

Strategic renewal as a mediator of environmental effects on public sector performance

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Abstract Building on research in the areas of strategy, innovation, and entrepreneurship within the private sector, strategic renewal as a form of entrepreneurship is examined within public sector organizations. An integrative model is proposed that captures the mediating effect of strategic renewal on the external environment–performance relationship within these organizations. Hypotheses are tested using hierarchical regression analysis with data from a sample of CEOs in 134 public sector state and semi-public enterprises in the Republic of Ireland. The findings indicate that environmental munificence is positively related to organizational performance. Strategic renewal further accentuates the impact of munificence on performance. Environmental hostility is also an exogenous driver of performance, but strategic renewal mediates the negative hostility–performance relationship. Decentralized decision-making and a flexible control system have a positive association with strategic renewal. Implications are drawn for theory and practice.

Keywords Entrepreneurship · Public sector · Organizational performance · Strategic renewal

JEL Classifications L22 · L25 · L26 · L32

1 Introduction

The interface between two streams of research offers promising new insights into the management of public sector organizations. The first of these involves the nature and roles of strategic thinking and strategic direction in affecting the performance of public sector entities (Andrews et al. 2005, 2011; Hendrick 2003). The second stream addresses entrepreneurship and innovation within the public sector, an area of growing interest, especially as public organizations confront increasingly turbulent operating environments (Bartlett and Dibben 2002; Currie et al. 2008; Walker et al. 2010). A potentially relevant concept linking these two areas of inquiry is “strategic entrepreneurship,” defined as taking entrepreneurial actions with strategic perspectives (Hitt et al. 2001).

Strategic entrepreneurship (SE), a form of corporate entrepreneurship (Morris et al. 2011a), is concerned with an organization’s ability to better perform current activities or operations (exploitation) while at the same time seeking new opportunities (exploration) (Ireland et al. 2009). Organizations differ in their relative abilities to accomplish both elements of SE, with some better at managing the existing and others at

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creating the new. Further, in spite of inherent conflicts arising between forces of stability and change, SE argues they must be accomplished simultaneously, although the relative emphasis on one or the other is context specific and changes over time (Stienstra et al. 2004).

One of the principal ways that strategic entrepreneurship is manifested within a public sector organization is termed “strategic renewal,” defined by Guth and Ginsberg (1990, p. 5), as “the transformation of organizations through renewal of the key ideas on which they are built.” It is a type of entrepreneurship where an organization seeks to redefine its relationship with key stakeholders by making fundamental changes to the way it operates (Covin and Miles 1999; Kim and Mauborgne 1999).

Within a public sector context, strategic renewal would seem an especially relevant form of entrepreneurship. Public managers are increasingly expected to prescribe strategies for overcoming external threats and internal constraints, while at the same time improving performance (Meier and O’Toole 2009). These adverse developments include reduced budgets, changing funding sources, conflicting stakeholder expectations, more complex public needs, unfunded mandates from elected bodies, escalating costs, pressures for increased transparency and accountability, union demands, and new technologies, among a range of other threats (Andrews et al. 2005, 2011).

Relatively little guidance exists regarding the appropriate strategic means of dealing with such turbulence. Boyne (2006) asserts that lack of fit with the external environment is a key reason for public sector strategies to fail. Andrews et al. (2007) highlight efforts by public organizations to achieve greater adaptability in addressing developments in the environment, notably through their approaches to strategy, structure, and management of internal resources. Currie and Proctor (2005) suggest environmental turbulence and resource scarcity combine to create among public managers a growing recognition that performance is influenced by entrepreneurial actions at multiple levels of the organization.

Evidence also suggests that entrepreneurial behavior is impacted by the nature of decision-making processes and management control systems in organizations. Naranjo-Gil (2009) demonstrates that decentralized decision-making can foster innovation within public organizations, while overly rigid control

systems can have the opposite effect. Morris et al. (2006) provide evidence of how well-conceptualized controls can incentivize and support entrepreneurship in companies. At the same time, an emphasis on increasing levels of management autonomy and flexibility has become part of public management reform efforts (Pollitt 2006).

Our purpose in this paper is to examine strategic renewal in the public sector and its association with the external environment, internal organization, and enterprise performance. The primary research question concerns the extent to which strategic renewal mediates the effects that the external environment has on performance. The research stems from a concern that direct effects models exploring public sector strategy, innovation, and performance linkages are too narrowly focused (Birkinshaw and Mol 2006). We seek to unmask the complex role of strategic renewal as a factor in these relationships.

The research seeks to make two key contributions. The first is to address the imbalance within the literature where the influence of strategic renewal on performance has mainly been examined in large private sector organizations, with findings of significant implications for performance (Heavey et al. 2009; Zahra et al. 1998). Second, while there is a growing body of evidence regarding the influence of innovation on public sector performance (Walker et al. 2010), the antecedents of organizational innovation in the public sector (Walker 2008; Hansen 2011), and the relationship between strategy and public sector performance (Hendrick 2003; Andrews et al. 2011), the nature and influence of strategic renewal in public organizations have not been addressed. We contribute to the literature by developing and analyzing both a direct and a mediated model of the external environment–performance relationship. In doing so, we provide empirical evidence and insights about strategic renewal as a construct that shapes and extends organizational performance.

2 Theoretical background

2.1 Strategic management and the public enterprise

Strategic approaches to management within the public sector have received extensive attention over the past 30 years. While many of the relevant strategic

concepts and tools originated in private sector companies, fundamental differences in the nature of public sector organizations raise questions regarding the application and implementation of such tools and concepts (Boston and Pallot 1997; Nutt and Backoff 1993). Hendrick (2003) argues that the most significant difference concerns the environmental dimension, such that public organizations face more diverse pressures and greater control by outside groups, which introduce to their operations the potential for significant conflicts.

Strategy in the public sector is not about achieving competitive advantage or attracting profitable customers, but instead, represents a means for improving public services (Boyne and Gould-Williams 2003). The growing emphasis on strategy has been linked to increased managerialism in the public sector, uncertainties around funding levels and sources, and the need for more transparency in aims, outputs, and outcomes (Llewellyn and Tappin 2003). Yet, it is ultimately about performance. Strategy represents the overall way in which the public organization seeks to maintain or improve performance (Andrews et al. 2007), and the impact of strategic management on organizational performance has been the subject of considerable debate (Hendrick 2003). While empirical evidence has been scant, Boyne and Walker (2010) provide support for a positive linkage between strategic planning and performance in the public sector, excepting where too many performance targets are set.

A distinction is drawn in the literature between the content of public sector strategy and processes resulting in strategy, with the latter generally receiving more attention (Boyne and Walker 2004; Hendrick 2003). Content refers to the pattern of action being taken, while process concerns the manner in which objectives and actions are arrived at or selected by those within the organization. Public organizations are unique in the extent to which strategy content is imposed by external parties. Boyne and Walker (2004) draw a further distinction between the strategic stance and strategic actions of the organization. Stance or posture concerns how opportunity-seeking, reactive, or defensive the public organization is over time, while actions are ways a stance is operationalized (e.g., creating a new service).

Strategic management is ultimately concerned with the fit between external circumstances and internal strategy and structure (Andrews et al. 2012; Llewellyn and Tappin 2003; Miller 1992). Environmental

turbulence creates uncertainty regarding an organization's ability to meet political and operational objectives. Where environments are changing, strategy is a vehicle for adapting to these changes as it can mediate the impact of external threats on organization performance (Hendrick 2003; Meier and O'Toole 2009). Hence, the relative amounts of munificence and/or hostility in the environment are key drivers of strategy (Andrews et al. 2005; Keats and Hitt 1988; Walker 2008). Hendrick (2003) argues that the concept of environmental hostility must be defined more broadly in a public sector context to include not just resource availability, economic conditions, and external organizations (e.g., other government bodies), but political and social conditions that determine objectives and constrain the ability to meet those objectives.

Strategy formulation is also affected by internal characteristics of public organizations. Bureaucratic processes and rules, centralized and hierarchical structures, tight budgetary and non-budgetary controls, and cultures centered on process, stability, and an internal focus can slow or inhibit the strategic management process and delimit the direction and amount of change reflected in the content of strategy (Andrews et al. 2007; Fernandez and Rainey 2006; Parker and Bradley 2000). At the same time, strategy can moderate the impact of such characteristics on organizational performance (Andrews et al. 2007).

2.2 Entrepreneurship and the public sector

The term "entrepreneurship" has appeared in the public administration literature with increasing frequency and been applied in various ways (Bernier and Hafsi 2007; Luke et al. 2010; Walker et al. 2010). A prevalent perspective suggests entrepreneurship is a by-product of the application of strategic management and entrepreneurial leadership principles within public enterprises (Bartlett and Dibben 2002; Goldsmith et al. 2010; Zerbinati and Souitaris 2005). Here, the emphasis is on an active approach to administrative responsibility that includes identifying and acting upon opportunities, generating new revenue sources, applying existing resources in new ways, providing enhanced services, and helping to facilitate increased citizen education and involvement (Bellone and Goerl 1992; Goldsmith et al. 2010). Nutt and Backoff (1993) argue that public sector entrepreneurship results in a directed, longer-term, external focus coupled with

open communication and participative decision-making, enabling managers to identify opportunities for innovation and affect organizational transformation. Lewis (1980, p. 233) notes, "... the outstanding fact that differentiates public entrepreneurs from ordinary managers and politicians is their ability to alter the existing allocation of scarce public resources in fundamental ways."

Mitchell and Scott (1987) go so far as to posit that being entrepreneurial is one of the criteria upon which the legitimacy of administrative authority rests. Yet, challenges exist in applying entrepreneurship in a public sector context (Morris and Jones 1999). Public employees are typically not in a position to put taxpayer monies at significant risk, and this, combined with the difficulties in measuring risk/return trade-offs, can make high-risk pursuits problematic. High visibility of public officials and a need for consensus in decision-making can work against major innovation. Lengthy time periods required for an entrepreneurial event to unfold can be inconsistent with budgeting and election cycles. Moreover, bureaucracy and the civil service system serve to protect the status quo, ostensibly from the arbitrary or politically influenced behavior of political leaders and public executives. Because entrepreneurship often involves disrupting the status quo and effecting organizational change, again there would seem to be a potential inconsistency.

More fundamentally, entrepreneurship can undermine democratic principles when it results in innovative approaches for circumventing voter approval and increasing the autonomy of public administrators. Further, the mission, structure, and major initiatives of the public organization are dictated from outside authorities. Entrepreneurship represents an internal dynamic that can serve to redirect the strategic course of an organization, potentially putting it in conflict with its stated mission or mandate. Also, entrepreneurial efforts can lead public enterprises to generate new services or fund-raising schemes that effectively put them in competition with private enterprises.

The counter argument is that there have always been elements of entrepreneurship in public organizations, and the issue is more one of formally defining the entrepreneurial role and determining appropriate degrees and frequencies of entrepreneurship for a given organization (Morris and Jones 1999; Zerbinati and Souitaris 2005). Creating value for customers, combining resources in new ways, and being opportunity-

driven do not inherently conflict with the public purpose. This conclusion is borne out in many examples of public sector entrepreneurship annually recognized by the Kennedy School of Government at Harvard University (<http://www.innovations.harvard.edu>). Morris and Jones (1999) provide evidence that public managers both see a role for entrepreneurship in their organizations and believe work environments can be designed to help employees develop entrepreneurial tendencies.

There is, one could further argue, a growing need for entrepreneurial approaches in public administration. The external environment of many public sector organizations can be characterized as increasingly turbulent, imposing a dynamic, threatening, and complex set of conditions on managers (Andrews et al. 2005; Meier and O'Toole 2009). An example can be found with some contemporary public medical facilities. There are more patients than beds (or in some cases vice versa), competition is arising from new sources, technological change is continuous, medical liability pressures are intense, costs are rising faster than the rate of inflation, those who cannot pay must be served, and skilled labor is in short supply. Or, consider the challenges confronting the US Federal Emergency Management Agency (FEMA). Often facing seemingly impossible challenges in attempting to respond to natural disasters, and more recently to terrorist acts, the public demands results at an acceptable cost. In fact, the frequent expectation is to pay lower taxes while receiving higher service levels.

Entrepreneurship can represent an effective strategic response to environmental turbulence through its emphasis on flexibility, adaptability, speed, and innovation. Discontinuities in the environment threaten existing operating modes of public agencies, while also creating opportunities for innovative behavior. The complex nature of twenty-first century society requires alternative frameworks to guide the management of these organizations. Various observers have emphasized a need to develop creative, risk-taking, proactive cultures (Bartlett and Dibben 2002; Goldsmith et al. 2010). Bellone and Goerl (1992) conclude that, while potential conflicts do exist between public entrepreneurship and democracy, they can be bridged with what they refer to as a "civic-regarding entrepreneurship." This concept emphasizes accountability, in that the principles of democratic theory are incorporated into the design of entrepreneurial initiatives.

2.3 Integrating strategy and entrepreneurship: the concept of strategic renewal

Strategic renewal is a form of entrepreneurship that centers on organizational transformation (Guth and Ginsberg 1990). This transformation involves refreshment or replacement of the attributes of an organization having the potential to impact its long-term prospects (Agarwal and Helfat 2009). Here, attributes refer to decision factors critical to an organization's future, such as goals, structure, services offered, scope of operations, administrative systems, routines, capabilities, and resources. Sharma and Chrisman (1999) note renewal involves significant changes to an organization's strategy and structure.

Existing work on strategic renewal has focused exclusively on private sector organizations, including a wide range of industries, both larger and smaller companies, and both successful and unsuccessful renewal efforts (e.g., Agarwal and Helfat 2009; Capron and Mitchell 2009; Tripsas 2009). Two primary types of strategic renewal have been identified (Agarwal and Helfat 2009). Discontinuous transformations involve major, fundamental changes to multiple attributes of the organization in tandem. Incremental renewal refers to a stream of continuous innovations and changes to attributes necessary to support these innovations. Hence, it entails continual adaptation. Examples of renewal efforts explored in the literature include changes to the core business definition and identity, business model innovations, new product development strategies, integration of new technologies, changes to markets being served, corporate venturing, and merger and acquisition activity. These are examples of the content of strategic renewal efforts, with each entailing a number of internal process changes to ensure successful implementation.

As a generalization, renewal efforts are environmentally driven, representing an attempt to respond or adapt to, and, in some instances, transform the external environment (Kim and Pennings 2009; Verbeke et al. 2007). Further, as strategic renewal rests on an organization's capacity to change, adapt, and re-create itself, its success is tied to dynamic entrepreneurial capabilities among the leadership of an organization (Augier and Teece 2009; Dess and Lumpkin 2005; Volberda 1996).

While not investigated in a public sector context, strategic renewal would seem a potentially valuable

vehicle for conceptualizing the refreshment and replacement of key attributes within these organizations. Examples could include development of new business models (e.g., to guide postal service operations), a repositioning strategy (e.g., a public hospital focusing on prevention more so than treatment), resource acquisition and deployment strategies (e.g., a public housing authority leverages relationships with businesses or non-profit entities), or innovation strategies that include streams of new products (e.g., for student learning in schools or purifying municipal water supplies), services (e.g., to recycle waste or ensure public safety), and processes (e.g., approaches enabling an unemployment agency to process more claims in less time or a fire department to more quickly contain a fire).

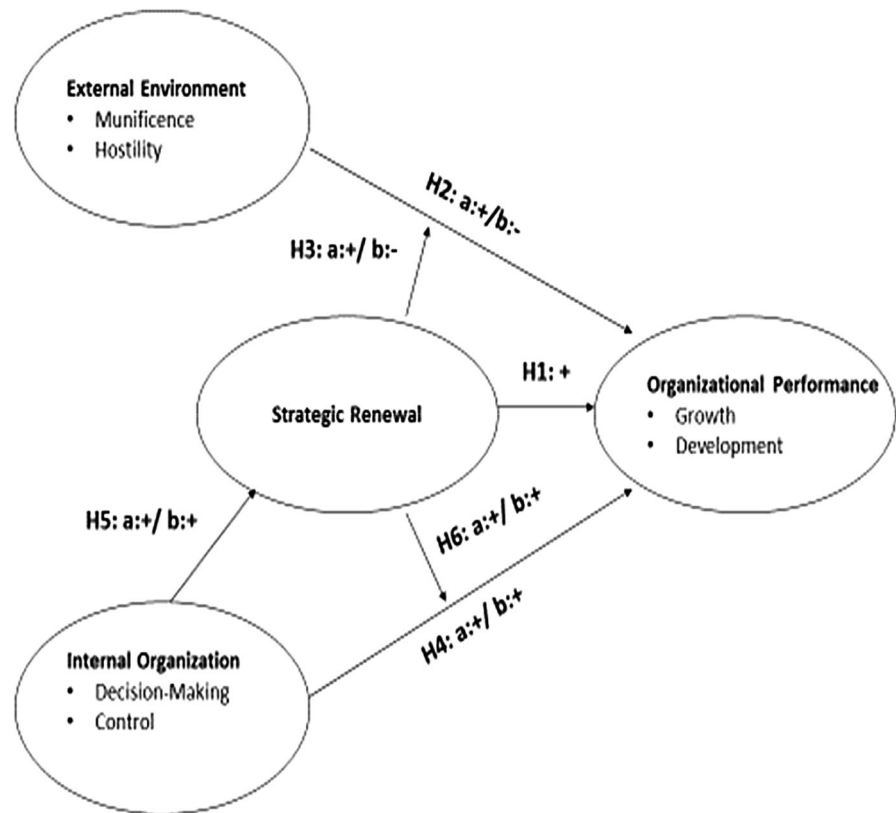
The relevance of developing and implementing renewal strategies in the public sector is a function of both external and internal considerations. Based on the preceding discussion, both the presence of external and internal operational constraints and the fit between environmental conditions and the organization's current strategic approach are important (Boyne 2006; Kim and Pennings 2009; Walker 2008). The current study further explores these relationships.

3 Research model and hypotheses

The research is guided by the model presented in Fig. 1. Here, we posit that the external environment and the internal organization influence performance. More specifically, the organization's pursuit of strategic renewal is directly related to its performance, as well as indirectly related to performance through key aspects of the external and internal environments. A discussion of each component of the model and the resulting hypotheses follow.

3.1 Strategic renewal and organizational performance

The purpose of strategic renewal is to replace or refurbish existing structural relationships, and/or existing resource configurations, usually in response to performance that has fallen below aspiration levels (Kim and Pennings 2009; Volberda 1996). The strategic renewal–performance relationship within private sector organizations is well established (Covin

Fig. 1 The research model

and Miles 1999; Zahra and Covin 1995; Zahra 1993b). Here, the performance focus tends to be on growth, measured with traditional financial measures.

In public organizations, performance is a multidimensional construct that includes a potentially wide range of measures, reflecting multiple external and internal stakeholders (Andrews et al. 2007; Behn 2005; Jarrar and Schiuma 2007). Moreover, these different categories of performance measurement may not be correlated with one another (Brignall and Modell 2000). For instance, Boland and Fowler (2000) distinguish measures of input economy (e.g., budget and staffing totals, cost per case, categories of staff used) output efficiency (e.g., patients treated, crimes solved, children placed, students qualifying), and effectiveness (e.g., safer cities, cleaner environments, better educated citizens).

Given evidence from the public sector of the potentially positive effects of both strategy (Boyne and Walker 2010; Hendrick 2003) and entrepreneurial behavior (Parry and Proctor-Thomson 2003; Kearney et al. 2010; Walker et al. 2010) on organizational

performance, there is reason to think that strategic renewal should positively impact key performance indicators. The question becomes one of determining relevant performance metrics. Entrepreneurial behavior can produce new services and approaches that better meet public needs, but also uncover novel ways to generate revenues and resources (Bernier and Hafsi 2007). This suggests any number of performance metrics might be affected. However, consistent with the private sector, the dynamic change that is core to strategic renewal would suggest the potential to enable the public organization to achieve growth and development. Taking a stakeholders approach to construct a multidimensional performance measure in the public context, this might be reflected by growth in budgets, the employee base, and the public served (Currie et al. 2008; Kearney et al. 2010; Llewellyn and Tappin 2003). Accordingly, the following hypothesis is proposed:

H1 Strategic renewal will be positively associated with organizational performance (growth and development) of public sector enterprises.

3.2 External environment, renewal, and performance

The impact of entrepreneurship on performance is significantly impacted by external environmental conditions (Miller and Friesen 1983; Davis et al. 1991; Zahra and Covin 1995). Conditions that can precipitate the perceived need for entrepreneurial action include levels of environmental hostility, dynamism, and heterogeneity (Zahra 1991). Others note examples of specific environmental factors (e.g., Kuratko et al. 2004; Lumpkin and Dess 1996; Sathé 2003). These studies have involved private sector organizations.

Within the public sector, entrepreneurship has also been approached as a means of capitalizing on external opportunities while achieving effectiveness, flexibility, and adaptability in dealing with a turbulent environment (Moon 1999). External conditions can be characterized, then, based on how favorable or munificent they are. Munificence is associated with the degree of resource abundance and richness of opportunities in the organization's environment, which provides the capacity to support organizational growth (Miller and Friesen 1983). The influence of environmental munificence on organizational performance is increasingly emphasized in the literature (e.g., Simsek et al. 2007; Zahra 1993b). A munificent environment can present opportunities for expansion and enables an organization to generate slack resources in support of growth (Keats and Hitt 1988). Further, in munificent environments, performance outcomes from proactive investments can be evaluated with greater accuracy (Simsek et al. 2007).

Environments are also characterized in terms of hostility or the presence of factors threatening the organization. Various observers have noted complex threats confronting public organizations (Andrews et al. 2005; Bernier and Hafsi 2007; Llewellyn and Tappin 2003). Public managers face constraints that arise from resource limitations imposed by external stakeholders, rising (and conflicting) stakeholder expectations, complex public demands, and mandated aspects of their organizational processes that influence how decisions are made (Nutt 2005). The political cycle also imposes pressures for short-term results that help an agency achieve a larger share in the next round of appropriations (Bozeman 1987). From a regulatory standpoint, new laws, rules, regulations, and decrees

that impact operations within the public organization are commonplace (Nutt 2005).

While the presence of opportunities and threats is often conceptualized as a continuum, such that the environment is either more munificent or more hostile, it would seem more likely that public organizations can face environments having ample opportunity and threat at the same time. Hence, a roadway authority may confront an environment characterized by ample budgets and the availability of new, highly promising safety technologies and more durable road construction materials, while also experiencing rapidly rising costs, a significant increase in roadway traffic, growing numbers of accidents and traffic fatalities, and lawsuits from various stakeholder groups.

Public sector strategic renewal can be a logical response. Entrepreneurial behavior produces the innovations that enable public organizations to withstand environmental shocks (Meier and O'Toole 2009), adapt to changing circumstances (Mack et al. 2008), and redefine or modify external conditions (Bernier and Hafsi 2007). Public sector entrepreneurs identify opportunities within the political landscape, reconfigure resources in response to changing environmental conditions, optimize the performance-enhancing potential of renewal, and work with stakeholders in a way that both permits risk and recognizes the stewardship of public sector resources (Currie et al. 2008).

Adverse external circumstances threaten organization performance (Boyne 2006; Hendrick 2003; Meier and O'Toole 2009). Thus, because environmental conditions place intense demands on organizations to actively interpret opportunities and threats, we envision that the pursuit of opportunities leads to improved subsequent performance through its beneficial association with strategic renewal. In contrast to previous studies which used moderation as the conception of fit, we follow Antoncic and Hisrich (2001); Edelman et al. (2005), and Venkataraman (1989) and adopt a broader perspective on fit, designating it as a mediating relationship. Mediation explains *why* a specific relationship is possible (Baron and Kenny 1986). In research of this nature where the organization is the unit of analysis, mediators represent properties of the organization (here, strategic renewal) that transform the predictor variables (here, environmental munificence or hostility) in some way. Therefore, strategic renewal is a potential mediator, allowing for innovative solutions to hostile conditions and novel vehicles

for exploiting munificence. Accordingly, we propose the following hypotheses:

H2 (a, b) Organizational performance will be (a) positively impacted by environmental munificence and (b) negatively impacted by environmental hostility.

H3 (a, b) The external environment–performance relationship is mediated by strategic renewal. Specifically, (a) munificence and (b) hostility in the external environment will encourage strategic renewal, while renewal will accentuate the positive impact of opportunities and lessen the negative impact of threats on organizational performance.

3.3 Internal organization, renewal, and performance

Research exploring the impact of entrepreneurship on organizational performance has attempted to identify internal organizational factors that can promote or impede innovative activities (Zahra 1991; Zahra and Covin 1995). To date, evidence has been provided from private sector firms for the importance of control systems (e.g., Morris et al. 2006), culture (e.g., Ireland et al. 2009), managerial support (e.g., Stevenson and Jarillo 1990), structure (e.g., Covin and Slevin 1991), human resource management systems (Morris and Jones 1993), and decision-making approaches (Miller 1983).

Research on internal factors conducive to facilitating strategic renewal is more limited and again relies on private sector studies. Simons (1995) emphasizes the role of organizational control systems. Others stress flexible structures and participative decision processes (Simons 1995; Volberda et al. 2001). Verbeke et al. (2007) suggest the importance of an entrepreneurial culture and top management support. Agarwal and Helfat (2009) point to involvement of management at multiple levels, open communication, tailored reward systems, and organizational learning processes as factors contributing to successful renewal.

Within the public sector, design of the internal environment would seem especially critical for strategic renewal (Currie and Proctor 2005). Various observers have highlighted challenges when pursuing strategic management and entrepreneurship in the presence of rigid hierarchy, autocratic decision processes, and extensive red tape (Currie and Proctor

2005; Boyne and Walker 2004; Hendrick 2003). As Boyne (2002, p. 101) states, “public managers have the cost of hierarchy (rules and red tape) without the benefits (the freedom and power to manage their subordinates).” Pablo et al. (2007) associate dynamic capabilities within public organizations with a supportive style of leadership, flexible budgeting, greater autonomy at middle and lower levels of the organization, and a culture of experimentation.

We build on Kearney et al. (2010) in focusing on the central role of two internal factors in affecting strategic change within public organizations: decision-making processes and management control systems. Decision-making processes can be characterized based on how autocratic versus participative they are. Autocratic decision-making is a formalized, top-down approach which relies on centralized authority. Participative processes involve joint decision-making where multiple individuals, often from differing levels and areas in the organization, are actively involved. Public organizations generally have more formal decision-making procedures and are less flexible and more risk-adverse than their private sector counterparts (Bozeman and Kingsley 1998; Farnham and Horton 1996). Emphasis on rules and procedures can create more concern with adhering to process prescriptions than goal accomplishment. Further, public managers often have weaker power bases and more limited funds to make investments that reshape systems they manage (Bozeman 1987). A participative decision-making process can breed commitment to a course of strategic action among those involved as well as verification that the course of action is defensible (Dess 1987). It allows public sector organizations to better leverage internal resources, affect knowledge transfer, and ensure effective communication and information sharing, thereby engendering strategic renewal. The association of participative decision-making with public sector innovation, entrepreneurship, and strategic change has been suggested by a number of observers (e.g., Boyne 2006; Pablo et al. 2007; Parry and Proctor-Thomson 2003; Walker et al. 2010).

Management control systems are concerned with a range of mechanisms that serve to guide, measure, and assess employee behavior. While necessary for effective management of an enterprise, Thompson (1999) asserts these systems can become unwieldy and have the potential to destroy flexibility, intuition, flair, and

creativity. Controls that tightly monitor behavior and resource utilization can undermine employee trust and lessen the motivation to experiment and take risks (Shih and Yong 2001). Yet, Morris et al. (2006) suggest that where control systems have elements of informality, discretion, and budgetary flexibility built into them, they can serve to facilitate entrepreneurial behavior. Hence, moderate levels of control appear to produce discipline, direction, and accountability while also incentivizing experimentation and innovation (Marginson 2002; Morris et al. 2006).

Based on this discussion, we would expect participative decision-making processes and less restrictive control systems to be positively associated with organizational performance. More critically, however, strategic renewal can mediate the impact of these internal factors on performance. This conclusion is consistent with the work of Andrews et al. (2008), who demonstrate how strategy can modify the effect of internal characteristics such as centralization on performance of the public organization. These internal variables can also become the target of strategic renewal efforts, as routines are modified, new capabilities developed, and resources combined in new and novel ways (Agarwal and Helfat 2009). This discussion produces the following three hypotheses:

H4 (a, b) Internal organizational characteristics including (a) decentralized decision-making and (b) control systems with moderate levels of formality, tightness, and discretion will be positively associated with organizational performance.

H5 (a, b) Internal organizational characteristics including (a) decentralized decision-making and (b) control systems with moderate levels of formality, tightness, and discretion will be positively associated with strategic renewal.

H6 (a, b) Strategic renewal will mediate the association between (a) decision-making characteristics and (b) the control system and organizational performance.

4 Research methods

4.1 Sample and data collection

To test the model and hypotheses, public sector state and semi-state enterprises in Ireland were surveyed.

The sample was constructed using a list of such enterprises obtained from the Irish Public Administration 41st Edition Administration Yearbook (2009). To be included, enterprises had to be civil service, local government and administration, health service, state-sponsored bodies, or higher education institutions such as universities and institutes of technology. The total sample consisted of 246 public sector enterprises.

As the organization was the unit of analysis, the chief executive officer or most senior official was requested to complete the survey, for they are likely to play both a strategic and operational role and should be well informed about matters addressing organization-wide issues and external influences (Sharfman et al. 1988). While reliance on single informants can potentially introduce same source bias, steps were taken to mitigate this possibility. Following Huber and Power (1985), the constructs examined were of a higher order nature and assessed by validated multiple-item measures, reducing the likelihood of respondents artificially inflating relationships among them, a potential that is more likely at the item than the construct level (Harrison et al. 1996).

The chief executive of all 246 public sector state and semi-state enterprises was contacted by telephone 4–7 days in advance of mailing the questionnaire to ensure contact details were correct, explain the research study, and request permission to send the questionnaire. The questionnaire (with a self-addressed, stamped, return envelope) was then mailed to the chief executives. Follow-up telephone calls were made 3 weeks later, and an electronic version of the questionnaire was sent to non-respondents. Based on these efforts, 134 surveys were returned, yielding a response rate of 55 %.

The likelihood of non-response bias was assessed using the extrapolation technique (Armstrong and Overton 1977). Early respondents were compared to late respondents, with late respondents assumed to be similar to non-respondents. For comparison purposes, the total sample was split into two groups; those received before the second follow-up and those received after the second follow-up. Mean responses on each variable were compared for both groups, using a *t* test. This comparison did not reveal any significant differences.

4.2 Instrument development

The questionnaire was developed in three stages. An initial version was produced using established scales

developed in both public and private sector research. This was then reviewed by two senior academic scholars within the research area and five academics not from the entrepreneurship discipline. Based on their feedback, the questionnaire was modified and pretested with twenty-six city managers from the USA and Europe attending a conference at the Institute of Public Administration in Ireland. Modifications were then made to the original wording in order to better fit the public sector context, such as replacing words like “firm” and “industry” and including the words “if applicable.”

4.2.1 Independent variables

Environmental hostility was measured with a modified version of the eleven-item scale used in a public sector context by Morris and Coombes (2007). The items employed a 5-point Likert scale (1 = minimal threat to 5 = significant threat). The construct of munificence was measured using a modified version of the 9-item scale used by Antoncic and Hisrich (2001), which employed Zahra’s (1993b) technological opportunities scale, growth opportunities scale, and opportunities for new products/services scale. A 5-point Likert scale (1 = very untrue to 5 = very true) was employed.

The nature of decision-making was assessed using the 5-item scale proposed by Covin et al. (2006). A higher score on this scale indicates a more participative decision-making style. The construct of control system formality was measured with a modified version of the 9-item scale proposed by Morris et al. (2006). The measurement of control system flexibility or discretion was proposed by Morris et al. (2006) and relied on three items developed by Shih and Yong (2001), one from Govindarajan (1988), and three original items. To assess budgetary tightness, we used a scale consisting of four items developed by Barringer and Bluedorn (1999) and Shih and Yong (2001), and four original items. All control items employed a five-point (1 = strongly disagree to 5 = strongly agree) response scale.

4.2.2 Mediating variables

Strategic renewal was assessed using a 13-item scale refined by Antoncic and Hisrich (2001) from items developed by Zahra (1991, 1993b). The scale

measures engagement of the organization in entrepreneurship activities centered around renewal.

4.2.3 Dependent variables

Definitive financial and nonfinancial performance measures are not well established in public sector research (Morris et al. 2011b). Andrews et al. (2010) argue for empirical studies of public sector performance that include a broader mix of organizational outcomes. Accordingly, the measurement of performance was focused on organizational growth and development. We utilized a summated measure that included two items proposed by Antoncic and Hisrich (2001), average annual growth in the number of employees and the total budget over the preceding 3 years. Respondents estimated each in percentage terms. To this, we added Antoncic and Hisrich’s (2001) measure of changes (in percentage terms) in the number of clients/customers served over the last 3 years. All three performance indicators reflect dimensions of growth that should be correlated. Zahra (1993a) provides support for the use of summated performance indicators in entrepreneurship research. Modifications were made to the original format and wording to reflect the public sector context.

4.2.4 Control variables

Four control variables were included, organizational age, size (full-time employees), sector, and strategy. For each of these, there is a theoretical basis for expecting the variable to have a systematic relationship with the independent variable, the dependent variable, or both. For example, organizational age and size were included because older and larger organizations often tend to be more technocratic in their decision-making and more mechanistic in their structures (Fredrickson 1986). Organizational sector was included because of the potential differences in entrepreneurial activities and opportunities for innovation among the different categories of public sector activities represented in the sample (see Covin and Slevin 1991; Zahra 1993b). Organizational strategy was included as a control variable because of the potential for reliance on a growth as opposed to stability strategy to influence entrepreneurship and performance (Hitt et al. 1982; Zahra 1991). Respondents were asked to choose a strategy that best

described their company’s grand strategy in the past 3 years in terms of stability, internal growth, external acquisitive growth, and retrenchment.

5 Analysis and results

Construct reliability was assessed using Cronbach’s alpha, and all scales demonstrated acceptable reliability. The hypotheses were tested using hierarchical regression analysis. Control variables were entered as independent variables in the equation. Two-tailed tests were adopted. The possibility of collinearity among variables was assessed in the regression analysis with no problems identified. All variance inflation factors are less than ten. Table 1 provides summary statistics, alpha coefficients, and the correlation matrix for each variable.

Common method bias is unlikely to result in significant interaction effects or distort such effects, for, as Evans (1985, p. 30) notes, “artifactual interactions cannot be created; true interactions can be attenuated.” While it is recognized that correlations and coefficients may be spuriously high as a result of method specificity, no a priori reason exists to suggest the difference between correlations of two variables measured the same way at different levels of a third variable is influenced by method specificity (Cummins 1972). Further, studies have shown common method bias to have small effects at best (e.g., Lindell and Whitney 2001; Spector 2006). Finally, the dependent variable is not publicly available, and all other variables were pilot tested and modified for this study.

The results provide general support for the research model. As illustrated in Table 2, the beta coefficient for the association between strategic renewal and performance is positive and significant (beta = .258, $p < .057$), providing support for Hypothesis 1. The findings for Hypothesis 2a and Hypothesis 2b were mixed. External munificence is positively associated with public sector organizational performance (beta = .370, $p < .001$). The relationship between the dependent variable performance and munificence is statistically significant at $r = .008$, providing support for Hypothesis 2a. However, the expectation that environmental hostility would be negatively associated with performance (beta = .269, $p < .05$) was not statistically significant with $r = .076$, indicating Hypothesis 2b was not supported.

Table 1 Summary descriptive statistics, reliabilities, and correlation matrix

Variables	N	Mean	SD	Cron. alpha	1	2	3	4	5	6	7	8	9	10	11	12
Age of organization	129	66.37	121.88													
Size of organization	131	863.03	2,476.8	.166												
Sector	134	3.25	1.5	-.237**	-.154											
Strategy	124	1.64	.95	-.151	.004	.265**										
Hostility	115	2.33	.62	.235*	.126	.245**	.107									
Munificence	128	3.39	.60	.777	-.015	-.035	.325**	.174	.487**							
Decision-making	134	3.89	.76	.841	-.081	-.091	.089	.066	.060	.234**						
Control formality	130	3.76	.54	.776	.153	.111	-.367**	-.161	-.125	-.135	-.134					
Budgetary tightness	134	3.26	.58	.726	.138	.150	-.189*	-.152	.050	-.032	-.054	.423**				
Control discretion	130	3.36	.43	.704	.013	.012	.029	.204*	-.059	.033	.179*	-.212*	-.184*			
Strategic renewal	115	3.09	.75	.883	-.097	.165	.012	.218*	.101	.247**	.216*	.080	.123	.428**		
Performance	114	.637	.40	.698	-.124	.118	.023	.026	.232*	.315**	.106	.056	.066	-.041	.228*	1

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

Table 2 Regression analysis results

	Model 1 regress DV (perf) on control variables	Model 1 H: 1 (DV = perform)	Model 2 H: 2a (DV = perform)	Model 3 H: 2b (DV = perform)	Model 4 H: 4a (DV = perform)	Model 5 H: 4b (DV = perform)
<i>Control variables</i>						
Age of organization (years)	-.176	-.186	-.224*	-.250*	-.169	-.174
Size of organization (employees)	.150	.004	.154	.126	.155	.164
Sector	-.010	.060	-.135	-.004	-.014	-.010
Strategy	-.025	-.075	-.101	-.077	-.026	-.053
<i>Independent variables</i>						
Corporate entrepreneurship		.258*				
Strategic renewal						
External environment			.370***			
Munificence				.269*		
Hostility						
Public sector organization					.081	
Decision-making						
Control						
Formality						.076
Budgetary						-.062
Tightness						-.056
Discretion						
Model R square	.042	.112	.148	.106	.049	.056
Adjusted R square	.005	.062	.104	.055	.002	-.013
Model F	1.141	2.246	3.342	2.077	1.048	.806
p value (sig.)	.342	.057	.008	.076	.394	.584
N	108	94	101	93	107	102

Standardized regression coefficients are reported

DV = Dependent variable

* $p < .05$; ** $p < .01$; *** $p < .001$

To test Hypothesis 3a and Hypothesis 3b, regression equations were estimated as recommended by Baron and Kenny (1986). These researchers asserted that the following conditions must hold: (1) The independent variable must affect the mediator in the first equation; (2) the independent variable must be shown to affect the dependent variable in the second equation; (3) the mediator must affect the dependent variable in the third equation; and (4) the effect of the independent variable on the dependent variable is non-significant when controlling for the mediator in order to indicate complete mediation in the fourth equation; otherwise, partial mediation is indicated. If these conditions hold in the predicted direction, then the effect of the independent variable on the dependent variable must be less in the third than in the second equation. Perfect mediation holds if the independent variable has no effect when the mediator is controlled. Changes in the R-squared value for each model and standardized regression coefficients are presented in Tables 3 and 4.

In Table 3, Model 2, there is a positive and significant relationship between munificence and strategic renewal ($\beta = .244, p < .05$). With respect to Table 3, Model 3, the relationship between performance and munificence is significant ($\beta = .370, p < .001$). With regard to Table 3, Model 4, munificence still has a significant effect in the presence of renewal; however, there is an indication that strategic renewal partially mediates the munificence–performance relationship because munificence lost its coefficient size in the presence of strategic renewal. The model is significant, and the adjusted R-squared is high at over 20 % of variance. However, the significance level in Model 4 has further increased, such that the relationship among the dependent variable performance with the independent variable munificence and the mediator strategic renewal is statistically significant at $r = .004$.

In Table 4, Model 2, the relationship between hostility and strategic renewal is not significant ($\beta = .104$). As illustrated in Table 4, Model 3, the relationship between performance and hostility is significant ($\beta = .269, p < .05$). In Table 4, Model 4, strategic renewal ($\beta = .262, p < .05$) is positively related to performance. Once strategic renewal is brought into the equation, the relationship becomes more significant, where external hostility influences performance through its effect on renewal. The model

is significant, and the adjusted R-squared is high at almost 18 % of variance. The relationship involving performance, the dependent variable, performance with hostility, the independent variable, and renewal, the mediator is statistically significant at $r = .016$.

We also assessed the potential for reverse causality, such that improved performance gave rise to more emphasis on strategic renewal. The relationship was significant ($p < .05$). Such a finding would appear to reinforce the positive association between munificence and renewal. In public sector organizations, strategic renewal is a type of opportunity-centered behavior that is undertaken in more supportive environments and is further incentivized when the organization is performing well, rather than when it is experiencing difficulties.

Hypothesis 4a and 4b concern the relationship between (a) internal decision-making processes and organizational performance and (b) control formality, tightness and discretion, and organizational performance. As indicated in Table 2, Model 4, the beta coefficient is not significant for decentralized decision-making (standardized coefficient $.081, r = .394$); in Table 2, Model 5, the coefficient is not significant for control formality, tightness and discretion (standardized coefficient $.076, -.062, \text{ and } -.056$, respectively, $r = .584$). Thus, Hypotheses 4a and Hypothesis 4b were not supported.

Hypotheses 5a and Hypothesis 5b examine the relationship between renewal and (a) decision-making and (b) control systems. As indicated in Table 5, Model 6, decentralized decision-making is positively associated with strategic renewal ($\beta = .243, p < .05$), providing support for Hypothesis 5a, and in Table 5, Model 7, control discretion is positively associated with renewal ($\beta = .463, p < .001$), providing support for Hypothesis 5b.

Hypotheses 6a and Hypothesis 6b address the relationship between internal characteristics and strategic renewal, and the mediating impact of renewal on the relationship between internal characteristics and performance. For Hypothesis 6a, a positive and significant relationship is found between decentralized decision-making and renewal ($\beta = .243, p < .05$). The relationship between performance and decision-making is not significant ($\beta = .081$). Finally, strategic renewal is significantly associated with performance ($\beta = .245, p < .05$); however, the overall model is not significant and Hypothesis 6a is not

Table 3 Hierarchical mediated regression analysis results—munificence

	Hypothesis 3, Model 1 regress DV (perf) on control variables	Hypothesis 3, Model 2 regress mediator (renewal) on IV (munificence)	Hypothesis 3, Model 3 regress DV (perf) on IV (munificence)	Hypothesis 3, Model 4 regress DV (perf) on IV (opportunities) and mediator (renewal)
<i>Control variables</i>				
Age of organization (years)	-.176	-.113	-.224*	-.200
Size of organization (F/T employees)	.150	.188	.154	.043
Sector	-.010	-.098	-.135	-.086
Strategy	-.025	.141	-.101	-.134
<i>Independent variables</i>				
External environment				
Munificence		.244*	.370***	.333**
Mediation variables				
Strategic renewal				.219*
Model R square	.042	.125	.148	.201
Adjusted R square	.005	.078	.104	.143
Model F	1.141	2.653	3.342	3.473
<i>p</i> value (sig.)	.342	.027	.008	.004
N	108	99	102	90

Standardized regression coefficients are reported

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 4 Hierarchical mediated regression analysis results—hostility

	Hypothesis 3, Model 1 regress (Perf) on control variables	Hypothesis 3, Model 2 regress mediator (renewal) on IV (hostility)	Hypothesis 3, Model 3 regress DV (Perf) on IV (hostility)	Hypothesis 3, Model 4 regress DV (Perf) on IV (hostility) and mediator (renewal)
<i>Control variables</i>				
Age of organization (years)	-.176	-.135	-.250*	-.227
Size of organization (F/T employees)	.150	.134	.126	-.014
Sector	-.010	-.105	.004	.060
Strategy	-.025	.165	-.077	-.115
<i>Independent variables</i>				
External environment				
Hostility		.104	.269*	.218
Mediation variables				
Strategic renewal				.262*
Model R square	.042	.077	.106	.178
Adjusted R square	.005	.023	.055	.114
Model F	1.141	1.430	2.077	2.808
<i>p</i> value (sig.)	.342	.222	.076	.016
N	108	92	94	85

Standardized regression coefficients are reported

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 5 Regression analysis results

Dependent variable renewal	Model 6 H: 5a	Model 7 H: 5b
<i>Control variables</i>		
Age of organization (years)	-.092	-.112
Size of organization (F/T employees)	.191*	.142
Sector	-.085	.015
Strategy	.227*	.226*
<i>Independent variables</i>		
Public sector organization		
Decision-making	.243**	
Control		
Control formality		.153
Control tightness		.151
Control discretion		.463***
Model R square	.143	.299
Adjusted R square	.099	.245
Model F	3.264	5.542
<i>p</i> value (Sig.)	.009	.000
N	103	98

Standardized regression coefficients are reported

* $p < .05$; ** $p < .01$; *** $p < .001$

supported, and hence renewal does not mediate this relationship. For Hypothesis 6b, there is a positive and significant relationship between control discretion and strategic renewal ($\beta = .463$, $p < .001$) but not for formality and tightness ($\beta = .153$ and $.151$, respectively). With respect to the relationship between performance and control formality, tightness and discretion, the result was non-significant ($\beta = .076$, $-.062$ and $-.056$, respectively). Finally, strategic renewal is significantly related to performance ($\beta = .363$, $p < .01$); however, the overall model is not significant and Hypothesis 6b is not supported, and hence renewal does not mediate this relationship ($r = .075$).

6 Discussion and conclusions

Extant empirical evidence suggests that corporate entrepreneurship improves organizational performance by increasing the organization's proactiveness and willingness to take risks and by pioneering the development of new products, processes, and services (Lumpkin and Dess 1996; Zahra et al. 1998).

Consistent with work in the private sector, our findings indicate a positive relationship between strategic renewal and organizational performance in the public sector (Antoncic and Hisrich 2001; Hean et al. 2007). Strategy can be a vehicle for affecting entrepreneurial redirection of public sector enterprises.

While turbulence in the external environment is generally thought to be a key driver of entrepreneurial behavior and performance in organizations (e.g., Zahra and Covin 1995), the results here suggest a somewhat different role for external factors. Environmental munificence (positively) and environmental hostility (negatively) impact the performance of public enterprises. However, strategic renewal is an important mediating factor in these relationships. Where there are external opportunities, we find a direct association with renewal, as well as a better fitting relationship between munificence and performance when renewal is a mediator. Environmental threats are not directly associated with renewal, but renewal serves to mediate the impact of hostility on performance. Thus, renewal is opportunity-driven behavior that is incentivized by more favorable environmental conditions and produces improved performance under such conditions, but engaging in it also helps the organization transform the potential negative impact of threats into enhanced performance. It may be that public managers are adept at minimizing the impact of threatening developments, for such threats as budgetary reductions or increased regulation are relatively commonplace. Yet, renewal enables the organization to discover opportunity from within the hostile conditions and improve performance. Hence, we find a more complex story than is typically posited. While previous public sector studies did not test mediation in this context, it is noteworthy that Antoncic and Hisrich (2001) used mediation as a concept of fit and found entrepreneurial behavior had a moderately good fit.

The study sheds new light on the role of internal factors in affecting entrepreneurship and performance. Control formality and budget flexibility were not factors, perhaps because formal controls and fixed budgets are pervasive in public organizations. However, introducing participative decision-making and control discretion appears to be positively associated with renewal, suggesting that work environments can be designed in ways to facilitate entrepreneurial behavior.

Several implications for theory and practice can be drawn based on the findings. At the most fundamental level, the current study extends theory on strategic renewal by demonstrating its relevance in a public sector context in spite of the many factors working against such behavior. Examining entrepreneurship at a strategy level and designing public organizations to balance the ability to better perform current activities or operations while at the same time seeking new opportunities is relatively uncharted territory. Yet, such work would seem consistent with Walker's (2008) notions of streams of innovation and innovation across a range of areas and activities.

Further, by developing and testing a meditational model, the current study provides an explanation of key dimensions of the external environment and internal organization–performance relationship. The application of entrepreneurial approaches to strategy formulation may be less a means to competitive survival or advantage, as with private sector organizations, or a reaction to adverse circumstances. Rather, it appears to be more a vehicle for opportunity recognition and exploitation as the organization attempts to better accomplish its public mission and is fostered by approaches to internal organizational design that are more flexible and participative. By focusing on strategic renewal, organizations are able to more efficiently optimize the hostility–performance and munificence–performance relationships in the public sector. Both threat and opportunity create opportunities for strategic renewal and reward an organization that is adaptive and responsive to factors within the environment.

Where corporate entrepreneurship in the private sector is especially motivated by competitive pressures and the quest for sustainable advantage, a theory of public sector strategic renewal must reflect activity that is primarily driven by opportunity and perception of opportunity in spite of the constraints under which the organization operates. Additionally, superior performance tends to reinforce the incentive to act entrepreneurially, as suggested by the finding of reverse causality. Absent a traditional profit motive, organizational growth and development appear to provide sufficient incentive to engage in entrepreneurial behavior. Such behavior does not come without risk, but the nature of risk is unclear, as the public organization is typically not confronting potential bankruptcy/business failure, market share loss, or a drop in share price. Perhaps the risk is measured in

terms of opportunity costs associated with directing resources away from traditional activities and hence underserved stakeholders and the eventual possibility of reduced budgets from funding bodies.

Implicit in the findings is the need to work toward some degree of alignment between external circumstances, organizational design, and entrepreneurial strategy. Yet, achieving such alignment can be problematic in a public sector context given the complex demands of diverse stakeholders and operating constraints with which they frequently must comply. More relevant may be degrees of alignment on key external and internal variables, with the type of entrepreneurial strategy dictating which are the most critical variables. Clearly, the key to an alignment is the public organization's opportunity-seeking capabilities.

The ability to modify core organizational activities around entrepreneurial initiatives that reflect opportunities emerging within the external environment, while ensuring the basic mission of the organization continues to be accomplished, would seem paramount. It becomes especially important from the vantage point of enhanced performance that public sector managers develop unique competencies related to opportunity recognition, assessment, and exploitation (Morris et al. 2012). There is scant evidence that training and development efforts in public organizations highlight such skills, and this should be a priority for mid-level and senior managers. Transformational management styles that emphasize a participative approach also appear to be critical (Parry and Proctor-Thomson 2003).

Strategic renewal can take many forms, and public managers must use strategic planning processes to determine the appropriateness of a given form based on political and economic realities. Such planning processes must be dynamic, with participation from external and internal stakeholders, and include assessment of non-traditional business models, services, processes, and markets together with ways to more efficiently and effectively perform existing activities. Goal setting should include innovation goals, especially as they relate to external opportunities. The content of strategy should highlight creation of new sources and forms of value, means of value capture, and types of relationships.

The need for agility in acting upon opportunity as it arises suggests that public managers implement support structures, systems, and processes conducive to

strategic renewal. Public organizations do not traditionally have departments or people with specific responsibility for innovative new directions. Yet, while innovative behaviors should be built into all jobs, novel structural designs that include units whose focus is identifying new markets to serve, services to offer, revenue sources, strategic alliances, and sources of process innovation should be considered. In addition, a reliance on greater information and power-sharing, involvement of all levels in strategic decisions, and more consensus-oriented decision-making is important. Further, allowing for greater individual initiative in the design of organizational controls, permitting managerial flexibility in how jobs are performed, and encouragement of innovation in approaching one's work assignments can foster renewal. Efforts might also be devoted to enhanced environmental scanning systems, cross-functional structural approaches, and open communication processes (Morris et al. 2011a).

7 Limitations and future research directions

A number of limitations should be kept in mind when interpreting the study's findings. Although steps have been taken to ameliorate concerns over informant bias, non-response bias, and common method bias, suggesting the findings are robust, these issues should be kept in mind in interpreting the findings. The data were collected through the use of self-reports from key informants within a cross section of organizations. Chandler and Hanks (1993) have found that self-reports tend to be highly correlated with archival data. With regard to common methods bias, CEOs were arguably the most appropriate individuals from which to collect data given the nature of the questions being asked. There was no direct overlap in items from different variables. The dependent variable is not publicly available, and all other variables were pilot tested and modified for this study. Studies have shown common method bias to have small effects at best (e.g., Spector 2006).

Future work would benefit from obtaining inputs from multiple respondents per organization, particularly with regard to perceptions of internal organizational characteristics. In addition, the cross-sectional nature of the data limits the ability to imply causal relationships among the variables of interest.

Second, while the current studied allowed for external environments containing both opportunity and threat, rather than one or the other, ways in which elements of the environment interact to elicit strategic actions by public managers are not well understood. There is a related need to further investigate the environmental conditions that give rise to perceptions of munificence or hostility. While the funding environment tends to be highlighted (e.g., Boyne 2006; Meier and O'Toole 2009), dynamism with regard to technological change, service demand, regulatory restrictions and mandates, labor conditions, social norms, and other external factors may in fact play a bigger role in these perceptions and in the types of renewal an organization pursues. It may also be possible that different managers perceive the same environment differently, especially when it comes to munificence. A factor in these differences may be the entrepreneurial mindset of a given manager (McGrath and Macmillan 2000), where this mindset gives rise to a more optimistic and opportunistic view of external conditions. Additional research should also examine the extent to which renewal efforts are able to produce substantive change to the organization's external environment and stakeholder relationships, and the kinds of approaches that make this possible.

Third, while key internal dimensions were addressed in this study, some additional dimensions should be considered in future studies. Examples include structural dimensions, planning processes, reward and recognition systems, job design, and various elements of organizational culture. Also important is the need to determine how such dimensions interact with one another to support successful strategic renewal.

Strategic renewal itself warrants further investigation. Here, the measurement process emphasized greater or lesser engagement in renewal. This is limiting, and subsequent work might explicitly distinguish between discontinuous transformations and continuous incremental renewal. In addition, Volberda et al. (2001) discuss different types of strategic renewal journeys within organizations (e.g., emergent, directed, and facilitated). While one might expect such journeys in the public sector to be more centrally directed, additional research is needed on these different pathways to renewal. Further work is also required to identify whether there are types of renewal strategies in public organizations and if these strategies can be associated

with modifications to particular organizational attributes.

Finally, our study is limited in its focus on measures of performance that center on growth. While growth in budgets, staffing and numbers served indeed may be important outcomes for many public agencies, they may be less relevant for others. Moreover, the multidimensional nature of performance (Andrews et al. 2007; Jarrar and Schiuma 2007) suggests a need for studies that capture other input, efficiency, and effectiveness measures. Strategic renewal would seem to have the potential to affect a wide range of such measures.

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