

PRE-COMMERCIAL PROCUREMENT

"Public sector needs as a driver of innovation"

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Pre-commercial procurement “Public sector needs as a driver of innovation”

Pre-commercial procurement puts procurers in the driving seat to get the technologically innovative solutions that really fit their needs. By pooling their efforts and sharing with the suppliers the risks and benefits of developing new products and services up to the stage where they are ready for commercial take-up, they can shape the right solution at the best cost. In this way, procurers take the role of demanding first buyer and create opportunities for European companies to take international leadership in new markets.

What is pre-commercial procurement?

Pre-commercial procurement empowers public authorities to buy the technologically innovative solutions that fit their needs.

*Public procurers by doing so, act as **first buyers** that share with suppliers the benefits and risks of pulling technology from early stage research to pre-commercial products.*

*More often than in Europe, pre-commercial procurement schemes play an **important role in innovation** in the US and Asian economies.*

*Practically, pre-commercial procurement can take the form of **public procurement contracts of R&D services** with several competing suppliers.*

Pre-commercial procurement is a process by which public authorities in Europe can steer the development of new technologically innovative solutions that can address their specific needs. It focuses on domains where no commercial solutions exist yet on the market.

Pre-commercial procurement precedes commercial procurement in the product development and procurers buying process. Pre-commercial procurement empowers public authorities to stimulate industrial product development from its early R&D stages to test series in order to best fit its needs.

Pre-commercial procurement addresses the missing link in innovation in Europe where public procurers, as technologically demanding first buyers, share with suppliers the risks and benefits of valorising exploratory research up to the stage where it is ready for commercial take-up.

It contributes to opening opportunities for European companies to take a leadership position in new markets in the context of global competition while also contributing to consolidate market needs, facilitating interoperability and supporting emergence of standards.

More often than in Europe, pre-commercial procurement schemes play an important role in innovation in the US economy as well as in the major Asian economies where public authorities act as first buyer for local suppliers.

Practically, pre-commercial procurement can take the form of a single public procurement contract managed for example in three phases; the first phase being a solution exploration phase, followed by a prototyping phase and finally a test series. In the first phase a number of offers from competing suppliers could be selected, the number of suppliers developing in parallel progressively being reduced after each phase subsequent to evaluations. In the final phase at least two suppliers should remain to ensure a future competitive market.

Organising the pre-commercial procurement contracts in phases reduces the risk for the procurers of buying yet-to-be proven technologies.

The ability to restrict the tender to the Internal Market and to share the risk and benefits of the R&D between procurers and suppliers are two important legal features specific to pre-commercial procurement.

*Pooling demand of procurers from different regions or countries gives a **European dimension** that would provide additional benefits.*

Pooling together procurement needs through cooperation between procurers from different regions or countries would also reduce the risk for the individual procurers, provide critical mass on the demand side, stimulate competition and exploit economies of scale and scope. Such a European dimension to pre-commercial procurement would contribute to solving pressing European issues in sectors requiring interoperability and coherence of solutions across borders. It would stimulate the uptake of European research and trigger organic innovativeness among suppliers.

To be successful, such a scheme requires an *incentive* to encourage procurers to cooperate, bundle their purchasing power, consolidate their needs and step in at upstream pre-commercial R&D stages.

Why do European public authorities need pre-commercial procurement?

The public sector in Europe needs new technologically intensive solutions in sectors such as health, transport, environment, security, government and infrastructures.

Given the socio-economic challenges ahead – the ageing population, rising energy costs etc - the public sector in Europe is confronted with huge transformation challenges so as to ensure sustainability of the European societal model.

There is a real need for the European public sector to innovate the way public services are operated and to provide new value added services. Addressing these challenges requires the public sector to embark on ambitious transformation journeys in sectors such as health transport, environment, security, government and infrastructures.

ICT is a ‘constitutive’ technology at the heart of a number of the transformations needed to succeed.

In most cases, these transformation journeys heavily rely on maturing and successfully deploying new technologically innovative solutions that can enable improved delivery of public services at reasonable cost. ICT is recognised as one of the key ‘constitutive’ technologies that are at the heart of a number of these transformations.

Europe's public sector is not acting anymore as a first buyer driving industrial innovation from the public demand.

The European public sector represents close to half of the EU 25 economy. Public procurement represents 17% of European GDP. Lack of sufficient demand from the public sector for new technology innovative products and services significantly lowers the overall performance of Europe with regards to innovation.

Lack of sufficient demand for innovation in the public sector lowers overall European performance in terms of innovation compared to our major competitors.

This lack of demand can largely be explained by the public sector risk aversion reflected in public procurement practices that are optimised for the procurement of commercially ready products and services

The US invest 50B\$ in pre-commercial type of procurement. This is 20 times more than in Europe.

*By restricting access to their local industrial suppliers, **the US and Asia offer a first mover competitive advantage for their national suppliers** in competition for global leadership.*

This is decisive in quickly evolving markets such as ICT where reducing time to market is critical.

Traditional commercial procurement practices rightly discourage substantial R&D risk taking at the commercial procurement stage as this may jeopardise successful commercial roll-out.

This uncertainty is increased by the fact that procurers are not allowed to get 'closely involved' with suppliers at commercial procurement stages to ensure fair and transparent competition. Although mechanisms have been put in place in the new procurement directives to facilitate some 'dialogue' between procurers and suppliers, there still remains a notable 'distance' at the commercial tendering stage and rightly so.

Procurement procedures optimised for the buying of commercially ready products and services tend to stimulate and favour tactical buying of in the shorter term most economically advantageous offers, rather than strategic buying of innovative solutions that could better fit public needs in a sustainable way possibly at lower cost.

This impasse of risk-averse and fragmented public sector demand tends to discourage suppliers to direct their R&D towards specific public sector needs and to rather favour R&D investments in sectors where market and return on investment perspectives rank higher.

In the US and in Asia, public authorities have already implemented policy schemes to strongly drive innovation in the supplier base from the demand side. The demand of public procurers for new innovative products and services that require R&D is today 20 times higher in the US than in Europe than in the US. Pre-commercial procurement represents some 50 B\$ in the US. This effort in the US is not only driven by defence related schemes such as DARPA - which have a strong dual-use aspect- but also by similar schemes applied in civilian sectors such as energy, transport, health and security.

Through such dedicated schemes with access restricted to national suppliers, public and private sectors share risks and benefits from the early stages of pre-commercial product developments up to the stage where products are ready for commercialisation. Pooling of demand and export focused commercialisation ensure wide take-up and diffusion of the newly developed technologies in all sectors locally and globally.

Such a strategic use of public procurement empowers the public sector in the US and Asia to innovate faster than in Europe. It also opens up new markets of industrial leadership for their supplier base in carefully selected areas of aspired international competitiveness. Over the years this has created a competitive first mover advantage for American and Asian suppliers globally, in

particular in rapidly changing technology intensive sectors such as ICT where time to market is critical as the first mover gets most of the market share, if not all.

Traditional supply side policy measures such as R&D subsidy schemes are insufficient to stimulate take-up of R&D in particular in the public sector.

Europe mostly relies on supply side R&D policy measures such as R&D subsidies to financially stimulate industry to undertake R&D relevant to public services interest. Even when complemented by measures to support take-up, in practice, too few of these projects result in products and services that really get deployed afterwards. Europe suffers from a structural lower performance when it comes to transforming its publicly funded research outcomes into success stories of innovative products and services deployed in the public sector.

They suffer from the 'built in' lack of buyer/user involvement from the early stages of solution definition.

R&D subsidy schemes are by definition dedicated to academic and industrial research communities. They remain somehow disconnected from public needs and suffer from intrinsically lack of direct commitments of future public market buyers and lack of involvement of final users.

To compete fairly with the US and with Asia, Europe needs to adopt pre-commercial procurement policy schemes so as to restore the first buyer function in an open and competitive Europe.

Europe needs to put in place the market conditions that will best ensure demand and R&D take up. Public procurement is recognised as one of the key demand policy instruments that needs to be reinforced as a driver of innovation.

Historically, many European companies have benefited from first-buyer partnerships with state monopolies for their product development. These partnerships are now progressively being dissolved as the markets, rightly so, are deregulated to ensure open and fair competition for commercially ready products. Europe's public sector is not acting anymore as a first buyer driving industrial innovation from the public demand side.

To compete with the US and Asia, Europe needs to adopt alternative demand policy mechanisms such as pre-commercial procurement that stimulate innovation in the public sector while maintaining a competitive and open market for commercially ready products.

What are the benefits of doing pre-commercial procurement?

First-buyer involvement in the early phases of industry R&D delivers better products at lower costs.

Pre-commercial procurement is in essence a mutual learning process for the procurers, users and the suppliers to get firm confirmation both about the functional needs on the demand side and the capabilities and limitations of new technological developments on the supply side when it comes to tackling a concrete public sector problem.

*Pre-commercial procurement dramatically **reduces the risks and the cost of failure** at deployment stage both for procurers and for suppliers.*

This co-evolution of demand and supply is key for innovation projects which are strongly R&D intensive in domains with very short life-time cycle such as ICT. By better steering the core feature set according to customer priorities, by assessing the performance of working prototypes and pre-product field tests in a real operational customer environment, procurers can prevent today's problems of buying off-the-shelf products which include a bunch of sometimes costly features which are not really needed while at the same time missing some critical capabilities.

While the costs of adapting design at early stage R&D are limited, modifications at commercialisation stage that impact core product features can dramatically increase the overall risk of failure and cost of deployment of the final product as well as the time to market for suppliers.

Pre-commercial procurement offers procurers a deeper understanding of the technological capabilities and limitations. This reduces the risk of miss specified tender for the commercial roll-out as well as the risk that big commercial roll-outs do not deliver on expectations.

*Pre-commercial procurement **shortens the time-to-market** by better aligning product developments with customer needs.*

The virtuous process of co-evolution enabled by pre-commercial procurement shortens the time-to-market for the suppliers that can better anticipate demand for new solutions and better align their product developments to fulfil concrete customer needs. Active involvement of interested public buyers from the early product development stages also enables public authorities to detect at an early stage potential policy and regulatory barriers that need to be removed in time to ensure short time to market for innovating public services.

*Putting several suppliers in competition in developing solutions at the pre-commercial stage **ensure healthy competition** and contributes to ultimately get the best product at a favourable price.*

The recommended approach of putting several suppliers in competition when developing solutions at the pre-commercial stage also contributes to get ultimately the best product at the lowest price by preventing some of the drawbacks of the costly projects with single supplier that were sometimes supported by old state monopolies. By being better informed, procurers become less dependent on individual suppliers.

Risk-benefit sharing between procurers and suppliers in pre-commercial procurement also means that procurers may negotiate to get reduced license fees for the use of the developed solution in compensation of giving the IPRs of the R&D to the suppliers.

*Pre-commercial procurement can also **attract venture capitalists looking for promising opportunities***

The risk-management techniques applied in the pre-commercial procurement process can also attract venture capitalists looking for promising opportunities offered by SMEs involved in pre-commercial procurement projects. At the same time, support from the venture capital market makes it 'safer' for the procurers that

offered by SMEs involved in such projects

will buy from such SMEs. Finally, venture capital funding would give SMEs which get a 'first buyer' order the financial stability to deliver on it. Business opportunities for SMEs can also be stimulated by embedding subcontracting possibilities into the pre-commercial procurement scheme.

Pre-commercial procurement enables to create long lasting growth and jobs and new sectors of industrial leadership through planned innovation of public services

Pre-commercial procurement has the strongest impact on creating growth and jobs when used as a strategic policy instrument aligned with other Research & Innovation policy instruments (e.g. structural funds, venture capital, R&D tax incentives) in such a way that they reinforce each other to achieve one common goal: breaking open new markets for European industry by challenging them to deliver up to leading edge public sector demand.

Investing in pre-commercial procurement is also investing in a strong and sustainable local European supplier base.

As procurement of R&D services can be limited to European suppliers, pre-commercial procurement puts public authorities in the driving seat to shape new international markets for 'made in Europe' innovative products and services. Together with export driven exploitation strategy, pre-commercial procurement helps to become more competitive globally.

Investing in pre-commercial procurement is also investing in a strong and sustainable local European supplier base. It can improve the macroeconomic attractiveness of a region to foreign investment within a wide Europe.

Why doing pre-commercial procurement *together*?

Pulling public demand together enables to share the risks and costs inherent to R&D projects.

By cooperating together, procurers strongly reduce the risks and costs for individual procurers of purchasing yet-to-be proven technologies. By joining forces with other procurers, the costs and risks of pre-commercial procurement for each procurer are lower compared to buying design, prototype and field test from one supplier on their own.

Building a critical mass on the demand side provides industry with better market perspectives.

Pooling demand together also enables to strongly reduce the investment cost for individual procurers up to the point where they can take the risk of entering into early stage R&D. Consolidating needs is also a virtuous exercise that can strongly contribute to drive local and regional authorities towards efficiency by adopting best practices, common operating modes and common solutions.

At the same time, procurers increase the prospect for suppliers to develop products that can address a bigger more coherent market, resulting in lower R&D cost and commercialisation prices. It stimulates industry to invest more in sectors of public interest and to raise its overall R&D investment effort.

Pre-commercial procurement gives a chance to local, regional, national suppliers.

By proceeding with several European suppliers in parallel, pre-commercial procurement gives a chance to local, regional, national suppliers to compete in the development of new products up to pre-commercialisation stage.

Joining forces in pre-commercial procurement facilitates emergence of standards and interoperability.

Streamlining desired product specifications amongst suppliers and procurers at the stage when products are still under development empowers procurers to foster the necessary degree of standardisation amongst suppliers to guarantee economies of scale and interoperability. The fact that interoperability is ensured from the outset prevents that early adopters of innovative solutions get punished by having to pay extra to make their solution compliant to standards defined afterwards.

European level cooperation can act as a driving force to address market fragmentation in Europe.

Cooperation at European level in pre-commercial procurement can clearly generate additional complexity and burden at the early stage linked for instance to diverging national regulations and practices. Still, in a number of cases, tackling pre-commercial procurement at European level would be the right solution. It provides extra benefits by building critical mass on the demand side, by further stimulating European industrial competition and by further exploiting economies of scale and scope. European level cooperation can act as a driving force to address market fragmentation in Europe.

Pre-commercial procurement at European level would put European companies on an equal footing with their main competitors in the US and Asia when competing for international leadership positions in new markets.

A European dimension is particularly relevant where Europe cannot afford the cost of multiple competing initiatives or where European interoperability is needed. A coordinated approach would contribute to solve pressing European level issues such as interoperability and coherence of solutions across borders in a number of fields. If purchasing power is pooled at a sizeable scale from the outset at the pre-commercial stage, those early adopter procurers will be rewarded by the fact that the common specifications resulting from the pre-commercial procurement will become de facto standards adopted by other procurers and by industry in Europe and possibly beyond. A European dimension would also stimulate the optimal uptake of the European research outcome and trigger organic innovativeness among suppliers.

Pre-commercial procurement at European level would contribute to put European companies on an equal footing with their main competitors in the US and Asia where the public sector through pre-commercial procurement provides local industry with a competitive advantage when competing for international leadership in new markets.

How pre-commercial procurement relates to legal frameworks?

*Pre-commercial procurement is **compliant with legal frameworks**.*

Pre-commercial Procurement can be organised in compliance with the Treaty, the WTO rules, the new 2004 public procurement directives and the state aid rules.

*As procurement of R&D services, it falls under **an exception** of the WTO GPA and the EU public procurement directives.*

Legally it is a procurement of R&D services that falls under an exception of the WTO Government Procurement Agreement and the EU public procurement directives.

Risk-benefit sharing and restriction to bidders from the European Internal Market are allowed.

For this exception to hold, the value of the pre-commercial procurement contract must consist of at least 50% R&D services. The value of any products procured in the contract can not exceed the value of the R&D services covered by the contract.

*The fundamental Treaty principles of **non-discrimination, transparency and objectivity** are applicable.*

Under this condition risk-benefit sharing between procurers and suppliers and restriction of the pre-commercial tender to bidders from the European Internal Market are allowed. These are two key legal differences between pre-commercial and commercial procurement.

The fundamental Treaty principles of non-discrimination, transparency and objectivity are applicable to pre-commercial procurement.

Transparency means that pre-commercial procurement tenders have to be published in an 'adequate' way, an obligation indicating that tenders have to be published as widely as potential suppliers can be expected to be located in the European Economic Area.

The non-discrimination and objectivity obligation in the Treaty mean that regardless of the publication radius procurers have to accept European-wide offers and evaluate all offers regardless of the country of origin of the bidder according to the same objective criteria.

*Benefit sharing between procurers and suppliers **does not constitute state aid** if the contract follows an open tender procedure according to market conditions.*

If the pre-commercial procurement contract is awarded through open tender procedure according to market conditions, where IPR and price conditions are fixed in advance for each pre-commercial development phase covered by the contract (solution design, prototype, test series), then no state aid is assumed to be involved.

*Pre-commercial procurement is **legally different from Public Private Partnership**.*

Although pre-commercial procurement and Public Private Partnership (PPP) procurement are both cooperation schemes between public and private sector, they are not the same and they each legally follow different rules.

How to do pre-commercial procurement?

In pre-commercial procurement, the public buyers solicit and select several suppliers to compete in developing alternative solutions for a problem of public interest.

In pre-commercial procurement, public procurers do not prescribe a specific R&D solution to be developed, but solicit different solution proposals to address a problem of public interest from different suppliers. Putting suppliers in competition and evaluating the pros and cons of each solution along the different development stages (solution design, prototype, test series) is a competitive way of creating products and services that best fit public sector needs.

Although pre-commercial procurement can be implemented in different ways, some coherence and transparency at European level would be beneficial.

Pre-commercial procurement can be implemented in different ways. As it is however desirable that the schemes are coherent and transparent, one possible scheme has been proposed by an independent expert group¹. The approach is similar to US and Asian schemes but adapted to the European context.

For the supplier, pre-commercial procurement can take the form of **a single public procurement contract managed for example in three contractual phases**. The first phase is a solution exploration phase, followed by a prototyping phase and finally a test series product development phase.

A number of suppliers would be selected and contracted to compete in parallel in that development process. The number of suppliers would be reduced progressively after each phase subsequent to evaluations. In the final step at least two suppliers should remain to ensure a future competitive market.

Pre-commercial procurement can be done at regional, national and European level.

Although cooperation between procurers at European level in pre-commercial procurements would provide additional benefit, there is nothing preventing Member States from introducing their own pre-commercial procurement schemes.

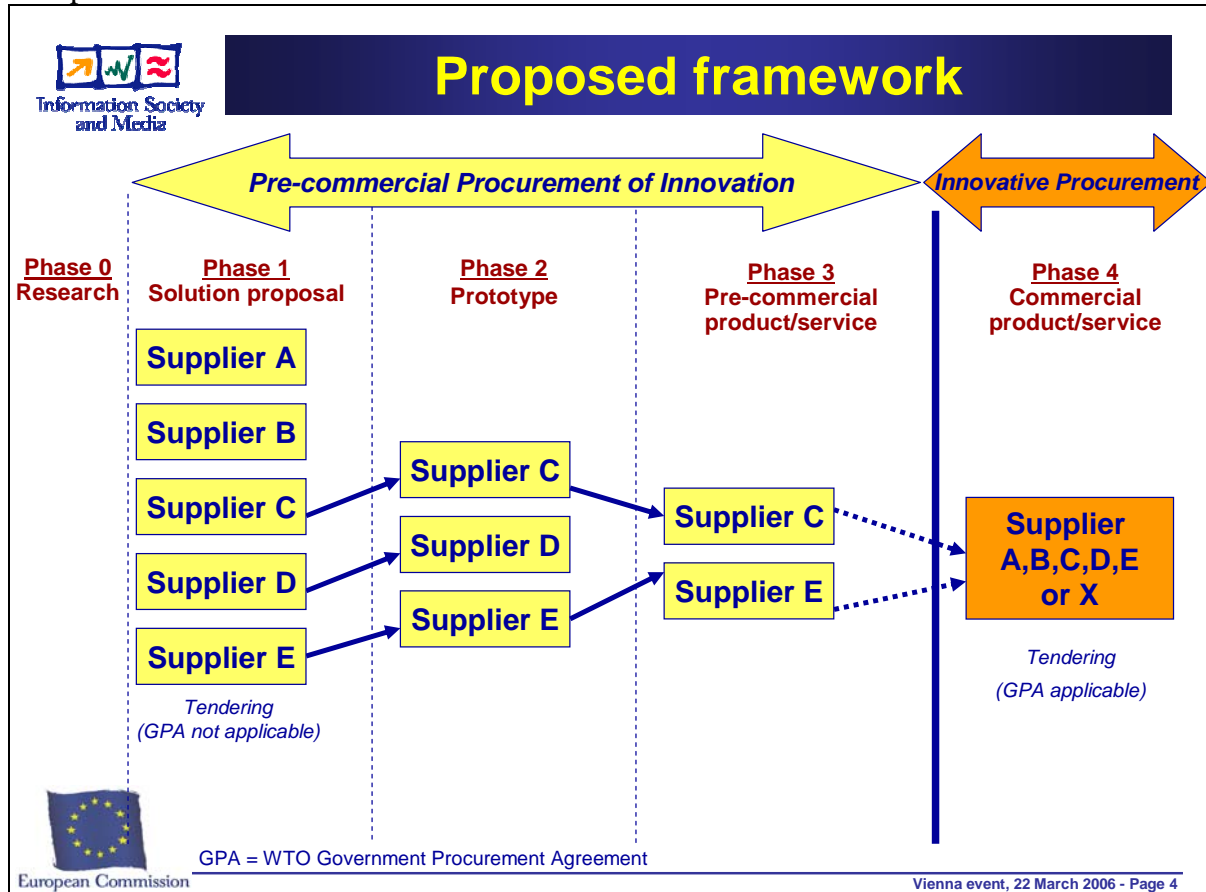
Appropriate financial incentives should be provided to stimulate the procurers.

Appropriate financial incentives will be required to encourage procurers to embark together in pre-commercial procurements: to support the 'cost' of getting together, to stimulate procurers to consolidate their needs, bundle their purchasing power and step in at upstream pre-commercial R&D stages.

• ¹ 'Pre-commercial Procurement of Innovation: a missing link in the innovation cycle', technical report by an ad-hoc National IST Directors Forum Working Group, March 2006
http://europa.eu.int/information_society/research/key_docs/documents/procurement.pdf

One possible scheme for doing pre-commercial procurement

Pre-commercial procurement can be implemented through different type of schemes. The scheme shown hereafter is inspired by approaches taken in the US and Asia adapted to the European context.



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- Pre-commercial procurement website:
 - http://europa.eu.int/information_society/research/vienna_process/public_procurement/index_en.htm
- 'Pre-commercial Procurement of Innovation: a missing link in the innovation cycle', technical report by an ad-hoc National IST Directors Forum Working Group, March 2006
 - http://europa.eu.int/information_society/research/key_docs/documents/procurement.pdf