Needs Assessment to encourage innovation through procurement

Report on the needs from public authorities and companies to carry out and participate in the procurement of innovative technologies and solutions

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1. Introduction

One of the main objectives of the project "SMART SPP – innovation through sustainable procurement" is to develop guidance to help public authorities foster innovation through public procurement and communicate the benefits of it. In order to do so, existing literature and good practices have been researched, analysed and compiled in the report "*Existing approaches to encourage innovation through procurement. Review of early market engagement, risk management, LCC and CO$_2$eq monitoring tools and approaches*"[1].

This document contributes to produce appropriate, comprehensive and useful guidance. To do so interviews[2] have been conducted to both:

- **Public authorities** to identify biggest challenges, barriers, needs as well as solutions to overcome these obstacles and actually purchase innovative highly energy efficient products following a smarter engagement with the market

- **Manufacturers and suppliers** representing the industries and technologies in focus of SMART SPP, namely lighting systems, (electric) vehicles, Renewable Energy Systems (RES) heating and cooling systems and Information and Communication Technologies (ICT), and that supply to the public sector.

The results of these interviews have been compiled in this report on the needs and experiences of public authorities and suppliers/developers of innovative highly energy efficient products to foster innovation through public procurement.

2. General comments on the interviews

2.1 Interviewed Public Authorities

The interviews were made with the five Public Authorities (PAs) participating in the project, plus Torres Vedras, a municipality interested in joining the project (see table below).

The size of the PAs differs from one to the other. Barcelona, for example, has 14.000 civil servants while Cascais has only 1.700. The size of the population of the PAs also varies a lot

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[1] The document can be downloaded from the website http://www.smart-spp.eu/
[2] See Annex 1 for the semi-structured interview templates for public authorities and companies.

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from one to the other. Barcelona has 1,6 million inhabitants while 300.000 people are living in the London Borough of Bromley.

Public administration	Country
Municipality of Barcelona	Spain
Eastern Shires Purchasing Organisation (ESPO)	UK
London Borough of Bromley	UK
Municipality of Kolding	Denmark
Municipality and Energy Agency of Cascais	Portugal
Municipality of Torres Vedras	Portugal

Public Authorities contributing to the Need Assessment

While comparing the answers given by the involved PAs, it was noticed that they were not necessarily comprehensive. In some cases, it was possible to interview different public officers, representatives of the areas involved in the project (mainly environment and procurement departments). But sometimes, it was not possible to include the different visions, and thus the information provided by the interviewed people can be limited to their area of knowledge.

2.2 Interviewed companies

Company	Product group	Country
ICT company	ICT equipment	Sweden
Nissan Iberia (Branch in Portugal)	Vehicles	Portugal
Blue Span – SIET Ltd	Lighting	Portugal
Regent Beleuchtungskörper AG	Lighting	Switzerland
Sociedad Española de Construcciones Eléctricas (SECE)	Lighting	Spain
SOGESA Instalaciones Integrales, S.A.	RES (Maintenance and installation)	Spain
Aiguasol Enginyeria	RES (Energy Engineering)	Spain
Philips Lighting UK	Lighting	UK
Beronworth Standby Systems Ltd	Lighting	UK

Companies contributing to the Need Assessment

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As far as companies are concerned, the objective was to interview 10 companies split evenly by the identified product categories. However, there were major problems in getting the involvement of the suppliers.

In the first steps it was difficult to make them aware of the interest and importance of their participation and thus, to get their time availability. However, the reaction was different among the identified product categories. It mainly depended on the purchasing power of the public sector. As an example, almost all the lighting companies contacted were willing to participate while the vehicles companies, a sector where PAs are only a small client, were hardly interested in contributing to the Needs Assessment.

A second challenge refers to the confidentiality of the information given in the interviews. Some of the interviewed companies were not able to answer all the questions because some were seen as confidential information. Moreover, some other contacted companies denied their participation because the whole interview was perceived as confidential.

According to those difficulties and to the timeframe of the project, it was possible to get relevant information from nine companies (see table above): five from the lighting sector, two involved in a Renewable Energy cooling System and each one from the vehicles and the ICT sector.

The size of the interviewed companies varies from Small and Medium Enterprises (SMEs) to multinational corporations, and both representatives from the manufacturers and the services side responded.

3. Internal support and framework for climate protection, green procurement and innovation

3.1 Participating Public Authorities

According to the answers of participating public authorities (PAs), all of them have **climate protection** as a political objective, written either in a specific policy or within environmental/ sustainability municipal plans. Half of them have general targets to reduce emissions by a certain percentage. One municipality (Kolding) also has tight targets for energy consumption reduction in city buildings by 80% until 2021.

In relation to procurement, most participating PAs have a **Green/Sustainable Public Procurement (GPP/SPP) strategy or action plan** to try to minimise the environmental impacts of their purchases. The level of commitment varies from one to the other and only one

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participating authority has specific GPP targets defined in their strategy[3]. The role of the environment department in procurement varies. In some cases they are directly involved in procurement practices (like in Kolding) but in others, due to the size of the organisation and decentralisation of responsibilities, the involvement of the environment department in procurement depends on the interest of pro-active actors throughout the organisation (e.g. in Barcelona).

Therefore, even though internal political/strategic frameworks are fairly strong in most authorities, this does not necessarily lead to strong implementation per se regarding GPP/SPP.

When it comes to innovation, none of the PAs have **innovation strategies or policies** as such. According to one interviewed authority, innovation in their organisation is focused on modernisation of the administration services. In another, innovation is linked to design and to create an image of a dynamic city but in none of the cases it is directly linked to environmental innovation or procurement. Having said that, in several cases PAs are participating in eco-innovation projects or initiatives organised by networks or public agencies and organisations in collaboration with universities, national institutes and/or companies.

Therefore it can be concluded that innovation happens and is fostered by PAs but is not systematically linked to political commitments.

3.2 Interviewed companies

From all companies contacted for the interviews, most have **green or sustainability strategies** in place, which are established and integrated in internal management systems. Smaller companies have certified environmental management systems such as EMAS or ISO 14001. Bigger companies, such as Nissan Iberia (Branch in Portugal), Philips Lighting UK or the ICT company, have sustainability strategies (including environmental and social aspects) defined by the own companies and not framed in any specific standardised system that are broader and may include the certification with Environmental Management Systems (EMS) of factories and office buildings.

Climate protection is included in 50% of the green/sustainability strategies of the interviewed companies, mainly in those producing energy consuming products rather than providing services (engineering or maintenance). Nevertheless, measures for climate protection does not only refer to the products but also to the enterprises' production sites.

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[3] In 2004 Kolding has achieved the strategic target of 90% GPP, and improvements lead in 2008 to a share up to 96% GPP.

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In some cases (for ICT and lighting equipment) companies also **certify their products** under different ecolabels (p.e. Type I Swiss Minergie label[4] by Regent Beleuchtungskörper AG or Type II IT-ecodeclaration by the ICT company) or internally defined standards (like Philips Lighting UK's green logo).

In relation to **research and development** (R&D), some of the interviewed companies have specific R&D strategies and others, although not having one dedicated department for R&D. In other cases R&D is conducted because of contracts (e.g. SOGESA Instalaciones Integrales S.A. for RES projects or Regent Beleuchtungskörper AG as Minergie lamps are demanded in public tenders). Aiguasol Enginyeria, an engineering company, considers that about 30-45% of their work can be considered R&D. The amount of money invested in R&D varies from 6% to 45% of the company's turnover. According to the answers, smaller companies invest more in R&D than bigger ones (in % of turnover), although that might not be the case in absolute terms (Euros), but no data was provided for confirmation.

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[4] http://www.minergie.ch/label.html

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4. Public Procurement procedures and innovation

4.1 Knowledge and evaluation of public procurement by the companies

In general terms, most interviewed companies are familiar with public procurement. They have experience with usual procedures (open, restricted and negotiated procedure) and a few have also participated in advanced procedures such as competitive dialogue or private finance initiatives (PFI) tenders[5]. Information on call for tenders to participate in public procurement processes are collected by companies by means of:

- **Active search by the dedicated sales team**

- **Internet platforms**

- **Directly through (restricted) tender invitations**

Some of the strengths of public procurement according to the interviewed companies are:

- **Neutral assessment and more transparency on the selection process**

- **Longer term decisions** as opposed to short term decisions taken in some cases by the private sector to get positive quick results

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[5] The Private Finance Initiative (PFI) is a form of public private partnership (PPP) developed initially by the United Kingdom government. Under the most common form of PFI, the private sector designs, builds, finances and operates facilities (such as hospitals, schools, highways, etc.) based on 'output' specifications decided by public sector.

The private sector already builds most public facilities but the PFI also enables the design, financing and operation of public services to be carried out by the private sector for long periodes of time. Under the PFI, the public sector does not own an asset, such as a hospital but pays the PFI contractor a stream of committed revenue payments for the use of the facilities over the contract period. Once the contract has expired, ownership of the asset either remains with the private sector contractor, or is returned to the public sector, depending on the terms of the original contract.

PFI differs from privatisation in that the public sector retains a substantial role in PFI projects, either as the main purchaser of services or as an essential enabler of the project. It differs from contracting out in that the private sector provides the capital asset as well as the services. The PFI differs from other PPPs in that the private sector contractor also arranges finance for the project. For more information, http://www.hm-treasury.gov.uk/ppp_index.htm

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- **Increasing awareness and demand of energy-efficient products,** which is an advantage for the interviewed companies since they invest in it and want to promote their products. Furthermore, **many PAs are aware and assume higher purchasing prices to support innovation, wich may lead to savings in a mid/long term**

- **PAs are important clients for most of the companies.** One of the companies mentioned that through PFI, contracts are significant and provide strong revenue. Besides PAs appreciation and kudos of companies efforts **can help get other contracts**

- **PAs are most reliable in terms of payment.**

On the other hand, the <u>weaknesses of public procurement</u> are:

- **Bureaucratic procedures** which limit the purchase outside contracts or framework agreements

- **Price still plays a more important role in public procurement decisions than quality or environmental criteria.** Some interviewed companies consider that PAs should in some cases assume higher prices and be more ambitious in green public procurement taking into account whole lifecycle costs

- **Timescales of public procurement are generally very slow**

- **Lack of documented quality management processes of contracts to ensure continuous improvement in procurement procedures (monitoring of contracts) and lack of proper planned maintenance programmes** were also mentioned by two interviewed companies.

- In the specific case of PFI, **the contracts are significant and provide strong revenue, although rather seasonally. Therefore, planning for producing and delivering the products can be challenging, especially near periods finalising the fiscal year.**

4.2 Market engagement outside tendering procedures by public authorities

All PAs regularly maintain communication with their (potential) suppliers but in most cases that is not done in a systematic way. In other words, market engagement is not carried out as a normal procedure by most authorities. Only two public authorities organise regular meetings with suppliers and in one (Kolding) once a year an information meeting with companies is organised to inform them of their investment and procurement plan for the next four years.

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The main motivations to do so are:

- **Access to specialist information in relation to goods and services**

- **Ability to work in partnership on framework contracts**

- **Encouraging suppliers to meet the changing needs and demands of customers**

Other activities mentioned include market testing or market sounding prior to tendering to know market readiness/ availability for certain products as well as meeting with contractors to follow-up contracts and identify possible improvements.

4.3 Keeping up-to-date with innovations

According to the answers provided during the interviews, PAs obtain information on market innovations through:

- **Regular contact with suppliers**

- **Expert support in several fields**

- **As members of technical committees**

- **Trade and buyers seminars, conferences and exhibitions**

- **Internet research**

On the other hand interviewed companies obtain information on R&D and innovation from different sources:

- **Business Associations, Technical Committees (such as Standards Institutes) or International Organisations**

- **Meetings, symposia, congresses, trade fairs and press**

- **Producers and suppliers of products and technologies used by the interviewed companies**

- **Own developments and participation in EU projects**

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In both cases, information is obtained from very similar sources, providing potential natural meeting points for both companies and PAs.

4.4 Procurement processes to promote innovation

Procurement processes to promote innovation take several forms in the different PAs. In some cases **standard procedures** such as design awards or open procedures for new solutions (such as software development) are used. In the second case, those tenders may occur after informal conversations with potential suppliers. Another way to stimulate innovation is through **piloting and testing** new technologies in the municipality e.g. as a living-lab. The company might install the technology at their own costs and the city only maintains them (e.g. in Barcelona). Big cities with considerable purchasing power benefit from these informal arrangements, as they do not involve any risks for the PA. Half of PAs have experience in encouraging innovation through **advanced procurement practices** by using negotiated procedures, competitive dialogues and/or public-private-partnerships.

The interviewed companies also mentioned the same procedures to procure innovative technologies and solutions. Several companies highlighted the fact that the procurement of innovative solutions is done through **conventional procedures,** as authorities are not used to advanced and complex procedures. In this scenario, it is often the case that public authorities present their doubts or needs to improve a certain service or technology and companies provide them with information on how to do that taking the risk of sharing that information without any guarantee to receive a contract. In those cases, companies develop the technologies by themselves and bid when the PA tenders for the new solution via conventional procedures. Only sometimes the company is paid small amounts to analyse the viability of innovative solutions (feasibility studies). The only risk or disadvantage of this procedure is that presented solutions might not totally fit with the PAs needs as the company will try to develop a solution also suitable for other clients.

For PAs, the main concerns and barriers to conduct advanced procurement are:

- **Difficulty to find interested suppliers because of the costs (in time and investment) of such processes, with no sales guarantees, which might lead to a restricted or limited number of suppliers**

- **Lack of knowledge both in the process and to develop the outcome-based technical specifications**

- **R&D investment costs are too high, because of a low return on investment rate**

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- **Time delays**

The main barriers highlighted by interviewed companies to take part in advanced procurement procedures are:

- **Technical limitations and high costs for PAs**

- **Uncertainties of future contracts for the innovative solution by other PA,** with the private sector it is more feasible according to one interviewed company

- In the case of street lighting maintenance services: **closed market that does not foster innovation**

- **Budgetary separation in PAs that might hinder R&D procurement**, in contracts where installation and maintenance are not integrated

- **Risks from the process that can and are avoided sometimes through other processes or arrangements,** as mentioned before.

The needs of the PAs to conduct such advanced procurement procedures are:

- **Receiving training to avoid legal and technical problems during the process**

- **Technical knowledge or experts to define the specifications**

- **Solutions to mitigate potential financial risks**

The main needs or concerns for companies to participate in the procurement of innovation as mentioned by the interviewed companies are:

- **To be aware and know the steps in the procurement process**

- **To have enough time to react**

- **Proper allocation of Intellectual Property Rights (IPR) including correct legal/patent advice for setting up the IPR.** Some arrangements mentioned by one company are that exploitation rights can be for the company and the PA pays a licence or that the PA uses and can offer the programme for the general public but the company maintains the right of using the methodology for other applications.

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- **The proposal would have to be profitable for the company in order for them to participate in such a process.** It would have to be either: a proposition that stands on its own merits and is profitable in its own right or the proposition is part of a larger product offering which is viable and profitable, i.e. R&D only as part of the proposition, and if the R&D doesn't stand up on its own financially, it would certainly have to as part of a wider offering to a public sector client in order for the company to participate.

- **Transparency and clarity during the process**

- **To guarantee the products quality by third party certification**

Additionally, according to PAs with experience in advanced procurement processes, some success factors include: to leave competitive dialogue to complex and large projects; and to clearly identify aspects of provision which need to be discussed relating to the successful delivery of the service.

Finally, when developing the SMART SPP guidance, the following points can be considered:

- **How to adapt pre-commercial procurement approaches to the local government level**

- **Highlighting the links to national innovation programmes**

- **Use of (legal) disclaimers** as there are differences in litigation culture around Europe, e.g. in the UK disclaimers are an important element when purchasing new technologies.

5. Risk reduction tools in the procurement of innovations

In most PAs risk reduction tools do not exist as such but they have certain procedures to minimise risks during procurement such as:

- **Legal check**

- **Thorough selection process of suppliers**

- **Definition of clear tender specifications (such as reference to standards and labels), sometimes certified by a 3rd party organisation**

In one PA (Bromley) a specific procedure to analyse large contracts exists. The outcomes are fed into the corporate risk register of the PA.

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When referring to procurement of innovations, the case of Barcelona, as a big city differs from the other PAs as companies are willing to develop new solutions for Barcelona and subsequently companies take all or most risks related to R&D activities themselves. However, as mentioned before, that might also lead to solutions that are more costly or not totally adapted to Barcelona's needs than if advanced tendering process would have been carried out.

For the development of the SMART SPP guidance, PAs mentioned the need for information and clarification on:

● **Recommendations or solutions in relation to whole lifecycle costs, delivery times, risks of product failure to meet the requirements, and maintenance and life span guarantees**

● **The guidance should be easy to use within different procurement models**

● **Include possible contract arrangement for R&D in relation to e.g. IPR**

6. Lifecycle costing tools in the procurement of innovations

6.1 Use of lifecycle costing tools by participating public authorities

Although the general concept of lifecycle costing (LCC) is known to all PAs, its use is very limited. Only one authority (Kolding) mentioned using LCC for contracting printing equipment.

Other calculations such as payback periods or energy savings are also done by the PAs, but no complete LCC is conducted in those cases. Its use in tendering also varies and is conducted mostly:

● **During the tendering process either directly as LCC costs or indirectly using energy savings as award criteria**

● **After the tendering process to communicate the benefits of the procurement, especially when costs are higher (in form of a justification)**

The main barriers to conduct LCC are, according to PAs:

● **Lack of knowledge and appropriate guidance on LCC and how to apply it**

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- **Budgetary/accounting separation between departments within the PA**

- **Availability of data from suppliers**

For the SMART SPP LCC tool, PAs need:

- **An easy to use tool for the whole organisation**
- **With a communication oriented part to inform of the benefits and improvement of the procurement both at technical and political/ decision makers level**

- **In some cases, a tool to hand over to bidders for them to complete**

- **Verification of data from bidders, through e.g. 3rd party such as laboratory tests**

- **Guidance on how to deal with uncertainties and estimations when using LCC for procuring innovative products and services**

- **Guidance on how to contribute to a change in accounting and budgetary distribution**

6.2 Use of lifecycle costing tools by interviewed companies

All companies, except one, have experience using (existing or self-developed) LCC tools. They use it in three different ways:

- **For planning and developing new products**

- **For sales and marketing**

- Partial LCCs are also used **to calculate payback periods for their own interest or if they are asked for LCC data of their products by PAs**

One of the companies mentioned that the use of LCC tools could be very useful in procurement processes and another one considered that it might be helpful to develop the tool together with other companies.

The main aspects to be considered for LCC use in tendering are:

- **Setting transparent and clear award criteria**

- **Using whenever possible international standards and indicators for the LCC input**

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- **Allowing margins for companies to justify their calculations**

- **Guarantee the performance mentioned by the suppliers**

7. CO_2 calculation tools in the procurement of innovations

7.1 Use of CO_2 calculation tools by participating public authorities

CO_2 eq. emissions are included in several procurement processes and tenders but not with a specific CO_2 tool but when defining technical specifications and as award criteria. In one case it was mentioned that CO_2 tools will be built into the new standing orders for corporate procurement (Bromley). In some cases such tools are used once the purchase or design decision are already made in order to explain extra environmental criteria and help justify some high purchase costs.

The main barriers for using CO_2 tools are:

- **Lack of knowledge and appropriate guidance on the use of CO_2 tools in procurement**

- **Lack of awareness of the importance of CO_2 emissions**

- **Greater importance to costs and quality related aspects than environmental considerations**

- **Lack of availability of data from producers**

For the SMART SPP CO_2 tool, PAs need:

- **An easy and user-friendly tool (simple and intuitive)**

- **With results that can be feed into CO_2 monitoring instruments at the municipal level**

- **With the possibility to make rough estimations on future CO_2 emissions**

- **That takes regional circumstances into account (e.g. regional energy mix)**

- **With a communication oriented part to inform of the benefits and improvements of the procurement both at technical and political decision makers level**

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● **Exchange of best practice using LCC with other PA**

7.2 Use of CO_2 calculation tools by interviewed companies

Most interviewed companies have experience with CO_2 calculations for different purposes:

● **To monitor the improvement in CO_2 emissions reduction** of their buildings, transport, services, etc. in order to **cross-check sustainability targets.**

● **To calculate the CO_2 emission reduction of energy-efficient solutions**

● **To get the EU homologation** (in the case of vehicles)

Complete CO_2 calculations such as Lifecycle Assessments (LCAs[6]) for product manufacturing were mentioned by one interviewed company to be very complex as production chains are spread worldwide.

In two cases, CO_2 calculations are made because of the demand from PAs and one interviewed company also mentioned that only public authorities ask for them, not private consumers.

Environmental information of the products that companies can provide varies from one to the other. In some cases information is defined in ecolabels, in others LCA is estimated although the accuracy in some cases cannot be guaranteed. Other environmental information available is information on CO_2 eq. emissions of used raw materials and production processes but these are not directly calculated into the products' CO_2 eq. footprint.

The needs from the interviewed companies regarding CO_2 calculations relate mainly to LCA as for CO_2 calculations they have, in most cases, sufficient experience. Needs related to further develop LCAs include the definition of standards across the industry and public authorities, justifications of used calculation methods and improving the availability and quality of input data.

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[6] Lifecycle Assessment is the evaluation of the environmental impacts of products or processes during their whole lifecycle). That includes the impacts related from the extraction of raw materials to the production, distribution, use and finally disposal

8. Annex 1: Semi-structured interview templates

8.1 Semi-structured interview templates for public authorities

A. Internal support/framework

1. Do you have a green/sustainable procurement policy/strategy, or is sustainable procurement referred to in other policies/strategies of your organisation? Are specific targets mentioned?

2. Do you have a climate change policy/strategy or is climate change referred to in other policies/strategies of your organisation? Are specific targets mentioned?

3. Do you have a technology innovation policy/strategy or is innovation referred to in other policies/strategies of your organisation (such as the procurement policy)? Are specific targets mentioned?

4. How supportive are decision-makers and administrative staff of sustainable procurement? Is there an acceptance of potential price increases?

5. How closely do procurers collaborate with other departments in the identification of more sustainable ways to fulfil the procurement needs? What is the role of the Environmental department in procurement?

6. Is there in your region any kind of public agency or institution to support you in your green procurement activities? And in innovation activities?

B. Market engagement outside tendering procedures

7. Outside regular tendering procedures, what forms (if any) of communication take place with contracted, regular or potential suppliers? _Ideas_:

   - Review of performance during contract, including analysis of future potential improvements

   - Publication of Prior Information Notices (PINs), online policies etc. indicating future requirements, and particularly environmental requirements (to what level of detail?)

   - Regular seminars for potential suppliers to announce future tenders and requirements, and answer questions

   - Market sounding, to assess likely market reaction to proposed future requirements (how is this carried out?)

   - Seminars, discussion/reference groups, for a two-way discussion between procurers and suppliers on future market developments and possible future procurement requirements (extesion: how is this carried out? How are companies found and invited? Who participates (SMEs, bigger companies, technical people, sales people)? How open are companies (share, exchange, listen only…)? How is transparency and non-discrimination ensured?)

8. If such contact does take place, what is the primary motivation? If not, why not?

9. Which communication channels do you use to contact companies?

10. Do you try to stay aware of the latest technological innovations relevant for your procurement activities? Are there specific procedures/activities carried out to ensure this, e.g. membership in trade associations or other business associations?

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C. Competitive dialogue, negotiated procedures and research and development (R&D) procurement

11. What type of advanced procurement procedure has your authority carried out which led to market innovation (for product, service, process etc.)?

a) A competitive dialogue: Yes/No

b) A negotiated procedure: Yes/No

c) Pre-Commercial/R&D Procurement   Yes/No

d) Other...

If they say **Yes, for a) and b)**, in each case:

▪ For which product, service or work?

▪ Following what exact procedure?

▪ Why was this procedure chosen?

▪ What were the results?

▪ Has this become a regular activity within your authority?

If they say **No to all cases**:

▪ What kind of risks (technical/financial/legal) do you see pertaining in particular to pre-commercial procurement practices?

▪ What would you consider to be some of the biggest challenges:

  • *Convincing decision-makers, and also technical staff, of the value/benefits of an innovative, riskier procurement approach?*

  • *Mitigating the potential financial risk?*

  • *Level of experience with such approaches within the authority?*

  • *Level of technical experience in a specific product sector to set up and guide the process appropriately?*

  • *Working with life-cycle costing?*

  • *Potential time delays?*

  • *Other?*

D. Risk-reduction tools in procurement

12. Do you have in place a systematic approach, guidelines or tools in order to identify and deal with technical/financial/legal risks pertaining to advanced procurement procedures?

If yes:

▪ For which activities?

▪ How do you use it?

▪ Who develops the risk-reduction tools? (yourself, another department, it's a regional/national tool…)

▪ What are the strengths and weaknesses of the approach/guidelines/tool?

If not:

▪ Would you find guidelines or tools useful?

▪ What kind of risks would need to be addressed by such guidelines/tools?

▪ What factors would need to be considered in the development of such guidelines/tools?

▪ What are the most appropriate kinds of contractual arrangements for dealing with these risks in Pre-Commercial Procurement?

E. LCC tools in procurement

13. Do you know what Life Cycle Costing (LCC) is?

14. Do you use LCC as part of your procurement activities?

If yes:

▪ How does your authority use LCC within procurement (Before tendering, as part of the tenders' award criteria, as a substitute to price, afterwards to monitor costs, others,.)?

▪ How is the calculation completed? Is a tool attached to the tender for companies to fill it in or is this done internally, etc.

▪ How is this linked to other environmental criteria in order not to evaluate twice the same criteria, e.g. for energy efficient appliances if you consider lower price due to less running consumption and lower energy consumption as environmental award criteria? If you don't consider this to be a problem, please explain why.

▪ Is there a general policy/ internal instruction to use LCC for all or certain contracts? **If not**:

   • *Why do you use it?*

   • *How do you think the use of such a tool could be extended to other departments within your organisation or to other organisations?*

▪ Is LCC applied for all procurement activities? If not, for which products or services?

▪ Do you use a specific LCC tool?

   According to the answer some of the questions below should not be asked or formulated in a different way

   • *What is the name of the tool?*

   • *Who developed the LCC tool?*

   • *Is it designed for specific procurement activities, or for all procurement activities?*

   • *Which cost factors are included in the tool?*

   • *Direct costs: acquisition, installation, training, others...*

   • *Indirect costs: consumables, consumption (water or energy) service and maintenance, waste*

   • *management, others...*

   • *Is the tool free-ware or do you pay any licence-fee?*

   • *Is the tool available in your native language?*

   • *Does the tool have a clear instruction manual?*

   • *Which computing architecture is it based on (Excel, Visual Basics…)*

   • *Are you satisfied with the graphical user interface? If not, how can it be improved?*

▪ Could you provide us with the tool or further information on it?

▪ What are the main challenges when calculating LCC?

▪ Do you have trouble with data gaps? If so, what data is missing?

- How would you rate the tool? What are its strengths and weaknesses?
- Where else do you require assistance?
- What are the principle benefits of using LCC for procurement?
- What are the main challenges in applying LCC within the procurement? E.g. training procurement staff, convincing decision-makers of the value and benefits of LCC, adapting budgeting/accounting procedures, developing/adapting tools and systems etc.
- For energy using products/services, is your LCC tool linked to a CO_2 calculation tool? Would you find this useful?

If not, if you don't use LCC tools:

- Why not?
- What would you need to use them?
- Please identify barriers for the use of LCC:
    - *Don't know enough about how to apply LCC?*
    - *Appropriate guidance is not available?*
    - *Difficulty in integrating externally developed tools into our procurement systems?*
    - *Budgetary separation of purchasing, maintenance and disposal costs creates problems?*
    - *Decision-makers are not convinced of the benefits of using LCC?*
    - *Other?*

15. What would you need in order to have LCC applied in your procurement?
    - A change in existing procurement procedures to incorporate LCC?
    - A change in budgeting/accounting procedures to enable the benefits of LCC to be valued?
    - Simple information on the value and benefits of LCC for decision-makers?
    - An external LCC tool?
    - A LCC tool that trades-off simplicity and comprehensiveness?
    - Others?

F. CO_2 calculation tools in procurement

16. Do you know or even use CO_2 calculation tools in your procurement activities?

If yes:

- How do you calculate the CO_2 emissions of the different products and services you procure? Do you use a specific tool or set of guidelines?
- Do you calculate CO_2 emissions relating to all procurement activities, or just for certain products/services/works?
- How is this tool integrated into your procurement practices? What weighting is given to the level of CO_2 emissions in tender evaluation?
- How would you rate the tool? What are its strengths and weaknesses? Are there issues regarding data collection? How could the tool be improved?
- Is the tool free-ware or do you pay any licence-fee?
- Is the tool available in your native language?
- Does the tool have a clear instruction manual?

- Which computing architecture is it based on (e.g. Excel, Visual Basics…)
- Are you satisfied with the graphical user interface? If not, how can it be improved?
- Could you provide us with the tool or further information on it?
- Do you as a local authority conduct a regular monitoring of CO_2 emissions (or even more general environmental parameters)?
- Does this cover part of your own activities, all of your own activities, or even the overall emissions of the geographical borders of your administrative unit?
- Which tool or tools do you use for this monitoring (or do you know any such tools?). Please provide information on the tools or (even better) the tools themselves.

If not:
- Please identify barriers for the use of CO_2 monitoring tools
- What would you need to use them?
  - *Change of procurement guidelines so that CO_2 aspects could be included in procurement criteria, e.g. a trade-off mechanism for CO_2 vs. price criterion*
  - *Level of detail: easy to apply for rough estimations? sophisticated and detailed tool which needs more differentiated input (which is probably hard to find for pre-commercial procurement)*
  - *CO_2 tool which provides output that can be directly fed into a CO_2 monitoring tool (e.g. regional CO_2 monitoring tool for the local authority*
  - *Others*?

8.2 Semi-structured interview templates for companies

A. Internal support/framework
1. Do you have a green/sustainable policy/strategy? Are specific targets mentioned?
2. Do you have a climate protection policy/ strategy or is climate change referred to in other policies/strategies of your company? Are specific targets mentioned?
3. These strategies/policies, how are they implemented in the company: at the whole organisation, for some products lines and/or services?
4. What instruments are used to support and to make visible these strategies? (ISO 14001, EMAS, ecolabels, self-declarations, sustainability reporting…)
5. Do you have a R&D policy/strategy/department? Are specific targets mentioned? Is sustainability a specific aspect for innovation?
6. What %age of resource in relation to total turnover is invested in R&D?

B. Relation with Public Authorities in procurement and R&D
7. From which communication channels do you receive information about R&D of your sector? (business association, commerce chamber…)
8. How do you receive information from Public Authorities (PA) in general?
9. How do you receive information of procurement activities from PAs?
10. Do you receive funding from PAs for your R&D activities?

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11. How familiar are you with public procurement procedures? Do you know what a) a competitive dialogue, or b) a negotiated procedure are?

12. Have you ever been contracted or been a provider of a PA?

   If yes:
   - How often? (frequently, occasionally, never)
   - Which was the contracting process? (open, negotiated, competitive dialogue...)
   - Which are the strengths and weaknesses of contracting with PAs?

   If not:
   - Why not?
   - What would you need to participate in such a process?

13. Have you ever been involved in the public procurement of R&D services (i.e. pre-commercial procurement – contributing towards the development costs of products/solutions not yet ready for commercial exploitation)?

   If yes:
   - For which product groups?
   - If you have many examples please choose the two most interesting and answer the following questions:
   - Was there a clear separation between the procurement of R&D and the final procurement of the product, i.e. did a further competitive tendering procedure take place after the R&D phase?
   - How many companies were invited to participate? Did one of the companies participating in the R&D phase win the final procurement tenders?
   - How and through which communication channels was your company contacted and invited to participate in the process?
   - What kinds of criteria were defined (specific or performance)? Did those include other criteria such as life-span, maintenance, recyclability, etc.?
   - If more than one company was involved, were there any issues relating to confidentiality and how were these solved?
   - Was there more than one stage during the R&D phase? If so, what were the different stages? Was there a reduction in the number of companies involved as the procurement progressed through the stages? Was there flexibility for amending the contract/procedures during the R&D procurement?
   - What was the length of the whole process (from R&D procurement to procurement of the developed technologies)? And how long from the original idea to the final commercialised product? Did public procurement accelerate this process?
   - How closely did the procurer and supplier(s) communicate during the R&D procurement?
   - What was the risk/benefit-sharing model applied? More specifically:
     - *Who held the Intellectual Property Rights for the innovation following the R&D phase? The procurer, the supplier, or a shared arrangement?*
     - *What proportion of the suppliers costs were covered by the PA during the R&D phase? Was this differentiated according to the stage of pre-procurement?*
     - *How was the market potential of the product/service developed after the R&D procurement?*
   - What do you consider to be the most important success factors in terms of getting successful results?

- What do you consider to be the biggest barriers during the process?

If not:

- Why not?
- What risks do you think are involved in R&D public procurement?
- What would you need to participate in such a process? *Ideas*:
  - *To know the different steps of the process?*
  - *To be able to decide on the Intellectual Property Rights arrangements?*
  - *To have a minimum purchase potential by the public authority of XX% of the investment costs?*
- What kind of contractual arrangements would be necessary to make the level of risks involved with engaging in R&D services with a public authority acceptable to you?

C. LCC tools

14. How familiar are you with Life Cycle Costing (LCC) tools?
15. For what do you use them?
16. Do you apply LCC tools already for new products planning and development (R&D)?

If yes:

- Which kind of direct and indirect cost do you take into consideration?
- How do you estimate those costs for R&D products? How accurate are they from final real costs?

If not:

- Why not? Which barriers do you find in applying LCC tools to new products?
- Would it help to set a LCC tool with other companies participating in the R&D procurement process?

D. CO_2 calculation tools

17. How familiar are you with CO_2 calculation tools (including tools for monitoring or estimating energy demand)?
18. Do you use any? And if so, for what do you use them?
19. Do you apply CO_2 calculation tools (including tools for monitoring or estimating energy demand) already for new product planning and development (e.g. for selection of climate-friendly raw materials by considering "grey emissions", etc.)?

If yes:

- Which aspects are taken into account? (CO_2, CO_2 eq., raw materials, energy consumption in production and in the product use, life-span...)
- How are the CO_2 values calculated for each variable?

If not:

- Why not? Which barriers do you find in applying CO_2 calculation tools to new products?
- Would it help to set a CO_2 tool with other companies participating in the R&D procurement process?

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20. Is it possible for you to define several options for materials or production processes for your products, so that the most climate-friendly option can be chosen? On what basis would you do that?

21. What kind of information do you produce (or can produce) of your products that can help selecting those that are environmentally friendlier in public procurement procedures? *Ideas*:

- *Quantitative information of the productions process, like: water, energy or raw materials consumption per productions unit (article, kg of product…)*

- *Qualitative information about raw materials: ecological certifications (ecolabels) or similar*

- *Complete Life Cycle Analysis/Product Carbon Footprint of some or all products?*

- *Others, please specify*