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Internal and External Sources and the Adoption of Innovations in Organizations

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Research on knowledge sources and innovation has focused mainly on external knowledge sources and the generation of technological innovations. This study contributes by examining the dual role of internal and external sources of knowledge and information on the adoption of managerial innovations, a type of non-technological innovation deemed essential for organizational effectiveness but not examined sufficiently. It also contributes to the innovation adoption literature by analysing adoption as a process, rather than a dichotomous choice. We investigate how the involvement of stakeholders for the selection of a new programme, and organizational actions for the implementation of that programme, affect its adoption. Regression analyses of privatization of 64 services in 1,512 public organizations provide empirical evidence in support of the influence of internal and external involvement, and internal, but not external, implementation actions. We also find that while the relative influence of internal and external stakeholders' involvement on innovation adoption does not differ, internal implementation actions have a stronger effect than external implementation actions. We discuss the implications of our findings for the adoption of innovations in organizations and offer research ideas for understanding non-technological innovations and their effects on organizational conduct and outcomes.

Introduction

Innovation has positive connotations among policy-makers, organizational leaders and the public at large. It has been associated with social progress, economic growth and organizational productivity and effectiveness. Although innovation has been studied across disciplinary fields in the physical and social sciences, and in the fine arts and humanities, it has come to be defined primarily as a technology-based phenomenon and has been understood as a commercialized product or process (Godin, 2008). Scholars have long noted the potential contributions of non-technological innovations (Arrow, 1962; Chandler, 1962; Evan, 1966); however, the technology-centric view of innovation continues to prevail (Birkinshaw, Hamel and Mol, 2008; Damanpour, 2014; Volberda, Van Den Bosch and Heij, 2013). Academic research has largely probed the antecedents and consequences of product and process innovations in the manufacturing industries, relying on easily accessible measures such as patents, R&D expenditure, number of new products and number of scientists and technicians (Armbruster *et al.*, 2008; Damanpour, 2010; Miles, 2005). Recent reviews confirm the dominance of the studies of technological innovations, and point out that research on non-technological process, strategic and managerial innovations is relatively scarce (Černe, Kaše and Škerlavaj, 2016; Crossan and Apaydin, 2010; Keupp, Palmié and Gassmann, 2012).

Studies of innovations in organizations include generation and adoption of technological and non-technological innovations. This study focuses

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on the adoption of managerial innovation, a type of non-technological innovation. Managerial innovations are new programmes and practices affecting strategy, structure, management processes and decision-making (Bantel and Jackson, 1989; Damanpour and Aravind, 2012; Kimberly, 1981). Adoption of these programmes intends to alter the adopting organization's administrative system and managerial work, and to improve its efficiency and effectiveness (Evangelista and Vezzani, 2010; Mol and Birkinshaw, 2009; Walker, Chen and Aravind, 2015). We view innovation adoption strategically, assuming that organizations adopt managerial innovations purposefully, either in response to environmental change or to fulfil top executives' aspirations. Pressures from competitive and institutional environments, resulting from increasing globalization and customers' awareness and expectations, combined with the recent trend of 'doing more with less' from markets and CEOs, require organizations to acquire new knowledge that bolsters organizational capabilities, and continually refine existing processes and systems, thus helping them to avoid performance gaps. As such, the adoption of new managerial programmes and practices has become more a necessity than a choice (Hervás-Oliver and Peris-Ortiz, 2014; Pitsis, Simpson and Dehlin, 2012; Volberda, Van Den Bosch and Heij, 2013).

Previous studies have mostly probed innovation adoption as a dichotomous choice, focusing mainly on the adoption decision (adopt or not). We study two sets of actions that organizations undertake before and after the adoption decision: one for selecting new programmes and the other for implementing the selected programmes successfully. For both actions we propose that both internal and external sources of information and knowledge (henceforth, internal and external sources) stimulate the adoption of new programmes. That is, the broader the breadth of involvement of internal and external stakeholders in selecting new programmes (henceforth, involvement) and the greater the array of internal and external actions used in implementing them (henceforth, implementation actions), the greater is the reservoir of information and knowledge influencing their adoption (Birkinshaw, Hamel and Mol, 2008; Laursen and Salter, 2006; Mol and Birkinshaw, 2009).

This study aims to make several contributions to research on organizational innovation. First, decision models point out the importance of breadth and diversity of information and knowledge sources in making effective managerial decisions (Dean and Sharfman, 1996; Rogers, 2003). Innovation scholars have mainly examined the role of external sources on the generation (*new* to the state-of-the-art) of innovations (Laursen and Salter, 2006; Leiponen and Helfat, 2010; Mol and Birkinshaw, 2014). This study adds by empirically probing the dual role of internal and external sources on the adoption (*new* to the organization) of managerial innovations.[1] Second, adoption is usually viewed as a dichotomous decision. Previous studies have rarely accounted for organizational activities before and after the adoption decision. We distinguish between organizational actions for selecting (pre-adoption decision) and implementing (post-adoption decision) new programmes. Third, although evidence on the impact of managerial innovations on organizational performance exists (Evangelista and Vezzani, 2010; Walker, Chen and Aravind, 2015), managerial innovations remain a relatively underresearched type of innovation. Our study highlights the role of this innovation type and helps develop a better understanding of organizational mechanisms that could affect its adoption.

We investigate first-time privatization of 64 organizational services as managerial innovation. Privatization is outsourcing the production of a public service from in-house to a private supplier. Outsourcing shares similar characteristics with other types of managerial innovations. First, changing the locus of production from inside to outside has an impact on how managerial work is conducted. Second, the adoption of outsourcing as a new programme exhibits novelty for the managers who make adoption decision and nonmanagers who are involved in the process of selecting and implementing that programme. Third, organizations adopt managerial innovations to respond to external change, fulfil a perceived performance gap or gain legitimacy and reputation. In this vein, the adoption of outsourcing, similar to any other new managerial programme, intends to boost performance or effectiveness.

[1]It is necessary to say that Birkinshaw, Hamel and Mol (2008) have discussed the dual role of internal and external sources. However, their work is conceptual and their model focuses on the generation of innovation. This study is empirical, focuses on the adoption of innovation and examines the relative effects of internal and external sources.

The categorization of outsourcing as managerial innovation has precedents in the innovation literature. For instance, Tether and Tajar (2008) distinguished organizational innovations from technological (product and process) innovations and categorized outsourcing as organizational inter-firm innovations. Peeters, Massini and Lewin (2014) also viewed global sourcing or offshoring as managerial innovation. Armbruster *et al.* (2008) introduced four types of organizational innovation based on two dimensions (structural vs. procedural; intra- vs. inter-organizational) and categorized outsourcing as structural inter-organizational innovation. Whittington *et al.* (1999) offered three groups of structure, process and boundary, and placed outsourcing in the boundary group. Finally, and most importantly, the OECD Oslo Manual (OECD, 2005) classifies organizational (i.e. non-product, non-process, non-service, non-marketing) innovations into three groups, one of which is the introduction of new methods of *organizing external relations* with other organizations including outsourcing, alliances and partnerships.[2]

In the next section we briefly overview the field of organizational innovation to position this study and distinguish it from previous research. Next, we use insights from theories of organizational behaviour and management to develop two sets of hypotheses for internal and external involvement and implementation actions. This is followed by the study's methodology and statistical results. Finally, we discuss the implications of our study for research on organizational innovation and list the study's limitations.

Organizational innovation

Research on innovation is multidisciplinary and multilevel: in economics, innovation is studied at the level of industry or economy; in psychology, at the level of individual and small group; and in management, at the level of organizational unit and organization. *Organizational innovation* refers to the studies of innovation in organizations, including both business and public organizations (Damanpour, 2017).[3] Research on organizational innovation examines antecedents, processes and consequences of the generation and adoption of innovations in organizations. The distinction between generation and adoption processes is necessary because they typically occur in different parts of organizations and are not necessarily affected by the same set of antecedents. Also, organizations can generate and adopt innovations of different types. The role and importance of innovation types differ along the value chain, suggesting that the external conditions and internal characteristics that motivate the generation and adoption of one type of innovation could differ from another type. The complexity and multiplicity of organizational innovation research requires carving out the dimensions of innovation that are pertinent to this study.

Types of innovation

To reduce the complexity of innovation and facilitate its understanding, innovation researchers have grouped innovation into different types. A distinction between two pairs of innovation types (product vs. process; technological vs. non-technological) helps position our study in the field of organizational innovation literature.

The product–process typology is the most prominent typology in innovation research. *Product innovation* pertains to the introduction of a new product or service to meet a user need, and *process innovation* to the introduction of new elements in the production process or service operation (Damanpour, 2010; Utterback, 1994). Research on the product–process typology has primarily focused on industrial innovations, often on R&D-based innovations, which has resulted in the understanding of product and process innovations

[2]The other two groups are: (1) new *business practices* for organizing procedures, such as supply-chain management, business re-engineering, knowledge management, lean production, quality management; and (2) new methods of *organizing work responsibilities and decision-making*, such as first use of a new system of employee responsibilities, teamwork, decentralization, integration or de-integration of departments and education/training systems (CIS, 2010; OECD, 2005).

[3]Organizational innovation is a term applied in economics to represent non-technological process innovations (Edquist, Hommen and McKelvey, 2001). In the management literature, organizational innovation is understood in two ways. In a more specific way, it means non-technological, managerial innovation (Damanpour and Aravind, 2012); in a broader way, as in this paper, it refers to innovations in organizations, whether technological or non-technological (Crossan and Apaydin, 2010; Lam, 2005).

as *technological innovations* (Damanpour, 2010; Tether and Tajar, 2008). The technological–non-technological typology is based on a distinction between technology and social structure (Evan, 1966). Managerial innovations are considered non-technological innovations, and have also been referred to as administrative, management and organizational innovations (Černe, Kaše and Škerlavaj, 2016). We define *managerial innovation* as the introduction of a new programme or practice pertaining to an organization's policy, structure, administrative procedures, management decision-making and external relations (Bantel and Jackson, 1989; Damanpour and Aravind, 2012; Kimberly, 1981; OECD, 2005). Based on the above definitions, we consider first-time outsourcing of the production of a public service as a case of non-technological, managerial innovation.

Process of innovation

Another means of reducing the complexity of innovation construct and developing more reliable theories of innovation in organizations is to differentiate between the generation and adoption of innovation. Generation and adoption are two distinct processes, each with various stages or phases (Klein and Sorra, 1996; Tornatzky and Fleischer, 1990). *Generation* is the process of developing and producing a product, service, process, programme or practice that is new to the state-of-the-art, an industry or a population of organizations (Birkinshaw, Hamel and Mol, 2008; Roberts, 1988).[4] An organization may generate innovation for its own use or for external users. In the former case, innovation is generally produced in one unit and consumed in another; in the latter case, innovation is produced in one organization and consumed in another. As Angle and Van de Ven (1989) observe, adoption basically means that the innovation is developed elsewhere, not in the adopting organization. *Adoption* is the process of selecting a programme new to the adopting organization and implementing it for use by organizational members or clients (Daft, 1978; Damanpour and Aravind, 2012; Duncan, 1976).

The innovation adoption process is grouped into two general phases of initiation and implementation (Duncan, 1976; Rogers, 2003). *Initiation* includes steps such as problem perception, searching for solutions, evaluating the solutions and selection; *implementation* includes steps such as implementation planning, adjustment/adaptation, initial use and sustained use (Damanpour and Schneider, 2006). Initiation and implementation, respectively, represent the activities undertaken in making the adoption decision (pre-adoption actions) and putting the new programme into use (post-adoption actions).[5] We treat innovation adoption as a purposeful and organized process whose responsibility lies with top managers and top management teams (Drucker, 1985). However, since top managers may lack adequate knowledge and information about innovations, they rely on sources inside and outside the organization to select and implement them. In the next section, we develop hypotheses on the dual role of internal and external sources for adopting managerial innovations.

Hypotheses

Innovation scholars have examined the breadth of external sources on the generation of innovation and innovation outcomes (Laursen and Salter, 2006; Leiponen and Helfat, 2010; Mol and Birkinshaw, 2014), but not on the adoption of innovation. We study the role of internal and external sources and distinguish between selecting new managerial programmes (internal and external involvement) and implementing them (internal and external implementation actions). We argue that the breadth and diversity of information and knowledge sources increase chances to innovate, motivating organizations to seek out new knowledge

[4]For technological innovation, the generation process includes recognition of opportunity, idea formulation, research, commercial development, testing, production, packaging and dissemination (Klein and Sorra, 1996: Roberts, 1988). For managerial innovation, the generation process includes motivation, invention, generation and labelling (Birkinshaw, Hamel and Mol, 2008; Volberda, Van Den Bosch and Mihalache, 2014).

[5]The terminology we have employed is drawn from the organizational innovation literature (Damanpour, 2017) and differs slightly from the terminology employed in the creativity at work literature. Creativity scholars distinguish creativity from innovation by relating creativity to the generation of novel and useful ideas, and innovation to the production and implementation of those ideas (Amabile, 1988; Anderson, Potočnik and Zhou, 2014; West and Farr, 1990).

and insight from internal, market and professional sources (Mol and Birkinshaw, 2009).

Internal and external involvement

Research on organizational innovation indicates that involvement of top managers in the innovation adoption process is necessary and contributes to its success (Bantel and Jackson, 1989; Elenkov, Judge and Wright, 2005; Mumford and Licuanan, 2004). The behavioural theory of the firm, however, points out that decision-making is constrained by uncertainty in preferences and consequences of current actions, and by limitations in the decision-makers' rationality and cognition (Cyert and March, 1992). For innovation decisions in particular, the limitations in the decision-makers' intellectual capacity to process new knowledge and information necessitate reliance on other sources of information and knowledge. Organizations could reduce uncertainty in decision-making by relying on the interactive processes to gain information and incorporate feedback (Cyert and March, 1992). In this vein, organizational processes that facilitate cooperation and conflict resolution among groups and units, communication and interaction between members and managers, and cross-pollination of ideas across the organization help reduce the uncertainty inherent in innovation decisions and facilitate the initiation and implementation of new programmes (Damanpour and Schneider, 2006; Ekvall, 1996; Kimberly, 1981). Stakeholder theory also points to the legitimate interest of stakeholders in organizations' strategic choices and offers that the involvement of internal and external constituents could contribute to the achievement of organizational goals (Donaldson and Preston, 1995).[6] Innovation decision models also endorse the participatory and consultative style of decision-making over the direct and hierarchical style (Daft, 2001; Dean and Sharfman, 1996). We offer that the participation of internal and external organizational constituents or stakeholders (for brevity, internal and external involvement) to select new programmes is beneficial to the adoption process (Cyert and March, 1992; Tornatzky and Fleischer, 1990).

Innovation research has found that centralization of decision-making inhibits innovation adoption (Bantel and Jackson, 1989; Grover, Purvis and Segars, 2007; Nord and Tucker, 1987). *Centralization* is a continuum that shows the extent to which the decision-making authority is held at the top, representing the degree of participation of non-managers in the decision-making process. In centralized organizations, non-managers are not involved in the innovation decision process; in decentralized organizations, they are. A less participatory work climate reduces the information available to organizational members, limiting their awareness, learning opportunities and capacity to contribute (Damanpour and Schneider, 2006; Nieves and Segarra-Ciprés, 2015). A more participatory work climate widens internal and external communication channels, increases the quantity and quality of knowledge retrieved from the environment, and enhances organization members' awareness, commitment and opportunity to contribute (Bantel and Jackson, 1989; Damanpour and Schneider, 2006). Whereas top managers are more familiar with environmental change, market opportunities and possible performance shortfalls, non-managers are more in touch with the existing problems and possible mechanisms that could effectively resolve them. The involvement of organization members in the innovation process could thus broaden the diversity of ideas and contribute to selecting new programmes with fewer adverse effects (Bantel and Jackson, 1989; Nieves and Segarra-Ciprés, 2015).

Innovation often requires information and knowledge that does not exist within organizational boundaries. This requirement motivates managers to search for external sources of knowledge and import knowledge new to the organization (Mol and Birkinshaw, 2009). The absorptive capacity perspective delineates that innovation is facilitated by organizational capability to seek new (external) knowledge and combine it with existing (internal) knowledge (Cohen and Levinthal, 1990; Eisenhardt and Martin, 2000). The external sources can provide know-how where the internal sources' experience is inadequate. For instance, in the context of this study, the involvement of citizen advisory groups helps reduce uncertainty in outsourcing services that the users might view

[6]The fundamental base of stakeholder theory is normative, but it has an instrumental aspect also (Donaldson and Preston, 1995). The instrumental view has been applied in the studies of corporate social responsibility and performance (Husted, 2000; Kobeissi and Damanpour, 2009; Lerner and Fryxell, 1988). Here we apply it to stakeholders' participation in managerial decision-making.

as unnecessary or undesirable. Likewise, the involvement of potential suppliers, early adopters and industry consultants can enrich the quality of innovation decisions and help avoid selecting programmes that have been deemed to be unsuccessful in other jurisdictions. The breadth of involvement of external sources, therefore, further increases the range of ideas and occupational diversity, and enlarges the pool of experience to assist in adopting innovations.

Will the breadth of involvement of internal and external sources equally affect innovation adoption or will one have more influence than the other? We propose that the role of external sources in selecting new programmes is paramount. The non-technical nature and attributes of managerial innovations – such as variability, flexibility, adaptability and tacitness – rarely allow their adoption as 'off-the-shelf' solutions, making managers unsure about their contributions and increasing perceived risks of their adoption (Ansari, Reinecke and Spaan, 2014; Damanpour and Aravind, 2012).[7] Consequently, managers tend to rely on the currency of new programmes in the population rather than their technical merits, impelling adoption based on social rather than economic reasons and seeking legitimacy rather than performance benefits (Abrahamson, 1991; Scarborough, Robertson and Swan, 2015). We propose that external information sources will be better able to identify threats and opportunities unforeseen by internal sources, and help match industry best practices to the problems new programmes are expected to address. While internal sources contribute by identifying problems and searching for solutions, external sources contribute by linking the solutions to those accepted in the population and by influencing top managers to adopt new programmes that converge with the direction of changes in the environment. The involvement of external sources also helps confirm the legitimacy of new programmes and lends credibility to their adoption.

H1a. Internal involvement in selection facilitates the adoption of managerial innovations.

H1b. External involvement in selection facilitates the adoption of managerial innovations.

H1c. External involvement in selection affects the adoption of managerial innovations more positively than internal involvement in selection.

Internal and external implementation actions

Innovation adoption success is also contingent on successful implementation (Klein and Sorra, 1996; Real and Poole, 2005). Organizations undertake activities to learn how new programmes can be practised and how to coordinate the interdependencies across units and among members to facilitate their assimilation and use (Holahan *et al.*, 2004; Klein and Sorra, 1996). We view implementation as a managed process, where actions to attain success are goal-directed, include planning and execution, and are learned by experimenting, involving and building commitment to new programmes across the organization (Real and Poole, 2005).[8] We also follow the organization-based conception of learning, which presumes that lessons from previous experiences are maintained within organizational procedures rather than individuals' memories (Levitt and March, 1988). The implementation actions can be associated with learning from one's own experiences (internal or direct learning), as well as learning from the experiences of others (external or indirect learning) (Huber, 1991; Levitt and March, 1988).

Implementation actions to learn from one's own experience enable organizations to practise the innovation and build support for it, allure cooperation of members, refine the implementation plan and gain knowledge for managing interdependencies across units (Nord and Tucker, 1987;

[7]For example, a total quality management programme has multiple parts (service design, employee involvement, customer focus, etc.), enabling the adopters to adopt all or a few, some initially and some later (Schroeder *et al.*, 2008). Similarly, practices like empowerment, job enrichment, teamwork, worker participation, involvement and consultation overlap on one or more parts. A historical analysis of the global diffusion of resource planning (RP) demonstrates that technical progress and organizational adaptation have resulted in several variants of RP (Scarborough, Robertson and Swan, 2015), providing flexibility for adopting different versions.

[8]Real and Poole (2005, pp. 67–72) proposed four conceptual perspectives on implementation of innovation based on two dimensions of 'variance vs. process' and 'fixed vs. adaptive': *roll out* (fixed variance); *modification* (adaptive variance); *programmed* (fixed process); and *transformation* (adaptive process). Among them, we have relied on the programmed perspective because (1) it aligns with the view of organizational innovation as a systematic process (Drucker, 1985) and (2) it best applies to first-time privatization of organizational services.

Rogers, 2003). A common practice is piloting or trial implementation. Trial implementation embodies a plan, paces progress and provides information for making adjustments against the original concept (Birkinshaw, Hamel and Mol, 2008; Real and Poole, 2005). The adopting organization uses experiential learning to match procedures to the new programme, and applies the acquired knowledge for sustaining use of the programme (Levitt and March, 1988). Successful implementation may require adjustments in organizational processes and systems including power structure, job design, management–labour relations and cross-functional communication and interactions (Holahan *et al.*, 2004; Tornatzky and Fleischer, 1990). Trial implementation highlights where these adjustments are needed and provides information on how to undertake them to attain consistent use.

To ensure successful implementation, organizations also reach beyond their boundaries to learn from the experiences of others. The transfer of experience occurs through different mechanisms, such as studying the implementation of innovation in other organizations, soliciting the knowledge of experts, hiring consultants, seeking feedback from members, forming advisory groups and conducting user surveys (Mol and Birkinshaw, 2014; Nieves and Segarra-Ciprés, 2015). For example, in a case of global sourcing of business services, Peeters, Massini and Lewin (2014, pp. 1356–1357) report that a company's emphasis on reaching target revenue and reducing costs initially drove it towards abandoning outsourcing; however, learning from external consultants and feedback from customers resulted in a series of corrective actions, leading to successful implementation. Knowledge experts could help develop a rationale for adopting new programmes that would resonate with organization members and clients (Birkinshaw, Hamel and Mol, 2008). Feedback from end-users could help put in place management processes for monitoring and evaluating use. Together, these activities provide a range of management tools and mechanisms to assist in attaining adoption success.

Regarding the relative impact of internal and external implementation actions on innovation adoption, we propose that internal actions will have a stronger impact. Successful implementation requires changes in units and processes of the organization to enable innovation–organization adaptation. Internal sources are informed about organizational processes and are able to manoeuvre the processes that are amenable to change (Birkinshaw, Hamel and Mol, 2008). While the specialized knowledge of external sources could be crucial in assessing and selecting new programmes, internal sources' knowledge of the organization's processes and systems could be central to new programmes' successful implementation. The internal sources are keen to identify obstacles, lay down the technical and social groundwork to remove them, overcome initial resistance among members and clients, and adapt the implementation plan as it progresses. Building and maintaining networks of internal connections, resolving conflicts among units and overcoming resistance to change is tedious and time-consuming. While organizations can learn from external experts and early adopters, successful implementation hinges on the continued commitment of managers and the buy-in and cooperation of non-managers.

H2a. Internal implementation actions facilitate the adoption of managerial innovations.

H2b. External implementation actions facilitate the adoption of managerial innovations.

H2c. Internal implementation actions affect the adoption of managerial innovations more positively than external implementation actions.

Methods

Data and sample

Traditionally, local governments have produced their services using their employees only (in-house provision). The New Public Management (NPM) reform movement in the early 1980s, followed by the Reinventing Government (RG) reform movement in the early 1990s, pressured government organizations to adopt practices from business organizations to improve their conduct and outcomes (Kearney, Feldman and Scavo, 2000; Osborne and Gaebler, 1992). For example, they conveyed that privatization (provision by private suppliers) will make the delivery of public services more efficient (Brown and Potoski, 2003; Hefetz and Warner, 2004). Despite the studies of the environmental, organizational and innovation attributes that affect the adoption of the NPM/RG reform movement (Schneider, 2007), research on the role of internal and external information sources on privatization has not been scrutinized.

We collected data on the privatization of public services from the ICMA's (International City/County Management Association's) ASD (Alternative Service Delivery) surveys. The ASD surveys have been administered nationally in the United States to a stratified random sample of local governments every five years since 1982. Thus far, results from six panels (1982, 1988, 1992, 1997, 2002 and 2007) have been published. The ASD questionnaires are sent to city managers or chief administrative officers of municipal and county governments, asking them about modes of provision of 64 public services in their organization. The number of organizations that responded to each survey ranged from 1,283 to 1,777, reflecting a response rate of 24–32% (http://www.icma.org). We also collected data from six panels of the US Census City and County Data Book to account for economic, demographic and organizational factors that might influence the privatization of organizational services in local governments. We merged the data from the US Census with the database we constructed from the ASD surveys. The questions were carefully matched across the six panels to ensure consistency.

The ASD questionnaires use the term 'private service delivery' (PSD) and define it as when a service is produced externally by a private vendor.[9] Since innovation is defined as new to the organization, we constructed our sample by tracing the services that were produced in-house (by employees of the organization) in one period and were produced via PSD (outsourced via privatization) for the first time in the next period. Hence, we included organizations that had responded to at least two consecutive surveys and organizations that had produced at least one service in-house that had not been outsourced before. These alterations, along with the removal of the missing data, resulted in an unbalanced sample of 1,512 organizations and 2,722 organization-year observations (hereafter, observations). Organizations in our sample on average provided 24 services, produced 18 of them in-house and delivered 6 via privatization. The percentages of services that were privatized for the first time from 1988 to 2007 were 13.36, 8.07, 10.38, 8.36 and 8.49%.

Measures

Dependent variable. We measured managerial innovation in each panel year (period) as the sum of programmes in the focal organization that for the first time changed from in-house provision in the prior period to outsourced provision in the current period, divided by the total number of programmes the organization produced in-house in the prior period.

Independent variables. The explanatory variables – internal and external involvement and implementation actions – were constructed as indices using the responses to the ASD surveys. Survey questions and items are shown in Appendix A. Respondents were asked to indicate the activities their organization undertook for outsourcing the services over the past five years. We calculated the indices as the sum of the items that the respondents marked in answering a question, divided by the total number of items included in that question (Appendix A).

Internal involvement was measured by the proportion of positive answers to whether a total of seven different groups – one manager group (manager, assistant manager and elected official) and six non-manager groups – participated in the feasibility study of outsourcing services (Appendix A).[10] *External involvement* was measured by the proportion of positive answers to whether six different external sources were involved in the feasibility study (Appendix A). *Internal implementation actions* were measured by the proportion of positive answers to whether three activities were undertaken to ensure implementation success. *External implementation actions* were measured as the proportion of positive answers to whether four external activities were undertaken to ensure implementation success (Appendix A).

[9]ASD surveys include four types of suppliers in PSD: 'private for-profit firms', 'private non-profit organizations', 'franchise/concessions' and 'subsidies'. The percentages of the services that were provided through each of these types in our sample are respectively 85.7, 9.5, 2.9 and 1.9%.

[10]The feasibility study is a term from project management and system development to delineate the process of identifying new methods and programmes (solutions) and evaluating their practicality, suitability and acceptability to assist problem-solving and decision-making (Biggs, Birks and Atkins, 1980). In the context of this study, it represents the search for new programmes, assessment of their practicality and selection of one for adoption.

Control variables. We controlled for the influences of economic, demographic and organizational factors for each period as in the extant literature (Brown and Potoski, 2003; Damanpour and Schneider, 2006; Hefetz and Warner, 2004). For the economic conditions, we included the gross domestic product (GDP) of the state in which the local government is located, as reported by the US Bureau of Economic Analysis. *State GDP* is measured as the change in the real GDP of the state from the prior period to the current period. We also controlled for *community wealth*, measured as the total personal income of constituents, adjusted for inflation using the CPI index with 1982 as the base year, divided by the total number of constituents. We controlled for the administrative structure of the organization, as to whether it is overseen by managers or elected bodies. *Elected* is measured as a dummy variable, set equal to 1 if the organization's key decision-maker is an elected official ('mayor-council' or 'council-elected executive') and 0 if non-elected ('council manager' in a city, 'council administrator' in a county). Prior research suggests that government organizations in urban areas have more resources, provide more services and have easier access to suppliers (Walker, Damanpour and Devece, 2011). Hence, we controlled for *metropolitan area* using a dummy variable set equal to 1 if the organization is located in a Metropolitan Statistical Area, as defined by the US Office of Management and Budget, and 0 otherwise.

From an institutional perspective, the currency of a new programme or practice in an organizational population affects its adoption among members of that population (Abrahamson, 1991; Scarborough, Robertson and Swan, 2015). We included a control variable for *currency* of service privatization in the organizational population, and measured it by computing first the service-level currency and then the organization-level currency. The currency of service privatization is represented by the privatization prevalence of a service in the organizational population (our entire sample) and was calculated by the proportion of the total number of observations associated with that service, divided by the total number of provisions of that service in the population. The currency of organizational privatization was computed as the mean currency of the services that an organization privatized. Currency was lagged by one period.

We also controlled for fiscal and non-fiscal pressure to outsource services using responses from the ASD surveys. *Fiscal pressure* to outsource was calculated as the proportion of positive answers to whether two factors spurred the organization's decision to privatize services: external fiscal pressure and internal attempts to decrease the costs of service delivery. *Non-fiscal pressure* was measured by the proportion of positive answers to whether four factors spurred the organization's decision to privatize services: state or federal mandates; change in political climate emphasizing a decreased role for government; active citizen group favouring privatization; and unsolicited proposals presented by potential service providers.

The ASD survey distinguishes the programmes provided by organizations into seven groups: public works/transportation; public utilities; public safety; health and human services; parks and recreation; cultural and arts services; and support functions. *Programme group* controls for variation in the types of services provided by the organization, and was calculated as the number of services provided by the organization in each service group divided by the total number of services provided by that organization. Since regional characteristics may influence organizational adoption of outsourcing practices, we included fixed effects for the nine *geographical regions* in the United States as identified by the ICMA. Finally, we controlled for differences in the propensity to privatize in any given period by using *year* fixed effects.

Analysis

Since the dependent variable is fractional, ranging from 0 to 1, we employed a fractional logit model (Papke and Wooldridge, 1996). The fractional logit is a standard method for fractional dependent variable analyses (McDowell and Cox, 2004), and has precedence in management research (Adegbesan and Higgins, 2011; Fleischer, 2009). The fractional logit relies on quasi-maximum likelihood estimation with a logistic mean function to directly estimate the fractional response. It suits regressions with proportional dependent variables as it predicts continuous values in the unit interval (Papke and Wooldridge, 1996). Based on McDowell and Cox (2004), we used the generalized linear model with a binomial family, logit link function and robust standard errors clustered by organization.

Table 1. Descriptive statistics and correlations

	Variable	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11
1	Managerial innovation	0.09	0.14											
2	State GDP	0.16	0.08	0.08										
3	Community wealth	9.46	0.23	0.07	−0.15									
4	Elected	0.20	0.40	−0.02	−0.05	−0.08								
5	Metropolitan area	0.77	0.42	0.09	0.00	0.45	−0.08							
6	Currency	0.23	0.06	0.16	0.00	−0.12	0.03	−0.09						
7	Fiscal pressure	0.56	0.39	0.21	−0.04	0.12	−0.08	0.11	−0.04					
8	Non-fiscal pressure	0.12	0.18	0.08	0.00	−0.03	0.00	−0.03	0.04	0.30				
9	Internal involvement	0.40	0.25	0.21	0.06	0.10	−0.10	0.13	0.04	0.47	0.31			
10	External involvement	0.23	0.21	0.24	0.15	−0.02	−0.03	0.04	−0.01	0.35	0.29	0.48		
11	Internal implementation actions	0.16	0.26	0.19	0.00	0.11	−0.11	0.12	−0.02	0.25	0.16	0.29	0.23	
12	External implementation actions	0.20	0.24	0.21	0.10	0.07	−0.07	0.11	−0.02	0.32	0.22	0.38	0.47	0.31

Number of observations = 2,722. Correlation coefficients greater than 0.03 or less than −0.03 are significant at $p < 0.05$.

Results

Table 1 depicts descriptive statistics and correlations for all the variables included in our analyses. On average, organizations privatized 9% of the services they provide for the first time. While, on average, involvement of internal sources in organizational activities for initiating new programmes was higher than involvement of external sources (40% vs. 23%), internal organizational actions for successfully implementing those programmes were slightly lower than external actions (16% vs. 20%).

Table 2 presents the regression results for the adoption of managerial innovation. We conducted hierarchical regression analyses and entered the control variables first (Model 1), followed by internal and external involvement (Model 2) and internal and external implementation actions (Model 3). Incremental Wald tests for Models 2, 3 and 4 were significant ($p < 0.001$), indicating the models that included the theoretical variables fit better than the control model. We tested for multicollinearity by computing the variance inflation factors (VIFs). VIFs were between 1.08 and 4.00, below the recommended ceiling of 10 (Chatterjee and Price, 1991).

H1a and H1b proposed that internal and external involvement facilitate managerial innovation. As Model 2 shows, the regression coefficients for both variables are positive and significant ($p < 0.001$), supporting H1a and H1b. However, the data did not support H1c as a Wald test of the difference between the regression coefficients of internal and external involvement was not significant (Wald statistic = 0.57, $p > 0.05$).

H2a and H2b proposed that internal and external implementation actions positively affect managerial innovations. Data supported H2a but not H2b as the regression coefficient for internal implementation actions was significant ($p < 0.001$) and for external implementation actions was not ($p > 0.05$). H2c suggested a stronger effect for internal than external implementation actions. The positive coefficient of internal implementation actions coupled with the non-significant coefficient of external implementation actions is supportive of H2c. However, a Wald test of the difference between the regression coefficients was marginally significant (Wald statistic = 3.18, $p < 0.10$).

For exploratory purposes, we tested the interaction effects of the two pairs of explanatory variables (Model 4). The results showed negative and significant interaction effects for both internal and external involvement ($p < 0.001$) and implementation actions ($p < 0.01$), suggesting that the internal and external sources for both selecting and implementing managerial innovations are substitutable. We also constructed two interaction plots for visual examination (Appendix B). Figure B.1 shows that (1) higher levels of external involvement are associated with greater levels of innovation adoption and (2) the highest level of adoption is associated with high external involvement in combination with low internal involvement. Figure B.2 shows that the effect of external implementation actions is contingent on internal implementation actions. At high levels of internal actions, increases in external actions do not significantly change innovation adoption. However, when internal implementation actions are low, external implementation actions increase adoption. Overall, the

Table 2. Regression results

	Model 1	Model 2	Model 3	Model 4
State GDP	0.00	−0.09	−0.07	−0.04
	(0.25)	(0.26)	(0.26)	(0.26)
Community wealth	0.34***	0.32***	0.29***	0.31***
	(0.09)	(0.09)	(0.09)	(0.09)
Elected	−0.05	−0.04	−0.03	−0.03
	(0.04)	(0.04)	(0.04)	(0.04)
Metropolitan area	0.12**	0.10*	0.08	0.08
	(0.05)	(0.05)	(0.05)	(0.05)
Currency	3.51***	3.45***	3.56***	3.60***
	(0.51)	(0.52)	(0.51)	(0.51)
Fiscal pressure	0.42***	0.29***	0.26***	0.19***
	(0.05)	(0.05)	(0.05)	(0.05)
Non-fiscal pressure	0.06	−0.12	−0.16*	−0.15
	(0.08)	(0.08)	(0.08)	(0.08)
Programme group	YES	YES	YES	YES
Geographical regions	YES	YES	YES	YES
Year	YES	YES	YES	YES
Internal involvement		0.35***	0.27***	0.68***
		(0.08)	(0.08)	(0.10)
External involvement		0.45***	0.35***	1.16***
		(0.08)	(0.09)	(0.16)
Internal implementation actions			0.34***	0.53***
			(0.06)	(0.10)
External implementation actions			0.14	0.28***
			(0.08)	(0.08)
Internal involvement × External involvement				−1.51***
				(0.29)
Internal implementation actions × External implementation actions				−0.63**
				(0.23)
Constant	−5.22***	−5.13***	−4.90***	−5.32***
	(0.87)	(0.87)	(0.85)	(0.84)
Log likelihood	−630	−623	−619	−615
Akaike information criterion	1,312	1,301	1,297	1,293
Incremental Wald test		77.37***	34.61***	42.72***

Number of observations = 2,722.
*p < 0.05; **p < 0.01; ***p < 0.001 based on two-tailed tests and clustered at the organizational level.

interaction plots suggest that while both internal and external sources affect the adoption of managerial innovation, the role of external sources is slightly more pronounced in their initiation and the role of internal sources is markedly more pronounced in their implementation.[11]

Discussion

This study began with the premise that (1) the dual role of internal and external sources on the adoption of innovation has not been probed and (2) a better understanding of managerial innovation is important for organizational conduct and outcome. We focused on two sets of organizational activities associated with selecting and implementing new managerial programmes, and examined the relative effects of internal and external

[11]Similar to the interaction effects, we did not theorize the role of non-linearity of information sources on managerial innovations. At the suggestion of an anonymous reviewer, we tested non-linearity of our four explanatory variables. The results showed a significant effect ($p < 0.05$) for the square of internal involvement only. While the finding of internal involvement supports a non-linearity effect (Laursen and Salter, 2006), the results for the three other explanatory variables suggest linear effects (Leiponen and Helfat, 2010). It should be considered that Laursen and Salter's (2006) and Leiponen and Helfat's (2010) studies differ from ours as they focus on the generation of technological innovation and examine the influence of external sources on innovation outcomes.

involvement and implementation actions on their adoption. The results showed that while both internal and external involvement in selection of new programmes affect their adoption, only the internal implementation actions have an effect. We also found that the effects of involvement of internal and external sources in selecting new programmes are similar, but internal implementation actions have a greater effect than external implementation actions. Below we discuss the implications of our study for theory and practice.

Dual roles of internal and external sources

The importance of external knowledge for the generation of technological innovations was highlighted by the concept of absorptive capacity (Cohen and Levinthal, 1990) and augmented with the concept of open innovation, which championed relaxing tight internal control and involving external sources in the innovation generation process (Chesbrough, 2003). These concepts have motivated empirical studies on the influence of the breadth of external knowledge sources on technological innovations and their performance outcomes (Laursen and Salter, 2006; Leiponen and Helfat, 2010). Considering management innovations, Mol and Birkinshaw (2014) examined the role of external sources on their generation and Birkinshaw, Hamel and Mol (2008) developed a conceptual process model of generation and discussed the dual role of the internal and external sources. Our study extends this line of research by probing the influence of external sources on the adoption of innovation and comparing it with that of internal sources.

The finding regarding the role of external involvement is aligned with the prior findings (Leiponen and Helfat, 2010; Mol and Birkinshaw, 2014) and confirms that information from the external sources – clients, experts and early adopters – assists organizational leaders to determine problems or opportunities and identify a true need for adopting new programmes (Daft, 2001). Regarding the role of internal involvement, we primarily focus on the influence of non-managers, on the assumption that top managers' positional power assures their participation in innovation decisions (Hambrick and Mason, 1984). More recent research on the upper echelon theory suggests that managerial discretion moderates the effect of top managers on decision outcomes (Hambrick, 2007). Public organizations are exposed to more external scrutiny and disclosure, which might constrain decision-making flexibility and motivate a greater reliance on centralized decision-making (Boyne, 2002; Perry and Rainey, 1988). Yet, findings on internal involvement suggest that in public organizations, similar to private ones, employees can play a constructive role in assisting managers in innovation adoption. They confirm that decentralization and empowerment increase cognitive or preference diversity, affect the comprehensiveness of the decision outcome, and promote organizational creativity, innovation and renewal (Anderson, Potočnik and Zhou, 2014; Glick, Miller and Huber, 1993). For managerial innovation in particular, non-managers' information about the peculiarities and differences of the organization and its operations will augment top managers' information about environmental demands and opportunities.

Research on both innovation and strategy decision-making indicates that effective implementation is crucial to decision success, and decision failures increase with ineffective implementation (David, 2010; Nutt, 1989; Rogers, 2003). For instance, in a study of over 50 cases of decision implementation, Hickson, Miller and Wilson (2003) found that implementation success is enhanced by experience (specificity of goals, resources) and readiness (acceptability, receptivity). However, while careful planning and ample resources for the implementation of innovation could help its success, resistance to change is unavoidable as users could be intimidated by the uncertainty associated with new programmes (Birkinshaw, Hamel and Mol, 2008; Klein and Sorra, 1996). Successful implementation of innovation requires continued commitment of managers and cooperation of non-managers in directing implementation to organizational parts more amenable to change, monitoring and adjusting its progress, and building support among users until it becomes a regular feature of the organization (Damanpour and Schneider, 2006).

Whereas we found support for internal implementation actions, contrary to our expectation, external implementation actions did not have a significant effect (Model 3). An exploratory analysis of the interactions between internal and external implementation actions, however, suggests that external actions might affect the adoption of managerial innovation when the level of internal

actions is low (Figure B.2). We recommend additional research to scrutinize the role of external sources for implementing managerial innovations. For now, our results suggest a more formidable role for internal than external sources.

Implications for research

A press release from the European Commission on the results of the Community Innovation Survey (CIS) reported that in 2010–2012 organizational and marketing innovations slightly prevailed over product and process innovations in European enterprises.[12] Recent developments in innovation theory and practice have also questioned whether organizations could maintain competitive advantage or sustain long-term effectiveness based on the introduction of commercialized new products and processes only. While the importance of technological innovations for economic progress and firm competitiveness is undeniable, future research on innovations in organizations is apt to move beyond the existing paradigm of industrial innovation towards a new paradigm where the roles of all types of innovations on organizational conduct and outcomes are explored and explained (Battisti and Stoneman, 2010; Volberda, Van Den Bosch and Heij, 2013).

The positive connotation of innovation implies that its adoption has beneficial consequences for adopters. For managerial innovations, however, theoretical discourse on the motivation for adoption suggests that adoption decisions are primarily to gain reputation and accommodate external pressures rather than to improve performance outcomes (Abrahamson, 1991; Scarborough, Robertson and Swan, 2015). But a recent literature review provides empirical evidence in support of the association between managerial innovation and performance (Walker, Chen and Aravind, 2015). Walker, Chen and Aravind integrated the empirical findings from 44 articles published in peer-reviewed journals and found that the adoption of managerial innovations positively affects organizational performance. They also integrated empirical findings for the technological innovations–performance relationships and compared them with those from a matched sample of the managerial innovations–performance relationships. The comparison generally showed that technological and managerial innovations do not affect organizational performance differently (Walker, Chen and Aravind, 2015). These findings should ease concerns about performance contributions of managerial innovations, and encourage new studies to advance a better understanding of their antecedents, processes and outcomes.

Two recent special issues on managerial innovation provide ideas and directions for future research (Volberda, Van Den Bosch and Heij, 2013; Volberda, Van Den Bosch and Mihalache, 2014). Examples are conceptualizations, intra- and inter-organizational antecedents, and relationships with other types of innovation (Volberda, Van Den Bosch and Heij, 2013, p. 8); synchronous patterns of adoption of technological and non-technological innovations and effects of their joint adoption on performance outcome (Damanpour, 2014, p. 1278); and co-evolution of managerial innovation and the surrounding environment, organizational processes that link micro and macro levels to introduce and legitimize managerial innovations, and contextual variations for stimulating their adoption (Volberda, Van Den Bosch and Mihalache, 2014, pp. 1258–1260). These examples illustrate ample avenues for new research to produce new knowledge to understand the why, how and what of managerial innovations and shed light on their contributions to organization management.

This study took a step in this direction by examining the dual role of internal and external sources. Future research along this direction can probe the dynamic of internal and external sources on early and late phases of both generation and adoption of innovations. For instance, our findings on the influence of external sources on the initiation and implementation stages of innovation adoption suggest that innovation openness affects them differently – it has a greater influence on initiation, a lesser influence on implementation.[13] We propose that external sources could also influence the stages of generation process (research, development, production, distribution) differently.

[12] http://europa.eu/rapid/press-release_STAT-15-3541_en.htm.

[13] *Innovation openness* is the extent to which organizations involve external sources in the process of innovation. Openness is a continuum applicable to the stages of generation and the adoption of innovation, both technological and non-technological (Damanpour, 2017).

Also important is to probe whether the role of internal and external sources is contingent on the radicalness of innovation (Mol and Birkinshaw, 2014),[14] and how they could influence the introduction of synchronous or complementary innovations in organizations (Battisti and Stoneman, 2010; Damanpour, 2014).

Implications for practice

Compared with private organizations, public organizations are often viewed as bureaucratic, inflexible and change-averse. The decision-making in public organizations is more centralized, organization members are less empowered and the structure is more mechanistic (Boyne, 2002; Burns and Stalker, 1961; Perry and Rainey, 1988). These characteristics have an adverse effect on innovation, and by implication, on organizations' operational efficiency and service quality.

Our findings regarding the role of non-managers in initiating and implementing new programmes should encourage public managers to involve their employees in the innovation adoption process, value and benefit from their information and knowledge. The application of empowerment, job enrichment and other organizational mechanisms can help create a climate supportive of innovation and change and motivate employees' involvement. Regarding involvement of external sources, Osborne and Strokosch (2013) suggest that consideration of suppliers and users as co-producers of public services can help enhance the effectiveness of public service delivery in local governments. Our results on the significant influence of external sources in initiating new programmes also suggest that public managers should involve suppliers and users, industry experts and early adopters in the early stages of the adoption process and incorporate their ideas with those of non-managers to further inform the adoption decision. To gain implementation success, our findings highlight the influence of internal over external sources. This suggests that public managers should aim to involve non-managers not only in the ideation stage, but throughout the adoption process until the new programme is fully operational and commonly used.

Limitations

There are several limitations to our analysis that should be considered in interpreting and applying its findings. First, managerial innovation has multiple types. For example, CIS (2010, p. 9) categorizes organizational innovations into three groups – business practice, organizing work responsibilities and external relations – where each group includes several types. In this vein, although our sample includes 64 services, we have studied only one type (outsourcing) from one category (external relations). Research on the role of internal and external sources for the adoption of other types of managerial innovations in external relations (alliances, joint ventures and cooperative agreements), as well as those in business practice and organizing work responsibilities, are called for.

Second, our sample is composed of outsourcing via privatization, one mode of alternative service delivery. Public service organizations may choose other modes such as 'contracting to another local government' and 'joint contracting', where the focal organization and the external supplier co-produce the service (Hefetz and Warner, 2004). Research on these modes of service provision can provide additional insights regarding the dual role of internal and external sources on outsourcing public services.

Third, we controlled for seven variables and three fixed effects to isolate the influence of our explanatory variables. Lack of data availability over time (1982–2007) did not allow us to control for additional variables such as age, size and factors representative of strategy, structure and administrative procedures. Future studies can add these factors. Also, some of the controls in our model can be probed as explanatory variables. For example, an exploration of the dual role of institutional currency and technical efficiency could provide interesting information on two rival perspectives (institutional vs. rational) of the adoption of organizational innovations. Such research is theoretically important because the introduction of non-technological innovations and their social and economic gains can best be explained by

[14] *Innovation radicalness* reflects the extent to which the innovation departs from existing knowledge and/or the degree of change the innovation inflicts on organizational conduct and/or outcome (Damanpour, 2017). Radical innovations cause major changes in the outputs or activities of the organization; incremental innovations result in minor changes (Dewar and Dutton, 1986). Accordingly, first-time privatization of 64 organizational services can be considered a case of incremental innovation.

the joint application of rational and institutional approaches (Kennedy and Fiss, 2009; Strang and Macy, 2001).[15]

Fourth, our sample includes public service organizations only. There are other types of service organizations, some of which are more information technology (IT)-centred (banking, insurance, accounting) and some less IT-centred (retail, consultancy, legal services) (Miles, 2005; Uchupalanan, 2000). Hence, while our findings may apply to some service segments, they may not be generalizable to all. Further examinations of the dual role of internal and external sources in different segments of services, as well as in organizations in the manufacturing sector, are needed for the development of more robust theories of managerial innovations.

Conclusion

This study focused on the adoption of managerial innovation, a type of non-technological innovation that is deemed essential for organizational conduct and outcomes but has not been scrutinized adequately. It posits that organizations adopt managerial innovations intentionally, and the adoption process is purposeful, organized and managed. Using insights from organizational innovation and behavioural theories, two sets of organizational activities were scrutinized: involvement of internal and external sources for initiating new programmes; and internal and external actions for implementing them. The study's findings provide new evidence on the direct and relative influence of internal and external sources on managerial innovations. Further research to confirm, extend and expand the study's theory and findings is called for. While lack of established datasets impedes empirical studies of managerial innovations, their significance to the effective management of organizations demands more research. A more in-depth understanding of this innovation type will be promising for organization theory and useful for management practice.

Appendix A: Indices, components and means

	Mean
Who inside your local government was involved in evaluating the feasibility of private service delivery?	
Manager	0.75
Assistant manager	0.36
Management and/or budget analysts	0.27
Department heads	0.72
Finance/accounting officer	0.43
Attorney	0.27
Procurement/purchasing officer	0.16
Line employees	0.13
Elected officials	0.40
Internal involvement	**0.40**
Who outside your local government organization was involved in evaluating the feasibility of private service delivery?	
Potential service deliverers	0.42

(*Continued*)

[15]Prior studies of outsourcing at the transaction level have used asset specificity and currency as an indicator of outsourcing. Findings from a study of the drivers of the outsourcing process over time suggest that the social factors drive the outsourcing process more than the economic factors (Mol and Kotabe, 2011). We analyse our data at the organization level, have included a measure of currency as a control, but have not controlled for asset specificity because of a lack of panel data. We recommend research on a pairwise comparison of the factors associated with rational and institutional perspectives of outsourcing.

	Mean
Professionals/consultants with expertise in particular service areas	0.37
Service recipients/consumers	0.10
Managers/CAOs of other local governments with experience using PSD	0.18
Citizen advisory committees	0.18
State agencies, leagues or associations	0.10
External involvement	**0.23**
Has your local government undertaken any activities to ensure success in implementing private service delivery? If 'yes', which of the following activities has your government undertaken to ensure success in implementing private service delivery?	
Proposed implementation of private alternatives on a trial basis	0.21
Applied private alternatives to new services	0.12
Applied private alternatives to growing services	0.13
Internal implementation actions	**0.16**
Identified successful uses of private alternatives in other jurisdictions	0.41
Established a citizens' advisory committee on private alternatives	0.06
Hired consultants to analyse feasibility of private alternatives	0.19
Surveyed citizens	0.06
External implementation actions	**0.20**

Appendix B: Interactions plots

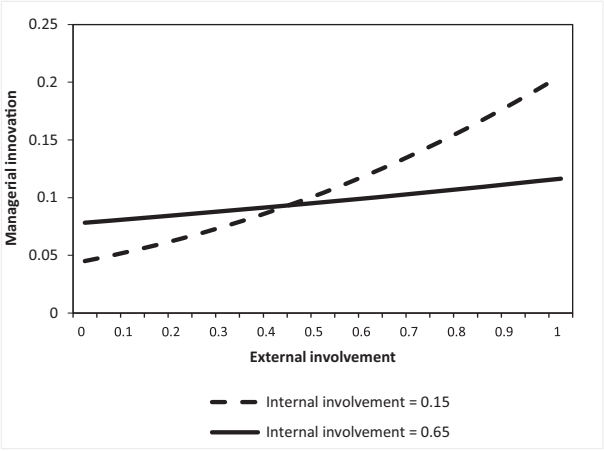

Figure B.1. Interactions of internal and external involvement

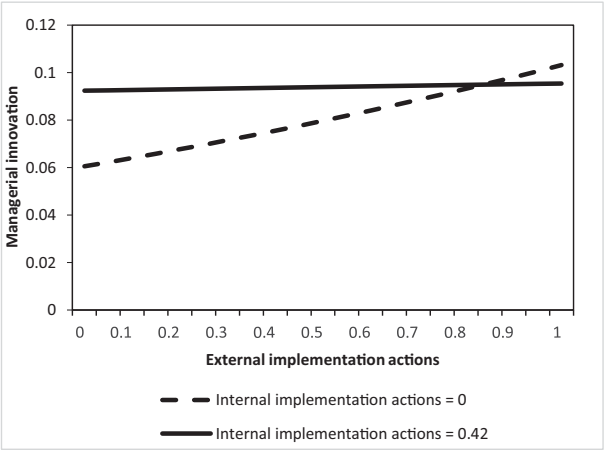

Figure B.2. Interactions of internal and external implementation actions

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