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COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

Pre-commercial Procurement: Driving innovation to ensure sustainable high quality public services in Europe

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(Text with EEA relevance)

1. Introduction

The Communication on a "broad based innovation strategy for the EU"[1] highlighted the importance of public procurement in reinforcing the innovation capabilities of the Union whilst improving the quality and efficiency of public services. It also underlined the untapped opportunities in Europe for pre-commercial procurement. In its conclusions on the above Communication[2], Council invited the Commission to provide guidance on how EU rules on public procurement can be used to stimulate innovation. The European Parliament's resolution of June 2007 on the transposition and implementation of public procurement legislation[3] encouraged the wider use of pre-commercial procurement in the EU.

The recently published guide[4] on the uptake of commercially available innovative products, works and services in the public sector identifies ten elements of good practice to promote the potential of public procurement for stimulating innovation.

This Communication addresses the concept of "pre-commercial procurement" which concerns the Research and Development (R&D) phase before commercialisation. For the purpose of this communication "pre-commercial procurement" is intended to describe an approach to procuring R&D services other than those where "the benefits accrue exclusively to the contracting authority for its use in the conduct of its own affairs, on condition that the service provided is wholly remunerated by the contracting authority[5,6]" and that does not constitute State aid. More specifically in **pre-commercial procurement**:

(1) **The scope is R&D services only:** R&D can cover activities such as solution exploration and design, prototyping, up to the original development of a limited volume of first products or services in the form of a test series (see Figure 1). "Original development of a first product or service may include limited production or supply in order to incorporate the results of field testing and to demonstrate that the product or service is suitable for production or supply in quantity to acceptable quality standards"[7]. R&D does not include commercial development activities such as quantity production, supply to establish commercial viability or to recover R&D costs,

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1 COM(2006) 502 final.
2 2769th EU Competitiveness Council conclusions, 4/12/06.
3 EP 2006/2084(INI).
4 SEC(2007) 280.
5 In this case, the public procurement directives do not apply (see Art 16f of 2004/18/EC, Art 24e of 2004/17/EC). These exemptions only apply to public contracts for R&D services, not for R&D supplies or works.
6 Contracts providing more than only services are still considered a public service contract if the value of the services exceeds that of the products covered by the contract.
7 WTO Government Procurement Agreement, article XV.

integration, customisation, incremental adaptations and improvements to existing products or processes.

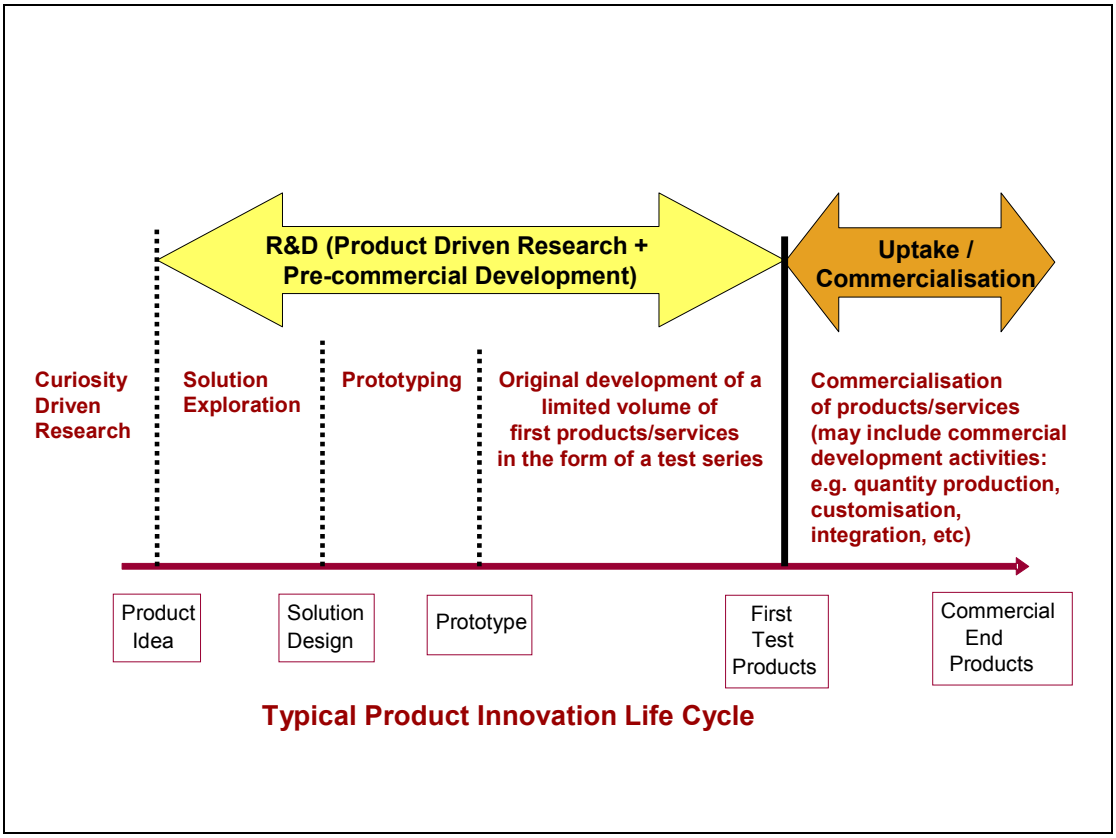

Figure 1: R&D versus commercialisation phase

(2) **The application of risk-benefit sharing**: In pre-commercial procurement, the public purchaser does not reserve the R&D results exclusively for its own use: Public authorities and industry share risks and benefits of the R&D needed to develop new innovative solutions that outperform those available on the market.

(3) **A competitive procurement designed to exclude State aid**: Organising the risk-benefit sharing and the entire procurement process in a way that ensures maximum competition, transparency, openness, fairness and pricing at market conditions enables the public purchaser to identify the best possible solutions the market can offer.

The aim of this Communication is to draw the attention of Member States to the existing but underutilised opportunity of pre-commercial procurement. The Annex[8] provides, by way of example, one possible implementation[9] in line with the existing legal framework. As there is still little experience in the EU with pre-commercial procurement, the Commission is interested in exploring the extent to which pre-commercial procurement could indeed contribute to more R&D and innovation in the EU and, hence, bring tangible benefits to society and economy. Through this Communication together with the guide[4] the Commission will have addressed, as requested by the Council, possibilities provided by EU legislation to

[8] SEC(2007)…

[9] Providing one implementation example does not preclude that there may be other possible approaches.

stimulate innovation through public procurement, in both R&D and commercialisation phases.

Actions that are taken in pre-commercial procurement cannot preclude competition in the commercialisation phase as there the Public Procurement Directives and Treaty Principles on which they are based fully apply.

2. Addressing Europe's societal challenges through pre-commercial procurement

The public sector in the EU, as elsewhere in the world, is faced with important societal challenges. These include ensuring high quality affordable health care to cope with the impacts of an ageing population, the fight against climate change, improving energy efficiency, ensuring higher quality and better access to education, and more effective dealing with security threats.

Addressing such challenges can require new and better solutions. New equipment will be needed e.g. to perform cutting-edge medical research, undertaking early diagnosis of diseases and finding new treatments, to reduce energy consumption in buildings and public transport, to protect citizens from security threats without intruding on their privacy. Some of the required improvements are so technologically demanding that either no commercially stable solution exists yet on the market, or existing solutions exhibit shortcomings which require new R&D. By developing forward looking procurement strategies that include R&D procurement to develop new solutions that address these challenges, the public sector[10]can have a significant impact on the mid to long term efficiency and effectiveness of public services as well as on the innovation performance and the competitiveness of European industry.

Europe must also do better in terms of innovation performance compared to major competitors[11]. The aim of the Lisbon strategy for Growth and Jobs is to find solutions not only for the continuing underinvestment in R&D, but also to improve Europe's ability to convert new inventions into new products and jobs. The relatively slower uptake of innovations in the public sector in Europe and the fragmentation of public demand have been highlighted by industry as important issues to be addressed in order to shorten time to market and to improve Europe’s attractiveness to investment in innovation and research.

Procuring R&D is commonly used by companies to gain a first-mover advantage. It could be more widely used in the public sector in Europe to improve efficiency and quality of service. This will typically require the public sector to develop strategies for procurement that are not only limited to the purchase of commercially available products and services but that also include the procurement of R&D of new solutions that can outperform those available on the market. This Communication introduces and explains an approach to procuring R&D services.

3. Europe can do better: Strategic R&D procurement to stay in the lead

Public needs have always been an important driver of innovation in many sectors such as telecom, energy, health, transport, security and defence. In a globalised competitive environment, the role of the public sector in benefiting from and driving forward innovations

[10] Public procurement (17 % of EU-25 GDP) represents 35% of EU-25 public expenditure.
[11] COM (2006) 589final.

needs to be revisited. This has been done to a large extent in the EU's major trading partners - such as the US and Japan - where the procurement of R&D to address public needs for which no solution exists on the market is used as an important mechanism to stimulate innovation.

Examples of life-changing innovative solutions that emerged from R&D procurements include the Internet Protocol technology, the Global Positioning System, high performance computing, and key innovations in semiconductor technology. More recently, R&D procurements related to concrete societal challenges - such as soil pollution treatment, or Alzheimer disease diagnosis - have enabled US public authorities to create new markets for biotechnology and nanotechnology applications[15].

In the areas of energy and the environment public institutions in US and Japan[12] have significantly reduced the cost of fuel cell stations through R&D procurements. This has facilitated fuel cell powered buses to become a viable energy-efficient public transport option. China's last year's national long-range science and technology plan officially introduced public technology procurement in China as a means to encourage innovation[13].

The US public sector is spending $50Bn[14] per year in procurement of R&D, an amount which is 20 times higher than in Europe and represents approximately half of the overall R&D investment gap between the US and Europe. This has often played an important role in improving the quality of public services and in the emergence of globally competitive companies[15].

The difference in R&D procurement expenditure between the US and Europe is mainly due to disparities in defence/space budgets. However, US expenditure of this type is still 4 times higher in non-defence/space public sectors such as health, energy, education, transport and environment. This represents a gap of $3.4Bn in absolute terms[16]. Experts[12,17] point to untapped innovation opportunities in these non-defence sectors where Europe could take the lead.

There are important regulatory and policy differences in the procurement framework of the EU and other countries. Therefore the above experiences should be analysed in order to identify how lessons learnt could be transferred to the EU context.

4. Exclusive development

Exclusive development means that the public purchaser reserves all the results and benefits of the development (including Intellectual Property Rights or IPRs) exclusively for its own use. The companies that have developed the product/service then cannot reuse them for other potential customers. This will normally be reflected in a higher price.

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12 "Commercialising University Research", paper for ESRC Sustainable Technologies Programme, Chris Hendry.

13 Art 22-26 of the Complementary Policy for the 'National Mid and LongTerm S&T Development Plan Guideline', Xinhua politics, 2006.

14 Figures quoted concern the total volume of R&D public procurements, not only those that could be considered pre-commercial procurement.

15 "US defence R&D spending: an analysis of the impacts", EURAB report, PREST, 2004.

16 Figures quoted from 'Pre-commercial Procurement: a missing link in the European Innovation cycle', independent expert report, March 2006. In 2004, 15% of the total federal procurement budget ($49Bn) was spent on R&D procurement: 90,6% by defence/space agencies, 9,4% by non-defence agencies. In 2004, less than 1,5% of the total EU wide tendered procurement budget (€2,5Bn) was spent on R&D procurement: 49% was defence/space related.

17 'Public Procurement for research and innovation', independent Wilkinson expert group, 2005.

There are, however, cases where exclusive development can be justified: e.g. when the public purchaser "needs" exclusive rights over projects results (e.g. in defence or security related fields which require secrecy of results) or when the public purchaser "is" the only interested customer (e.g. development of very special customer specific equipment).

According to experts[17] public purchasers in Europe tend to opt for exclusive development. In most cases however, "exclusiveness" of project results is not indispensable for public purchasers[17] as the public purchaser is only one of many potential users of the developed solution. Moreover, public purchasers often overlook the additional costs and efforts[18] needed to reap the benefits of the results. Unless the public purchasers have a mandate and concrete plans to commercially exploit the research results, there is often no reason to bear the high costs and risks of exclusive development.

In such cases exclusive development may hamper innovation. The exclusive assignment of rights to the public purchaser takes away the incentive for companies to invest in further commercialisation. The high price for the exclusive ownership of project results reduces the incentive for the public purchaser to share project results with other potential public purchasers. This can lead to:

(1) **Market fragmentation**: If different public purchasers in the same sector develop their own solutions to a similar problem without sharing information with each other, a multitude of solutions are developed, which are unlikely to address global markets.

(2) **Financial barriers to procuring competing developments:** Where a number of technologies and design options could offer a solution, the high cost of exclusive development makes the procurement of competing developments from a number of companies hard to afford. This can lead to locking the public purchasers to one supplier.

(3) **Missed opportunities for more innovative solutions**: Exclusive development assigns not only all R&D benefits but also all R&D risks to the public purchaser. As a result, public purchasers tend to focus on near to market developments and miss the opportunities offered by the development of more innovative solutions that could potentially bring better value for money for the public sector.

5. Pre-commercial Procurement: Procuring R&D services involving risk-benefit sharing at market conditions

In pre-commercial procurement the public purchaser chooses not to reserve the R&D results exclusively for its own use[5]. As defined in section 1, pre-commercial procurement is an approach to procuring R&D services which involves risk-benefit sharing[5] and does not constitute State aid[19]. More specifically, this approach is based on:

- Risk-benefit sharing according to market conditions
- Competitive development in phases

[18] e.g. costs and liabilities related to securing and preserving IPR rights (e.g. IPR filing / maintenance costs, liability as IPR owner in court litigations and disputes with suppliers).

[19] More implementation details are provided by way of example in Annex (see footnote 8).

- Separation of the R&D phase from deployment of commercial volumes of end-products

The aim is to facilitate cost-effective development of innovative solutions for public services with a broader more global outlook.

5.1 Risk-benefit sharing according to market conditions

In this approach, the public purchaser shares the R&D results with other public authorities and industry through publication and standardisation, as well as through their commercialisation.

To ensure that such an arrangement is beneficial both for the public purchaser and for the companies involved in pre-commercial procurement, R&D risks and benefits are shared between them such that both parties have an incentive to pursue wide commercialisation and take up of the new solutions.

When benefits shared include IPRs, care must be taken that when IPR ownership rights are assigned to companies participating in the pre-commercial procurement, this is done in a way that does not give the companies any form of unfair advantage in possible future procurements and that enables the public purchaser to access a sufficiently large and competitive supply chain. E.g. the public purchaser can require participating companies to license IPRs to third parties under fair and reasonable market conditions. The public purchaser can also demand a free licence to use the R&D results for internal use.

Ensuring that all potential bidders have equal chances to bid also implies that the procurement process, including the IPR arrangements, does not discriminate against any potential supplier, in particular SMEs.

If the risk benefit sharing does not take place under market conditions, and the price paid for the services provided is higher than market price, this will normally be regarded as State aid that will have to be notified to and assessed by the Commission according to Articles 87-88 of the EC Treaty and the State aid Framework for Research, Development and Innovation[20].

To ensure that the risk-benefit sharing is done according to market conditions any R&D benefit shared by the public purchaser with a company participating in the pre-commercial procurement should be compensated by the company to the public purchaser at market price. This can be done through, for example, a price reduction compared to exclusive development cost that reflects the market value of the benefits received and the risks assumed by the company[21].

In the above risk-benefit sharing example both companies and public purchasers benefit from wide commercialisation and take up of the developed solutions. This provides an incentive to both parties to pursue standardisation and publication of R&D results, and can thus help to reduce fragmentation of public demand. The financial compensation which the public purchaser gets for not exclusively reserving all R&D benefits for itself can make it, compared to exclusive development, more affordable to contract a number of developments from competing companies and to procure more upstream R&D.

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[20] OJ C 323, 30.12.2006

[21] More info can be found in section 4.3 of the Annex (see footnote 8).

Public purchaser involvement from the early R&D phases is likely to deliver better value for money for the following reasons:

- Assessing the performance of working prototypes and test products in a real operational customer environment enables public purchasers to align product developments according to customer priorities, at a point where it is still possible to influence industry roadmaps and upcoming standards. Enabling better anticipation of demand for new solutions shortens time to market for suppliers, and helps public authorities introduce new solutions faster.

- Earlier engagement in the innovation process enables public authorities to detect at an earlier stage potential policy and regulatory issues that need to be addressed in order to ensure timely introduction of the new solutions into public services and other markets.

- An earlier reality check of industry R&D against concrete public purchasing needs maximizes the effectiveness of the R&D process and optimizes R&D spending.

5.2 Competitive development in phases

Another element to reduce R&D risks and costs involves procuring the R&D in phases stretched over a period of time and ensuring competition between companies to create a range of options (Figure 2).

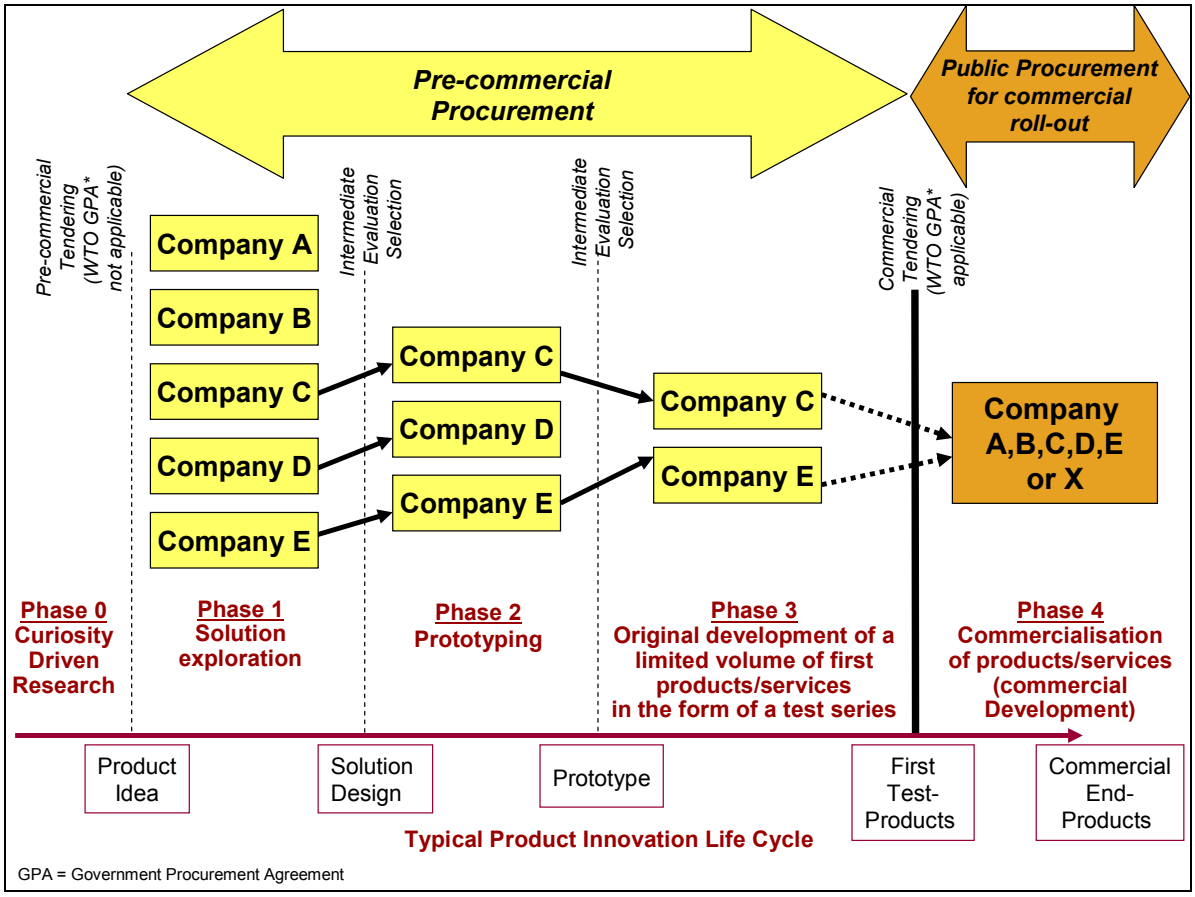

Figure 2: Example illustrating a phased pre-commercial procurement process

This is based on the following principles:

- Challenging the market in an open and transparent way and inviting a number of companies to develop in competition the best possible solutions to address the problem.

- Exploring and comparing pros and cons of alternative solutions. This mutual learning process for public purchasers and companies helps to get firm confirmation both about functional needs and performance requirements on the demand side, and the capabilities and limitations of new technological developments on the supply side.

- Organising the procurement as a stepwise process, including evaluations after each R&D phase, in order to select progressively the best solutions. This enables public purchasers to steer development throughout the process to best fit public sector needs.

- Efforts after each R&D phase to achieve interoperability and product inter-changeability between the alternative solutions under development pave the way for open standards and avoid the risk that early adopters of innovative solutions are penalised with the additional burden of making their solution compliant with standards defined afterwards.

- Retaining at least two participating companies until the last phase to ensure a future competitive market. Maintaining a positive competitive pressure on suppliers enables public purchasers to extract the best solutions the market can offer while avoiding single supplier lock-in.

A company that has been challenged in competitive development is also better prepared to address global markets and to attract external investment, such as venture capital funding, for the exploitation of further market opportunities. This is especially important for SMEs.

In the short term a competitive development process may involve a higher investment compared to procuring a limited R&D test solution from one supplier. In the long run, the quality/price ratio and the success rate of the development process are likely to be higher. Aiming for globally accepted instead of locally tailored solutions, through standardisation and publication of R&D results, is also expected to result in lower cost of commercial end-solutions. R&D costs and risks can be further reduced through bundling of demand with other public purchasers as well as financial incentives from innovation policy agencies to public purchasers. This could comprise funding or risk sharing facilities (see Annex[8]).

5.3 Separation between R&D phase and deployment of commercial volumes of end-products

Due to the inherent risk of failure in R&D, technological success may not always be the case. It is only at the end of the pre-commercial procurement that the public purchaser has comparative test evidence that proves whether the developed solutions truly outperform other solutions available at the same time on the market or not. The fact that a company has done the R&D and developed a working test series can in itself be no guarantee to win a follow-up contract for mass delivery.

Pre-commercial procurement is a preparation exercise which enables public purchasers to filter out technological R&D risks of potential alternative solutions before committing to procuring a large scale commercial roll-out.

Separation from public procurement for commercial roll-out enables pre-commercial procurement to focus on acquiring the knowledge needed to identify the "best" possible solution the market can offer at the time of commercial roll-out, without leading to unilateral State aid to industry.

Separating pre-commercial procurement from the public procurement for commercial roll-out is also compliant with the provisions of the WTO Government Procurement Agreement and applicable bilateral agreements. Except for the EEA and Stabilisation and Association agreements with partner countries of the European Neighbourhood Policy, the EU has no national treatment[22] and non-discrimination obligations to other parts of the world for the procurement of R&D services[6], but it does for supplies[23].

As pre-commercial procurement concerns R&D services, public purchasers can decide case by case on the openness to worldwide offers and on the relevant conditions, taking into account the full potential of the European Research Area[24].

6. Conclusions

This Communication addresses the need for more innovation in the public sector and provides an approach to procure R&D services (pre-commercial procurement). It launches a debate on which areas could lend themselves to the approach presented for pre-commercial procurement. This debate should be seen in the wider context of the policy debate on supply and demand driven innovation and lead markets[25]. Pre-commercial procurement differs from and complements other innovation instruments such as grants, tax incentives, access to finance, joint technology initiatives etc. It could shorten time to market and encourage market acceptance of new technologies when seen as part of a coordinated policy framework including standardisation, regulation and procurement of other innovative goods and services.

Because public spending often operates on a shorter time scale than technological innovation, the debate could first address concrete mid-to-long term public needs that would require the development of new technology solutions. The relevant public authorities and the Commission could then evaluate the potential role of pre-commercial procurement strategies in meeting the relevant policy objectives.

On the basis of this debate, the Commission will consider, in the second half of 2008, to propose a set of actions in relation to pre-commercial procurement in areas of policy priority based on relevant impact assessments. In particular, it will explore the possible need of new platforms for cooperation on pre-commercial procurement.

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22 The national treatment obligation implies that Members do not operate discriminatory measures between domestic services or service suppliers and foreign ones.

23 This obligation does not only concern commercial end-products. R&D supply contracts are also not exempted from the non-discrimination obligation.

24 COM(2007)161, Green paper on ERA.

25 COM(2007)…, A lead markets initiative for Europe.

As a step in this direction, the Commission could also support networking on pre-commercial procurement at European level. It can envisage determining areas of public interest to network on, such as energy efficiency, environmental protection[26], health services, security, etc[27]. These areas could then serve to provide examples of pre-commercial procurement cases in such application areas to raise awareness of the approach and exchange experiences between stakeholders.

[26] For info on Green procurement : http://ec.europa.eu/environment/etap/index_en.htm

[27] E.g. ministries and agencies in ten Member States have already joined in a European Coordination Action to share experiences on how to best procure development of technologically demanding solutions addressing public needs (www.omc-ptp.eu). The DK and SE initiative to explore joint R&D procurement in e-health (http://www.si-oresund.org/in_english.6) is another example.