Innovation capacity in the public sector: A framework for comparative analysis

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Innovation in the public sector has become an important focus for governments around the world over the last decade. The pressure on governments to do more with less, in response to shrinking budgets and expanding community expectations and obligations, has led to a much greater focus on how the public sector manages change and innovation (Bartlett and Dibben, 2002). In developed and less developed countries alike, an amplified focus on innovation in the public sector has created a need to understand the innovation capacity of public organisations. For the purpose of this article we will define innovation as: 'The process from ideas to successful implementation of these, which makes a substantial difference to an organisation's understanding of the needs it is addressing and the services it delivers.'

This article examines the innovation capacity of municipal governments by examining their innovation environments – governance structures, social networks and leadership qualities. An empirical study of this has been recently completed through a survey of politicians and senior administrators in Denmark (Copenhagen), the Netherlands (Rotterdam), Spain (Barcelona) and Scotland (West Lothian, which borders Edinburgh). The article outlines a framework for the comparative analysis of the four cases. More specifically, the focus is on 'social innovation', defined as innovation that is related to creating new services that have value for stakeholders (such as citizens) in terms of the social and political outcomes they produce. A number of concepts from social network theory that are regarded as important for innovation and capacity-building are introduced, namely centrality, the strength of weak ties, structural holes, social capital and trust.

Governance structures

The innovation capacity of any public sector organisation is related to the environment within which it is located. Therefore, it is important to first consider the formal structures within which each municipality is located. These include the municipality's political and administrative background, the legal culture of the public sector, state and governance traditions, and the resource arrangements in place. These characteristics can either function as triggers for innovation or as constraints against it. Based on an analysis of the literature surrounding this topic, Bekkers et al. (2013) found the following four environmental characteristics to be important drivers of and barriers to innovation:

1. The social and political complexity of the environment in which public organisations operate that leads to specific demands that function as external triggers of innovation

2. The characteristics and degree of the legal culture in a country or policy sector, which shape the level of formalisation and standardisation, and the degree of rule-driven behaviour

3. The type of governance and state tradition in a country or policy sector, which affects the amount of discretion that public sector organisations have to explore and implement new ideas

4. The allocation of resources, resource dependency and the quality of relationships between different (public and private) organisations at different levels, which all have an impact on how well innovation practices are supported

More specifically, the formal structures that have been previously identified as being positively and negatively related to innovation capacity are: political and administrative triggers, such as crises and competition (positive effect); a strong formalised, centralised, rule-bound and silo-bound legal culture (negative effect); and a decentralised state, corporatist governance traditions and strong civil society (positive effect).

Throughout the years, metrics of the strength of local governance in cities, and the potential of cities as innovation economies, have been drawn up. An example of this is the Innovation Cities 2014 Index by 2thinknow[1], which is calculated using 162 indicators across 31 segments and the factors of cultural assets, human infrastructure and networked markets. However, it should be stressed that both the information on governance structures within nations and the strength of local government, as well as national- and city-level indicators of 'innovativeness', serve as relatively broad and somewhat imperfect measures.

Social networks and innovation

Innovation capacity is expected to be linked not only to contextual factors, such as those listed above, but also to informal social structures. Social networks based on interpersonal communication generate embedded resources, such as social capital and trust relations. The importance of networks in facilitating innovation and shaping innovation pathways at the organisational, sectoral and national level has long been recognised within private sector innovation literature.

Relationships have also been acknowledged as important within existing literature. The innovative capacity of local governments has been linked to the presence of strong internal and external networks (Newman et al., 2001). 'Network governance' describes (and sometimes attempts to prescribe) how policy-making and governance occurs in contemporary societies where governing conditions are fragmented, complex and multi-level (Lewis, 2011). The type of networks of interest here are social networks. They are fundamentally based on social connections between individuals and hence they consist of a set of nodes (people) connected to other nodes by interpersonal ties of some kind, be they friendships, work relationships or advice seeking.

Innovation often takes place in the interstices, in the spaces between the formal structures – although governance structures shape and constrain opportunities for informal interactions and innovation capacity. Having spaces where individuals can meet each other, without the burden of formal responsibilities, positions and rules, is seen as crucial to innovation.

Centrality

Network centrality is a crucial concept within this field. There are several different types of centrality that are of relevance to this article.

- **In-degree centrality** is a measure of the importance or prestige of individuals (Wasserman and Faust, 1994)

- **Betweenness centrality** is a measure of which actors are positioned between other actors who are not directly connected (Wasserman and Faust, 1994)

- **Closeness centrality** measures how close an actor is to all the other actors in a network

Previous studies of innovation networks in municipal governments have shown that in-degree centrality is related to hierarchical seniority, and that innovators who are more adept at working through relationships outside formal structures are more able to get things done (Considine et al., 2009; Lewis et al., 2011). Further, being central in strategic information networks is considered to be more important than being central in advice networks (Considine and Lewis, 2007).

The strength of weak ties

Mutual dependency indicates something about the connectedness of the actors in a network: the positions that these actors take in the network and the 'ties' that connect them. This issue has been most famously addressed in terms of 'strong' and 'weak' ties (Granovetter, 1973). Strong ties can generate the trust that is necessary for the exchange and sharing of resources, but weak ties provide access to different resources. These are often seen as important to innovation as they allow actors to break out of the 'groupthink' that can occur in situations where everyone is similar and tightly bound into closed networks (Lewis, 2010). Weak ties are achievable where there is openness in the form of the free flow of ideas, knowledge and experiences.

Structural holes

Burt (1992) labelled specific network configurations, where actors have opportunities to act as brokers between other unconnected

actors by dint of their network position, as 'structural holes'. A structural hole gives an actor the ability to use their position to play one competitor off against the other, provided that the competitors are not directly connected. Redundancy is a measure of the diversity of network ties. If an actor has many ties that provide the same information then they have a high level of redundancy in their network and this is regarded as inefficient since the same information could have been gained from a smaller number of contacts (Burt, 2005). Effective size is a second measure related to the brokerage potential held by certain individuals in networks.

Social capital and trust

Social capital is an embedded resource that is created through ties between people within networks. While individuals can hold financial capital and human capital, social capital is only generated by connections with other people. The notion of trust is often related to social capital and they are both often mentioned as factors that influence innovation (Walker, 2008; Lewis, 2010). However, it is important to separate distinct network configurations from the assumed values, emotions and actions arising from these.

Two important authors with very different views on social capital are Ron Burt and James Coleman. Burt (2005) claims that social capital is a metaphor for social structure, defining a form of capital that generates advantages for some individuals and groups. His focus is on the competitive advantage that is to be gained if you are the link between otherwise unconnected actors or groups (structural holes) and so able to access different resources. In contrast, Coleman (1988) highlighted closure and density in networks as providing support and resources.

The preceding discussion indicates that while there are several theoretical and observed associations between network concepts and innovation, the relationship is not a straightforward one. Indeed, it seems that it is some blend of centrality, strong and weak ties, brokerage and trust, which provide the necessary network capacity for innovation. It is also apparent that certain

A history of innovation

Innovation means producing something new: that is – doing things differently or in a new form. Looking at the concept in a historical perspective, it is an economic phenomenon, having resulted in new ways of producing more for less. It is the process of invention, whether of a product, a technology, a service, a new type of production, a new process or a new form of collaboration. It dates back to Adam Smith even though it is Schumpeter (1934) who usually takes credit for the idea of 'creative destruction'.

Innovation is seen as the process of bringing in something new that breaks with existing practice and routines. Skills that have obtained some type of routine and practice are what define capabilities, therefore, innovation challenges an organisation's accumulated capabilities. Such is argued by Osborne and Brown (2011), who refer to innovation as 'a transformative discontinuity with existing practices'. This specific feature of innovation has often been referred to as a competency struggle between path creation and path dependency.

Leadership and innovation

Much of the focus on innovation through the lens of new public management has been on individual entrepreneurship to drive change, while the network governance or new public governance version emphasises 'co-creation' as producing innovation through new government–society interactions. Innovation in the public sector is related to the leadership qualities of both politicians and senior administrators.

Transformational leadership

New public management included the concept of transformational leadership (Burns, 1978), which focused on managers leading change through creating visions, managing complex change and goal setting. It was established in contrast to the traditional administrative and rule-bound role for public managers, casting them instead as inspirational leaders that help employees to reach their potential by focusing on their performance.

Interpersonal skills

Beinicke (2009) highlights interpersonal skills as important to innovation and change management. His list covers communicating, teamwork, coaching, and negotiating and conflict resolution.

Entrepreneurship

An entrepreneur is usually a maverick, somewhat of a risk taker and typically a 'lone rider'. Entrepreneurs are generally regarded as being more likely to be found in the private sector.

Collaborative skills

Network public governance might be characterised as changing the focus from the individual to the organisation. When such a move is made, consideration must be paid to the motivational and efficiency forces of the organisation; to facilitating processes that include external collaborators as well as internal employees; and on handling intractable problems.

Taking complexity into consideration in aspects of implementation at an early stage of the innovation process may contribute to the creation of more robust solutions. New public governance is said to entail a new perspective on citizens as associates in the innovation process rather than service-receivers.

Dynamic capabilities

Public sector environments change rapidly due to frequent changes in policy. The dynamic capability framework has been applied to private organisations to understand how firms stay competitive by adapting to changing environments. Dynamic capabilities differ from and supplement a resource-based view in that they are distinctive processes that facilitate not only the ability to recognise changes in the strategic environment, but also the processes of changing and shaping the company's asset position, and protecting the intangible assets that support the business in the long run.

In the LIPSE study, these five concepts were used to generate a list of 21 sub-questions for the survey.

types of networks might be important for specific innovation processes, but it is unlikely to be the case that there is a 'one size fits all' ideal type that supports innovation of all types and in all circumstances.

Conclusion

The LIPSE analysis from Copenhagen provides a first cut at the task of uncovering the relationships between innovation capacity, networks and leadership, and structures. The results have been used to build on this theory and establish a framework for the future comparative analysis, which will link innovation environments (governance structures, social networks and leadership qualities) to innovation capacity and innovativeness.

The comparative analysis planned to follow this foundational work will utilise some fairly well-established, as well as some emergent hypotheses, about the links between innovation, networks and leadership, and structure. These will be added to as the analysis progresses for each of structures, networks and leadership in relation to each other, and in relation to innovation capacity.

At present there are some well-accepted links between governance structures and innovation capacity in the literature, so it is possible to put forward a hypothesis that:

• Municipalities located in states that are decentralised, have corporatist governance traditions and have a strong civil society also have greater innovation capacity

Similarly, there is widespread agreement in the literature that being outward looking and open to new ideas is linked to innovation, so it is reasonable to hypothesise that:

• Municipalities with greater levels of external contact have greater innovation capacity

• Municipalities with more connections across the internal administrative boundaries have greater innovation capacity

More speculatively, the preliminary work on networks suggests that:

• A mixture of different types of brokers (with different levels of redundancy in their networks) is related to innovation capacity

Finally, some examples of hypotheses that could be used to examine the relationship between leadership and networks, and leadership and self-rated innovativeness (respectively), are:

• Views on leadership qualities are related to ego-network positions

• Municipalities with more 'motivator' leaders have higher levels of self-rated innovativeness

These and other hypotheses will be tested empirically against the existing data. The ultimate aim is to gain an understanding of how the innovation capacity of public organisations is related to innovation environments, based on the framework outlined here, which consists of governance structures, social networks and leadership qualities.

Endnotes

1 See: www.innovation-cities.com/indexes. [Accessed 9 December 2014].

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