Public Procurement for Innovation in Small European Countries

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A report from the ERAPRISM: (Policies for Research and Innovation in Small Member States to Advance the European Research Area) OMC-Net Project

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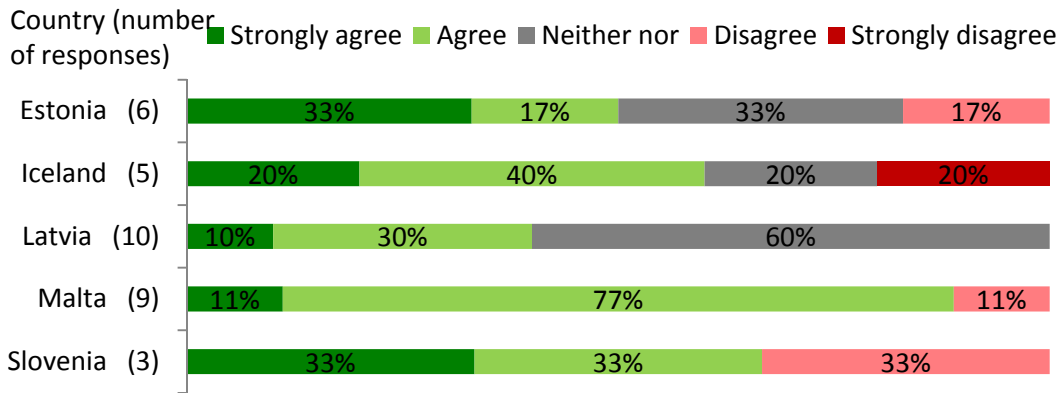

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1 Introduction

The potential for the use of public procurement as an instrument to stimulate innovation has received growing emphasis in Europe in recent years. Representing 16.3% of European GDP, public procurement represents a key source of demand for firms in sectors such as construction, health care and transport, and a major area in which governments are striving to improve effectiveness in their delivery of public services.

This report seeks to explore whether the opportunity to use procurement to drive innovation is one that is available to small countries in Europe, nations defined by the ERAPRISM project as those with a population of less than 2.5 million[1]. After reviewing the general situation for procurement, the report examines capacity and the extent to which frameworks linking the activity to innovation are emerging. A survey of ministries and five case-studies are used to explore in more detail the ways in which small countries could take advantage of this instrument and the barriers that need to be overcome. The conclusions address the possibilities for joint action to advance this agenda.

1.1 Procurement to drive innovation

The official EU definition of public procurement is:

"The process used by governments, regional and local public authorities or bodies governed by public law (financed, supervised or managed for more than 50% by public authorities) to obtain goods and services [including construction] with taxpayer money."[2]

Public procurement is regulated by EU Directives embodied in national law. These are designed to foster the Single Market and competition. The directives do not cover R&D support which is separately regulated under State Aid legislation. Procurement of R&D (up to the demonstrator level) is sometimes called Pre-Commercial Procurement.

This report is concerned with what is called Innovation Procurement, Innovative Procurement or Public Technology Procurement. All of these categories are intended to use public procurement of innovative goods and services relies to induce innovation by specifying levels of performance or functionality that are not achievable with 'off-the-shelf' solutions and hence require an innovation to meet the demand. The innovation may also require R&D.

Historically, procurement was seen as a significant instrument for innovation policy, but it virtually disappeared before the present cycle of interest. Until recently, more stringent competition regulations across Europe were seen (outside the exempted defence sector) as preventing the necessary close contact between customer and potential supplier that is required for innovative procurement to happen.

Today, the situation has eased with the introduction of new EU procurement directives that go some way towards restoring the possibility for innovation. In particular, they allow:

- Possibilities for technical and competitive dialogues between purchaser and supplier, a necessary condition if each side is to understand the other;

[1] The ERAPRISM small countries taking part in this particular investigation are Estonia, Iceland, Latvia, Malta and Slovenia.

[2] See for example Factsheet – The Lead Market Initiative http://ec.europa.eu/enterprise/policies/innovation/policy/lead-market-initiative/files/ppn_factsheet_en.pdf

- The facility to specify requirements in terms of functional performance or standards, which allows suppliers to produce any configuration of technology they feel can meet the need;
- Options to permit variants, thus opening up bids to alternative ideas; and
- Conditions that allow transfer of intellectual property to the suppliers, and hence allow them to exploit their innovations in wider markets.

The purchasing cycle normally begins with a commissioning phase –a definition of this is:

"Commissioning means securing the services that most appropriately address the needs and wishes of the individual service user, making use of market intelligence and research, and planning accordingly."[3]

Procurement professionals are responsible for the actual purchase, normally through to issuing of the contract. Depending on the circumstances commissioning and procurement may overlap to different degrees.

Innovative procurement should not be confused with innovation in procurement – that is new ways of carrying out the public procurement process.[4] This includes e-procurement, the use of electronic portals and submission, and new procedures enabled by the directives such as competitive dialogue (a procedure for use in the award of complex contracts where there is a need for the contracting authority to discuss all aspects of the proposed contract with candidates). However, such innovative approaches to the procurement process may facilitate the use of procurement as an instrument to foster innovation in goods or services.

Also not covered in this report is procurement of R&D, often known as pre-commercial procurement. This underpins SBIR type programmes and operates under State Aid rules rather than procurement directives.

Procurement is increasingly used to pursue (or try to pursue) other policy objectives. The most common is Green Procurement or Eco-procurement – using purchasing to accelerate the development and take up of environmentally-friendly goods and services. This is potentially complementary to procurement of innovation.

1.2 Innovation Procurement and European Policy

At a European Union level, the initial policy emphasis was on the link between procurement and perceived under investment in R&D by business. Following the work of an expert group[5], procurement for innovation was incorporated as an element of the European Commission's Research Investment Action Plan[6] and led to a series of guidelines being prepared.[7] In November 2004 the "Kok Report", in assessing progress on the Lisbon strategy, recognised that procurement could be used to provide pioneer markets for new research and innovation-intensive products. A strong impetus came from the Aho Group report *Creating*

[3] Institute of Commissioning Professionals http://www.iocp.co.uk/
[4] Uyarra, E; Flanagan, K., Understanding the Innovation Impacts of Public Procurement. *European Planning Studies*, Jan2010, Vol. 18 Issue 1, p123-143
[5] Georghiou et al, Raising EU R&D Intensity: Improving the Effectiveness of Public Support Mechanisms for Private Sector Research and Development: Direct Measures 2003, EUR 20716.
[6] Commission of the European Communities, Research Investment Action Plan, 2003.
[7] Actions included an expert group report: Wilkinson R. et al, Public procurement for research and innovation, DG Research, September 2005, EUR 21793 and a study leading to a Handbook on raising the technological and innovative intensity of publicly procured goods and services.

an Innovative Europe which placed demand-side innovation policy as a central plank of its recommendations.[8] Following endorsements by the European Council and proposals by the Competitiveness Council, a specific response was developed, known as the Lead Market Initiative (LMI) for Europe. This was adopted by the European Commission in December 2007 following the EU's 2006 broad based Innovation Strategy. The LMI is a combination of different policies, mainly public procurement, standards, other legislation and complementary actions.

A new impetus has come in the EU 2020 policy document and specifically from the Innovation Union Flagship Initiative.[9] In a key paragraph, the report states:

Public procurement accounts for some 17% of the EU's GDP. It represents an important market, particularly in areas such as health, transport and energy. So, Europe has an enormous and overlooked opportunity to spur innovation using procurement. Moreover, public procurement of innovative products and services is vital for improving the quality and efficiency of public services at a time of budget constraints. Yet little public procurement in Europe is aimed at innovation, despite the opportunities under the EU procurement directives. This is due to a range of factors, such as: incentives that favour low-risk solutions; a lack of knowledge and capabilities regarding successful procurement of new technologies and innovations; and a disconnection between public procurement and policy objectives. This can be better addressed through guidance and sharing of best practice, notably in the area of green public procurement. Moreover, because public procurement markets remain fragmented across Europe, procurements often fail to achieve the critical scale needed to trigger innovative investments.[p.16]

It calls for Member States and regions to set aside, from 2011, dedicated budgets for pre-commercial procurements and public procurements of innovative products and services. The aim is to create procurement markets rivalling those of the USA across the EU starting from at least €10 billion a year for innovations that improve the efficiency and quality of public services and addressing major societal challenges.

The Commission proposes to "provide guidance and set up a (financial) support mechanism to help contracting authorities to implement these procurements in a non-discriminatory and open manner, to pool demand, to draw up common specifications, and to promote SME access."

In the context of this initiative it is timely to assess the specific situation of small countries.

1.3 Small country challenges

Early consideration within ERAPRISM of the situation of small countries in respect of public procurement and innovation produced a number of hypotheses to be explored by the project. The first group of hypotheses concerned challenges in the categories of markets, suppliers and capacity. Among these was the concern that the specific needs of small

[8] Aho, E., Cornu, J., Georghiou, L. (rapporteur) and Subira, A.. (2006), Creating an Innovative Europe. Report of the Independent Expert Group on R&D and Innovation appointed following the Hampton Court Summit. January 2006.

[9] European Commission, Brussels, 6.10.2010, COM(2010) 546 final, Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and the Committee of the Regions, Europe 2020 Flagship Initiative, Innovation Union

countries may not reflect the needs of export markets which demand a larger scale. Conversely there may be a tendency to use goods and services developed elsewhere which are not appropriate for those needs.

Turning to the supply side, the supplier base could be too small and a low level of competition in the home market may reduce the incentive to innovate. Moreover, local firms, which are mainly family SMEs, may lack resources to innovate or cooperate. Previously protected sectors may be slow to adapt or find it hard to attract and keep key personnel. Purchasers in some cases may be locked-in to networks of suppliers – local or foreign.

In terms of skills needs, there may be a scarcity of procurement professionals in general and those with skills to manage innovation in particular.

In the broader market environment small countries could be more prone to an adversarial culture with low levels of trust. High dependency among suppliers may lead to frequent legal challenges and increase risk-aversion among procurers.

1.4 Small country opportunities

The challenges for small countries may be offset by potential advantages and mitigating factors in the same three categories. For example, their specific needs may create niche markets that could be exploited in other settings, for example small scale energy systems or innovative waste water recycling processes.

Smaller more transparent administrations may be more flexible and network governance may make it easier to bundle demand to a scale that makes it worthwhile for suppliers to innovate. Long terms suppliers if well managed could build up trust and understanding that could favour innovation. While risk finance is scarce, low costs could create niches for self or family financed firms. There could be specialisation advantages through concentration on one sector. Structural funds could provide a specific opportunity.

1.5 Methodology

To investigate these issues the ERAPRISM team undertook a series of linked investigations:

- A **review of experience** in large partner countries, particularly the UK and Sweden which have considerable experience in this policy domain;
- Preparation by partners of **country profiles** that describe key features of public procurement and its potential for stimulating innovation. To find the relevant information, partners consulted public documents, and approached central procuring agencies and supporting agencies and compiled key statistics;
- A **survey** on the use of public procurement to stimulate innovation distributed to ministries and civic authorities in the participating countries. This was a purposive sample which achieved good coverage across government with a total of 33 useable responses. This survey also included a series of questions specifically designed to test hypotheses deriving from the challenges and opportunities discussed in Sections 1.3 and 1.4 above.
- **Case-studies** of innovation procurement prepared according to a common template. In all six case studies were prepared.

2 Public Procurement in Small European countries

The small countries studied vary in the proportion of GDP that they spend on public procurement but in general are below the EU average of 16-17% (see Table 1). In terms of a five-year trend Estonia reported a substantial increase with the gross value rising 49% in cash terms from 15,581 MEEK in 2005 to 23, 229 MEEK in 2009.[10] Slovenia estimated an increase of 2% in that period but changes in data collection make comparison difficult. Latvia reported a fluctuating figure, rising from 10.8% in 2005 to 12.9% in 2007 and back to 10.3% in 2008. Fluctuation was also evident in Estonia. Malta and Iceland reported stable figures, with a slight decrease in Iceland post-recession. It is possible that the figures will be further affected by the economic climate in the most recent statistics. Fluctuation is more likely *a priori* in small economies as lumpy capital items pass through the system.

Table 1 Estimated Annual spend on public procurement as percentage of GDP

Country	% GDP
Estonia	10.8% (2009)
Iceland	13-16% est.
Latvia	10.3% (2008)
Malta	16-18% est.
Slovenia	12.98% (2007)

Source: ERAPRISM Survey 2010

These figures are substantially in excess of those shown in the official statistics collected by Eurostat (Table 2) but the latter include only those openly advertised via the Official Journal of the European Communities. It may be assumed that the remainder are below the threshold for mandatory publication. The small countries are distributed above and below the average for the EU27. Malta and Luxembourg are below this level while the remaining countries are well above it, with the figure for Latvia apparently matching approximately total procurement.

Table 2 Value of public procurement which is openly advertised, as a percentage of GDP[11]

Country	2007	2008
EU27	3.04	3.14
Estonia	7.22	8
Cyprus	5.06	4
Latvia	12.34	9.59
Luxembourg	1.2	1.3
Malta	2.03	1.23
Slovenia	6.55	5.12

Source: Eurostat

[10] The 2009 figure was 45,804 MEEK but this included 23,229 in health service contracts not previously in the figures.

[11] Data on public procurement are based on information contained in the calls for competition and contract award notices submitted for publication in the Official Journal of the European Communities (the S series). The nominator is the value of public procurement, which is openly advertised. For each of the sectors - works, supplies and services - the number of calls for competition published is multiplied by an average based, in general, on all the prices provided in the contract award notices published in the Official Journal during the relevant year. The denominator is GDP, gross domestic product.

Table 3 Top 10 CPV divisions in terms of public procurement expenditures

	Estonia (2008)		Latvia (2008)		Slovenia (2007)	
	CPV code[12] and division	%	CPV division[13]	%	CPV code and division	%
1	45. Construction work	40.2	Construction	33.2	45. Construction work	46.87
2	60. Land transport	12.2	Finances, insurance	20.1	24. Chemical products	7.44
3	85. Health & Social work	7.40	Medicine	11.4	15. Food products	4.52
4	33. Medicine	4.89	Engineering	7.7	93. Miscellaneous services	3.79
5	09. Energy	4.32	Transport	5.0	85. Health & Social work	3.78
6	34. Transport equipment	3.43	IT	4.4	30. Office machinery	3.54
7	74. Engineering etc.	3.0	Waste	2.2	74. Engineering etc.	3.07
8	79. Business services	2.85	Other	16.0	33. Medicine	2.94
9	77. Agriculture etc.	2.82			75. Administration etc.	2.59
10	66. Financial services	2.34			32. Telecommunication etc.	2.33

Source: ERAPRISM Survey 2010

Three countries were able to provide breakdowns of their procurement expenditure across Common Procurement Vocabulary (CPV) categories. Table 3 shows the breakdown of procurement spend across the top ten categories for Estonia, Latvia and Slovenia. Apart from the dominant position of the construction sector, notable features are a general spread across categories and the large spend on chemical products in Slovenia.

Looking at the distribution across levels of government (Table 4), the position is less clear with only Latvia clearly capturing the distinction, while other countries have large proportions of procurement categorised differently.

[12] CPV codes of this table are based on the CPV classification provided by http://www.cpvclassification.com/

[13] Data provided by Latvia only indicated their 'top 7' divisions of public procurement. The names of their divisions are based on CPV classification, but the names are too brief to be distinguished clearly in terms of CPV codes. E.g. 'Transport', it could be No.35 'Transport equipment' or No.60~63 various kinds of transport services. In this case, original names provided by Latvia are used in this table.

Table 4 Public procurement expenditure across levels of governments

	Estonia (2009)	Iceland (2009)	Latvia (2008)
Total value of procurements	23 229 million EEK (≈1.485 billion EUR)	188 billion ISK (≈728 million EUR)	993.9 million LVL (≈1.4 billion EUR)
National government procurements	**29.2%** 6773 million EEK (≈4323 million EUR)	**49.2%** 92.5 billion ISK (≈358 million EUR)	**51.9%** 515.4 million LVL (≈726 million EUR)
Local government procurements	**10.6%** 2470 million EEK (≈158 million EUR)	**33.9%** 63.8 billion ISK (≈247 million EUR)	**48.1%** 478.5 million LVL (≈674 million EUR)
Other public procurements		**16.9%** 31.7 billion ISK (≈123 million EUR) for Social Services	

Table 5 Procurement expenditure across ministries

Estonia (2008)	%
Ministry of the Interior	37.3
Ministry of Justice	17.7
Ministry of Social Affairs	13.8
Ministry of Defence	9.2
Ministry of Environment	8.8
Ministry of Foreign Affairs	6.8
Ministry of Finance	2.4
Ministry of Agriculture	1.6
Ministry of Education & Research	1.3
Ministry of Economic Affairs & Communications	0.9
Ministry of Culture	0.2

Latvia (2008)	%
Ministry of Transport	23.8
Ministry of Finance	15.8
Ministry of Health	15.2
Ministry of Agriculture	13
Ministry of Social services	10.5
Ministry of Education & Culture	11.9

Table 5 shows procurement expenditure across ministries in Estonia and Latvia. The very different distributions indicate that common ground is not easily visible at this level of aggregation. It should be noted that a shared procurement requirement may exist between different ministries across the countries.

Two general conclusions may be drawn from the analyses in this section. The first is that data are rather limited and governments need more systematic knowledge about their procurement activities (for example by functional categories, types of procurement tender processes, or of scope of innovation in purchasing). Such deficiencies of data are not

confined to small countries. The second conclusion from the data available is that the source and even the sector of procurement are different between small countries and hence that the foundation for joint activities will need to based on information systems that identify truly common needs.

3 Organizations, Institutions and Cooperation

3.1 Organisations and Institutions

Responsibilities and configurations

The small countries surveyed have in place different organisational structures to carry out public procurement functions. Most at present have procurement structures that are centralised, in common with other EU countries.

The majority of countries have a central procurement body, albeit with different responsibilities, functions and tasks. The central bodies are generally subordinated to the Ministry of Finance or the Ministry of Economy which are usually politically responsible for procurement. Central procurement institutions generally undertake core policy and legislative functions (although in some cases the latter lie elsewhere). There is a range of additional roles that are performed to different degrees by the central bodies, such as national and international co-ordination, administrative and monitoring tasks, publication and information and professionalization capacity building. In certain instances a central body may also act as a central purchasing unit for some contracting authorities at local, regional and national levels and for utilities. This is the case of Malta and Iceland for some of large scale purchasing activities (see below)

Slovenia has a semi-centralised structure, and the main public procurement institution is the Department for Public Procurement, Public Utilities and Concessions (DPPUC), part of the Public Property Directorate of the Ministry of Finance (MoF). The DPPUC is not the only public institution in charge of procurement, since the Ministries for Public Administration and for Health also cover certain tasks (OECD, 2007). The DPPUC performs legislative and policy functions, as well as monitoring, reporting advisory, and standard-setting roles. In Estonia public procurement is within the responsibility of the Ministry of Finance (public procurement policy and legislation), and the Public Procurement Office (PPO), a subsidiary of the ministry, tasked with advisory, supervisory, communication, evaluation and monitory functions on procurement. In Latvia the main institutions are the Procurement Monitoring Bureau (PMB) and the Ministry of Finance, responsible of drafting legislation. The PMB is charged with monitoring, standard setting information, assistance, and international collaboration. Similarly, in Malta, the Department of Contracts, within the purview of the Ministry of Finance, the Economy and Investment (MFEI), is the central department responsible for public procurement. In Iceland, the State Trading Centre (STC) provides advice, information and assistance, but also coordinates procurement through framework agreement, and handles some of the large purchasing itself.

Table 15 below maps the diversity of structures in our countries within the OECD countries more generally. This shows that most small countries (except for Slovenia and Luxembourg) have a centralised structure, while most of the large countries have a semi-centralised structure. Only two countries have an entirely de-centralised structure, both of them medium sized.

Table 6 Features of the Public Procurement Structures

Centralised Structure	Semi-centralised Structure	Decentralised Structure
Estonia	*Slovenia*	Finland
Latvia	Austria	Portugal
Malta	France	
Iceland	Germany	
Bulgaria	Ireland	
Cyprus	Italy	
Czech Republic	Luxembourg	
Hungary	Sweden	
Lithuania	United Kingdom	
Poland		
Romania		
Slovak Republic		

Source: adapted from OECD (2007)[14]

Procedures and coordination

There are generally no standardised procedures for procurement, particularly in more decentralised settings such as Slovenia. Generally individual ministries are responsible for procurement procedures in their particular institution and oversee that it follows state law and regulations.

In Latvia public procurement is typically organised around special divisions responsible for procurement inside legal or administrative departments. They usually consist of field experts and representatives of the procurement division, led by the Departmental Director of Department. Their decisions usually require approval by State Secretary of the Ministry or Director of the Agency. In Slovenia, contracting authorities that employ a significant number of employees or carry out a significant number of public award procedures tend to have a specialised purchasing department where requests for purchase are sent. However most contracting authorities are fairly small and do not have specialised procurement officers.

In Malta the procurement function generally forms part of the administration or accounts section. Procurement needs are channelled through the head of the unit to the Director Administration or Finance and, once approved, they are finalised in line with the procurement legislation. Departments are also encouraged to fill up the procurement call for tender documents following templates provided by the Department of Contracts, which are then submitted to the Department of Contracts for checking and corrections.

In other countries procedures appear to be more prescriptive. For instance in Iceland Government Procurement Policy requires state institutions to appoint (or hire) a special procurement person within the individual institutions that handles and oversees all procurement.

In most cases specific arrangements are in place for larger procurement projects, with stronger senior involvement and requiring approval by the Ministry of Finance. In Iceland,

[14] OECD (2007) EU-OECD Support for Improvement in Governance and Management (SIGMA) initiative: Central Public Procurement Structures and Capacity in Members States of the European Union. Sigma Paper No. 40. GOV/SIGMA(2007)4

ministries, state institutions and municipalities have the authority to purchase products up to a certain value without any intervention from the State Trading Centre. However purchases that exceed these limits must be contracted out via the State Trading Centre.

Many countries have a centralised procurement system, with central bodies as described above. However there are no single central purchasing organisations. Most countries do not have organisations purchasing centrally, as found for instance in UK or France. However in certain countries, such as Malta, central procurement bodies are in charge of some (generally large value) purchasing. In Malta procurement is centralised for contracting authorities that fall within the competence of the Department of Contracts and where procurement exceeds €47,000.

A degree of central purchasing also takes place in other countries, led by selected ministries. There is central purchasing in Latvia for items such as vehicles but also health care (medical equipment, some goods for hospitals), which is procured centrally by the Latvian Ministry for Heath. In Slovenia the Ministry of Public Administration carries out procedures of joint public procurement for the whole central government.

Joint procurement across ministries is not common practice across all countries. However joint procurement, when it happens, tends to be focused on standardised and generic goods or services. less so for procurement for innovations. However there are recent instances of large joint procurement projects, for instance big common building projects such as sewage systems (Slovenia), centrally led improvement processes such as the procurement of corporate systems (Malta), and complex procurement such as transport and IT (Estonia).

Certain countries, such as Iceland, make extensive use of framework contracts as a form of coordination in procurement. Although there is no clear information about their uptake in Iceland, they are believed to be widely used.

3.2 International Cooperation

One means to learn and to improve procurement practice is international cooperation. The survey has unearthed a set of international activities. There are not many examples of international joint procurement cases, except for the case of the Nordic countries, where for instance Estonia has collaborated with Finland and Sweden in joint procurement projects, and Iceland has collaborated with Norway on helicopter purchasing.

Other, 'softer', types of international procurement collaboration are more common, and have been significant for new EU member states such as Slovenia, Estonia and Malta. During the period of accession to the European Union, these countries participated in a number of collaboration activities and twinning projects in the field of public procurement, which allowed the sharing of good practice as well as training opportunities. Respondents in Tallinn (Estonia) mentioned that contacts and networks exist in certain procurement areas such as green procurement. Malta noted the benefits of boosting international knowledge transfer on desalination.

More informally, procurers in many countries maintain international contacts between procurement specialists at personal level, with regular contacts to determine the best practices for public procurement.

In Iceland, the recession has implied that the previously strong international collaboration (within the European Economic Agreement, European Public Procurement Network (PPN) and networks of Nordic countries) has diminished.

When asked about the benefits of international collaboration, most departments in the five countries expressed a positive attitude to collaborate with ministries or agencies from other countries with similar needs. The main benefits reported by the survey respondents are (in order of importance):

- Better value for money and lower running costs, along with a greater selection of products and services.
- Access to expertise which may not be available in the particular country
- Potential to boost market growth. Countries such as Iceland are very depended on foreign markets and would benefit from increased procurement ability with the cooperation of foreign institutions.
- More open and competitive markets
- Support innovation and innovative forms of procurement

However, some respondents, for instance in Estonia and Iceland, suggested that collaboration should be deepened at the national level, before attempting greater international collaboration.

3.3 National versus international suppliers

Procurement in our five countries is highly reliant on local suppliers, with a small participation of international players, with ratios of about 90% local and 10% international suppliers (higher for Estonia and Latvia, lower for Slovenia and Malta). It is important to consider that many international companies may have a branch office in the country. Departments in Estonia noted a lack of information about possible international suppliers and that they would welcome greater competition with international suppliers.

Naturally the balance of local vis-à-vis international suppliers depends on the specific procurement and the type of goods and services being procured. For instance, in the case of Iceland, some departments noted that the balance varies strongly between products and services. While the ratio is up to 90% foreign suppliers and 10% domestic for products (due to low domestic supply), for services the opposite is true. In relation to the latter, some respondents noted that public procurement in Iceland has had a tendency to favour domestic suppliers over foreign ones.

In Malta major contracts or contracts for particular areas that rely on external expertise such as IT are normally sourced from abroad. This implies that while in general the majority of suppliers are local; from a value perspective the balance between local and foreign suppliers may be largely biased in favour of foreign suppliers.

4 Capacity

There are generally no formal schemes being carried out to professionalize the procurement function (university programmes, training courses, professional networks, etc) in the countries in question. For staff involved in procurement across the civil service, training is most of the time an 'on-the-job affair', rather than attained through formal qualifications.

Generally training is provided to procurement officers within departments through training programs, with the collaboration of the central procurement body. In Iceland, training is held by the STC in the form of several short-term training courses throughout the year.

No formal university training in procurement has been reported, apart from some optional university courses (Estonia) or short specialisation courses (Iceland). However some countries such as Malta are starting to realise the importance of professionalization, particularly in government departments, e.g. health, where procurement is seen as most strategic. This includes short training courses abroad for some officials. In Slovenia, as a result of recent regulatory changes[15], it is envisaged that an expert exam on public procurement will be set up, which procurement officers will be mandated to undertake.

The survey of ministries reveals different attitudes in relation to whether procurers have sufficient commercial/technological skills to understand the possibilities of innovation in the marketplace. In general there is a perception of a relative paucity of skills and expertise and a significant room for improvement in developing those.

Some countries such as Slovenia perceive a lack of sufficient commercial and technological knowledge and skills to prepare quality tender documentation, let alone include innovative aspects into tender procedures. This is seen as a barrier particularly for green, pre-commercial and innovative procurement.

However, within individual countries attitudes tend to vary in relation to the type and complexity of products and services being procured. For instance in certain countries (Iceland, Estonia), large departments and departments procuring complex products such as energy solutions or in the area of health, do not perceive a significant shortage of capabilities. In some cases (e.g. in Tallinn, Estonia) special arrangements have been introduced for complicated procurements, in which hired project leaders interact with specialists from other countries.

Finally, it appears that perceptions on procurement skills and expertise are also a product of the scale and complexity of procurement besides national settings. The paucity of skills is especially true in small organisations, such as small municipalities, which report a less than desirable set of commercial and technological skills to exploit innovation.

[15] Amendments of the Public Procurement Act (Official Gazette no. 19/10) and Public Procurement in Water Management, Energy, Transport and Postal Services Area Act (Official Gazette no. 19/10)

5 Innovation Procurement

In this chapter we assess the extent to which innovation is a part of the procurement agenda in the countries addressed. This was explored by means of assessing the content of policy documents and guidelines at a central level and then using the wider survey of ministries and local authorities to assess the extent of innovation procurement practice and needs.

5.1 Major documents/ policy guidelines at country level

Three questions were asked to gain general information about policy documents/guidelines for innovation procurement in these countries. Answers are summarized in Table 7.

- Question 1: Is procurement for innovation (or demand for innovation more generally) mentioned in any documents on research and innovation policy?
- Question 2: Are there any guidelines to promote innovation in public procurement? Have there been any recent changes of significance?
- Question 3: Is green procurement an issue within public procurement?

Table 7 Major documents/policy guidelines regarding procurement for innovation

	1. Procurement mentioned in R&I Policy Documents?	2. Guidelines available?	3. Is green procurement an issue?
Estonia	Yes, *The Estonian Research and Development and Innovation Strategy for 2007-2013*	No.	Yes, coordinated by the Ministry of the Environment.
Iceland	Yes, *Article 1 of the state law on procurement (84/2007); Science & Technology Policy for the years 2006-2009; 'Innovative public procurement' report in 2006.*	Few suggestions from local documents, using EU guidelines.	Yes, stipulated by *The Law on Public Procurement (84/2007)* and coordinated by the Ministry of Finance and the Ministry of Environment.
Latvia	No.	No.	Yes, at the starting point to use green procurement.
Malta	Yes, *MCST National Strategic Plan for Research and Innovation: 2007-2010;* two themed workshops.	No.	Yes, a green procurement network was commenced in 2006.
Slovenia	No explicit reference.	No.	Yes, *the National Action Plan for Green Public Procurement 2009-2012* was adopted in May 2010.

5.1.1 Public procurement for innovation in the context of research and innovation policy

According to the survey results, three of the five countries (Estonia, Iceland and Malta) have explicitly announced the use of public procurement as a policy tool to stimulate innovation, but none of them has developed local guidelines to implement this policy.

The respondent from Iceland pointed out that 'Since state law on procurement does not stipulate or provide guidance on how these policy goals are to be implemented, institutional directors have considerable leeway in the matter…the Science and Technology Policy Council make few suggestions on how public institutions should act in order to promote public procurement...On the other hand, there seems to be a rising will among the ministries to use EU guidelines in the matter'.

The situation of each country is elaborated in following paragraphs.

ESTONIA:

The KNOWLEDGE-BASED ESTONIA, i.e. the Estonian Research and Development and Innovation Strategy for 2007-2013, pays attention to the possible role of public procurement in supporting innovation. In the section "Increasing the role of the public sector in valuing the knowledge-based approach" there is following text:

" … In developing an innovative economy the state must be seen as a role model and a competent innovation consumer, whose procurements significantly emphasise innovativeness, quality and good design. …some single projects are not sufficient to build knowledge-based Estonia in a situation where one of the main selection criterions in public procurements is to spend less money, which may cause setbacks in quality and innovativeness. Therefore, in order to strengthen the state's role as a catalyst, the decision criteria applied in public procurements have to be more diversified and the participation of such enterprises in public procurements, which offer innovative products and services, should be supported. …"

However, this aspect of the Strategy has not been realised in legal acts and the level of innovation is not a selection criterion for public procurement.

ICELAND:

Article 1 of the State Law on Procurement of Iceland (84/2007) says that one of the main goals of procurement policy is to enhance research and development. While the word "innovation" is not mentioned explicitly, there are several references to research and development. In short, public procurers are bound by law to use public procurement as a tool to enhance and encourage innovation in Iceland.

According to the Science & Technology Policy (promoted by The Science & Technology Policy Council) for the years 2006-2009, public institutions are greatly encouraged to promote innovation in Iceland by steering public procurement into that direction. One of the Council's suggestions was that public institutions should (to a certain degree) look beyond the lowest bid in favour of promising new products and services.

In 2005 the STC and the Federation of Icelandic Industries (FII) joined hands in the discussion and formulation of 'Innovative public procurement.' The results of these discussions were detailed in a specific report on the matter in May 2006. In the report Icelandic ministries and other institutions are urged to tailor their procurement practices toward innovation, research and development. In the report it is suggested that government officials use the European Union Innovation Policy as guidance.

MALTA

The Malta Council for Science and Technology (MCST) National Strategic Plan for Research and Innovation for 2007-2010, entitled *Building and Sustaining the R&I Enabling Framework (2006)*, argues that Malta can and should address an aggressive research and innovation

(R&I) capacity. The vision is expressed as 'Research and Innovation at the heart of the economy to support value-added growth and wealth.'

The Strategy presents 66 initiatives one of which addresses innovative public procurement: 'MCST and the Department of Contracts should by end 2007 introduce transparent mechanisms to reward R&I through public procurement'. Initiative 25 of the Strategy states that: 'There is one powerful instrument which government departments and entities must apply to promote R&I – and this is public procurement…It is thus proposed that MCST works with the Department of Contracts to design a transparent mechanism which rewards R&I.'

MCST's initiatives in the area include the organisation of two workshops. The first one was to launch the innovative procurement initiative, organized by MCST together with the Ministry of Finance and the Contracts Division on May 14th 2007. The second one, 'Making Innovation Work for Public Procurement' on May 13th 2008, stressed the need to address innovative procurement as a priority for leveraging demand and investment of innovation.

SLOVENIA

In Slovenia there are no laws or guidelines on public procurement that make any explicit reference to procurement for innovation. Procurement for innovation falls under legislation on public procurement and the legal framework pertaining to the scientific research domain e.g. Research and Development Act (Official Gazette RS, No. 96/02, 115/05, 112/07). Slovenian government however adopted a Resolution on the National Research and Development Programme 2006-2010 (Gazette RS, No. 3/06). This is a strategic document, where the Slovenian government has committed to realize the Lisbon Strategy and enlarge the scope of research, and strive toward stimulation of innovation and technological development. The resolution determines five areas, which are most prospective for innovation: ICT, advanced synthetic materials and nanotechnology, complex systems technology, technologies for sustainable economy, health and science on living.

5.1.2 Green public procurement policy

Compared to public procurement for innovation, green procurement has been developed further in all of the five countries in terms of both policy design and implementation.

In Estonia, environmental requirements can be taken into account in case of different procurements and the procurement register is notified about this. Overall, green procurement is coordinated by the Ministry of the Environment.

Green procurement is gaining a strong foothold in Iceland. The law on public procurement (84/2007) contains references to green procurement or eco-friendly procurement. The law stipulates that public procurement may favour products/services that are eco-friendly and/or promote environmental awareness. In March 2009 the minister of finance and the minister of environment signed an agreement on eco-friendly public procurement. The agreement will be used as policy guidance for all public procurement in Iceland.

Latvia is at the starting point to use green procurement[16], main initiatives include preparing new regulations, special selection criteria (additional points in open calls), introducing activities at the national level "Energy efficiency of municipal and higher education buildings".

[16] Based on information from the National Conference on Green Procurement on February 25th, 2010 and data from the State Procurement Monitoring Office.

The initiative for green public procurement in Malta was commenced in 2006. A network was created with green leaders from each public organisation. A website was set up[17] and it contains a section on procurement with tips and links to the handbook by the EU Commission. Technical assistance was sourced from TAIEX[18] and a conference/seminar was held (Greening the Economy, a Case for Sustainability, 3rd October 2006). The green initiative is continuing in various projects.

In Slovenia, the National Action Plan for Green Public Procurement for 2009-2012, adopted on May 21st 2009, set the targets for inclusion of environmental aspects in public procurement. The targets are defined in 8 priority groups of products/services for the year 2012 in terms of the portion of green public procurement compared to conventional public procurement, including Construction (30%), Cleaning products and services (60%), Office IT equipment (95%), Transport (40%), Energy (100 %), Furniture (50 %), Paper and printing services (70%) and Food and catering services (40%). These goals shall be achieved by public procurement procedures carried out in line with the new Regulation on Green Public Procurement, which is based on EU GPP Training Toolkit.

5.2 Public procurement for innovation at ministry level

5.2.1 Overview

Four issues were covered regarding innovation procurement activities at the ministry level of these countries, i.e. (1) whether they have foci in terms of innovating public service, (2) whether they assess themselves to be at the leading edge of good practice in their area, (3) whether their procurement decisions have led to innovations, and (4) whether they have forthcoming procurement needs that might lead to innovations. Their status in respect of these issues is listed in Table 8. In all subsequent tables ministries and authorities are identified by an acronym.[19]

[17] http://www.greennetwork.gov.mt/index.asp

[18] TAIEX is the Technical Assistance and Information Exchange instrument managed by the Directorate-General Enlargement of the European Commission. TAIEX supports partner countries with regard to the approximation, application and enforcement of EU legislation. It is largely demand driven and facilitates the delivery of appropriate tailor-made expertise to address issues at short notice.

[19] Full names of the ministries: Tallinn: The City of Tallinn (Estonia); HTM: The Ministry of Education and Research (Estonia); KKM: The Ministry of the Environment (Estonia); MKM: The Ministry of Economic Affairs and Communications (Estonia); RIA: The Informatics Centre (Estonia); Tartu: The City of Tartu (Estonia); LEC: Landsvirkjun energy company (Iceland); RC: Reykjavik City (Iceland); LUH: Landspítali University Hospital (Iceland); FII: The Federation of Icelandic Industries (Iceland); STC: The State Trading Centre (Iceland); DCS: The Department of Customer Services (Malta); MDP: Mater Dei Hospital (Malta); MDCS: Ministry Director Corporate Services (Malta); MPSO: Ministry Permanent Secretary Office (Malta); MFEI: The Ministry of Finance, the Economy and Investment (Malta); MITC: The Ministry for Infrastructure, Transport and Communications (Malta); FMS: Foundation for Medical Services (Malta); MITA: Malta Information Technology Agency (Malta); OPM: The Office of the Prime Minister (Malta); WSC: Water Services Corporation (Malta); KCLJ: Clinical Center Ljubljana (Slovenia); MOL: the City of Ljubljana (Slovenia)

Table 8 Brief information of innovation procurement in ministries studied

	ESTONIA						ICELAND				
	Tallinn	HTM	KKM	MKM	RIA	Tartu	LEC	RC	LUH	FII	STC
1.Foci for public service innovation	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y
2. Leading edge practice	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y
3. Procurement led to innovation	NI	NI	NI	Y	Y	Y	N	Y	Y	Y	Y
4.Future potential for innovation	N	NI	N	Y	Y	NI	Y	Y	Y	Y	Y

Y = YES, N = No, NI = No information

	MALTA										SLOVENIA		
	DCS	MDP	MDCS	MPSO	MFEI	MITC	FMS	MITA	OPM	WSC	MZF	KCLJ	MOL
1.Foci for public service innovation	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
2. Leading edge practice	N	N	N	N	Y	N	Y	Y	N	Y	N	N	Y
3. Procurement led to innovation	N	N	N	N	Y	N	N	Y	N	Y	N	Y	Y
4.Future potential for innovation	N	N	N	N	N	N	N	Y	N	N	N	Y	N

Y = YES, N = No, NI = No information

5.2.1 Modernization of Practices in Public Procurement

Most of the ministries have a certain focus in terms of modernizing and innovating public services in their special areas. The main forms of these innovating activities include procuring ICT infrastructure to update public service, procuring environment friendly products/services, improving procurement processes and acting as an innovator in their fields (e.g. DCS in the area of hospital patient services).

E-services and e-administration have become the main focuses for most ministries studied in this research project. Such ministries include the City of Tallinn, the Estonian Ministry of Education and Research (HTM), the Estonian Ministry of the Environment (KKM), the Estonian Ministry of Economic Affairs and Communications (MKM), the Estonian Informatics Centre (RIA), the City of Tartu, Landspítali University Hospital (LUH), Mater Dei Hospital, Malta (MDP), Permanent Secretary Office, Malta; the Ministry of Finance, the Economy and Investment of Malta (MFEI), the Ministry for Infrastructure, Transport and Communications of Malta (MITC), the Office of the Prime Minister of Malta (OPM) and the City of Ljubljana

(MOL). Their achievements regarding e-services and e-administration are briefly summarized in Table 9.

Table 9 Achievements of ministries with a focus of e-administration & e-service

		Achievements/examples in e-services and e-administration
Tallinn	EE	Procured a joint electronic ticket system for public transport in Tallinn and neighbouring Harjumaa district.
HTM	EE	Procured modern education & research information systems that allow interaction with public, e.g. ETIS.
KKM	EE	Preparing an electronic version of the declaration on the use of the environment.
MKM	EE	Focuses on upgrading the IT systems needed for public services through public procurements.
RIA	EE	The leading developer of the state information system and acts also as the coordinator of the state information system.
Tartu	EE	Procured different technological developments to ensure that citizens can interact with town authorities through internet.
LUH	IS	Introduced a formed, electronic procurement system with the use of ORRA (Oracle Business Solutions).
MFEI	MT	Focuses on introducing e-services in the areas of procurement, customs, VAT and Inland Revenue amongst others
MOL	SI	Introduced an electronic system for public procurement (iNAR).

Some ministries put environment protection as their focus, and green procurement as their main achievements. For example, Reykjavik City uses procurement to follow environmental policy formulations. It is also launching environmentally friendly procurement, by sending the tenders to an environmental impact assessment within the institution with a specific checklist designed by the Division of the Environment.

Improving procurement approaches is also a focus among respondent ministries. The State Trading Centre of Iceland (STC) has reviewed its tender descriptions and tendering process, and found that these are now much simpler (more user-friendly) and clearer than before. The Foundation for Medical Services of Malta (FMS) is considering using negotiated procedures and competitive dialogues instead of open processes to stimulate innovation through public procurement.

Table 10 Leading edge activities of ministries

	Form	Leading edge activities
KKM	E-administration	Provided the possibility to acquire fishing permission through Internet and to pay for this using cell phone.
RIA	E-administration	Procured technologies in areas of semantic capable grid, information security and cyber safety. The other successful public-private partnership project developed more lately is e-invoice project.
Tartu	E-administration	Promoted the development of local service internet solution portal SPOKU. There are also going on development works of geo-archive, business software and document management system for Tartu City Government.
LUH	E-administration	Encouraged other institutional units to adopt a similar system as ORRA (see above).
Tallinn	Environment	Procured standard designs for social buildings, where energy consumption of building is relatively low.
MKM	Procurement	At the leading edge of good practice and information technology by contracting for the development services for the Register of Economic Activities and the National Construction Register.
LEC	Procurement	LEC's procurement process is simple, clear and transparent; it always emphasised the adoption of new procurement methods and strategies.
STC	Procurement	STC is always after new and improved methods to simplify the tender process.
FMS	Procurement	Used the Competitive Dialogue for the Patient's Meals Contract at Mater Dei Hospital; also introduced the concept of a Concession Contract.
MITA	Procurement	MITA uses website to communicate agencies' procurement requirements.
MOL	Procurement	The "Ljubljana, my city" project represents a good practice of cooperation between the city authorities and the residents within public procurement.

5.2.2 Innovation procurement activities of these ministries

Although some of the ministries do not know whether their previous procurement activities have led suppliers to innovate, around half of them claimed that they have promoted innovations through procurement in certain forms.

(1) MKM used negotiated procedures in certain procurement processes where technical requirements are lack of precision, and the preparation of technical specification has led to innovations. As result of technical developments the document management system GoPro was developed and distributed also to other markets outside Estonia.
(2) RIA also raised one example of their procurements that led to innovations, "X-tee" (X-Road) project, which is also a case study in this report (see below). In recent years due to the successful cooperation of the public and private sector, a lead market for this technology has been established. X-tee solutions will be implemented in the creation of information systems in Serbia and Azerbaijan. There are negotiations going on also with other countries.
(3) Tartu's evidence of its promotion of innovation through procurement is mobile parking (M-parking) and some other mobile services that have been developed further on the ground of Tartu City Government contracts.

(4) WSC stimulated the supplier to make further developments on reverse osmosis membrane technology through procurement.
(5) KCLJ motivated its suppliers to develop new products that are in line with breakthroughs in their specific area (medicine).
(6) Besides the iNAR system, MOL also introduced the "Urbana" card, which is used as an electronic payment card in several areas – paying bus fares, buying tickets for cultural events. These can be used in any other countries.

A second group of cases demonstrated innovation in the process of procurement:

(1) Reykjavik City's procurement has led to new suppliers becoming involved in tenders and contracts, and the electronic Reykjavík gateway is a good example (electronic Reykjavík is a software solution) – the gateway administrator's market share expanded considerably by teaming up with the city.
(2) The price enquiries project of LUH is a good example for developing a more equal tendering environment for different sizes of companies.
(3) FII and STC cooperated in creating an open market that everyone has an equal access to. This has both created opportunities for sellers and buyers and made the competition very active. This can also make cooperation easier, and then especially if people are planning a foreign cooperation, since that can be time consuming.
(4) In the case of MFEI, the development of e-services has often led to innovation in the sense that suppliers had to adapt to local requirements in order to satisfy our legal and procedural needs.
(5) MITA's contribution was that they made suppliers learn to access and download requests from MITA without calling at MITA for a hardcopy of the document. This is the first of a two-stepped approach to cut on the use of paper transactions in the tendering process.

Regarding potential procurement in future that might lead to innovations, less than half of the ministries provided positive responses, which are summarized in Table 11.

Table 11: Forthcoming procurement needs that might stimulate innovation

MKM	The procurement of technical developments for the National Construction Register, for which competitive dialogues will be adopted, has great potential to lead to innovation.
RIA	The success of X-tee could be repeated in case of other systems developed by Estonian Informatics Centre. The most promising project is RIHA the Management Information System of the Government Information System. Also the information gateway of Estonian public sector Eesti.ee, the semantic capable technologies and document management systems XML resources solutions.
LEC	Power stations are more knowledge based than product based, and knowledge drives product innovation.
RC	Reykjavík is planning to become an all electric car city in the future, and car procurement could lead to innovation.
STC	The STC is the market in itself. In here, buyers and sellers come together to negotiate and invite tenders. To do this well the State Trading Centre needs to have better infrastructure and new solutions that reflect the needs of both sellers and buyers.
MITA	The creation of a more transparent process whereby the bidders could compete on-line.

Besides the ministries listed in the table above, LUH and FII also consider that they have great potential in future to promote innovation through public procurement, although they currently haven't detailed plans. One respondent from FII wrote that 'this (procurement for

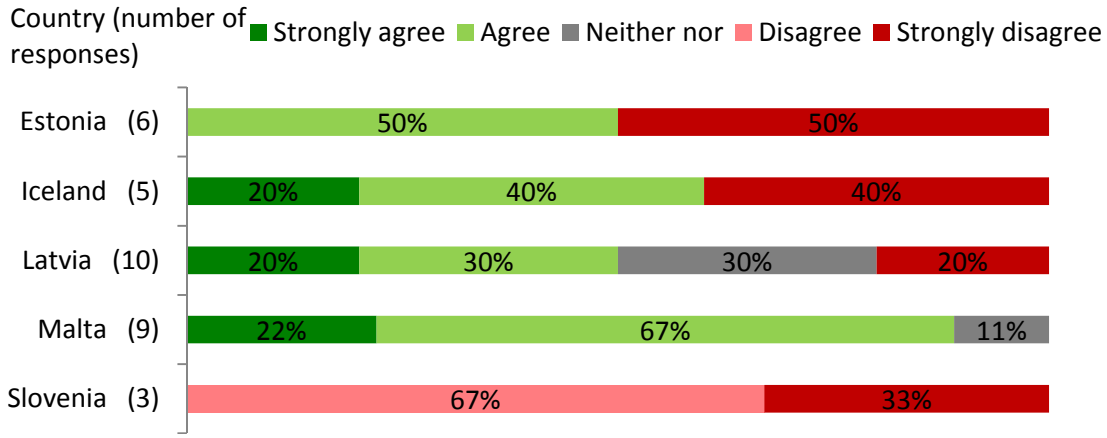
innovation) applies to many institutions. All institutions could encourage innovation or the formation of a new market. No question about it. It is possible to do much better than is done now.'

5.3 Hypotheses about Small Country Innovation Procurement

The Ministry survey asked respondents to indicate whether they agreed or disagreed with a series of statements relevant to innovation procurement in small countries. The results, shown below, illustrate a wide range of views, varying between and within countries. For this reason we have chosen not to use averages to summarise the scores.

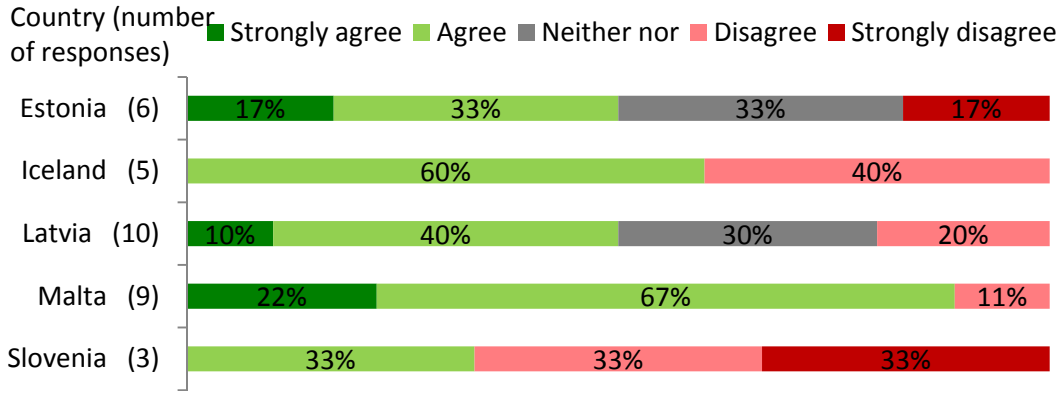
On the first proposition, that small countries have needs that are not well met by goods or services designed for the international market, there is total disagreement from Slovenian respondents[20] and almost total agreement from those in Malta while in the remaining countries views are polarised (see Figure 1). This suggests that the proposition is true for some types of goods and services and not for others.

Figure 1 Small countries can have specific needs that are not well met by goods or services designed for international markets.



In Figure 2 the proposition is that the local supply base lacks the capacity to innovate. Again the most pessimistic response comes from Malta, with Iceland also showing a majority in agreement. Estonia and Latvia are again evenly split while Slovenia has two-thirds of respondents disagreeing.

Figure 2 The local supply base often lacks the capacity to innovate.



[20] It should be noted that there were only three responses from Slovenia so results for that country should be treated with caution.

In Figure 3 and Figure 4 the state of the local supply base is assessed. In general a majority of respondents are neutral or slightly in agreement with the proposition that suppliers in their country are averse to cooperating with other firms. Again the three Slovenian respondents go against the trend with two disagreeing while the Maltese correspondents exhibit the opposite ratio with two-thirds in agreement. There was more general agreement with the proposition that a low level of competition reduces the incentive to innovate, with only the Icelandic and to some degree Latvian respondents disagreeing.

Figure 3 The local supply base is averse to cooperation between firms.

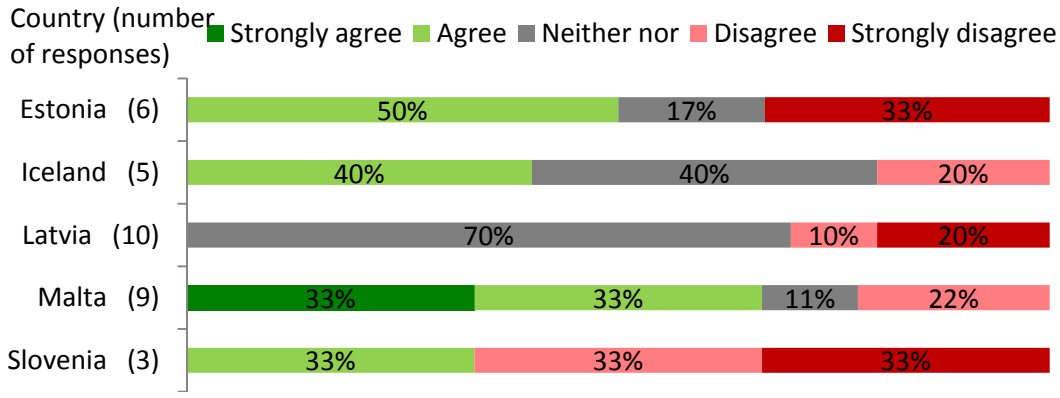


Figure 4 A low level of local competition reduces the incentive to innovate.

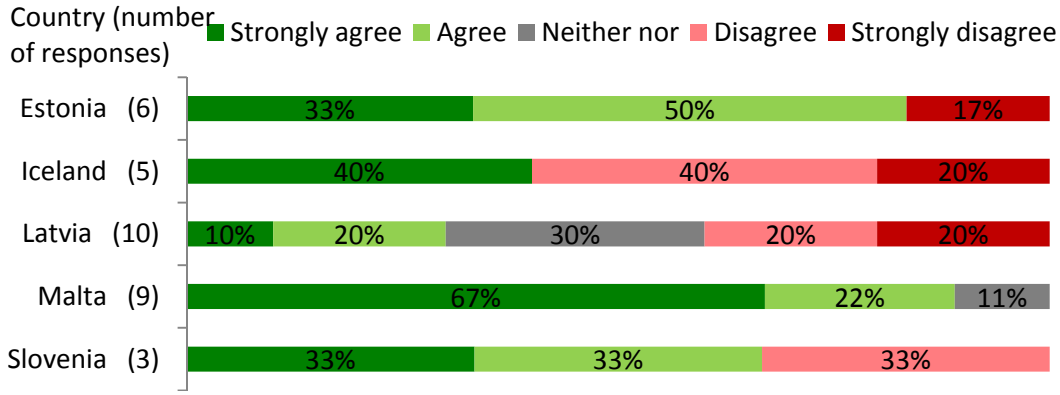


Figure 5 explored attitudes to foreign competition by asking whether procurement decision favour foreign suppliers. Most respondents disagreed with this statement, only in Iceland did a majority of respondents agree while in Malta, 55% were neutral on the topic.

Figure 5 Procurement decisions may favour foreign suppliers

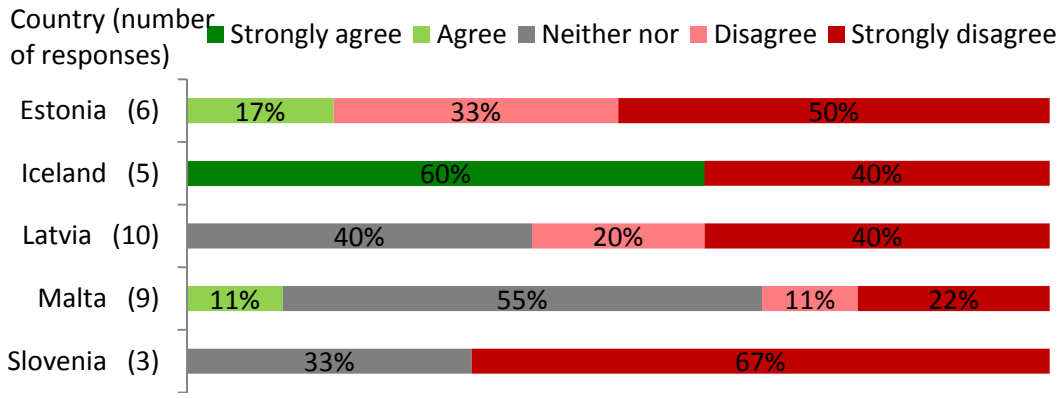
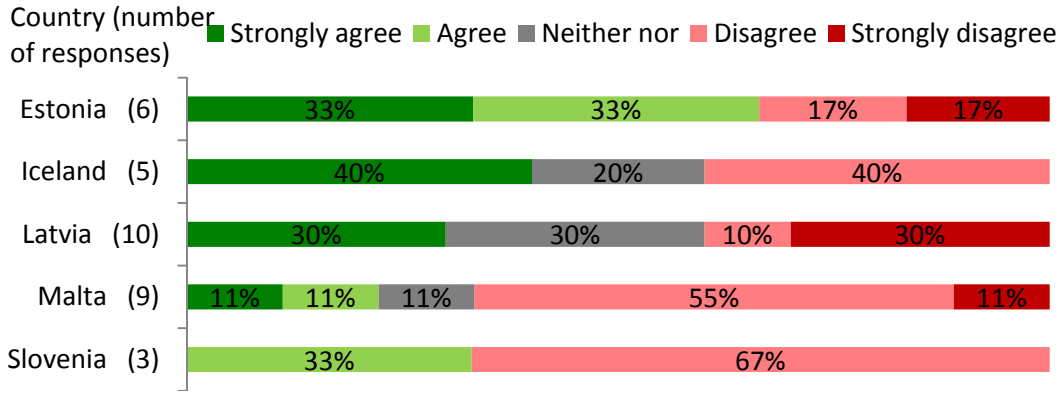


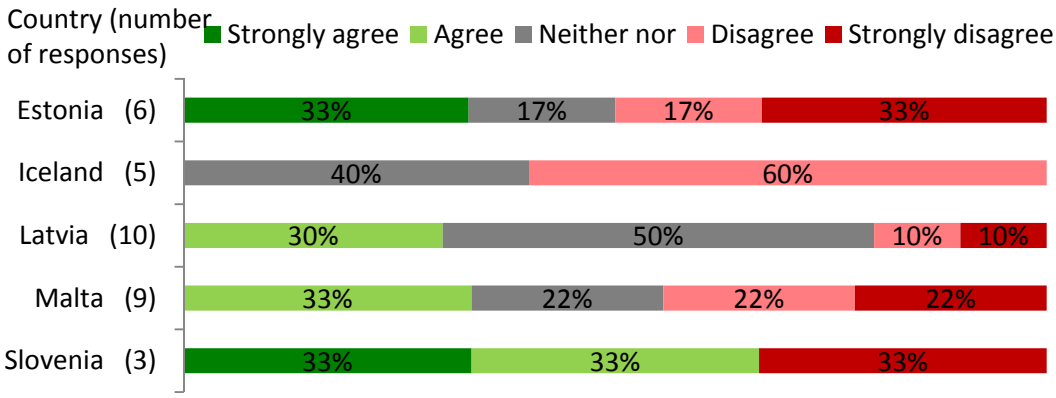
Figure 6 examines the issue of market entry and finds a relatively neutral view on the issue of whether local markets are hard to break into for newcomers, with clear agreement only evident in Estonia.

Figure 6 Local markets are hard to break into for newcomers.



Respondents in three out of five countries were relatively neutral on the proposition shown in Figure 7 which explored the possibility of a small country advantage through better coordination in government and hence the possibility of aggregating demand between ministries. Only Slovenian responses had a majority in agreement while Icelandic respondents disagreed.

Figure 7 Smaller government means better coordination and the possibility to bundle demand.



As already noted in earlier sections of this report, procurement expertise is critical for innovation procurement.

Figure 8 shows responses to the proposition that small countries lack such expertise. There was no consensus between countries, two showed a majority in agreement, two against and Latvia was neutral.

Figure 8 Small countries often lack sufficient procurement expertise for complex purchases involving innovation.

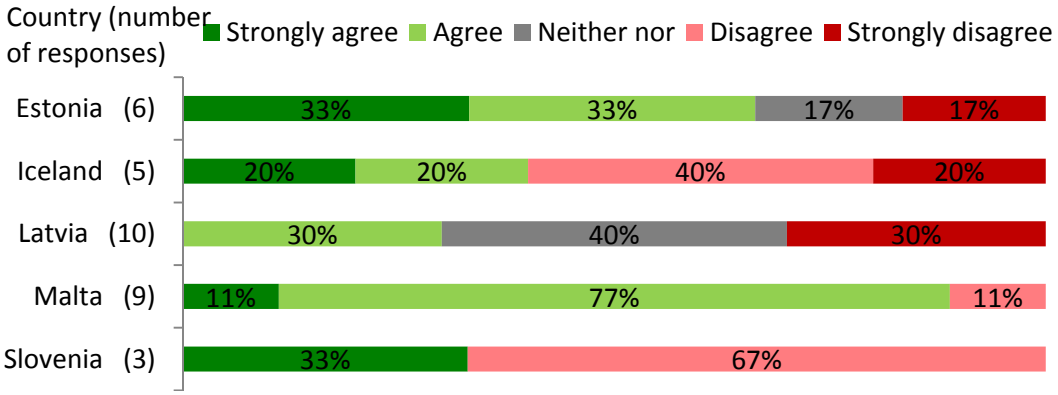
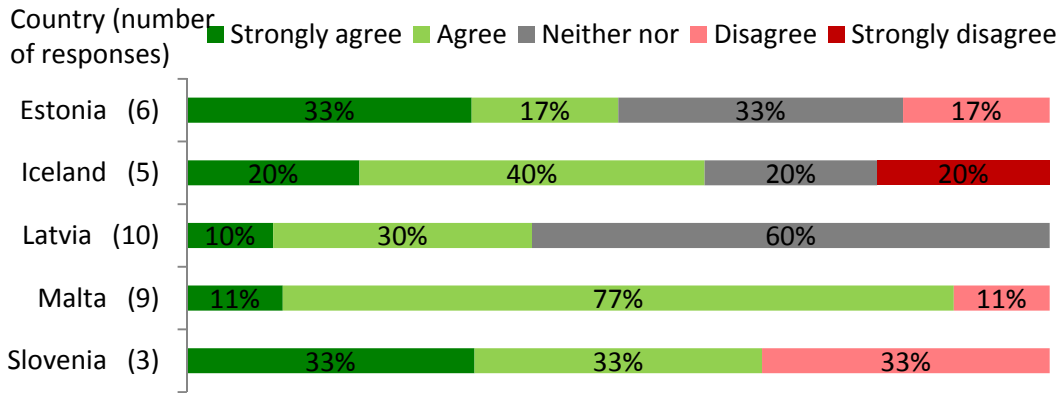


Figure 9 shows responses to a possible negative factor for small countries, the proposition being that higher dependence on government of local suppliers makes legal challenges more likely and creates a risk-averse culture.

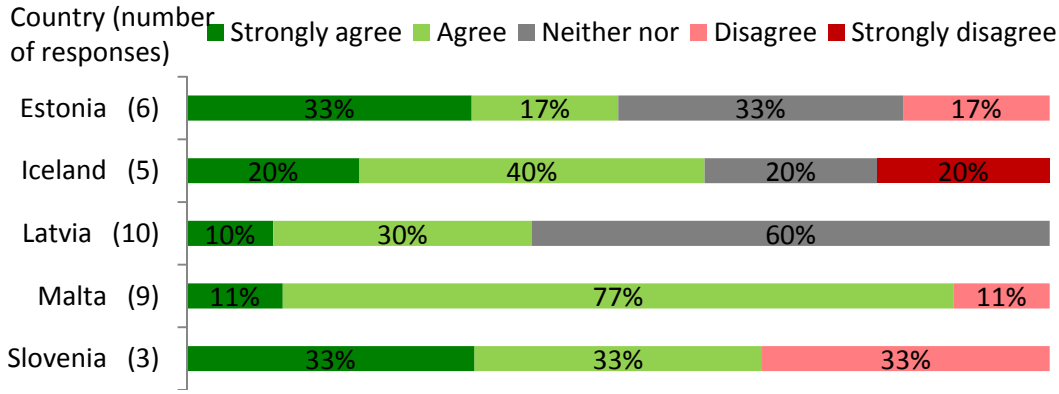
Figure 9 The dependence of local suppliers on government makes legal challenges more likely and creates a risk averse culture.



A possible positive factor for innovation could be the existence of specific niche markets that could act as lead markets.

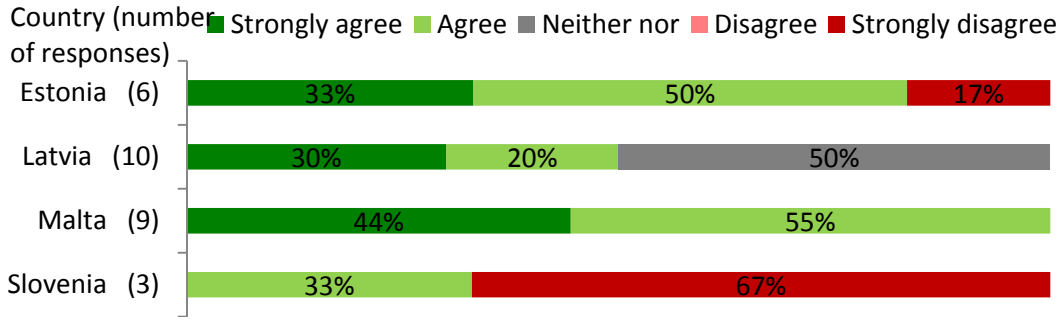
Figure 10 shows a consensus of agreement that such an opportunity exists.

Figure 10 Small countries have niche markets that offer opportunities for innovations that could be exploited in other settings.



A final proposition explored whether European Union Structural Funds could be used to link innovation procurement to the modernisation agenda pursued via these funds. Figure 11 indicates agreement in three countries and disagreement in Slovenia. Iceland does not receive structural funds and hence did not ask this question.

Figure 11 Structural funds offer an opportunity to link procurement for innovation to the modernisation agenda.



The results of this opinion survey emphasise that small countries are diverse in how government officials perceive their countries' market positions and the opportunities present in innovation procurement. This diversity of perception also exists within the

countries. There is always at least a significant minority of ministries who perceive both the disadvantages and the opportunities of the small country situation.

However, if results are examined in aggregate as shown in Table 5, it can be seen that only two of the propositions, those of needs not being well met by international goods and that procurement decisions favour foreign suppliers, fall on the negative side. All others show some degree of agreement, with the strongest consensus around the opportunities of niche markets, insufficient local competition reducing the incentive to innovate and the constraint of lack of procurement expertise.

Table 12 Aggregate results of ministry survey

1. Small countries can have specific needs that are not well met by goods or services designed for international markets.	2.82
2. The local supply base often lacks the capacity to innovate	3.03
3. The local supply base is averse to cooperation between firms	3.22
4. A low level of local competition reduces the incentive to innovate	3.82
5. Procurement decisions may favour foreign suppliers	2.22
6. Local markets are hard to break into for newcomers	3.35
7. Smaller government means better coordination and the possibility to bundle demand	3.22
8. Small countries often lack sufficient procurement expertise for complex purchases involving innovation	3.63
9. The dependence of local suppliers on government makes legal challenges more likely and creates a risk averse culture	3.25
10. Small countries have niche markets that offer opportunities for innovations that could be exploited in other settings	3.93
11. Structural funds offer an opportunity to link procurement for innovation to eh modernisation agenda	3.24
1: Strongly disagree; 2: Slightly disagree; 3: Neither agree nor disagree; 4: Slightly Agree; 5: Strongly agree	

6 Case studies

Case studies form an important means for those developing new policy approaches and instruments to benefit from the experience of others. Apart from engaging with the sometimes complex and unpredictable nature of real world procurement, they also offer the possibility to reduce errors in the future and capture ideas that worked. Perhaps most importantly they demonstrate that success is possible (as well as in one case a failure to achieve the intended innovation). The ERAPRISM project has compiled a database of

available case-studies. Helpful as these are, few are situated in small countries so it was decided that project partners would conduct and report on a new set of cases, in some instances building on work that had been done previously. The six examples presented here are:

- X-Road – Estonia
- Active Data Centre –Malta
- Hospital Catering – Malta
- IWC Steam Explosion – Latvia
- Waste/garbage collection – Iceland
- Ljubljana smart card - Slovenia

In this chapter summaries are presented.

6.1 Case 1: Integration of different public sector databases of into one information system – X-Road project

Country: Estonia	**Procuring Agency:** The Estonian Informatics Centre (RIA)

What was procured and why it is innovative:

The X-road (X-tee in Estonian) was the object of the procurement. It is an original working system, the first in the world to connect all governmental information systems. It was developed and implemented in Estonia. It is now the backbone of the Estonian e-Government system, which provides a technical and organizational environment that enables secure data transfer between e-government databases and between individuals and governmental institutions.

Agency information and policy background:

RIA was established by the Estonian government to solve the main IT problems common to several state organisations and to arrange the work of the state's information systems.

IT procurement activities conducted by RIA are generally part of the wider activities that are conducted in accordance with the Estonian Information Society Strategy 2013.

The procurement process:

The procurement team was formed especially for X-Road and consisted of qualified professionals. Since 2001 it has procured different versions (from 1st to 5th) of X-Road, and in most cases the negotiated procurement procedure with notification was used. Market studies were conducted before each procurement exercise, and the procurement team then produced a detailed structure of design as technical requirement. For the 5th version, a two-stage negotiated procurement procedure with notification was used – the first stage aimed to identify eligible tenderers, while the second stage was focused on selecting the most cost-effective tender. A 'points-based system' was developed for awarding the contract, with technological completeness and value for money as criteria.

Impacts:

X-Road provides new technological possibilities for creating public services – it has increased the state's administrative ability and decreased the need for resources for administration. X-Road has been presented in different international exhibitions and conferences, and it has been positively audited by international experts for several times. It has been recommended as a model for other countries. Some elements of the X-Road solutions will be adopted to create information systems in Serbia and Azerbaijan. Negotiations with other countries are going on.

Lessons:

- The interest of all the stakeholders should be balanced to guarantee the success of projects.
- Constant monitoring and assessment are needed to ensure the development of the product.
- The implementation of new technologies may come across certain opposition. Specific strategies are needed to overcome this.
- X-Road is a strategic technology and certain confidentiality rules should be followed, to protect the interest of the public.
- In this case, common technology solutions could be used in different areas, and joint procurement between different ministries was conducted. In this way cost-saving benefits were obtained.

6.2 Case 2: ICT infrastructure to support the Active-Active Data Centre concept

Country: Malta	**Procuring Agency:** the Department of Contracts on behalf of MITA

What was procured and why it is innovative:

An Active-Active Data Centre system is based on the concept of having two geographically separate data centres to mirror and operate synchronously, which is a change from the previous Data Recovery Site system which was inactive until required. In this case, the ICT infrastructure for the Active-Active Data Centre was procured, namely the enterprise server and storage consolidation project.

Agency information and policy background:

The procuring agency was the Department of Contracts (whose mission is to regulate public procurement activities on the principles of fairness, transparency and non-discrimination) on behalf of Malta Information Technology Agency (MITA, former MITTS)[21], which is a government agency focused on providing ICT services to the Public Sector).

The project formed part of the ICT Infrastructure Change Programme, which was started in 2001 with the aim of revolutionising the Government's ICT infrastructure. The direction set by Government in its ICT projects for Malta provided the mandate.

The procurement process:

The procurement team consisted of executives from the Department of Contracts and MITTS, and the process lasted from April 2005 (preparation) to November 2006 (contract awarded), with a negotiated procedure adopted. Rather than technical specifications, a set of business requirements were stipulated to increase the potential innovativeness of this project. Value for money was the key criterion used, which can be expressed as the lowest long term cost over the lifetime of the project, at the quality expected. Three bidders were shortlisted for the negotiated procedure phase, with the tender being awarded to one company. The contract entailed a 7-year partnership agreement for EUR8.8 million including VAT.

Impacts:

- The product performed as well as expected and was more efficient than what it replaced.
- The product met the target in terms of cost-efficiency, but it cannot be directly compared with its predecessor due to different/additional functions, and lack of information of the previous system.
- The level of service to the end-users improved due to the specified business requirements.

Lessons:

Like any innovative solutions, it was not easy to implement the product in the organisation but the difficulties were not insurmountable. No reference groups were used.

[21] MITA was Malta Information Technology and Training Services Limited (MITTS) at the time of this case, which was then transformed into a government agency in 2009.

6.3 Case 3: Catering Services to Inpatients at Mater Dei Hospital

Country: Malta	**Procuring Agency:** the Department of Contracts on behalf of FMS

What was procured and why it is innovative:
A new hospital catering system based on B-POD system was procured. The innovativeness of this system is that it adopts an advanced procedure of pre-plated cook-chill system which ensures that food is tastier, fresher and more hygienic than traditional systems. The one in this case was the fourth one in the world.

Agency information and policy background:
The procuring agency was the Department of Contracts (whose mission is to regulate public procurement activities on the principles of fairness, transparency and non-discrimination) on behalf of the Foundation for Medical Services (FMS), and the services were procured for Mater Dei, St Luke's and Sir Paul Boffa Hospitals.

Leadership was provided by a high ranking official from the Ministry of Finance who was also a member of the FMS Mater Dei Steering Committee, and thus political support from the Ministry of Finance were ensured as well.

The procurement process:
The process lasted from April 2005 (preparation) to December 2006 (contract awarded), and a negotiated procedure with competitive dialogues was chosen as the procuring strategy. Technical requirements included the quality of the central processing unit, other equipment and the menus, and price was the key criterion for awarding the contract. The tendering notice was published in the Malta Government Gazette in July 2005 and JSBZ Catering won the contract, which entailed a 10-year partnership agreement for EUR2,347,542 annually.

Impacts:
The solution procured allowed the Hospital to provide a high quality, catering service, with menus catering for the diverse needs of 900 patients in a much more healthy, hygienic and cost-efficient manner.

Lessons:

- This was the first time that a competitive dialogue process had been used in Malta, and through this bidders can show their capabilities and gain mutual understanding with the contracting authority.
- The competitive dialogue procedure led to appeals by unsuccessful bidders. This requires transparency in the process and the need to ensure that the process is conducted in accordance with ethical principles.
- Although the project was successful, FMS has not used the process again, which is mainly because open tendering is much less demanding as a procedure.

6.4 Case 4: Steam Explosion Pilot Plant of the Institute of Wood Chemistry

Country: Latvia	**Procuring Agency:** the State Institute of Wood Chemistry (IWC)

What was procured and why it is innovative:
The erection of a pilot plant for auto-hydrolysis of wooden products using steam explosion was procured. This pilot plant was an original innovation in the domestic market (no industrial prototypes existed before), and although there had been similar pilot plants abroad already, this was the first time for the supplier in this case to build one.

Agency information and policy background:
IWC is focused on developing scientifically grounded, environmentally friendly and waste-less technologies, which can be used for obtaining competitive materials and products from wood and wood biomass. The motivation of the actors involved for pursuing an innovation was to obtain up-to-date equipment for investigations including contract research with local and foreign customers.

The procurement process:
The initiative to procure the steam explosion pilot plant was taken by leading researchers of IWC. They worked out a draft technical specification for the pilot plant. The Administration of IWC organised the procurement process based on an open procedure. The main criteria for procured techniques were most favourable price (70%), quality and technical services (30%) in accordance with the technical specification. The tendering notice was published on the homepage of State Procurement Monitoring Office. Only one application was submitted by "FIL&Co Ltd" and this small national company won this tender. The time scope was 12 months and the contract value was EUR 71,100 without any special preparation costs.

Impacts:
- The result fulfilled the expectations and researchers had an up-to-date pilot plant for deep and complicated investigations.
- The supplier gained valuable experience in building the complicated pilot plant. After this contract they also erected pilot plants for other research organisations.

Lessons:
- The procedure allowed a supplier without proof of concept for this kind of plant to go ahead, and by overcoming the difficulty of lack of experiences, the supplier managed it well and the difficulty did not affect the outcomes.

6.5 Case 5: Waste and garbage collection in the city of Hafnarfjordur

Country: Iceland	**Procuring Agency:** the Division of Operations of Hafnarfjordur

What was procured and why it is innovative:
Environment friendly waste collection services using methane gas fueled trucks were supposed to be procured, but at the end the procurer picked the lowest bid, one which did not involve teh use of methane, and there was no innovatiion in this case. In summary this is a negative example of public procurement for innovation.

Agency information and policy background:
The Division of Operations within the administration of Hafnarfjordur is a local contracting authority, and the town of Hafnarfjörður is a local administrative body. With regard to policy mandate, while the government policy (and the municipalities as well) states that one of the goals should be protecting the environment, there are very few guidelines for the administrators and/or procurers to follow.

The procurement process:
The process in its entirety was about a year long including preparation and tendering process. The focus of requirements was mostly on the outcome, e.g. saving money and protecting the environment, but the environment-protection criterion did not work well because the policy was weakly enforced (by offerin a 5% price premium). Unlike the procuring administrators, who wanted to make the use of methane gas as fuel as a non-negotiable requirement, the political entity refrained from it. Finally the city accepted the lowest bid, roughly 125 million ISK (about 82 thousand Euros).

Impacts:
The service is not more or less efficient today than before, and this new contract did not increase or decrease the supplier‘s market share since this company had been working for the city for years.

Lessons:
The environmental criteria were not applied, as the general national policy strategy in this area appears not to be implemented at lower levels. Further, the opportunity to draft functional specifications and thus to call for novel, environmentally friendly solutions were not applied rigorously as a criterion for contract awarding. A chance was missed to link the two, the lowest cost alternative was selected without a real proof of combining high efficiency and environmental effectiveness. By nature this is not a ‘public procurement for innovation’ case.

6.6 Case 6: Ljubljana Smart Card

Country: Slovenia	**Procuring Agency:** City of Ljubljana public holding company (Javni holding Ljubljana d.o.o.).

What was procured and why it is innovative:

The unified City of Ljubljana smart card. The smart card is to be used for public transportation, parking, city attractions/museums entry card, membership card (e.g. libraries), means of payment for various services and events. The innovation is mainly in the technical area as well as expansion possibilities. Main features are contact-free operation and deposit of credits with state-of-the-art communication options.

Agency information and policy background: The holding and connected companies are responsible for most of the civic service in the city of Ljubljana and adjacent areas – including but not limited to electricity, water supply, waste management and public transportation. It is in 87% owned by the City of Ljubljana. The rest is owned by surrounding municipalities. The mayor's office is striving toward a modern city in connection with cultural heritage.

The procurement process:

To stimulate innovation, the main requirements of the procurement order were that the smart card should be extendable to different applications and operated contactless. Suppliers were called upon to come up with their own solutions meeting these minimal criteria (some technical specifications, e.g. range of contact-free reading devices, and service response parameters were defined in more detail according to the specific intended uses of the smart card, also the size of the smart card was defined).

The specifications and all other questions were further clarified in the procuremen process before the bids were submitted by providing a period for answering questions posted by the potential bidders.

The successful tenderer, is a medium-sized company, but very well known in Slovenia in the ICT sector. It has been awarded tenders by the government before and has excellent references.

Impacts: The system is still in its introductory phase with the smart cards available to the users for about 6 months – mainly used for bus service. After this first phase, expansion of functionalities to all mentioned above is to ensue. So far, the feedback is mostly positive and there have not been any major technical concerns. The arising issue is that no-one can access a bus without the card as cash payment is no longer possible. There have also been some issues with privacy protection.

Overall, the public have an easier, less complicated and more modern way of accessing the city services, especially when taking into consideration the future functionality expansions. Previously, they were using a plethora of paper copy tickets, membership cards,… and were not always able to predict what sort of payment would be possible for various kinds of services or tickets.

Lessons: Risk was managed through careful definition of legal, financial as well as technical requirements of the procurement process. The aim was to minimise the risks but only to the degree that would not hinder the freedom of the provider to introduce innovative solutions. The desired effects were mostly achieved, through contracting of a well-established local provider of high-tech solutions.

6.7 Implications of the Case-studies

It is noticeable that the two case studies which involved the greatest degree of innovation and the most complex procurement procedures (negotiated procedure and competitive dialogue) were both in the ICT sector – X-Road in Estonia and the Active-Active Data Centre in Malta. In both of these cases there was a clear need in government, so the needs of the purchaser were being met, but those involved went beyond conventional solutions to achieve an innovation-based result. It was not a coincidence that these procedures needed to be used – needs were complex and had to be articulated over a period of time with a significant degree of interaction. Nonetheless, advanced procedures are not a panacea. The third case, hospital catering, though successful in its own terms, created scope for litigation by unsuccessful bidders. It would be a shame if a litigious procurement culture closed down the scope for innovative approaches. In the next section we explore further whether such an outcome is more likely in a small country environment.

The Steam explosion pilot plant shared with the X-Road case the elements of a lead market for the firms involved. In both cases the experience gained through the initial supply provided experience which could be used to gain future contracts and export markets. We have included the Iceland case-study even though it did not result in an innovation (other than a minor service innovation in terms of more efficient refuse collection). The aim to use methane generated from rubbish as a fuel for the trucks was not achieved. It could be included that the incentive offered to bidders was insufficient. The actual size of this incentive depends upon the relative calculation of social return from green fuel. However, from an innovation perspective it could have made sense for other authorities and the supplier to contribute to this premium so as to establish the technology for use in other municipalities.

7 Conclusions & Recommendations

7.1 Small countries and innovation procurement

The investigations reported here indicate that innovation procurement has begun to find its way onto the policy agenda for small EU member states. Interest in this approach is likely to increase as a result of the Innovation Union initiative and other supporting measures from the European Commission. Interest and expertise in this approach are also likely to spread from some of the larger countries who have longer experience in this area, though they too are in a learning mode.

It is also the case that the small countries have some background upon which to build their capability. Some of the more challenging innovation-friendly procurement procedures have been used (competitive and technical dialogues) and both the case-studies and the survey have yielded examples of innovation emerging from procurements, even though much of that innovation was incremental or architectural (combining existing technologies in novel ways and/or in new situations). Survey data indicated some evidence of procurement linked to innovation in all of the countries. Future opportunities are also perceived.

In some respects the small countries have dissimilar approaches to public procurement. There is a greater tendency to have centralised structures but this is not uniform in all cases and joint procurement is occasional and normally limited to the Ministry level. There is also some variation on how prescriptive procedures are across government. No country studied has established a strategic policy on innovation procurement so far, despite various attempts and initiatives. This can be contrasted with a more institutionalised approach to green procurement.

Not surprisingly, human capacity to handle more complex innovation-related procurement has emerged as a key constraint in all countries. In some countries the capacity of local suppliers to respond is also questioned, linked to lack of local competition.

While niche markets for small countries were widely seen as an opportunity the broader advantages of small size do not yet seem to have been exploited, including better coordination and easier aggregation of demand.

7.2 Joint action

The study indicated a generally positive view of international collaboration in procurement with ministries or agencies in other countries that have similar needs. Innovation was only one among a broader set of motivations to collaborate but the other perceived benefits (wider selection of products and services, access to expertise and bigger, more open markets) are also conducive to innovation.

Discussions and consideration of the state of development revealed b this study, indicate a range of possibilities for joint action. In the first category are joint activities to share expertise and hence to build capacity. These include:

- Sharing details of processes for procurement;
- Sharing specifications either for information or even forming specifications that could be used by several countries;
- Sharing drafts of regulations and guidelines/manuals and information on their application either for background or for use by several countries.

A second category of joint actions involve joint procurement of goods and/or services in ways that facilitate innovation. Here options include:

- Potential aggregation of demand to create larger orders for innovative goods and services that meet small country needs;
- Incentivise suppliers by letting them know about the possibility of further opportunities in partner countries – effectively lead markets for small country goods.
- Facilitating partnerships with suppliers from large country partners to give firms from small countries the possibility of being in the supply chain for larger scale innovative procurement activity

There are also possibilities for policy cooperation:

- Forming common positions on EU level initiatives such as the LMI and Innovation Union development to ensure that the small country perspective is also considered;

ERAPRISM will aim to build on the experiences described in this report to engage policymakers responsible for procurement and for innovation as a first step on the path to coordinated action.