



Public Services contribution to smart, sustainable and inclusive growth

Innovation and R&D in Public Services

Client: CEEP

Rotterdam, June 6, 2011

The aim of this fact sheet is to provide participants in the conference the 16-17 June with information to grasp the complexity of the various selected topics. As a second step, this document highlights some links with current EU policies and suggest points for debates.

Public Services contribution to smart, sustainable and inclusive growth

Financing Services of General Interest: Chall in Public Services

Client: CEEP

Rotterdam, June 6, 2011

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Executive Summary

The EU 2020 strategy aims to push the EU towards smart, sustainable and inclusive economic growth, with innovation being one of the seven priority themes. To this end, it set as a goal that spending on research and development should be at least 3% of GDP.

Services of General interest (SGIs), which form an important part in EU economy, also drive innovation, thus contributing to EU 2020 goals. Providers of SGIs employ more than 30% of the working population and to more than 26% of the European GDP.

SGI's role in innovation is quite diverse. First, they are innovators on their own. In the recent years, many SGIs introduced innovative ideas that took the form of new products, new procedures and new organizational structures. Second, SGIs play an important role as facilitators of innovation and as enablers of innovation for other parties: education, funding research, and development for both sciences and businesses are part of the SGIs contribution to an innovative society. Finally, SGIs push other parties to innovate. SGI's role is particularly prominent in the application of performance standards for products and services, such as green procurement measures.

Points for discussion and debate

PRO INNO Europe has identified some challenges to innovation in services without mentioning clearly SGIs, the following points are raised:

- Lack of measurement of innovation in SGIs
- One of the common constraints to innovation in the service sector is the fact that service sector organizations tend to make less use of intellectual property rights. The fear that innovation might leak to other parties may discourage investment in innovation. How applicable this factor is for SGIs?
- Cultural and language barriers may affect mobility and efficient allocation of resources;
- Inability of the service sector to adapt quickly to changes in technology, or new organizational forms. Lack of innovation management capacity; managing idea generation, selection and development;
- Network failure and the inability of the sector to interact with different actors in the innovation systems. Insufficient networking with formal and informal routes for transfer of knowledge among enterprises, public institutions, and universities;
- Slow standard-setting, weaknesses in innovation systems, failure to use public procurement;

- Do you agree on the points raised above? (see chapter 1.4 for longer explanation)

1 Innovation and R&D

1.1 Introduction

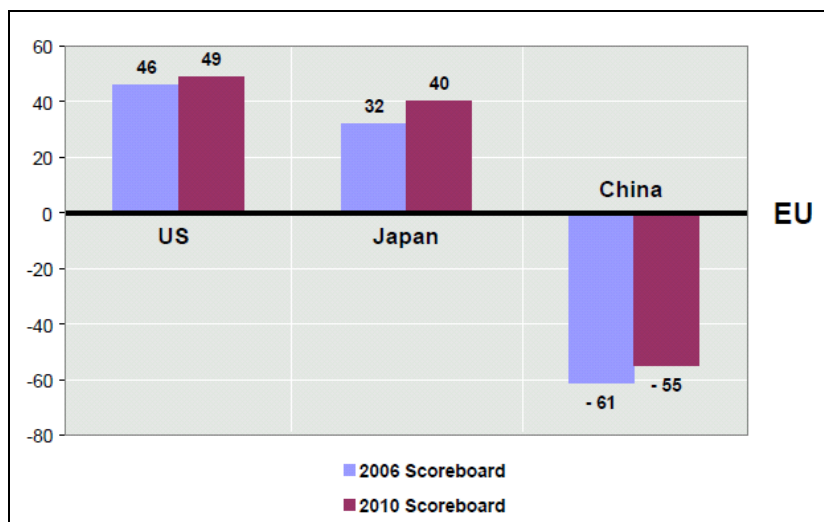
The EU 2020 strategy adopted by the EU parliament in 2010 aims at turning the EU into a smart, sustainable and inclusive growth economy with innovation being the foremost of its seven priority themes intended at achieving these objectives. For that purpose it has set the goal to spend 3% of EU's GDP on research and development. It has also called for the establishment of the Innovation Union in order to improve access to finance necessary for R&D and to place innovative ideas into practices in the form of new products or new services that would ultimately create jobs and generate economic growth.

In the same line, PRO INNO Europe was established with the aim of creating a single innovation space through establishing platforms where national and regional policy makers and companies can exchange ideas and best practices, develop and initiate new policy instruments. Europe INNOVA and Enterprise Europe Network are also similar examples specifically dedicated to the topic of innovation.

1.1.1 Innovation in the EU- international comparison

It has been recognized since the adoption of the Lisbon goals in 2000 that Europe is lagging behind in terms of innovative capability compared to the other major economic players in the world like the United States and Japan. Compared to the US, the EU is 50% lagging behind, and although China was lagging behind compared to EU in 2006 at 61%, it is obviously catching up (55% in 2010).

Figure 1 R&D and innovation performance EU versus US, Japan and China



Source: Barroso, J.M (2011)

The fact that Europe is lagging behind compared to its competitors has been attributed to several factors, the most important of which are: poor availability of finance, high cost of patenting, lack of legal and tax level-playing field, outdated regulations and procedures, slow standard-setting, weaknesses in public education and innovation systems, inability to use public procurement strategically and the fragmentation of efforts towards innovation.

1.2 Role of SGIs in Innovation and R&D

SGIs are very important players in the EU economy. They contribute to more than 26% of the EU GDP and employ over 64 million people (30 % of economically active population) and cover a wide range of services such as education, health, social services, public administration, public transport, postal services, railways services and electricity. SGIs form the basic infrastructure necessary for the quality of life of the European citizens and are important for the functioning of private businesses as well. Therefore, SGIs have an important role to play as innovators and as facilitators of innovation. These roles have been acknowledged by the European Council of Ministers who also considers public-sector innovation (which represents a small segment of SGIs) as an essential ingredient to generate an innovative environment (The Council of the European Union, 2010, point 17).

Innovation in SGIs has not been studied yet extensively, however, the EU Innovation Scoreboard has studied innovation in 4000 Public Administration services organizations (including: general public administration activities and regulation of the activities of providing healthcare, education, cultural services and other social services, excluding social security). The survey found that public administration institutions have introduced a substantial level of innovation. While the results cannot be generalized because of the nature of public administration and the fact that this type of organization is only partially representative of SGIs, the findings of the survey in Box 1 give some valuable insights.

Box 1 Innovation patterns in Public Administration Services- Survey

1.2.1 SGIs play an important role as innovators

SGIs are valuable innovators in the EU. They are capable of introducing innovative ideas in order to fulfil their missions as “services providers” in the most effective and efficient manner. Their innovation is quite prominent in several sectors such as health care, transport, postal services and many others that reflect a dynamic role in the innovation arena. Before discussing the SGI role as innovator, it is important to understand the several aspects of innovation. In order to do so, we borrow the definition that Bloch (2010) adopted for innovation:

“An innovation is the implementation of a significant change in the way an organisation operates or in products provided. Innovations comprise new or significant changes to services and goods, operational processes, organisational methods, or the way the organisation communicates with customers”.

There are two key elements in this definition. First, for innovation to be considered an “innovation”, it must be implemented. This means that, just having an innovative idea is not enough; the organisation has to implement the idea before it is regarded as an innovation. Second, the innovation must be new in the context where it is applied. This means that a new implemented idea in one organization may not necessarily be new in another. Thus, innovation is highly contextual.

The above definition is useful as it defines three levels of innovation where SGIs act as innovators:

- Introduction of **new products**: new products affect the clients directly because they receive improved or higher quality services, e.g. low noise buses are a new product that impacts transport services and improves clients satisfaction;

Figure 2 Development of new product – Germany

- Introduction of **new processes**: new processes are the improved methods to create or deliver services to clients. Clients will notice this in price reductions or faster services delivery, e.g. remote medical diagnosis provides faster services to customers without the need for mobility;

Figure 3 Reorganisation at Itella – Finland

- Introduction of **new organizational methods**: an innovative organisational method is implementing changes in the way the organisation functions. For instance, a change in internal incentive structures or the “agentification” of some parts of the government are examples of innovative approaches to management. Innovative communication methods refer to the communication with the (potential) client and other stakeholders, promoting the organisation and its services.

Figure 4 Development of new organisational method – Norway

1.2.2 SGIs play an important role as innovation facilitators

SGIs, particularly education services and public administration, play an important role as facilitators to innovation. They can help to address the barriers to private innovation, which according to Kaufmann and Tödling (2002) are specifically relevant for SMEs, although also a concern for larger companies. The most important of these barriers are:

- Lack of relationships and scale effects: companies need to form networks to do business. They need to connect to potential clients, to suppliers, to competitors and to regulators. The smaller the company, the more trouble it has with identifying the relevant players in the market and generating sufficient scale. This can for instance be very relevant when the company wants to innovate, but lacks specific knowledge. In that case, SGIs can facilitate cooperation between the different players in the market as per the example demonstrated in Box 1.

Figure 5 Innovation vouchers- The Netherlands

Wide literature on the effectiveness of these policy measures on private innovation reveals mixed results, though the general consensus is that they have a positive effect (Jaumotte & Pain, 2005) on innovation.

- Lack of funds: innovation often involves high risk, which makes it particularly unattractive for the financial service provider to supply loans to finance the innovation. Also within the company, sufficient money may not be available to fund the implementation of the innovation. Governments and public administrations may play a role in mitigating this barrier to innovation. They can for instance subsidize the innovation or grant tax credits. Another option for governments is to guarantee bank loans, where companies borrow funds from banks, while the government ensures their repayment. Banks will be less hesitant to lend the money, and at the same time, the interest rate for the company will drop.

- Hiring of high quality personnel: innovative enterprises have sometimes trouble hiring high quality staff (Kaufmann and Tödting, 2002). Here is a substantial role for the education sector; schools, universities and other education facilities that can ensure high quality education provision. Moreover, learning facilities can cooperate with the private sector to develop a curriculum that match the market demand.

Moreover, education is a creator of human capital, which does not only create more innovation (eg De Clercq & Dakhli, 2003) but it also ensures that innovations spread faster through the society (Benhabib & Spiegel, 2002).

- Entrepreneurship: it is widely recognized that entrepreneurship is the major innovative factor; a fact that has been acknowledged by the Innovation Union by emphasising support for SMEs. Entrepreneurship contributes to the innovative capacity in two ways. First, individuals who have an innovative idea need entrepreneurial skills to develop and commercialize this idea. Second, managers within companies need a certain sense for entrepreneurship to recognize good ideas from the employees (Alberti, Sciascia, & Poli, 2004). Here, a considerable role lies for the education sector to strengthen the entrepreneurial skills within the society.

1.2.3 SGIs play an important role as innovation initiators

SGIs play an important role by inducing innovations by third parties. Both the European Commission and the Council acknowledge this role and urge Member States to stress upon the development of pre-commercial, green and smart procurement (European Commission, 2010; The Council of the European Union, 2010). SGIs can use their ability to set standards, minimum requirements and procurement procedures to initiate innovative actions by other parties in the market through a number of measures:

Setting standards and minimum requirements

Governments set- through regulations- new standards and minimum requirements for products (e.g. environmental friendliness) or service performance. These can induce SGIs and other parties alike to engage in innovation. For instance setting new standards in health care forces hospitals to engage in new processes, or procure higher quality innovative products (green procurement).

Figure 6 New standard hospital procedures – North America

Procurement process

SGIs have several ways to initiate innovation in the procurement process. The first way to do this is in a normal procurement procedure to demand some enhancements of the product that is already commercially exploitable. This includes for instance building a road in a difficult terrain that requires additional measures, or building a road with minimum disturbances for the environment.

A more radical way to initiate innovation for SGIs is to directly purchase an innovation that is not yet on the market. This is called pre-commercial procurement. In this way enterprises are stimulated to engage in innovative thinking, while at the same time providing them with the means to innovate. This also gives the entrepreneurs a first valuable reference in their portfolio (Procurement Innovation Group, 2009).

Pre-commercial procurement is already active in the United States since 1982 as the SBIR program. This SBIR program ensures that a fixed part of the government's budget is used to procure innovations from SMEs. First, SMEs submit their idea for an innovation. The most promising ideas receive financing from the government. The government in turn selects the most

promising and useful ideas and provides seed capital through a procurement contract (Connell, 2006).

1.3 SGI performance in innovation

There is so far no comprehensive overview of the role or performance of the SGIs in the three roles identified above. PRO INNO Europe has however identified (EC, Commission Staff working paper, 2009) the percentage of enterprises in the sector that apply product or process innovation but, with no specific focus on SGIs. However, according to their report, the data used in analysing services cover a large number of SGI including health, public administration, education, social work as well as the Knowledge Intensive Businesses Services (KIBS include computer and related activities, research and development, architecture and engineering activities and consultancies, technical testing and analysis).

Table 1 percentage of firms that introduced a product or process innovation

	Product and or process innovation	Product innovation	Process innovation
All enterprises			
Manufacturing	42.1	30.22	31.3
All services	33.1	22.2	23.8
KIBs	46.8	37.2	33
Services excluding KIBs	29.9	19.7	22.6
All process and process innovators			
Manufacturing		69.9	71.2.1%
All services		63.6	71.7
KIBs		78	71.4
Services excluding KIBs		60.7	74.2

Source: EC 2009, p. 33

A close look to this table shows that, services sectors enterprises are less innovating than their manufacturing peers (33.1% versus 42.1%). Similarly, the services sector (which also covers partly parts of SGIs) presents higher shares of process innovation (22.6%) than in product innovation. And in general terms, services (excluding KIBs), perform lower than their peer KIBs in terms of product and process innovation.

Innovation paradox in SGIs

SGIs particularly those associated with social aspects such as education, social services, social housing, health care and public administration are bound by laws and strict procedures to guarantee that every one in the society has equal rights to access these services. Part of their mandate is to demonstrate that they are reliable and strong. And, since innovation involves some forms of “risk-taking, entrepreneurial” attitude, in theory, this notion is believed to be contradicting to the mandate of some SGIs. Veenswijk (2005) refers to this contradiction as the innovation paradox, where SGI institutions have to balance between these two extremes.

General drivers to innovation¹

As per the findings of the survey conducted by the Innovation Union scoreboard (in Box 1) the new rules and regulations were the main drivers of innovation in the public administration. Their

¹ These are general drivers to innovation. Whenever applicable, reference will be made to SGIs.

innovation was not necessarily driven by the demand side, but by the supply side. This however does exclude the fact that innovation in some sectors within SGIs can be driven by the demand side.

1.3.2 Changes in the nature of demand

There is already an observed change in the nature of demand in the EU; consumers demand a nimble supplier of their services that can deliver quickly, at high quality and without much bureaucracy. In case SGIs are in a competitive environment, they risk losing their own consumer bases. For example, due to the rising competition in some SGI sectors such as education, health and postal services, consumers have more choices. In addition, the ageing population in the EU has created an imbalance between the economically active and inactive population, thus increasing the burden on Social SGIs.

Figure 7 Pension reforms – Australia

Increased emphasis on accountability

The OECD report (2005) indicates that governments reformed the obligations of the public services in order to increase trust in the public sector. Throughout the western world, there is an increasing demand for transparency and accountability, where citizens increasingly want to know what is happening to their taxes, and what services institutions can deliver against these taxes. As governments reacted to this by increasing the openness of the sector, institutions have to report what they are doing extensively in open publications, and demonstrate that they deliver what they promise.

Changes in environmental policies

The increasing emphasis on climate change problems generate new problems that the SGIs sector is challenged to solve. Innovation is by definition required to adequately approach these problems. Also old problems that have been solved could be more efficiently solved with innovations (Knowledge, 2005).

Box 2 Meeting environmental challenges in the Transport sector

Doing more with less

Currently, the most relevant and pressing reason for SGIs to innovate are the reduced budgets. The financial crisis that was followed by a deep recession in 2009/2010 resulted in precarious financial situations of governments and resulted into severe austerity measures for SGI sectors.

Accompanied by an increasing consumers demand, SGIs face the challenge to strike a balance between high quality of services and efficient services. As a result of the current crisis, SGIs are pushed to do more with less. Throughout the years this has always been a major reason for SGIs to innovate. It also has to take into account the reduction of CO2 emission and the use of non-fossil fuel as sources of energy.

Pre-requisites for successful innovation

These measures in response to changing environmental policies require innovative solutions. Besides the drivers to innovation, there are important pre-requisites for the successful innovation to take place:

Competition

One major factor that fosters innovation is the level of competition. When institutions face competition,

- *In the postal services, several national providers are operating across the EU, which increases competition*
- *The education sector is facing new forms of competition from privately operated education institutions in some countries in the EU such as in the Netherlands.*

Source: CEEP 2010.

they automatically try to strengthen their capacity by innovating; otherwise they lose their clients to their competitor. Competition is not necessarily restricted to private parties. Also publicly funded organisations start to increase their efficiency when confronted with competition (Rosen, 2005). The commercialization and internationalization of SGI with new entrants in the national markets have already created a high level of competition within SGIs.

Networking

If competition is not an option, networking and cooperation may be possible. Organisations can cooperate to develop, pilot and implement new ideas. Proliferation and sharing of best practices is a strong tool to enhance innovation. Most innovations cannot be copied because it may not be appropriate in a different context, therefore, some modifications are required to make the innovation work in a different context.

Incentive system

An incentive system is a potential source for a more innovative environment. However, there is little empirical evidence to prove the effect of incentive systems on the innovative capabilities. It has been acknowledged however that innovations that lead to cost savings often results in reduced budgets (Bugge, Hauknes, Bloch, & Slipersaeter, 2010) thus creating disincentives to innovate. On the other hand, the lack of incentive systems, in general results, in very little innovation (Knowledge, 2006; Halvorsen, Hauknes, Miles & Roste, 2005) and makes it difficult to generate bottom- up innovation. In addition, the lack of a proper incentive system for the organisation impedes a supportive attitude to innovative ideas by management.

An incentive system is not always a requisite to implement innovative ideas; employees often take pride in their work, and even more so if they are able to make improvements in the organisations. Some of the barriers to innovation within an organization may be a rigid organisational structure with very strict rules; lack of time and resources to implement a good innovation; and administrative burdens.

Implementation of innovation

There are some crucial factors that need to be met to implement an innovation successfully. This list below is based on Fernandez and Rainey (2006) who provided a comprehensive list of prerequisites. All of these factors are interlinked, in a sense that realising one factor is often a step in the right direction to realise other factors:

- Support from the higher management to implement the innovation: Management should allocate resources and time to the innovation project and potentially should defend the innovation to the rest of the organisation;
- Support from the employees: workers should be behind the innovation otherwise they can frustrate the process greatly. Having a supporting staff also means potential input of valuable new ideas to improve the innovation (process);
- Relevance: everyone involved should be convinced that improving the organisation or products is necessary;
- A clear plan must be made to implement the innovation: this plan should include a time line, clear measurable goals and how to deal with potential set-backs;
- Support of stakeholders for the innovation: especially in the SGI sector many stakeholders are relevant. Their wishes should be taken into account in the innovation.

Also relevant in some parts of the SGI sector is that innovations in one organization may affect the work in another related organization. Think for instance about a reorganization in the ministry of education that affects the way the education system need to do the bookkeeping. In this way,

innovation can potentially create innovation, but it can also cause the initial innovation to fail because other organisations are unable or unwilling to innovate.

Figure 8 Changing the ministry of water resources – Bangladesh

1.4 Challenges to innovation in SGIs

There is so far no comprehensive overview of the barriers and difficulties that SGIs are facing in order to fulfil their roles as innovators, as innovation facilitators or as innovation initiators thus hampering their contribution to a smarter and more sustainable Europe. However, having had an idea about the major drivers and barriers to innovation, it is possible to identify the ones that are most relevant to SGIs. In practical terms, PRO INNO Europe has however identified a few challenges to innovation in services (EC, Commission Staff working paper, 2009²) in general terms, with no specific focus on SGIs:

- Lack of adequate competition and pricing of services in the market due to dominance of a few market players. Services that provide standardized services with small price differences have access to economies of scale, but with a smaller number of international service providers. The lack of adequate competition impedes innovation;
- One of the common constraints to innovation in the service sector is the fact that service sector organizations tend to make less use of intellectual property rights. The fear that innovation might leak to other parties may discourage investment in innovation. How applicable this factor is for SGIs?
- Cultural and language barriers may affect mobility and efficient allocation of resources;
- Inability of the service sector to adapt quickly to changes in technology, or new organizational forms. Lack of innovation management capacity; managing idea generation, selection and development;
- Network failure and the inability of the sector to interact with different actors in the innovation systems. Insufficient networking with formal and informal routes for transfer of knowledge among enterprises, public institutions, and universities;
- Other factors include :
 - Slow standard-setting, weaknesses in innovation systems, failure to use public procurement;
 - Lack of measurement of innovation in SGIs: As observed earlier, data on innovation in the SGIs is not comprehensive. The European Commission issues a yearly innovation scoreboard that uses several indicators to measure the innovativeness of the Member States and Europe as a whole (Hollanders & Tarantola, 2011). They distinguish between enablers, firm activities and outputs. The innovation enablers are represented in the human resource, financial and legal frameworks that allow innovation to take place. The firm activities refer to the investments in research and innovations that companies undertake, entrepreneurship

² data used in analysing services cover a large number of SGI including health, public administration, education and social work

activities and the intellectual assets of the firm. The outputs refer to the results of the innovation activities on the societal level (economic effects and innovators). The EU adopted 25 indicators to measure these parameters; however they change annually to accommodate new ideas about innovation. But, in general terms, indicators are focussed on the business sector (i.e. not the SGI sector). A selected list of indicators has been selected to measure the service sector in general though.

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