

Policy Brief: Public Procurement of Innovative solutions (PPI) to adopt clean technologies

The PROTECT Project

PROTECT supports urgent action for **climate adaptation, mitigation, and resilience**. It enables public authorities to use state-of-the-art public procurement approaches in order to identify solutions – **Climate Services (CS) based on Earth Observation** – that best fit the specific and systemic needs of the public demand. The focus is on five application domains, namely: Energy & Utilities, Sustainable Urban Communities, Agriculture, Forestry and other Land use, Marine and Coastal Environments and Civil Security and Protection. PROTECT will source and assess existing and high-potential CS solutions and technologies that use Earth Observation data. It will engage with an extensive and varied community of procurers, facilitate the definition and aggregation of their needs and functional requirements for climate services, explaining, fostering and supporting a 'buying with impact' approach. PROTECT will **prepare the operational ground for one or more joint, cross border or coordinated pre-commercial procurement (PCP) processes**. At policy level, it will provide decision-makers for procurement, climate and policy, at EU, national, regional and local levels, with practical recommendations and guidelines to boost the use of innovation procurement for climate action.

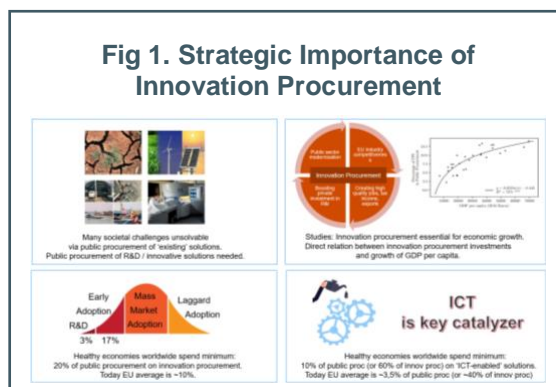
Summary

- Public procurement is an important driver for the green and digital transformation of public sector organisations and enterprises, with an **annual value of € 2 trillion**, involving over 250.000 contracting authorities across Europe [1].
- The public sector has a crucial role in **steering innovations from the demand side** by informing the market of the needs to tackle societal challenges and prepare for a more resilient future (Fig. 1).
- The public procurement legal toolbox has different instruments to purchase research and development (R&D) services through Pre-Commercial Procurement (PCP) and/or **purchase innovative solutions through Public Procurement of Innovative solutions (PPI)**, depending on the maturity of technologies based on technology readiness levels (TRLs).
- As PPI falls under the scope of the **WTO-GPA and the EU Public Procurement Directives**, any of the procedures thereof may be applied (e.g. open, restricted, negotiated procedures).
- The PPI approach the market readiness can be **verified through conformance testing, certification or quality labelling**.

Recommendations

- Public organisations across Europe can **make strategic use of public procurement instruments** towards innovative and sustainable goals for the green and digital transformation.
- The starting point to implement a PPI approach is having a **clear definition of needs** and functional specifications, which after a state-of-the-art analysis and sound market consultation show higher TRL 7-9.
- A PPI approach can be applied using any of the different types of **contracting procedures as established in the EU Public Procurement directives** based upon a procurement strategy designed given a business case.

Fig 1. Strategic Importance of Innovation Procurement



Introduction

Public procurement of innovative solutions (PPI) means procurement where **contracting authorities act as a launch customer** of innovative goods or services which are not yet available on a large-scale commercial basis and may include conformance testing.

PPI is a **specific approach for procuring innovative solutions** in which procurers, unless they conducted prior to a PCP, announce well in advance their intention to buy a significant volume of innovative solutions, to **trigger industry to bring to the market solutions** with desired quality/price ratios within a specific time.

Market readiness prior to deployment can be verified through e.g., **conformance testing, certification, or quality labelling of solutions**. In PPI, procurers act as launch customers, also called early adopters or first buyers of the innovative solutions. PPI can also entail the **combination of the R&D and deployment of commercial solutions** through an Innovation Partnership procedure.

The PPI can **establish Intellectual Property Rights (IPR) conditions** to stimulate, for example an open source and open hardware approach. The PPI can implement criteria and contract performance clauses to foster innovative solutions, interoperable standards, as well as social and environment considerations such as those established in the soft law of the International Labour Organisation (ILO).

The PPI can also implement **value engineering clauses** in framework agreements to stimulate the possibility to add value along the term of the contract through the systematic analysis of the functions and the **possibility of reducing costs while enhancing the efficiency of solutions**.

A PPI can take place as a joint cross-border procurement bringing together several public organisations across Europe. For this purpose, they may use of the **funding schemes of the Horizon Europe Programme** (Box 1).

Box 1: Funding

Horizon Europe offers funding opportunities for consortia of procurers to prepare and undertake together PPI procurements (see the calls for PPI actions). To cooperate on identifying opportunities and preparing for future PPIs (see the calls for CSA actions). Public authorities that want to implement joint cross-border innovation procurement calls via their national funding programmes can also apply for support for such joint PPI calls via the HE programmes co-fund actions. The funding rates are 50% for PPI actions. In PPI actions, procurers can choose between implementing one joint PPI procurement or several separate but coordinated PPI procurements. The funding rate of programme co-fund actions can depend on the call.

PPI vs PCP [2]

PPI focuses on innovative solutions which are not yet available on a large-scale commercial basis. This also includes **solutions based on existing technologies that are used in a new, innovative way**.

The solutions may have been (partially) demonstrated with success on a small scale (e.g., field testing of a first batch of products) and may be nearly or already available in small quantity on the market.

However, due to residual risk or market uncertainty, the innovations are not being produced at large scale yet and do not meet market price/quality requirements of procurers for wide deployment yet.

While PCP focuses on the R&D phase prior to commercialization, PPI, which does not cover R&D, concentrates on the commercialization/diffusion of solutions. In other words, **PCP only covers the procurement of R&D services, in a way that is clearly separated from any potential subsequent purchase of commercial volumes of end-products**. The main differences between PCP and PPI are indicated in the table below.

	PCP	PPI
When?	The identified challenge requires R&D to get new solutions developed and tested. No commitment to deploy (PPI) yet.	Challenge requires solution which is near to the market/already on the market in small quantity but does not meet public sector requirements for large scale deployment yet. No R&D involved (R&D already done, or no R&D needed to solve challenge).
What?	Public procurer buys R&D to steer development of solutions to its needs, gather knowledge about pros/cons of alternative solutions, avoid supplier lock-in later (create competitive supply base).	Public procurer acts as launching customer / early adopter / first buyer for innovative products and services that are newly arriving on the market (not widely commercially available yet).
How?	Public procurer buys R&D from several suppliers in parallel (comparing alternative solution approaches), in form of competition evaluating progress after critical milestones (design, prototyping, testing). IPR related risks and benefits of R&D are shared between procurer and suppliers to maximize incentives for wide commercialization.	Public procurer announces the intention to buy a critical mass of innovative solutions to trigger industry to bring products on the market with desired quality / price ratio within a specific time. After verification if the market was able to deliver the desired quality/price – e.g. via a test and/or certification - the public procurer buys a significant volume of innovative solutions.

PPI is suitable in cases when, the required solution is **close to the market**, and it is sufficient to signal the intention to buy a significant volume of solutions to encourage suppliers to invest in bringing the solutions to the market that meet the price/quality requirements of the procurer.

Alternatively, for cases in which the solution still needs substantial R&D, **active demand side steering during development is needed** to ensure that developed solutions will meet all the procurers' requirements (e.g. regarding interoperability) and suppliers are not likely to invest in developing in such solutions on their own. **PPI can be used to invest in clean technologies developed through PCP.**

A healthy economy should **spend at least 20% of public procurement on innovation procurement**. This is essential for economic growth [3]. 10% of public procurement (that is 60% of innovation procurement) should be invested in **ICT-enabled solutions**. Under the PPI approach, the market dialogue and a fine-tuned business case, public buyers can choose the most suitable procurement procedure.

If Research and Development services are needed, the Pre-Commercial Procurement approach could be used. Otherwise, for a PPI approach, depending on the scope and the object of the procurement, **open, restricted, and negotiated procedures are available under Directive 2014/24/EU.**

Policy implications

Innovation policy is essential for advancing the transition to a green economy seeking to promote sustainable development and environmental stewardship. By promoting green innovation, such as renewable energy technologies, resource-efficient practices, and sustainable agriculture, **innovation policy can drive economic growth while reducing environmental impacts and promoting social well-being.**

Effective innovation policies offer various benefits (Box 2), including:

- a. **Economic Growth:** Innovation stimulates entrepreneurship, creates new industries and job opportunities, and drives economic growth for fostering the development and adoption of sustainable technologies and practices.
- b. **Environmental Sustainability:** Innovation policy encourages the development of environmentally friendly technologies, resource-efficient processes, and sustainable business models, thereby contributing to the preservation and protection of the environment.
- c. **Social Welfare:** Innovation policy can lead to the developments of inclusive and affordable solutions that improve quality of life, address social challenges, and enhance access to essential services such as clean energy, clean water, and sanitation.

Box 2: Benefits of PPI

Based on evidence from relevant case studies, the benefits of implementing PPI are:

- Improving the quality and/or efficiency of public services.
- Helps innovative (start-up) companies to grow.
- Incentivizes companies to invest in innovation.

The **public sector accounts for a large share of the demand** in several areas like mobility, health, construction, e-government, waste management, recycling etc. In these areas, PPI can generate benefits for the demand and supply side:

- **Quality improvements and cost savings** to the procuring organization that deploys the innovative solutions as well as wider economic,
- **Environmental and societal benefits** for European citizens that benefit from the improved public service and for companies, including SMEs, that are looking for first customers for their innovative solutions.

Conclusions

The role of innovation policy is vital in driving the transition to a green economy. By promoting green innovation, integrating innovation into economic and trade policies, building capacity, and fostering innovation procurement **it is possible to harness the power of innovation for sustainable development.**

Effective innovation policies embedded in the Public Procurement of Innovative solutions (PPI) have the potential to **drive economic growth, protect the environment, and improve social welfare**, creating a pathway towards a more sustainable and inclusive future.

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References:

- [1] [Pircher \(2020\)](#)
- [2] [EAFIP Toolkit](#)
- [3] [Benchmarking of innovation procurement investments and policy frameworks across Europe | Shaping Europe's digital future \(europa.eu\)](#)