



Guidance for public authorities on Public Procurement of Innovation

www.innovation-procurement.org



Imprint

Guidance for public authorities on Public Procurement of Innovation , 1st Edition

Publisher: Procurement of Innovation Platform
ICLEI – Local Governments for Sustainability (Project coordinator)

Commissioning Editor: PIANOo – Dutch Public Procurement Expertise Centre

Author: Abby Semple, Public Procurement Analysis

Contributors: The Editor would like to acknowledge the contributions and comments made by the following individuals and organisations:
Silvia Appelt, Organisation for Economic Cooperation and Development; *Floris den Boer*, PIANOo - Dutch Public Procurement Expertise Centre; *Mark Hidson*, *Philipp Pepper*, ICLEI – Local Governments for Sustainability; *Marcin Kautsch*, PhD, Healthcare Management Expert; *Klara Van Schoorisse*, City of Ghent; *Franziska Singer*, Independent Consultant; *Péter Szuppinger*, Regional Environmental Center for Central and Eastern Europe; *Christophe Veys*, IWT Flemish Innovation Agency; *Bertrand Wert*, *Katja Reppel*, *Michael Arentoft*, European Commission; *Gaynor Whyles*, Jera Consulting, PIANOo's Public Procurement Management expert group.

Design & Layout: Rebekka Dold, Freiburg, Germany | www.rebekkadold.de

Print: Druckerei Kesselring GmbH, Emmendingen

Copyright: Public Procurement of Innovation Platform consortium, c/o ICLEI – Local Governments for Sustainability.
All rights reserved. No part of this publication may be reproduced or copied in any form of by any means without written permission of the project coordinator.
Printed in Germany on 100% recycled and Totally Chlorine Free (TCF) paper.
Copies can be obtained from the Procurement of Innovation Platform secretariat. E-mail: info@innovation-procurement.org

Disclaimer: The sole responsibility for any errors or omissions made lies with the editor. The content does not necessarily reflect the opinion of the European Commission. The European Commission is also not responsible for any use that may be made of the information contained therein.

Acknowledgements: This publication has been produced as part of the Procurement of Innovation Platform project, supported by the Directorate General for Enterprise and Industry of the European Commission.

Please share any comments or observations on this publication with us. We are keen to hear your views. Contact us at info@innovation-procurement.org

Contents

| | |
|---|-----------|
| Foreword | 4 |
| Part 1 - Introduction and PPI in Practice | 5 |
| What is Public Procurement of Innovation (PPI)? | 5 |
| Who is this Guide for? | 6 |
| The Policy Context | 6 |
| The role of procurement of innovation | 7 |
| Why is procurement of innovation not taking place across Europe on a large scale? | 8 |
| New EU Procurement Directives | 8 |
| Funded Projects | 9 |
| Procurement of Innovation Platform | 11 |
| Examples of Procurement of Innovation | 11 |
| Benefits of PPI | 14 |
| Part 2 - How to Procure Innovation | 15 |
| Guiding Principles | 15 |
| Procedures | 18 |
| Preliminary market consultation | 19 |
| Pre-commercial procurement (PCP) | 20 |
| Competitive dialogue | 22 |
| Competitive procedure with negotiation | 24 |
| Innovation partnership | 25 |
| Part 3 - Developing a Strategy for PPI | 27 |
| Topics to consider in a PPI strategy | 27 |
| Glossary | 28 |
| Case Studies | 30 |
| A concrete solution to reduce air pollution | 30 |
| Innovation in Cleaning: Putting people and the environment first | 32 |
| Efficiency, Quality and Sustainability in Healthcare - Bed washing solution | 34 |
| Bio-based fibre boosts uniform performance | 36 |
| Further resources | 38 |



Foreword

“European public authorities all have a responsibility to favour innovation when producing and consuming goods and services. Public procurement of sustainable and innovative goods and services is one of the essential tools for stimulating new technological or service solutions while helping to create jobs and boost the competitiveness of European industry and SMEs. It also encourages more efficient public services. It is therefore time for action. Public procurers in Europe must have a significant role to play in this societal transformation. This Guide demonstrates the opportunities for public procurement of innovation under the new EU procurement directives. It shows the way by highlighting successful approaches and those who are already making innovation a key part of their procurement strategy. With new funding for innovation procurement becoming available under Horizon 2020, I look forward to hearing many more success stories in the coming months and years.”

- Antonio Tajani

*Vice-President of the European Commission
European Commissioner for Industry and Entrepreneurship*

Part 1

Introduction and PPI in Practice

What is Public Procurement of Innovation (PPI)?

Public procurement is the spending of public money to deliver goods, services and works. It covers everything from army uniforms to highways and schools, from medical equipment to cleaning contracts and professional services. The total value of public procurement in the EU is estimated at €2 trillion per year – or about 19% of European GDP¹. The way in which this money is spent has clear implications for the economy, as well as for the organisations spending it and the citizens who ultimately avail of their services.

Innovation means the implementation of a new or significantly improved good, service or process, including but not limited to production, building or construction processes, a new marketing method, or a new organisational method in business practices, with the purpose of helping to solve societal challenges.

Innovation is about finding new and better ways of doing things. A better-designed product or building can improve productivity and comfort while reducing environmental impact. New ways of keeping records or sharing information can enhance the efficiency of administration. Some innovations will save costs immediately for public authorities, whereas others

will require an initial investment in order to realise longer-term gains. In a time of decreasing public budgets, innovation can facilitate the delivery of vital infrastructure and services.

The importance of innovation has been recognised internationally, with the Organisation for Economic Cooperation and Development (OECD) developing a framework for measuring and interpreting innovation activities.² The innovation process encompasses research and development (R&D)

and later phases such as preproduction, production, distribution, training, market preparation and new organisational or marketing methods. Europe currently spends less on R&D than the US, Japan and many other countries. It has been estimated that increasing investment in R&D to 3% of EU GDP by 2020 would create 3.7 million jobs and increase annual GDP by €795 billion by 2025.³

¹ European Commission (2011) *Public procurement indicators 2010 at page 1.*

² See OECD (2010) *The OECD Innovation Strategy: Getting a Head Start on Tomorrow*; OECD and Eurostat (2005) *Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data (3rd edition).*

³ Zagamé, P. (2010) *The cost of a non-innovative Europe at page 16, quoted in SEC (2010) 1161 Innovation Union.*

An even bigger gain could be realised if the outcomes of R&D are adopted by the public sector in the products and services it uses. The OECD and the European Commission are reviewing how to measure the link between public procurement, R&D and innovation and the results of this work are expected to be available in 2014.

PPI aims to 'close the gap' between cutting-edge technology and processes and the public sector customers or users who can benefit from them. Risk, costs, partnership and sharing gains are all important parts of PPI, as can be seen from the case studies in this document. A number of different procurement approaches are available under the EU rules to balance these considerations, including new possibilities under the 2014 procurement directives.⁴ This Guide addresses both pre-commercial procurement (PCP) of research and development services and procurement on a commercial scale of innovative products and services - with a focus on the latter approach.

Who is this Guide for?

This Guide is aimed primarily at those who are responsible for planning and executing procurement procedures (procurers). It offers detailed information about the 'why, what and how' of PPI, including case studies from public authorities across Europe, explanations of procedures, definitions and answers to common questions. It may also be of interest to policy makers, consultants, private companies and others who have a stake in successful PPI. There is a growing community of individuals and organisations with an active interest in innovation procurement, including national and regional innovation agencies. The Guide aims to provide a comprehensive overview of the legal and practical dimensions of PPI in language which is clear and accessible to all readers.

Europe 2020 Targets 5 targets to be achieved by 2020

Employment:

75% of 20-64 year olds to be employed

R&D:

3% of the EU's GDP to be invested in R&D

Climate change and energy sustainability:

20% (or even 30% if conditions are right) reduction in greenhouse gas emissions from 1990 levels; 20% of energy from renewables; 20% increase in energy efficiency

Education:

less than 10% rate of early school leaving and at least 40% of 30-34 year olds completing third level education

Fighting poverty and social exclusion:

At least 20 million fewer people in or at risk of poverty and social exclusion

Track our progress at: www.bit.ly/europe2020targets

The Policy Context

The European Union is actively supporting PPI through a number of policies, linked to the Europe 2020 strategy for smart, sustainable and inclusive growth. This sets a target for 3% of the EU's GDP to be invested in R&D by 2020, along with targets on employment, climate change and energy sustainability, education, and poverty and social exclusion. Member States have adopted national targets to support progress towards these goals.

The flagship Innovation Union initiative,⁵ adopted in 2011, contains over thirty actions to stimulate partnerships and strategic use of public procurement budgets, provide access to finance, develop research infrastructure and measure progress.

⁴ Directives 2014/23/EU (the Concessions Directive); 2014/24/EU (the Public Sector Directive) and 2014/25/EU (the Utilities Directive). References in this document are generally to the Public Sector Directive, however many of the same provisions and possibilities exist under the Concessions and Utilities Directives.

⁵ www.bit.ly/innovation-union-initiative

For public procurement, specific budgets should be set aside for innovations that improve the efficiency and quality of public services, while addressing major societal challenges. Guidance, financial support, public events and awards are being made available to help contracting authorities to implement PPI in a non-discriminatory and open manner, to pool demand, to draw up common specifications, and to promote access for small and medium-sized enterprises (SMEs). The projects described below are examples of this financing in action.

Further funding to help both firms and public sector bodies meet innovation targets is being made available under Horizon 2020, the EU's new programme for research and development. From 2014 – 2020, €70.2 billion will be made available to support progress towards the Innovation Union and Europe 2020 objectives, of which millions will be geared specifically towards innovation procurement. A portion of this funding is intended to help bridge the gap between research and the market, by helping firms to develop technological breakthroughs into viable commercial solutions. On the demand side, funding will support the full innovation cycle from R&D and prototyping, to application of standards and first customer implementation.

The role of procurement of innovation

Support to procurers' calls for tenders for R&D services and innovative solutions complements the use of grants. In most cases the latter are provided to encourage industry or academic researchers to

take more risks in progressing new technologies and their applications. In general, they allow for a broad exploration of new technological avenues that can serve different fields.

In contrast, procurement of innovation is driven by the demand of public customers, and targets the development of concrete solutions to meet these needs. PPI can provide an early 'reality check', helping suppliers to better anticipate demand for new solutions and shorten the time to bring them to market. Procurers can compare competing solutions and get the best price for an innovative solution that is fit-for-purpose, avoiding the cost of unnecessary features or supplier lock-ins, and taking into account longer term public sector requirements.

Beyond meeting the needs of individual public sector organisations, there is the potential for PPI to be 'catalytic' – i.e., to trigger the purchase of innovative solutions on a larger scale. When procurers represent a critical mass they can help to shift both public and private sector demand towards new technologies and processes. In certain sectors, the demand-pull from the public sector is the most important instrument to develop new markets for innovative products and services. Healthcare and civic infrastructure are two examples of this.



Why is procurement of innovation not taking place across Europe on a large scale?

- There is a lack of incentives, or the wrong incentives for buying innovative solutions from a new company rather than buying established products from long-standing suppliers (risk-aversion)
- There are problems of awareness, knowledge, experience and capabilities related to new technologies and market developments
- Procurement is often treated as a purely financial and administrative task and so is not aligned with broader policy objectives (e.g. health, environment, transport)
- Public procurement markets are more fragmented in Europe than elsewhere, making it more difficult to reach critical mass and limiting opportunities for fostering more standardised or interoperable solutions
- There are particular difficulties for innovative SMEs to be involved in public procurement as direct providers to contracting authorities

New EU Procurement Directives

In 2014 new procurement directives have been adopted, replacing the 2004 directives and covering the award of concessions. The new directives open up a number of opportunities for PPI, while maintaining the basic requirements of competition, transparency, equal treatment and *compliance with EU state aid rules*.⁶ Two new procedures are likely to be particularly relevant for authorities who wish to purchase innovative goods, services or works: the *innovation partnership*⁷ and the *competitive procedure with negotiation*. These

procedures are explained in Part 2 of this Guide. The *competitive dialogue* will also become more freely available with clearer rules on the end stages and the refinement of bids which can take place. All three procedures will be available for contracts which include an element of design or innovation, or if technical specifications cannot be sufficiently defined. Procurers will thus have greater flexibility in the choice of procedure to meet their needs and to evaluate a range of solutions.

Beyond the new and revised procedures available to contracting authorities, the 2014 directives facilitate procurement approaches which have been found to be 'innovation friendly.' The possibility to conduct preliminary market consultations and pre-commercial procurement (PCP) is underlined. The ability to take environmental and social considerations into account at various stages of the procurement process, and the use of life-cycle costing at award stage, are given a stronger legal basis. By allowing buyers to focus on criteria beyond the initial purchase costs, environmental and social criteria and life-cycle costing can promote innovative solutions. Similarly the use of functional or performance-based specifications can allow more scope for innovative proposals.

A number of changes to selection procedures and documentation requirements are also aimed at ensuring SMEs – many of which are highly innovative – have better access to competitions. New rules on joint procurement are intended to facilitate cooperation between contracting authorities, which can encourage risk and benefit-sharing for innovative projects and the pooling of demand. Perhaps most importantly, the implementation of the new directives invites Member States and individual authorities to assess public procurement from a strategic perspective, to identify how innovation and other objectives can best be delivered. The period 2014 – 2020 will see many organisations adopting new approaches to achieve better procurement outcomes, a process which should be assisted by greater reliance on electronic systems.

⁶ see also in particular the Communication from the Commission "Framework for state aid for research and development and innovation" C(2014) 3282.

⁷ The innovation partnership procedure should be distinguished from the European Innovation Partnerships (EIPs). Further information on EIPs is available at: www.bit.ly/european-innovation-partnerships

2014 Procurement Directives: Summary of provisions relevant to PPI

- Streamlining of documentation requirements at selection stage
- Exemption for R&D services
- Rules on preliminary market consultations
- Functional and performance-based specifications
- Innovation partnership procedure
- Competitive procedure with negotiation
- Greater availability of competitive dialogue
- Ability to apply environmental and social criteria and take life-cycle costs into account
- Rules on joint procurement
- Reporting on public procurement of innovation and SME involvement

Funded Projects

As part of its policy to support PPI, the European Commission published a call for proposals in 2011 which resulted in a number of pilot projects being set up. These projects serve as a reference point for the Guide, with the co-ordinators and partners sharing views on the opportunities and barriers for PPI which they encounter. The pilot projects are:

| Name | Web Link | Coordinator | Sector / Solutions Targeted |
|--------------|--|---|---|
| HAPPI | www.happi-project.eu | Resah Ile-de-France (FR) | Healthy ageing (communication, care, mobility, eating, sleeping and personal hygiene) |
| FIREd-uP | www.fired-up.eu | London Fire Brigade (UK) | Environmental impact of fire service vehicles |
| EcoQuip | www.ecoquip.eu | UK Dept. for Business, Innovation and Skills (UK) | Hospital equipment, consumables and services |
| SYNCRO | www.syncromobility.eu | Conseil Général de l'Isère (FR) | Information systems for road users |
| SPEA | www.speaproject.eu | Barcelona City Council (ES) | Energy efficiency for municipal buildings |
| Inno booster | www.bbg.gv.at/english-information/projects/innobooster-inlife | Austrian Federal Procurement Agency (AT) | Office furniture and lighting |
| Inno build | www.innobuild.eu | Municipality of Lyngdal (NO) | Sustainable building systems |
| Pro-LITE | www.pro-litepartnership.eu | Transport for London (UK) | Lighting for underground networks, surface transport and buildings |
| INNOCAT | www.sustainable-catering.eu | ICLEI – Local Governments for Sustainability (DE) | Eco-innovative catering for schools, health and welfare services and workplace canteens |
| PAPIRUS | (No link available) | Tecnalia Research & Innovation Pamplona (IT) | Procurement of nearly zero energy buildings |
| PROBIS | www.bit.ly/envipark-probis | Environment Park Turin (IT) | New contract models for innovative buildings |

Each project involves a number of partners in other Member States, and is pursuing its own approach to market engagement and procurement. This guide reflects the lessons learned to date from the implementation of these projects, as well as the case studies presented in the next section. Readers are invited to follow the progress of the above projects via their websites and on the Procurement of Innovation Platform.

Further calls for proposals have resulted in a range of projects across Europe targeting PPI as well as pre-commercial procurement. The following projects are undertaking joint cross-border PCP with co-finance from the European Commission:

| Name | Web Link | Coordinator | Sector / Solutions Targeted |
|-----------------------|--|---|--|
| CHARM | www.bit.ly/charm-pcp | Highways Agency (UK) | Traffic management systems |
| Smart@Fire | www.smartatfire.eu | Flemish Innovation Agency (BE) | Smart personal protective equipment |
| V-CON | www.rws.nl/v-con | Ministry of Infrastructure and the Environment (NL) | Building information modelling |
| SILVER | www.silverpcp.eu | Technology Strategy Board (UK) | Robotics to support independent living for the elderly |
| DECIPHER | www.decipherpcp.eu | Catalan Agency for Health Quality and Assessment (ES) | Electronic patient records |
| PRACE-3IP | www.bit.ly/1mXUwTA | Jülich Research Centre (DE) | Energy-efficient high performance computing |
| C4E | www.cloudforeurope.eu | Fraunhofer Institute for Open Communications Systems (DE) | Cloud computing services |
| IMAILE | www.bit.ly/IMAILE-FP7 | Halmstads Kommune (SE) | e-learning in the European classroom |
| THALEA | www.thalea-pcp.eu | University Clinic Aachen (DE) | Intensive Care Units to improve the care for patients in critical condition by telemedicine and telemonitoring |
| ENIGMA | www.bit.ly/enigma-project | Eindhoven (NL) | Public lighting |
| NYMPHA-MD | www.bit.ly/nympha-md | CREATE-NET (IT) | New models of care for patients with mood disorders |
| UNWIRED-HEALTH | www.bit.ly/unwired-health | Fundació TicSalut (ES) | Redesign health care delivery, introducing a mobile care path for consumers |
| PREFORMA | www.preforma-project.eu | Riksarkivet - National Archives (SE) | Future standards for file formats and archiving |

Many other projects addressing PPI and PCP have also received funding. For an overview and upcoming funding calls please visit the Cordis (www.cordis.europa.eu) and Horizon 2020 (www.ec.europa.eu/programmes/horizon2020) portals.

Procurement of Innovation Platform

The Procurement of Innovation Platform aims to make public procurement of innovation a widespread reality in Europe. The Platform has been developed to help public authorities, procurers, policy makers, researchers and other stakeholders harness the power of PPI. Custom-made to meet the needs of these users, the PPI Platform comprises three elements:

- The website www.innovation-procurement.org is the first port of call for all things related to PPI and pre-commercial procurement. It contains the latest news and events, the European legal framework, policy support and updates on PPI and PCP related projects.
- The Procurement Forum www.procurement-forum.eu is a space for procurers and related stakeholders to discuss, share and connect, allowing them to post comments and upload documents, images or videos. Users can create groups, which can be used for discussion or developing and coordinating projects.
- The Resource Centre www.innovation-procurement.org/resources provides a central database for PPI knowledge, gathering useful documents and examples in one place. Resources include national and European policy and strategy documents, tools, case studies, details of projects and initiatives, and reports.

The platform has been developed by ICLEI with support from the European Commission, and in partnership with PIANOo – the Dutch Public Procurement Expertise Centre, REC – the Regional Environmental Center for Central and Eastern Europe and IWT – the Flemish Agency for Innovation by Science and Technology. Feedback on the platform is welcomed and can be sent to info@innovation-procurement.org. Platform activities, including awards and events, can be followed on Twitter (@ProcureInno) and LinkedIn (Supporting Public Procurement of Innovation).

Examples of Procurement of Innovation

On the following two pages and at the end of this Guide a number of short examples of PPI are presented. These showcase the type of procurement approach which has led to innovative outcomes in different market sectors. Each example is based on first-hand interviews with people directly involved in the process, and covers:

- How the need for the procurement arose and what the budget, timescales or other controlling factors were
- What type of pre-procurement and procurement procedures were used
- How the market responded and any challenges that were encountered
- What the overall outcome was in terms of cost, quality and innovation



Further examples of procurement of innovation can be found on the Platform, and readers are invited to contribute their own case studies on the Procurement Forum.



🔍 CASE STUDY 1



© City of Detmold

City of Detmold, Germany **A concrete solution to reduce air pollution**

In planning the renovation of its busy central bus station, the City of Detmold saw an opportunity to reduce air pollution. The objectives of the project were to improve traffic flow and accessibility - but when the City started to engage with researchers and suppliers it identified the potential to apply photocatalytic concrete to actively reduce pollutants. The resulting solution is expected to reduce nitrogen oxide levels by up to 40% in the area.

[Read the whole case study on page 30](#)

🔍 CASE STUDY 2



© City of Ghent

City of Ghent, Belgium **Social and environmental innovation in cleaning services**

Ghent is responsible for cleaning 340 premises, a service which employs 450 people. The City was interested in introducing cleaning products with a lower impact on the environment and human health and so set up a controlled trial of products offering lower life-cycle impacts at several of its locations. Based on the results it decided to promote probiotic cleaning products within its current contract, while also including provisions aimed at employing disadvantaged workers.

[Read the whole case study on page 32](#)

🔍 CASE STUDY 3

© George Kroll, dreamstime.com



Erasmus University Medical Centre, The Netherlands **A sustainable solution for hospital bed washing**

Erasmus MC has ambitious targets to reduce its carbon footprint and energy use by 2020. The hospital's machine for bed cleaning was both labour intensive and inefficient in its use of energy and water. The hospital set out to identify and procure a more effective and sustainable solution. Using market consultation, forward commitment procurement and a competitive dialogue, the hospital was able to award a contract for an innovative automated bed-cleaning machine which is much less resource-intensive.

[🔗 Read the whole case study on page 34](#)

🔍 CASE STUDY 4

© Rawicz County Hospital



Rawicz County Hospital, Poland **New methods and materials for uniform procurement**

Over the past decade Rawicz hospital has carried out remedial and refurbishment works to some parts of its premises to improve energy efficiency, but with mixed outcomes. The CEO recognised the need for a new approach, and a pilot innovation procurement project was identified concerning the purchase of hospital uniforms. Consultation with staff allowed an outcome-based specification to be developed, which was used in a competitive dialogue. The successful bidder is supplying uniforms which incorporate an innovative bio-based material and offer a lower life-cycle cost than the old uniforms.

[🔗 Read the whole case study on page 36](#)

Benefits of PPI

Based on the above examples and other studies of innovation procurement, a number of benefits can be highlighted:

For the public authority...

- Solutions to the identified needs or challenges
- Introduction to new suppliers and service providers
- Cost savings in the short, medium or long-term
- Higher levels of staff and user satisfaction
- Development of knowledge, skills and techniques which can be applied in other projects
- Opportunities to access local, national or EU funds linked to innovation
- Contribution to environmental and social policy targets
- Positive publicity and reputational gains
- Commercial benefits from licensing or joint ventures

“Engaging in innovative procurement allowed us to do something for the environment, to launch a new product, and to do something in the municipality that has added value for the citizens.”

*Thomas Lammering,
City of Detmold, Germany*

For suppliers...

- Access to valuable public sector clients
- The opportunity to apply research and commercialise ideas
- Understanding of public sector challenges and priorities
- Exposure to pre-procurement and procurement procedures
- Development of expertise and practical skills
- Opportunities to access local, national or EU funds linked to innovation
- Positive publicity and reputational gains
- Increased chance of winning future contracts
- Commercial benefits from licensing or joint ventures

Fact: Research published by the Manchester Institute of Innovation Research showed that when companies win public sector contracts that require them to innovate, almost 80% win other public sector contracts, 55% increase their sales to the private sector, and about 30% start or increase overseas sales.

*Source:
Edler, J., Georghiou, L., Uyarra, E., Yeow, J. (2011)
Procurement and Innovation: Underpinning the debate.*

For society...

- Better public services and infrastructure
- Creation of skilled jobs and investment
- Tackling environmental and social challenges (e.g. climate change, energy efficiency, resource use, ageing populations, social exclusion)
- Smarter use of taxpayer money
- Support for small and medium-sized enterprises
- Transfer of ideas to other sectors and industries
- Enhanced international competitiveness
- Opportunity to develop new industries
- Improvements in quality of life

“I think that the experience of the crisis has taught us that, while we need an economy that grows and provides jobs and respects environmental goals, we also need a resilient economy. An economy that has solid foundations, not one built on sand. An economy that generates sustainable growth, not growth fuelled by debt, speculation and greed... what strikes me again and again is how central innovation is to achieving all this.”

*Máire Geoghegan-Quinn,
European Commissioner responsible for
Research, Innovation and Science*

Part 2

How to Procure Innovation

2

How to Procure Innovation

Guiding Principles

As can be seen from the examples in the previous section, there is no 'one size fits all' approach to PPI. Different steps and procedures will be involved depending on the need, the contracting authority and market sector. However there are some common lessons which can be drawn from the experience of authorities who have procured innovation:

Start early – all procurers are aware of how timescales can influence procurement outcomes. Too often documents are rushed out or suppliers are given inadequate time to respond to complex requirements. In other cases procedures may drag on for years, eating up resources and causing the parties to miss out on other opportunities. For PPI, a bit of forward-planning can go a long way to ensuring the procurement itself is done in a timely manner. Once a need has become clear (e.g. through a *needs assessment*), even if all the details and budget have not yet been decided, there is scope to start analysing the market and identifying suitable procedures. Consulting other public or private organisations who have procured similar needs can also be a valuable use of time in the run up to a formal procedure being launched. *Forward commitment*

procurement (FCP) is one way of providing the market with early notice of upcoming contracts and an incentive to participate in the process.

Know the market – perhaps the single most important lesson from successful PPI examples. A thorough understanding of the potential supply chain for an innovative product or service is indispensable, and this may go beyond the existing knowledge of category managers. This is because PPI will often involve new market players or groupings, require specialist materials or services to be sourced, and structure contracts or payment in new ways. To understand the scope and willingness for this on the supply side, detailed research and pre-procurement market engagement may be needed. Advice from professionals or others with up-to-date knowledge of the market can be valuable, and a wide range of sources should be consulted if possible to ensure a full picture. *Preliminary market consultation* is explored in more detail in the next section. Support for early market engagement may be available from other departments within your own organisation as well as innovation agencies and EU schemes.

Assess and actively manage risks – many different risk assessment techniques are used as part of project management in the public sector. The best ones tend to emphasise that risk should be managed by the party best able to do this, rather than a default position such as ‘the supplier takes all risks.’ Honest, accurate and regularly updated appraisals of risk make it less likely that an innovative procurement will fail – but only if they are communicated and acted upon. One way to do this is by having a *project steering group* which is able to handle both informal and formal communication, so that risks can be dealt with as they arise as well as through an initial strategy. Many (but not all) risks can be managed by choice of procurement procedure, intellectual property strategy and contract terms, all of which are discussed below.

Competition is not just a formality – it is a tool for obtaining the best the market has to offer. Sometimes with innovative requirements it can be tempting to think that only one supplier can deliver what is needed. In certain cases this may be true, and the procurement directives do allow for derogation in exceptional circumstances from the general rule that a competition must be held.⁸ However before seeking to use this derogation, you should ask whether it is really clear that only one operator is in a position to deliver, and whether you can be confident of obtaining optimum value from that operator without a competition. Is it possible that two or more suppliers could deliver the requirements if they formed a group? Are you familiar enough with the market in other countries or regions and have you published a PIN and advertisements in trade journals/websites to identify potential suppliers? Relatively small investments in publicity and attracting competition can deliver savings and better results.

Use flexible procedures – such as the *innovation partnership*, *competitive dialogue* or *competitive procedure with negotiation*. The advantage of such procedures is that they allow greater interaction with the market in order to refine requirements and award a contract, compared to the

open or restricted procedures. The disadvantage is that they normally take longer to conduct, especially if the authority is using them for the first time or does not have adequate capacity. It is important then to consider how the procedure chosen will be managed and what the resource implications are – for both sides. The steps involved in each of these procedures are explored in the next section, and the situations in which they may be suitable. Keep in mind that *preliminary market consultation* and *pre-commercial procurement* may be combined with other procedures in order to obtain the best results.

Don't over-specify – as this can kill innovation. Performance-based or functional specifications are one way of allowing for flexibility for suppliers to propose solutions. Allowing *variants* is another. There is a fine balance between making sure the market knows exactly what your requirements are and leaving the door open to different and new ways of meeting those requirements. For example, it is essential for suppliers to know about any environmental standards to which a product or service must conform - but it may be possible to specify a performance requirement (e.g. maximum CO₂, energy or water consumption) rather than a detailed list of inputs. In other cases such matters can be better addressed in award criteria, to allow for comparison of suppliers and weighing against cost and other factors. It is good practice to challenge every procurement specification, to ensure it covers all requirements without being overly prescriptive.

Make information freely available – whenever possible. Many public sector organisations are moving towards more open sharing of their data online. In addition to improving overall transparency, this can encourage researchers and enterprises to think about public sector challenges and develop potential solutions, even before procurement has been launched. In the context of PPI, the level of detail and accuracy of information shared with the market, and the timing of this, can be vital in securing the best outcome. Note that there may be a trade-off

⁸ This is via the negotiated procedure without a prior call for competition [Article 32 of Directive 2014/24/EU].

between quantity, quality and timing of information shared – in some cases a short *prospectus* published well in advance of a procedure being launched will be more valuable than pages of data included in tender documents, and in some cases it will be the other way around. Try to think about the information from the perspective of a supplier who is not overly familiar with the organisation, so that it can be understood by all those who may be able to respond.

Agree an intellectual property strategy

– PPI involves an investment in making new ideas a reality, both by the contracting authority and the supplier(s) or service provider(s) involved. Each will want to recoup its investment, and this often takes the form of asserting intellectual property rights (IPR). In order to capture the benefits of innovation which are most important to it, without paying unnecessarily for rights and options which won't be used, the contracting authority should develop a strategy on IPR which takes into account the likely future applications of the product or service it is purchasing. For example, if a new design for recycling bins is developed as part of a waste management contract, does it make sense for the authority to purchase or licence this, and what about rights to the design of vehicles which empty the bins? Issues to consider in answering such questions include the future ability of the authority to change service providers, and whether the design could also be licensed to other users of the service. In some cases sharing of information without the actual transfer of intellectual property rights will be sufficient to realise these objectives.

The contract is the thing – that ultimately determines the value of the procurement, along with the way in which that contract is managed. The terms of a contract should never be an afterthought, and for most PPI it is unlikely that standard terms and conditions will suffice. If a *framework agreement* or *phased contract* is being used, the conditions for award of further contracts or phases should be clear. *Key performance indicators*, incentives and penalties, licensing rights, termination and renewal clauses are all likely to be particularly important for PPI, and insurance and *indemnities* may also have a role to play. Discussion of these topics in the course of a competitive dialogue or negotiations should be structured around the main purpose of the contract, so that every term in the contract contributes to its overall objectives. For example, if users of a new IT system will be the main source of information on how well it works, there should be a mechanism for ensuring this reaches the supplier and is acted upon, rather than just a standard clause which requires the supplier to remedy defects.





Procedures

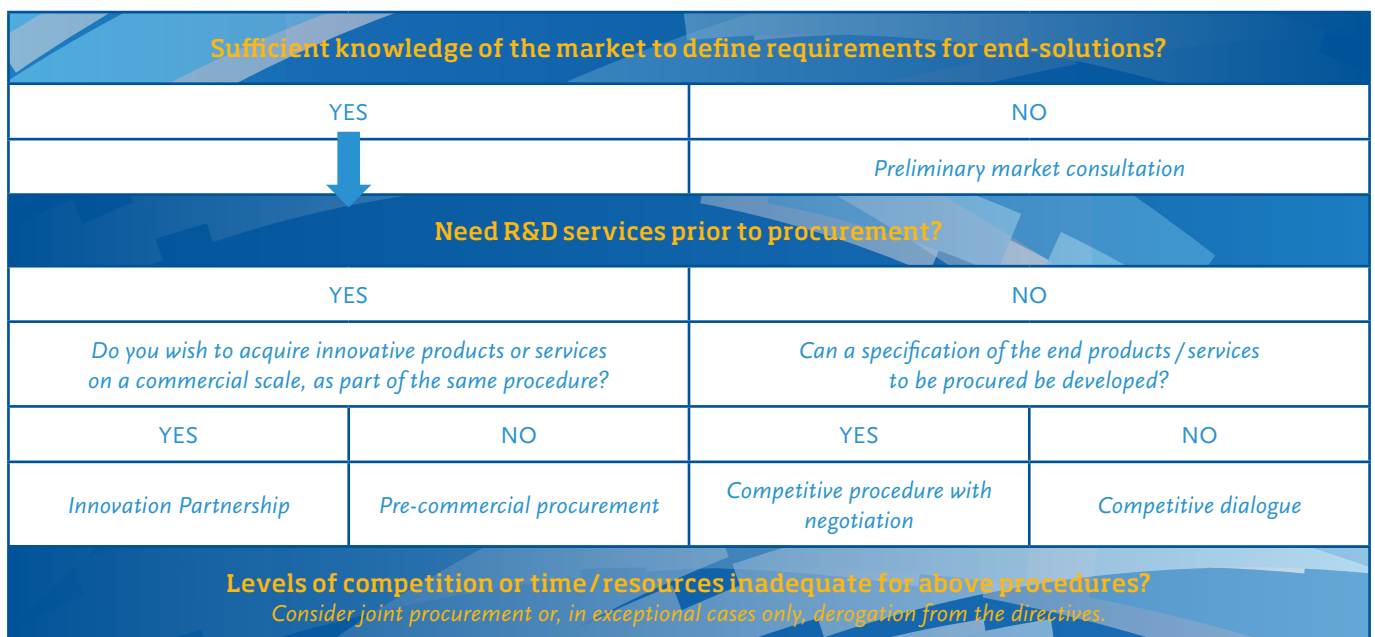
This section outlines five procedures which are particularly relevant for public procurement of innovation. Their common feature is that they allow greater scope for interaction and dialogue with the market, when compared to the open or restricted procedures. *National implementing legislation* should be consulted to determine how these procedures have been adopted in your country.

Choice of procedure

The following factors are likely to influence the choice of procedure(s) under the new directives for contracting authorities planning PPI.

- Degree of knowledge about the market
- Is research and development work needed
- Can a specification be developed
- Is there a need to acquire the solution on commercial scale (i.e. beyond test series)
- Number of potential suppliers and structure of the market
- Time and resources available for the procurement

The below diagram shows how these factors may help inform choice of procedure(s), although naturally it is a simplification and the applicable considerations will vary.

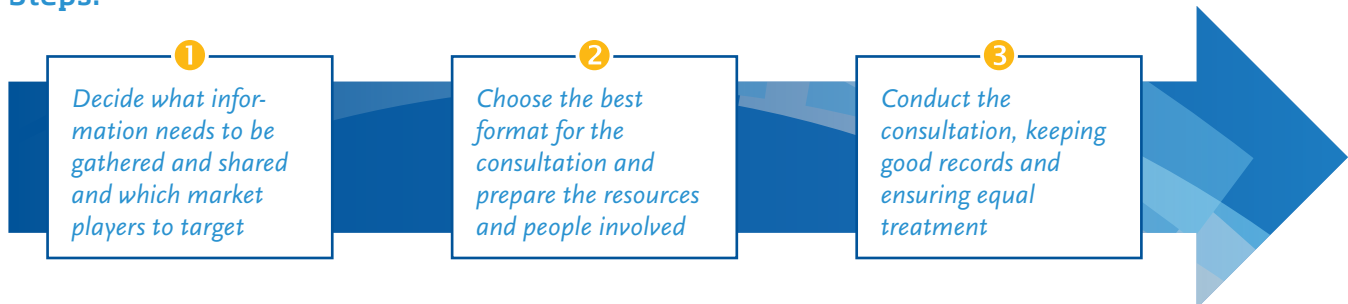


Preliminary market consultation

Objective: To gather information from the market with a view to later procurement, and to inform potential suppliers of the authority's needs.

Regulated by the procurement directives? Not directly, although the new directives state that preliminary market consultations can be carried out provided they do not distort any later competition. This may involve communicating information from the consultation to all candidates or tenderers, for example. The Treaty principles of transparency and non-discrimination apply to preliminary market consultations.

Steps:



1 Decide scope of consultation

- Initial research and *needs assessment* should identify area(s) of focus and specific user needs, as well as the potential innovations which might meet them
- Further information may be needed to develop a specification and choose an appropriate procurement procedure
- Analyse the market to determine which tiers to target (e.g. manufacturers, service providers, subcontractors, systems integrators, researchers and third sector etc.)

2 Choose format and plan

- Determine how best to engage the suppliers / stakeholders identified
- Consider using a questionnaire or survey, written submissions, face-to-face, phone or web-based meetings, open days and supplier demonstrations
- Be clear on the timelines and resources needed to make it work
- Prepare documents to be circulated as part of the consultation, e.g. a *prospectus*

3 Consult and capture information

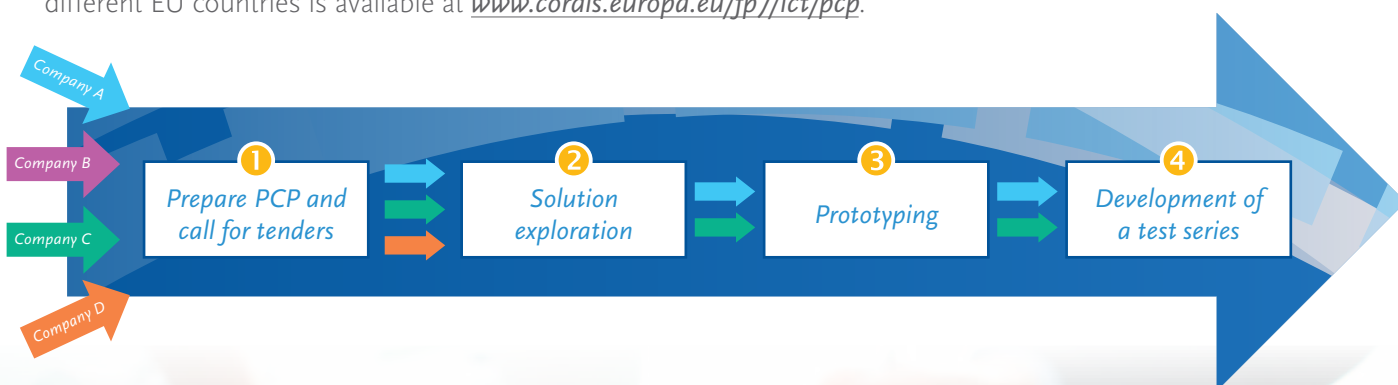
- Publish a *Prior Information Notice* (PIN), publicise the consultation on relevant industry or other websites, and notify suppliers directly wherever possible
- Keep records of all contact and be prepared to follow up with respondents
- Prepare a summary of the findings and implications for procurement. Be sensitive towards the confidentiality of any information provided by respondents.
- Before launching a procurement process, consider what measures must be taken to avoid any distortion of competition arising from the undertakings who have been involved in preliminary market consultation. For example, the same information should be shared with other operators and adequate time allowed for preparation of tenders. Exclusion of those involved in the consultation can only be done if there is no other means to ensure equal treatment, and the operators involved must be given a chance to disprove this.

Pre-commercial procurement (PCP)

Objective: To procure research and development services, up to the prototyping or first test production stages. PCP may include the acquisition of the limited prototypes and/or test products developed, but does not include the acquisition of larger volumes of resulting end-solutions on a commercial scale and must not constitute *state aid*.

Regulated by the procurement directives? PCP falls under an exemption to the directives and does not constitute state aid, provided the benefit of the R&D services does not accrue exclusively to the contracting authority for use in the conduct of its own affairs and the PCP is executed in a fair, open, transparent and competitive way so that the R&D services are procured at a market price.⁹

Steps: Note that the staff working document associated to the 2007 European Commission communication on PCP¹⁰ provides one possible implementation approach to PCP. Procurers and innovation agencies across a number of European countries have developed implementation approaches based on regional/national procurement and innovation practices to support the implementation of PCP. An overview of examples of PCP implementation in different EU countries is available at www.cordis.europa.eu/fp7/ict/pcp.



⁹ Further guidelines on conducting PCP in compliance with the state aid rules can be found in the draft *Framework for State Aid for Research, Development and Innovation*, available on the D-G Competition website.

¹⁰ PCP communication COM/2007/799 and associated staff working document SEC (1668) 2007.

1 Preparing for PCP and call for tenders

- Identify a challenge which cannot be solved by application of existing products and services but could benefit from dedicated research and development work
- Establish the state-of-the-art in the field, who the active parties are and whether PCP could be conducted jointly with other potential purchasers
- Consider the approach to risk and benefit sharing to be taken (e.g. payment of costs, licensing of intellectual property rights) and develop terms and conditions to cover the services to be carried out
- Launch a PCP call for tender to invite proposals for the exploration of solutions, prototyping and test production phases. PCP contracts should be awarded to more than one operator for each phase. The PCP competition will not be covered by the procurement directives but the Treaty rules on transparency, non-discrimination and competition rules apply. PCP contracts can be awarded to cover solution exploration, prototyping and original development and testing of first products.

2 Solution exploration

- Research and development work commences in line with the proposal(s) from the successful operator(s)
- Reporting and information sharing as provided under the contract terms
- Payment for exploratory phase and decision on whether to proceed to prototype

3 Prototyping

- Selection of operator(s) to produce a prototype
- Production of prototype and decision on whether to proceed to test series
- Payment for prototyping phase

4 Test series

- Limited production of newly developed product or service
- Assessment of test series, publication and standardisation (if appropriate)
- Payment for final phase. Further acquisition on a commercial scale will require a new competition under the procurement directives

Competitive dialogue

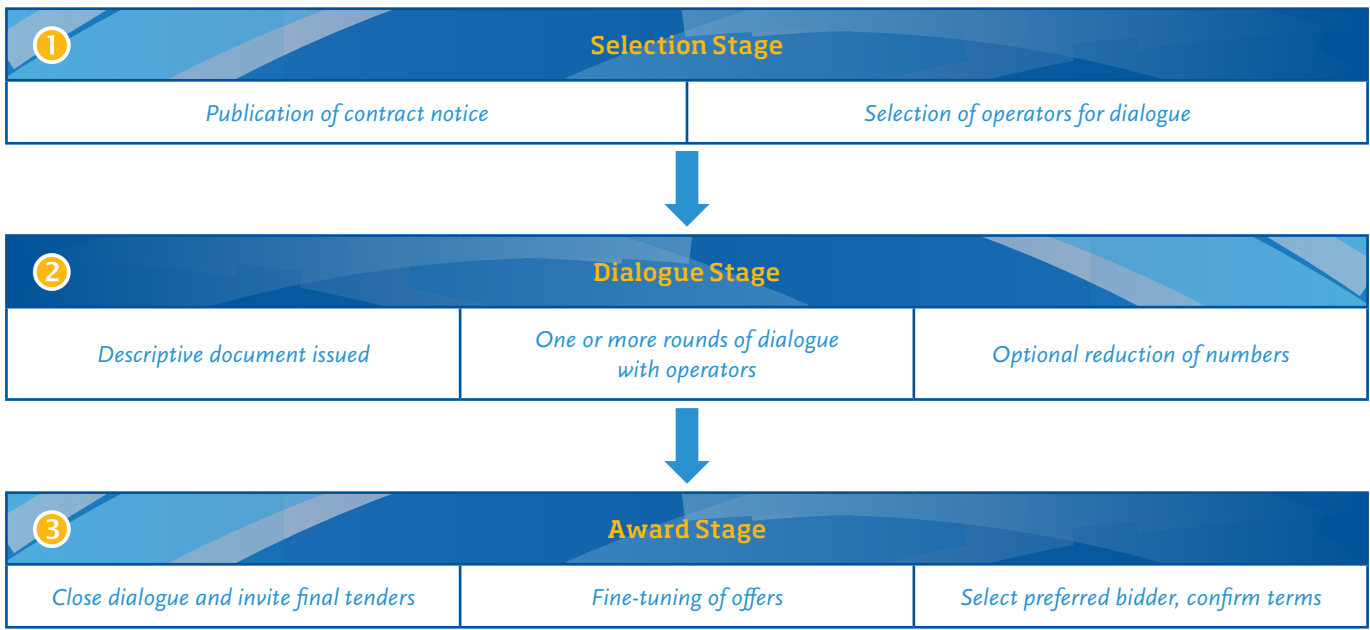
Objective: To award a contract for supplies, services or works following dialogue with selected participants. Each bidder submits an offer based on their own solution to the needs the authority has outlined, rather than responding to a common specification. Supplier expertise can be accessed in the dialogue stage. Competitive dialogue is often used for large or complex projects where the technical specifications cannot be adequately defined in advance.



Regulated by the procurement directives? Yes, the competitive dialogue was introduced in the 2004 directives and updated in the 2014 directives. Under the 2014 Directives it is now available in any of the following situations:

- Where the needs of the contracting authority cannot be met without adaptation of readily available solutions
- The needs include design or innovative solutions
- The contract cannot be awarded without prior negotiations because of specific circumstances related to the nature, the complexity or the legal and financial make-up or because of the risks attached to them
- The technical specifications cannot be established with sufficient precision by the contracting authority with reference to a standard, European Technical Assessment, Common Technical Specification or technical reference
- If only irregular or unacceptable tenders are submitted in response to an open or restricted procedure

Steps:



1 Selection stage

- Call for competition identifying nature of intended procurement and criteria for selection of operators
- Assessment of requests to participate against selection criteria
- Minimum of three operators invited to dialogue stage, provided a sufficient number of qualified operators apply

2 Dialogue stage

- A descriptive document is issued to the selected operators, setting out the authority's needs and requirements, the award criteria to be applied and an indicative time frame
- Dialogue is opened with the operators, often involving submission of outline solutions which are progressively refined. Equality of treatment must be ensured and the confidentiality of solutions maintained unless operators agree otherwise.
- The number of operators may be reduced by application of the award criteria. The number participating in the final stage must make for genuine competition insofar as there are enough solutions.

3 Award stage

- Dialogue closed and submission of final tenders invited based on the solution or solutions discussed with each operator
- Tenders may be 'clarified, specified or optimised' but no changes to essential aspects which would distort competition
- Application of award criteria to determine preferred bidder. Negotiations may be carried out with preferred bidder to confirm financial commitments or other terms.



Competitive procedure with negotiation

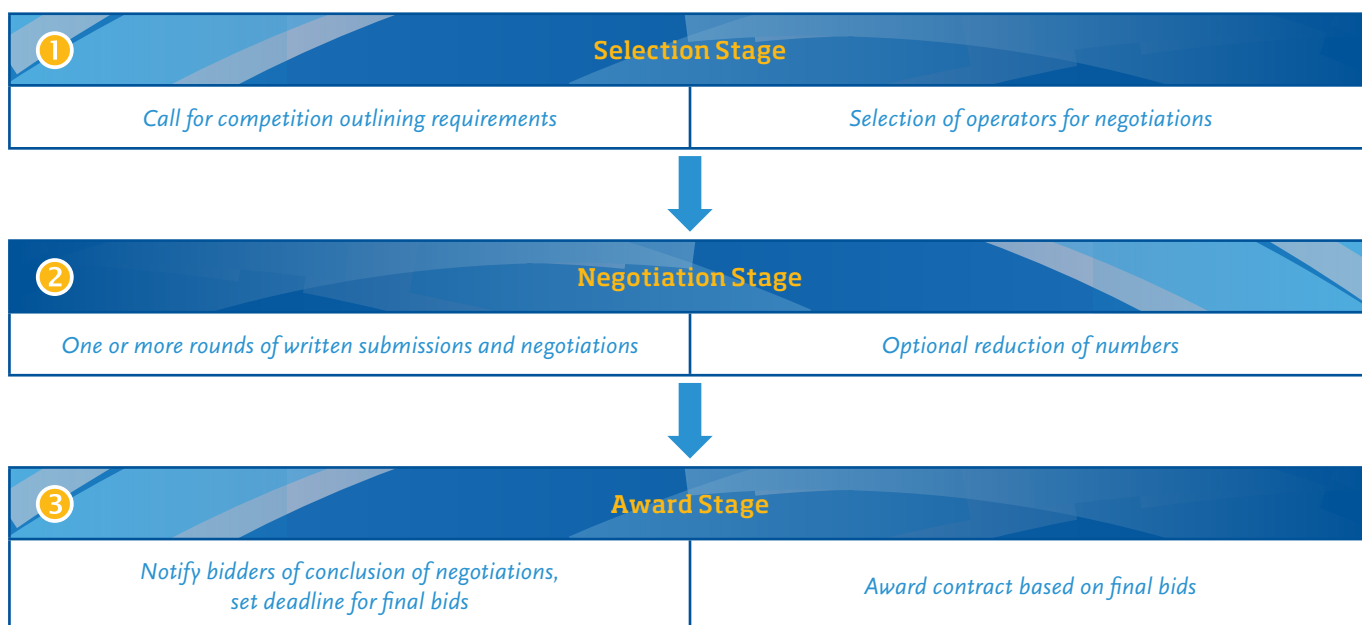
Objective: To procure goods, services or works which include an element of adaptation, design or innovation, or other features which make the award of a contract without prior negotiations unsuitable. Unlike the competitive dialogue, it requires that the authority can specify the required characteristics of the goods or services in advance of the competition.

Regulated by the procurement directives?

Yes, this is a new procedure introduced in the 2014 directives, replacing the negotiated procedure with prior publication of a notice. It can be used in the same situations as the competitive dialogue set out above, i.e. adaptation, design or innovation is needed, the contract cannot be awarded without prior negotiations due to risk or complexity, technical specifications cannot be defined with sufficient precision, or only irregular or unacceptable tenders have been submitted.



Steps:



1 Selection stage

- Call for competition identifying the nature of intended procurement and criteria for selection of operators. Procurement documents must specify the characteristics of the goods, services or works, the minimum requirements and award criteria.
- Assessment of requests to participate against selection criteria
- Minimum of three operators invited to tender stage, provided a sufficient number of qualified operators apply.

2 Negotiation stage

- Selected operators invited to submit initial tenders which are then subject to negotiation. Minimum requirements and award criteria cannot be negotiated.
- Successive rounds of tenders and negotiations may take place. Equal treatment of operators must be ensured, with all bidders being informed of changes to the technical specifications or other procurement documents and given adequate time to modify their tenders. Confidential information can only be disclosed with explicit permission of the bidder.
- The number of operators may be reduced by application of the award criteria. The number participating in the final stage must make for genuine competition insofar as there are enough solutions.

3 Award stage

- Inform remaining tenderers of intention to close negotiations and set common deadline for receipt of final offers
- Award contract based on the specified award criteria (without further negotiation)

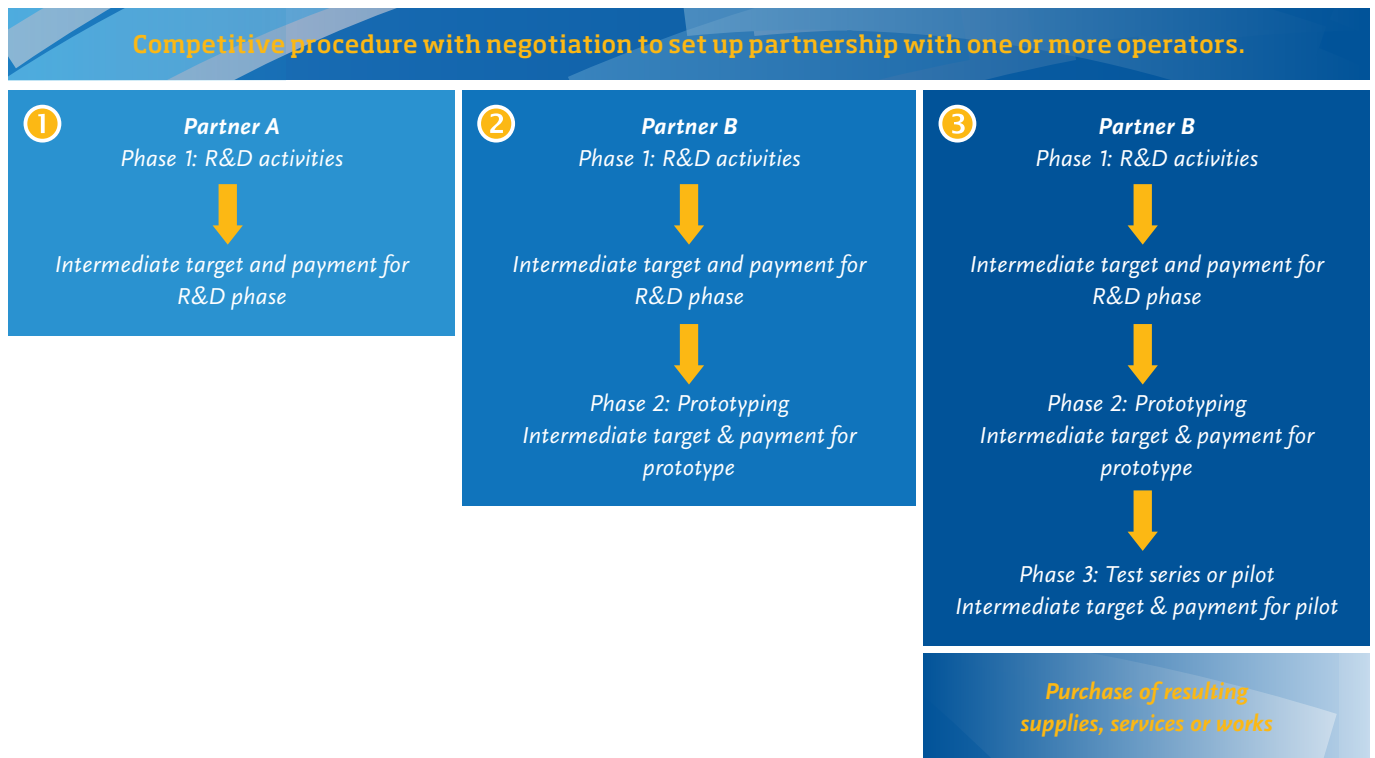
Innovation partnership

Objective: To research, develop and procure on a commercial scale new products and services. The innovation partnership allows for the award of a phased contract covering all stages from R&D through to acquisition of commercial volumes of finished products or services, with the involvement of one or more economic operators in each phase.

Regulated by the procurement directives? Yes, the rules for establishing an innovation partnership are specified in the directives and involve the use of the competitive procedure with negotiation. Innovation partnerships can be set up where a contracting authority has a need for an innovative product, service or works that cannot be met by purchasing products, services or works already available on the market.



Steps: The below diagram shows one possible format for an innovation partnership. It is also possible to establish a partnership with a single operator, without prejudice to EU state aid rules."



1 Competitive procedure with negotiation

- Procedure as outlined above, with the need for an innovative product, service or work outlined in the procurement documents
- Selection criteria must relate to candidates' capacity to carry out R&D and develop and implement innovative solutions
- Award of one or more phased contracts for R&D services, prototyping, manufacture of a test series, pilot and acquisition of end-products/services. Contracts must include intellectual property provisions

2 Development stage

- Execution of phased contract(s). Intermediate targets and remuneration in instalments must be provided for
- Contracting authority may decide after each phase to terminate partnership or reduce the number of operators involved

3 Commercial acquisition phase

- Purchase of the resulting supplies, services or works from the partner(s) not eliminated, provided that they correspond to the agreed performance levels and maximum costs

"see notably paragraphs 33 and 34 of the Communication from the Commission "Framework for state aid for research and development and innovation" C(2014) 3282.

Part 3

Developing a Strategy for PPI

© Custodio Group, dreamstime.com

Prior to engaging in innovation procurement, public sector organisations should be aware of the challenges which are likely to come up. In order to reduce the risk associated with undertaking PPI or PCP, a strategy should be developed which anticipates these challenges and allows for planning and management. Other organisations and experts who have undertaken similar procedures can be consulted as part of this process – the Innovation Procurement Platform provides a forum to assist with this. National or regional innovation agencies and guidance may also be of assistance in planning your organisation’s PPI strategy.

Topics to consider in a PPI strategy include:

| | |
|---|---|
| <p>Needs Assessment</p> <p>e.g. How will you determine which areas are priorities for innovation procurement within your organisation? How should a needs assessment be conducted? Which type of needs may be suitable for PCP and PPI respectively?</p> | <p>Engaging Suppliers</p> <p>e.g. Should suppliers be contacted informally prior to starting a procedure? Is it better to meet with suppliers one-on-one or in groups? How will confidentiality and open sharing of information be balanced? How will the outcomes be captured in your specifications?</p> |
| <p>Project Team and Steering Group</p> <p>e.g. Who within your organisation is best-placed to drive PPI and which departments should be involved? Is it worthwhile to include external experts or organisations in the group?</p> | <p>Legal Considerations</p> <p>e.g. What kind of contract terms will best support innovation? Are key performance indicators an effective way to monitor performance and should they be linked to incentives or penalties? How can the risk of legal challenge to PPI be minimised?</p> |
| <p>Making a Business Case</p> <p>e.g. What kind of information will contribute to your business case for PPI and where can it be found? How should future costs and savings/income from PPI be calculated?</p> | <p>Whole-life and Life-cycle Costing</p> <p>e.g. How will the costs of new products and services be assessed across their life-cycle? Have relevant tools for this been developed within the sector(s) you are targeting?</p> |
| <p>Joint Procurement</p> <p>e.g. Are any of your organisation’s needs suitable for joint procurement of innovation? Does it make sense to set up a framework agreement so that others can access the end results?</p> | <p>Risks and Financial Support</p> <p>e.g. What approaches will you take to manage risks? Is external funding or assistance available to help defray the risks and make a stronger business case for PPI?</p> |



Forward commitment procurement (FCP)

– a procurement model which involves providing the market with advance information of future needs in outcome terms, early engagement and an agreement to launch a tendering procedure in the future to purchase a product or service that currently does not exist, at a specified future date, providing it can be delivered to agreed performance levels and costs.

Framework agreement – an agreement between one or more contracting authorities and one or more economic operators, the purpose of which is to establish the terms governing contracts to be awarded during a given period, in particular with regard to price and, where appropriate, the quantity envisaged.

Indemnity – an approach to reducing risk associated with a contract by requiring either a security against defaults in performance or protection against liability, loss or damage. For example, a supplier may be asked to indemnify the contracting authority against liability arising from the application of a new product or service.

Intellectual property – property which is the result of creativity and to which exclusive rights can be asserted, for example copyright, patents, trademarks or industrial design rights. Intellectual property may be licensed for use by another party, exclusively or non-exclusively.

Key performance indicators (KPIs) – a set of measures used to assess performance against agreed expectations. KPIs may relate to any aspect of a contract and may be associated with points or other systems under which incentives and/or penalties are allocated.

Life-cycle costing – also sometimes known as whole-life costing. This is an approach to calculating costs which includes all costs arising during the life-cycle of a good, service or work – the purchase price and all associated costs together with operating and end-of-life costs. It may also include costs assigned to externalities such as greenhouse gas emissions.

National implementing legislation – the measures by which EU directives are incorporated into national law. Following the adoption of the 2014 procurement directives, Member States have a period of 18 months in which to adopt these measures. The 2014 directives offer a number of policy options for Member States, so not all provisions will be implemented in the same way.

Needs assessment – a preliminary activity which identifies the scope of a public authority's needs in a particular category or to solve a specific challenge. A needs assessment should take future as well as

present requirements into account, and look at the organisation's capacity to adopt potential solutions. A thorough needs assessment provides better grounding for market consultation, as it will gather data which is relevant to suppliers and identify any gaps.

Performance-based or functional specifications – also sometimes known as output or outcome-based specifications. This is an approach to specifying requirements in procurement which focuses on the results which need to be achieved, rather than the detailed inputs. For example, instead of specifying that a building needs to have a certain type of insulation or lighting, a performance-based specification could state that it must achieve a minimum energy-rating.

Phased contract – a contract which provides for two or more distinct phases and which can be terminated without fault at the conclusion of any of those phases. The phases may relate to distinct activities such as research and development, prototyping or the production of a test series or execution of a pilot. The contract may specify the conditions under which the next phase will proceed, or this may be left to the discretion of the contracting authority.

Prior Information Notice (PIN) – a form of notice published in the Official Journal of the European Union which identifies upcoming procurement requirements. A PIN may be used to reduce the time periods associated with tendering, to give the market advance notice of requirements, to initiate a preliminary market consultation or as a call for competition.

Project steering group – the team of people responsible for taking decisions within a PPI project. This may be a subset of the project team or sit above it, and will normally include individuals representing different functions within the organisation. It may also involve external experts or stakeholders such as citizens and users of the product or service being purchased.

Prospectus – a document setting out an authority's current or future procurement needs. A prospectus may be published as part of preliminary market consultations, in order to give suppliers advance notice of upcoming requirements and relevant background information about the authority.

Standards – a technical specification approved by a recognised standardisation body for repeated or continuous application, with which compliance is not mandatory. International, European and national standards may be referenced in procurement specifications provided they are accompanied by the words 'or equivalent.' Standardisation may also be the culmination of the research and development process for a new product or method.

State aid – an advantage in any form which is conferred on a selective basis to undertakings by public authorities. State aid is prohibited by the Treaty on the Functioning of the European Union where it does not fall within a defined exemption. If a fully competitive procedure has been conducted in compliance with the procurement directives this will normally create a presumption that state aid does not arise. A *specific framework* exists for state aid in the area of research, development and innovation, which is currently under revision.

Variants – a technique for allowing alternative solutions to be considered in the evaluation of tenders. Variants can be allowed in any procedure, provided the minimum requirements of the contracting authority are defined and the contract award criteria can also be applied to variants.



© City of Detmold

City of Detmold, Germany A concrete solution to reduce air pollution

Background and Procurement Objectives

The City of Detmold lies in the German Federal State of North Rhine-Westphalia and has a population of 73,500. Its busy central bus station is used by 2.3 million passengers each year and was last renovated in the early 1960s. The need for renovation and redesign was identified in order to improve traffic flow and accessibility. The station is used by a large number of school children and some 800 buses pass through it on working days.

The City's Department for Construction and Property Management identified the potential to reduce air pollution in the area through application of photocatalytic concrete in the pavements and road surfaces.

Project Development

After a thorough examination a cross-disciplinary planning group was formed, including road planners, concrete technologists, geological engineers, university professors, auditors, officers for the disabled and political representatives. Following two separate presentations and debates with the City's commissions for construction and property management, the project received the green light.

The planning group also had discussions with the city owned bus company Stadtverkehr Detmold GmbH (SVD). The German Federal Environmental Foundation (DBU) supported the project through the Department of Civil Engineering of the University of East Westphalia-Lippe.

Innovative Technology: Photocatalysts

Titanium dioxide (TiO₂) is widely used as a white pigment in paint, plastics, cosmetics and a variety of other products. Research on the photocatalytic properties of TiO₂ goes back many years, however it is only recently that its applications within building materials have been developed and tested.

Strong sunlight or ultraviolet light decomposes many organic materials in a slow, natural process. Photocatalysts accelerate this process by stimulating a chemical transformation, without being consumed by the reaction. TiO₂ acts as a photocatalyst when it is in the form of extremely fine nano-sized particles. Pollutants are converted into harmless salts which flow through storm water drains.

In addition to reducing airborne pollutants, photocatalytic concrete helps to avoid the heat gain associated with dark construction materials like asphalt and reduces the formation of smog. It also reduces the need for building maintenance and the environmental and cost impacts of cleaning. TiO₂ does not require exposure to direct sunlight for the process to be effective and can also be used on internal surfaces.

The University researched the pavement for one year and will also do follow-up scientific testing. Further support was received from the transport association of Westphalia-Lippe the Urban Development Fund of North Rhine Westphalia.

The cooperation within the project worked well, although the total time required was longer than a traditional procurement. Planning for the project began in January 2011 with procurement being launched in March 2012. A contract was awarded in May 2012 with construction completed in August 2013.

Market Consultation

Several producers were asked to send brochures and information on their product. Producers were then invited separately to a round table with the project group to discuss their solutions and potential applications to meet Detmold's needs. The wide range of conditions and materials affecting concrete requires a case-by-case approach to ensure the most appropriate application of the technology. It took around three months to get the information, with expert opinions and communication on the installation of the innovative product. The input of the University's engineers was particularly valuable during this phase.

Technical risks were assessed with reference to published research reports and manufacturer's specifications. Site visits were arranged to production facilities and the approach of different producers compared. A sustainability analysis was carried out based on the expected lifetime of the development of at least fifty years. The results were submitted to the planning group to determine which techniques were most suitable for the project. Approval was received at political level for the approach, taking account of the projected additional costs for use of photocatalytic concrete.

Procurement

An open procedure was used and six bids were received from construction contractors. The requirements in the tender documents were formulated in neutral terms so that multiple producers could supply the material – Detmold's internal auditors were very involved to ensure the transparency of the process. Based on the information gathered in the market consultation, the tender documents specified a TiO₂ content of between three and 5%. There were follow up questions to those that submitted an offer to see if they could really fulfil the criteria. Some companies submitted variant solutions with conventional concrete,

these were 3.6% cheaper on average. Samples were evaluated as part of the tender process and following award of contract a test surface was set up to determine the best way of working with the material on site.

Outcome and Further Applications

The winning bidder offered a 5% TiO₂ content in its concrete. "Based on the daily average of 800 buses at the station, we expect a reduction of the annual emissions of nitrogen oxides by up to 40%," said Thomas Lammering, Deputy Head of Construction and Property Management. The additional cost of using the photocatalytic concrete was relatively low, amounting to €90 000 within a total project cost of €2.8 million. The design of the station facilitates accessibility for those using wheelchairs or prams and also has a guidance system for visually impaired users.

"This procurement allowed us to do something for the environment, to launch a new product, and to do something in the municipality that has added value for the citizens. Other cities that are considering the establishment of environmental zones and pollution reductions in road transport could benefit from similar technology."

Thomas Lammering, City of Detmold

By participating in the testing of photocatalytic materials for road surfaces the companies involved also benefitted. They increased their competence in applying innovative materials in road construction, as well as their knowledge of materials science and process engineering. A growing number of concrete suppliers in Europe and internationally are able to supply photocatalytic concrete to meet the needs of public and private construction projects.





Social economy cleaners sweep the pavement in front of the city hall.

© City of Ghent

City of Ghent, Belgium Innovation in Cleaning: Putting people and the environment first

Background and Procurement Objectives

The Cleaning and Catering Services division of the City of Ghent, Belgium employs 700 people and has an annual budget of €25 million. One of the division's functions is to clean the City's 340 premises. This encompasses nurseries, police, fire service, school and government administration buildings. 450 people are employed for 1600 hours of cleaning per working day. Ghent wanted to boost the market's capacity to deliver environmentally-friendly and socially responsible cleaning services within a new contract. Tamara Bruning, head of the division, sees innovative procurement as a way to improve quality of life for her people and to deliver better value for money.

Project Development

The City's cleaning contracts go beyond service provision and are based on a collaborative relationship with cleaning enterprises. Every new tender process in makes it possible to re-evaluate the contract and to develop new requirements. The City was interested in the introduction of probiotic cleaning products, which were understood to have a lower impact on the environment and human health than traditional cleaning products. Due to the lack of studies objectively establishing the effectiveness and benefits of these products, the need for a trial period was identified. A market analysis was carried out in order to identify companies interested in participating in such a trial.

Market Consultation and Trial

The aim of the trial was to compare probiotic cleaning products with traditional cleaning products. The City tried to engage as many enterprises as possible to join the trial. This was of importance as a control factor, large discrepancies in results between different participants would signify a need for further research. An external cleaning quality control organisation was engaged to test the products in different trial locations based on a check list. Four different probiotic cleaning products were selected to test. The products had to meet certain criteria, such as:

- The combination of bacteria in the product needed to be defined as "qualified Presumption of Safety" by EFSA (European Food Safety Association)

Probiotic cleaning was evaluated on the following criteria:

- Odour
- Visual cleaning performance
- Hygienic cleaning results

The products were tested on their performance in four different locations:

- Public toilets
- School environment
- Public administration
- Nurseries

Four enterprises participated in the trial project, which ran for a period of two months. Lab tests were carried out to measure levels of mould and bacteria against the baseline measurements in each location. The users of the cleaning products were actively involved in the project. In general the cleaning professionals were satisfied with the products. Overall, the products were found to be as effective as traditional cleaning products. Some users noted beneficial effects on the skin. Positive feedback was also received concerning odours and the user-friendliness of the products tested.

Procurement

A tender was launched in March 2013 using the open procedure. Five cleaning companies responded to the tender. The tender was divided into three lots, which were awarded to two different cleaning companies. Operators were able to respond to the authority's requirements and some went beyond the basic requirements by proposing to use innovative products with third-party sustainability certification. The contract was awarded on the basis of Most Economically Advantageous Tender (MEAT), with 10% of the available marks allocated to environmental performance. The contract also included a condition relating to the role of social economy enterprises in carrying out the cleaning services. Social economy enterprises are defined as those in which at least 80% of the employees were inactive or unemployed for at least 12 months at the moment of recruitment and/or have

no high school diploma and/or are people with disabilities. Under the contract certain tasks such as sweeping of school grounds and removal of weeds were to be carried out by such enterprises. By communicating the objectives clearly and leaving options open for suppliers to come

up with even better solutions, a good collaboration was established between the City and private and social enterprises.

Outcome and Further Applications

The new contract commenced in September 2013, with probiotic products being used initially for lavatories. The risks linked to the project were real and significant,

as the success of the products depended on various factors such as the location of users, the sort of pollution, the materials and how cleaning professionals handle the product. Probiotic cleaning products have different terms of use than traditional cleaning products and require cleaning professionals to adopt new habits. The use of probiotic cleaning products is promoted in the contract, but the contractor is free to choose its products, which leaves enough room for suppliers to propose other innovative solutions that fit within the policy objectives of the City. The award winning contractor will use probiotic products for lavatories, while other areas will be cleaned with cradle to cradle¹² certified Silver label cleaning products.

"Innovative procurement was a way for us to improve quality of life for the people involved in the delivery of our services, while achieving value for money. The public sector can also support innovative enterprises by giving them a platform for their products."

*Tamara Bruning,
Head of Cleaning and Catering Services,
City of Ghent*

Innovative Working Methods: Probiotic Cleaning

Probiotic cleaning products consist of a combination of ecological detergents, enzymes and probiotic bacteria. These can provide deep microscopic cleaning, prevention and elimination of odours and a safe microbiological environment. Intensive use of disinfectants encourages the growth of highly resistant micro-organisms, a problem which has been linked to 'superbugs' in hospitals and other locations.

Disinfectants offer a quick way to reduce the number of bacteria on a surface. But they can also result in more resistant bacteria repopulating the surface, and in some cases these are harmful. The principle of probiotic cleaning – which has not yet been subject to extensive studies – is that by encouraging the presence of safe bacteria this process can be limited.

The environmental and health impacts of cleaning products should be evaluated over their entire life-cycle, from the raw materials and production process through to the use phase and disposal or recycling of packaging. A number of third-party labels or certifications exist which can attest to the life-cycle impact of products and help to identify sustainable options.

¹² Cradle to cradle aims to design non-polluting products by tracing a material from the time it is extracted to the point at which it is recycled/reclaimed and seeks to eliminate waste, virgin resource extraction, toxic pollution and energy use. Virgin resources are resources used for the first time, their extraction processing and use requires a great deal of energy and can create pollution.





© George Koell, deenstrijke.com

Erasmus University Medical Centre, The Netherlands Efficiency, Quality and Sustainability in Healthcare – Bed washing solution

EcoQUIP

Delivering Efficiency, Quality and Sustainability in Healthcare

Background and Procurement Objectives

The Erasmus University Medical Centre in The Netherlands is responsible for providing 70,000 beds each year. The hospital has ambitious targets to reduce its carbon footprint and has committed to decrease its energy use by 20% from 2008 levels by 2020. One source of energy and water use was linked to the machine for bed cleaning, which was due to be replaced in 2013. This machine was both labour intensive and inefficient in its use of energy and water. The hospital set out to identify and procure a more effective and sustainable solution.

Project Development

As part of the European Commission funded LCB-HEALTHCARE Network (and subsequently the EcoQUIP Project) the team adopted the *Forward commitment procurement (FCP)* methodology. FCP is an innovation procurement methodology specifically designed to help manage the risks of buying innovative solutions.

Following the FCP approach, a cross-departmental project team was set up consisting of representatives from across the hospital including energy management, infection control, logistics, environmental affairs, contracts and of course procurement. An external facilitator from the Dutch organisation for Applied Scientific Knowledge (TNO) managed the process with the support of the UK Department for Business Innovation and Skills.

The team was first tasked with determining the outcome based requirement prior to undertaking a market sounding, which was launched via a *Prior Information Notice* outlining its objectives and the timelines for awarding a contract. The team also helped to identify the wider market by contacting other hospitals with similar needs.

Six other hospitals in The Netherlands expressed an interest in the outcome of the consultation. The team determined the *Total Cost of Ownership (TCO)* of the existing solution so that this could be used for comparison with proposed new approaches.

Market Consultation

The market consultation began with a short survey to confirm supply chain interest. A market meeting day held in January 2012 was attended by about 60 people, representing suppliers and the other interested healthcare organisations.

The purpose of the day was to provide the market with insight into the hospital's needs, demonstrate the commitment to innovative procurement and the potentially broader demand for a solution, facilitate partnerships and consortia-building and discuss the process. The market meeting day gave the Erasmus MC project team confidence that there was both interest and capacity in the supply chain to deliver the specified outcomes.

Procurement

In March 2012 a tender was launched using the *competitive dialogue* procedure. On the basis of the market consultation, Erasmus MC developed an innovation-friendly procurement strategy and set three award criteria for the new bed cleaning facility:

1. Total Cost of Ownership / Service
2. Carbon footprint
3. Fit with organisational strategy

"Market sounding was new to us, but gave us the opportunity to test and influence the market and highlight issues that the supply chain may not be aware of. For example, we tried completely new industrial sectors that have no track record in health care. They responded enthusiastically to our challenge!"

Jeroen Veenendaal,
Strategic Procurement Officer

This was a radical change from normal procurement practice at the hospital. By making carbon footprint an award criterion Erasmus MC sent a strong signal to the market that suppliers have an important role to play in reducing embedded carbon, both in their products and their supply chain.

Eight candidates passed the pre-qualification stage and were invited to participate in the first round of the competitive dialogue. Over the dialogue period the number of participating operators was reduced from eight to the final two who were invited to tender.

Outcome and Further Applications

The winning bid came from a Dutch SME, IMS Medical, who developed an innovative solution

based on robotics technology adapted from the automotive manufacturing sector. The contract is structured in two phases with an initial demonstration period being undertaken, part funded by both parties, to confirm the suitability of the solution within the hospital's operations.

"FCP involves being a demanding procurer, asking for what you want, not what you think you can get, and actively creating the market conditions that stimulate and enable the supply chain to deliver."

Gaynor Whytes,
LCB-HEALTHCARE and EcoQUIP
Project Coordinator, JERA Consulting



Supported by the

Innovative Technology: Fully Automated Robotic Bed Washing Unit

Innovation often involves cross fertilisation between supply chains. In this project robotic technology, developed for car production lines, has been adopted to solve the problem of bed cleaning in hospitals.

*The solution was provided by a Dutch SME that combined robot-technology from the car manufacturing industry with a patented steam nozzle. **The calculated reduction in Total Cost of Ownership is 28% and the calculated reduction in operational CO₂ is 65%.***

Robotics is widely used in the automotive and other industries, with an increasing number of applications in the world of healthcare.





Rawicz County Hospital, Poland Bio-based fibre boosts uniform performance

EcoQUIP

Delivering Efficiency, Quality and Sustainability in Healthcare

Background and Procurement Objectives

Rawicz County Hospital in western Poland serves a population of 69,000 and has 200 beds. The hospital board faced a major challenge: the need to secure funding for, and complete a programme of refurbishment by the end of 2016 in order to meet legal infrastructure standards and patient expectations for a high quality clinical environment. Over the past decade Rawicz Hospital has carried out remedial and refurbishment works to some

parts of the site to improve energy efficiency, but with mixed outcomes. As a member of the LCB-HEALTHCARE project, Rawicz Hospital had the opportunity to make an innovative purchase to reduce its carbon footprint.

The hospital's CEO recognised the relatively high risk associated with innovative building refurbishment and identified the procurement of new staff uniforms as a suitable pilot project to test new approaches. The previous generation of uniforms had not delivered against user

Innovative Technology: Bio-based textiles from eucalyptus

A wide range of bio-based products are commercially available, from lubricants to pharmaceuticals and construction materials. The term "bio-based" means that the products are made from renewable raw materials such as plants and trees. It excludes food, traditional paper and wood products, and bio-mass as an energy source. Bio-based products can replace many fossil-based products, which have a larger ecological footprint in terms of CO₂, waste, energy and water.

The uniforms purchased by Rawicz hospital contain a fibre made from eucalyptus wood. The eucalyptus is certified as originating from sustainable forest plantations and the production process requires only 1% of the water needed for conventional cotton. The resulting textile is resilient and comfortable to wear.

The European Commission has entered into a public-private partnership with 50+ companies to accelerate the commercialisation of bio-based products in Europe.

expectations and the costs and environmental impact associated with their purchase and laundering had not been taken into account.

Project Development

The European Commission funded LCB-HEALTHCARE network allowed Rawicz Hospital to develop its innovation procurement approach and learn from other network participants. Peer learning visits to LCB partners at the Erasmus University Medical Centre (The Netherlands) and Nottingham University Hospitals and Rotherham Hospital (UK) allowed staff to overcome their concerns about adopting a new approach, understand the benefits of PPI techniques, and make direct contact with supply chain representatives. In particular, the use of *outcome-based specifications* and *whole-life costing* was new to the procurement team at Rawicz.

Needs Assessment and Building Demand

The Rawicz project team began by consulting the nurses who would wear the new uniforms. Staff were asked what they liked or didn't like about their uniforms and to suggest improvements. This proved to be an empowering and novel experience for staff. The user consultation gave the project team some clear, well-defined parameters that formed the basis of the outcome based specification. The new uniforms had to be functional, attractive, user friendly, easy to clean, durable and cost effective.

The project team recognised that creating a wider market demand would encourage a positive response from suppliers, and contacted other hospitals to explain the project and gauge their interest. Twelve hospitals employing over 13,000 people declared that they were interested in learning the results of the Rawicz hospital pilot project. A *Prior Information Notice* was published in the Official Journal explaining the hospitals' needs and inviting potential suppliers to an open meeting. The project was also publicised at national and international level.

"It is anticipated that the new staff uniforms will cost 10-15% more but deliver a whole life cost saving of more than 20%, and, importantly, are preferred by our nurses. Finding an innovative fabric for our uniforms was a big success. And, against all appearances, it was not actually that difficult. You just have to be clear about the outcomes you need by talking to the end users and then let suppliers know."

*Renata Pazoła,
Procurement Officer, Rawicz Hospital*

Procurement

A *technical dialogue* procedure was launched to gather market knowledge in advance of the tender. Hospital staff were given the opportunity to test the offering of three companies over a period of three months. This phase identified a number of advantages of the fabric proposed for the new uniforms by one of the suppliers: it was resilient during the washing process, quicker to dry, less prone to staining and received general approval for quality and functionality. The testing phase also included discussions with the suppliers, which resulted in changes to the style and cut of the uniform. For the first time in the hospital's procurement, award criteria were used to assess factors other than purchase price. Whole-life costs were calculated and the environmental performance of the offered textiles was also taken into consideration.

Outcome and Further Applications

In October 2012 Rawicz signed an initial contract with a local company that offered to supply clothing made of a mixture of 50% polyester and 50% Tencel (a eucalyptus based product). The winning tender was chosen on the basis of best whole life cost, and has demonstrated considerable savings arising from

reduced laundering costs and reduced turnover of uniforms. Approximately 80% of the costs associated with uniforms arise not from the initial purchase price but during the use phase - over a six year period an estimated 18% saving will be realised. Suppliers involved in the process also provided positive feedback on the technical dialogue process used by the hospital, which gave them an opportunity to differentiate their products on factors other than price.

"It is amazing what positive feedback we got from other healthcare units about the innovative procurement of hospital uniforms. Twelve other hospitals have declared they want to learn from us and use the know-how we developed in their own procurement scheme."

*Marcin Kautsch,
LCB-Healthcare Pilot Project Coordinator,
Poland*



Supported by the

Further resources

Public Procurement of Innovation Platform: www.innovation-procurement.org

Resources on PPI including news and events, documents, tools, case studies, details of projects and initiatives, and reports.

The Procurement Forum: www.procurement-forum.eu

A space for procurers and related stakeholders to discuss, share and connect. Documents, images and videos can be uploaded and questions or comments posted. Users can also create groups to coordinate projects.

European Commission, Directorate General for the Internal Market and Services:

ec.europa.eu/internal_market/publicprocurement

Rules, thresholds, studies and communications on specific aspects of public procurement under the EU directives. Links to information on environmental and social considerations.

European Commission, Directorate General for Enterprise and Industry:

ec.europa.eu/enterprise/policies/innovation/policy/public-procurement

Projects, funding opportunities, studies and events on innovative public procurement and other industrial innovation topics. Sectoral resources (e.g. construction, healthcare etc.)

Horizon 2020: ec.europa.eu/research/horizon2020

Background, questions and answers and funding calls for the EU's new programme for research and development and innovation (2014-2020).

Pre-commercial procurement: www.cordis.europa.eu/fp7/ict/pcp

Key documents, figures, policy framework, projects and Member State initiatives on pre-commercial procurement.

ICLEI - Local Governments for Sustainability: www.sustainable-procurement.org

A one-stop shop for resources on sustainable public procurement (e.g. criteria, guidance.)

IWT Flemish Innovation Agency: www.procurementofinnovation.eu / www.iwt.be

Studies and projects on PPI and Pre-commercial Procurement (Dutch/English). Key publication: Exploring public procurement of innovation as a strategic innovation policy mix instrument.

PIANOO Dutch Public Procurement Expertise Centre: www.pianoo.nl/about-pianoo

Fact sheets, practical lessons and project experience on innovative and sustainable public procurement (Dutch/English).

REC - Regional Environmental Center for Central and Eastern Europe: www.rec.org

Resources on sustainability topics, projects and funding opportunities for Eastern Europe.

SMART-SPP - Innovation through Sustainable Procurement: www.smart-spp.eu

Guidance, case studies, video and a life-cycle costing tool to support innovation and energy-efficiency in procurement.



Coordinator:

Partners:



REGIONAL ENVIRONMENTAL CENTER



agency for Innovation
by Science and Technology



Contact

ICLEI – Local Governments for Sustainability
European Secretariat
Leopoldring 3, 79098 Freiburg, Germany

Tel: +49-761 / 3 68 92-0
E-mail: info@innovation-procurement.org
Design: Rebekka Dold, Freiburg | www.rebekkadold.de
Publisher: Procurement of Innovation Platform,
ICLEI - Local Governments for Sustainability
(Project coordinator)



Supported by the

Disclaimer:
Neither the European Commission nor any person acting on its behalf may be held responsible for the use to which information contained in this publication may be put, nor for any errors which may appear despite careful preparation and checking. This publication does not necessarily reflect the view of the position of the European Commission.