Public-private partnerships and innovation - a language game for all seasons?

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Veiko Lember
Research Fellow, Ph.D.
Institute of Public Administration
Tallinn University of Technology, Estonia
veiko.lember@ttu.ee

Introduction

Employing private-sector resources for public goals is by no means a new phenomenon. Constantly changing, however, and occasionally rediscovered are the understanding and concepts of what exactly constitutes public-private partnership (PPP), what this cooperation should aim at and what kind of results are to be expected to arise from the cooperation. As pointed out by Hodge and Greve (2005b), the PPP phenomenon is reconceptualized regularly. The raise of PPPs in the end of the last century is usually associated with the macroeconomic stability concerns (in terms of public debt levels and access to private capital), value-for-money concerns, quicker service provision and also innovation. It is, however, somewhat striking that in spite of the growing attention, the issue of innovation has not been thoroughly addressed in the PPP literature. Mostly it is just assumed that innovation is one of the virtues of the PPP without considering what innovation actually is and how does it influence the partnerships. While it is relatively easy to understand why public sector can benefit from the innovation processes taking place in private sector, there seems to be more confusion how can PPP lead to innovation in public sector, how can PPP influence private sector innovation and how does it affect PPP when innovation is explicitly targeted for?

The concept of innovation has a rather controversial meaning in the field of public administration. Being used for all sorts of different phenomena, the innovation concept has been accused of being yet another “Vital but Vague” concept in public administration (Pollitt 2010, but see also Kattel and Vask 2008). According to Drechsler, the concept of innovation is entirely misused in the current public administration debate, being nothing more than just a cliché: “Innovation is about profit, and the task of the state is neither to make money, nor to save it, but – as one aspect – to see that it can be, and is, made” (2009, 10). Therefore, when talking about innovation and public sector, one should not analyze public sector innovation as such, but whether and how public sector activities influence innovation in the private sector (Kattel and Vask 2008). The concept of innovation in this sense originates from Schumpeterian economics (ibid.) and is directly related to a process labeled ‘creative destruction’ where new technologies, skills, industries etc. replace the old ones.

One of the main reasons why it is very difficult to talk about public sector innovation per se stems from the fact that it is empirically problematic, if not impossible, to differentiate between change and innovation in the public sector (Kattel and Vask 2008). The existing literatures would founder on their inability to differentiate public sector innovation from public sector change, modernization or reform—be it in the form of new or improved policies, services or organizational changes (Lember et al 2010b). At the same time, as argued by Kattel and Vask (2008) “Innovations are means businesses

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1 In fact, Gregersen (2010) offers a great explanation why public sector influence on innovation is not just about continuous change, but how public sector can support innovation through creating a stable and high level demand (e.g. eco-friendly standards).
use to gain competitive advantage over their competitors and the success or failure of an innovation is relatively easy to determine according to company’s bottom line.”

This kind of conceptual confusion poses a challenge for the current PPP debate where innovation is claimed to be one of the main rationales to engage with the PPP. If innovation were to become a real target of PPPs then how can we really tell when a PPP has resulted in innovation and when not? Similarly, are there any reasons to call PPP itself as an organizational innovation? There is a need to have a coherent conceptual framework for understanding innovation in PPPs. On general public sector level, Kattel and Vask (2008) have proposed that Ronald Coase and his conceptions of transaction costs and externalities offer such a possibility. This paper takes a somewhat narrower view and suggests, in a similar vein that in the context of PPP a suitable framework can be found in the concept of public procurement for innovation (PPfI) (see also Lember et al 2010b).

PPfI is among the latest partnership initiatives, which has only recently been (re)discovered by the scholarly community, and has thus far received only limited attention within innovation policy studies and almost no attention within the PPP and public administration context. PPfI is a special form of public procurement that occurs when a public agency acts to purchase, or place an order for, a product – service, good, or system – that does not yet exist, but which could probably be developed within a reasonable period of time, based on additional or new innovative work by the organization(s) undertaking to produce, supply and sell the product being purchased (based on Edquist and Hommen 2000, 5). It has by now, for the first time, emerged on policy agendas in the European Union as well as in many European countries (e.g. the United Kingdom, the Netherlands, Spain, Ireland) (ECEG 2005; Edler and Georgiou 2007), but has not yet been introduced in the context of PPP.

Unlike in regular procurement, where governments place orders for ready-made or “off-the-shelf” products, procurement for innovation involves procuring products that need additional research and development (R&D) work and thereby influences the innovative capacity of providers. Such procurements are used to solve existing as well as emerging economic and social challenges. The Internet, GPS technology, the semi-conductor industry, and passenger jets are perhaps the most prominent examples that resulted from government innovation-oriented procurement bringing along major economic and social impacts (Cabral et al. 2006). As seen from these examples, PPfI should not be treated as a form of spot market transaction, but as a wider concept marking complex cooperation that exists between public and private sector and which:

- aim at developing new solutions,
- aim at solving specific public policy goals, and
- creates positive spillovers in private sector in terms of new market opportunities, export markets penetration, industry creation, infant-industry protection, increased competitiveness, diversified economic activities etc.

In most cases the existing literature on PPP deals with the first two points and leave out the third aspect. But as argued above, without considering the effect on private sector, the term innovation becomes hollow. The purpose of the current paper is to elaborate on the links that exist between innovation and PPP. More specifically, the paper aims, firstly, to demonstrate that public procurement for innovation is an excellent framework for understanding public sector and also PPP innovation. Secondly, based on the example of PPfI, the paper tries to identify what are the innovation-specific factors that determine the fulfillment of the innovation goal in the public-policy specific PPPs? There is a problem that has been largely overlooked in the current academic debate, namely whether the problems inherent to contracting and partnership in general can be overcome in the case of PPfI: as PPfI is a novel policy area for most European countries, little is known regarding what kind of challenges it would pose to public administration if the initiative was to be implemented on a larger.

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2 The influence of public procurement on new technologies and research and development has been widely discussed in the defense industry studies, however (see Ruttan 2006 for an overview). But as James explains „Unfortunately, however, there is a disconnection between the mainstream literature on innovation, and the community of specialists working on defence R&D issues” (2009, 451).
Are there any reasons to expect that the more extensive use of innovation goal will not make the future partnerships worse off? The current academic discussion on PPfI, which is being held within the innovation policy discourse, has largely ignored the essence of the problems common to contracting and partnerships in general.\(^3\) It is often simply assumed that PPPs and contracting are the optimal solutions for delivering the innovation policy initiatives (OECD 2009; Radosevic 2009). Some treatments\(^4\) do go further and acknowledge the scope of implementation problems, but overall, the implementation aspects affecting the delivery of innovation policy and especially PPfI are left without proper attention. It can be very well the case that PPfI is just another new and fashionable initiative resulting from a promising theoretical idea, but that may not live up to expectations once the initiative is to be implemented on a large scale.

The paper develops as follows: The first sections set the overall scene of the paper by giving an overview of public-private partnership (PPP), innovation and public procurement for innovation (PPfI). In these sections, the role of innovation as part of PPPs is discussed and more importantly, a case is made for introducing PPfI as a distinctive analytical tool to understand innovation in the context of PPP. In section three, drawing on the results from previous empirical study by Lember et al (2010a), the innovation-critical factors for PPPs are distilled and analyzed. The concluding part summarizes the main findings of the paper.

1. **Public-private partnership and innovation – a dual “language game”?**

1.1. **What does public-private partnership refer to?**

Cross-sectoral cooperation and partnership ideas have been developed under a variety of different concepts such as privatization, networks and collaborative partnerships, and the answers to these questions have changed accordingly. The last two decades of the twentieth century first witnessed a growing reliance on neo-liberal ideas of privatization and market-type contracting, which were also introduced to the transitional and developing countries (Kettl 1993; Savas 1987; Tõnnisson and Randma-Liiv 2008). Then, partly as an answer to the poor results from privatization initiatives, the emphasis was put on more collaborative cooperation mechanisms labeled public-private partnerships or networks (Hodge and Greve 2005a; Kickert et al. 1997; Linder 1999; Lowndes and Skelcher 1998; Rosenau 1999 and 2000). Today one can see a mix of contractual as well as institutional cooperation mechanisms being implemented (Hodge and Greve 2005a), but overall the ideological milieu in which the governments operate has become more state-oriented (Drechsler and Kattel 2009; Pollitt and Bouckaert 2004), and due to the current global crisis even more so than before (Drechsler 2009).

On the conceptual and ideological level, the meaning of PPP seems to be variable and not well understood (Pollitt 2003; Linder 1999; Hodge and Greve 2007). On the one hand, there is the understanding that PPP is nothing more than just a softer version of the privatization movement, which was introduced to retreat from the radical and often unpopular privatization programs such as load-shedding and asset sales (Greve and Hodge 2007; Linder 1999; Savas 2005). PPP is seen as an ideological tool that seeks to diminish the role of the public sector and make it more market-like (Savas 1987; 2005) or at least sound like it. In other words, under these premises, the government ought to rely more on competition-driven contractual transactions (i.e. on horizontal integration) instead of being organized through hierarchies (i.e. vertical integration). Here the design-build-operate types of PPPs (also known as Private Finance Initiatives) are considered another form of privatization together with contracting-out, vouchers and other tools (Greve 2007).

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3 This aspect has also been discussed by Karo and Kattel (2010) who claim that regarding innovation policy “we can witness a rather evident over-generalisation or simplification of the role of politics and policy-making … and consequently no significant differentiation is made between political choices over policies and the ability to implement policies.”

On the other hand, contrary to the idea of privatization, it is said that PPP is a “different set of conceptual premises altogether” (Linder 1999, 36). Thus, it is the cooperation not competition and adversarial relationships that hallmarks PPP and where the “disciplining mechanism is not customer exit or thin profit margins but a joint venture that spreads financial risks between public and private sectors” (ibid.). Here the notion of partnership refers to the concept of networks, i.e. a separate governance mode that stands in between hierarchy and market (Kickert et al. 1997). The idea is not to diminish the role of the government, but rather to introduce an alternative modus operandi, which works under different conditions as opposed to hierarchy or market. Risk-sharing and long-term commitment are the key-words here, thus excluding competition-based short-term contracting from the list of PPPs (Greve and Hodge 2007; Greve 2007). Here, the design-build-operate types of PPPs together with organizational partnerships (i.e. mixed companies) and policy networks are considered as distinctive collaboration forms and not as Linder puts it “derivative of privatization” (1999, 36). However, for some authors, design-build-operate types of PPP do not represent a real partnership, which should occur in a set of integrated projects and not in a form of a single contract (Klijn and Teisman 2005).

Next to the conceptual and ideological considerations, one can also differentiate between organizational (or social) partnerships and economic partnerships (Hodge and Greve 2005b). According to this view, the idea of social partnerships is to share risks and gains, and find new ways to provide public services (often referred to as “innovative services” or “innovative organizational forms”). When it comes to economic partnerships, then it is mostly about getting access to private finance and capital, but also facilitating “innovative solutions”.

All in all, today governments as well as academia use the term PPP in different meanings and the PPP debate has found itself in the middle of “language games” (Hodge and Greve 2007, but see also Linder 1999). This means that different stakeholders of the debate use the term in accordance their own view and not in line with some sort of general conceptual background. Arguably, the reason for that stems from the positive connotation the term “partnership” has, but as a result, it is also very difficult to evaluate the real outcomes and effect of PPPs as such.

This article understands PPP in its widest sense, referring “to the ways in which government and private actors work together in pursuit of societal goals” (Skelcher 2005, 348). The initiatives under this definition include public leverage programs, contracting-out, vouchers, franchising, joint-ventures and strategic partnering (ibid.). From a partnership viewpoint, the difference between these initiatives can be found in contracting strategies, which combine competition as well as collaboration elements. At one extreme, there is competitive contracting, where there is little room for trust and where the contractor’s behavior is ex-ante highly regulated (DeHoog 1990). On the other end, there is relational contracting, where – due to the high level of uncertainties – the liabilities and rights are loosely defined, and where mutual trust and risk-sharing dictates the collaboration (ibid.).

It has been argued that partnerships are never entirely dominated by the network mode of governance and that in different phases of its life-cycle, partnerships pass through different dominating governance modes (Lowndes and Skelcher 1998). Lowndes and Skelcher have described the cycles as follows:

- **Pre-partnership collaboration** is characterized by a network mode of governance based upon informality, trust and a sense of common purpose.
- **Partnership creation and consolidation** is characterized by hierarchy based upon an assertion of status and authority differentials and the formalization of procedures.
- **Partnership programme delivery** is characterized by market (or quasimarket) mechanisms of tendering and contract, with low levels of cooperation between providers.
- **Partnership termination or succession** is characterized by a re-assertion of a network governance mode as a means to maintain agency commitment, community involvement and staff employment. (1998, 320).
Therefore, it is suggested in the current paper that PPP could be perceived as a special case of contracting, which is affected by competition as well as collaboration elements (see also Greve 2007). This does not necessarily solve the conceptual problems of PPP, but offers at least the possibility to avoid the ideological traps stemming from the PPP “language games”. And as it will be demonstrated later, it is also a useful approach for analyzing PPP through the lenses of public procurement for innovation (PPfI).

1.2. What does innovation refer to in the context of public-private partnership?

Innovation is increasingly seen as a new source of economic growth in Europe (and elsewhere) and it can be defined as:

the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations (OECD and Eurostat, 2005, 46).

Innovation has become one of the key themes in many European strategic policy initiatives such as “Europe 2020” and in many national policies to tackle the problems of economic growth and competitiveness.5 Today, there are number of various innovation policy measures available for governments, which aim explicitly at supporting private sector innovation (see Figure 1). Regarding this background, it should not surprise that innovation has become one of the hot topics also in the PPP discussion. But it seems that the current debate on innovation and PPP has revolved yet another “language game”.

In general, there seem to be two streams of literature dealing with the topic of public sector and innovation (see Kattel and Vask 2008, but also Koch ja Hauknes 2005). The first stream of the literature locates itself firmly on the premises of evolutionary economics and innovation studies, whereas the other stream draws on a distinct concept of public sector innovation that arguably stems, but differs, from private sector innovation. If in the former case the central question is how the public sector can support and influence innovation in the private sector (e.g. via patent system, university-business relations, technology development partnerships), then in the latter case the main question is how does innovation occur in the public sector and how does innovation influence the public sector. Furthermore, in the former case it is not the better (public) service or organizational change as such that matters, but it is about how to influence the working routines in the private sector that would convert to economic growth and increased competitiveness via productivity growth, outcompeting competitors, economies of scale, externalities, path dependency and other aspects. In the latter case it is mostly about significant and enduring changes in core tasks, i.e. public services.

The literature on PPPs and innovation can be divided into two on the similar grounds. There is a vast literature studying public-private partnerships that explicitly aim at supporting private sector innovation (see e.g. Stiglitz and Wallsten 1999; Link 2006; Edler and Georghiou 2007) and there is a growing number of studies addressing PPPs – directly and indirectly – as source of public sector innovation (see e.g. Hodge and Greve 2005a). The former stream of literature deals with innovation-policy specific PPPs such as science parks, public venture capitals, collaborative grants etc (see Figure 1). The latter stream of the PPP literature deals predominantly with public-policy related initiatives (e.g. in health-care, social welfare, transport etc.) and the concept of innovation is mostly used there as a synonym to new solutions leading to lower costs or better services for tax payers.

5 For example, the newly adopted „Europe 2020. A European strategy for smart, sustainable and inclusive growth” explicitly outlines innovation as one of the main factors behind the economic development in Europe. Moreover, the European Commission sees the role of ’PPPs’, ‘European Innovation Partnerships’, ‘knowledge partnerships’ crucial in supporting and influencing innovation in the European area (see http://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%202007%20-%20Europe%202020%20-%20%20EN%20version.pdf)
Figure 1. Supply-side and demand-side innovation policy measures (Source: Edler and Georghiou 2007).
Some authors treat PPP itself as an organizational innovation (Hartley 2005). Pollitt (2005) refers to innovation in terms of better construction design and operation of facilities (e.g. prisons) and also in terms of new financial tools for PPPs. Oppen et al (2005) refer to innovation as new ways in public service delivery. Osborne (1998) speaks about innovative services in the context of partnerships with voluntary organizations.

The literature dealing with PPPs as source of public sector innovation only seldom make any implications to the innovation theory or innovation policy literature in terms of private sector innovation. There are usually only indirect claims made toward it, but overall the issue is almost a non-existent. This means also that the PPP studies dealing with public-policy specific innovation do not analyze the effect of innovation on private sector and do not attempt to validate the innovation effect as such.

The discussion on PPP innovation is similar to the general public sector innovation debate – while the discussion on PPPs supporting private sector innovation is held on clear conceptual grounds, the PPP discussion on public sector innovation as such still suffers from a clear definition of innovation. It seems that as in the general public sector innovation dispute – where the concept of innovation is too often simply transferred from private sector literature without any significant modification – the discussion on PPP innovation has caused a similar Humpty Dumpty like “language game” effect: that is to say, innovation in the public sector is whatever a particular user of the term wants it to mean (Lember et al 2010b).

Under these circumstances, it is difficult to analyze when innovation has occurred in PPPs and how does the innovation claims actually affect PPPs. Thus, in order to understand innovation in PPP, a somewhat more refined framework should be used instead of ‘public sector innovation’. One of those frameworks can be found in public procurement for innovation (PPfI).

2. Public procurement for innovation as public-private partnership

2.1. The logic of PPfI

As indicated already above, the idea of PPfI is, on the one hand, to find solutions for the existing or emerging social needs. Public sector procurement in the context innovation policy can be seen as a special case of user-producer interaction:

In capitalist economic systems, where markets are effective mechanisms for articulating and satisfying most economic needs or demands, the point of departure in the application of public technology procurement must be the satisfaction of genuine social needs—in other words, specific societal needs unlikely to be met by the market (Edquist and Hommen 2000: 5).

On the other hand, public procurement for innovation represents one possibility that can be used to affect the technology life cycle, promote clusters and innovation systems, and thereby increase urban, regional and national competitiveness. In addition, the role of the public sector could be seen as facilitators of innovation processes especially in the fluid phase of technology development because both social and economic benefits for the region and/or nation state might follow.

In more concrete terms, there are several ways that public agencies can support innovations through procurement, namely:

- the creation of new markets for products and systems that go beyond the state-of-the-art;

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6 For example, Greve (2007) refers to the US military procurement and Danish welfare-service contracting as being part of the industrial policy, but the treatment does not go into details.

7 This part draws heavily on Lember et al (2010a; 2010b).
• the creation of demand “pull” by expressing its needs to the industry in functional or performance terms;
• the provision of a testing ground for innovative products (Rothwell 1984: 166);
• the provision of the potential of using public procurement to encourage innovation by providing a “lead market” for new technologies/solutions (ECWG 2006).

Compared to the supply-side innovation policy measures (Figure 1), the public sector can use PPfI to act as a demanding first buyer by absorbing risks for socially/ecologically demanded products (where significant financial development risks prevail) as well as by promoting learning (where procurement introduces strong elements of learning and upgrading into public intervention processes). The government can be the demander, bear higher entry costs, create critical mass, signal the market, and link innovation to production—and not just increase internal capacities of producers (Edler 2006: 8; Geroski 1990). Several studies compare R&D subsidies and state procurement contracts without direct R&D procurement (e.g., Rothwell and Zegveld 1981). They conclude that over longer time periods, state procurement triggered greater innovation impulses in more areas than R&D subsidies. Geroski (1990: 189) highlights the direct links between innovation and production, showing that—in contrast to supply-side measures such as R&D subsidies—public procurement for innovations leads not only to technological capacities but also to increased production capacities for innovations. In the context of procurement, it is important to note that governments can become important end users via the procurement process. In addition to direct technological or product innovations, quality and other standards (e.g., ecological) set by public agencies also play a key role.

Public procurement as part of demand-side innovation policy measures may take three different forms: direct, co-operative, and catalytic procurement (Edquist and Hommen 2000; Edler et al. 2005). In direct public procurement, the public organization is the (primary) end-user of the purchased product or service. In case of co-operative procurement, the public authorities buy together with private organizations and both also use the purchased products or services. In catalytic procurement the government initiates or is merely involved in the procurement process, but the purchased products or services are used by private end-users. One should also distinguish between procurement of commercially available products and pre-commercial products (see, e.g., ECWG 2006). The main difference between these two types comes from the risk-sharing perspective. In the latter case the procuring authority covers some of the costs of the R&D process without considering the final results, whereas in the former case only the ready-to-use product gets financed.

In sum, PPfI is about finding solutions to social problems and facilitating the creation of new technologies, lead-markets and infant-industries, fostering competitiveness and diversifying the local economy through direct, cooperative or catalytic procurement.

PPfI often, but not always, starts as a collaborative partnership, then turns to competitive contracting and in due course transforms back into collaborative cooperation with end-users. The PPfI can be understood as a partnership form that passes different cycles. Pre-partnership collaboration must take place, for example, when the government prepares for catalytic procurement. For that to happen, the government has to seek for a sufficient number of partners (private as well as public) to create a ‘pull effect’, it needs to negotiate with potential partners about the preferences and goals, it ought to carry out technology foresight in a coordinated way etc. During the partnership creation and consolidation phase, the formal procedures are agreed upon. This may include the creation of a special (purchasing) agency, adopting procedural rules (concerning e.g. transfer of intellectual property rights, risk-sharing or financial obligations) and other aspects.

At the next stage, the partners need to choose between program delivery mechanisms, which are either market-based or semi-market-based. Here the prominent role of contracting (mostly in form of public procurement) becomes evident, as the partners need to make an intelligent decision on how to contract, whom to award the contract and how to evaluate the results. For example, partners may want to combine pre-commercial procurement methods with commercial procurement or complement the
procurement activities with research grants or support services such as training. Finally, the partnership leads to termination or succession. In the case of PPfI, the partners may decide to continue with consolidated procurement for new technologies or terminate the cooperation if the new technology has reached the market (or failed to do so).

The main virtue of adopting the framework of PPfI in the context of PPP innovation stems from the fact that it allows not only to analyze how PPP can lead to better public services or value-for-money solutions, but how the innovation claim materializes in the private sector and economic spillovers. In fact, in this way it becomes possible to measure and empirically validate the impact of public sector innovation.8

Therefore, when PPPs are being seen through the lenses of PPfI then we have a framework that
- is based on partnership as well as innovation theory principles;
- aims at finding new solutions to emerging social needs;
- is about sharing risks;
- is based on joint-decision making;
- facilitates private sector innovation;
- is to a certain extent empirically measurable.

In other words, it allows one to understand and analyze innovation in PPPs within a clear framework and helps to avoid the multiple “language game” problems of PPP and innovation.

3. Innovation-critical factors in PPPs

There is no empirical evidence available demonstrating that PPPs have brought along a major progress in public service delivery (Hodge and Greve 2005a; 2007; Pollitt 2003; Rosenau 1999). This seems to hold both for competition-led cooperation and collaboration-dominated partnerships. On the one hand, the effect of the PPPs has been difficult to evaluate, but on the other hand, not enough data has been collected to draw any firm conclusions (ibid., but see also Greve 2007). Rosenau concludes that: “Politics and discourse seem to drive the process” (Rosenau 1999, 10), a viewpoint that very much resembles the conclusions on general trends in modern public management reform (Pollitt and Bouckaert 2004). The same holds if one was to evaluate the effect of innovation on PPPs or the effect of PPPs on innovation.

As argued above, there has been a lot of talk about innovation in public-policy specific PPPs, but a few things have been said about what it takes to actually fulfill the (private sector) innovation agenda? Also, what kind of effect the innovation goals have on PPP – are there any reasons to expect that the more extensive use of innovation goal will not make the partnerships worse off? It was demonstrated above that both theoretically and empirically a strong case can be made for the use of PPfI as an innovation policy measure. However, these claims have not been yet verified on a systematic level. At the same time, the PPfI studies have pointed to several crucial factors that may actually bring along severe problems if the PPfI was started to be implemented on a large scale. Borrowing from the PPfI literature, the innovation-critical factors for the public-policy specific PPPs can be divided into four – regulatory/policy factors, market factors, contracting/cooperation factors and capacity factors.

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8 For example, Edler et al (2005) have distinguished three basic roles that public technology procurement can play: (1) market initiation, where developmental technology is procured by the public sector (technology comes into existence only because of public demand); (2) market escalation, where public procurement is employed to diffuse the existing new technology into the market; (3) market consolidation, which occurs via bundled demand that leads to a harmonisation of fragmented markets. This differentiation together with measurement of value-addedness makes it possible to evaluate the impact of public sector innovation.
3.1. Regulatory/policy factors

Until recently, the EU procurement policy has not favored using procurement as a tool for wider social and economic goals, including innovation. The political will has simply valued the public procurement tool for other reasons – creation of single market, most notably. The norm has been to emphasize transparency, competitiveness, non-discrimination and cost-efficiency (the lowest cost principle) and minimize or even avoid any risk taking. This may be regarded as one of the reasons why the EU countries have so heavily concentrated on supply-side (or horizontal) innovation policy measures and not so much on demand-side (or vertical) tools such as pursuing innovation through public-policy specific PPPs (see Figure 1). The explicit demand-side innovation policy assumes introducing the demand for innovation already in legislation regulating different policy fields. Therefore, fulfilling strategic goals of different public policies (environmental, social etc.) should become an essential part of public procurement practices. For example, in social policy, instead of just demanding ICT solutions to be economically most advantageous, a public authority should demand ICT exploited in their jurisdiction to be usable by handicapped people. Or, in urban regeneration projects, a public authority should demand emerging technologies to be used by private partners. In this way the public sector can demand innovation.

There should be public procurement policies developed and mixed together with other demand-side innovation policies. The procurement for innovation strategy can be targeted towards radical as well as incremental innovation and towards pre-commercial as well as commercially ready technologies. Developing specific strategies for procurement for innovation challenges the public sector’s strategic planning capacity, as the effective procurement for innovation policy assumes long-range communication between a market and public authorities. Concrete measures involve setting budgetary targets for public procurement and PPP spending on innovation. An empirical study concluded that:

Procurement has an enhanced probability of influencing technological change when it is used in conjunction with other policy instruments such as regulation (Rothwell, 1984, p. 168)

Therefore, in order to effectively use the public resources for innovation, public procurement should be concentrated on sectors and clusters relevant to the region or the country (e.g. social and health services, e-governance, environmentally friendly public transportation, biotechnology etc.). This is so because public procurement for innovation has the biggest effect when public authorities can act as first and quality lead-users in sectors capable of coming up with radical innovations. Another question here is whether to concentrate on national champions or start-ups. A third aspect would be to stimulate private demand for new products in order to create network externalities. This is the general context of market failure where there are unmet needs in society. And last but not least, R&D grants and other innovation supporting tools should be concentrated on areas where public sector is about to begin large partnerships projects.

Cabral et al. (2007, p. 520) list six aspects that should be taken into account when establishing a policy for procurement for innovation:

- To stimulate R&D and innovation in financially constrained sectors, the government should increase the current cash flows of innovative firms by buying more at higher prices.
- To stimulate R&D and innovation in sectors that easily raise external capital, the government should commit to a policy that increases innovative firms’ future expected profits, for example by promising to buy future innovative goods more and at higher prices.

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9 In the US, the Americans with Disabilities Act states that ICT used by government agencies must be useable by handicapped people. It has been a major social re-engineering effort leading to innovation, forcing the market to change earlier than it would have done otherwise and has led to great ICT innovations that are used worldwide (Edler et al., 2005, p. 188). Similarly, in Stockholm, residential waste collection companies are forced to use environmentally friendly lorries in order to get contracts with the city.

10 For instance, in the UK, there exists a goal to allocate 25% of the public procurement budget to innovation.
• Government expenditure should increase expected profits in sectors in which the supply of the R&D inputs is more elastic and reduce them where they are less elastic.
• Public procurement should increase expected profits in innovative sectors during recessions or, more generally, when there is excess capacity of R&D inputs (e.g. human capital).
• Government procurement should make prices and quantities demanded responsive to quality ranking modifications: top quality products should be guaranteed immediate profits whereas for obsolete goods, the public buyer should bargain for very competitive (zero profit) prices.
• Government expenditure should reduce expected profits in sectors in which the future innovative prospects are low and re-direct R&D towards the more technologically underexploited sectors.

3.2. Market factors

Small size and limited purchasing power of single (small) countries or regions makes bundling of demand more challenging and may also diminish the demand “pull” effect as well as limit the potential of creating lead-markets. For example, as R&D work of new solutions involves high costs, the economies of scale plays a crucial role here. Fragmented demand is considered the most important limit for procurement for innovation in the EU (ECWG, 2006). In the case of aggregated demand, market and technical expertise can be enhanced and risks reduced between multiple buyers. However, it has to be noticed here that cooperative procurements ‘require extensive mapping of needs and actors of public procurement’ and are considered to be a serious future challenge for public authorities (Nyiri et al., 2007, p. 30). Such processes presuppose the presence of high-level capacities in the public sector.

It is a widely accepted view that competition is the main mechanism leading to successful procurement. Small potential markets may have negative influence on companies’ incentives to invest in innovation and therefore reduce competition. As Cabral et al. (2006) argue, in highly competitive markets it is the technological leader (i.e., the one willing to invest the most in innovation) who has a larger market share. However, this connection is not straightforward. Tight competition reduces the innovators’ prospective rents and therefore may reduce the incentives to invest in innovation. Therefore, in the small markets, where the prospectives for rents are relatively smaller, high level of competition may not be desirable and more collaborative partnership may be preferred.

Public organizations should build up capacities to routinely collect information from the market on emerging (technological) solutions for social needs through e.g. market survey, technology foresights and technical dialogue with market stakeholders. Further, public technology platforms should be developed and used by the public authorities when appropriate. It is about

a mechanism to bring together all interested stakeholders to develop a long-term vision to address a specific challenge, create a coherent, dynamic strategy to achieve that vision and steer the implementation of an action plan to deliver agreed programmes of activities and optimise the benefits for all parties.12

Involving SMEs in public procurement for innovation is an important task to be fulfilled for at least two reasons. First, a large part of the creative ideas for new technologies comes from SMEs. Second, SMEs compete mostly in their local markets; therefore, empowering them would increase the possibility that the positive spill-overs stemming from procurement for innovation remain with a local region. At the same time, SMEs have a ‘less extensive network and less experience of dealing with the public sector and its procedures’ (European Commission Expert Group, 2005, p. 28). One way to

11 Cross-border joint purchases are very seldom carried out, and then mainly within EU-level initiatives such as Galileo and GEANT.
12 Source: Europa Research (http://europa.eu.int/comm/research/energy/mm/mm_rtt/mm_rtt_hlg/article_1262_en.htm), quoted in ECEG [2005, p. 29].
promote the participation of SMEs is to reserve subcontracting opportunities for them in large scale partnerships projects.

3.3. Contracting/collaboration factors

Depending on circumstances, PPfI as a form of partnership can be built on competitive or collaborative (relational) mechanisms. Often these mechanisms are used interchangeably during the life-course of a PPfI initiative. It can be argued that in PPPs with the innovation aim, the competition is more limited and that the principal-agent problems are severe. Similarly, it takes more effort to coordinate joint-projects and risk-sharing if innovative solutions are targeted for. Searching for providers or partners capable of developing innovative goods and products itself limits the number of potential partners compared with the situation when ‗off-the-shelf‘ solutions are searched for. For example, in case of technological solutions, PPfI usually requires contractors with R&D capacities, which diminish the number of potential contractors even further. When procuring innovative solutions, the government has only a vague idea of what it wants to buy and how to evaluate the partner’s efforts, thus creating more opportunities for opportunistic behavior on the partner’s part. Although the PPfI contracts may be occasionally be rather short-termed, the substitution costs can be expected to be higher than in usual contracting/collaboration due to high contract/partnership preparation costs.

At the same time, counter-incentives exist that can diminish the role of ineffective competition and/or uncertainty, and thus make PPfI a suitable candidate for relational contracting. These incentives are to be found, among others, in future market outlooks, risk-sharing and the influence of mutual learning. Compared to other innovation policy tools (see Figure 1), the effectiveness of PPfI is associated with the user-provider interaction and mutual learning (Edler and Georghiou 2007). Throughout the procurement/partnership process, the provider has direct access to the end-users, thereby getting constant feedback as a form of input for the development work. This, in turn, should minimize the delivery risks.

Furthermore, PPfI as such is a tool to socialize financial risks of innovative providers: the government absorbs all or some of the financial risks of developing innovative products and services. In the case of pre-commercial procurement, the government can go even further and take in some technology risks as well (ECWG 2006). Thus, in PPfI, the risks are not unilaterally transferred to providers (as is mostly the case with traditional contracting-out), but the risks are shared. Interestingly enough, in case of competitive contracting, the usual risk-management tools in procurement like screening for abnormally low offers, screening suppliers through insurance schemes and different scoring rules (e.g. closest to the arithmetic average of all submitted offers) may outplay the most innovative offers (Cabral et al., 2006).

Compared to more traditional contracting, it is the future market prospects that motivates the provider to cooperate with the government. With the help of PPfI, the provider can become a leader in a newly created market or use the obtained intellectual property rights of the newly created technology to enter the (foreign) market. The future market outlook can be made stronger if the government engages in cooperative or catalytic procurement with other public authorities or private demanders. If the public sector wants to promote innovation via partnerships, it is vital that the new technologies are given the possibility to diffuse into the market. Transferring the ownership of IPR to private partner is one of the best ways to do so (e.g. ECWG 2006; Edler et al 2005).

13 In order to foster radical innovation, the ECWG (2006) has developed a three-stage approach of pre-commercial public procurement. To a large part, however, this has been developed because of the need to comply with the EU state aid rules (ibid.). PPfI for radical innovation refers to “probably science-based products and services, for which limited scientific knowledge and information exist. … [and] if the technical problems are resolved and the market takes off both the company and the economy will benefit from very high private and social returns on investment.” (Edler et al. 2005).
3.4. Internal capacity

For public administrators, modern public procurement (and also PPPs) in general tend to have too many goals: cost savings, transparency, sectoral policies (e.g., environmental, energy, industrial policies)—all of which often contradict each other (Cave and Frinking 2007; Nyiri et al. 2007) and a dilemma can emerge between the micro cost effectiveness of a contract or cooperation and the higher costs of R&D-based products/services that boost innovation (Cabral et al. 2006). Procurement for innovation is a costly and time-consuming process that demands strong coordination among stakeholders and constant evaluation and learning and always involves transaction costs that have to be taken into account in the implementation of the process. Cave and Frinking (2007) have noted that there is a potential for expensive coordination failure. When the payoff is unclear, the innovative solution can be perceived as the more expensive solution (Brammer and Walker 2007). Nyiri et al. (2007) have found out that lack of innovation orientation, budget, and skills are considered the main barriers for local governments to the implementation of procurement for innovation. The shortage of proper know-how among procurement professionals about suitable procurement methods for fulfilling wider social goals seems to be a global phenomenon (e.g., Brammer and Walker 2007).

4. Innovation-critical factors in practice

As seen from the previous pages, fulfilling the private sector innovation purposes in public-policy specific PPPs assumes a rather different set of principles to be applied compared to PPPs aiming just at ‘new services’. In this section the existence and effect of the innovation-critical factors in the PPP cases from the Nordic Baltic Sea cities will be discussed. The detailed overview of the study is presented elsewhere (Lember et al 2010a; 2010b) and will not be outlined here. In short, the study analyzed the current state-of-the-art in public procurement for innovation in six Nordic-Baltic Metropolises (Copenhagen, Helsinki, Malmö, Riga, Stockholm, and Tallinn). The study aimed at in-depth empirical data gathering. Web-based questionnaire represented the first step designed to gain the overall knowledge of procurement for innovation in the participating cities. It was followed by collection of information regarding the key cases (8 case studies were identified) and structured interviews with different stakeholders of public procurement for innovation in the partner cities. Altogether 18 persons from 6 cities were interviewed. The research was supported with secondary sources where available.

The empirical evidence from the Nordic Baltic Sea cities demonstrates that cities can initiate new services and technologies and at the same time influence private sector innovation through PPPs. However, in spite of success-stories, the public sector in general does not consider the innovation-critical factors important when partnering with private sector. This is probably the reason why innovation has not been explicitly made part of the policy-specific PPP agenda and why the number of PPP cases has remained limited in the public sector. The analysed cases indicate that the policy-specific PPPs – when seen through the lenses of PPP – are indeed able to influence adaptive but also radical innovation. Although, all radical innovations were about initiating a new market rather than generating radical technologies as such. The positive impact of public procurement on companies is evidenced by the increased exports and, most importantly, changes in companies’ routines regarding how innovation is approached. The latter immediate behavioural change is considered the most important impact as some economic impacts (exports, increases in value-added) might be revealed only in the future. When analyzing the PPP success-cases one can observe that, in addition to traditional PPP success-factors, the key aspects for innovation to realize were transfer of intellectual property rights (IPR) to the private partner, application of supportive measures to promote the diffusion of innovative solutions, use of external expertise, exploitation of newly developed nationwide technology platforms and supportive policies, technology risk-sharing, demand aggregation, and sound future market prospects.14 The empirical evidence also suggests that political support for

14 Lember et al (2010a) have demonstrated that the number of potential partners can vary greatly in the case of urban PPP case-studies and do not seem to affect the outcome as much as other aspects such as low awareness among stakeholders. For example, a catalytic procurement for ethanol-fuelled lorries implemented by the City
complicated PPfI projects is a necessary precondition for success: half of the cases had failed after the first attempts but were eventually made work. The cities employed different procurement methods, ranging from direct procurement to cooperative projects and catalytic procurement; in one case, a sophisticated pre-commercial procurement arrangement was also implemented.

At the same time, the empirical evidence point to several obstacles why innovation is not always realized in the PPfI initiatives. Although the legal framework promoting the single market in the EU has been restrictive towards innovation, it has not been the main obstacle in pursuing the innovation goal. There are many successful PPfI cases in Europe implemented under the old EU public procurement regime that benefited to a large extent from the economic development of the European countries (see Edquist et al. 2000). Also, all the Nordic-Baltic Sea cities’ PPfI success-cases were implemented under the ‘old’ regulatory regime. The study also revealed that low awareness among stakeholders rather than political or legal obstacles should be addressed in the first place. On a policy level, the public-policy specific PPPs are not explicitly considered as innovation policy tools, although the evidence demonstrates that the potential is there.

Local authorities do not act like risk-takers when promoting innovation through public procurement – in majority of the cases all the technology risks and great deal of financial risks were left with private partners. The cities are not aware of taking any further steps to reduce the risks of providers associated with investments for R&D, production, or field-testing. In budgetary terms, most of the PPfI cases were small-scale initiatives when compared to city budgets, but there were also two large scale initiatives found.

It became clear that PPfI assumes a rather high level of existing competitiveness in a region in order for the procurement to become a realistic innovation policy tool. This suggests that the PPfI policy may produce better results where there is already a variety of capable partners to cooperate with. It can be hypothesized that competitive regions are more likely to benefit from PPfI in terms of radical innovation. In addition, severe deficiencies were revealed in building proper feasibility assessment capacity, implementation capacity and evaluation capacity:
- city officials are not aware of the connection between procurement and innovation;
- there are no signs of employing public procurement tools in accordance with the general economic conditions of the region (e.g. using public procurement to increase profits in R&D sectors during a recession);
- market and technology knowledge is small;
- no common practice is being developed regarding the transfer of IPR;
- mostly the cities tend to implement supply-side policy measures;
- there are no signs of coherent training programs for the officials on the issue;
- there is a high reliance on external consultants and experts;
- the officials are not well aware of the possibilities offered by public procurement regulation for supporting innovation.

At the same time there seems to be a lack of coordinated activities to alter the situation, and there are no signs of allocating special local funds to promote PPfI. To create the needed administrative capacity and raise awareness, one needs to make serious efforts to alter the whole administrative culture. This is especially burdensome in the transitional and developing context, where the countries are struggling to establish functional hierarchies, which are a necessary precondition for a contracting organization.

of Stockholm demonstrates clearly that the future market outlook may act as the single strongest incentive for a private provider to act in accordance to the interests of the procurer even in technologically demanding cases. In Stockholm, there was a strong case made for the future market outlook by gathering together a large pool of potential buyers from public as well as private sector.
Conclusions

This paper addressed two issues that the current discussion on PPPs has ignored. Firstly, there is a considerable confusion in the literature regarding what is innovation in the context of PPPs and how does it influence the PPPs. There appears to be two different streams of PPP literature – the one dealing with PPPs explicitly aiming at supporting private sector innovation and the other, public-policy specific PPPs, which are seen as source of public sector innovation. While the first stream of literature draws on clear conceptual grounds, the other stream still suffers from clear understanding and has, thus, caused another ‘language game’ within the PPP discussion. Secondly, stemming from the first issue, there is no well-established framework that would take into account the claims from the both ends of the PPP innovation debate. However, if innovation was really to become a part of the PPP agenda then this seems to be unavoidable. For example, it becomes inevitable when the economic growth and competitiveness agenda was ever to be fully acknowledged in the context of public-policy specific PPPs such as health-care, transportation, urban regeneration, welfare services etc.

The current paper suggested the perspective of public procurement for innovation (PPfI) as an analytical framework to be used in the context of PPP and innovation. From innovation policy viewpoint, PPfI is one of the latest PPP initiatives aiming at supporting economic growth that has been put on the agendas of the EU and European countries. It is a partnership tool that incorporates competition as well as collaboration elements, but which has not yet been tested on a large scale. PPfI should be understood as a general framework that can be used in pursuit of new public service delivery solutions and private sector innovation. This means that the new solutions should not only benefit the public service consumers or public sector, but also the private sector in terms of new market opportunities, export markets penetration, industry creation, infant-industry protection, increased competitiveness, diversified economic activities etc. This makes PPfI an excellent framework for understanding public sector as well as PPP innovation and helps to avoid the traps of multiple ‘language games’.

There is a growing interest in applying the PPfI tool on a larger scale, but the current approaches fail to take into account the importance of the implementation problems that have accompanied the PPPs throughout their existence. The current paper argues that when policy-specific PPPs were explicitly to influence private sector innovation, the public sector needs to take into account not only policy-specific needs (e.g. in health-care, transport) and contractual aspects (trust, incentives, risk-sharing, coordination), but also innovation-related aspects (how to facilitate mutual learning, how to create future market prospects, which technology platforms to use in public service delivery, how to socialize technology risks, how to build up user-provider feedback links etc.). As of today, these aspects are mostly missing in the PPP literature when talking about public sector innovation and as the empirical evidence demonstrate are seldom acknowledged by the public policy-makers and officials. This has caused the situation where the potential of public-policy specific PPPs to support and influence innovation is not yet fully realized.

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References

(All weblinks are valid as of 12 November 2009.)


