

# Ledelse & Erhvervsøkonomi

77. årgang nr. 2, september 2012

2/2012

Særtryk af artikel



In this article we discuss barriers for conducting Open Innovation in Public-Private Innovation Partnerships. We suggest that inviting private actors to contribute to innovations in the public sector resembles an opening of the innovation process termed Open Innovation. The connection seems plausible since public sector innovation may also enjoy benefits of sourcing new ideas from both inside and outside the organization. However, based on a literature review, the authors argue that it is necessary to modify the concept of Open Innovation to make it applicable in Public-Private Innovation Partnerships. This is due to barriers raising from legislative and institutional conditions between public and private partners.

# Open Innovation in Public-Private Partnerships?

Kristin B. Munksgaard, Majbritt R. Ewald, Ann H. Clarke & Suna Løwe Nielsen

## Abstract

In this article we discuss barriers for conducting Open Innovation in Public-Private Innovation Partnerships. We argue that inviting private actors to contribute to innovations in the public sector resembles an opening of the innovation process as termed Open Innovation. The connection seems intuitively valuable since public sector innovation may also enjoy the advantages of sourcing new ideas from both inside and outside the organisation. However, based on a literature review, the paper concludes that it is necessary to modify the concept of Open Innovation to make it applicable in Public-Private Innovation Partnerships. This is due to barriers raising from legislations and embedded tensions between public and private partners.

## Introduction: opening public sector innovation processes?

It is well-known that in many countries the public sector faces the ambiguity challenge of meeting constrained budgetary demands as well as increased demands for services and increasing levels of professionalization and specialization (Borins, 2002:467; Rowe et al., 2004:16). A way in which to meet these demands is to improve the innovation competence of the public sector. Kearney, Hisrich and Roche (2008:310) argue that the benefits obtained by incorporating innovation in the public sector are vast, benefitting customers/citizens while also improving internal working environments. However, it is also well known that different kinds of obstacles exist when dealing with innovation in the public sector. One part of literature takes the stand that innovative thinking is inhibited in the public sector (e.g. Mulgan and Albury, 2003; Sadler, 2000). Another part of literature is more focused on difficulties in implementing innovation in the public sector (e.g. Borins, 2001; Kearney et al., 2008).

To encounter the challenges of the public sector the political agenda in the western world is focussed on the potential of opening up the innovation process and inviting private firms to contribute and participate through so-called Public-Private Innovation Partnerships (PPIP). PPIP is cooperation between public and private actors who mutually develop products and/or services and who share risk, costs, and benefits (Klijn and Teisman, 2003). Inviting private partners to contribute to public sector innovation may in general and overall terms be compared to Open Innovation (OI). OI is pursuing valuable innovative ideas residing inside as well as outside the organisation and market these from inside or outside the organi-

sation (Chesbrough, 2003a). OI is usually researched in private firms, and only scattered contributions investigating OI in the public sector are beginning to dawn (Fuglsang, 2008; Feller et al., 2011). Whether OI may leverage innovation in the public sector and to which extent OI may encounter obstacles when implemented in a public setting are the main research interests of this paper as we set out to investigate the following research question: *What are the barriers for conducting Open Innovation in Public-Private Innovation Partnerships?*

Studying this research questions calls for an outline of the innovation concept in a PPIP context. Examples of innovations resulting from partnerships between public and private actors in Denmark are broad. These cover more radical developments such as the 'KOL-kuffert' (a 'suitcase' with tele-medical equipment connecting a patient at home with doctors at the hospital (EBST, 2009)) or more incremental solutions like ergonomic cutlery (Designskolen, 2012), giving basis for varied degrees of novelty and value (Abernathy and Utterback, 1978; Freeman and Soete, 1997:421). Innovations concern a broad variety of products, services and processes and may be related to technology developments as well as the organising of e.g. working procedures (equivalent to discussions raised by Schumpeter (1934) and Sundbo (1995)). This study intends to cover this broad range of innovations, although we argue along with Rogers (1995:11) that the evaluation of novelty is relative and contingent on the eyes of the beholder. This also implies that the same innovation may be differently perceived in terms of type by different actors in the value chain (Afuah and Bahram, 1995).

To study the grounds of PPIP and the openness of public innovation processes the paper is outlined as follows: The initial section shortly presents the grounds of OI, as a means of investigating the openness of PPIP and potential related barriers. The following two sections investigate the basis of PPIP. First, the structural characteristics of PPIP in terms of legislation and regulative measures are shortly outlined. Second, the characteristics of public and private partners are discussed. Since PPIP are argued to face inherent difficulties and challenges this section builds on a literature review focusing on the potential tensions between public and private actors engaged in PPIP. The paper finalises with a discussion on what grounds it is possible to conduct Open Innovation in Public-Private Innovation Partnerships and which factors should be taken into consideration when conducting Open Innovation in Public-Private Innovation Partnerships.

### **Public-Private Innovation Partnerships and Open Innovation**

To investigate the research question outlined it is relevant to distinguish Public-Private Innovation Partnerships from other public-private arrangements such as procurement, outsourcing, service communities or the like. The main characteristic of PPIP is that it focuses on developing a solution that afterwards is delivered through public procurement. As highlighted by Klijn and Theisman (2003) the common denominator of innovative partnerships between public and private organisations is the mutual idea development and sharing of knowledge as well as risk, costs and benefits. In PPIP the solution is not known beforehand and it may

not be possible to outline a full task specification prior to the development as this is defined during the joint development effort. Further, the involved partners' perception and understanding of the novelty and value of a joint project may vary. When public and private actors engage in on-going collaborations for innovation, it is however difficult to draw a strong line between PPIP and 'ordinary' public-private partnerships.

PPIP gains increasing attention in the EU, due to its potential advantages. According to Klijn and Teisman (2003) these advantages can take a variety of forms, for example financial/material advantages (profits, working space, and increased transport capacity), or more intangible advantages (image and knowledge development). The costs of PPIP can be one-time only (preparation, adaptation of the internal organisation), or recurring (organisational co-ordination, adaptation and tuning of substantive objectives). What is important is the added value of synergy created by PPIP as these partnerships bring together knowledge and competences from different actors in the public and private sector that would otherwise not have been coupled. However, as accentuated by Sadler (2000) the public innovation effort needs special motivation and stimulation to succeed e.g. to diffuse solutions from one PPIP project to other potential users in the public system.

Inviting private actors to contribute to innovations in the public sector resemble an opening of the innovation process as termed Open Innovation. The notion 'Open Innovation' was first coined by Chesbrough (2003a) and has since gained tremendous attention from both researchers and practitioners. It covers the changes in dynamic markets characterised by increased vertical disintegration, outsourcing, networking, and more specialised technical knowledge that have led to a growing interest in OI (Christensen, 2006). OI is defined as *"the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively"* (Chesbrough, 2006:2). Building on external knowledge and development will create significant value if the firm has sufficient internal foundation for claiming this value. Doing OI implies building a business model of how innovation potential is converted into economic value. Accordingly, innovation processes should not be controlled and organised in closed settings, but facilitated in open settings with external actors. This is also the reason why Chesbrough (2003b) suggests that firms which are too internally focused have a tendency to miss a number of opportunities because they fall outside the current business or will need to be combined with external technologies to unlock their potential.

Only few studies discuss the potential value of Open Innovation in a public sector context (see Feller et al., 2011; Fuglsang, 2008). Feller, Finnegan and Nilsson (2011) explore how Open Innovation strategies can transform public administration. Based on a case study in Sweden they argue that value creation and service delivery can be transformed through PPIP to accelerate the creation and exploitation of innovation. They conclude that Open Innovation practices represent a more radical manifestation of transformational government than previously envisaged.

A study by Fuglsang (2008) argues that a pattern of Open Innovation is becoming more pertinent to service development in the public sector. Based on a case study, he discusses how certain public sector actions are needed to capture the benefits of Open Innovation (such as getting involved, identifying demand, exploring incentives for co-creation and encouraging entrepreneurship). As a basis for exploring potential barriers for exploiting such OI benefits in Public-Private Innovation Partnerships the following sections will investigate the underlying basis and characteristics of PPIP.

### **Structural characteristics of Public-Private Innovation Partnerships**

Partnerships between public and private actors are assigned to special legislative requirements and extensive EU rules to prohibit discriminating procurement (accentuated by e.g. Martin et al. 1997). The EU directive 2004/18/EC of the European Parliament and the Council of March 21, 2004 concerns the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts. This public procurement directive holds a strong emphasis on transparent and competitive procedures to meet an objective of open and fair competition. When the joint development effort of PPIP results in public procurement this directive applies.

These political rules forming the basis for PPIP lead to core differences in the relationship between the buyer and the supplier (as also claimed by Vaidya et al., 2006). Unlike private sector procurement, public sector procurement must work within regulations and policies. Public sector procurement seeks to use as many suppliers as possible to broaden competition and maximise value for money and social goals. Public actors are also obliged to disclose procurement information, including details on the outcome of contracting decisions. On the opposite, private procurement will more often attempt to include few suppliers to build strong, trusted relationships (Currie et al., 2008).

The structural setting of public vs. private procurement gives different conditions for innovative cooperation. A report from The Danish Enterprise and Construction Authority evaluating PPIP initiatives (EBST, 2009) highlights two central barriers for successful PPIP. One is the lack of procurement and cooperation models that accommodate innovative efforts between public and private actors. Another is the lack of financial support to start-up and to implement PPIP.

Whereas innovation partnerships between private actors may encounter challenges, there seems to be even more difficulties engaging in PPIP. The structural characteristics of PPIP which provide free competition in procurement seem to impair the possibilities to build strong and trusting relationships necessary for really opening up the innovation process. As long as the public sector widely pursues dissemination of partnership, the conditions for organizing open innovation processes seem difficult. To build strong and trusting relationships calls for reciprocity, this means that benefits and cost are shared between private firms and public partners. However, the structural characteristics of PPIP induce private firms to

invest resources in idea development even with no assurance that they can gain value from the following competitive tendering.

### Characteristics of public and private partners

This section addresses the differences between public and private actors and how these differences affect innovation partnerships. The discussion is based on a literature review focusing on the partnership tensions which characterize PPIP<sup>1</sup> (listed in table 1 in appendix 1). Since the review covers several countries and various parts of the public sector the review is argued to specify generic tensions in PPIP. The review reveals five characteristics that may pose tensions to PPIP.

1. The first characteristic is the diverse objectives for engaging in innovation projects held by public and private partners respectively. Since private firms are driven by competition (Hartley 2005), they will be concerned with customer preferences and strive to enhance shareholder value (Currie et al. 2008; Schmidt 2008). The commercialization part of the innovation process is considered central (Dinnie et al. 1999). On the opposite, public organisations are inclined to objectives of increasing public value (Foster et al. 1996; Hartley 2005; Brecher and Wise 2008) and driven by multiple, intangibly social and political goals (Currie et al. 2008).
2. Due to the commercialization focus of private firms their planning and execution horizon tends to be rather short favouring short term results and market guidance (Drejer and Jørgensen 2005; Dinnie et al. 1999; Dudley and Rood 1989). This is in contrast to the public sector partners that may set up a longer time perspective to secure long-termed competence building (Drejer and Jørgensen 2005; Dinnie et al. 1999; Schmidt 2008). This second characteristic of balancing the divergent planning and implementation horizons is a delicate matter also related to the timing of goal achievement of the partners.
3. As a third characteristic public and private actors tend to perceive risk differently leading to differences in their risk behaviour. The reviewed literature takes different stands to explain this. There seems to be an agreement, that risk is shared commonly in the public sector whereas risk is assumed individually based in the private sector. Further, the reviewed papers agree that this lead to risk-averse and risk-minimizing behaviour among private firms. However, risk behaviour in the public sector is reported to be more nuanced. Currie and colleagues (2008) argue that public risk/reward structures strongly favour mistake avoidance. Schmidt (2008) claims that public organisations are more high-risk takers. This argument is partly supported by Kearney et al. (2009) stating that public actors are calculated high risk takers due to little associated personal risk.
4. The fourth characteristic relates to incentives for participation and expected rewards. Literature states that private actors engaging in PPIP are driven by economic incentives and expectations of economic rewards (Dudley and Rood 1989). Public actors are claimed to adhere to other incentive and reward mechanisms, more associated with the general objectives of creating public value through innovations (Schmidt 2008; Kearney et al. 2009).

5. The fifth characteristic reveals differences between public and private actors in the understandings of innovation and its novelty. Public actors view innovation as advances in the understanding and the creation of new knowledge leading to the provision of new subjects for further research (Schmidt 2008). Private actors define innovation in terms of added value through new applications (Schmidt 2008). In this sense, private actors will favour product innovation whereas public actors will have a tendency to work for process innovations related to work procedures or in the relationships between the providers of service (e.g. the health care system) and the users (e.g. patients in the health care system) (Hartley 2005).

In opening up the public innovation process an important difficulty concerns the embedded differences that exist between public and private partners in PPIP settings versus the more homogeneous values and objectives shared between private partners in a typical OI setting. When innovation partners understand the purpose and output of the joint effort differently, they may face challenges in tapping the full potential of opening up the innovation process. Not being aware or paying attention to the objectives of the counterparts in pursuit of their own objectives, the partners may face difficulties in claiming part of the value created. Tensions may also occur if objectives and interests of participating public and private partners conflict directly. When actors engaged in joint innovation projects seek to obtain diverse outcomes it may further complicate the creation of a business model for applying the new solution. Likewise, when private actors adhere to the development of a new product and focus accordingly on product attributes, potential innovations in public processes may be overlooked. This also applies the other way around. Further, the differences in public and private actors' risk perception and behaviour will influence the willingness to share knowledge and cost in an open innovation process.

### **Concluding discussions: closing Public-Private Innovation Partnerships – or a new opening?**

For decades the public sector sought to build partnerships with public and private partners, however with various degrees of success. Especially the governance mode in which Public-Private Partnerships are based on formal contracts has been applied, because the relationship between the two parties is relatively well-defined and somewhat uncomplicated as the private partner typically takes over specific products or services, which can easily be outsourced such as cleaning or delivering food to care homes (Hodge and Greve, 2005). Nowadays the more complicated but also more mutual form of Public-Private Innovation Partnership is being increasingly explored even though the experience is still limited.

Open Innovation in the public sector is usually not what comes into mind when talking about creating welfare innovations. Viewed in isolation, the concept of OI is mainly associated with different ways to accomplish and secure internal and external innovative sourcing in private firms (Chesbrough, 2003a). However, the basic assumptions of OI are also valuable in a public sector (Feller et al., 2011) be-



cause they are concerned with creating value by combining external and internal development and with building a business model to show how innovation potential is converted into economic benefit. The argument for looking at OI processes in relation to Public-Private Innovation Partnerships is that seemingly OI strategies have a positive effect on corporate performance (Lichtenthaler, 2009), and therefore they might also have a positive effect on the innovation competences of the public sector. The promise of OI to better understand how the public sector can become more competent in creating and implementing welfare innovations is thus crucial. This is especially the case in Public-Private Innovative Partnerships (PPIP), when a mutual co-operation between public and private actors develop common products and/or services, from which both parties can gain and in which risk, costs, and benefits are shared (Klijn and Teisman, 2003).

However, based on our findings we argue that PPIP are challenged by barriers in a way that calls for modifications to the concept of OI as it is mainly used in commercial settings.

The modifications are necessary as innovative cooperation between public and private partners is contingent on a least two main barriers or constraints. One concerns the political basis that such partnerships rest upon versus how partnerships in typical OI settings are organised. Partnerships between public and private actors are assigned to special legislative requirements and extensive EU rules to prohibit discrimination procurement. In the private sector Open Innovation may initially involve many potential partners, but as the innovation process progresses partners are (de)selected – thus the open innovation setting is for the selected few. Another barrier concerns the embedded differences that exist between public and private partners in PPIP settings versus the more homogeneous values and objectives shared between private and private partners in a typical OI setting. In general, partnerships between private and public actors have to deal with differences in strategies that seem irreconcilable as well as different views on the value that can be achieved from the joint effort. This leads to different perceptions of the novelty and type of innovation needed. Thus, the mutual innovation process involves tensions at several levels as not agreeing on what to innovate is combined with tensions of handling constant conflicts. Partnerships among private actors may also involve tensions but they are far more cursory as both actors share a commercial grounding – thus the mutual innovation process may be more focused on dealing with not knowing what to innovate.

The implications of the first barrier concerns in particular politicians as legislative actions have to be taken into consideration to remove the obvious, structural problems faced by public and private actors when they cooperate with each other in PPIP settings. The creation and implementation of innovation in the public sector needs foremost to be developed from a reasonable foundation, which does not impair the possibilities to build strong and trusting relationships necessary for really opening up the innovation process. In today's setting, private firms need to engage in extensive lobbying to build the basis for diffusion and commercialisa-

tion of even incremental innovations. As long as the public sector widely pursues dissemination of partnership, the conditions for organizing open innovation processes seem difficult and perhaps an impossible task to fulfil simply because the specifications for joint innovation efforts are repeated from scratch in every region or hospital as a means to adhere to traditions grounded in competitive bidding. Thus a need exists for more flexible governance modes of how to cooperate between public and private actors. Initiatives to deal with barriers caused by legislation must build on private firm lobbyism, political action as well as steps from public organisations, since not only the wording of Acts needs modification but also traditions and cultures for innovation in the public setting call for changes.

The implications of the second barrier concerns the way in which participants – managers as well as co-workers – act on the divergent interests and perspectives that seem to be embedded in the PPIP settings. The divergent interests come into broad daylight when objectives and interests of participating public and private partners underestimate the conflict in obtaining diverse outcomes or having different values and objectives when engaging in PPIPs. Further, a basis for Open Innovation in PPIP is also the ability to adopt external knowledge and integrate it into the organisation as well as the ability to externalise internal knowledge to let partners benefit. This might exactly be the vulnerable point for many public actors as they are not able to think innovative or implement innovations into their organisations (Sadler, 2000). For private firms this may be a challenge since knowledge sharing implies a great degree of openness and disclosure of trade secrets due to legislative requirements in PPIP. Initiatives to comply with these tensions include dialogues and open discussions of potential conflicts and tensions between private and public actors as well as among managers and co-workers in the public sector. These have to be addressed in the beginning as well as during a project. This might seem trivial, however the considerations are also addressed elsewhere (Drejer and Jørgensen, 2005; Moors et al., 2008). Further, more explicitly training and learning from previous PPIP projects to be incorporated in new joint efforts are warranted to ensure that the involved partners share an understanding of differences in potential value outcomes.

## References

- Abernathy, W.J. & Utterback, J.M., (1978), "Patterns of Industrial Innovation" *Technology Review*, 80(7), pp 40-47.
- Afuah, A.N. and Bahram, N. (1995), "The hypercube of innovation," *Research Policy*, 24 (1), 51-76.
- Borins, S. (2002), "Leadership and innovation in the public sector", *Leadership & Organization Development Journal*, 23(8), pp 467-476.
- Boyett, I. (1996), "The public sector entrepreneur – a definition", *International Journal of Public Sector Management*, 9(2), pp 36-51.
- Brecher, C. and Wise, O. (2008), "Looking a gift horse in the mouth: Challenges in managing philanthropic support for public sector", *Public Administration Review*, special issue.
- Chesbrough H. (2003b), "The era of open innovation", *Sloan Management Review Summer*: pp 35-41.
- Chesbrough, H. (2003a), "Open Innovation – the new imperative for creating and profiting from technology", Boston, Massachusetts, Harvard Business School Press.
- Chesbrough, H. (2006), Open innovation: A new paradigm for understanding industrial innovation, in "Open innovation: Researching a new paradigm", H. Chesbrough and W. Vanhaverbeke and J. West, ed.: Oxford University Press.

- Chesbrough, H. and Crowther, A.K. (2006), "Beyond high tech: early adopters of Open Innovation in other industries", *R&D Management*, Vol 36, pp 229-236.
- Christensen, J.F. (2006), Whither Core Competency for the Large Corporation in an Open Innovation World? in "Open innovation: Researching a new paradigm", H. Chesbrough and W. Vanhaverbeke and J. West, eds: Oxford University Press.
- Currie, G., Humphreys, M., Ucbasaran D. and McManus, S. (2008), "Entrepreneurial leadership in the english public sector: Paradox or possibility?", *Public Administration*, 86(4), 987-1008.
- Designskolen (2012), "Designmetode i praksis – Inspiration til innovation i sundhedssektoren", Kolding, Denmark.
- Dinnie, N., McKee, L., and Bower, D.J. (1999), "Biomedical Innovation Networks and New Technologies", *International Journal of Innovation Management*, 3(1), 63.
- Drejer, I., and Jørgensen, B.H. (2005), "The dynamic creation of knowledge: Analysing public-private collaborations", *Technovation*, 25(2), pp 83-94.
- Dudley, L.S., and Rood, S.A. (1989), "Technology commercialization: combining public and private", *Policy Studies Journal*, 18(1), pp 188-202.
- EBST Erhvervs- og Byggestyrelsen (2009), "Analyse af offentlig-private samarbejde om innovation", Copenhagen.
- Feller, J., Finnegang, P. and Nilsson O. (2008), "Open innovation and public administration: transformational typologies and business model impacts", *European Journal of Information Systems*, pp 1-17.
- Forster, J., Graham P. and Wanna, J.(1996), *The New Public Entrepreneurialism* in J. Wanna, J. Forster and P. Graham (eds) "Entrepreneurial Management in the Public Sector", Macmillan, Melbourne.
- Freeman, C. and Soete, L. (1997), "The Economics of Industrial Innovation", MIT Press, Cambridge.
- Fuglsang, L. (2008), "Capturing the benefits of open innovation in public innovation: a case study", *International Journal of Services Technology and Management*, 9(3-4), pp 234-248.
- Hartley, J. (2005), "Innovation in Governance and Public Services: Past and Present", *Public Money & Management*, 25(1), pp 27-34.
- Hodge, G. and Greve, C. (2005), "The Challenge of Public-Private Partnerships: Learning from International Experience", Edward Elgar.
- Kearney, C., Hisrich, R.D. and Roche, F. (2008), "A conceptual model of public sector corporate entrepreneurship", *International Entrepreneurship Management Journal*, 4, pp 295-313.
- Kearney, C., Hisrich, R.D. and Roche, F. (2009), "Public and private sector entrepreneurship: Similarities, differences or a combination?", *Journal of Small Business and Enterprise Development*, 16(1), pp 26-46.
- Klijin, E.-H. and Teisman, G.R. (2003), "Institutional and Strategic Barriers to Public—Private Partnership: An Analysis of Dutch Cases", *Public Money & Management*, 23 (3), pp 137-46.
- Lichtenthaler, U. (2009), "Outbound open innovation and its effect on firm performance: examining environmental influences", *R&D Management*, Vol 39, No 4, pp 317-330.
- Martin, S., Hartley, K. and Cox, A. (1997), "Public purchasing in the European Union: some evidence from contract awards", *International Journal of Public Sector Management*, 10(4), pp 279-293.
- Moors, E.H.M., Boon, W.P.C., Nahuis, R., and Vandenberg, R.L.J. (2008), "User-producer interactions in emerging pharmaceutical and food innovations", *International Journal of Innovation Management*, 12(3), pp 459-487.
- Rogers, E.M. (1995), "Diffusion of Innovations", The Free Press, New York.
- Rowe, P.A., Boyce, R.A., Boyle, M.V. and O'Reilly, K. (2004), "A comparative analysis of entrepreneurial approaches within public healthcare organisations", *Research and Evaluation*, 63(2), pp 16-30.
- Sadler, R.J. (2000), "Corporate entrepreneurship in the public sector: The dance of the chameleon", *Research and Evaluation*, 59(2), pp 25-43.
- Schmidt, E.K. (2008), "Research management and policy: Incentives and obstacles to a better public-private interaction", *Research management and policy*, 21(6), pp 623-636.
- Schumpeter, J.A. (1934), "The Theory of Economic Development", Cambridge: Harvard University Press.
- Sundbo, Jon (1995), "Three paradigms in innovation theory", *Science and Public Policy*, 22 (6), pp 399-410.
- Vaidya, K., Sajeev, A.S.M. and Callender, G. (2006), "Critical factors that influence eprocurement implementation success in the public sector", *Journal of Public Procurement*, 6(1&3), pp 70-99.

## Appendix

**Table 1: Tensions identified in the literature concerning Public-Private Innovation Partnerships**

PIIP tensions	Authors	Private actors	Public actors
Incompatible objectives and interests between private and public actors	Schmidt, 2008	Product and profit oriented	Broad and abstract
	Brecher and Wise, 2008	Have goals that match the needs of selected, narrow constituents	Have broader public service goals
	Currie, Humphreys, Ucbasaran and McManus, 2008	Driven by economic advantages such as profit and shareholder value	Driven by multiple, intangible social and political objectives
	Hartley (2005)	Driven by competitive advantages. Ensure competitiveness.	Driven by widespread improvements to increase public value. Increased public value in terms of quality, efficiency or fitness.
	Drejer and Jørgensen (2005)	More clearly stated market goals	Less clearly stated market goals
	Dinnie, McKness and Bower (1999)	Commercialization interests	Competence interests
	Kearney, Hisrich and Roche, 2009	More clearly defined goals and objectives; greater consistency among objectives	Greater diversity and multiplicity of objectives; greater conflict among objectives
	Foster, Graham and Wanna, 1996	Concerns simple commercial aims	Public sector activity is concerned with broader matters than simple commercial aims
	Boyett, 1996	Profit motives seem to galvanize private entrepreneurialism	Other factors besides profit-motives tend to galvanize commitment to public entrepreneurialism
Incompatible horizons between private and public actors	Schmidt, 2008	Shorter time perspective	Longer time perspective
	Drejer and Jørgensen (2005)	Short-termed commercialization	Long-termed competence building
	Dinnie, McKness and Bower (1999)	Commercialization interests – developing commercial products	Competence and long-termed perspectives
	Dudley, L. S. and Rood, S. A. (1989)	Favouring short term results and market guidance.	Favouring safety and long term results.
Incompatible risk-behaviour between private and public actors	Schmidt, 2008	Risk-averse behaviour	High-risk-taking
	Currie, Humphreys, Ucbasaran and McManus, 2008	*)	Risk/reward trade-offs strongly favour mistake avoidance
	Dudley, L. S. and Rood, S. A. (1989)	Risk and liabilities are individually based	Risk and liabilities are shared communally
	Kearney, Hisrich and Roche, 2009	Assumes significant personal and financial risk but attempts to minimize them	Calculated risk taker; takes relatively high organizational risks without taking high personal risks

PPIP tensions	Authors	Private actors	Public actors
Different incentive and reward mechanisms and advancement criteria between private and public actors	Schmidt, 2008	*)	Engagement in the private sector is not rewarded, purely academic advancement criteria (no. of academic articles published)
	Dudley, L.S. and Rood, S. A. (1989)	Rewarded by economic results	*)
	Kearney, Hisrich and Roche, 2009	Calculated risk taker; Invest personal capital in the business; higher financial incentives; profitability is fundamental to generate income; greater level of commitment and job satisfaction	Lower financial incentives; does not share enterprise's profits; lower commitment and job satisfaction
Incompatible innovation understanding	Schmidt, 2008	Defines innovation in terms of added value, new applications and financial revenues	Defines innovation in terms of advances in knowledge, provision of new subjects for further research and deepening of understanding of processes
	Hartley (2005)	Focus on innovation in physical artifacts	Focus on innovation in the relationships between service providers and their users

\*) Not explicitly discussed by the author(s)

## Notes

1. The literature review was carried out in five steps. As a first step, 95 journals related to entrepreneurship, innovation or public sector management have been identified using the Harzing journal ranking list ([www.harzing.com](http://www.harzing.com)), as potentially dealing with PPIP. The second step was a search for papers published in those journals where the combination of the words 'public'; 'private' and 'innovation' occurred together with certain partnership-related terms ('partnership', 'collaboration', 'cooperation', 'network', 'interaction' or 'relationships'). The journals were scanned using the search terms in the EBSCO Host Research Database (business search premier). Searches were completed in the 'all text (TX)' fields and there was no date limit for the search. All in all the search process identified 60 germane papers. As a third step, these 60 papers were screened in more detail by three researchers. Papers that did not obviously deal with innovation in Public-Private Innovation Partnerships were eliminated as well as papers that did not discuss tensions. The screening reduced the total number of papers to 9, which appeared to be topical. As a fourth step we identified 3 supplementary articles by highlighting referred researchers in the 9 articles that seem to be of importance. The fifth and final step of the review process was a detailed content review of the 12 papers.