functional limitation for those who carry out bed movements.

Taking into account the investment cost in the PCP (750000€) and the expected purchase cost of the new solutions, the business case showed that the investment can be recovered in a short period of time after the PCP ends (less than a year). For the Lombardy region which co-financed the PCP, the multiplier effect of the impacts on other procurers in the region that can benefit from the same solution is also important: indeed the number of hospital beds in Lombardy is roughly 40,000 units, of which around 70% are public beds, and it is estimated that 40% of beds could need a universal movement device.

The PCP has started in 2013 with 6 suppliers in phase 1, continued with 4 suppliers in phase 2 and is currently pending finalization with 2 suppliers in phase 3. So far, the achievements confirmed the expected results that were estimated in the business case. The PCP is successfully enabling new innovative players (mainly SMEs) with better value for money solutions to become active in this market. Savings of at least 40 % are still expected through increased efficiency of hospital operations, reduction in accidents and lower costs and higher sustainability of the solutions.

Source: Sara Bedin, Extensive case description on INSPIRE project website: http://inspirecampus.eu
http://www.ecoprocura.eu/fileadmin/editor_files/images/EcoProcura_2014__Sara_Bedin_TEH_Ambrosetti.pdf
http://www.regione.lombardia.it/cs/Satellite?c=Avviso&childpagename=Regione%2FWrapperAvvisiLayout&cid=1213508474292&p=1213508474292&pagename=RGNWrapper

2.6 Open market consultation

2.6.1 Why it is important to consult the market

For those needs with a positive business case an open market consultation should be organized with all potentially interested bidders. This enables the procurer to cross-check before initiating the procurement, how realistic he has built his view on:
- the prior analysis and regulatory / standardization environment
- the desired minimum requirements for the innovative solutions
- the main assumptions in the business case
- the key contractual set-up and conditions for the procurement

The market consultation is important in several ways:

- It provides feedback on how to raise interest from the market to answer to the upcoming call for tender and what players on the market are more likely to respond. The open market consultation makes potentially interested bidders aware of the public procurers' needs;
- To cross-check the procurer's analysis of the prior art/IPR and standardization/regulatory environment which confirms the choice of the procurement approach (PCP or PPI): The open market consultation helps validate the innovation potential of the identified need/challenge. It confirms whether there is already a solution already available on the market with the desired functionality/performance requirements (no PCP or PPI needed), or whether still incremental innovation is needed to bring solutions to the market (PPI can then be used) or whether radical innovation/R&D is needed to bring it to the market (PCP can then be used). Together with the analysis of the prior art and the IPR search) this will provide the legal justification for the choice between a PCP and a PPI procurement;
- To clarify assumptions taken by the procurers in the design of the business case: In the business case analysis the procurer has taken several assumptions (maximum costs, expected benefits, possible risks, time-to-market) that determine the success of the project. The open market consultation enables the procurer to cross-check the project feasibility in terms of whether the market is able to deliver new solutions that meet the expected minimum functionality/performance requirements (the expected benefits) within the foreseen time schedule and budgetary limits (expected costs in the business case); The open market consultation also informs the procurer about the risks and benefits of the various technological solutions that are available on the market or that are being developed;
- To cross-check the feasibility and market acceptance of the envisaged contract set-up: The open market consultation enables the procurer to cross-check the market acceptance of key contractual conditions it is envisaging to use during the procurement (e.g. the IPR conditions). Secondly, it can verify with the market whether it is a good idea to split the contract into lots or not and to assess what are possibility interdependencies between lots. It can provide feedback about which test setup is most suitable for the procurement to check whether vendors are achieving the expected impacts or not. It can confirm whether the time foreseen for conformance testing, deployment and possibly bug-fixing to stabilise initial deployment is realistic. The open market consultation will also provide feedback on what would

be a suitable minimum number of vendors to engage with, to reduce the risk that nobody can deliver a working solution.

Figure 3 – Outcome of the open market consultation[30]

(1) Improvements are needed but don't require new and significant R&D (only integration, incremental adaptations and improvement, customization or non-R&D type innovation such as organisational/process innovation…), so procurer can immediately act as early adopter of innovative commercial end-solutions newly arriving on the market

(2) There isn't any solution on or close to the market and the challenge to be addressed is so technologically demanding that a radical and breakthrough new solution and significant R&D is needed.

Whereas an IPR search can complement the market consultation exercise, it is most suitable to already undertake an IPR search before starting an open market consultation so that the procurer:
- is aware about potential IPR sensitivities on the supply side and
- can consult the market during the open market consultation about a need for which the functional/performance requirements are already formulated so that potential blocking IPRs issues have already been countered (see section 2.3 - prior art analysis and IPR search).

2.6.2. How to organize an open market consultation

In order for the open market consultation to result in a clear overview of the suppliers' potential to provide innovative solutions, keep in mind that:

- the identified needs must be communicated **openly** and **clearly** to all potentially interested bidders, by means of performance/output based specifications (see also section 2.3.1 above);

[30] See INSPIRE – International Network Supporting Procurement of Innovation via Resources and Education, "A brief introduction on innovation procurement", available at http://inspirecampus.eu/wp-content/uploads/2014/10/INSPIRE_A_brief_introduction_on_innovation_procurement3.pdf.

- specific technologies that the procurers have already become aware of (prior art analysis) should be mentioned by means of examples;
- the suppliers should be allowed sufficient time to ask questions and provide their views on the progress of ongoing product development and the feasibility of the proposed procurement approach;
- the announcement of the open market consultation has to specifically mention the desire for an innovative outcome.

Open market consultations are expressly regulated under the public procurement directives. Compliance with TFEU principles (equal treatment, transparency, non-discrimination, proportionality) is a must. In this respect, special attention must be paid to the possibility that the market consultations does not lead to situations that favor the companies involved in the open market consultation, thus distorting competition during the subsequent procurement. To avoid the risks of distorting competition and to encourage a good feedback from the market, keep in mind that:

- the public procurer needs to pro-actively communicate its needs, requirements and its planned procurement set-up to all participants in the open market consultation;
- the participation of a potential bidders in the open market consultation must not affect competition in any future tender procedure; any information which potential bidders receive during the open market consultation must be shared also with other potentially interested bidders via publication of questions and answers ('Q&A') docs after the open market consultation that are to be referred to within the tender documentation;
- legal assurances must be put in place that all participants' intellectual property rights (IPRs) and trade secrets will be protected, or that they will be entitled to due compensation in case of breach of confidentiality obligations by the public procurer;
- it is mandatory that potential bidders understand that the competitive phase of the public procurement procedure is conducted separately after the open market consultation and all potential bidders are treated equally; this statement should be included in any invitations to open discussions.

A well conducted market consultation will provide the necessary basis for starting the procurement.

EXAMPLE of open market consultation

- PRO LITE project-

In 2014 Transport for London started open market consultations to get feedback from the market about its plans to deploy more energy efficient lighting systems for the London metro system. This exercise was conducted in the context of the EU funded PPI project PROLITE (for more information regarding the business case in this project, please the example on page 64).

The PRO-LITE project implemented a novel Early Market Engagement strategy in 2014, with a view to driving competition and stimulating innovation within the lighting market across Europe. The strategy was based on a market engagement prospectus (available here: http://www.prolitepartnership.eu/wp-content/uploads/2014/02/CLOSED-PRO-LITE-Market-Sounding-Prospectus.pdf) and included presenting

at Europe's largest lighting conferences, as well as the development and use of online submission tools, including questionnaires, through which manufacturers and suppliers were able to outline information on their organization's capabilities, innovative technologies, and their experiences working with others to innovate. Furthermore, in mid-2015 Transport for London (TfL) hosted a 'Suppliers Morning' event to engage with potential suppliers of lighting innovation face to face. TfL invited over 60 lighting manufacturers and suppliers that responded to their market engagement e-Form, as well as representatives from Europe's Lighting Industry Association who helped the organization to acquire information on almost 300 innovative lighting technologies.

Due to the wide-ranging method used to organize the market engagement exercise, PRO-LITE partners have engaged over 100 lighting manufacturers and suppliers at lighting conferences and other events, and received written information from organizations based in over 10 countries from across Europe, North America and Asia. Outcomes of the market engagement include:

- The project received information on on all Product Types of interest to TfL (over 350 lighting products) from over 70 different manufacturers and suppliers (equivalent to approximately 25% of the known European suppliers);
- The annual turnover of organizations that responded ranges from £0 – 4 billion per year, which showed a broad representation of the market;
- 35% of the market sampled have been trading for less than 10 years, and over 75% less than 50 years;
- Information on LED technologies dominated the response (97%);
- Two-thirds of LED products are sold with 5 years warranty or more, and 90% are sold with 3 years or more;
- 70% of LED products are sold with the CE marking, and just under 30% have both the CE and ENEC markings;
- 79% of manufacturers rely on other suppliers/manufacturers for parts;
- 90% of manufacturers registered for ISO9001;
- 93% of manufacturers believe their products are eligible for the UK governments Enhanced Capital Allowances Scheme (and registering product where possible);
- 90% of manufacturers would be willing to develop a bespoke lighting technology for TfL for which TfL would own the Intellectual Property Rights;
- TfL was provided with much more informed view on quality and limitations of the technologies available on the market (e.g., strengths and weaknesses of products & organizations).

The expertise gathered though the early market engagement exercise was used to inform the procurement processes employed during and beyond the PRO-LITE project life-cycle, namely to develop the performance requirements, the technical specifications and the procurement documents. The project decided to initiate a procurement for products that demonstrate the best Whole Life Cost and Performance. The procurement was organized as a 3-step process:

- Step A: Pre-qualification – 50+ suppliers responded

- Step B: Invitation to Tender Paper Assessment (took place in late 2015)
- Step C: Invitation to Tender *In Situ* Assessment (took place in early 2016)

TfL will award 8 year framework contracts for the long-term supply of lighting products that are set to save the organization millions. The PRO-LITE project's drive for pro-active collaboration with the lighting market (demonstrated by the way the market engagement was conducted) and across TfL, has been the key to the successful procurement of innovative lighting technologies.

Uniquely, a Whole Life Cost analysis and 'hands on' assessment were conducted as part of the procurement process (see info on the business case analysis for Tfl procurement on page 57-59). As a result, the implications on future operating expenditure (OpEx) of a more standardized set of fit-for-purpose lighting products were determined.

Implementing the PRO-LITE approach for other technologies is expected to substantially reduce Whole Life Costs for TfL – including unparalleled future reductions in energy use.

The long-term supply contracts for lighting were awarded in June 2016.

Source: http://www.innovation-procurement.org/news-events/news-archive?c=search&uid=8956c2b7; http://www.prolitepartnership.eu/wp-content/uploads/2015/10/PRO-LITE-PPI-presentation-in-Paris.pdf; and http://www.prolitepartnership.eu/news/

For more insights and a case example on how to conduct an open market consultation in line with the legal framework, please see the section on 'how to conduct market consultations' available in Module 3. For more insights and a case example on how to conduct an open market consultation in line with the legal framework, please see the section 2.6 in Module 3.

2.6.3 Selecting the appropriate dialogue method for the open market consultation

A successful open market consultation requires efficient time planning and effective resource allocation. In a nutshell, it requires:

- the preparation of several documents aimed at informing the market of the public procurer's intentions and needs (e.g. open market consultation document explaining the need and planned procurement setup, PIN announcing the open market consultation and possibly a questionnaire etc.);
- identifying the right market segments and effectively promote the open market consultation to them (i.e. both suppliers that traditionally answer procurers' needs as well as suppliers from other sectors should be invited to the dialogue to capture innovative ideas coming from other sectors);
- involving experts who can lead the discussions and subsequently interpret the results of the market consultation. It is recommended that a multi-disciplinary team from the public procurer is involved, including a project manager, a technical expert in charge with the description of the technical specifications to be included in the market consultation document, a legal expert responsible for ensuring the conduct of the market consultation in full compliance with TFEU and public procurement principles and a data analyst.

- selecting the dialogue method that best suits the objectives of the public procurer and the best communication platform that is easy to reach for all stakeholders involved; Various dialogue methods exist to conduct an open market consultation, including holding physical plenary meetings such as "meet the buyer" events or industry days in combination or not with more focused workshops, or market surveys, or online webinars or online buyer - industry market consultation platforms.

EXAMPLE of open market consultation

Planning poker technique in the Smart@Fire project

The need that SMART@FIRE wanted to cross-check with the market was:

We are looking for a solution that allows
to monitor and measure the environment (persons, equipment, external conditions)
to determine the hazard-level (safe, hazardous, threatening)
by both passive (running in background) and active (deployed on demand) systems
that translate in alerts or alarms being given
and accordingly adjust the safety by whatever means necessary e.g. textile
so that safety and comfort are optimally balanced
irrespective of the context (fire in building, fire in forests, highway interventions,…)

As the Personal Protective Equipment (PPE) for fire fighters requires a mix of technical skills (e.g. not only from ICT both also textiles companies), SMART@FIRE conducted an open market consultation with companies, R&D organizations, research centers and industry sector organizations from all these different branches. A communication plan was set-up in order to attract relevant stakeholders to the open market consultation sessions. The following actions were taken to attract relevant stakeholders:
- announcement of the open market consultation via a Prior Information Notice (PIN) in TED and in national official journals;
- mailing to contacts from the databases of the project partners;
- phone contact with companies that were identified during the state-of-the-art studies;
- flyers and presentations at various industry events;

All communication was done in three languages: English, French and Dutch.
In total 300 companies and Research centers attended the different market consultation sessions that were held in 3 different countries. Each of the 3 new functionalities identified as particularly relevant by the fire fighters in the needs identification exercise was discussed with potentially interested bidders during these open market consultations:

- a **localization** of the firefighter and his team, in buildings and open areas, displayed on a map, made available to the firefighter and the intervention coordinating officer.
- **Remote parameter monitoring and historical logging**, making the info accessible via an intuitive dashboard for the officer (e.g. a map), enriched with the status of the team, their PPS, and the environment, enabling to set thresholds, generate (automatic) alerts.
- Monitoring the environment, more in particular **temperature, temperature evolution, hotspot detection and presence of explosive gasses**.

- General requirements as robustness under mechanical friction, maintenance, repair, cleaning, with easy mounting/dismounting of the ICT and ideally with self-assessment.

The vendors were presented with the use cases worked out at the needs identification and assessment stage. The planning poker technique was then used in the open plenary discussions to collect different vendors' opinions on key questions meant to assess the innovation potential from a technological perspective. The planning poker technique allows the procurers to obtain information in such a way that none of the vendors has to reveal to competitors details of his solution idea or business strategy.

The planning poker technique is a debate moderation technique in which vendors are given cards with numbers on (like in the poker game) and they are asked to reply to different statements/questions from the procurer by holding up a card: a card with a high number means the vendor agrees very strongly with a statement made/question asked by the procurer, a card with a low number means the vendor agrees only to a small extent with a statement made/question asked by the procurer.

The planning poker technique enabled the procurers to use the open market consultation to verify with the market whether the assumptions of the business case were set realistically (e.g. feasibility of reaching the desired functionality/performance improvements within the planned time and budget, level of complexity of different solution approaches, required implementation effort and testing set-ups etc.). It delivered also a better up-front understanding of what the positive/negative impact would be if one of the key assumptions in the business case were to change during the project (best/worst case analysis).

Source: Addestino website: www.addestino.be

2.7 Intellectual Property Rights and confidentiality strategies

2.7.1 Understanding IPRs in the context of innovation procurement

Both PCP and PPI confront procurers with the issue of the management of intellectual property rights (IPRs) and confidentiality. The procurer's approach to IPR and confidentiality is important in several ways:

- it impacts suppliers' interest to participate in the innovation procurement;
- it prevents breach of third party rights;
- it ensures suitable return on the investment (particularly in case of large budget procurements).

PCP and PPI are distinct from other forms of public procurement, in terms of IPR handling, because they involve either the research and development of innovative solutions (PCP) or the early use or adoption of such technologies (PPI). While innovative solutions may often include *tangible* components, such as computer hardware, or various other electronic devices, these technologies - including any software - are also subject to a great number of *intangible* rights.

Because of their high value, the question of IP ownership is a crucial issue to be addressed by public procurers when engaging in innovation activities such as PCP and PPI.

These intangible rights, or IPRs, take various forms, as summarized in Table 1 below. All IPRs provide their owners with some degree of exclusivity and control over the protected innovation, and are therefore often highly valuable assets. In addition to IPR, information assets may also be protected by trade secret law, which is a contract-based protection regime complementary to IPR. When public or private partners release confidential information to each other during an open market consultation, in the course of joint R&D effort or during negotiations, Non-Disclosure Agreements ('NDAs') often regulate how that information may be used. It is essential that public procurers are attuned to the necessities of trade secrets in addition to IPR (section 2.7.3 below).

This chapter informs public procurers about the roles and good management of these various assets and instruments of IPR and trade secrets, via practical case examples. By understanding IPR management and exercising appropriate care, the public procurer will avoid risks of infringing Third-Party Rights and will maximize the benefits from PCP/PPI.

EXAMPLE of guidelines on IPR strategy

UK's Defense Procurement Agency ('DPA') has defined in 2003 a guide to intellectual property law and practice, in which it explains the different IPR strategies in procurement, depending on Ministry of Defense (MOD)'s needs and goals.
Within DPA, a dedicated team (the Intellectual Property Rights Group (IPRG)) deals with all IPR matters throughout MOD. IPRG's professional staff are graduate scientists or engineers, trained as IPR specialists up to the level of Chartered Patent Agent and European Patent Attorney.

Source: The UK Ministry of Defense Guide to Intellectual Property (September 2013)

Module 3 addresses in more detail the mitigation of various IP-related risks, such as vendor lock-in, which may arise from the use of IPR-protected innovations, via a summary of advanced IPR management tools and various legal clauses which can be implemented in PCP and PPI contracts (see section 2.7 on IPR strategies in Module 3).

2.7.1.1 Intellectual property

Before discussing the specific IPR-related issues which arise in the context of PCP and PPI, it is important to briefly describe the nature of the various IPR regimes. The different types of IPR available are set out in table below.

IPR Type	Duration (y)	Applicability	Costs (€)
Copyright	Life + 70	Automatic	N/A
Patent (European)	20	On registration	≈25k
Registered Design	25	On registration	≈1.5k
Database right	15	Automatic	N/A

IPR Type	Duration (y)	Applicability	Costs (€)
Trademark (EU)	N/A	On registration	≈2.5k
Trade secret (not IPR)	N/A	By contract	N/A

As is clear from the above table, there are six main IPR regimes. Of the six, trade secrets are not normally classified as 'IPR' since their function and operation differ in important ways: they normally require contract law for their enforcement and they do not normally provide the kind of exclusive rights entailed by the other rights. This will be discussed further in a sub-section below.

Moreover, the other traditional IPRs require some kind of threshold (whether '*originality*' in the case of copyright, or '*novelty*' in the case of patents) in order to be issued. Sometimes IPR issuance is automatic - as in the case of copyrighted works, like software and literature - where copyright automatically adheres to all creative works meeting the threshold. In other cases issuance requires a formal registration entailing (significant) costs, as in the case of patents. While patents are available for inventions of a technical character, and which possess the requisite levels of 'novelty', 'inventiveness' and 'industrial applicability', copyright only requires that the creative work is 'original' and set down in a tangible medium.

In addition, traditional IPRs such as patent, copyright and trademark are generally fully disclosed to the public domain, meaning that the essential qualities of the protected subject matter are made available for public inspection. Public and third party use of IPR is however curtailed by the requirement of needing a 'license' in order to use the IPR productively.

These essential attributes of IPRs will form the basis for the detailed discussion of their use and management in the context of PCP and PPI, set out below.

2.7.1.2 Legal regimes around IPR management for PCP and PPI

The legal regimes for PCP and PPI differ in important ways and have different purposes. While both are effectively demand-side instruments directed at greater innovation and diffusion, each one engages in the innovation process at different points in the product life-cycle. As will be shown below, the differences in these regimes have important consequences for the allocation and management of IPR.

EXAMPLE of guidelines on IPR strategy

"Ministry of Defense (MOD)'s standard policy in regard to IPR resulting from contract work (for all types of procurement contracts, including both PCP and PPI type contracts) is to place ownership of these results in the hands of the contractor, whilst securing a free license to use the results for the normal purposes of internal use and of competitive contracting in favor of goods and services needed by MOD.

For contracts that finance R&D, MOD can secure a right to commercial exploitation levy for hardware or software developed under MOD contract, payable when the contractor exploits these by making

commercial sales of the product or by licensing them for production or use by anyone else." In some contracts MOD uses this exploitation levy, in other contracts it doesn't.

Source: The UK Ministry of Defence Guide to Intellectual Property (September 2013), p.17.

PPI

PPI engages in the product life-cycle near the end: PPI does not procure R&D and the role of the public procurer is as a *first buyer* or early adopter of an innovative solution. The purpose of PPI is to help 'pull' the technology towards successful widespread commercialization, by the public procurer acting as first customer. The public procurer therefore performs the role of a 'launchpad', by helping to spear-head a new market for the innovative solution.

As PPI focuses on close-to-market innovations, the potential suppliers may have already successfully performed all R&D to satisfy the procurement need and will have prototypes, beta-testers, or even first commercial solutions in small quantity available. As a consequence, there may be already a lot of IPR owned by potential bidders that have already performed R&D before entering the PPI contract (background IPR).[31] However, there may also be cases where potential bidders still need to do some development work 'in the run up to' the procurement to be able to submit an offer with a solution that meets the customer requirements (e.g. integration, adaptations, scaling up production etc.) or cases where vendors keep on improving their solutions 'during' the procurement. These development activities may also generate IPR, although it is important to stress that these activities (and thus also the attached IPRs) as such are not the subject of the PPI procurement (they are 'sideground' IPR) because only the resulting outputs i.e. the solutions, are procured.

From an IPR perspective, the PPI contract aims to provide the public procurer with licensing rights to background or sideground IPR generated by contractors. In cases where further IPR is generated during the PPI procedure, then these rights will also generally be owned by the party generating the IPRs[32], but may be subject to alternative ownership or licensing terms as discussed in a sub-section below.

PCP

Compared to PPI, PCP engages in the product life-cycle at the starting point of R&D, so well before commercialization. Unlike in PPI under a PCP, procurers procure R&D services: they pay for R&D services to be performed to develop innovative solutions according to their requirements. As PCP focuses on R&D services, PCP contracts definitely need provisions for IPR generated in the contract (foreground IPR).

PCP falls outside the scope of the public procurement directives[33] because the procurer does not reserve all the benefits of the R&D exclusively for himself: namely, there is 'sharing' of IPR rights that result from the R&D. Each R&D provider participating in the PCP retains the ownership of the IPRs it generates in the PCP, provided the public procurer receives a 'free use' license in return, as well as a right to license or to

[31] Also PPIs that are about non-technological innovation may generate new IPR during the PPI.
[32] It is of course also possible that the procurer itself generates IPR that will be owned by itself.
[33] Article 14 of the Public Sector Directive 2014/24/EU and, respectively, article 32 of the Utilities Directive 2014/25/EU and Article 13(f)(j) of Defense sector Directive 2009/81/EC

request the R&D provider to license the IPR to third parties on non-exclusive, fair and reasonable market-based terms and conditions, as will be discussed further below (section 2.7.2.2).

The scope of the 'free use' license is generally limited to internal use only within the public procurer, and only extends to the IPR embodied in the 'pre-commercial' R&D outputs (i.e. the 'Foreground IPR', see section 2.7.2). As already mentioned, if the public procurer wishes to also purchase resulting innovative solutions on a large scale basis once they have been developed commercially, then a separate procurement- often in the form of a PPI- is necessary. These issues will be discussed further in the two following sub-sections.

The European Commission considers PCP not to contain State aid when the price paid for the PCP is the market price for the R&D services procured under the tendering conditions announced in the call for tender documents. To enable this, the following conditions contained in Article 33 of the EU State aid Framework on R&D&I apply:

i.) the selection procedure is open, transparent non-discriminatory;

ii.) the envisaged contractual arrangements describing all rights and obligations of the parties, including with regard to IPR, are made available to all interested bidders in advance of the bidding procedure,

iii.) the procurement does not give any of the participant providers any preferential treatment in the supply of commercial volumes of the final products or services to a public purchaser in the Member State concerned,

iv.) any provider to which results giving rise to IPR are allocated is required to grant the public purchaser unlimited access to those results free of charge, and to grant (upon request of the procurer) access to third parties, for example by way of non- exclusive licenses, under market conditions.

Keep in mind that the value of IPRs can be significant compared to the price of the R&D service procured. Therefore in order to receive comparable bids and ensure that the procurer can thus establish the correct market price for the PCP, the rights and obligations of the parties with regard to IPR (including the terms and conditions of IPR ownership and licensing) have to be made available to bidders before the bidding for the PCP contracts begins by being published in the PCP call for tender documents.

In order to preclude any doubt regarding compliance with the State aid rules, when leaving IPR ownership rights with participating R&D providers, the correct market price paid for a PCP should be lower than the price paid for the same R&D service under exclusive development conditions. There should thus be a financial compensation (at market conditions) to the procurer for the allocation of IPR ownership rights to the participant providers that reflects the market value of the benefits received (IPR ownership rights) and the risks assumed by the participating providers. The financial compensation should reflect the commercialisation opportunities opened up by the IPRs to the company, the associated risks assumed by the company comprise for instance the cost

carried by the company for maintaining the IPRs and commercialising the products.[34] The procurer can request the financial compensation for leaving IPR ownership with the R&D providers in the form of an ex-ante compensation (price reduction on the price for performing the R&D during the PCP) or an ex-post compensation (royalties on sales/profits made by R&D providers by commercialising R&D results that are generated during the PCP e.g. from selling products or licensing out IPR).

EXAMPLES of approach for ex-ante financial compensation for leaving IPR ownership with R&D providers in PCPs to procure at market price

In a number of countries (Sweden, Austria, Netherlands, UK, Norway etc.) as well as in EU funded PCPs so far, the ex-ante financial compensation mechanism is used.

The Swedish guidelines for PCP recommend procurers to request bidders to indicate two prices in their offers: (1) the price that would have been quoted in case the IPRs would have been allocated completely to the procurer and bidders would have therefore had no opportunity to exploit the project results; (2) the price that is quoted with the current allocation of IPR related rights as in the PCP, where contractors retain their IPR ownership and can exploit the project results. By setting these two prices bidders put an estimated market value on the IPR that the project could lead to, the difference between the two prices. This difference that bidders don't get, and thus 'pay' themselves, is the ex-ante financial compensation.

Source: Swedish guidelines for PCP, VINNOVA, http://www.vinnova.se/upload/EPiStorePDF/vr_13_09.pdf

All EU funded PCP projects so far (12 in total) have used the mechanism of the ex-ante financial compensation for leaving IPR ownership with R&D providers in their PCP. Typically these PCPs request R&D providers to quote two prices in their offer to visualize the price reduction that is offered by R&D providers on the price for performing the R&D in the PCP: the virtual price that they would have charged in case IPR ownership would have remained with the procurers and the real price that they charge now that IPR ownership is left with R&D providers. The Horizon 2020 templates for PCP tender documents requests procurers to ensure that the price award criterion has a significant weight (minimum 20%) in the evaluation of tenders.

Source: http://ec.europa.eu/research/participants/data/ref/h2020/other/gm/h2020-request-tenders-pcp_en.odt

EXAMPLES of approach for ex-post financial compensation for leaving IPR ownership with R&D providers in PCPs to procure at market price

[34] European Commission staff working document on PCP, SEC(2007)1668

Some procurers in Italy, Spain, Denmark and UK used the ex-post financial compensation mechanism.

The Lombardy region uses the ex-post compensation mechanism for leaving IPR ownership with R&D providers in its PCPs. In order to treat all suppliers equally fair, the procurer fixes in the tender documents the percentage of revenues it claims. In case of the Niguarda hospital PCP the procurer estimated that a 1% levy best reflected for this case the market value of leaving IPR ownership with R&D providers compared to the risks assumed by the R&D providers versus the procurers (amounts invested in R&D, commercialization of the resulting products and maintaining the associated IPRs). The PCP contracts with suppliers foresee the possibility for the procurer to monitor during and after the PCP (e.g. via monitoring of ongoing contract implementation and after-contract audits) the IPR/commercialization approach and revenues obtained by vendors. The money retrieved from the ex-post compensations is collected in a regional fund with the objective to finance future PCP and PPI procurements in the region.

Source: For extensive case description Lombardy case, see: http://inspirecampus.eu http://www.ecoprocura.eu/fileadmin/editor_files/images/EcoProcura_2014_-_Sara_Bedin_TEH_Ambrosetti.pdf,(slides) http://www.arca.regione.lombardia.it/shared/ccurl/497/198/ARCA_2013_02_Disciplinare.pdf (tender documents) http://www.forumpa.it/merito-innovazione-ed-efficienza/procurement-pcp-per-lo-sviluppo-di-sistemi-intelligenti-la-best-practice-di-regione-lombardia (in Italian)

SERGAS (the Galician Public Health Service) conducted a PCP to develop prognostic tools for stage 2 cancer patients. In this PCP it has also allocated IPR ownership rights to the companies in its PCP in return for a percentage of the net profits of the commercial exploitation of the R&D results developed during the contract, which cannot exceed 20%. This facilitates company sales and development in the healthcare and biotech sectors, an industry particularly concerned with IPR rights. Nevertheless, SERGAS keeps the option to retrieve the ownership of the IPR rights in the case that the company does not exploit the R&D results commercially within 5 years, thus ensuring public availability of the technology.

Source: http://inspirecampus.eu/wp-content/uploads/2015/04/09.Amadix-PCP-Opportunity-for-the-Industry-Compatibility-Mode.pdf

Source: http://publications.jrc.ec.europa.eu/repository/bitstream/JRC94502/jrc94502.pdf

The UK Ministry Of Defence uses a list, published on the MOD website, with pre-defined percentages of levies MOD can request in different types of contracts. Using percentages that are pre-defined by MOD ensures that all contractors in similar contracts are treated equally fair in terms of the level of ex-post financial compensation they have to provide to MOD for retaining their IPR ownership. The levy is collected as a levy on sales below a predefined amount and as a levy on profits above that amount.

Source: The UK Ministry of Defence tactical toolkit on IPR

2.7.2 Ownership and Licensing of Intellectual Property

2.7.2.1 IPR ownership

Before discussing ownership regimes of IPR we first need to identify ‘Background IPR’, ‘Foreground IPR’ and 'Sideground IPR'.

'Background IPR' refers to the pre-existing intellectual property and trade secrets produced before the project and which the parties (procurer and vendors) bring to the PCP or PPI procurement, and which may be built-upon, modified or improved during the procurement.[35] In the vast majority of cases, Background IP always remains the property of the party who generated it. Given this, access rights may need to be granted to public procurers to ensure they are able to conduct the activities they are involved in during the PCP/PPI project (e.g. analyzing and testing of solutions) and to use the PCP/PPI results which incorporate Background.

'Foreground IPR' refers to the intellectual property and trade secrets produced in and during the PCP or PPI. Foreground IPR is IPR that is attached/linked to the tangible results generated during the procurement (Foreground IPR are the intangible results generated during the procurement).

'Sideground IPR' refers to intellectual property and trade secrets produced during the period of the PCP/PPI procurement but not in the activities covered by the PCP/PPI procurement contract itself. In the vast majority of cases, Sideground IP always remains the property of the party who generated it. Given this, access rights may need to be granted to public procurers to ensure they are able to conduct the activities they are involved in during the PCP/PPI project (e.g. analyzing and testing of solutions) and to use the PCP/PPI results, which incorporate Sideground IP.

The case of PCP

Provider IPR ownership

As already mentioned, PCPs allocate the ownership of Foreground IPR generated by participating R&D providers to those R&D providers. All Background IPR remains normally the property of the party that generated it, whether that is a participating R&D provider or the procurer. However, there may be licensing obligations relating to Background IPR in a PCP, as will be discussed in the sub-sections below.

IPR call back clause

Because the purpose of PCP is to encourage both the development and diffusion of innovative solutions, PCP contracts often include an obligation to commercialize the R&D results generated in the PCP. A so-called 'IPR call-back provision' provides that if an R&D provider that participated in the PCP abuses the IPR that it generated in the PCP (foreground IPR) against the public interest or fails to commercialize the R&D results that it generated in the PCP within a certain time-frame defined in the PCP contract,[36] the ownership of foreground IPR shall revert to the public procurer. The public procurer may then choose to auction-off the foreground IPR or instead engage in licensing the foreground IPR itself, in order to stimulate commercialization of the R&D results.

[35] Also sometimes referred to 'side ground' IPR in the Horizon 2020 PCP/PPI request for tender template.
[36] Generally set at a 'reasonable time' of between 4 to 5 years after conclusion of the PCP project.

The case of PPI

In PPI, different IPR ownership regimes may apply, depending on the character of the IPR asset at stake.

PPI – provider IPR ownership

In case of for example the procurement of innovative software, the public procurer could simply be procuring a *license* to the software rather than any ownership rights. If the asset procured by PPI also includes tangible components (e.g. an Internet router), then it is usual for the IPR licensing costs to be bundled inside the overall price.

Since the provider retains ownership of the IPR in this scenario, it is free to continue to market the solution, as well as continuing to invest in, debug and develop the solution, as well as further serve the public procurer by potentially offering maintenance services (sometimes included in the PPI contract).

PPI – procurer IPR ownership

In certain 'duly justified cases'[37], usually involving critical ICT infrastructure or Defense-related projects, the public procurer may wish to retain ownership of foreground IPR in order to maintain sole control over the procured asset. In such case, the price paid by the public procurer for this exclusivity would normally be considerably greater since it would include the IPR-assignment fee. Public procurers may have interest in retaining ownership over the PPI solution if it incorporates highly sensitive information or may have national security consequences if it was disseminated, or if the provider is not able to commercialize the solution, for example due to the high customer specificity of the solution (lack of wider market).

Furthermore, where security or confidentiality reasons prohibit dissemination of the PPI solution, the public procurer might be advised not to apply for registered IPR (such as patents), but to maintain all knowledge internally as trade secrets and confidential information, regulated by contract (such as Non-Disclosure Agreements, see Section 2.7.3).

2.7.2.2 IPR Licensing

Equally important to the issue of IPR ownership is access to the IPR and any relevant trade secrets. Such licenses set the scope of the public procurer's usage rights (and that of any other relevant parties) in the innovative solution arising from either PCP or as a result of a PPI.

PCP licensing

Access rights to the R&D results

Under PCP, the public procurer should obtain a 'free use' license to the PCP R&D results. Generally, this license is restricted to 'internal use' only, and does not include the right to sublicense. This 'free use' license does not apply to all types of IPR: it only applies to the Foreground IPR.

[37] See http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/annexes/h2020-wp1415-annex-e-inproc_en.pdf.

Under PCP, the public procurer should retain also the right to oblige the R&D provider to grant non-exclusive licenses to third parties under fair and reasonable market conditions, as discussed below.

To remain an R&D services contract, the PCP may include the purchase of supplies or may require a 'free use' license also on R&D results that qualify as supplies (such as the 'limited' volume of prototypes or first test-products resulting from the R&D) when this is needed for the provisioning of the R&D services and required by the procurement need of the buyers group. For example**,** a traffic management authority may need to acquire more environmentally-friendly tarmac that was developed and installed during the PCP on a test strip of the road, because the old tarmac was destroyed during the PCP in order to test the new variant and the traffic authority needs to carry out further testing on the tarmac after the PCP is done. Please note that the purchase of supplies or licenses to supplies as a result of an R&D contract does NOT extend to 'quantity production' or 'supply to establish commercial viability or to recover research and development costs'. Supplies can also NOT constitute the majority of the PCP contract value. The public procurer should keep in mind that although its free use license may permit use of the IPR-protected prototypes/test-products, these will normally not be equivalent to the full commercial version (the full commercial version of the final end-products may manufactured and packaged via a different mass production process and may include additional features for maintenance, guarantees and a service contract), and thus to obtain such commercial volumes of end-products a subsequent procurement (in the form of a PPI) would still be required.

Furthermore, it should be emphasized that the 'free use' license only relates to the Foreground IPR, and that in many cases the PCP R&D results will also rely on significant Background IPR. The public procurer will also require access to Background IPR in order to make use of the Foreground IPR resulting from the PCP. It is best practice for public procurers to include a clause in the contract requiring the Background IPR to be licensed on Fair, Reasonable and Non-Discriminatory terms ("FRAND"). More detailed clauses may also be defined, related to access to Background IPR for different purposes, such as commercial use, non-commercial use, design and implementation uses etc. These clauses should nevertheless be published together with the contract notice before the start of the PCP.

Mandatory licensing to third parties under FRAND

The Framework on State Aid for R&D&I requires that PCP contracts also include a clause requiring the participating R&D providers to give non-exclusive licenses on its Foreground IPR to third parties upon request of the procurer. The purpose of such a clause is to safeguard a competitive supply chain for the public purchaser. It may be used for example to ensure that other providers working for the procurer that need access to the IPR to work for the procurer can to do so, and thus to prevent the formation of monopolistic licensing practices ('vendor lock-in'). Such licenses are not required to be 'free use', but under FRAND terms and according to 'market conditions'.

Note that for what regards the usage rights, every provider that participates in the PCP is 'always' 'automatically' required to grant the public purchaser license free rights to its results (foreground that the provider creates during the PCP) free of charge. This ensures that the public purchaser can use the results it has paid for free of charge for internal use.

However, for what regards licensing to third parties the providers that participates in a PCP will not always automatically be obliged by the public purchaser to grant non-exclusive licenses to third parties to exploit its results. This right of the public purchaser to require third licensing is foreseen as a safeguard and it is thus meant to be used 'only in specific situations' and 'upon explicit request of the public purchaser'.

PPI licensing conditions

A number of different licensing options are possible for PPI. Below, a selection of these is given.

Non-exclusive license (user rights)

In the case where the PPI solution is IPR protected and it is intended to be commercialized by the solution provider, the public procurer would normally require the owner of the IPR (usually the solution provider) to grant a non-exclusive license to the public procurer to use the PPI solution (also referred to as 'user rights'). This may be granted in exchange for a licensing fee bundled into the price for the procurement, or on an on-going royalty-bearing basis. The non-exclusivity of the license allows the solution provider to commercialize the solution further on the market by granting user rights to other parties.

Non-exclusive license (with right to sub-license)

In addition or alternatively to the above, the public procurer may request the right to grant 'sub-licenses' as part of its non-exclusive license, and itself grant commercialization rights to third party suppliers. If this right is included in the PPI contract it will result in having to pay a higher price to the PPI solution provider as such clauses reduce the exclusivity of the IPR owner.

For an examples on how to formulate the IPR ownership and licensing clauses in PCP/PPI contracts, see section 2.8.2 (B).

2.7.3 Trade secrets

Trade secrets play a potentially crucial role in both PCP and PPI procurements by complementing the function of IPRs in protecting sensitive information. Two of these roles will be briefly highlighted below.

Complementary protection regime when IPR is unavailable

Trade secrets may be used by participants in PCPs and PPIs for business sensitive information that cannot be protected by IPRs. As already discussed in the first section of this chapter, IPR issuance requires the knowledge asset to have certain attributes of originality, tangibility, technical character or novelty. In some cases, certain assets may lack these attributes but nevertheless be of essential value to the private partner. For example, business plans, R&D maps or trajectories, customer lists etc. are of crucial strategic importance to PCP or PPI partners, but are not able to be (usefully) protected by IPR. When such assets are disclosed to public procurers or other PCP/PPI participants, the owner of such assets seek assurances that they will not be disclosed to the public domain. In these cases, such assets are often explicitly identified as 'trade secrets' or 'confidential information' and only disclosed to public procurers or other parties upon the signing of a

contractual commitment (Non-Disclosure Agreements) that the information will be carefully handled by the recipient and not allowed to enter unauthorized hands.

Complementary protection regime when IPR is available but not yet issued

Non-disclosure agreements may also be used when IPR is available for the knowledge asset but not yet issued. For example, in the case of patents, the novelty of a patent application may be destroyed if the essential teaching contained in the patent application enters the public domain before the patent application is filed. To this end, the PCP/PPI partner may request the public procurer and/or other participants to sign an NDA to ensure that the novelty of the invention is preserved during the patent application process. Furthermore, European patent law provides a safety valve in the situation where the novelty of an application is vitiated by the unlawful disclosure of an invention following the breach of an NDA. In such cases, the 'state of the art' is effectively 'frozen' at the date of the NDA execution for a period of six months, under Art 55(1)(A) of the European Patent Convention.

2.8 Drafting the tender documentation

2.8.1 Introduction

Important aspects to be decided before drafting the tender documents are (more info in section 2.8.2):
A) Type of procedure to be followed;

B) Defining the subject-matter of the contract and the technical specifications;

C) Defining exclusion criteria;

D) Defining selection criteria;

E) Defining award criteria;

F) Deciding on the use of variants;

G) Deciding on the use of value engineering

H) Defining criteria to monitor vendor performance

The subsequent step is to draft the tender documentation. Sections 2.8.3 and 2.8.4 below outline the content of the main tender documents as applicable to a PCP and, respectively, a PPI procedure:

- Prior Information Notice (in case of PPI): to publish the intention to buy and the time by which vendors need to prove (e.g. via conformance testing / product labelling) that they can deliver solutions compliant with the procurers' requirements);
- Contract Notice;
- Request for tenders (also called Tender Regulation or Invitation to Tender);
- Procurement Contracts;
- Optional Tender Forms (these documents can help the provider in structuring their proposal; but the procurer can also decide to let the providers structure their tenders as they wish).

The detailed legal considerations related to the formulation of the tender documentation are outlined in section 2.8 of Module 3.

This section is based on practical lessons learnt from national and cross-border PCP and PPI projects implemented in Europe. A list of the PCP projects being implemented with financial support from the European Commission can be found here: https://ec.europa.eu/digital-single-market/en/eu-funded-projects. This section is drafted in compliance with the 2014 EU Procurement Directives.

2.8.2 General considerations on drafting the tender documentation

Before starting to draft the tender documentation

A) Type of procedure to be followed

Although **PCP** is exempted from the application of the Procurement Directives, the Treaty principles of open and free competition, transparency and equal treatment of providers remain applicable. This entails that the selection of the PCP participants should always be based on open competition. This condition is a precondition both for compliance with the legal requirements and for the best solution to be developed.

Using an *open-like procedure* (alike the open procedure in the EU Procurement Directives) ensures that:[38]

- The public procurer has access to the maximum choice of potential innovative solutions as any interested bidder may submit an offer in response to the contract notice published in TED;
- The time for conducting the tendering is as short as possible, as this is a one-stage procedure.
- All offers have equal chance to compete on how well they address the procurement need, as all bidders who meet the pass/fail conditions (exclusion/selection criteria) specified in the tender documents will be eligible to have their offers assessed against award criteria published upfront;
- Open tendering is very effective in attracting increased numbers of bidders, and doubling the number of bidders lowers the contract value by around 9%.[39]
- PCPs that use open tendering are presumed not to entail State aid. For other procedures that are leave more margin for discretion (e.g. negotiated procedure) this is not the case.

> "Competition is not just a formality – it is a tool for obtaining the best the market has."
> See European Commission, "Public Procurement as a Driver of Innovation in SMEs and Public Services", available at http://ec.europa.eu/enterprise/flipbook/public-procurement/files/assets/basic-html/index.html#page27

In **PPI projects**, the procurer should decide what procurement procedure to apply, in accordance with the provisions of the EU Public Procurement Directives. The information obtained during the market

[38] See article 33 of the 2014 Framework for State aid for R&D&I and the 2007 PCP Communication and Staff Working Document.
[39] 'Estimating the Benefits from the Procurement Directives'. http://ec.europa.eu/internal_market/publicprocurement/docs/modernising_rules/estimating-benefitsprocurement-directives_en.pdf.

consultation should allow the procurer to choose the right procedure. Normally, an open procedure would allow the procurer a maximum choice of potential innovative solutions. Compared to the restricted procedure, the open procedure needs shorter time[40].

The competitive dialogue may also be considered by the public procurer. This procedure is particularly suitable whenever the open market consultation didn't reveal sufficient information to enable the procuring authority to clearly define the means to satisfy its procurement need or identify what the market can offer in terms of technical, financial or legal constructions needed to deliver the solutions that fulfil its need. For example when the open market consultation, delivered mainly information on the innovation potential of the envisaged technologies and did not result in clear comparative information about different economic operators financial constructions for deploying the solutions, and this situation cannot be resolved by using the open procedure, the competitive dialogue may be used. The competitive dialogue allows the procurer to carry individual discussions with the participating economic operators based on their draft offers. Following the dialogue, the procurer may request the economic operators to adapt their offers in accordance to the public need.

In the competitive dialogue procedure, the procurer publishes a contract notice in which it defines its needs and requirements, the indicative timeframe for the dialogue, the exclusion, selection and award criteria. The competitive dialogue procedure requires that the procurer can specify its needs and the required characteristics of the goods, services or works it intends to procure (minimum requirements to be met by all tenderers) and the award criteria to select offers, in advance of the competition.
The competitive dialogue procedure involves several phases:

(i) Selection phase: the information from the bidders is assessed by the procurer against the exclusion and selection criteria published in the contract notice and a number of minimum 3 operators are invited to the dialogue stage;
(ii) Dialogue phase: the procurer discusses the technical part of the offers with the selected candidates; equal treatment of the candidates must be ensured at all times during the dialogue; the number of candidates could be reduced by applying the award criteria published in the contract notice; however, the number of candidates invited to bid for the award phase should be enough to ensure fair competition;
(iii) Award phase: after the procurer declares the dialogue phase closed, the remaining candidates are invited to submit their final offers based on feedback from the previous dialogue but no changes to essential aspects of the bids are allowed; the procurer then applies the award criteria published in the contract notice to select the winning bidder, with whom the contract is signed.

The public procurer could also consider the competitive procedure with negotiation in accordance with the applicable Procurement Directive. This procedures could be considered in case the award of the

[40] When PPI is implemented as FCP, conformance testing takes place alike in FCP before contract notice not during the procurement procedure. In other cases, conformance testing could take place during the procurement procedure (e.g., proof of Concept) or after the procurement contract has been awarded, during the implementation thereof.

procurement contract without the conduct of negotiations is unsuitable; The competitive procedure with negotiation requires that the procurer can specify the required characteristics of the goods, services or works it intends to procure (minimum requirements to be met by all tenderers), in advance of the procedure. The procedure starts with procurer publishing a contract notice in which it defines its needs and requirements, the indicative timeframe for the procedure, the exclusion, selection and award criteria.
The competitive procedure with negotiation also entails the conduct of several stages:

(i) Selection phase: the qualification information of the bidders that was submitted via their requests to participate is assessed by the procurer against the exclusion and selection criteria published in the contract notice and minimum 3 candidates are invited to the negotiation stage;
(ii) Negotiation phase: selected candidates are invited to submit initial tenders which will be subject to negotiations; however, minimum requirements and award criteria are not subject to negotiations; the negotiations could take place in successive rounds, where equal treatment of bidders must be ensured at all times; the number of candidates can be reduced by applying the award criteria defined in the contract notice; however, the number of candidates invited to bid for the award phase should be enough to ensure fair competition;
(iii) Award phase: the remaining candidates are informed by the contracting authority of its intention to close negotiations and a deadline for the receipt of final offers is set; the procurement contract will be awarded to the winning bidder, selected by applying the award criteria published in the contract notice.

The competitive dialogue or the competitive procedure with negotiations take, however, more time as compared to an open or restricted procedure and entail risks for the public procurer with insufficient dialogue or negotiation resources/skills. Alternatively, the market consultation could be adapted to carry more discussions with each economic operator in order to be able to make the choice for a specific financial or legal model, before the procurement procedure is initiated.[41]

For a general overview of available tender procedures encouraging the uptake of innovative solutions, see section 2.8 in Module 3 of this Toolkit.

B) Defining the subject-matter of the contract and the technical specifications

- Whether a **PCP** or a **PPI** is followed, the public procurer will need to define the subject-matter of the tender and the technical specifications to ensure broad interest and engagement from the market to deliver the required solutions.

[41] There may be situations when the public procurer, based on the previously conducted prior art analysis, IPR search and market consultation, concludes there is only one economic operator who could fulfil its need. In this exceptional case, the public procurer may rely on a derogation from competitive procurement and conduct negotiations without prior publication of a contract notice or use the new innovation partnership procedure (as explained in the directives this procedure is also based on the legal basis of the negotiated procedure without publication of a contract notice), in accordance with the provisions of the Public Procurement Directives. Such cases in which no alternatives or substitutes could reasonably be considered, are rare. Such cases are highly undesirable, as lack of competition often leads to a higher price for the public procurer.

- The subject-matter of the tender is the product, service or work that is being procured, while technical specifications describe the minimum requirements that characterise the supply, service or work that is being procured (e.g. minimum required functionality and/or performance to be delivered, minimum efficiency improvements / reduction in maintenance costs to be achieved etc.).

Defining the subject matter of the procurement contract

- For a **PPI**, the subject matter can be supplies, works or services. It is relevant to remember that the EU public procurement directives do not contain express requirements for the definition of a contract subject-matter. Public procurers enjoy a great freedom to choose what they wish to procure. However, the subject-matter may not be described in such a way as to lead to discrimination or to unjustified restriction of competition.
- For a **PCP**, the subject matter is R&D services. PCP is exempted from the scope of the procurement directives, but remains subject to the fundamental Treaty principles. As a consequence, the same requirements for stimulating fair competition among economic operators apply.

EXAMPLE definition of subject-matter in a PPI

The aim of the project is to renovate the central bus station, such as to improve traffic flow, accessibility and air pollution. Use of innovative materials (e.g. photocatalytic concrete) that actively reduce air pollution is required.

Source: https://www.innovation-procurement.org/fileadmin/editor-content/Guides/Consultation/PPI_Guide__public_consultation_draft_with_case_studies.pdf

EXAMPLE description of the subject-matter in a PCP

The aim of the project is to develop, test and implement a Shockwave Service, which can effectively reduce the frequency and length of traffic jams that have no apparent case on the road, but are induced by the breaking behavior of car drivers.

Source: PCP Spookfile, http://www.spookfiles.nl/sites/www.spookfiles.nl/files/documenten/shockwave_traffic_jams_a58_-_background_information.pdf

Defining technical specifications

Technical specifications serve two purposes:

i. first, they *'describe what the procurer wants to buy, so that potential bidders can decide whether the call for tender is of interest to them'*;[42] they are directly related to the characteristics of what is being procured, and not to the general capacities or qualities of the operator;

[42] See European Commission, "Buying green!, a handbook on green public procurement", 2nd edition (2011), available at http://ec.europa.eu/environment/gpp/pdf/handbook.pdf.

ii. second, they provide *'measurable requirements against which tenders can be evaluated'*.[43] Offers uncompliant with the technical specifications must be rejected.

No matter what type of project is being envisaged, the final result is greatly dependent upon the targets and requirements set by the public procurer and on how well they are defined and communicated to the market.

In the case of the **PPI**, technical specifications need to comply with the provisions of the EU public procurement directives. In the case of the **PCP**, the technical specifications should be compliant with the fundamental Treaty principles. For detailed legal considerations regarding the different forms in which technical specifications can be formulated, including performance-based specifications, and the different means of proof that can be required, e.g. compliance with standards, test reports, certificates from conformity assessment bodies, technical dossiers of manufacturers, eco-labels and GPP criteria, please refer to section 2.8.2 of Module 3.

As a general rule, when defining the technical specifications, the guidelines below should be followed to ensure compliance with the legal framework irrespective of whether a PCP or a PPI is being implemented:

- Be clear and precise in the description, to encourage economic operators to submit offers;
- Express the requirements in a technology neutral way (e.g. avoid reference to proprietary production methods), using outcome based terms by reference to the desired performance or functionalities (e.g. in relation to materials, production methods, packages or use);
- Do not use requirements that are not directly needed to fulfil the need, but may restrict competition;

EXAMPLE technical specification in a PPI

The renovation of Detmold's busy central bus station has reduced nitrogen oxide emissions in the area following the purchase and deployment of innovative materials. The technical specifications of the PPI, launched in January 2011, contained a technology neutral outcome based performance requirement that requested tenders to use concrete that contains between 3 and 5 percent titanium dioxide (TiO2), a compound which reduces nitrous oxides by photocatalytic oxidation. Six bids were received. Samples were evaluated as part of the tender process and following award of contract a test surface was set up to determine the best way of working with the material on site. The contract was awarded in May 2012 to the winning bidder that offered a 5 percent TiO2 content in its concrete. Construction of the new terminal was completed in August 2013. Regarding the outcome of the procurement, annual nitrogen oxide emissions in the area are expected to fall by 40 percent. Moreover, the additional cost of using the photocatalytic concrete was relatively low (only 3,6% more expensive than conventional concrete), amounting to €90 000 within a total project cost of €2.8 million. By participating in the testing of photocatalytic materials for road surfaces the, companies involved also benefitted. They increased their

[43] Ibid. 19.

competence in applying innovative materials in road construction, as well as their knowledge of materials science and process engineering.

Source: http://www.innovation-procurement.org/ppi-in-action/ and https://www.innovation-procurement.org/fileadmin/editor-content/Guides/Consultation/PPI_Guide__public_consultation_draft_with_case_studies.pdf

- Ensure that the technical specifications describe not only the requirements for the tangible elements (products, services, works) to be procured but also for the intangible elements of the subject matter. The desired distribution of the rights and obligations related to IPRs linked to the subject matter needs to be specified up front in the tender specifications to ensure that offers are comparable, the correct market price is paid, and the procurement does not involve illegal State aid.

Human Brain Project PCP
EXAMPLE requirements for the intangible / IPR elements in the tender specifications for a PCP

Below the IPR related clauses from the PCP implemented in the context of the EU funded Human Brain project that is procuring R&D to improve the memory capabilities of supercomputers for the modelling of the human brain. Note the difference in the lighter set of rights that the procurers claim on the results and IPRs related to the design implementation compared to the design specification.

"R&D risks and benefits will be shared between Contractors and the Procuring Entity in such a way that all parties have an incentive to pursue wide commercialisation and take up of the new solutions. Therefore, ownership of Project Intellectual Property Rights generated by a Contractor during the PCP contract will remain with the Contractor generating it. Ownership of any Contractors' Background will also remain with the Contractor.

The Contractor hereby grants to the Procuring Entity an irrevocable, worldwide, free and non-exclusive license to use the Project Intellectual Property Rights, the relevant Background IP and the Results *related to the design specifications* which the Contractor will develop on the basis of the PCP contract for such purposes as the Procuring Entity shall in its absolute discretion deem fit. This licence will be granted until the expiry of the respective Project Intellectual Property Rights, at no additional cost.

The Contractor hereby grants to the Procuring Entity an irrevocable, worldwide, free and non-exclusive license to use Project Intellectual Property Rights and the Results *related to the design implementation* for the purpose of using this implementation and the Results non-commercially. This licence will be granted until the expiry of the respective Project Intellectual Property Rights, at no additional cost. Licenses on Relevant Background IP shall be offered at fair and reasonable conditions.

Relevant Background IP means the Background IP that is essential to the functioning and use of the Project Intellectual Property Rights.

The above license shall also include any Project Intellectual Property Rights, relevant Background IP and/or Results developed by a Subcontractor, employee, agent or representative of the Contractor, and the Contractor shall oblige such Subcontractor, employee, agent, or representative:
- to execute any documents or acts as the Contractor may reasonably require in order to fully and effectively transfer all Project Intellectual Property Rights or other proprietary rights on the Results related to the design specifications and design implementation to the Contractor;
- to respect the above rights of the Procuring Entity and to agree to license any relevant Background IP, Project Intellectual Property Rights or Results, as may be required to ensure the unrestricted use of it by the Procuring Entity.

Upon request of the Procuring Entity, the Contractor shall grant to any third party designated by the Procuring Entity a non-exclusive license to use and exploit for any purpose the Project Intellectual Property Rights, the relevant Background and/or the Results related to the design specifications on fair and reasonable terms.

The Contractor shall inform the Procuring Entity of any Results which are capable of exploitation, whether patentable or not. Unless otherwise provided in the Agreement and subject to the Call Back Clause, the Contractor shall take all appropriate and necessary measures to ensure the proper management of the Project Intellectual Property Rights. It shall at its own costs be responsible for the application, examination, grant, maintenance, management and defense of the Project Intellectual Property Rights in the Results and in particular, but without limitation, it shall ensure that:

- the Results of the Project are identified, recorded and carefully distinguished from the outputs of other research and development activities not covered by the Project;
- prior to any publication on the Project, IPR protectable inventions arising from the Results are identified, duly considered for IPR protection and, where it is reasonable so to do, IPR applications in respect thereof are filed at the relevant Member State or European Patent Office; and
- all such IPR applications are diligently executed and prosecuted having regard to all relevant circumstances.

If the Contractor becomes aware of any product or activity of any third party that involves or may involve infringement or other violation of the Project Intellectual Property Rights, or any other proprietary right on the Results, the Contractor shall promptly notify the Procuring Entity of the infringement or violation.

Unless otherwise provided in this Agreement or unless the Project Intellectual Property Rights are assigned to the Procuring Entity pursuant to the Call Back Clause, the Contractor shall take all appropriate measures to protect or defend said Project Intellectual Property Rights, or any other proprietary right on the Results. The Contractor shall have the conduct and bear the costs of such proceedings. The Procuring Entity shall however:

- have a monitoring/audit right on the conduct of the proceedings and the Contractor agrees to take the Procuring Entity's comments on the conduct of the proceedings in due consideration, and

- shall provide reasonable assistance to the Contractor with respect to bringing any action.

The Contractor shall permit the Procuring Entity to monitor the operation and effectiveness of the Contractor's procedures for the management of Project Intellectual Property in such a way as the Procuring Entity considers reasonably necessary.
Consistent with the good management of Project Intellectual Property and the terms of conditions of the present Agreement, the Contractor shall:

- promote the dissemination of the Results of the Project; and
- where they are capable of exploitation, exploit commercially the Project Intellectual Property Rights as well as the other Results (even if they cannot be protected by Intellectual Property Rights) to generate revenue by marketing commercial applications thereof.

Call-Back Clause: If, within five (5) years of the end of the last awarded Phase in the Project, the Contractor has not commercially exploited a Project Intellectual Property Right by marketing a commercial application of said Project Intellectual Property Right (directly or by any potential Subcontractors or licensee), and that the circumstances of the case show that the Contractor has not even used its best endeavours to do so, or if the Contractor (and/or any potential Subcontractor or licensee) is using the Project Intellectual Property to the detriment of the public interest, the Contractor shall upon request of the Procuring Entity assign all non-exploited Project Intellectual Property Rights to the Procuring Entity.

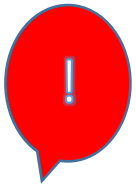
Tenderers are required to mention in their Bid for Phase I,2,3 whether they will rely on Background IPR they (or any of their Subcontractors) expect to hold at the date of the Phase 1,2,3 contract that pertains or may pertain to the Project or any part thereof. Similarly, Tenderers will have to mention in the Bid for Phase 1,2,3 whether they will rely on pre-existing third party software.

It is important that Tenderers and, as the case may be Contractors, fully value the Project Intellectual Property Rights resulting from the PCP. To make sure a fair market price is offered in their bid, the Procuring Entity requires Tenderers and, as the case may be the Contractors, to state two prices, the Actual Price and the Virtual Price.

If the Procuring Entity subsequently purchases products from a Contractor which include Project Intellectual Property Rights, the Contractor may not charge the Procuring Entity for the license to these Project Intellectual Property Rights as they have already been licensed for free to the Procuring Entity."

Source: PCP Tender Regulations and Framework Agreement, Human Brain Project, https://www.humanbrainproject.eu/hpc-pre-commercial-procurement

- Take into consideration environmental and accessibility requirements for people with disabilities as well as data protection requirements deriving from relevant EU or national law;
- Formulate only verifiable requirements and specify the means of proof that need to be submitted.



- Prescribing a high degree of technical implementation details will reduce the opportunity for interested bidders to propose innovative solutions.

- Nevertheless, the specifications should provide enough information in order to allow the potential bidders to understand what the problem that requires a solution really is and what the functional requirements of the procurers are.
- The identified need and means of proof have to be described in such a way to enable objective comparison of the competing solutions proposed by the market.

- Refer where relevant to available standards in order to ensure, for example, needed interoperability with other existing technologies (see section 2.4 on standardization).
- When referring to labels, a European standard or, in the absence thereof, to a national standard, equivalent proof of compliance with the (specification from the) label/standard should be accepted by the procurer. Acceptable proof entails: third-party verified evidence, or, in case of non-imputable impossibility to access such evidence or to obtain such evidence within the relevant time limits, other means of proof such as a technical dossier of the manufacturer;

References to standards, eco-labels or GPP criteria are beneficial from two perspectives:

i. Risk mitigation: public procurers are ensured that the innovative products are (depending on the type of standard used) safe, qualitative and compliant with the applicable standard or eco-label

ii. Time saving: especially in complex projects – by using specifications developed within the standard, GPP criteria or eco-label (either in total or as a starting basis), public procurers gain significant time which would be otherwise allocated to defining the relevant specifications.

Already during needs identification and assessment (section 2.1 above), procurers could define functions, performance levels and expected outcome/impacts in relation to the desired innovation. Conformance testing, certification, labelling procedures can subsequently verify whether the market is ready to deliver solutions with these functions and performance levels. Those functions and performance levels that prove viable can be subsequently be included in the tender documentation as technical specifications.

A good example of translating the users' requirements into specific functional and performance requirements that were subsequently used as technical specifications for a PPI procurement is the procurement launched in March 2016 by Aler and the Lombardy Region for the refurbishment of two buildings located in the municipality of Treviglio, located in the Province of Bergamo (not far from Milan).

The table below provides examples of the means of proof/justification required to be submitted by the bidders, in support of their offer, in the Lombardy Region PPI procurement aforementioned[44]:

Functional Specifications	Performance Requirements	Means of proof required
Days of non-usability of the housing parts	Not more than 5 days is allowed.	The evaluation of the days of non-usability shall be justified through an analytical description of the interventions that will be performed in

[44] For the complete tender documentation, please see http://www.probisproject.eu/wp-content/uploads/2016/04/D5d-ALER-tender-documents.pdf.

Functional Specifications	Performance Requirements	Means of proof required
		the different housings, explained in terms of: type of intervention and its phases, the number of people involved, minimum and maximum expected time
Total days permitted for intervention in each housing unit (including the days of non-usability)	No longer than 9 days, to carry out the planned interventions within each accommodation, is Allowed.	The evaluation of the maximum time of intervention in the single housing shall be justified through an analytical description of the interventions that will be performed in the different accommodation, explained in terms of: type of intervention and its phases, number of people involved, minimum and maximum expected time.
Sensory discomforts for users: a. no dust environment; b. noise absence (> 73.6 Laeq dB (A)); c. no unpleasant odors + eco-friendly materials d. use of eco-friendly products and materials with reduced VOC emissions	- No dust - 73,6 Laeq dB(A) - no smell - exclusive use of eco-friendly products and materials with reduced VOC emissions	The highest level of performance to ensure shall be justified through an analytical description of the interventions that will be performed within the different accommodations. For any action shall be made explicit: the type of intervention, activities and related tools and products used, which can create sensory discomfort, the time period envisaged of using of tools and the processes to which sensory discomfort is related, the duration of release of odours due to the application of products, and anything else useful to the understanding of the intervention, highlighting the methods of adopted control of the elements of annoyance and discomfort. Concerning the use of products and eco-friendly materials and reduced VOC emissions, the competitor shall also complete a table and insert attached documentation proving the statements in the table.

Functional Specifications	Performance Requirements	Means of proof required
Acoustic insulation improvement within the housing	Given that the standardized noise insulation index for facade D2m, nT, w = 40dB must be obtained taking into account also each window frame requirement, the element considered for the score awarding is the improvement of acoustic performance of the new integrated system (window frame /shading and solar radiation control system) in respect with the minimum ones provided, as : Minimum apparent sound reduction index of the integrated system window/shading devices (UNI EN ISO 140/3 e 717-1) Rw ≥ 38 dB	The official tests carried out by certified European laboratory, in accordance with EN ISO 140/3 and EN ISO 717-1, are effective for the assessment. If a passive or active air ventilation system is combined with the door and window frame, considering a 24 hours long activation of the air ventilation, the performance assessment is based on an open system method.
Air quality assurance within the housing Garanzia della qualità dell'aria all'interno degli	The following performances will be evaluated, listed in descending order of importance: a. guarantee of indoor relative humidity and pollutants level control (CO2, VOC, etc.)., by ensuring the minimum and continuous change rate in each room during 24 hours, as declared in UNI EN 15251:2008 and UNI 10339; b. reduction of noise due to moving parts (e.g. fan, vibrations, etc.), to be below the threshold of 45 dB (C); c. reduction of noise from external air intakes and noise transmission inside the	The provided performances by any proposed system, shall be therefore justified analytically, explaining: the type of project scheme, the devices used to ensure the required flow rates, the noise of moving parts, the devices for noise control, and any other is useful to evaluate the consistency of the offer. For the determination of the flow rate of the proposed systems, the official tests carried out by certified European laboratories, are considered for the evaluation, in accordance with the relevant regulations.

Functional Specifications	Performance Requirements	Means of proof required
	apartments, in the case of through-ducts in several rooms	

C) Defining exclusion criteria

Exclusion criteria are requirements that allow the procurer to exclude economic operators from participating to the procurement procedure on account of their past behavior (e.g. corruption, money laundering etc.).

The EU public procurement directives set out a list of grounds for exclusion of economic operators from participating to the procurement procedure, which can be used for both *PCP*[45] and *PPI*. For **PPI**, several exclusion grounds are mandatory by EU law for public procurers (e.g. participation in criminal organizations, fraud and money laundering etc.)[46] while others are optional by EU law, but sometimes mandatory by national law (e.g. bankruptcy, violations of environmental criteria or social obligations, violation of competition rules or of intellectual property rights etc.).

The public procurer is required to ensure the verification of the absence of the reasons of exclusion, when exclusion criteria are used. The exclusion should also be subject to a proportionality check and subject to evidence that the economic operator has taken effective measures to address the exclusion grounds.

Additional information regarding exclusion criteria is available in section 2.8.2 of Module 3.

D) Defining selection criteria

Selection criteria[47] are requirements related to the suitability of an economic operator to pursue the professional activity, its economic and financial standing and to its technical and professional ability to perform the contract. They relate, for example to the previous experience with the execution of similar contracts, or to the availability of qualified personnel or of equipment needed to execute the contract. The selection criteria will be applied to the tenderers who have not been excluded on the basis of the previously discussed exclusion grounds.

i. For **PPI**, the public procurement directives contain several provisions regarding the formulation of the selection criteria. According to these, the selection criteria should:
   - be linked to the subject-matter of the contract;
   - be indicated in the contract notice or contract documents and not be changed during the procurement procedure;

[45] In the case of PCP, there are no exclusion criteria mandated by law. However, it constitutes good practice to refer to the mandatory and optional exclusion criteria.
[46] See art. 57, Public Sector Directive 2014/24 and art.80, Utilities Directive 2014/25.
[47] See article 58 of the Public Sector Directive 2014/24 and art.80 Utilities Directive 2014/25 and article 13(f)(j) of the defense Directive 2009/81/EC .

- be sufficiently clear and precise;
- relate to the suitability of an economic operator to pursue the professional activity, its economic and financial standing and to its technical and professional ability to perform the contract.

The public procurer should be aware that when looking for innovative solutions economic operators may not have prior customer references yet, where similar innovative solutions were deployed. Likewise the most innovative solutions may come from non-established vendors that don't have as high company turnover figures yet, in comparison to large market players. These aspects should be considered when drafting selection criteria for PCPs and PPIs.

ii. For **PCP**, the selection criteria should be formulated in compliance with the Treaty principles. This comes down to the same legal requirements as outlined for PPI. From a practical point of view, the procurer should avoid using disproportionate qualification, economic or financial guarantee requirements. For example, the procurer should not formulate requirements related to the economic standing of the provider (such as minimum turnover requirements) or past performance requirements (as PCP focuses on the development of new solutions that have not been tried by previous clients). Instead, the public procurer should focus on the capability of the economic operator to perform R&D and exploit R&D results.

EXAMPLE definition of selection criterion related to capacity to perform R&D and exploit R&D results for a PCP

Evidence of the Tenderer's ability to perform R&D up to original development of the first products or services and the Tenderer's ability to commercially exploit the results of the PCP, including intangible results in particular IPRs, by the following means:

- Description of the capacity, tools, materials and equipment that are available to the tenderer to carry out research, lab prototyping and to produce and supply a limited set of first products or services and demonstrate that these are suitable for production or supply in quantity and to quality standards defined by the procurers
- Description of the financial and organizational structures that are available to the tenderer to manage, exploit and transfer or sell the results of the PCP (including tangible and intangible results, such as new product designs and IPRs) and generate revenue by marketing commercial applications of the results (directly or through subcontractors or licensees)

Source: Lombardy Niguarda PCP

In PCPs, procurers have the possibility to request tenderers to perform a part of the R&D that is relevant for the object of the contract in the territory defined by the EU Member States and the countries that have a Stabilization or Association agreement with the EU in the context of the EU neighbourhood policy[48]. Procurers that want to do this, can foresee criteria that assess the ability of tenderers to locate a predefined

[48] For more information, see http://eeas.europa.eu/enp/.

percentage of the R&D activities for the PCP at a place of choice of the tenderer somewhere in the above list of countries.

EXAMPLE definition of compliance criterion

related to the place of performance of the R&D services in a PCP

In PCPs funded by the EU funded research programs Horizon 2020 (previously FP7) there is always a requirement that the tenderers must carry out the majority (minimum 50%) of the R&D and operational activities for the PCP contract in the EU Member States or countries associated to Horizon 2020 (which includes all the countries having a stabilisation or association agreement with the EU in the context of the EU neighbourhood policy). This place of performance requirement was formulated as follows for the PCP in the EU funded Human Brain project:

At least 60% of the R&D Services to be performed in execution of the PCP Project (whether by the Tenderer or Contractor or its Subcontractor(s)) shall be performed within the EU Members States or a country that is associated to the European Commission's Framework Programme 7. The Tenderer and Contractor shall regularly and always promptly upon the request of the Procuring Entity, provide a verified account of the fulfilment of this obligation.

If awarded the Phase I Contract, the Tenderer or Contractor shall undertake to ensure the structural involvement of at least one research and development centre located within the EU Member States or a country that is associated to the European Commission's Framework Programme 7. If the Tenderer or Contractor has not yet established a research facility located within this area, it shall open a research facility and maintain operations there for the entire duration of the project's Phases for which it is selected.

Required evidence: Documentation of the planned amount of human resources for R&D as well as the place where operational activities related to the execution stage of the PCP will take place. If the R&D facility or staff is not yet available in Europe, a commitment must be included to setup such facility and staff in Europe for the execution of the PCP.

Source: PCP Tender Regulations, Human Brain Project,
https://www.humanbrainproject.eu/hpc-pre-commercial-procurement

Additional information regarding selection criteria is available in section 2.8.2 of Module 3.

E) Defining award criteria

For **PPI projects**, the new public procurement directives provide as the sole awarding mechanism the Most Economically Advantageous Tender (MEAT), which means that the award of the offers shall not be based on lowest price only, but other factors (such as the quality of the offer) shall be taken into consideration. Likewise the award of offers shall not be based on best quality only, but also on price. In order to ensure that best value for money is being delivered, the procurer should identify an optimum combination of award criteria that assess the costs over the entire expected life time of the product (not only short term but also long term costs) and assess the quality of proposed solutions that is needed to meet the users'

requirements. This will enable the procurer to appreciate the innovations which offer best value for money on the long term, despite looking more expensive or less advantageous on the short term.

EXAMPLE definition of award criteria for the total cost of ownership in a PPI

During the procurement of bed washing solution, the Erasmus Medical Centre decided to take into account in the award criteria the total costs for the coming 10 years, covering purchasing price, maintenance costs, costs related to energy consumption etc. The procurer defined an award formula that would assess and compare these costs. The formula was refined following the input from market players during the open market consultation that preceded the PPI procurement.

Source: http://www.innovatiekoffer.nl/trajecten/beddenwas-centrale/

The quality award criteria should be based on the aspects that were highlighted by users during the needs identification and assessment phase and were checked with the market during the market consultation phase (e.g. based on whether they are viable, innovative etc.).

Both for PCP and PPI projects, in compliance with the Treaty principles of equal treatment and transparency, the award criteria and the relative weightings of the award criteria should be published in advance in the tender documents, unless for objective reasons, this is not possible. In case of such impossibility, the public procurer shall indicate the criteria in descending order of importance.

EXAMPLE definition of award criteria in a national PPI

The following award criteria were applied by the Swedish public procurers for the purchase of heat recycling systems for existing apartment blocks:

Evaluation criterion	Max number of points
Energy efficiency	25
Cost	25
Indoor climate parameters and monitoring of temperature and energy consumption	20
Design, function and system flexibility	10
Installation, robustness, operation and maintenance	20
Total number of points	**100**

Source: http://www.bebostad.se/wp-content/uploads/2013/08/Heat_Recycling_Procurement_eng_invitation.pdf

For **PCP projects**, the award criteria should not be based on best quality only, but also on price.

EXAMPLE definition of award criteria for national PCPs (Denmark)

The PCP guidance formulated by the Danish Market Development Fund recommends the use of the following award criteria in a PCP:

1. Impact on the challenge described
2. Market Potential
3. Quality of the offer
4. Logistics and planning
5. Price

Source: http://markedsmodningsfonden.dk/file/580322/vejlparadigme.pdf

When the procurer wants to apply different award criteria for each PCP Phase, it needs to specify the award criteria for each phase and their relative weightings upfront in the tender documents. **The award criteria will be applied at each PCP Phase, when selecting the providers that will move to the next Phase.**

EXAMPLE definition of award criteria in a national PCP

The following award criteria were applied in the Netherlands in the PCP for the development of solutions to prevent the formation of shockwave (or moving) traffic jams:

1. Effectiveness (of the envisaged solution to prevent shockwave traffic jams)
2. Potential for commercialization (of cost-effective solutions for shockwave traffic jams)
3. Quality of the execution (of the innovative process and associated risk management)
4. Probability that the solution will be available by July 2015.
5. Bidder's and subcontractor's experience with product commercialization
6. Price

Each of the first 5 award criteria received a score between 1-10. Bidder could score a maximum of 3 points for the criterion Price, depending on the discount offered against the indicative budget.

Slightly different award criteria were indicated in the Tender Regulation for the award of PCP Phase 2 and of PCP Phase 3:

1. Effectiveness
2. Commercialisation potential
3. Quality of the execution
4. Availability of the solution by October 2014 and July 2015
5. Price
6. Content and quality of the End of Phase 1/2 Report

Source: Document "SpookfilesA58Leiddraad_V5.0" about the PCP Shockwaves Traffic Jams available at: https://www.tenderned.nl/tenderned-web/aankondiging/detail/documenten/akid/f6a1d4a7c18bcbad93b92009113de891/pageId/D909A/huidigemenu/aankondigingen/da/false/cid/175115/cvp/join

As already explained before, in order to remove unnecessary barriers for innovative new companies, typically SMEs, to make offers for the PCP call for tender, procurers should avoid the use of selection criteria based on stringent qualification requirements and disproportionate financial guarantee requirements (e.g. with regards to prior customer references and minimum turnover). As an alternative, procurers can consider including 'feasibility of the business-case/commercialization plan' as award or as sub-award criterion in the evaluation of offers for every PCP phase (possibly with a gradually increasing weight factor across the different PCP phases): this approach requires participating companies to demonstrate that they are able to build up - gradually throughout the PCP process - sufficient financial capacity to successfully commercialise the solutions developed during the PCP.

EXAMPLE definition of award criteria related to the approach to commercialization of the PCP results

Impact Sub-Criterion III. What is the total market potential of the proposed system?
The panel assesses to what extent the tenderer envisions the potential to address future/wider challenges in the market with the proposed solution and under which assumptions.

Impact Sub-Criterion IV. Describe the commercialization approach. Elaborate on your business models when commercializing the prototype.
The panel assesses to what extent the approach demonstrates commercial feasibility. Is there a realistic commercialisation plan/route to market? The panel assesses the validity of the proposed business model.

Because building up a valid commercialization plan and getting ready to access wider markets becomes more important the closer the solution arrives to the market, the above sub-criteria were given an increased weighting across the 3 PCP phases (sub-criterion III had weight 2 in phase 1 and weight 3 in phase 2 and 3, sub-criterion IV had weight 1 in phase 1, weight 2 in phase 2 and weight 4 in phase 3).
Source: Invitation to Tender, Smart@Fire project, http://www.smartatfire.eu/

Regarding the price criterion, it is recommendable to set up front a maximum price that may be offered by a tenderer (see example below). This prevents that the PCP will run out of budget and gives a clear indication to vendors also of the expected R&D effort for each PCP phase. In order to ensure that only offers with a minimum level of quality will be selected, the public procurer has the option to define a threshold, a minimum level of points that an offer has to reach on the qualitative criteria, in order to be awarded a contract (e.g. a minimum of 200 points, equivalent to 50-60 per cent of the total score)[49].

[49] According to EU court of auditors the weighting of price should not be set so very low (see template PCP tender documents for EU funded projects), even if the procurer already sets a maximum price. The weight of the price criterion should be sufficiently high to avoid this criteria being neutralized in the evaluation. (For example, a weighting of less than 20 out of 100 for price is too low for it to have a significant effect on the result.).

EXAMPLE definition of award criteria in a EU-funded PCP

Below the award criteria used by the V-CON PCP project on virtual modelling of road infrastructures.

	CRITERIA	DESCRIPTION	WEIGHT in Phase 1-2-3
I	Technical excellence and relevance	The **Solution Idea description** will be evaluated using the following sub-criteria: - Overall quality - Innovation potential, excellence and relevance - Feasibility and fulfilment of the vision and use cases described in the Business specification - Fulfilment of the technical challenges (1-7) in the Technical Specification **Maximum Score: 5 points**	32%-32%-36%
II	Quality and efficiency of the RTD process	The **RTD Plan** will be evaluated using the following sub-criteria: - Completeness, sense of reality and feasibility of the RTD Plan including plans for risk management and quality assurance - Skills and experience of key resources **Maximum Score: 5 points**	32%-32%-20%
III	Potential impact and dissemination of results	The **Commercialization Plan** will be evaluated using the following sub-criteria: - Completeness, sense of reality and feasibility including the market analysis and risk management - Sense of reality and feasibility of the principles for licensing, pricing, packaging, distribution etc. **Maximum Score: 5 points**	16%-16%-24%
IV	Price	The price offer will be evaluated based on: - Binding contract price for R&D work in next phase - Indicative price for R&D work in the remaining phase(s) after the next phase; **Maximum Score: 5 points**	20%-20%-20%

The score of the price offered by the Contractor for a phase will be calculated as follows:
- If the price offered for a phase is above the Ceiling Price for that phase: the party will be excluded.
- If the price offered for a phase is between € 0 and the ceiling price for that phase, the score will be linear between 5 and 1, using the formula: Score = 1 + 4 * (1 – Price Offered / ceiling price)
- If the Contractor cannot or doesn't want to give an indication for future phases: 2

If, later in the PCP process, the Contract Price for a phase differs substantially from the earlier offered indicative price for that phase, and the Contactor has not explained this difference satisfactorily, this will be taken into account in the evaluation for the award of the following phase.

To calculate the Price Score, the offered prices per phase will be weighted according to:

Weighting of Prices offered to calculate the Price Score	**From Tender to Phase 1**	**From Phase 1 to Phase 2**	**From Phase 2 to Phase 3**
Price offered for Phase 1	80% (binding)		
Price offered for Phase 2	10% (indicative)	90% (binding)	
Price offered for Phase 3	10% (indicative)	10% (indicative)	100% (binding)

As shown in the above table for the above 3 quality award criteria , a provider could score a maximum of 80 points. For the price award criterion, a provider could score an additional 20 points. Moreover, a maximum price cap/ceiling was set for each Phase 1-2-3 contract.

Source: PCP Invitation to tender, V-CON project.
https://www.rijkswaterstaat.nl/english/about-us/doing-business-with-rijkswaterstaat/v-con/index.aspx

Additional information regarding award criteria is available in section 2.8.2 of Module 3.

F) Deciding on the use of variants

In **PPI**, the use of variants means that the public procurers allow economic operators to submit alternative solutions which meet several minimum requirements included the tender documentation. Both variant and non-variant offers will be assessed based on the same award criteria.

In **PCP**, the use of variants is not necessary, as the PCP approach inherently supports the development of several alternative solutions in parallel.

Benefits of using variants in PPI:

(i) enable the procurer to capture alternative solution approaches that he had not foreseen;

(ii) the use of variants may result in a more environmentally-friendly/more accessible offer.

The variant approach has been reinforced under the new EU public procurement directives.[50] They state that due to the importance of innovation, public procurers should allow variants as often as possible. When using the variants approach, public procurers need to comply with the following requirements:

- the acceptance of variants must be clearly stated in the contract notice and tender documentation;
- the minimum requirements which variants must meet must also be clearly defined;
- specific 'administrative' requirements that tenderers submitting a variant should comply with must also be clearly communicated (e.g. submission of the variant tender in a separate envelope etc.).

EXAMPLE use of variants in a PPI

The City of Detmold planned to renovate its busy bus station, in order to improve traffic flow and accessibility. But when the City started to engage in an open market consultation with researchers and suppliers, it identified the opportunity to apply photocatalytic concrete in the pavements and road surfaces in order to actively reduce air pollutants (such as nitrogen oxide). In the tender specifications, the procurer asked for variant solutions compared to conventional concrete. The procurer identified the photocatalytic concrete variant as the most beneficial (e.g. the benefits of reducing nitrogen oxide levels by up to 40% in the area, reduced formation of smog, reduced need for cleaning outweighed the cost increase of 3.6 per cent as compared to conventional concrete).

Source: https://www.innovation-procurement.org/fileadmin/editor-content/Guides/Consultation/PPI_Guide__public_consultation_draft_with_case_studies.pdf

G) Deciding on the use of value engineering

Value engineering consists of activities and actions that can be used during contract implementation to improve or preserve the functions of the innovative solution while reducing the costs. Particularly in the case of long term **PPI** contracts, the use of value engineering can incentivize the economic operator to continue improving its solution and generating cost savings after winning the contract. Value engineering clauses typically incentivize vendors to continue to improve the quality/cost ratio of their solution by awarding part of the additional cost savings/quality improvements that are achieved after contract signature to the vendor.

The contractor has an incentive to innovate as a result of exploring alternatives to add value (i.e. improve performance and lower the cost) because the cost savings are shared with the contractor. In the example below, according to the VE clause, VZVZ shared a 50% of the cost savings with CSC.

The public procurer needs to announce the intention to use value engineering into the tender documents to ensure compliance with the principles of equal treatment, non-discrimination and transparency. Moreover, the procurement contract should clearly define the conditions for the application of the value

[50] See, for example, Recital 48 of the Public Sector Directive.

engineering approach, in order to prevent unwarranted modifications to the procurement contract (see Annex 11 addressing Value Engineering related aspects).

EXAMPLE of Value Engineering approach in a PPI

"The Dutch Institute for Communication among Healthcare Providers (VZVZ) is responsible for the proper functioning of the ICT infrastructure that enables different healthcare providers (hospitals, family doctors and pharmacists) to exchange patients' medical information on a national level. In 2006 VZVZ awarded a contract to ICT provider CSC to process large volumes of medical data, in accordance with VZVZ's estimations for the following years. During the execution of the contract, VZVZ realized that, mainly due to political issues, the use of the infrastructure in the first years would be minimal. This meant that the costs for its implementation would considerably outweigh the benefits.

In order to decrease the costs, and to create an alternative, scalable infrastructure, VZVZ initiated a value-engineering process together with CSC. Architects of VZVZ and CSC explored different scenarios that could meet the actual and future needs. These scenarios were also verified by an external consultant. The preferred scenario based on Infrastructure As A Service (IAAS) was worked out in detail and that led to a lower cost. The accepted scenario entailed a scaling-down of the infrastructure, up to the capacity requirements at that moment in time. However, the new infrastructure retained the possibility to add capacity "on-demand". This approach allowed VZVZ to achieve savings, while at the same time meet the challenge of future increase in capacity needs.

Although the value-engineering process led to a substantial reduction in the income of the solution provider, this approach eventually proved to be beneficial to both customer and provider. By meeting VZVZ's demands, CSC secured a stable contractual relationship with VZVZ for years to come, as well as access to growing earnings in line with the growing needs of VZVZ."

Source: Anil Jadoenathmisier,
Manager ICT & Innovation, VZVZ

Example of Value Engineering clause in a PPI contract

Definition

1. Value engineering

The sum of activities and actions, aiming to ensure that the [Contractor] fulfils its obligations such as to create added value for the [Public Procurer]; these activities and actions target innovative development, effective and/or efficient organization of the project or similar.

2. Change orders and Value Engineering

2.1. In case the Contractor delivers less work than estimated in the Contract, the savings should be compensated with the [Public Procurer's] outstanding payments. The Contractor is obliged to inform and to discuss with the [Public Procurer] about any circumstances that may lead to less work.

2,2. Notwithstanding the section 2.1, savings that are realized through Value Engineering, based on a proposal priory accepted by the [Public Procurer], will be equally shared between the [Public procurer] and the Contractor.

2.3. The Contractor shall submit twice a year (before 15th of January and before 15th of July) to the [Public Procurer], a written proposal based on Value Engineering. The proposal shall contain the following information:

(i) a description of the activities that will form the object of Value Engineering;
(ii) the change in the parameters of the Total Cost of Ownership (TCO) calculation, as a direct consequence of the value engineering, as well as an analysis of the estimated savings for the remaining time of the contract;
(iii) a risk analysis related to the implementation of Value Engineering and the description of the planned prevention or mitigation measures;
(iv) an overview of those Contract clauses that need to be amended as a consequence of Value Engineering, and an overview of the reasons why these changes are needed;

2.4. The proposal mentioned in section 2.3 above, will be orally presented and explained by the Contractor to the [Public procurer] within 20 Business Days from the initial submission date. The [Public Procurer] may accept or reject the (amended) proposal, following its presentation. The rejection of the proposal by the [Public Procurer] shall not bear any consequence on the fulfilment of the contractual obligations by the Contractor.

3.Contract cancellation and termination

3.1. Notwithstanding its right to cancel the Contract based on applicable legislation, the [Public Procurer] has the right to partially or entirely cancel the Contract, out-of-court, by registered letter, containing a notice of default with a remedy period of ten Business Days, provided that the Contractor does not comply with its obligation to submit a Value Engineering proposal, as described above.

3.2. The Party who cancelled the Contract has a right to compensation for the damage that may be caused by the cancellation, except in cases of *force majeure.*

Source: VZVZ, translation by Corvers Procurement Services B.V.

Although a value engineering clause such as the one in the example above is most likely to be used in a PPI contract due to the nature of a PPI, in the **PCP**, a value engineering approach can stimulate the economic operator to carry out a critical analysis of essential and secondary functions, as well as the comparison of possible solutions in order to make choices against estimated costs and performance.

EXAMPLE of Value Engineering approach in a PPI procurement for services

A chief mechanism for sharing of value engineering savings in supply contracts is in the unit cost of production. Units, low-rate initial production, early production, and production are essential for production-based Value Engineering Change Proposals (VECPs)[51], where the public procurer and the contractor/economic operator know how many units are going to be purchased. However, there is not always an intuitive analog to the unit cost of production in service contracts.

Services may be priced for each performance effort on an hourly basis, priced for a total job that covers a short time period, or priced for a total job that covers a lengthy time period. The difficulties in calculating the unit price as a mechanism for sharing savings for a service contract are illustrated in the following two examples, which use the same figures as the hardware example.

The calculations would not be based on averages because the contractor/economic operator would include a greater safety margin when negotiating the price.

For the example in the following table, we assume the public procurer enters into a contract to provide 500 person-months of 160 hours each over a 3-year period for medical records data entry for €5.5 million. The contractor's/economic operator's cost per person-month is €10.000 and the price with profit is €11.000 per person-month.

Quantity	Unit Cost	Profit	Original Unit Price	Total
500 Person Months	€10.000	€1.000	€11.000	€5.500.000

New Quantity	Unit Cost	Profit	Per Unit Share	New Unit Price without Shared Savings
300 Units	€10.000	€1.000*a*	€3.333*b*	€14.333*c*
Total Savings (Original Price €5.500.000 – New Subtotal €4.300.000)				
Contractor Share of Savings using 50/50 Share (€1.200.000 ÷ 5)				
New Contract Total (€16.333 × 300 units)c				

[51] This is a proposal presented by a contractor that changes the initial business case by adding value and saving costs. The Proposal indicates how to achieve the given functions in a different way in comparison with a previous calculation, due to the use of different materials, processes, or the elimination of unnecessary items. The VECP should indicate in which way the proposal changes the contract if it entails a change of the contract.

Through a VECP, the contractor/economic operator proposes to purchase software for €1 million, which would increase efficiency and reduce costs by 40 percent, by reducing the number of personnel involved. The contractor/economic operator would need only 300 person-months of 160 hours each over the 3-year period.

The savings would be calculated by reducing the quantity, but the original monthly cost and profit do not change. After deducting the new total and the cost of the software, the savings to be shared are €1.2 million. Split 50/50, each party receives €600,000. Therefore, under the VECP, the new unit price is calculated by adding in the contractor's/economic operator's share of the savings and dividing it by the number of person-months. Savings are achieved based on the quantity of hours being reduced as a result of the investment in software. The concept of paying more for the services rendered after acceptance of a VECP may seem to be a questionable result. However, a fair means of compensation for the contractor must be achieved.

Source: Value Engineering: A Guidebook of Best Practices and Tools: http://www.acq.osd.mil/se/docs/SD-24-VE-Guidebook.pdf

EXAMPLE of Value Engineering approach in a PPI procurement of hardware

It is relatively easy to use value engineering for the procurement of a product, particularly when the size, weight, and composition of components can provide a multitude of opportunities for innovation and improvement. In the following example, the public procurer is buying 500 units over 3 years for a unit price of €11.000, which includes a cost of €10.000 and a profit of €1.000. The total price of the contract is €5.5 million with a profit of €500.000.

Quantity	Unit Cost	Profit	Original Unit Price	Total Cost	
500 Units	€ 10.000	€ 1.000	€ 11.000	€ 5.500.000	
Quantity	Revised Unit Cost	Profit	Per Unit Share	New Unit Price without Shared Savings	New Totals
500 Units	€ 6.000	€1.000*b*	€ 2.000,00	€ 9.000,00	€ 4.500.000
Total Savings = Original Price– New Subtotal (€5.500.000 – €4,500,000)					€ 1.000.000
Contractor Share of Savings Using a 50/50 Share (€1.000.000 × .5)					€ 500,00
New Contract Total (€10.000 × 500 Units)*b*					€ 5.000.000

The example shows that the public procurer accepted a Value Engineering Change Proposal (VECP)[52] that reduces the unit cost to €6,000 after a €1 million investment. Without the shared savings, the contract price would be €4.5 million, but the contractor/economic operator would have no incentive to make the change. If we assume that the €1 million difference between this figure and the original contract price were split equally between the contractor and the government, then the new contract price would be €5 million. The €500.000 in shared savings could be paid to the contractor as a separate line item or the unit price could be changed to €10.000.

Source: Value Engineering: A Guidebook of Best Practices and Tools: http://www.acq.osd.mil/se/docs/SD-24-VE-Guidebook.pdf

H) Defining criteria to assess vendor performance

In order to obtain solutions that really meet the initial expectations, the public procurer needs to follow-up and assess systematically the vendors' performance during the execution of the PCP/PPI contract.

In the case of **PCP**, the procurer regularly monitors R&D progress during each PCP phase and provides feedback to vendors whilst R&D is ongoing to ensure they keep 'on track'. In addition, at the end of each phase assessment of R&D results achieved during the whole phase precedes payments, as well as the invitation to tender for the next PCP phase contract. One recommendable approach is that only vendors who completed the previous PCP phase *satisfactorily* qualify for payments and only those who delivered *successful* R&D results will be invited to bid for the next PCP Phase. Satisfactory completion does not mean successful completion. A Project could, for instance, conclude that the innovation is not feasible (R&D

[52] Ibid. 51.

results are *not successful* in meeting the expected quality/performance/cost improvements) but the work was still executed satisfactorily.

In this case, the criteria for qualifying the results as satisfactory or successful should be defined upfront in the procurement contract by the public procurer.

EXAMPLE defining criteria to assess vendor performance

The SMART@FIRE PCP defined satisfactory and successful completion of a phase as follows:

When assessing if a Phase has been concluded to satisfaction, the Procurer checks:

- if the work proposed in the submitted tender has been carried out;
- if the funds have been allocated to the planned objectives;
- if the required reports/demonstrations for that phase have been submitted on time;
- if the required reports/demonstrations for that phase are delivered at minimum quality levels.

Minimum quality of a report means:

- The report can be read by somebody who is familiar with the topic, but not an expert.
- The report gives insight in the tasks performed in, and the results of, the project.
- The report is made using the End of Phase Report Form or (if applicable) the milestone report form, and the requirements of this form have been met.
- The report contains all information and data as required in the relevant Tender Documents.

Minimum quality of a demonstration means:

- The demonstration can be understood by somebody who is familiar with the topic, but not an expert. This could, for instance, be somebody with operational but not technical knowledge.
- The demonstration shows how the innovation works, how it can be used and (if applicable) how it is operated and maintained.
- The demonstration is accessible to parties appointed by the public procurer, unless these are direct competitors of the Contractor (as agreed between the Parties, acting reasonably).

Successful completion of a PCP Phase means:

- The contractor has satisfactorily completed the PCP Phase; and
- The Evaluation Committee, acting reasonably, concludes that the outcome of the Phase (in particular the design, prototype or test series) meets all the mandatory minimum functional requirements, including the expected maximum price for the end-solution, and all the safety/health constrains as defined in the challenge brief and the functional specifications.

Source: amended extract from the Smart@Fire PCP, http://www.smartatfire.eu/

In the case of **PPI**, the assessment of the vendor's performance is needed during the execution of the contract, in order to ensure compliance with the initial offer and potentially achieve improvements in the level and content of the performance.

Payments during the execution of the contract could be linked to the satisfactory and successful completion of predetermined key performance indicators (KPIs) or milestones that are described in the procurement contract. Assessing whether the KPIs/milestones have been achieved, can be subjective (e.g. assessing the degree of satisfaction with the service) or objective (e.g. a quantitative assessment of something being delivered on time)[53].

EXAMPLE of KPIs/milestones

- *Supplies:* actual performance compared to the requested;
- *Quality:* the observed reality with respect to the specification;
- *Quantity*: deviations from the supplied relative to the desire;
- *Communication:* the relative satisfaction with the contacts;
- *Prize:* a comparison between its own costs and the market;
- *Cost:* by the supplier and the buyer caused extras;
- *Service and Warranty:* satisfaction determination after delivery;
- *Logistics:* the performance by supplier in the supply chain;
- *Product development:* the degree of cooperation at an early stage
- *General issues:* user-dependent aspects.

The procurer should also define the consequences and actions to be taken, in case of non-satisfactory and/or non-successful achievement of KPIs/milestones. The public procurer could:

- request remedial action (improvement proposals) from the contractor;

- cancel payment;

- withhold payments until results meet satisfactory levels;

- reclaim payments already made;

- terminate the procurement contract.

For additional information on the steps of a monitoring methodology see Annex 12.

[53] Meeting KPI (expected minimum quality/performance requirements) need to be successfully completed. In **PCPs** payment is linked to satisfactory and not successful completion because it's R&D (R&D has inherent risk of failure) and it's a service contract (vendors are paid for the hours worked, not for delivering a working product).
For a **PPI** the procurer should define which milestones have to be completed satisfactorily (typically additional service aspects) and which ones successfully (typically minimum required product features).

2.2.3 Drafting the tender documentation for a PCP

The tender package for the start of a PCP includes several key documents:

- PCP Contract Notice
- PCP Request for tenders (also called Invitation to Tender or Tender Regulation)
- PCP Framework Agreement
- PCP Phase 1 Specific Contract
- The PCP Tender Form (not mandatory, but can be useful to get more comparable offers from vendors)

The call-off packages for phase 2 and 3 of a PCP procurement includes several key documents:

- PCP Request for offers/ITT for the call-off for Phase 2 respectively Phase 3
- PCP Phase 2/3 Specific Contract
- PCP Phase 2/3 Tender Form (not mandatory, but can be useful to get more comparable offers)

IMPORTANT!

- The number of suppliers needed for each of the Phases and the time and budget allocated for the completion of each Phase, depend on the characteristics of each project and should be decided on a case-by-case basis. A numerical example aimed to help you allocate the available budget per phase and identify the maximum budget per bidder is provided as Annex 1.
- If the market consultation shows that the technical challenge is feasible but more difficult to accomplish and the risks of R&D failure in that sector is higher than expected, working with a higher minimum number of bidders for Phase 1 and increasing the duration for each Phase could mitigate the risk and ensure a competitive process throughout the entire PCP.
- If the market consultation shows that the technical challenge is easier to accomplish than expected, the length of the Phases could be reduced.

A. The PCP Contract Notice

The publication of the Contract Notice marks the start of the tendering procedure. The Contract Notice is intended to raise the awareness of as many economic operators as possible of the upcoming PCP. It is crucial to provide relevant and accurate information through the Contract Notice, in order to attract sufficient competitors with relevant expertise. From a legal point of view, an incomplete or incorrect Contract Notice may breach the principles of transparency and equal treatment and may lead to the restart of the procedure.

The PCP Contract Notice should thus contain a clear description of the nature, scope and estimated value of the contract(s) and of how economic operators can apply to participate in the procedure. A PCP contract notice template is attached to the Toolkit.

More specifically, the following information should be supplied through a PCP Contract Notice:

- Basic information about the organisation of the public procurer (location, public task etc.);
- Description of the contract: a services contract, framework agreement, and the envisaged duration thereof;
- Description of the exclusion and selection criteria (e.g. capacity to perform the R&D that is relevant to the PCP in case) or reference to the tender documents for those;
- Description of the procedure: open, minimum number of economic operators expected to be awarded a Phase 1,2,3 contract;
- Description of the award criteria and their weightings or listing in order of their importance (most economically advantageous tender); either in the PCP Contract Notice or in the other contract documents
- Clear indication of the time limits: e.g. for receipt of tenders or of requests to participate, for opening the opening of tenders, expected duration of the contract, etc.
- Optional: A link to a website where all the tender documents can be accessed;

Although a PCP does not fall under the EU Public Procurement Directives, it is advisable to use the standard form for a Contract Notice[54] and to publish it voluntarily in the Official Journal of the EU.[55] In addition, in order to raise awareness of as many relevant economic operators as possible, the procurer should advertise the launch of the PCP call for tender via other (international or national) promotion channels (e.g. key international/national industry events, publication channels etc.).

B. The PCP Request for Tenders/Tender Regulation/Invitation to Tender

The PCP Request for tenders is a key document in the tender package. It informs about the project and the process of selection of the winning tenders. More specifically, the following sections should be included:

- Description of the challenge and of the context of the procurement:
  - the identified need that the public procurer(s) aim to address by means of conducting the PCP;
  - technical requirements specifications, described in terms of performance and functions; [56]
  - short description of the public procurer(s);
  - description of the preparatory steps (e.g. the results of the open market consultation and of the prior art and IPR search);
- Description of the procurement process:
  - the description of the contracting approach for the PCP (number of phases with resource allocation for each phase);
  - the distribution of rights and obligations related to intellectual property rights;

[54] Available at http://simap.europa.eu/buyer/forms-standard/index_en.htm
[55] Available at http://ted.europa.eu
[56] In case the technical specifications are rather comprehensive or the procurement is divided in several lots, the public procurer could also include the description of the technical specifications in a separate document and attach it to the request for tenders/tender regulation.

- the minimum number of contracts to be awarded per PCP phase;
- estimated timelines (per PCP phase);
- confidentiality requirements;
- how contract performance will be monitored per phase and how assessment of end-of phase deliverables will be done: acceptance criteria for the End of Phase deliverables could take into account technology readiness levels (see Annex 10 on TRL).

❖ Description of the legal, economic, financial and technical information:
  - Monetary unit of the procurement contract;
  - Language of the offers
- Co-contracting; information for tenderers who want to participate to the tender individually or by way of a consortium or association, as well as details regarding sub-contracting;
- Financing and payment related information;

❖ The terms of presentation of the tenderers' offers and tendering requirements:
- instructions for the submission of tenders
- exclusion and selection criteria,
- MEAT award criteria including criteria assessing quality and price:
- the awarding process and the scoring model per phase (e.g. obligation for suppliers to submit End of Phase deliverables including reports, process of acceptance of the End of Phase deliverables / reports, selection of the tenderers that are invited to submit an offer for the next PCP Phase etc.)

➢ allocation of the weightings based on the importance of the criteria (e.g. impact on the challenge and price should be given more weight compared to other criteria)

➢ Set a threshold value for the number of points that a tender must meet (e.g., the threshold value is usually set at 60% of the maximum number of points)

IMPORTANT!

Due to the phased approach in a PCP process and the competitive development of the innovative solution in stages, technical specifications and requirements could get more specific from one phase to the next. The award criteria can become more precise from one phase to the next, provided that they do not substantially change. Sufficient information should be provided in the ITT to allow all parties (both tenderers and contracting authority internal evaluation structure) to make informed decisions.

Especially for PCPs that involve an elaborate selection procedure and/or demanding R&D / testing / certification efforts from participating companies, it is important to stress the advantages for the companies to participate, such as reaching obtaining a first test reference for their new products and reaching a critical mass of customers.

Example – Danish and Swedish PCPs

In Danish and Swedish PCPs, procurers implement the PCPs in group (groups of hospitals, cities etc.) to form an attractive potential market for suppliers. The contract notice / invitation to tender lists the benefits for suppliers to participate in the PCP:

- The tender announcement confirms that suppliers will retain the ownership of their IPRs (so suppliers will be able to commercialize their solutions widely) and lists the names/number of procurers in the group that are willing to act as first customer test reference for the vendors that participate in the PCP.

- The tender announcement advertises the size of the (health care) market that the procurers represent as potential first buyers.

- When the PCP is motivated by regulatory or policy reasons the tender announcement mentions the date in the future by when policy requirements or regulations require the procurers to implement this type of innovative solutions.

This type of information serves as tangible evidence that there is a credible future market for the innovative solutions to suppliers.

Source: http://markedsmodningsfonden.dk/file/580322/vejlparadigme.pdf

More detailed information regarding the legal framework governing the PCP Request for tenders are provided under section 2.8.3 of Module 3.

Keep in mind that:

- the tender documentation must contain a clear description of the exclusion, selection, award and acceptance criteria and of the evaluation methods that will be used in the different phases of the PCP;
- selection, exclusion and award criteria must be clear, susceptible of an objective and uniform application, such as to allow bidders to estimate how their bids will be scored; this means that criteria must be expressed in measurable terms and their application capable of external verification;
- the criteria must never confer unrestricted freedom of choice on public procurers;
- the criteria must be transparent (published in the tender documentation), such as to allow bidders to draft responsive bid;
- the criteria must be non-discriminatory, and should be linked to the subject-matter of the contract;
- the criteria must be equally applied to all suppliers and may not be changed after the opening of bids.

C. The PCP Framework Agreement

In PCP, the public procurer will conclude a Framework Agreement with each successful bidder whose offer has been accepted against the selection and award criteria. It is important to know that:

- The PCP framework agreement with each selected tenderer covers the terms and conditions that remain valid during all PCP phases. The PCP framework agreement is not renegotiated after contract award; Specific contracts will be issued for each phase of the PCP, within the framework agreement;

The PCP framework agreement establishes the rights and obligations of the parties thereto (the public procurer and the winning bidders) in relation to the R&D services procured via the PCP. It shall contain information about the public procurer(s), applicable law, IPR provisions, the future procedure for implementing the different phases, including the format of the intermediate evaluations after the solution design and prototype development phases;

- The model framework agreement and specific contracts are part of the tender package and are thus published upfront to potential bidders.

A template for a PCP framework agreement is attached to this Toolkit.

D. The PCP Phase Contracts

For each PCP phase, a **Phase Contract** will complement the framework agreement. Signing separate phase contracts for each of the 3 PCP phases allows the public procurer to minimize risks. Economic operators who do not deliver satisfactory results at the end of a Phase will not be invited to compete for the next Phase contract. In this case the contractual relation with the public procurer will be ended.

Each **Phase Contract** outlines:

- the scope of the deliverables for economic operators within each Phase;
- the price per phase and payment conditions possibly split over milestones/deliverables;
- the format for the end of phase report.

E. The PCP Tender Form

The Tender Form provides the requested format for submitting a tender. It is not a mandatory to use a Tender Form but it can help the procurer to obtain more comparable tenders. The following sections can be included in the Tender Form:

- information on the tenderer (name, registration number, contact information etc.)
- a section per selection criterion (e.g. model docs for the requested proof of compliance)
- a section requesting tenderers to explain how their solution addresses each award criterion e.g.
    - project description
    - project plan, methodology and proposed team
    - commercialisation plan
    - price (indicating how vendors should foresee the financial compensation for retaining IPR ownership rights)
    - list of background IPRs to assess IPR dependencies of the proposed solution
- information on proposed subcontracting (if applicable)
- signature

A checklist including main issues to consider when conducting a PCP procurement is included in Annex 4.

2.2.4 Drafting the tender documentation for a PPI

The tender package for a PPI procedure includes several key documents:

- PPI Contract Notice
- PPI Request for Tenders (also called Invitation to Tender/Tender Regulation)
- PPI Procurement Contract/Agreement
- The PPI Tender Form (not mandatory but can be useful)

A. The PPI Contract Notice

The Contract Notice is intended to raise the awareness of as many economic operators as possible of the upcoming PPI procedure. The public procurement directives and the relevant annexes outline the information that should be conveyed through a contract notice.[57] This information regards the public procurer, the nature, scope and estimated value of the contract(s), the applicable procedure and relevant time limits, the conditions for participation in the procedure, or any particular conditions for the performance of the contracts etc.

The use of the standard format provided by the EU is mandatory.[58]

It is crucial to provide relevant and accurate information through the Contract Notice, in order to attract sufficient competitors with relevant expertise. From a legal point of view, an incomplete or incorrect Contract Notice may breach the principles of transparency and equal treatment and may lead to the restart of the procedure. A template PPI contract notice is attached to this Toolkit.

B. The PPI Request for Tenders/Invitation to Tender/Tender Regulation

The Tender Regulation is the main tender document in the PPI tender package, including:

- Description of the PPI challenge and of the procurement context:
  - the identified need that the public procurer aims to address by means of the PPI;
  - technical specifications, described in terms of performance and functions;[59]
  - short description of the public procurer(s);
  - description of the preparatory steps (e.g. the results of the open market consultation and of the prior art / IPR search);
- Description of the procurement process:
  - The description of the contracting approach for the PPI (simple contract, or framework contract/agreement with or without lots)

[57] See article 49 and Annex V Part C of Public Sector Directive 2014/24.
[58] Available at http://simap.europa.eu/buyer/forms-standard/index_en.htm.
[59] In case the technical specifications are rather comprehensive or the procurement is divided in several lots, the public procurer could also include the description of the technical specifications in a separate document and attach it to the request for tenders/tender regulation.

- type of procurement procedure to be followed;
- expected timelines / duration of the procurement contract;
- the minimum number of contracts to be awarded (per lot if applicable);
- the distribution of rights and obligations related to intellectual property rights;
- confidentiality requirements;
- information for tenderers who want to participate to the tender individually or by way of a consortium or association, as well as details regarding sub-contracting;
- information on how contract implementation will be monitored (e.g. KPIs, reporting obligations etc.);
- information related to payments;
- information related to any conformance testing/homologation that is required prior to award;
- Description of the legal, economic, financial and technical information:
- Monetary unit of the procurement contract;
- Language of the offers;
- Co-contracting;
- Financing and payment related information;

❖ The terms of presentation of the tenderers' proposals and tendering requirements

- instructions for the submission of tenders and on the content thereof;
- exclusion and selection criteria,
- MEAT award criteria and scoring model;

Especially for PPIs that involve an elaborate selection procedure or a demanding conformance testing or labelling procedure, it is important to stress the advantages for the companies to participate, such as reaching a critical mass of customers.

EXAMPLE formulation of advantages for companies to participate in a PPI

The Swedish Energy Agency regularly performs conformance testing and product labelling procedures for groups of Swedish procurers /cities that will start their own PPI procurements afterwards based on the test and labelling results. The agency highlighted the following advantages for companies to participate in the conformance testing for the installation of heat recycling systems in existing apartment flats:

- Winning bids in stage 1 (conformance testing) will be allowed to install the heat recycling system in one or more demonstration blocks.
- Winning bids in stage 2 (actual start of the PPI procurement by the individual buyers in the customer group) will be able to sign a framework agreement or local contract agreements for on-going procurement of systems.
- Around 70% of all building proprietors can be reached through the customer group. They will disseminate information within their organisations and make sure that solutions are utilised practically.

- A new directive to be issued shortly will be posing requirements to the effect that promotion of energy efficiency must be carried out in connection with renovation of ventilation systems amongst other things.
- The Swedish Energy Agency collaborates with IEA, the International Energy Agency, within the area of technical procurement. The result of the invitation to tender will thus be presented for several countries, which will also allow other markets to be reached.

Source: http://www.bebostad.se/wp-content/uploads/2013/08/Heat_Recycling_Procurement_eng_invitation.pdf

More detailed information regarding the legal framework for the drafting of the PPI request for Tenders/Tender Regulation is provided under section 2.8.3 of Module 3.

Keep in mind that:

- the tender documentation must contain a clear description of the exclusion, selection, award and of the evaluation methods that will be used for the PPI;
- the tender documentation must clearly describe any requirement related to testing of the innovative solution prior or following the award of the PPI procurement contract.
- the criteria, weightings and minimum requirements may not be changed after the opening of the bids.

C. The PPI Procurement Contract

A Procurement Contract will be signed by the public procurer with one or more economic operators (e.g. in case of several lots) who scored the highest, according to the applied award criteria and scoring model.

The Procurement Contract mainly establishes:

- the purpose of the contract;
- the rights and obligations of the parties thereto (the public procurer and the winning bidder), in relation to the specific type of activities required by the project;
- access to IPRs of the innovative solution;
- the conditions for the performance of the contract, in accordance with the technical, financial tender of the economic operator;
- language and applicable law,
- periodic assessment of KPIs;
- value engineering clauses;
- term of the contract and conditions for termination of the contract.

For additional legal information on how to draft a Procurement Contract, see section 2.8.3 of Module 3. A template for a PPI procurement contract is attached to this Toolkit.

E. The PPI Tender Form

The **Tender Form** provides the requested format for submitting a tender. It is not a mandatory to use a Tender Form but it can help the procurer to obtain more comparable tenders. The following sections can be included in the Tender Form:

- information on the tenderer (name, registration number, contact information etc.)
- a section per selection criterion (e.g. model docs for the requested proof of compliance)
- a section requesting tenderers to explain how their solution addresses each award criterion e.g.
    - project description
    - project plan, methodology and proposed team
    - price
    - list of background IPRs to assess IPR dependencies of the proposed solution
- information on proposed subcontracting (if applicable)
- signature

A checklist including main issues to consider when preparing a PPI procurement is included as Annex 5.

2.9 Conducting the procurement procedure

2.9.1 Conducting the procurement procedure for a PCP

Once the PCP tender package is drafted, the public procurer will take the following steps:

A) Publication of the contract notice

PCP is exempted from the EU public procurement directives. However as PCP concern innovations of wide potential market interest (also across borders in the EU) it is recommended that the public procurer publishes the Contract Notice in TED (Tender Electronic Daily), the Supplement to the Official Journal of the EU, at least in English, to attract enough good quality offers for the multi-competitor PCP approach.

B) Selecting R&D providers and awarding the framework agreement

The public procurer will open the offers that have been received within the pre-defined deadline. The first evaluation stage targets the checking of the bidders' compliance with **exclusion and selection criteria**. To this end, the administrative forms and related documentation are checked by the evaluation committee. Once the administrative evaluation is completed, the technical evaluation will start. This evaluation will be based on the application of **award criteria (and possibly additional project specific compliance or minimum criteria)** to the offers received. Please see below a suggested scheme for the organization of the evaluation exercise.

The procurer needs to decide on:

- the composition of the evaluation panel(s) (and allocate the required resources internally for it)
- how the panel(s) will make decisions (by unanimous decision or by majority voting)

Public procurers can make use of external experts in the evaluation panel. The evaluation committee could include both internal as well as external experts. In any case, they should cover the main sectors of expertise needed to assess the offers: internal experts from the procurer side experienced in operating the public service that needs to be modernised with the innovative solution, technical/R&D domain experts and possibly economic and financial experts (to assess the commercialisation plan).

Decipher is an EU-funded PCP conducted by a consortium of public health procurers that aims to innovate cross-border mobile healthcare through the use of electronic patient records. In this PCP, the consortium of procurers appointed venture capitalists as evaluators to assess the commercialisation plan of the tenderers. This was used as an alternative to asking financial turnover figures and prior expertise with commercialisation as selection criteria.

Source: Decipher project, www.decipherpcp.eu

If external experts are used, it is up to the public procurer to set up a remuneration scheme for the experts. It is also up to the procurer to ensure safeguarding of confidentiality and fairness, by:

- Asking the experts to sign non-disclosure agreements;
- Asking the experts to sign a declaration of absence of conflicts of interests.

For more details and a practical example on how to conduct the evaluation, please refer to section 2.9.1 in Module 3.

The best scoring offers[60] as a result of the evaluation will be awarded a Framework Agreement and will be invited to sign a Phase 1 contract for starting solution design. The 2007 PCP Communication and Staff Working Document recommend to start Phase 1 with at least 4 economic operators to end up with a competitive market of at least 2 providers by the end of the PCP. As the R&D failure rate in many sectors is higher (around 75%) it is however advisable to start PCPs with around 8-10 economic operators.

[60] The minimum number is decided by the procurer depending on budget availability and prices offered.

C) The phased approach – from one Phase to the other

The award of the framework agreement and phase 1 contract marks the beginning of the Phase 1 contract implementation stage. In case the satisfactory / successful approach for the completion of phase is used, the call-offs after phase 1 and 2 open again a mini tendering competition between the R&D providers that have successfully completed the previous phase, after which the contract implementation stage for phase 2 respectively phase 3 starts.

Phase 1: Solution exploration

- During Phase I the R&D providers will start solution design and verify the technical, economic and organizational feasibility of their solution approach to address the PCP challenge.[61]
- On completion of Phase 1, the R&D providers will each deliver End of Phase 1 deliverables requested by the procurer (e.g. copies of designs, drawings, calculations, plans, list of IPRs generated/used etc.) and an End of Phase 1 report, describing the performed activities and the obtained Phase 1 results and a business/commercialisation plan;
- For Phase 1 payment purposes, the Phase 1 performance assessment committee (possibly other experts than those who evaluated the offers for Phase 1) will assess whether the results delivered by the R&D providers are satisfactory; The committee will also assess which R&D providers achieved successful completion of Phase 1 (solution meeting the expected quality/cost requirements).

Call off for Phase 2

- The Phase 1 R&D providers who successfully completed Phase 1[62] are invited to bid for Phase 2 contracts;
- The Phase 2 evaluation committee (could be different than the Phase 1 evaluation committee) evaluates the submitted Phase 2 offers, based on the phase 2 award criteria;
- The best scoring Phase 2 offers (ideally more than 3) are awarded a Phase 2 contract;

Phase 2: Prototyping

- During Phase 2, the winning R&D providers will develop a prototype and will test this in lab conditions (lab of the R&D provider or procurer, as chosen by the procurer);
- On completion of Phase 2, the R&D providers will deliver End of Phase 2 deliverables requested by the procurer (e.g. software code of simulations, data lists, updated list of IPRs generated/used etc.) and an End of Phase 2 report, describing the performed activities and Phase 2 results (e.g. product specification, tested prototype, production plan and an updated business / commercialisation plan);
- For Phase 2 payment purposes, the Phase 2 performance assessment committee will assess whether the results of the R&D providers are satisfactory; The committee will also assess which R&D providers achieved successful completion of Phase 2 (solution meeting the expected quality/cost requirements).

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[61] Lieve Bos, Stephan Corvers, 'Pre-commercial Public Procurement. A missing link in the European Innovation Cycle. Public Needs as a driver for innovation', *Tijdschrijft Aanbestendingsrecht* (2006).

[62] The conditions to reach satisfactory and successful completion must be defined in the tender documentation.

Call off for Phase 3

- The Phase 2 R&D providers who successfully completed Phase 2 are invited to bid for Phase 3;
- The Phase 3 evaluation committee, after the deadline for the submission thereof.
- The Phase 3 evaluation committee evaluates the submitted Phase 3 offers, based on the phase 3 award criteria;
- The best scoring Phase 3 offers (ideally more than 3) are awarded a Phase 3 contract;

Phase 3: Original development of a first limited set of products/services validated through field tests

- During Phase 3, the successful R&D providers will produce a first limited set of products/services and after testing by the procurer in relevant environments/real-life operational conditions, will subsequently incorporate the results of the field testing in a final limited set of products/services that demonstrate suitability for large scale production after the PCP;
- On completion of Phase 3, the economic operators will deliver End of Phase 3 deliverables requested by the procurer (e.g. completed limited series of tested end-products, updated list of IPRs generated/used etc.) and an End of Phase 3 report, describing the undertaken activities and the obtained Phase 3 results (e.g. final product specifications, tested products/services, refined production and commercialisation/business plan);
- For payment purposes, the Phase 3 performance assessment committee will assess whether the Phase 3 results can be qualified as satisfactory. The committee will also assess which R&D providers achieved successful completion of Phase 3 (solution meeting the expected quality/cost requirements).

For evaluation bids for the call-offs for phase 2 & 3 also exclusion, selection and award criteria are applied. It is common practice that exclusion and selection criteria remain the same throughout the competitive phased process, whereas the award criteria can become progressively more specific per phase (e.g. via the use of award sub-criteria that can become more specific per phase).

Example field testing – Swedish electrified roads for heavy vehicles PCP

Trafikverket is conducting a PCP in Europe on electric traction for vehicles such as lorries that are so heavy that they can't be charged by carrying batteries inside but need continuous electricity supply along the trajectory on the road. The PCP was triggered by Sweden's goal of an energy efficient and fossil free vehicle fleet by 2030 and the fact that heavy vehicles account for a significant part of the Swedish transport energy. The electrified roads PCP is the largest PCP in Europe: the 3rd testing phase is expected to last two years up to 2018 (to test also during two winters) and this phase alone costs the Swedish government 12,7 million euros. Trafikverket is currently setting up two complete test tracks in the area of Stockholm airport, with an electric rail in the road itself powering the vehicles, and from Gävleborg to the hinterland industrial area, with an electric rail above the road powering the vehicles.

Source: http://www.vinnova.se/en/innovationsupphandling/Projects/Demonstrators-for-electric-traction-of-heavy-lorries-and-other-larger-vehicles/

Link to deployment of commercial volumes of solutions (PPI)

- Completion of the Phase 3 R&D services marks the end of the PCP procedure.
- Commercialization of solutions developed during the PCP by companies/consortia follows after the end of Phase 3 of the PCP and is strictly outside the scope of the PCP.
- PCP is also clearly separated from any potential subsequent purchases of commercial volumes of end-products by the procurer.
- The public procurer may decide after the PCP procedure to start a PPI procedure to purchase a commercial solution for the same challenge that was addressed through the PCP.
- The PPI must be conducted in full compliance with the applicable public procurement legal framework (EU and/or WTO GPA if applicable), to preserve international competition.
- There are several benefits for procurers to use a separate PPI procurement after a PCP: obtaining on average 20% cheaper and higher quality products, reduced risk of errors in the PPI afterwards because of de-risking technologies before fixing procurement requirements for deployment, ability to foster job creation in Europe via the PCP, etc. (see section 3.3 under Module 1 regarding the differences between PCP-PPI compared to innovation partnership procedure, available at http://eafip.eu/toolkit/module-1/module-1_3/).
- For companies as well there are clear benefits of using a separate PPI procurement after a PCP. Importantly, a separate PPI allows companies that have developed products through other means than the PCP to still compete for PPI deployment contracts (e.g. through other procurements, SME funding instruments, other R&D grants, own company R&D resources). Using a separate PPI after a PCP thus prevent issues of foreclosing of competition and crowding out of private R&D investments. Also using two separate PCP-PPI procedures facilitates the access of smaller innovative companies such as SMEs to the procurement market (e.g. SMEs may perform the PCP even when they do not have the capacity to produce and supply the commercial volumes of the innovative solution). Separating the PCP from the PPI potentially enables them to partners or license the PCP outputs to suppliers that are able to compete in the PPI.

2.9.2 Conducting the procurement procedure for a PPI

Once the PPI tender package is drafted, the procurer will take the following steps:

A) Publication of the PPI contract notice

The PPI must be advertised as widely as potentially interested bidders are located to ensure large dissemination and maximum responsiveness from the market. Consequently, the contract notice should be published in TED (Tenders Electronic Daily), the Supplement to the Official Journal of the EU, at least in English. For contracts subject to the EU public procurement directives publication in TED is a must, for other contracts the same is advised to ensure proper dissemination and response from the market.

B) Selecting suppliers and awarding the Contract(s)

The public procurer will open the offers that have been received within the pre-defined deadline. These offers will be assessed by an evaluation committee. The evaluation committee could include both internal as well as external experts that cover the areas of expertise needed to evaluate the offers: internal experts from the procurer side experienced in operating the public service that needs to be modernised with the innovative solution, technical experts (to assess compliance of the innovative solution with the advanced requirements formulated into the tender documentation) and possibly economic/financial experts (to assess market/IPR valuation aspects in the offer). One or more tenderers could be awarded contracts, depending on whether lots of framework contracts/agreements are used for the PPI.
In case external experts are used it is up to the public procurer to set up a remuneration scheme for the experts. It is also up to the procurer to ensure safeguarding of confidentiality and fairness, by:

- asking the experts to sign non-disclosure agreements;
- asking the experts to sign a declaration of absence of conflicts of interests.

The first evaluation stage targets the checking of the bidders' compliance with **exclusion and selection criteria**. In this case, the administrative forms and related documentation are checked by the evaluation committee. Once the administrative evaluation is completed, the technical evaluation will start. This evaluation will be based on the application of **award criteria** to the offers received.

As part of the tendering process, the companies could be requested to send samples of the offered product along with their offer (see the example of the procurement of photovoltaic concrete by the City of Detmold on page 83 and a detailed presentation of the project here: https://www.innovation-procurement.org/fileadmin/editor-content/Guides/Consultation/PPI_Guide__public_consultation_draft_with_case_studies.pdf). Samples could be evaluated as part of the tender process. A test surface/ could be set up to test e.g. the reliability or quality of the innovative solution or to determine the best working processes with the innovative materials/products.

The public procurer could also perform an extensive demonstration/conformance testing, *prior to launching the PPI procurement* (see example below). For example, conformance testing may need to take place, to verify which level of performance/price the market can really deliver and to adapt the tender specifications accordingly prior to proceeding to the actual purchase of solutions. The public procurer may decide to set-up a testing site at its premises.

EXAMPLE testing/certification prior to a PPI

The National Health Service (NHS) Rotherham Trust in the UK launched a PPI back in 2006 to deploy more cost effective and energy efficient lighting solutions for hospital rooms. NHS Rotherham Trust partnered with the Department for Business, Innovation and Skills and the Department of Health to deploy the procurement of an innovative ward refurbishment, using new LED lighting technology.

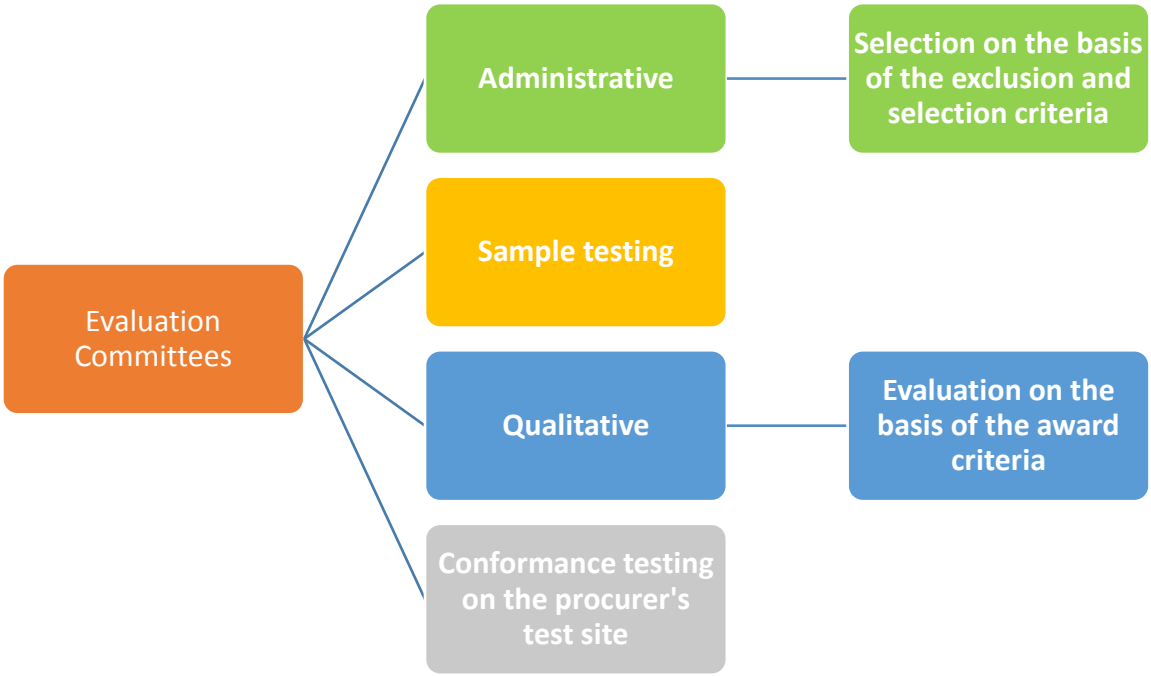
"The buyers' group published in the European tender database a prior information notice containing the groups' requirements specifications for the desired innovation and inviting suppliers to come forward by a certain predefined date (e.g. 6 months or 1 year) to demonstrate whether the solutions that they have developed in the meantime are able to meet the set of requirements commonly defined by the buyers' group (this RFP can be accompanied by a test/certification event at the procurers' premises).
[…] If the results of the test/certification event are positive, the buyers' group proceeds to the actual purchase for deploying large volumes of the final end solutions."

Source: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/32439/11-997-case-study-innovative-ultra-efficient-lighting.pdf

The Swedish Energy Agency regularly collects and publishes requirements of Swedish buyers groups for new energy efficient products (e.g. in 2010 for heat recycling systems in existing apartment flats). It then organizes an open competition that selects several potential providers to test their innovative solutions for heat recycling systems in existing apartment flats that were chosen for the testing/ demonstration. Based on the results of the testing phase, the technical requirements specifications of were improved and the procurers in the buyers group launched their PPI procurements for wide deployment.

Source: http://www.bebostad.se/wp-content/uploads/2013/08/Heat_Recycling_Procurement_eng_invitation.pdf

Please see below a suggested scheme for the organization of the evaluation exercise.



The procurer needs to decide on:

- the composition of the evaluation panel(s) (and allocate the required resources internally for it)

how the panel(s) will make decisions (by unanimous decision or by majority voting).
For more details on the legal framework for conducting the evaluation, please refer to section 2.9.2 in Module 3.

2.9.3 Conflicts of interests[63]

2.9.3.1 Understanding conflicts of interests

According to the new 2014 EU public procurement directives, conflicts of interests mean:

> "Conflicts of interest shall at least cover any situation where staff members of the contracting authority or of a procurement service provider acting on behalf of the contracting authority who are involved in the conduct of the procurement procedure or may influence the outcome of that procedure have, directly or indirectly, a financial, economic or other personal interest which might be perceived to compromise their impartiality and independence in the context of the procurement procedure".
>
> Art.24, Public Sector Directive 2014/24/EU

Conflicts of interests should not be mistaken for corruption. Accordingly, conflicts of interests usually arise when a person puts private interests before professional duties. On the other hand, corruption entails an agreement between two or more persons and it involves the offering and/or receipt of payments, bribes or advantages of different kinds.

2.9.3.2 Conflicts of interests in public procurement procedures

Conflicts of interests in public procurement procedures:

- directly impact the regularity and legality of such procedures;
- lead to the breach of the basic principles thereof, including equal treatment, non-discrimination, transparency and effective use of public money;
- could discourage honest bidders from participating in tender procedures, due to losing their confidence in public procurement => public procurers who do not effectively manage potential conflicts of interest may lose highly qualitative bids and the opportunity to work with highly qualified contractors.

The lack of effectively managing conflicts of interest leads to:

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[63] This section of the Toolkit is based on the material developed by the EU Commission, European Anti-Fraud Office (OLAF) Directorate D Policy Unit D.2 Fraud prevention, entitled 'Identifying conflicts of interests in public procurement procedures for structural actions. *A practical guide for managers*', available at http://www.esfondi.lv/upload/02-kohezijas_fonds/Lielie_projekti/EK_vadl_par_interesu_konflikta_identif_publ_iepirk_EN.pdf.

- contracts not being awarded in the public sector interest
- public procurers not benefiting from the best competitive offer
- value for money not being achieved
- risk of the procedure being challenged before competent courts of law

EXAMPLES OF POTENTIAL CONFLICTS OF INTERESTS on the procurer's side

- The spouse of a procurement officer in charge of monitoring the conduct of a tender procedure is an employee of one of the bidders.
- An individual owns shares in company X, which participates in a tender procedure in which the individual is appointed as member of the evaluation committee.
- The general manager of a public procurer usually spends holidays with the general director of one of the bidders in the tender procedure or they share political responsibilities in the same political party.
- The procurement officer is offered (post-public) employment in one of the bidding companies.

EXAMPLES OF POTENTIAL CONFLICTS OF INTERESTS on the supplier's side

- The supplier who supported the public procurer in drafting the technical specifications for a PCP/PPI is submitting an offer for the same PCP/PPI.
- One technical expert in the evaluation panel has participated in formulating the offer of one of the bidders;

– One of the financial experts in the evaluation panel has accepted an employment offer from one of the bidding companies.

2.9.3.3 Examples of red flags that could point to conflict of interest-like situations

Conflicts of interests may appear at any stage throughout the procurement process. These can include inconsistencies with legal provisions in various instances, including:

- Submission of offers – for example, the situation in which tenders from allegedly different bidders are sent from the same fax number;
- Behaviour of project staff – for example, pressure from a procurement official within the public procurer organization to hire a specific external auditing office or to include a certain expert in the evaluation committee.

These situations should not be neglected and must be diligently investigated.

Some guidelines and recommendation on how to identify red flags are included in a working document entitled 'Identifying conflicts of interests in public procurement procedures for structural actions. A practical guide for managers', elaborated by a group of Member States' experts coordinated by the European Anti-Fraud Office (OLAF) unit D2-Fraud Prevention . The table in Annex 6 includes examples of potential red flags as mentioned in the above referenced study.

2.9.3.4 Managing conflicts of interests

Conflicts of interests could effectively and efficiently be managed by public procurers by putting in place a general policy in this respect, including requesting all people involved in the public procurement (from the vendor and procurer's side) to sign declarations of absence of conflicts of interests and installing notification and mitigation procedures that are clearly described in the tender documents. For more information about how to do this, please see section 2.9.3 in Module 3.

2.10 Monitoring and assessment of the contract performance

2.10.1 Introduction

It is recommended to **monitor** each economic operator's activities **during** the execution of the PCP or PPI contract and to **assess** the delivered results and their impacts **at the end** of the PCP or PPI, in order to ensure that the objectives of the contract/project are accomplished and that the economic operator is fulfilling its contractual obligations. An effective contract monitoring system will help the public procurer to effectively address contract failure risks and to timely correct economic operator's performance.

Monitoring involves continuous follow-up during the execution of the PCP or PPI of the performance and the context with regard to the planned objectives, results, activities and means. The monitoring may take place at all levels of management and may involve both formal reporting and informal communications. The capacity of the public procurer to monitor how the contract is executed by collecting and evaluating performance data and providing appropriate feedback to providers, is thus critical. Whereas some economic operators may often view government monitoring as micromanagement, a disruptive and dysfunctional intrusion into the process of implementation,[64] most of them consider effective monitoring as an important tool that forces the providers to think in terms of results.

Assessment of contract performance involves the final assessment at the end of the PCP or PPI of the delivered results compared to the planned objectives, including in particular the functionality/performance requirements, price and duration of the contract.

Ex-post impact assessment also includes the final assessment of the wider impacts of the procurement not only on the procurer, but also on the suppliers, and society/economy as a whole.

2.10.2 Monitoring and assessment of PCP contract performance

The phased PCP approach facilitates continuous monitoring and assessment of the performance of the participating providers. This process is described in section 2.8.1 above. At the end of each phase, the results of that phase are assessed for purposes of payment (satisfactory completion) and for concluding on whether the expected performance/functionality requirements were achieved (successful completion). Only those

[64] Bernstein, S. R. (1991) Managing Contracted Services in the Nonprofit Agency; Temple University Press: Philadelphia. Mayer, K. Policy (1993) Disputes as a Source of Administrative Controls: Congressional Micromanagement of the Department of Defense. Public Administration Review, 53, 293–301.

Phase 1 participants who successfully completed Phase 1 will be invited to compete for a Phase 2 contract. Out of these only the best offers will be awarded a Phase 2 contract. This process is repeated after the end of Phase 2.

EXAMPLE of monitoring during the implementation of PCP phases

In the PRACE 3IP PCP project, the group of procurers performs monitoring visits halfway through each phase. In the CHARM and THALEA PCP project, the buyers group assigned a specific monitoring team (with a supervisor, a contact person on the monitoring team for each vendor) that organizes regular meetings (at the contractor's or procurer's premises) to monitor the progress of ongoing work. In the CHARM PCP project, vendors are also invited to visit the procurers' premises at the start of each phase so the vendors better understand the conditions in the real-life operational environment of the procurer in which their solutions will need to work. In the CHARM and shockwave traffic jam PCPs, the procurers invite the vendors in different lots also to regular joint meetings (bi-weekly in case of the shockwave traffic jam PCP) to ensure that the vendors that are working in different lots of the PCP on different subcomponents of the overall system develop their solutions in a coherent and interoperable way.

During these monitoring meetings, the vendors present the progress made so far (and possibly updated work plans) and identify any obstacles on the road towards the development of the innovative solution. Vendor performance is monitored against the tender specifications and expected deliverables for each of the Phases: both the fulfillment of general contractual obligations (e.g. allocation of resources to 'R&D' 'services', place of performance requirements etc.), achievement of technical functionality / performance levels and ongoing IPR/commercialization efforts performed by vendors are monitored. After the monitoring meeting typically a report of the monitoring is made with the action points that need attention. The monitoring visits enable the procurers to give feedback to suppliers during a PCP phase so that suppliers can still make adjustments to ongoing work to meet as best as possible the expectations of the procurers by the end of the phase. The monitoring visits also provide valuable information that can be used by the procurers to refine the tender documentation for the next PCP Phase.

Source: First Report on the PRACE PCP Pilot (Phase I), http://www.prace-ri.eu/IMG/pdf/d2.1.2-3ip.pdf
CHARM PCP: http://www.rijkswaterstaat.nl/
English/about-us/business-opportunities/charm-pcp/ index.aspx
THALEA PCP: www.thalea-pcp.eu
Shockwave traffic jam PCP: http://www.beterbenutten.nl/spookfiles

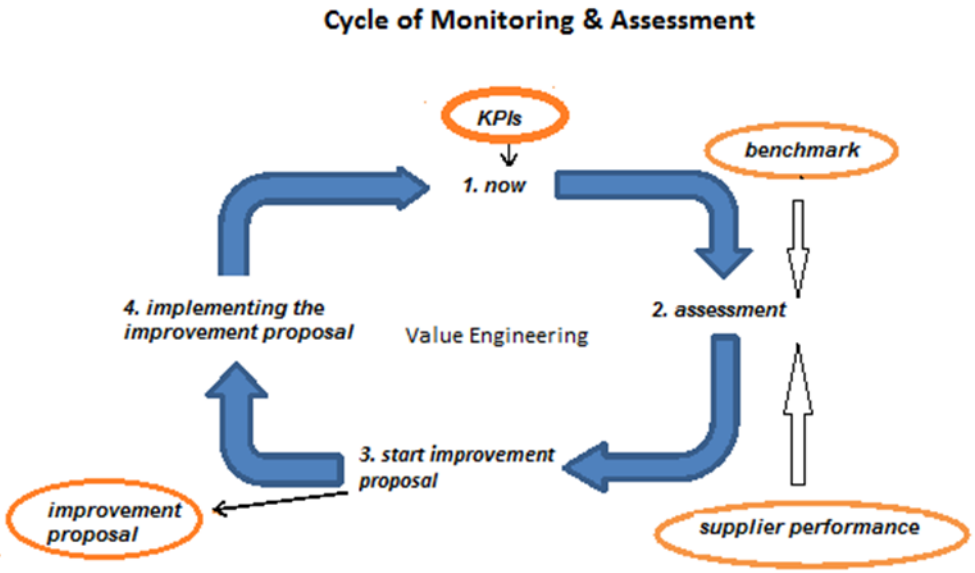
Thus, during each of the 3 PCP Phases, the delivered performance of each economic operator is monitored and compared against pre-defined criteria related to the fulfilment of their contractual obligations and to the achievement of the proposed technical performance levels. To facilitate this process, templates for monitoring and End of Phase reports can be provided by the procurer. These templates could contain questions related to the undertaken activities and to the innovative solution that was developed. In addition, the performance monitoring/impact assessment committee of the public procurer may at any point in time ask additional clarifications to the economic operators.

The performance monitoring/impact assessment committee should also assess whether the participating economic operators have delivered R&D services, as opposed to R&D works or R&D supplies, or even non-R&D activities. When the R&D service activities are not predominant in terms of contract value, the project cannot be qualified as a PCP. From a practical point of view, paying for non-R&D activities, for example, would amount to a waste of public money. From a legal point of view, non-compliance with the R&D services requirement will constitute a breach of the public procurement directives and will lead to the termination of the PCP procedure.

The evaluation of Phase 3 results will constitute the basis for deciding whether to continue with a PPI procurement or not (e.g. whether there are PCP solutions that meet all the procurers' requirements and are ready for large scale commercial deployment). After the PCP a new open market consultation could be organized to ensure that the PPI procurement will attract additional competitors, who have developed innovative solutions in parallel to the PCP procurement.

2.10.3 Using value engineering in the monitoring and assessment of PCP/PPI contract performance

A cycle of monitoring and performance assessment based on the Key Performance Indicators (KPIs), milestones, benchmarks and value engineering can be applied to PCP or PPI contracts.



Monitoring can be reflected in periodic performance reports according to milestones established in the contract, in combination with a requirement of value engineering that creates an incentive to the supplier to find alternatives to improve the initial KPIs and benchmarks. The cycle can be repeated periodically.

In this model, the supplier could be required by a contract clause to present an improvement proposal in a given period of time depending on the contractual terms (e.g. once every year). The proposal, which would include specific information as established in the contract, is to be evaluated for acceptance by the public procurer.

The accepted improvement proposal is therefore implemented adding value in comparison with the original business case. The goal of value engineering is to lower the life-cycle cost and improve return on investment, with a focus on function analysis and function worth.

The use of a value engineering clause in PCP/PPI contracts opens the possibility to improve value along the execution of the contract. Therefore, the deployment of services, works or products will be monitored according to the contractual terms and indicators set in the contract, one of which will be a requirement that the contractor presents a value engineering proposal for the contracting authority to consider and implement.

See example of a value engineering clause on page 100.

2.10.4 Monitoring and assessment general considerations for PCP and PPI

Monitoring performance of the economic operators during the execution of the PCP or PPI project is important for the public procurer. Effective and continuous oversight will prevent poor performance by the economic operator and will ensure proper expenditure of the public money.

In order to be able to monitor the performance of the economic operator, the public procurer should begin by creating a list of the performance indicators (or "***smart indicators***" or "***key performance indicators (KPIs)***"), against which the activity of the economic operator will be judged. The smart indicators or KPIs are a type of measurement of the economic operator's success in achieving certain levels of operational goals (e.g. no defects in a product or customer satisfaction, or progress toward strategic goals). Choosing the right KPIs relies upon a good understanding of what is important for who is measuring performance.
Intermediate targets (***milestones***) for the achievement of a specific objective, will express the progress set for the end of a period, which is shorter than the contract term. The economic operator will be required to identify in its proposal suitable milestones for the performance framework. These milestones are assessed during the initial tender evaluation and are subsequently used to monitor the contract.

The ***smart indicators*** should be:

- specific enough to measure progress;
- a reliable and clear measure of result/intended change;
- relevant to the intended output and outcomes; and
- data available at reasonable cost and efforts.

The process of formulating indicators may begin with some questions, for example:

- How can we measure that the expected results are being achieved?
- What type of information can demonstrate a positive change?

In general terms, monitoring and assessment systems use different types of indicators:

(i) *Quantitative indicators*: are statistical measures of results in terms of: numbers, percentage, rate, and ratio.

(i) *impact indicators*: can be used to monitor and measure progress of vendors to achieve the expected results/tender requirements as these indicators can measure the impact on addressing the specific procurement need / challenge. For example, indicators that measure increased energy efficiency or improved sustainability in an energy/environmental procurement, reduction of contamination in a healthcare procurement.

The results and indicators should be checked on *measurable*, *independently verifiable*, *realistic* and *achievable* data. Identifying the means of verification should take place in a coordinated manner when planning projects. Keep in mind that clear means of verification facilitate the establishment of monitoring and ex-post impact assessment systems and contributes significantly to ensuring evaluation.

The establishment of a contract monitoring system by the procurer should start with the following questions:

- What can be feasibly monitored with given resource and capacity constraints?
- What means of data collection will be used?
- Who will be responsible for gathering data?
- Who will be responsible for assessing the performance and taking measures in case of poor performance?
- What measures will be taken in case of poor performance?

There are several means through which public procurers can acquire performance data:

(i) monitoring citizen/customer complaints;

(ii) citizen/customer satisfaction surveys;

(iii) analysing economic operator's performance data; and

(iv) onsite inspections/field audits of economic operator's activities.

MEANS TO MONITOR CONTRACTS[65]

Monitoring citizen/customer complaints

The recipients of contracted goods and services, have direct knowledge about economic operator's performance. They also have the most incentives to report performance problems. The procurer should set procedures to receive complaints of poor performance. The procurer will notify the economic operator in written form, and will set the timetable for the resolution of the complaint. If complaints are not resolved, the procurer should consider taking actions to compel the economic operator to adequately comply with contract terms (i.e., financial consequences, contract cancellation).

Citizen/customer satisfaction surveys

Citizen/customer surveys can provide the (public) sentiment about the service quality and the vendor performance. This can be a costly method. The feedback can be used to notify the vendor to improve its performance in accordance to the contract requirements

Analyzing economic operator's performance data

Governments can also apply a more direct procedure by auditing and analyzing the economic operator's records and performance data, delivered in the form of periodic reports. When the contract clearly specifies outputs and outcomes it is easier to measure the economic operator's performance. This procedure requires that public managers have the expertise and skills to analyze and interpret the data. The burden to produce the performance information generally increases the costs for the economic operator.

Onsite inspections/audits of economic operator's activities

Conducting onsite inspections/field audits is the most direct (but also more costly) way of evaluating vendors. This procedure requires that government employees physically monitor vendor's delivery of goods and services to recipients in order to gain direct information about service quality, vendor effort and citizen satisfaction. On-site visits are most effective when based on a specific methodology or a checklist of review tasks.

Once the public procurer has defined performance indicators and has identified the means to acquire performance data, the following additional components of the contract monitoring and assessment system should be put in place[66]:

- define Contingency Plans, in order to prevent interruption of services when economic operators default on their obligations (e.g. subject to legal compliance, contract with the next best value for money bidder from the original solicitation; or use another current vendor; or deliver the service in-house; or contract with another government entity).
- Communicate Clear Expectations to the economic operator: hold a post-award meeting with the economic operator in order to re-state the contract requirements and performance goals. A post-award (kick-off) meeting allows staff that may not have been involved with the procurement process to answer

[65] Trevor L. Brown and Matthew Potoski (2003) Managing Contract Performance: A Transaction Costs Approach. Journal of Policy Analysis and Management, Vol. 22, No. 2, 275–297.

[66] Hinton, Russell W. (2003) Components of an Effective Contract Monitoring System, Department of Audits and Accounts Performance Audit Operations Division, Atlanta.

questions that the vendor might have and clarify technical aspects of the contract, reducing thus the potential for poor performance.

- Formulate a Contract Administration Plan: a cursory view of planned and completed activities as well as an overview of the methods that will be used to monitor the economic operators and of the staff or offices that will be responsive.
- Organized Contract Files: hold all the information necessary so that someone could reconstruct and understand the history of the contract and could conclude on the outcomes of the contract, in the absence of the contract administrator. The information can be used as a source of past performance information for subsequent contract awards.
- Use of Incentives and Consequences for Poor Performance: financial incentives can be one of the most effective methods of inducing an economic operator to perform a desired service, while consequences for poor performance written into a contract provide agencies with that ability to take disciplinary action against an economic operator who fails to comply with the contract terms. Reasonable damages should be established on reasonable standards. If either is unreasonable, it is likely to limit competition and lead to vendors charging higher amounts to cover the greater risk.
- Close-out Procedures: essentially, it is a review and documentation of the fulfilment of all contract requirements which, as a part of contract administration, has the purpose to ensure that contractors perform in accordance with the terms, conditions, and specifications of their contracts or purchase orders. Formal, written closeout procedures are recommended at the completion stage of the contract so that important elements are not overlooked. The use of a checklist of closeout procedures helps to assure that all actions have been completed.
- In-Contract Monitoring and Post-Contract Review: during the contract period and at the end of a contract period, the economic operator's performance and the procurer's method of monitoring should be evaluated. Regular progress monitoring meetings with contractors (on the contractor and/or procurer premises) helps keep project goals on track. A comprehensive final project review (including a financial audit) should be considered.

Often, public procurers omit to monitor the performance of the economic operator during the execution of the contract. This may be due to lack of capability or capacity, or to a perception that oversight will be a barrier to creating a partnership with the contractor.

Effective contract monitoring in a PCP or PPI would thus be closely related to:[67]

- the capability of the public procurer to collect and evaluate relevant information (received) from the economic operators, regarding the quality and quantity of the what's procured/delivered;
- higher management mandate to perform contract monitoring;
- sufficient financial resources to hire qualified evaluators.

[67] Kane, Jeffrey S.; Lawler, Edward E. (1979) III Performance Appraisal Effectiveness: Its Assessment and Determinants. In Research in Organizational Behavior; JAI Press: Greenwich, CT; 425–478.

It is thus important to:

- Train public procurers in contract monitoring
- Define written policies and procedures, in order to ensure a consistent and high-quality contract monitoring process

SPEA PPI project (Eindhoven, NL) - Monitoring organizational flexibility

The EU funded SPEA PPI project procures innovative solutions for sustainable construction of public buildings. Eindhoven is one of the procurers in the SPEA buyers group. Eindhoven has a complex PPI contract due to the proposed system-based approach to sustainability and the proposed flexibility of the buildings, in terms of the future use of buildings and the office stock to be maintained. An additional factor is that the contract is a long-term contract. These combined factors contribute to the risk of suboptimal contract performance due to a lack of ability to exploit new insights and available innovations. This also makes it difficult for small businesses. Because they tend to have a limited focus or limited financial resources, they are not eligible to perform the contract.

The Municipality aims to resolve this paradox by encouraging the involvement of innovative small- and medium-sized enterprises in the performance of the contract in the short and long term. This requires organisational flexibility on the part of the future contractor in the planning and implementation stages; this, in turn, makes it possible to incorporate innovation into the contract based on a growth model. Candidates are therefore requested to set out their ideas on how to organise this flexibility on a maximum of three A4 pages of text that must be uploaded in TenderNed when giving in the answer to a related selection criterion. The ideas to be assessed on the following aspects, have to be traduced in their monitoring system:

A. Commitment to innovation thanks to short-term and long-term cooperation

B. The proposed method in which potential barriers to cooperation can or will be overcome now and in the future (or were overcome in the past).

C. The extent to which organisational flexibility can be made measurable (i.e. ("accountable") for the contract period during the performance of the contract, e.g. by proposed KPIs.

D. The extent to which points A-C are supported by examples, experiences and agreements regarding cooperation.

Source: SPEA project:
http://www.speaproject.eu
http://www.speaproject.eu/rcs_gene/extra/Selection_Guidelines_July_21_def__English_.pdf

2.11 Managing after-contract issues

Following the completion of the PCP or PPI contract, the public procurer should continue to monitor the fulfilment by the PCP/PPI suppliers of those obligations that span beyond the contract period. Whenever these obligations are not fulfilled, the procurer should decide whether to take action, in accordance with the contract provisions.

More specifically, the public procurer should:

- Monitor if the suppliers are respecting their after-contract obligations e.g. relating to provisioning support/information about the PCP/PPI solution, contribution to standardisation, obligations regarding publication of information about the contract and auditing/keeping data records etc.
- Monitor whether the IPR applications of the PCP/PPI suppliers finally result in actual IPR award; in case the suppliers stop protecting their IPRs, decide whether to make the PCP/PPI results public, or file himself for a IPR, depending on the contract provisions and the needs of the procurer.
- Monitor whether there remains a competitive supply chain when starting a PPI after a PCP. This may not be the case anymore for example when some suppliers that participated in the PCP beforehand may have gone bankrupt or may have stopped the product line needed, creating a monopoly or oligopoly situation on the market. In this case request PCP suppliers to give licenses to other vendors against Fair, Reasonable and Non Discriminating Conditions (FRAND) before starting the PPI.
- Monitor whether the PCP suppliers are successfully commercialising the R&D results within the call-back period defined in the PCP contract. In case of a negative response, investigate whether the PCP suppliers are giving licenses to other vendors against Fair, Reasonable and Non Discriminating Conditions (FRAND). If this is not the case and the call-back period has not finished yet, request the PCP vendors involved to gives licenses to other vendors against Fair, Reasonable and Non Discriminating Conditions (FRAND). If this is still not the case by the time the call-back period has finished, consider the options of enforcing the IPR call-back clause.
- Monitor whether the PCP suppliers fulfil other obligations related to contribution to standardisation, publication of information about the contract, paying the share of the revenues to the procurer (in case the procurer uses ex-post financial compensation for leaving IPR ownership with suppliers) etc.

EXAMPLE of managing after contract IPR issues in PCP

The Lombardy Niguarda PCP requests ex-post (after the PCP is finished) a financial compensation from the participating companies for leaving the ownership of IPR rights by the companies in the PCP with the companies. The compensation takes the form of a 1% share of the revenues that companies make by commercializing the R&D results of the PCP (revenues from sales of products that were developed during the PCP or from royalties from licensing out/selling IPRs that were generated in the PCP).

To be able to manage this after-contract issue correctly, a clause was foreseen in the PCP contracts that allows the procurer to audit the companies to follow-up the revenues and IPR strategy of the companies.

Source: http://www.arca.regione.lombardia.it/shared/ccurl/497/198/ARCA_2013_02_Disciplinare.pdf

Whenever the PCP is followed by a PPI, the public procurer should consider the following questions:

- Do I need to use my right to require some of the PCP suppliers to give licenses on their IPRs to other vendors on the market?
- How do I concretely use my license free right to use the R&D results including the IPRs after the PCP?
- Is any of the vendors abusing the R&D results against the public interest? Do I need to use the IPR call-back clause?
- Are all PCP suppliers respecting other contractual obligations that span beyond the PCP contract? e.g. provisioning of support/information about the PCP solution, contribution to standardisation, obligations regarding publication of information about the contract, auditing/keeping data records obligations, etc.
- Did I prepare everything correctly to prepare the PPI after my PCP (e.g. analysis of how the IPRs of other vendors have evolved outside the scope of the PCP)? Whenever the PPI concerns larger commercial volumes of end-products or end-products with additional features compared to those that were tested during the PCP, the public procurer should consider requesting and testing samples of the products or performing conformance testing or requesting proof or certification before the award of the PPI contract.

In addition, the public procurer could consider whether to publish the non-IPR protected and non-business sensitive results/main conclusions of the PCP/PPI and to share them with colleague procurers across the EU or whether to require any service provider to which results giving rise to IPR are allocated to grant the procurer unlimited access to those results free of charge, and to grant access to third parties, for example by way of nonexclusive licenses, under market conditions.[68]

3 Joint /coordinated procurement

3.1 General considerations on joint /coordinated procurement

Joint / coordinated procurement entails the combining of procurement actions of two or more public procurers from the same or from different countries. Joint / coordinated transnational procurement is when two or more public procurers from different countries combine procurement actions.

- In coordinated procurement, several procurers carry out together the preparation but not the execution of the procurement procedure. Procurers define together common requirements specifications and consult the market together on available solutions, but launch separate procurement procedures to buy separately the amount of products they each individually need.
- In joint procurement, several procurers carry out together not only the preparation but also the execution of the procurement procedure. Compared to coordinated procurement, there is only one joint procurement procedure launched.

[68] See article 33 (d) of the 2014 Commission Communication on State Aid Framework for R&D&I.

Coordinated, and even more joint procurement, brings substantial benefits to public procurers:

- Helps deliver better value for money solutions – the buying power is greater than the purchasing power of individual procurers, which can enable economic operators to deliver better value for money solutions (e.g. economies of scale of production because of the larger potential market / higher value contracts). This is thus particularly interesting when the identified need is likely to be faced also by other procurers at local/regional/national or European level and when the market for the solutions is very fragmented (joint signal from demand side is needed).
- Reduces costs – the costs for preparing and/or carrying out of the procurement (administrative costs to prepare the procurement, run the procedure and the non-administrative costs e.g. costs for the testing and acquisition of solutions) can be substantially reduced / split among the participating procurers. In particular joint procurement can thus enable procurers to tackle needs for which individual procurers lack sufficient financial resources to procure alone;
- Joining skills and expertise – the participating procurers share knowledge, expertise and skills; for example, one of the procurers could bring significant economic expertise, while another could provide extensive legal expertise or expertise in undertaking innovation procurements; This enables procurers to learn on innovation procurement from other more experienced procurers.
- Fosters standardization – joint / coordinated procurement (agreeing on joint requirements for solving common problems) can foster the creation of *de facto* and *de jure* standards and increase interoperability between the systems of participating public procurers; This is thus particularly interesting when coherence, interoperability, inter-exchangeability or interconnectivity is required.

In addition to the above, transnational procurement enhances cohesion and cooperation on public sector challenges across borders. By fostering cooperation between procurers and suppliers from more and less developed regions in Europe on common challenges (e.g. environmental protection, economic growth, fighting climate change etc.)

3.2 Forms of joint/coordinated procurement

The 2014 EU public procurement directives identify two different forms of joint / coordinated procurement: (a) institutionalized / systematic and (b) occasional / ad-hoc. Piggy-backing other procurers onto the joint / coordinated procurement can be combined with both approach (a) and (b).

(a) Institutionalized / systematic joint or coordinated procurement

Institutionalized Joint Procurement

In case of *institutionalized joint procurement*, the buyers group creates or mandates another specific legal entity to carry out joint procurements for them on a regular basis because there is a need for systematic joint procurement. The lead procurer that will coordinate the joint procurement procedure is thus not one of the procurers in the buyers group himself but another legal entity.

Examples of entities that can perform institutionalized joint procurements

These include central purchasing bodies[69,70], AISBLs (International Non-Profit Organizations), associations (e.g. association of cities), European Groupings of Territorial Cooperation, European Research Infrastructure Consortia etc. In the latter case, the statutes of EGTCs, ERICs or associations are modified to enable them to act as central purchasing bodies in fact.

Following the new public procurement directives[71], public procurers may acquire goods/services/works:

(1) by using contracts awarded by a central purchasing body; or

(2) by using framework agreements[72] concluded by central purchasing bodies; or

(3) by using dynamic purchasing systems[73] operated by central purchasing bodies.

In the situations above, each public procurer involved in a joint procurement shall be responsible for fulfilling the obligations pursuant to the public procurement directives in respect of the parts of the procurement procedure it conducts itself, namely:

- awarding a contract under a dynamic purchasing system, which is operated by a central purchasing body;
- conducting a reopening of competition under a framework agreement that has been concluded by a central purchasing body;
- determining which of the economic operators, party to the framework agreement, shall perform a given task under a framework agreement that has been concluded by a central purchasing body[74].

The new procurement directives allow Member States to designate Central Purchasing Bodies, but this is not mandatory[75]. Consequently, it needs to be checked on a case-by-case basis if they have been established in the concerned Member States and whereas contracts developed by them are available for use by other public procurers.

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[69] A central purchasing body is a contracting authority providing centralized purchasing activities and, possibly, ancillary purchasing activities. See article 2(1)(16) of the Public Sector Directive 2014/24.

[70] See point (a) of point 14 of article 2(1) of the Public Sector Directive, according to which centralized purchasing activity means an activity conducted on a permanent basis, in the form of the acquisition of supplies and/or services intended for public procurers.

[71] See article 37 of the Public Sector Directive 2014/24 and article 55 of the Utilities Directive 2014/25.

[72] According to article 33(1) of Public Sector Directive 2014/24, a framework agreement means an agreement between one or more contracting authorities and one or more economic operators, the purpose of which is to establish the terms governing contracts to be awarded during a given period, in particular with regard to price and, where appropriate, the quantity envisaged. According to article 33(2), these procedures may be applied only between those public procurers clearly identified for this purpose in the call for competition or the invitation to confirm interest and those economic operators party to the framework agreement as concluded.

[73] According to article 37 of the Public Sector Directive, "*where a dynamic purchasing system which is operated by a central purchasing body may be used by other contracting authorities, this shall be mentioned in the call for competition setting up the dynamic purchasing system*."

[74] See article 33(4)(a) or (b) of the Public Sector Directive.

[75] See article 37 of the Public Sector Directive 2014/24.

Institutionalized coordinated Procurement

In case of *institutionalized coordinated procurement*, the buyers group creates or mandates another specific legal entity to prepare the procurement (e.g. organize an open market consultation, prepare the tender specifications) but the individual procurers in the buyers group launch their own procurements in a coordinated way based on the common tender specifications to buy the solutions they individually need.

Examples of entities that can perform institutionalized coordinated procurements

An example is the Swedish Energy Agency that collects requirements for more energy efficient products from Swedish procurers (e.g. groups of cities), publishes these as common requirements specifications of the buyers group and coordinates the testing, certification and or labelling of solutions of different vendors against these common requirements specifications. The individual Swedish buyers/cities later on start individual procurements to deploy tested solutions based on the test results and/or labels created that were created and the common specifications.

Source: https://www.energimyndigheten.se/globalassets/statistik/overgripande-rapporter/energy-in-sweden-till-webben.pdf

(b) Occasional / ad-hoc joint or coordinated procurement

In occasional (also called ad-hoc) joint or coordinated procurement the procurement(s) is (are) undertaken via an ad-hoc cooperation between a group of procurers that is formed on an ad-hoc basis just to address one specific procurement need / challenge.

Occasional/ad-hoc joint Procurement

In *occasional / ad-hoc joint procurement* one of the public procurers in the buyers group is entrusted / mandated by the others as lead procurer with the management of the procurement procedure on behalf of all the other procurers, without setting up a permanent cooperation structure.

CHARM PROJECT
EXAMPLE OF AN OCCASIONAL "JOINT" CROSS-BORDER PCP PROCUREMENT

The EU funded CHARM Pre-Commercial Procurement (PCP) Project intends to stimulate innovations to improve Traffic Management Centers (TMCs) promoting safe, fast and reliable road mobility.
It is implemented by a consortium of road management authorities from England (Highways England - HA) and the Netherlands (Rijkswaterstaat - RWS) that conduct a joint PCP together to improve traffic throughput, road safety, CO_2 footprint and reduce the costs of traffic management by moving to an open modular architecture for Traffic Management Centers equipped with advanced traffic management, traffic prediction and cooperative systems.
The PCP was prepared since April 2011, when the above road operators formally joined forces to develop requirements for a new generation of traffic management (centre) systems that may be jointly procured. The CHARM PCP itself is an occasional cross-border joint procurement in which the lead procurer, Highways England acts in the name and on behalf of a buyers group of two partners:

- HA (England)
- Rijkswaterstaat (The Netherlands) (RWS)

The lead procurer (Highways England) conducts the whole procurement procedure and signs all the contracts in the name and on behalf of the whole buyers group.

The Flanders Department of Mobility and Public Works (Mobiliteit en Openbare Werken - MOW) is given the status as preferred partner in the PCP contract documents, so that it can follow-up during the project the progress of the implementation of the PCP.

For more information, see http://www.rijkswaterstaat.nl/English/about-us/business-opportunities/charm-pcp/index.aspx.

HAPPI PROJECT
EXAMPLE OF AN OCCASIONAL "JOINT" CROSS-BORDER PPI PROCUREMENT

The EU funded HAPPI PPI project procures innovative solutions for ageing well and innovative health products. HAPPI is implemented by a consortium of health- and elderly care procurers that are responsible for elderly care across six EU countries: Réseau des acheteurs hospitaliers Région Île-de-France or Resah-Idf (FR), NHS commercial solutions (UK), Mercurhosp (BE), Fédération des hôpitaux Luxembourgeois (LU), SCR Piemonte (IT), BBG (AT).

HAPPI launched the first joint cross-border PPI procurement in Europe. The lead procurer (Resah-Idf) launched the call for tender under French law on behalf of the buyers group in the project that covered 6 lots of innovative solutions. Resah-Idf established a framework agreement with several suppliers under French law, from which the other procurers can buy solutions under their own country's legal framework (by awarding specific contracts under their own country's procurement law).

The lead procurer (Resah-Idf) has conducted the procurement procedure for the framework agreement on behalf of the buyers group but after that each procurer is further responsible on his own to award and sign specific contracts under this framework agreement to buy the goods it individually needs.

More info: www.happi-project.eu

Occasional/ad-hoc coordinated Procurement

In *occasional / ad-hoc coordinated procurement* the public procurers in the buyers group define together common requirements specifications, but each procure individually the solutions they need in a coordinated way based on the same common specifications.

STOPandGO PROJECT
EXAMPLE OF AN OCCASIONAL "COORDINATED" CROSS-BORDER PPI PROCUREMENT

The EU funded STOPANGO PPI Project focuses on the public procurement of innovative solutions to enable longer independent living for elderly. STOPANGO is procuring innovative ICT based telecare services for frail elderly that suffer from multiple conditions at the same time such as heart failure, diabetes, etc. The STOPANDGO buyers group covers four countries: Regional Health Agency Campania,

Health agency province Catanzaro, Health agency Rome (IT), Eastern Cheshire Clinical Commissioning Group (UK), Health procurement agency/Junta de Andalucia (ES), Gemeente Helmond (NL).

The procurers in the STOPANDGO buyers group conducted in 2014 together an open market consultation to broach the views of the supply side on elderly care solutions and defined together common specifications for the deployment of solutions, but afterwards in 2015 each procurer in the buyers group launched its own individual PPI procurement under its own national legislation to purchase the volume of solutions that needs to be deployed in his country.

For more information, see http://stopandgoproject.eu/.

(c) Piggy-backing

Piggy-backing occurs when a public procurer that carries out a procurement (for itself or for a group of procurers) allows other public procurers named in its tendering documents to use his procurement contract at a later stage. Piggy-backing can be combined with institutionalized or occasional joint or coordinated procurement.

In general, piggy-backing is appropriate to extend the potential use of a procurement contract to other procurers on the market that are not ready to engage themselves in real joint procurement at the time when launching the tender, but that may potentially be interested to use the contract at a later stage. It involves very little extra work from the public procurer (essentially stating in the Contract Notice that other public procurers named in the tender documents may also wish to set up a contract with the winning supplier), and provides direct access to the innovative products for a wider range of procurers.

EXAMPLE Piggy-backing approach

"Lewisham is acting as a lead authority for a number of UK local authorities and their associated purchasing organizations participating in the LEAP (Local Authority EMAS and Procurement) project. These are currently Lewisham, Sandwell Metropolitan Borough Council and ESPO (Eastern Shires Purchasing Organization). The Contract may also be used by other London Boroughs and similar organizations who are members of the LCSG (London Contract and Supplies Group). The volumes identified below are those for the London Borough of Lewisham who will make use of the contract for its supply arrangements. The other Authorities and Organizations identified may elect to make use of the resulting contract at some future date."

Source: Tender from the London Borough of Lewisham for biofuels. For more information, please see the GPP Toolkit materials available at http://www.leap-gpp-toolkit.org/fileadmin/template/leap/user_uploads/295FG_Tool_D.pdf.

Advantages of the piggy-backing approach:

- the piggy-backing authorities do not have to carry out their own tender (and thus have substantially reduced costs), without increasing the costs for the Lead Authority;

- it could encourage less experienced authorities to make use of results of innovation procurement carried out by other procurers. They can simply be presented with the final offer, and decide whether it is favourable or not. It provides a risk-free participation in innovation procurement.

Disadvantages of the piggy-backing approach:

- the advantages of real joint procurement offers are partly lost, as there is no guarantee for the supplier that any other of the piggy-backing authorities will take up the offer. However, this risk can be mitigated through obtaining intentions to buy from other authorities and through building staged bulk discounts into the contract in case further authorities sign up to it at a later stage;
- the tender will be based solely on the needs of the tendering authority. If other authorities have special requirements these will not have been included in the tendering.

3.2.1 Occasional joint or coordinated procurement – how does it work?

In EU-funded joint procurements, the lead procurer will publish the call for tender in the name and on behalf of the whole buyers group under the applicable legal framework for public procurement in the country of the lead procurer, based on the following characteristics[76]:

(i) In **EU-funded PCP joint procurements**, funding is provided for a group of procurers ('buyers group') to undertake together one joint PCP procurement, so that there is one joint call for tender, one joint evaluation of offers, and a lead procurer[77] awarding the R&D service contracts in the name and on behalf of the buyers group. Each procurer in the buyers group contributes its individual financial contribution to the total budget necessary to jointly finance the PCP, enabling the procurers to share the costs of procuring R&D services from a number of providers and comparing together the merits of alternative solutions paths from a number of competing providers to address the common challenge. The PCP must address one concrete procurement need that is identified as a common challenge[78] in the innovation plans of the procurers in the buyers group that requires new R&D and is described in the common specifications of the joint PCP call for tender.

(ii) In **EU-funded PPI joint procurements**, funding is provided for a group of procurers ('buyers group') to undertake together one joint PPI procurement, so that there is one joint PPI call for tender launched by the 'lead procurer' and one joint evaluation of offers[79]. Each PPI focuses on

[76] See Horizon 2020 – Work Programme 2016-2017, General Annexes, available at http://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016-2017/annexes/h2020-wp1617-annex-ga_en.pdf.

[77] The lead procurer is a public procurer and is the beneficiary appointed by the buyers group to coordinate and lead the procurement. It can be either one of the procurers in the buyers group or another beneficiary in the action that is established or designated by the procurers in the buyer group to act as lead procurer.

[78] A PCP that addresses a challenge that consists of several facets (sub-challenges or building blocks) is considered one joint PCP procurement as long as all procurers in the buyers group share the need for - and are willing to co-finance - all the facets of the common challenge.

[79] No matter whether the lead procurer only does the procurement/tendering or also the contracting for the public procurement of innovative, in any case the evaluation of all tenders must be carried out based on common specifications and common evaluation criteria defined jointly by all procurers in the buyers group.

one concrete unmet need that is shared by the participating procurers and requires the deployment of innovative solutions that are to a significant extent similar across countries and are therefore proposed to be procured jointly. This means that the innovative solutions procured by all procurers in the buyers group must have the same core functionality and performance characteristics (described in the common specifications for the joint call for tender), but may have additional 'local' functionality due to differences in the local context of each individual procurer (if framework contracts/agreements are used, this can be reflected in the specific contracts for procuring specific quantities of goods/services for each procurer).

For other tasks related to the preparation of the call for tender (e.g. evaluation of offers, monitoring of the suppliers, validation/testing of solutions, evaluation of the results/impact of the call for tender), the effort to carry out these tasks can be shared between the members of the buyers group and the lead procurer.

For non-EU funded projects, this approach is not mandatory. Non-EU funded projects should follow the rules established under the European public procurement directives and the applicable national legal frameworks governing their implementation. The new public procurement directives specifically provide[80] that two or more public procurers may agree to perform joint or coordinated procurements:

- Where the conduct of a procurement procedure in its entirety is carried out jointly in the name and on behalf of all the public procurers concerned, they shall be jointly responsible for fulfilling their obligations. This also applies in cases where one public procurer manages the procedure, acting on its own behalf and on the behalf of the other public procurers concerned. It is important that procurers check with its internal procurement policy and regulations whether they are allowed to act in the name of and in behalf of the other procurers.
- Alternatively, where the conduct of a procurement procedure is not in its entirety carried out in the name and on behalf of the public procurers concerned, they shall be jointly responsible only for those parts carried out jointly. Each public procurer shall have sole responsibility for fulfilling its obligations in respect of the parts it conducts in its own name and on its own behalf (e.g. in cases of framework contracts where several procurers conclude individually specific contracts under a framework agreement established by another procurer or in cases of coordinated procurement where procurers from different Member States jointly draft the tender specifications, but each of them conducts the procurement individually, in their own country).

Joint Procurement Agreement

Occasional joint procurement also entails the need to divide the tasks. A joint procurement agreement (JPA) needs to be established to formally agree on how the different procurers cooperate to carry out the joint procurement. For example, the JPA could be used to:

- determine the type of procedure used;
- identify the lead procurer that acts in the name and on behalf of the buyers group and what tasks this entails;

[80] See article 38 of the Directive 24/2014/EU.

- decide who contributes to the drafting of the tender documentation and other aspects of preparing and/or managing the procurement (e.g. which procurer(s) provides test environments, who participates in monitoring of suppliers, who pays the suppliers etc.);
- agree on decision making procedures (e.g. for evaluation of offers, usage of results of the procurement, distribution of IPR related rights among procurers etc.);
- decide who is responsible for handling litigation (is the lead procurer the only legal contact towards vendors for legal action/counter claim or not, how are litigation costs shared between participating procurers).

The occasional joint procurement approach presents the following advantages:

- If there is only the need to conduct one single joint procurement together and there is no external entity that already represents the interests of all procurers whose statutes could be changed more easily to perform joint procurements, choosing an occasional joint procurement type collaboration can be less time consuming to get started, provided that the collaboration may be wholly regulated by a joint procurement agreement without the need for participating public procurers to set up a permanent cooperation structure;
- As the most experienced public procurer in the group can be designated as lead procurer, it can enable learning on innovation procurement by the other procurers.

The occasional joint procurement model presents the following disadvantages:

- some of the procurers may not be authorized under their national legislation to delegate competences to another lead procurer or to assume responsibilities as lead procurer for other procurers; this should be checked before entering the joint procurement agreement;
- the need to divide roles and responsibilities among the lead procurer and the other procurers that are working together on a one-off-basis in a joint procurement could lead to less trust.

3.2.2 Institutionalized joint or coordinated procurement – how does it work?

In institutionalised joint or coordinated procurement, all involved public procurers commonly establish or designate one external legal entity to conduct the joint procurement or the preparation of the coordinated procurement with a joint mandate of all public procurers. As opposed to occasional joint procurement, the lead procurer/external entity here has its own separate legal personality, which may be private or public depending on the applicable national legislation governing its establishment and functioning. Such legal personality gives the lead procurer the most extensive legal capacity awarded to legal entities under national laws. Compared to cooperation structures that lack legal personality, in this case the lead procurer enjoys the possibility to act as autonomous body, having its own budget, hiring its own staff and contracting independently in addition to acting/procuring on behalf of its members.

Advantages of the institutionalized joint / coordinated procurement model:

- can be more efficient than the occasional joint / coordinated procurement if there is a long term vision / strategy agreed upon by participating procurers to conduct more than one innovation procurement together (this is because no future separate joint procurement agreements will be needed for each

joint procurement – just once the creation or adaptation needed of the statutes of the entity that will conduct the joint procurements);

- there are no issues deriving from the differences in public procurement procedures across countries in Europe to setup joint PPI procurements (e.g. international organizations like ERICs do not fall under EU public procurement rules and can create their own public procurement procedures);
- possibly more interesting VAT rates (e.g. ERICs don't pay VAT).

Disadvantages of the institutionalized joint / coordinated procurement model:

- could be time and cost consuming, as the establishment is strictly regulated (i.e. entailing the need to undergo specific procedures for the notification thereof with competent authorities in the Member States/the need to formally request an approval for its establishment);
- could be possibly more rigid, more formal, involving a slower decision making structure (e.g., important decisions to be ratified by board of all members of the legal entity etc.);
- a high level of trust is needed from all procurers in the joint procurement entity to totally outsource the preparation and/or execution of the innovation procurement to the external procurement entity.

Deciding between the occasional and institutionalized procurement approach

The table below summarizes the main criteria to be used for deciding which of these two models to adopt.

CRITERION	JOINT/COORDINATED PROCUREMENT MODEL	
	Occasional joint/coordinated procurement	**Institutionalized joint/coordinated procurement**
Specific legislation	No. Depending on which activities are carried out jointly versus by individual procurers, different national legislations (e.g., regarding applicable public procurement law, remedies, reporting obligations, environmental legislation, VAT/taxation system etc.) could be applicable for different parts of the procurement.	No, in case of central purchasing body or AISBL or association (national legislation e.g. regarding applicable public procurement law, VAT/taxation system etc.) Yes in case of: (i) EGTCs: national public procurement legislation, national VAT/taxation rules + EGTC Regulation + EGTC statutes (ii) ERICs: ERIC Regulation + ERIC statutes. As an international organization, no national legislation, no EU public procurement directives are applicable. ERICs can set up their own procurement rules.
Ease of use	Less administrative burden	More administrative burden

CRITERION	JOINT/COORDINATED PROCUREMENT MODEL **Occasional joint/coordinated procurement**	**Institutionalized joint/coordinated procurement**
Establishment	No establishment of a new entity or change of statutes of an existing entity needed, but a joint / coordinated procurement agreement (JPA/CPA) establishing the *modus operandi* to be signed by the public procurers.	Establishment of a new entity or change of statutes of an existing entity required. National legislations for central purchasing bodies, AISBLs and associations of procurers. Specific conditions under EGTC and ERIC Regulations and national legislations of the country/Member State that host the EGTC or ERIC.
Legal certainty	Yes	Yes
Liability	Undertaken by the group of procurers together (for those parts of the procedure carried out jointly in the name and on behalf of the whole buyers group). Undertaken by each individual procurer for those parts of the procedure carried out individually by them (e.g. in coordinated procurements).	Undertaken by the group of procurers together (for those parts of the procedure carried out jointly in the name and on behalf of the whole buyers group). Unlimited in case of EGTC and limited in case of ERIC.
Authorizations/ Approvals required	Not from national bodies. However, the lead procurer should check whether it is allowed to act in the name and on behalf of other public procurers according to its statutes and the procurers in the buyers group should check whether they are allowed to delegate procurement tasks to the lead procurer.	Yes. Formal approval by Member States (Central Purchasing bodies, AISBLs, association of procurers, ERICs), regional governments (EGTC) and EU Commission (EGTCs and ERICs).
Amendments	According to the joint procurement agreement.	According to the establishment related procedures.
Legal personality requires former recognition	No.	Yes.
Internal management	Regulated in the joint / coordinated procurement agreement.	Regulated in the Convention and/or Statutes (at least a general assembly and a director/board of directors required).

CRITERION	JOINT/COORDINATED PROCUREMENT MODEL	
	Occasional joint/coordinated procurement	**Institutionalized joint/coordinated procurement**
Costs for staff	Those agreed ad-hoc for that particular joint / coordinated procurement project between the participating public procurers.	Those agreed between the members that setup the legal entity and agree on the budget for its day-to-day operations.
Financial management	No statutory obligations, limited to the public procurer's contribution to the procedure and contractual costs.	Full financial management of a separate legal entity: Opening of a bank account, Annual Balance Sheet, profit and loss accounts and Explanatory Notes; budget statement and multi-annual budget and a cash flow statement; legal entity has its own VAT and other taxation aspects status and responsibilities; external auditor; etc.

Specific considerations regarding EGTCs

European Grouping of Territorial Cooperation (EGTC) is a form of cross-border, transnational and/or interregional collaboration between groups of European regions, meant to strengthen economic and social cohesion under the European cohesion policy.

EGTCs are expressly regulated by the Regulation (EC) No 1082/2006 of the European Parliament and of the Council of 5 July 2006 on a European grouping of territorial cooperation (the "**EGTC Regulation**"[81]).

EGTCs have in each Member State extensive legal capacity as a legal entity under the national law of the Member State that hosts the EGTC office (e.g. it may acquire or dispose of movable and immovable property and employ staff and may be a party to legal proceedings). A more detailed presentation of the EGTC model and the legal requirements thereof is available in section 3 of Module 3.

Implementation of EGTCs is still at a slow rate. Adoption of national implementing norms is still lagging behind initially agreed timeframe. EGTCs were not setup to be joint cross-border procurement entities, but EGTC member regions can agree to include this responsibility in the EGTC statutes. The potential role of EGTCs as lead procurers in joint / coordinated cross-border innovation procurements was discussed with the EGTCs at the 5th annual EGTC meeting in March 2015[82]. Unlike an ERIC, an EGTC is an international organization that can create its own procurement procedures. EGTCs fall under the national law of the

[81] http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32013R1302&from=EN.
[82] For additional information, see https://portal.cor.europa.eu/egtc/Events/Pages/EGTCs-and-the-employment.aspx

Member State that hosts the EGTC office and would have to respect this country's public procurement rules (and the EU public procurement directives) to implement joint / coordinated cross-border procurements.

There are several EGTCs already in place. These fall under the following formats:[83]

(i) Large-scale Euroregions (e.g. Galicia-Norte Portugal, Pyrenees-Mediterranean, and Alps-Mediterranean), of between 50,000 and 100,000 km, with 5 to over 15 million inhabitants;

(ii) Medium-scale inter-provincial regions (e.g. Eurometropole Lille-Kortrijk-Tournai, Eurodistrict Strasbourg-Ortenau, Ister-Granum, West Vlanderen/Flandres-Dunquerque-Cote d'Opale, Duero-Douro), of between 2,000 and 10,000 km^2 with up to 2 million people;

(iii) Small-scale cross-border or inter-municipal cooperation (e.g. Karst-Bodva, 53 km^2 with around 2,000 people);

(iv) Multi-purpose EGTCs, focusing on several sectors of interest;

(v) Monothematic EGTCs, focusing on one sector of interest (e.g. joint alpine park Italy-France: Parc National Mercantour and Parco Regionale Alpi Marittime, dealing with cross-border protected natural areas).

A full list of established EGTCs is available here: https://portal.cor.europa.eu/egtc/REGISTER/Pages/welcome.aspx and attached as Annex 7. A map providing the geographical allocation of EGTCs is also available in Annex 8.

In order to create sustainable, long-term EGTCs, the following pre-requisites should be considered:[84]

- Setting-up an ongoing cost-benefit analysis upon establishment and deciding on its future actions;
- Clearly defining the governance system between the EGTC bodies and constituting members;
- Ensuring a successful operational launch, effective planning and project implementation;
- Increasing the level of cohesion and effective collaboration among the members thereof, by:
  - ✓ setting-up an integrated territorial planning (by targeting the relevant areas of intervention and envisaged cooperation matrix);
  - ✓ focusing on policies with clear impact on citizens and for which the members of the EGTC are fully competent;
  - ✓ ensuring clear and efficient resource planning (by rationalizing and pooling of initiatives, human and financial resources);
  - ✓ setting up a sustainable financial framework (e.g., comprising members fees, contributions, fund raising initiatives etc.);
  - ✓ creating links with the right economic and social partners;
  - ✓ Interacting with other (similar) EGTCs and share experiences.
- Taking advantage of the available political support and maximize it.

[83] For more information, please go to http://www.interact-eu.net/egtc/egtc/30/16.
[84] Gianluca Spnaci and Graca Vara-Arribas, 'The European Grouping of territorial Cooperation (EGTC): New Spaces and Contracts for European Integration?', EIPASCOPE 2009/2.

Specific considerations regarding ERICs

A European Research Infrastructure Consortium (ERIC) is a special legal form to facilitate the joint establishment and operation of research infrastructures of European interest. ERICs focus on cooperation between 'research infrastructures' across Europe. This refers to facilities, resources and related services used by the scientific community to conduct top-level research in their respective fields, ranging from social sciences to astronomy, genomics to nanotechnologies (e.g., singular large-scale research installations, databases, high-capacity/high speed communication networks, highly distributed capacity and capability computing facilities, data infrastructure, networks of computing facilities, etc.).[85] Some ERICs already conduct also close-to-market innovation activities to bring research results to the market (e.g. EATRIS ERIC).

ERICs are thus not created as entities with as main purpose joint or coordinated procurement, but conducting and facilitating joint research and innovation activities across Europe in a specific sector. Where these ERIC activities require the purchase of R&D or innovative solutions, ERIC members could decide to use the ERIC legal entity to conduct joint or coordinated procurements on their behalf.

As many ERICs contain public entities among their members, these public procurers can use the ERIC as a legal entity that conducts PCP or PPI procurements that fit with the objectives of the ERIC work plan. For example, an ERIC could procure the development and/or deployment of new technologically advanced parts for the ERIC's research infrastructure and subsequently put the upgraded research infrastructure capabilities at the disposal of the ERIC members and the scientific community in Europe at large.

ERICs are regulated and governed by the Council regulation (EC) No 723/2009 of 25 June 2009 concerning the Community legal framework for a European research Infrastructures Consortium (ERIC) as further amended by the Council regulation (EU) No 1261/2013 of 2 December 2013 amending Regulation (EC) No 723/2009 ("**ERIC Regulation**[86]"). A more detailed presentation of the ERIC model and the legal requirements thereof is available in section 3 of Module 3.[87]

The following requirements need to be met for the establishment of an ERIC:

[85] Ibid. 59.

[86] See http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:206:0001:0008:EN:PDF and http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:326:0001:0002:EN:PDF.

[87] Research infrastructure means facilities, resources and related services that are used by the scientific community to conduct top-level research in their respective fields and covers major scientific equipment or sets of instruments; knowledge-based resources such as collections, archives or structures for scientific information; enabling ICT-based infrastructures such as Grid, computing, software and communication, or any other entity of a unique nature essential to achieve excellence in research. Such infrastructures may be 'single-sited' or 'distributed' (an organized network of resources).

- it is necessary for the carrying-out of European research programmes and projects, including for the efficient execution of Community research, technological development and demonstration programmes (e.g., Horizon 2020 projects[88]);
- it represents an added value in the strengthening and structuring of the European Research Area (ERA) and a significant improvement in the relevant scientific and technological fields at international level;
- effective access, in accordance with the rules established in its Statutes, is granted to the European research community, composed of researchers from member States and from associated countries[89];
- it contributes to the mobility of knowledge and/or researchers within the ERA and increases the use of intellectual potential throughout Europe;
- it contributes to the dissemination and optimization of the results of activities in Community research, technological development and demonstration.

All these above conditions would be fulfilled in the case of advanced R&D services or innovative solutions in a PCP or PPI project carried out by an ERIC. However, setting up an ERIC exclusively for a PCP or PPI project may not be justified. The research infrastructure should be made available for a broader use.

Several types of Research Infrastructures exist. Research Infrastructures may be:

(i) **single-sited -** a single resource at a single location

(ii) **distributed** - a network of distributed resources

(iii) **virtual** - the service is provided electronically.

These key infrastructures have not only been responsible for some of the greatest scientific discoveries and technological developments, but are also influential in attracting the best researchers from around the world and in building bridges between national and research communities and scientific disciplines.

A map of RIs, is available here: http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=mapri. Other success stories are available here: http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=success.

Specific considerations regarding private law associations

A private law association (e.g. a national association of public procurers or an international AISBL) could also be contemplated as joint procurement entity. This will be briefly touched upon herein below and further detailed under Module 3.

Private law associations are entities established by several entities, for the attainment of clearly defined purposes. In order to enjoy the maximum legal and contractual capacity conferred to legal persons (i.e., to

[88] https://ec.europa.eu/research/infrastructures/index_en.cfm?pg=projects.

[89] Third countries (states which are not Member States if the EU) which are party to an international agreement with the Community, under the terms or on the basis of which it makes a financial contribution to all or part of the Community research, technological development and demonstration programmes. For more information, see http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=what.

acquire or dispose of movable or immovable property, employ staff or be part to legal proceedings), these associations need to have legal personality, with perfect patrimonial autonomy between it and its members.

As a general note, assuming that the members of such an association are all public procurers, they need to check whether their national legal framework and their internal regulations allow them to establish such an association. Also, each of the potential members thereof must first conduct an internal research and check whether their statutes of establishment allow for them to enter such an association. Also, the characteristics, the conditions for establishment and roles and responsibilities thereof are directly dependent upon the legal system of the Member State where such an association is established.

3.3 How to implement a joint or coordinated procurement approach

Implementing a joint or coordinated procurement approach requires the joining of efforts of several departments in a public procurers' organization. The opportunity to start one joint or several coordinated procurement(s), as well as the form of the joint or coordinated procurement that best meets the objectives of the public procurers and the implications thereof must be carefully assessed from several perspectives, including business objectives, legal restraints, internal policy provisions.

Several steps could be contemplated in this regard:

- Obtain higher management approval to undertake joint or coordinated procurement by:
  - Presenting the benefits of joint / coordinated procurement;
  - Presenting the joint / coordinated procurement model that best fits your organization's policy;
  - Describe the process, together with the help of the legal department;
- Identify and attract partners in the joint /coordinated procurement by:
  - Searching the networks of your organization, by reverting to existing public authorities associations or by disseminating your intention through local/regional/national/European media channels;
  - Selecting the partners that share the same needs;
  - Highlighting to potential partners the advantages of undertaking joint/coordinated procurement;
  - Describing the suggested approach and process and by being open to other suggestions from potential partners
  - Presenting successful examples of similar joint/coordinated procurements;
- Identify the joint/coordinated procurement model that best suits your situation, by:
  - Carefully understanding the available models (including related advantages and disadvantages);
  - Assessing which one is the best solution for the case at issue;
  - Including members of all the public procurers involved (e.g. project management, legal and financial staff and decision makers).
- Set the joint/coordinated procurement agreement or create/adapt the statutes for a new procurement entity:
  - identifying all participating public procurers;
  - explaining the reasons and objectives of the joint activity;
  - the common need/challenge to be addressed by the joint / coordinated procurement
  - clearly describing the roles and responsibilities of all parties involved;
  - the procedure to be undertaken and the allocation of the roles and responsibilities in this respect.
- Draft the tender documentation based on feedback/approval from all participating public procurers
- Publish the *call* for tenders on TED (done by the lead procurer, in case of public procurement procedures carried jointly by several public procurers who selected a lead procurer to act in their name and on their behalf) or publish the *calls* for tenders on TED (done individually by each of the public procurers in the

buyers group, in cases of public procurement procedures where the only joint activity is the joint preparation of the tender documentation);

- Receive tenders and evaluate them according to the evaluation and award criteria mentioned in the call for tenders. In occasional joint procurement all procurers in the buyers group and the lead procurer jointly evaluate the offers. In institutionalised joint procurement the joint procurement entity (possibly with involvement of its members according to its statutes) evaluates the offers. In coordinated procurements each procurer individually evaluates the offers for its own procurement. In framework agreement type procurements with lots / several specific contracts, there may be one joint evaluation of offers (for the framework agreement) and then several individual evaluations of offers (for the specific contracts falling under the framework agreement).
- Award the framework agreement / procurement contract.
    - In case of occasional joint procurement, the participating public procurers will determine the way to proceed in their joint procurement agreement. In this respect, the new public procurement directives provide that several public procurers from different Member States may jointly award a public contract, conclude a framework agreement or operate a dynamic purchasing system. They may also award contracts based on the framework agreement or on the dynamic purchasing system. Unless the necessary elements have been regulated by an international agreement concluded between the Member States concerned, the participating public procurers shall conclude an agreement that determines the responsibilities of the parties and the relevant applicable national provisions, as well as the internal organization of the procurement procedure, including the management of the procedure, the distribution of the works, supplies or services to be procured, and the conclusion of contracts.
        a) In case the public procurers choose a lead procurer to act in their name and on their behalf, the lead procurer will sign all procurement contracts (the framework agreement and the phase contracts - in case of PCP projects, or the procurement contract - in case of PPI projects);
        b) In case the public procurers decide to draft joint tender specifications, but each of them will carry out individual procurement procedures based on the common tender specifications, each of the procurers concerned will sign his own procurement contract (the framework agreement and phase contracts - in case of PCP projects, or the procurement contract in case of PPI projects).
    - In case of central purchasing bodies, we note that, according to the provisions of the new procurement directives[90], the provision of centralised purchasing activities by a central purchasing body located in another Member State shall be conducted in accordance with the national provisions of the Member State where the central purchasing body is located. Consequently, it needs to be determined on a case-by-case basis, depending on the specifics of each national legislation, which entity will sign the framework agreement/procurement contract.

[90] See article 39 of the Directive 24/2014/EU.

4 Checklists for PCP and PPI projects

CHECKLIST FOR PCP PROJECT IMPLEMENTATION

STEP-BY-STEP PROCESS	CHECKLIST / TO DO LIST	QUESTIONS TO ANSWER	INSTRUMENTS
Needs identification and assessment	- Start early - Everything starts with an end-user need - Make sure it is an unmet need - Establish a regular process to identify opportunities for improving quality and efficiency of your organisation and the public services it offers. Recognize unmet needs and opportunities and identify whether they are short, mid or long term needs. - Make sure the need is clearly identified and it responds to a real challenge/procurement need - Define outcome-based requirements to quantify the desired new functionalities, performance, efficiency improvements	➢ Did I identify the correct need? Do the final end-users agree this is a top priority need? ➢ Is the meet unmet? (does my prior art analysis and IPR search confirm this?) ➢ Does the need meet a procurement challenge for which I am responsible?	▪ WIGBI approach ▪ Workshops with customers / Voice of the Customer approach ▪ Identify-Validate-Verify approach ▪ Methodology used to identify and assess needs ▪ Relevant section in the Toolkit
Constructing a business case	- Plan wisely - Allocate resources - Calculate available budget	➢ Did I carefully consider all potential impacts (benefits) of doing the project and all resources needed (costs) for implementing the project? ➢ Is the business case viable and sustainable? ➢ Do I have the required resources?	▪ Business case template ▪ Relevant section in the Toolkit
Conducting open market consultation	- This is the moment to validate the identified need with the supply side - Make sure to clearly differentiate the market consultation from the tender procedure - Publish and promote the open market consultation widely - Explain clearly how confidentiality/IPR issues will be treated - Build trust between potential buyers and potential providers by explaining the	➢ Did I check that there is a solution readily available to meet the need? ➢ If not, is it possible to develop a solution to meet the need? ➢ Is the business case viable? ➢ Is PCP the right procurement model or? ➢ Did I secure transparency, equal treatment and non-discrimination for all parties? ➢ Did I clearly differentiate between the market consultation and the tender procedure?	▪ Prior Information Notice for announcing the open market consultation Template ▪ Case examples and fact sheets ▪ Relevant section in the Toolkit

STEP-BY-STEP PROCESS	CHECKLIST / TO DO LIST	QUESTIONS TO ANSWER	INSTRUMENTS
	procurement need, the envisaged contracting setup to vendors and valuating their feedback	➢ Did I consider IPR and confidentiality issues?	
Prepare and conduct the tender procedure	- Allocate resources in terms of time, budget and personnel with clear responsibilities for each phase - Prepare the PCP call for tender ✓ Ensure that solely an open-like procedure will be employed ✓ Draft the contract notice ✓ Draft the Request for tenders/ITT ✓ Draft the technical specifications by using performance/functional based specifications ✓ Don't over specify ✓ Draft selection, exclusion, award and assessment (for monitoring/ex-post evaluation) criteria ✓ Draft the template for the framework agreement and Phase contracts - Make sure to address and ensure: ✓ Phased approach and allocation of resources for each phase ✓ Include specific mention of the intention to select multiple suppliers to enter Phase 1 and subject to evaluations after each phase and call-offs for the next phase continue to Phase 3 with min. 2 suppliers ✓ Explain how the exclusion, selection and award and assessment criteria will be applied in the stepped process of moving from one phase to the other	➢ Did I choose the right tender model? ➢ Did I secure transparency, equal treatment and non-discrimination for all parties? ➢ Did I draft the tender documentation to encourage competition and innovation? ➢ Did I consider the IPR risk-benefit sharing at market price? ➢ Did I consider ethics and security issues? ➢ Did I clearly define IPR and confidentiality rights and obligations in the tender specifications? ➢ Did I properly address the multi-competitor phased approach? ➢ Did I ensure wide promotion and publication of the PCP call for tender?	▪ Numerical example ▪ Contract Notice template ▪ Example of PCP call for tender ▪ TFEU ▪ PCP Communication ▪ State Aid Framework ▪ Case examples and fact sheets ▪ Relevant section in the Toolkit

STEP-BY-STEP PROCESS	CHECKLIST / TO DO LIST	QUESTIONS TO ANSWER	INSTRUMENTS
	✓ Address IPR and pricing related issues ensuring that IPR risk/benefit sharing of is done at market price ✓ Avoid state aid - Publish the contract notice in TED and actively promote the PCP call for tender EU wide via several promotion channels - Publish Q&A when the call for tender is open - Establish an evaluation mechanism / evaluation panel to assess the tenders received - Ensure competition, non-discrimination, transparency and equal treatment throughout the entire PCP procedure		
Evaluating offers and awarding contracts	- Select suppliers by applying the exclusion, selection and award criteria and methods of proof published upfront in the tender documents - Award contracts based on MEAT criteria published in the tender documents - One single framework agreement covering all phases will be entered into by and between the procurer and each individual tenderer - The framework agreement will be complemented with Phase contracts applicable to each PCP phase	➢ Did I establish an evaluation panel? Did they sign a non-disclosure and non-conflict of interest declaration? ➢ Did the evaluation panel use the MEAT award criteria and check all the methods of proof? ➢ Did I publish upfront all the exclusion, selection and award criteria and methods of proof to ensure compliance with transparency, equal treatment and non-discrimination principles? ➢ Did I make clear the fact that I will enter into framework agreements with several suppliers? ➢ Did I make clear how the moving from one phase to the other will be done?	▪ Contract Award Notice template ▪ Checklist how to move from one phase to the other ▪ Relevant section in the Toolkit
Contract implementation - Monitor performance	- Contract implementation ✓ Plan the internal resources (staff& test site) and get the necessary permits for testing	- Contract implementation ✓ Did I plan test sites/test personnel at the procurers premises needed for phase 3 (possibly already phase 2) testing?	▪ Test plan and test permits ▪ Plan for ancillary activities to remove obstacles for deployment / wide commercialisation

STEP-BY-STEP PROCESS	CHECKLIST / TO DO LIST	QUESTIONS TO ANSWER	INSTRUMENTS
	✓ Plan the ancillary activities needed to remove obstacles for deploying the innovations after the PCP ✓ Is my IPR licensing department up to speed about the sharing of IPRs between suppliers and procurer in PCPs? ✓ Is my financial department aware about the PCP specificities for payments? - Contract monitoring ✓ Train your employees in contract monitoring ✓ Draft an internal policy / procedure regarding the monitoring of performance ✓ Ensure effective monitoring tools are in place to monitor performance of vendors and provide regular feedback to vendors during each phase about their progress to reach the objective ✓ Monitor vendor performance regularly based on the assessment criteria predefined in the tender documents ✓ Monitor end users'/test users complaints / satisfaction ✓ Audit vendor activities on-site - Communication activities ✓ Make and implement a plan for when to communicate what about the progress of the PCP to the outside world	✓ Did I get the necessary permits/approvals needed for testing (e.g. ethics reviews, safety/security approval procedure etc.) ✓ Did I plan the resources I need to allocate as procurer during the PCP for removing obstacles for wide commercialisation / smooth deployment of the innovative solutions after the PCP (secure the budget for a follow-up PPI once phase 2/3 results are promising, inform other procurers across EU about the outcomes of the PCP, contributions to standardisation, certification, legislative changes needed for deploying the solutions widely)? ✓ Is my IPR licensing department up to speed on how to monitor the IPR activities of the R&D providers involved in the PCP? ✓ Is my financial department aware about how invoices of suppliers should detail the moneys spent to ensure I can check whether the R&D services definition was upheld, (how much R&D was done in the EU Member States and associated countries if that was a requirement) and whether the financial compensation for IPR sharing was duly taken into account? - Contract monitoring ✓ Did I include a monitoring mechanism in the procurement contract?	▪ Internal procedure for vendor IPR activity monitoring ▪ Internal procedure/policy regarding monitoring of performance ▪ Contractual mechanisms to encourage high performance (e.g., payment directly linked to the meeting of performance standards) ▪ Micro management techniques – regular reports requested form the vendors ▪ On-site monitoring ▪ Communication of clear expectations to the vendors ▪ Relevant section in the Toolkit

STEP-BY-STEP PROCESS	CHECKLIST / TO DO LIST	QUESTIONS TO ANSWER	INSTRUMENTS
		✓ Did I train my employees in contract monitoring? ✓ Do I have internal procedures / policies in place regarding the monitoring of performance? Are they efficient? ✓ Did I implement the 4-step approach? o Prepare the assessment; o Assessment/evaluation; o Initiate improvement proposals; and o Implement improvement proposals. - Communication activities ✓ Communicate the names of successful bidders after the start of each PCP phase ✓ Communicate a summary of the results of the PCP (approved by the participating suppliers) after the end of Phase 3 ✓ Communicate about ancillary activities to ensure wide commercialisation of results during and after the PCP ✓ Communicate about the preparation of the PPI near the end of the PCP	
Manage conflicts of interest	- Put in place a policy regarding conflicts of interest - Put in place a policy regarding the declaration on the absence of conflicts of interest and assign the responsibility for the checking and managing thereof - Train your employees to understand conflicts of interest and the consequences in case of infringements	➢ Do I have a policy regarding conflicts of interest in place? ➢ Do I have a policy regarding the declaration on the absence of conflicts of interest in place? ➢ Did I train my employees to understand conflicts of interest? ➢ Do I have the right procedures in place to identify, prevent and manage a potential conflict of interests?	▪ Relevant section in the Toolkit

STEP-BY-STEP PROCESS	CHECKLIST / TO DO LIST	QUESTIONS TO ANSWER	INSTRUMENTS
Manage after-contract issues	- Promotion of results of the PCP - Follow-up IPR relation with suppliers - Follow-up solution commercialisation - Follow-up contractual obligation of suppliers that span beyond the end of the PCP contract - Prepare follow-up PPI correctly	➢ Did I publish the results of the PCP? Did I share it with colleague procurers across EU? ➢ Did the patent applications of vendors finally result in actual patent award? How does the status of other vendors IPRs evolve? How do I concretely use my license free right to use the R&D results including the IPRs after r the PCP? Do I need to use my right to require some of the PCP suppliers to give licenses on their IPRs to other vendors on the market? ➢ Are all the PCP suppliers after the PCP successfully commercialising the R&D results within the call-back period defined in the PCP contract? Is any of the vendors abusing the R&D results against the public interest? Do I Need to use the IPR call-back clause? If some suppliers stop protecting their IPRs, do I want to continue to protect them myself? ➢ Are all PCP suppliers respecting other contractual obligations that span beyond the PCP contract? e.g. provisioning of support/information about the PCP solution, contribution to standardisation, obligations regarding publication of information about the contract, auditing/keeping data records obligations, etc. ➢ Did I prepare everything correctly to prepare the PPI after the PCP: does my PPI concern the procurement of a limited volume of test solutions developed during the PCP or of larger commercial volumes of end-products?	▪ Continuous contact with the solution providers ▪ Relevant section in the Toolkit

CHECKLIST FOR PPI PROJECT IMPLEMENTATION

STEP-BY-STEP PROCESS	CHECKLIST / TO DO LIST	QUESTIONS TO ANSWER	INSTRUMENTS
Needs identification and assessment	- Start early - Everything starts with an end-user need - Make sure it is an unmet need - Establish a regular process to identify opportunities for improving quality and efficiency of your organisation and the public services it offers. Recognize unmet needs and opportunities and identify whether they are short, mid or long term needs. - Make sure the need is clearly identified and it responds to a real challenge/procurement need - Define outcome-based requirements to quantify the desired new functionalities, performance, efficiency improvements	➢ Did I identify the correct need? Do the final end-users agree this is a top priority need? ➢ Is the meet unmet? (does my prior art analysis and IPR search confirm this?) ➢ Does the need meet a procurement challenge for which I am responsible?	▪ WIGBI approach ▪ Workshops with customers / Voice of the Customer approach ▪ Identify-Validate-Verify approach ▪ Methodology used to identify and assess needs ▪ Relevant section in the Toolkit
Constructing a business case	- Plan wisely - Allocate resources - Calculate available budget	➢ Did I carefully consider all resources needed for the implementation of the project? ➢ Is the business case viable and sustainable? ➢ Do I have the required resources?	▪ Business case template ▪ Relevant section in the Toolkit
Conduct open market consultation	- This is the moment to validate the identified need - Make sure to clearly differentiate the market consultation from the tender procedure - Build trust between the public and the private sector - Cross-check what is the minimum purchase volume that you need to gather to convince vendors to bring innovative solutions to the market that match your quality/price requirements	➢ Is there a solution ready available to meet the need? ➢ If not, is it possible for suppliers to deliver a solution to meet the need within my planned timeframe for deployment? ➢ Were my assumptions in the business case realistic? ➢ Is PPI the right procurement model (no R&D needed) or is PCP better (risk too large to commit to commercial deployment as there is still R&D risk – still R&D needed first)?	▪ Prior Information Notice for announcement of the open ▪ Market consultation template ▪ Best practices examples and fact sheets ▪ Relevant section in the Toolkit

STEP-BY-STEP PROCESS	CHECKLIST / TO DO LIST	QUESTIONS TO ANSWER	INSTRUMENTS
		➢ Did I secure transparency, equal treatment and non-discrimination for all parties? ➢ Did I clearly differentiate between the market consultation and the tender procedure? ➢ Did I consider IPR and confidentiality issues? ➢ Did I reach sufficient purchase volume for the market to bring solutions to the market matching my requirements?	
Publish the intention to buy (and any associated requirements for conformance testing, product labelling, certification)	- Encourage vendors to bring solutions to the market that meet your needs by announcing well in advance the intention to buy a sizeable amount of solutions (gather a buyers group to collect if needed) by a specified time. - Clarify clearly any associated requirements to assess whether market is ready to meet the procurement need at the end of period announced in the PIN: e.g. conformance testing, product labelling, certification requirement and/or requirement to provide vendor product data - In case you organize conformance testing, product labelling or certification yourself, plan this well. In case this is to be done by an external independent entity, identify and/or appoint this entity. - Evaluate the results of the conformance testing, product labelling, certification at the end of the period announced in the PIN and, depending on the proof about the market readiness to meet your needs, decide to launch the PPI procurement or not	➢ Did I publish the PIN to announce the intention to buy widely? Did I clearly specify the buyer (or buyers group) and the wider potential market of buyers that may buy such solutions later, the size of the purchase volume, the innovative requirements for the solutions (quality/price requirements), the time by when the procurement is planned, the time by when vendors have to prove they can deliver solutions meeting my requirements etc. ➢ Did I clearly specify what type of proof I want from the market by when to show it is possible to meet my needs? Do I want vendors to prove this via conformance testing, product labelling or certification? Do I do this testing/labelling/certification myself or do I ask vendors to get this done by a specific independent entity? ➢ Do I have all the skills to organise and/or evaluate the results of the conformance testing, product labelling, certification?	▪ Prior Information notice for announcing the intention to buy ▪ possibly conformance testing / labelling / certification deadline

STEP-BY-STEP PROCESS	CHECKLIST / TO DO LIST	QUESTIONS TO ANSWER	INSTRUMENTS
Prepare and conduct the tender procedure	- Allocate resources in terms of time, budget and personnel with clear responsibilities - Prepare the PPI call for tender ✓ Decide on the type of procedure to be followed – ensure that the most appropriate procedure will be employed (e.g. open procedure, competitive dialogue etc.). ✓ Decide whether to use lots, framework contracts / agreements with or without reopening of competition etc. ➢ Specify what is required from vendors beyond mere product delivery/installation (e.g. assistance for bug fixing, training of staff, other after sales support during a certain time of operation of the service after installation etc.) ✓ Draft the contract notice ✓ Draft the technical specifications by using performance/functional specifications ✓ Don't over specify ✓ Draft selection, exclusion, award and assessment criteria ✓ Draft the procurement contract to encourage innovation - Publish the contract notice by ensuring a wide EU publication of the PPI call for tender - Establish an evaluation mechanism / evaluation panel to assess the tenders received	➢ Did I choose the right tender procedure model? ➢ Did I secure transparency, equal treatment and non-discrimination for all parties? ➢ Did I consider ethics and security issues? ➢ Did I draft the tender documentation to encourage competition and innovation? ➢ Did I clearly define IPR and confidentiality obligations in the tender specifications? ➢ Did I ensure wide dissemination of the envisaged tender?	▪ Numerical example ▪ Contract Notice template ▪ Example of PPI call for tender ▪ TFEU ▪ EU Public Procurement Directives ▪ Case examples and fact sheets ▪ Relevant section in the Toolkit

STEP-BY-STEP PROCESS	CHECKLIST / TO DO LIST	QUESTIONS TO ANSWER	INSTRUMENTS
	- Ensure competition, non-discrimination, transparency and equal treatment throughout the entire PPI procedure		
Evaluate offers and award the contract(s)	- Select supplier(s) by applying the exclusion, selection, award and assessment criteria published upfront in the tender documents - Award contract based on MEAT criteria - One single procurement contract will be entered into by and between the procurer and the winning bidder(s)	➢ Did I establish an evaluation panel? ➢ Did I use the MEAT award criteria? ➢ Did I publish upfront all the exclusion, selection, award and assessment criteria to ensure compliance with transparency, equal treatment and non-discrimination principles?	▪ Award contract template ▪ Relevant section in the Toolkit
Contract implementation + Monitor performance	- Foresee resources to operate the delivered solutions after deployment for a duration specified in the contract to do bug fixing and evaluate the installed solution. - Train your employees in contract monitoring - Draft an internal policy / procedure regarding the monitoring of performance - Ensure effective monitoring tools are in place to monitor performance of vendors - Monitor vendor performance regularly based on assessment criteria predefined in the tender specifications - Monitor end users' complaints / satisfaction - Audit vendor activities - Use of fines for non-compliance - Use of value engineering	➢ Did I include a monitoring mechanism in the procurement contract? ➢ Did I train my employees in contract monitoring? ➢ Do I have internal procedures / policies in place regarding the monitoring of performance? Are they efficient? ➢ Did I implement the 4-step approach? ✓ Prepare the assessment; ✓ Assessment/evaluation; ✓ Initiate improvement proposals; and ✓ Implement improvement proposals.	▪ Internal procedure/policy regarding monitoring of performance ▪ Contractual mechanisms to encourage high performance (e.g., payment directly linked to the meeting of performance standards) ▪ Micro management techniques – regular reports requested form the vendors ▪ On-site monitoring ▪ Communication of clear expectations to the vendors ▪ Relevant section in the Toolkit
Manage conflicts of interest	- Put in place a policy regarding conflicts of interest - Put in place a policy regarding the declaration on the absence of conflicts of interest and assign the responsibility for the checking and managing thereof	➢ Do I have a policy regarding conflicts of interest in place? ➢ Do I have a policy regarding the declaration on the absence of conflicts of interest in place? ➢ Did I train my employees to understand conflicts of interest?	▪ Relevant section in the Toolkit

STEP-BY-STEP PROCESS	CHECKLIST / TO DO LIST	QUESTIONS TO ANSWER	INSTRUMENTS
	- Train your employees to understand conflicts of interest and the consequences in case of infringements	➢ Do I have the right procedures in place to identify, prevent and manage a potential conflict of interests?	
Manage after contract issues	- Promotion of results of the PPI - Follow-up IPR relation with suppliers - Follow-up market position of suppliers - Follow-up contractual obligation of suppliers that span beyond the end of the PPI contract - Manage the incentives for continuous improvement of solutions after the PPI - Manage any risk/reward sharing mechanisms	➢ Do I need to use my right to require some of the PCP suppliers to give licenses on their IPRs to other vendors on the market? ➢ How do I concretely use my license free right to use the R&D results including the IPRs after the PCP? ➢ Is any of the vendors abusing the R&D results against the public interest? Do I need to use the IPR call-back clause? ➢ Are all PCP suppliers respecting other contractual obligations that span beyond the PCP contract? e.g. provisioning of support/information about the PCP solution, contribution to standardisation, obligations regarding publication of information about the contract, auditing/keeping data records obligations, etc. ➢ Did I prepare everything correctly to prepare the PPI after my PCP (e.g. analysis of how the IPRs of other vendors have evolved outside the scope of the PCP) ? Whenever the PPI concerns the procurement of a limited volume of test solutions developed during the PCP, the public procurer should consider setting-up a testing site at its premises and/or involving a certification organisation to assess the test results. Whenever larger commercial volumes	▪ Continuous contact and monitoring of contractor's compliance

STEP-BY-STEP PROCESS	CHECKLIST / TO DO LIST	QUESTIONS TO ANSWER	INSTRUMENTS
		of end-products are purchased, the public procurer should consider requesting and testing samples of the products or performing conformance testing after the award of the contract.	