Ambidextrous leadership in innovation processes in Canadian hospital settings

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Summary Abstract : Ambidextrous leadership is characterized by behaviors that foster explorative and exploitative activities in innovation, with flexible transitioning between behaviors as needed. As no previous research has examined the individual contribution to ambidexterity, this paper seeks to provide insights into ambidextrous leadership in the diffusion of innovation in healthcare. Using a multiple case-study design, we explore behaviors of four senior executives involved in innovation projects at four Canadian hospitals. We find that these executives are ambidextrous leaders while trying to enact efficient and effective innovation processes, and that ambidextrous leadership has a positive effect on innovation.

Keywords: Ambidextrous leadership, Innovation, Healthcare.

Introduction

Healthcare is a key component of the budget for Canada, where hospital revenues mostly come from public-sector funding. In 2014, 10% of Canada's GDP was dedicated to healthcare spending. Since 2011, hospitals have accounted for ~29.5% of government expenditures. Budget uncertainty since the global financial crisis has led many Canadian provinces to introduce initiatives to constrain healthcare costs. To cope with an uncertain environment, Canadian hospitals require new solutions for constraining expenses while improving service quality (Rouse, 2008). Accordingly, Canadian healthcare organizations have undergone important transformations, with a few adopting ambidextrous strategies that incorporate both exploitative and explorative activities to support innovation. Leadership is a decisive factor for the successful execution of ambidextrous strategies for innovation (Barczak and Wilemon, 1989). Few studies, however, have considered the link between leadership and innovation (Oke et al., 2009). Here, we explore three ambidextrous leadership behaviors through interviews with four senior executives in four Canadian hospitals.

Literature review

Innovation in the healthcare field

Innovation can be broadly defined as any idea, behavior, product, service, business model, or process that is new for an individual, group, or organization, and can improve processes or results (Omachonu and Einspruch, 2010). Innovation is a strategic key to organizational survival (Govindarajan and Trimble, 2005). However, scholars have heterogeneous views about innovation (Damanpour, 1991; Meyer and Goes, 1988), defining innovation "from very broad and impressive generalizations to highly specific and focusing on technical innovations" (Susanj, 2000, p. 350).

In the healthcare field, innovation is an important lever to balance costs and care quality (Christensen et al., 2009). Enormous pressures on this sector, including soaring costs, labor shortages, regulations, and patient factors, have resulted in the proliferation of innovative solutions (Schneller and Smeltzer, 2006). Solutions range from clinical innovations, such as new products, technologies, equipment, and drugs (Staren et al., 2010), to managerial innovations, such as new practices, tools, software, and work processes. Healthcare innovation can be defined broadly as the adoption and implementation of proven best products and practices for maximizing patient safety, patient outcomes, and organizational performance (Thakur et al., 2012).

The capacity to innovate differentiates the success of businesses in all sectors (Friesen, 2005). However, oftentimes, new ideas are introduced faster than an organization can respond. Moreover, very few changes truly lead to success (Kotter, 2006). Reasons why innovation projects fail are numerous and diverse. They include unclear definitions of objectives and requirements, poor alignment of actions with objectives, insufficient resources and management support, faulty participation and team collaboration, inadequate follow up, and poor communication (Bagnara et al., 2010). Up to 65% of failures are related to managerial practices (McManus and Wood-Harper, 2007). Overall, the success achieved by innovation is often not commensurate with the investment (Paré and Trudel, 2007).

Healthcare organizations are particularly complex organizations to manage, as they involve multiple stakeholders with divergent objectives that hinder the capacity to innovate (Denis et al., 2001). Healthcare organizations tend to be risk-averse, as risk taking may negatively affect patients' health. This attitude can lead to difficulty for innovation (Fahey and Burbridge, 2008), given that failure is an inevitable and integral part of the innovation process (Dyer et al., 2011). Limited financial resources also hamper innovation in healthcare (Golden, 2006). Healthcare innovation efforts are often financed by foundations or corporate donations, rather than the state, resulting in a need to canvass for funds. Finally, healthcare organizations face difficulties in integrating innovations concretely into organizational and clinical routines, as the innovation processes are often poorly formalized. Firms that are able to devise an ambidextrous strategy have high performances in terms of revenues, profits, customer satisfaction, and new product development (Sarkese and Holland, 2009).

Conceptual framework

This research applies the conceptual framework of ambidextrous leadership in innovation processes described by Rosing et al. (2011), who built upon Rogers' (2003) model. Rogers (2003) divided the innovation process into two major phases of initiation (e.g., defining the innovation project) and implementation (e.g., deploying, clarifying, and routinizing the innovation). The initiation–implementation dichotomy can be used to analyze the issues, conditions for success, and risks of failure in an innovation process, allowing identification of hurdles. Building on this framework, Rosing et al. (2011) separated innovation into creativity and implementation phases. The creativity phase involves explorative activities (March, 1991), such as "thinking 'outside the box', going beyond routines and common assumptions, and experimentation" (Rosing et al., 2011p. 965). On the other hand, implementation encompasses exploitative activities, such as focusing on efficiency or goals and executing routines. Of course, creativity can call for the exploitation of already-known ideas (Bain et al., 2001), and implementation can require the exploration of new strategies. Thus, innovation processes drive "an ever-changing cycle" of exploration and exploitation activities (Rosing et al., 2011, p. 965).

Leaders are crucial to the development of strong organizational ambidexterity, as they encourage exploration and exploitation organically or distribute these roles by favoring collaboration to ease transition between the two zones. The more a team is aware and acts deliberately to enhance porosity between exploration and exploitation, the stronger the organizational performance will be (Gibson and

Birkinshaw, 2004). Ambidextrous leaders encourage innovation in their followers (innovation team) by balancing and integrating explorative and exploitative activities throughout the process. Rosing et al. (2011) defined "opening behaviors" as those that foster creativity and exploration, and "closing behaviors" as those that foster implementation and exploitation. Ambidextrous leaders transition nimbly between opening and closing behaviors, as required by the project. Rosing et al. (2011) recognized that their theory was still in its infancy and called for its elaboration.

Methodology

Academic studies have largely ignored the issue of innovation in healthcare organizations (Djellal and Gallouj, 2007). To fill this void, we sought to develop empirically grounded explanations of how innovation occurs at four hospitals in Quebec province, Canada. Hospitals engaged in explorative and exploitative activities were considered for selection. They were included if the senior executives were interested and available to participate in the project and share information. The four hospitals and corresponding senior managers are referred to as Hospitals/Managers A, B, C, and D. The selected organizations present a high innovation profile compared to the average healthcare organization in their region. All are affiliated with a major university.

We employed a qualitative and exploratory approach with a multiple case-study research design. Rather than try to identify laws, we sought to make an existing phenomenon intelligible. Yin (1994, p. 13) defined a case study as "an empirical inquiry that investigates a contemporary phenomenon with its real-life context, especially when the boundaries between phenomenon and context are not clearly evident." The case-study research method is appropriate here because we are attempting to gain a detailed understanding of innovation processes in their real-life context. Our goal is to highlight the actors in innovation and support functions, which, to date, have been neglected (Djellal and Gallouj, 2007).

The data collection process was two-fold. After accumulating information on the four organizations, we interviewed the managers. Each interview lasted, on average, one and a half hours. Based on those conversations and insights from the literature, we asked managers to complete a survey regarding their leadership in innovation. Within- and cross-analyses of the cases provided empirical data to answer three research questions: (1) What opening behaviors do hospital senior executives mobilize while fostering explorative activities? (2) What closing behaviors do they mobilize while fostering exploitative activities? (3) How do they shift from opening to closing behaviors?

Case descriptions

Case 1: Hospital A

Hospital A is a large hospital for women and children that has been operating for more than 100 years. Hospital A supports a vision of continuous innovation. To enable the effective and coherent management of any innovation, especially health technologies, Hospital A set up a context-based health management learning center 5 years ago. This innovation springboard, created jointly by the HEC Montréal Health Cluster and Hospital A, integrates members of teaching institutions, such as Polytechnique de Montréal, Faculty of Nursing Sciences, to support, assist, and educate senior and project managers. Education occurs through training, research, and faculty-led projects, to ensure the timely transmission of knowledge and skills in an action-based format. Managers at Hospital A are encouraged to share their experiences with academics, providing them with opportunities to rationalize

and produce explicit knowledge from their experiences. In this way, managers are invited to become gateways to knowledge and agents of transformation in their organization.

The organizational structure of Hospital A was completely revised towards what the CEO calls an "organic structure". The prevailing philosophy is that innovation is not confined to particular units, but that strong promiscuity exists between operations and innovation. Support services contribute to the dynamics of exploration and exploitation. Ambiguity along hierarchical lines has been a destabilizing element for some managers, but they are gradually adjusting. Leadership at Hospital A clearly favors organizational ambidexterity, with its new structure focusing on collaboration and joint decision making. Manager A promotes decision-making forums to combine influences and viewpoints. These forums aim to enrich exploitative tasks for employees, who participate in projects or initiatives (learning, technological, clinical, etc.) that favor idea exchange and create links between the two zones. Creativity is harnessed, and innovation is conducted methodically.

Hospital A has put forth many initiatives to foster innovation in healthcare, including seminars and thematic week events. In 2014, the hospital hosted an intensive weekend of open innovation, the Hacking Health Hackathon, through which it identified several clinical innovations that have since been realized. Hacking Health allowed Hospital A to exchange ideas among practitioners, entrepreneurs and employees, leading to concrete innovations. While not revolutionary, according to Manager A, these innovations instilled a new mindset in Hospital A's teams.

Case 2: Hospital B

Hospital B was born from the fusion of three major research hospitals in an urban setting. It has been intensively engaged in a program of incremental and disrupted innovation projects for 20 years, developing a unique site with state-of-the-art healthcare management practices and technologies. Manager B estimated that the innovation transition program involves 50–60% of the hospital's employees. He stressed the confident atmosphere that he has created in each team. Manager B holds the philosophy that former innovations can be used to leverage future projects. He has put forward an informal rule that no project will be authorized if the medical involvement is not clear. Ideally, innovation teams are led by doctors.

Manager B suggested that it has not been easy to engage staff in innovation projects. He has tried to address tensions in the hospital innovation program, introduced transverse processes in the projects, and organized meetings to update the hospital on projects. Manager B considers the level of public funding to be the greatest obstacle for implementing innovations. Despite admiration for innovation team members, ~50% of personnel do not participate in these projects. The manager emphasized that even people who are not interested in innovation still enjoy participating in the benchmarking program. Success of innovation projects has required that Manager B be heavily involved; otherwise, a given project would fail in a very short time. Some managers have suggested that Manager B and his support team were pushy with different innovation projects. However, Manager B claimed that he was strict on the decision and implementation processes, but very respectful of the know-how and expertise of the teams. Solutions were never imposed.

Hospital B has budgeted a large amount of money for travel expenses to academic conferences to present results of innovation projects. Through meetings and conferences, Manager B learns new exploitative and explorative activities. He considers that presenting his hospital's innovations creates a positive image of his hospital and boosts morale. Knowledge and findings from conferences are shared with teams at the hospital. Innovation projects are managed centrally, which allows quick and accurate implementation throughout the hospital. However, only 1% of accumulated knowledge is stored in a

standardized way that would enable its rapid mobilization. Overall, Manager B considers his ambidextrous leadership to have provided Hospital B with an average level of performance in innovation.

Case 3: Hospital C

A research hospital and two healthcare centers merged to form Organization C during an ongoing reform in Quebec province. Armed with extensive experience in innovation projects, and motivated by budget cuts and government medical reforms, Manager C has developed a strategy of balancing exploitation and innovation to improve organizational performance. Organization C has a department dedicated to innovation, and it partners with other institutions, including the Polytechnic School of the University of Montreal. As part of Organization C, Hospital C was the first in Canada to put its key performance indicators on its website. Since 2010, Hospital C has focused on eliminating bottlenecks in its organization. Manager C has sought to initiate and implement innovation processes in a very smooth way, to avoid tensions that could compromise innovation. She suggested that good relations between Hospital C, the community, and industry offer a powerful leverage for innovation.

Manager C sees herself as a project coordinator. Having served on different innovation teams, she calls on these experiences and her position to process innovation projects efficiently. Dialogue with hospital unions is permanent and constant. Manager C has successfully implemented a high level of collaboration with different hospital stakeholders, whom she respects and regards as partners in innovation. The innovation process in Hospital C is collegial. Formal and informal meetings provide strategic and tactical information. Manager C considers herself to be always on the field, which she views as a good way to understand the atmosphere and behaviors in a given innovation project. She described a situation where two teams refused to participate in innovation projects. After 6 months of intense diplomacy, she convinced one of the teams to participate. Manager C believes in helping staff acquire new working methods. She feels that “intellectual change” is a long process, and that the nature of the organization plays a key role in innovation. She would prefer that every new idea be tested before it is realized. Decision processes in Hospital C may be centralized or decentralized, depending on the project and context. For instance, Manager C is stricter for activities at the core of the project, invoking a concept she calls direct or steer support. Innovation projects are separate from each other and are explained to involved personnel. Projects are not exclusive and encompass any staff members who are interested in a given program.

Manager C tries to balance the time that she spends consulting people. Whereas she initially tried to consult everyone involved, she now meets with a smaller group of people. Nevertheless, she believes that everybody should be informed about ongoing projects, and that work on innovation projects should be presented publically. Meetings are run to allow room for participative debate, although without compromising on efficiency. Project resources are closely followed, and each finished project is evaluated before a new project is initiated. The impact of the implementation of new processes is also gauged. Manager C supports collaborative projects with foreign institutions, analyzing and applying knowledge and practices at all levels from organizations in the U.S.A. and Europe. Hospital C has set a comfortable travel budget for conferences, allowing staff to acquire new knowledge of techniques and processes. Many employees at Hospital C have embraced the spirit of innovation. The manager considers the managerial process at the hospital to be good, although she does think some issues should be addressed. For instance, she feels that knowledge follow up falls short. She would like to see the results published and a website developed for these projects.

Case 4: Hospital D

Despite the location of Hospital D in a smaller town, the hospital employs many world-renowned researchers. From Manager D's perspective, Hospital D does not foster a sufficiently innovative atmosphere, which he believes prohibits the institution from engaging in a larger number of innovative programs. Nevertheless, he is committed to developing innovation programs and appointed a vice director for research and innovation for the hospital. One of Manager D's roles is to implement a model for improving the hospital's innovation. He expressed regret at the low levels of internal and external collaboration, which have made it difficult to innovate. Innovation projects that have been set up have been led by doctors. Manager D's preference would be that all teams in the hospital would collaborate in innovation projects, with doctors playing an important role. He would like to reduce the effect of silo management in the hospital organization. Manager D has succeeded in building internal proximity through patients, whom he believes are crucial for fostering innovation. Manager D has met every employee involved in innovation and thanked them personally for their contributions. He recognizes, values, and encourages people who help improve clinical or theoretical research in the hospital. After some blunders, Manager D concluded that no innovation project should be initiated without a union member. In his opinion, not considering this basic condition led to the failure of some projects.

Manager D believes that innovation cannot be managed at a random level, and that, to be sustainable, innovation activities deserve an appropriate budget that includes funding for conference travel. Manager D attends international conferences to keep up with new medical discoveries, and he compares his hospital's performance against the Canadian Institute for Health Information. Unfortunately, Manager D thinks that the number of doctors from Hospital D that attend conferences is quite small. To encourage involvement in innovation projects, Hospital D has set up a publication team. This team meets informally to discuss research or innovation projects, providing the tone for innovation processes at the hospital. Hospital D has developed a website where researchers can find all of the information they need to perform research and publish their results. A special prize was created to reward the best researcher of the year at Hospital D. Thus, although innovation activities remain weak at Hospital D, the interviewed manager has established the necessary means to stimulate exploitative and explorative innovations.

Cross-case analysis

Drawing on the frameworks presented above and the material of the interviews, we deepened the case analysis with respect to the ambidextrous leadership theory for innovation (Rosing et al., 2011). Hospitals were scored according to whether they demonstrated the behavior completely (score = 7), moderately (score = 4), or not at all (score = 1), according to survey respondents.

All interviewees expressed an awareness of the cultural shift that has resulted from government policies to reduce healthcare expenses. These managers have chosen to develop innovation processes to address these cultural changes. Innovation tasks require the continuous management of conflicting demands (Bledow et al., 2009), which the managers have divided into creativity and implementation stages. They recognize the complexity and nonlinearity of innovation processes. To initiate and implement innovation activities, the managers exhibit explorative and exploitative behaviors. They go beyond routines and common assumptions, experiment, and think "outside the box," thereby showing explorative behaviors. They are oriented towards goals and efficiency, and they execute routines in the implementation phase, thereby exhibiting an exploitative logic.

All four managers show opening, closing, and switching behaviors. When exhibiting opening behaviors, they encourage personnel to do things differently, experience new processes, and think independently. They initiate and support experiences that challenge their hospitals' established approaches in the

initiation phase while trying to foster explorative activities. All four executives take corrective actions, set specific guidelines, and monitor goal achievement by their teams during the implementation phase while fostering exploitative activities. Nonetheless, the managers show differing degrees of opening, closing, and flexible switching behaviors (Table 1).

Table 1 – Leadership behaviors of Canadian hospitals; adapted from Rosing et al. (2011)

	Behavior	Hospital Score*			
		A	B	C	D
Opening behavior	Allow different ways to accomplish a task	6	7	7	6
	Encourage experimentation with different ideas	6	6	7	7
	Motivate to take risks	2	6	6	6
	Give possibilities for independent thinking and acting	5	7	7	6
	Give room for own ideas	6	7	7	7
	Allow errors	3	7	6	6
	Encourage learning from errors	6	7	7	7
Average		4.9	6.7	6.7	6.4
Closing behavior	Monitor and control goal attainment	7	7	7	-
	Establish routines	4	3	6	5
	Take corrective action	6	4	6	7
	Control adherence to rules	5	3	7	6
	Pay attention to uniform task accomplishment	4	1	6	4
	Sanction errors	3	2	2	1
	Strike plans	7	-	6	6
Average		5.1	2.9	5.7	4.1
Shifting behavior	Allow change of behaviors from beginning to end of project	6	3	2	-
	Adopt opening behavior at the initial stage of the project	6	7	7	7
	Adopt closing behavior as the project nears its deadline	5	6	5	5
	Adopt closing behavior at the initial stage of the project	3	1	2	2
	Impose some rules at the initial stage of the project	6	2	1	6
	Adopt opening behavior at the end of the project	6	6	7	4
	Have open discussions at the end of the project	7	7	7	4
	Discuss problems and solutions settled during the process	7	6	7	3
Average		6.6	5.4	5.4	4.4

Manager A does not motivate his teams to take risks during innovation (score of 2), whereas the other three managers encourage risk-taking (scores of 6). All managers show some degree of closing behavior during the early phase of their innovation projects. Manager A leaves moderate to little room for employees to make errors (score of 3) compared to the other managers (scores of 6–7). In terms of establishing routines, Manager B has the lowest score (3), followed by Managers A (score of 4), D (score of 5), and C (score of 6). Manager B is moderately likely to take corrective action (score of 4), whereas Managers A, C, and D are very likely to do so (scores of 6–7). Managers A and B exhibit a moderate degree of control over rule adherence (scores of 3–5), whereas Managers C and D show high degrees of control (scores of 6–7). Uniformity in tasks is not important to Manager B (score of 1), moderately important to A and D (scores of 4), and very important to C (score of 6).

All four senior executives show some degree of opening behavior at the end of projects. However, their degree of flexibility varies considerably. Manager A allows his teams to change behaviors throughout the innovation process, showing an overall opening behavior for the entire process of innovation (score of 6). Managers B and C exhibit overall closing behaviors for the entire process (scores of 2–3). Managers A and D are more likely to impose rules at the beginning stage of projects (scores of 6) compared to Managers B and C (scores of 1–2). Managers A, B, and C score very high (scores 6–7) regarding opening behaviors at the end of projects, openly discussing with employees about problems and solutions settled during the projects. In contrast, Manager D scores low for these items (scores of 3–4).

Hence, Manager A shows an overall moderate degree of opening behaviors throughout his innovation projects (score of 4.9), whereas Managers B, C, and D have more dominant opening behaviors (scores of 6.4–6.7). Managers A and C are more likely to adopt closing behaviors through the projects (scores of 5.1–5.7) compared to Managers D and B (scores of 2.9–4.1). Finally, managers A, B, and C are very likely to shift between opening and closing behaviors as the situation requires (scores of 5.4–6.6), whereas Manager D is less likely to shift between behaviors (score of 4.4).

Discussion and implications

Our research confirms findings from conceptual and empirical studies (Rosing et al., 2011; Zacher and Rosing, 2015), which asserted that leaders need to show opening behaviors when their teams are engaged in explorative activities. The creative stage of an innovation process is primarily a time of imagination and risk taking, rather than routine. Leaders need to exhibit opening behaviors to encourage creativity in their teams. Leaders with opening behaviors do everything they can to encourage transformation or change. They provide an intellectually stimulating environment that pushes the reconsideration of old practices and search for new approaches. Such behavior could result in radical innovations. By fostering exploration, a leader encourages variation in followers' behaviors (Gupta et al., 2006), resulting in the end of routines and start of new ways of thinking (Rosing et al., 2011). Thus, we derive Proposition 1: *Hospital leaders use opening behaviors while fostering explorative activities*.

Closing leadership behaviors involve establishing rewards for completing a task. Hospital managers believe that their employees are motivated by some rewards, which they use to ensure completion of the innovation project. Management by exception concerns the corrective (punishment) that a leader would use if followers do not reach their goals. Adoption of closing behaviors implies that a leader is focused on key administrative tasks of the innovation process, such as mobilizing necessary resources. However, the culture of failure is not acceptable in the healthcare industry, and managers try to maintain the status quo while having closing behaviors. During the creativity stage of an innovation process, a leader might show closing behaviors when they clarify the performance standard(s) that the team is expected to reach. By having closing behaviors, hospital managers foster exploitative operations with the goal of decreasing variance in their followers' behaviors (Gupta et al., 2006; March, 1991). All four executives use closing behaviors when the innovation task requires implementation. Thus, we propose Proposition 2: *Hospital leaders use closing behaviors while fostering exploitative activities*.

Teams engaged in any innovation activity may need to shift from explorative to exploitative activities. Hospital managers must do more than simply balance and integrate these activities, but must switch flexibly between them to ensure that their innovation activities are efficient. All four hospital senior executives are able to switch between opening and closing behaviors as needed (Lewis et al., 2002). They show opening and closing behaviors simultaneously in their hospitals' innovation processes, consistent with Rosing et al. (2011). Additionally, "there is no systematic model indicating when it is

useful to exploit and when to explore" (Rosing et al., 2011, p. 967). Consequently, the degree of openness or closeness is not homogeneous among the four hospitals. In sum, we formulate Proposition 3: *Hospital managers flexibly switch between explorative and exploitative activities as needed.*

Limitations and future research opportunities

The research strategy prevents us from generalizing our results because case studies are inherently not representative or generalizable, even though they are suitable for elaborating a theory (Lee, 1999). The small sample size and cross-sectional character of this research are additional limitations. We did not apply triangulation, which represents a general limitation of interview research. Our data were obtained from self-reported information filtered through the individual perceptions of four senior hospital executives. Thus, there is substantial risk that the leaders described their desired rather than their actual behavior. We did not include the followers' perspectives; analyzing these perspectives would increase the validity of our results and contribute insights about how team members respond to closing or opening behaviors. Hospital culture is not very open to risks or mistakes, which is the opposite of an explorative behavior. Future research is needed to gain insight into how hospitals can get over this important obstacle to innovation.

Conclusion

Although instrumental to success, innovation processes are very difficult to implement in healthcare institutions. We analyzed the initiation and implementation phases of innovation processes in Canadian hospitals by interviewing four senior executives. Findings revealed that including the concept of ambidextrous leadership could reinforce understanding of hospitals' innovation processes. Leaders must be ambidextrous to manage innovation processes efficiently while facing a fundamentally changing socioeconomic environment. Exhibiting opening, closing, and flexible switching behaviors according to situational requirements seemed to help the four senior executives to manage and improve innovation activities in their hospitals.

Our findings can help other hospitals in their attempt to develop more effective and efficient innovation processes. Innovation supports hospitals in their development of strategies to offer high-quality care at a good price. These insights can also be applied to empirical or analytical modeling studies of how hospital managers could increase innovation, as well as what influence ambidextrous leadership might have in improving the innovation strategies of hospitals.

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