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Title

Innovation dynamics across the public-private interface: user-producer interaction in municipal waste management services

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Objective

Recent attention on major socioeconomic challenges and problems in sustaining public service provision in the context of demographic change and financial austerity necessitate exploiting innovation capacity of the private sector in providing innovative solutions to societal needs. The innovation capacity of technologically advanced firms holds a great potential in offering improved solutions to pressing societal problems while at the same time providing ample opportunities for businesses to commercialize their technologies, products and services.

Traditionally the public sector has been regarded as a non-innovative service sector mainly adopting technologies, products, and services developed in the private sector. In most cases public service organizations have been found slow to uptake new innovations as compared to private businesses (Lambright 1980). This has been particularly the case for large technical systems such as urban infrastructure services – water, waste, electricity and transportation (Walker 2000, Hodson & Marvin 2010, Markard 2011). Increasing attention has been paid to investigating the potential of public procurement to stimulate innovation activities of private suppliers (Geroski 1990, Edqvist & Hommen 1999, Edler & Georghiou 2007).

On the other hand, studies on public sector innovation have highlighted the active role of the public sector in renewing its services towards increased effectiveness and responses to new socioeconomic problems (Albury 2005, Hartley 2005, Borins 2008). Contemporary accounts emphasize processes of innovation for new service products, service processes, and new governance arrangements (Koch & Hauknes 2005).

The aspect which has received less attention is the role of the public sector in designing and developing services, service production processes and associated technical systems in conjunction with private firms as suppliers of novel technologies, products and services. How interaction between public organizations and private firms shapes the outcomes of innovation activities is still insufficiently understood.

The objective of this article is to contribute to bridging this gap by studying the dynamics of innovation processes and patterns of interaction across the public-private interface. The following questions guide the investigation: How actively do public service organizations need to develop their own services and service production processes in order to be able to exploit innovation capacity of private suppliers? How does the interaction between public and private organizations take place within the constraints to partnerships set by public procurement rules? What specific characteristics does the object of providing public services by governmental organizations set for innovation processes and their outcomes within public-private interactions?

Approach

The paper analyses innovation dynamics between public sector organizations and private suppliers drawing on Lundvall's work on user-producer interaction as a focal relationship in innovation processes (Lundvall 1985, 1988). Following Rothwell (1994), we investigate the various roles of government as a user of industrial products and technologies.

The paper presents a case study on innovation in municipal waste management services in the Helsinki metropolitan region in Finland. Waste management is a utility service which is typically provided by publicly owned regional monopolies. A large share of the service production process has been contracted out to private operators in waste collection, handling, and recycling. During the last decades the sector has been facing a changing landscape of tighter environmental policies, changing user expectations, and new policy targets for recycling and decreased levels of energy use and emissions. While the sector can hardly be considered innovative at large it has yet been able to improve cost-effectiveness and quality of services, improve efficiency and reliability of the service processes by adopting new technologies, and develop a more flexible service offering responding to varying client needs. At the same time, it has gradually managed to reduce its environmental impacts and carbon footprint.

Expected results

The paper develops the argument that collaboration between public sector and its suppliers is an important form of innovating to improve performance of public services. The paper contributes to extant theories by conceptualizing the user-producer interaction between public sector service providers and their private sector suppliers as concurrent innovation processes across the public-private interface. Technological innovations are largely developed and produced by for-profit industrial firms. The public sector, however, in many cases is much more than a passive adopter of commercially developed technologies. It can behave as an active shaper of user requirements, designer of service production processes, co-developer of associated technological systems, and transformer of organizational and inter-organizational practices. In other words, based on user needs and pressing societal problems the public sector is capable of developing service and process innovations. It can do it by proactively scanning new innovative solutions, searching for technological opportunities, and developing new ideas about reorganizing the service production processes and underlying technical systems. The process closely resembles dynamics of 'innofusion' as described by Fleck (1994) where uptake of new technologies requires mutual adaptation of technology and the adopting organization (see also Leonard-Barton 1988).

Collaboration is, however, constrained by public procurement rules and practices which set strict conditions for interaction between public buyers and their suppliers and tend to give preference to bids with lowest price. Long-lasting partnerships and purchaser-supplier relationships are interrupted by limited contract periods after which new competitive bidding processes are initiated. Firms developing new solutions to expressed public sector needs cannot automatically expect they will be awarded the commercial contracts after development and piloting periods. These features affect how firms perceive the levels of risks associated with innovation. Under these conditions firms are not encouraged to invest in innovation even when they would identify opportunities directly responding to needs which are explicitly expressed by the public sector.

Our case analysis also demonstrates how innovative solutions provided by technology and service suppliers have enabled transformation of waste management services towards a more ecologically sustainable modus operandi. On the one hand the transformation has been

pushed forward by changes in policy priorities and regulation as well as organizational efforts in improving service quality and efficiency. Public sector innovation activities are typically based on knowledge exchange, collaboration and learning within professional communities of practice. On the other hand the transformation has been enabled by exploiting technological opportunities in collaboration with supplier firms. In our case the transformation has been progressing gradually through several significant milestones rather than through a single revolutionary turning point bringing about a one-off radical shift.

The public sector carries out service and process development efforts which provide demand for industrial innovation. A key mechanism is articulation of demand and signaling it to private producers through informal communication and formal procurement specifications. The demand articulation process is further complicated by the nature of some public services as partial public goods. Demand is not articulated only from the perspective of individual end users (consumers or citizens), but also reflects articulation of politically negotiated perception of what the society as a collective user of public goods would need (e.g. low carbon waste management services).

The paper concludes by presenting policy implications which emphasize that effective user-producer interaction across the public-private interface requires sufficient innovation capability not only within the supplier firms but also within the public sector organizations. As the public procurement rules constrain the forms of collaboration between public purchasers and private suppliers there is a need to design collaboration processes which match innovation processes at both sides of the public-private interface within these legal boundaries.

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