

HEC MONTRÉAL
École affiliée à l'Université de Montréal

**Mindful organizing:
Healthcare management innovation processes**

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**Mindful organizing:
Healthcare management innovation processes**

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RÉSUMÉ

Au Canada, les organisations dans le secteur de la santé font souvent face à un important volume de changement qui dépasse leur capacité de réponse. Diverses innovations de gestion, telles que les améliorations de processus ou des nouveaux logiciels, permettent aux organisations d'améliorer leurs performances. Ainsi, la capacité des établissements de santé à se développer, au moyen d'innovations de gestion, se positionne bien dans le cadre des nouveaux facteurs de réussite organisationnelle. Cependant, de nombreux défis résident dans la sélection des innovations, de leur mise en œuvre et finalement l'atteinte des résultats souhaités.

Les organisations œuvrant dans le milieu de la santé ont besoin de comprendre leurs particularités et adapter le processus d'implantation pour chaque innovation, étant des organisations pluralistes où les ayants-droits sont multiples et le changement complexe. Le concept de “ mindfulness ”, récemment utilisé pour analyser les processus d'innovation, semble prometteur dans la recherche d'une meilleure compréhension des liens avec la réussite organisationnelle.

Peu d'études ont développé le concept de “ mindfulness ” dans le processus d'innovation ou étudié son impact sur la performance des projets, en particulier dans le secteur de la santé. Nous souhaitons explorer ce qui conduit un processus d'innovation vers les résultats attendus et caractériser ce que fait une équipe projet pour organiser de façon “ mindful ” lors de l'introduction et de la mise en œuvre d'innovations de gestion.

Pour structurer et orienter notre recherche, nous avons construit un cadre conceptuel qui a guidé notre travail sur le terrain ainsi que notre analyse de données. Nous avons mené des études de cas exploratoires et rétrospectives dans trois centres hospitaliers canadiens au moyen d'entrevues semi-structurées, d'observations et de documentation. Ainsi, trois processus d'innovation ont été étudiés: les chariots de distribution des médicaments chez Alpha, le système de transport des patients chez Beta et un système de gestion des lits chez Gamma.

Tout au long de notre analyse, nous avons développé et ajusté des propositions de recherche dans le but de caractériser ce que c'est d'organiser de façon " mindful " lors d'un processus d'innovation et comprendre le lien avec le succès. Ainsi, nous avons constaté que le contexte du projet doit être considéré par les principales parties prenantes dans le processus de prise de décision avant et pendant le processus d'innovation. De plus, l'utilisation de notre adaptation des attributs de " mindfulness " de Weick et collaborateurs à l'analyse de processus d'innovation, permet d'anticiper et de prendre des mesures pour prévenir les problèmes et, au besoin, de faire preuve d'agilité pour contenir l'imprévu. L'utilisation du cadre multi-perspectives de Bolman et Deal a permis d'identifier et de moduler des événements de type rationnels, ressources humaines, politiques et/ou symboliques en fonction du contexte et des résultats souhaités. De plus, les résultats souhaités devraient être clairement énoncés et pris en compte par les membres de l'équipe de projet au début et tout au long du processus d'innovation afin de moduler le changement requis pour atteindre les résultats.

Enfin, nous avons reconnu que pour s'organiser de façon " mindful " dans un processus d'innovation, les membres de l'équipe doivent recueillir juste assez d'informations pour générer les connaissances nécessaires à la prise de décision tout au long du processus d'innovation, afin de prioriser les bonnes actions à entreprendre et ainsi maximiser les résultats.

Mots clés: innovation, une organisation " mindful ", s'organiser de façon " mindful ", succès, contexte, changement, multi-perspectives, secteur de la santé

Méthode de recherche: Recherche qualitative par étude de cas

ABSTRACT

Healthcare organizations in Canada are often faced with an increasing rate of change in their environment that regularly exceeds their capacity to respond. Management innovations, such as various process improvements or new software, enable organizations to improve their performance. Thus, healthcare organizations' capacity to innovate through management innovations is well positioned as part of new organizational success factors. However, many challenges remain in relation to selecting, implementing and finally achieving the desired results.

Organizations need to understand their particularities and adapt their process for each innovation, especially in pluralistic organizations where there are multiple stakeholders and change is complex. The concept of mindfulness, recently used to analyze innovation processes, seems promising in the quest to better understand innovation dynamics and their organizational success. To mindfully organize, an innovation project team must evaluate the context and the desired results and conduct various events accordingly.

Few studies have developed the concept of mindful organizing in the innovation process or investigated its impact on a project's performance, especially in the healthcare sector. In seeking to explore what leads innovation processes towards the expected outcomes and to develop the concept of mindful organizing, the study aims to improve practitioners' and researchers' understanding of *what characterizes mindful organizing when introducing and implementing management innovations in healthcare organizations* and to show the extent to which *mindful organizing is associated with innovation process success in healthcare organizations*.

To structure and orient the research, a conceptual framework was built that guided the field work and data analysis. Exploratory retrospective case studies were conducted in three distinct Canadian hospital settings using semi-structured interviews, observation, and documentation. Thus, three innovation processes were studied: medication distribution carts at Alpha, patient transportation system at Beta and a bed management system at Gamma.

Multiple research propositions were created in the quest to characterize mindful organizing and its link with innovation process success. Project context needs to be considered by key stakeholders in the decision-making process prior to and during the innovation process. It was found that using Weick and his collaborators' adapted mindfulness attributes was beneficial in anticipating and taking action to prevent issues and, when required, to show agility in containing

the unexpected. The use of Bolman and Deal's multi-perspective frames permitted identifying and modulating rational, human resources and political and/or symbolic events according to context and desired outcomes. Moreover, desired outcomes should be clearly stated and considered by project team members at the beginning and throughout the innovation process to modulate the changes required to meet these goals and to readjust if necessary.

Finally, it was recognized that to mindfully organize in an innovation process, team members must combine just enough information to generate the appropriate knowledge for decision making throughout the innovation process and ultimately to maximize the outcomes.

Key words: innovation, organizational mindfulness, mindful organizing, success, change, context, healthcare, multi-perspectives

Research method: Qualitative research using case studies

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Chapter 1. INTRODUCTION

In this fast evolving information intensive and knowledge based era, organizations are being forced to discover new ways of working to stay competitive (Ashkenas *et al.*, 1995; Foster and Kaplan, 2001; Friesen, 2005; Vogus and Sutcliffe, 2012). Organizations are faced with an increasing rate of change in their environment that often exceeds their capacity to respond. In order to remedy this situation and sustain high levels of performance, practitioners and academics agree that the capacity to innovate positions itself well as part of the new organizational success factors along with speed, flexibility and integration (Ashkenas *et al.*, 1995; Beinhocker, Davis and Mendonca, 2009; Friesen, 2005). For example, innovation in health care continues to be a driving force in the quest to balance cost and quality of care. The last century has produced a proliferation of innovations in this industry aimed at enhancing quality of life, life expectancy, diagnostic and treatment options, as well as the efficiency and cost effectiveness of the healthcare system (Varkey, Horne and Bennet, 2008). This situation is not unique to the healthcare industry, all sectors take advantage of the benefits resulting from innovations to face their changing landscapes (Alsaaty and Harris, 2009; Ashkenas *et al.*, 1995; Foster and Kaplan, 2001; Tidd, Bessant and Pavitt, 2001; Utterback and Abernathy, 1975).

An innovation is generally defined as an idea, behaviour, product or process that is new to the individual, the group, or organization and that is implemented to significantly improve various processes and/or outcomes (Omachonu and Einspruch, 2010; Rogers, 2003; Schumpeter, 1934; Utterback and Abernathy, 1975). Innovations do not always correspond to earth shattering events or outcomes. They might take the form of gradual, but important improvement in existing systems, methods or objects that require organizations to change (Alsaaty and Harris, 2009; Omachonu and Einspruch, 2010). However, the contribution of innovations for organizations and individuals can also be colossal. Indeed, innovations can be the source of a nation's prosperity, progress, and competitiveness. They can help organizations capitalize on market opportunities by translating brilliant ideas into practice through the introduction of new or improved goods, services, technologies as well as processes enabling

them to create and capture value in new ways, ultimately leading them towards better performance (Rogers, 2003).

However, many challenges and issues may occur throughout innovation processes; and if not properly taken care of, these issues can escalate and lead to negative outcomes (Keil, 1995). Therefore, selecting and implementing innovations require important organizational investments from various stakeholders. The desired outcome is, at the very least, to have the innovation's benefits outweigh the related change efforts and costs (Zaltman, Duncan and Holbek, 1973). However, too often, innovation processes do not generate the expected outcomes.

According to Kotter (2006), "a few ... change efforts have been very successful. A few have been utter failures. Most fall somewhere in between, with a distinct tilt toward the lower end of the scale" (p. 59). Carucci's (2006) review goes in the same direction, stating, "In a survey of nearly 3,000 executives about the success of their enterprise transformation efforts, McKinsey discovered the failure rate to be higher than 60%, while Harvard Business Review conducted a study that suggested more than 70% of transformation efforts fail" (p. 1). These two organizational change authors concur that innovations and the change they entitle can bring great benefits, but they are, undeniably, no easy solution or "magic bullet" for improvements, as shown in Markus and Benjamin's study (1997) on information technology (IT) innovations. Following the same trend, the Standish Group's 2015 CHAOS Report on IT investments found that more than half of projects conducted between 2011 and 2015 across industry sectors were described as either being challenged or complete failures, while just 29% were considered successful.¹

Reasons explaining innovation project failures are wide-ranging. A study of 214 projects in diverse sectors identified inadequate management practices as responsible for 65% of the factors associated with innovation project failure (McManus and Wood-Harper, 2007). The remaining 35% were classified by the authors as linked to technical factors, including design, development tools, inappropriate requirements, user documentation,

¹ In these reports, the Standish Group defines "project success" as delivering all the requested functionality, on the expected date, and for the planned cost.

test planning, and technical support, all arguably management issues as well. Generally, it would appear that the most common causes of project failure are the following: poor goal and requirements definition, poor alignment of actions to goals including lack of resources and executive support, poor participation in teams, poor monitoring of results, and poor communication and sense of community (Bagnara, Parlangeli and Tartaglia, 2010; Langer, 1997; Sanson-Fisher, 2004). Considering the importance of innovation in organizations, the efforts engaged in improving organizational process and the many project failures, the present study seeks to develop a deeper understanding of the innovation process itself and how change efforts lead to successful outcomes.

1.1 Innovations and change in the healthcare sector

The healthcare sector has experienced a proliferation of innovations aiming to enhance life expectancy, quality of life, diagnostic and treatment options, as well as the efficiency and cost effectiveness of the healthcare system (Christensen, Grossman and Hwang, 2009; Omachonu and Einspruch, 2010; Varkey, Horne and Bennet, 2008). This proliferation stems from the various pressures currently endured within the sector, such as the rising costs of care, an aging population, a growing shortage of labour, complex processes, and an ever-changing environment linked to technologies, regulations, health issues, and increased patient awareness. This reality fosters growing concerns among the population and incentives to drive healthcare organizations towards change (Christensen, Grossman and Hwang, 2009; Schneller and Smeltzer, 2006) through the implementation of innovations.

However, healthcare institutions often fall short in realizing the expected benefits from these various innovations and consume huge amounts of money and frustrate countless people in these wasted implementation efforts (Chowdhury, Butler and Clarke, 2007; Herzlinger *et al.*, 2007; Lapointe and Rivard, 2005; Paré, 2002; Paré and Trudel, 2007). For example, Lapointe and Rivard's (2005) study on implementing Electronic Medical Records (EMR) in a hospital showed that an inadequate management of conflict and power-related issues between physicians and nurses directly affected the outcome. Also, Chowdhury and collaborators (2007) presented a study describing how an information system implementation failed to make improvements in spite of its great potential in

ways linked to the project approach, difficulties in working together, separate objectives, and lack of funds towards the end of the implementation. These examples show that even if innovations are potentially beneficial, their implementation does not guarantee positive outcomes. Innovation processes face numerous challenges that can transform themselves into failed initiatives, wasted funds, and frustration of various stakeholders. This complexity is even more true in the healthcare sector, where there is an imperative need for change, but there are great challenges in making change happen (Christensen, Grossman and Hwang, 2009; Drucker, 1993; Golden, 2006; Herzlinger *et al.*, 2007).

According to Drucker (1993), healthcare organizations are one of the most complex forms of organizations to manage, creating difficulty in transformation initiatives such as innovation processes. These organizations are known as classic pluralistic domains where multiple stakeholders, with varying levels of power (patients, administrators, professionals, etc.), often have divergent objectives (individual care results, cost control, quality of care, etc.), resulting in difficulties to create a collective leadership to achieve change (Denis, Lamothe and Langley, 2001). This complexity derives from, among other things, seeking alignment between leaders, organization, and environment in a dynamic process (Denis, Lamothe and Langley, 2001). Thus, many challenges are present in generating successful change from innovations in healthcare organizations.

There appear to be challenges specific to the healthcare sector (Chowdhury, Butler and Clarke, 2007; Christensen, Grossman and Hwang, 2009; Glouberman and Mintzberg, 2001; Golden, 2006; Herzlinger *et al.*, 2007; Pare *et al.*, 2008). Indeed, the main challenges facing healthcare organizations when innovating are related to rigid structures and complex decision-making processes, risk aversion, limited financial support, and conflicting goals and needs of multiple stakeholder groups (power and politics). Each of these challenges is briefly discussed in the following paragraphs.

First, as large entities, healthcare organizations have complex decision-making processes that can hinder innovation initiatives. Complex decision-making processes result from the fact that healthcare organizations are bureaucratic entities that often have rigid structures with various policies and procedures to follow (Chowdhury, Butler and Clarke, 2007; Glouberman and Mintzberg, 2001; Sanson-Fisher, 2004). Often many

forms, verifications, approvals and other tasks need to be completed by various stakeholders; and these vary depending on the process itself and the organizational structure. Therefore, coordinating the tasks and the communications within and between the appropriate stakeholder groups for each process is a complicated undertaking, especially when considering that most departments work in an isolated manner (Chowdhury, Butler and Clarke, 2007; Christensen, Grossman and Hwang, 2009; Sanson-Fisher, 2004).

Second, another challenge explaining difficulties in innovating is that healthcare organizations tend to be conservative and risk taking is discouraged in these settings. Risk aversion, such as fear of impacting patient care with the change brought by new innovations, may create resistance to improvement and change (Denis *et al.*, 2002; Fahey and Burbidge, 2008; Herzlinger *et al.*, 2007; Koch and Hauknes, 2005; Rondeau, 2008). For instance, one of the case studies in Lapointe and Rivard's (2005) research on EMR implementation demonstrated that following an incident where a patient did not receive his medication, the physicians requested a withdrawal of the EMR, considering that there was a risk to patient safety even if this incident was unique and other healthcare organizations using the same innovation did not encounter risks to patient safety. The general sense of risk aversion in the healthcare sector is also portrayed among public service managers and politicians with whom there are high levels of accountability and a tendency towards a blame culture, making them very wary of enacting changes that could result in negative outcomes, particularly if there is the risk that these outcomes will attract media attention (Cunningham, 2005). These features contribute to the broader notion of risk aversion already described above and could further hinder the process of innovation.

Third, limited financial resources to operate and enhance operations are another challenge that many public healthcare organizations are facing (Golden, 2006; Herzlinger *et al.*, 2007; Klein, Conn and Sorra, 2001; WHO, 2008). In fact, a Canadian provincial government report showed that financial resources barely cover the operating costs (Gouvernement-du-Quebec, 2007-2008). The remaining budget, if any, is used for innovations to enhance care or activities supporting care. Thus, the evaluation of the total cost of these innovations appears important in order to plan and prioritize their

implementation. To this end, Golden's (2006) work on transforming healthcare organizations pointed out that affordability was one of the issues raised while evaluating the possibility of implementing a computerized physician order entry system. This limited amount of financial resources may impact not only the amount of change in healthcare organizations but also the effort put into these change initiatives. Organizations that need to provide training, support services, time to test new technology and other implementation-related activities incur substantial financial costs. Thus, in the absence of financial resources, an organization may have great difficulty in offering high-quality implementation policies and practices (Klein, Conn and Sorra, 2001). The lack of human resources in various healthcare organizations may also impact the amount of change and the way change is conducted. Indeed, care quality around the world is impacted by a lack of resources, whether human or material (WHO, 2008).

Finally, Glouberman and Mintzberg (2001) explained difficulties in successfully implementing innovations in healthcare organizations by the conflicting goals and needs of multiple stakeholder groups. They presented physicians, nurses, technicians, administrators, and the community as living in four distinct worlds and having different perspectives and strong stances that can sabotage almost any innovation initiative. Effects of various stakeholder perspectives in projects and change in general have been extensively studied (Chowdhury, Butler and Clarke, 2007; Glouberman and Mintzberg, 2001; Herzlinger *et al.*, 2007; Lapointe and Rivard, 2005; Pare *et al.*, 2008). An example of conflicting goals and needs in healthcare organizations is the process of standardizing medical supplies, where a team of administrators, physicians, nurses, and others seek to reduce and standardize products used within their organization to create savings and efficiencies. However, as the needs of each group are often different, it is complicated to achieve consensus on the medical supplies to be eliminated. For example, the doctor will choose the supply that is best for him and the patient, while the administrator will focus on the cost of this supply in his evaluation. Therefore, innovations such as medical supply standardization can be the source of conflict between various stakeholder groups and often result in resistance to change and failure to meet expected benefits (Glouberman and Mintzberg, 2001; Rodrigues and Hickson, 1995).

The abovementioned particularities and example demonstrate why innovating in healthcare organizations is complex and challenging. In the healthcare literature, innovations are generally divided into two broad categories, namely, *clinical* and *management* innovations. *Clinical* innovations aim to support patient care activities or processes covering a broad spectrum of technologies and product innovations,² such as new surgical equipment, clinical procedures, and drugs (Kimberly and Evanisko, 1981; Staren, Braun and Denny, 2010; Varkey, Horne and Bennet, 2008). *Management* innovations are concepts, processes, techniques, and/or tools that are new to the organization and are intended to improve performance (Damanpour, 1987; Mol and Birkinshaw, 2005; Vaccaro, Jansen, and Van Den Bosch, 2008), such as various process improvements, new software, or automated drug dispensers.

In the pursuit of improving healthcare providers' performance, both clinical and management innovations are important. However, the focus of the present study will be on *management innovations*, considering the alignment with the research mission of the academic institution and the author's personal interests.

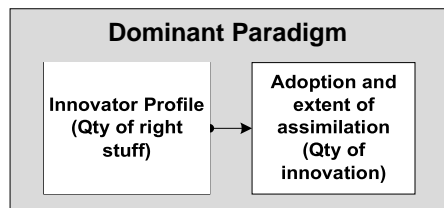
12 Innovation research, the dominant research paradigm and process models

Generally speaking, innovation research is classified under two broad perspectives, namely, variance and process research (Fichman, 2004; King, 1990; Markus and Robey, 1988; Mohr, 1982; Van de Ven and Poole, 2005). The variance perspective, also called factor research, seeks to predict and establish the conditions to replicate the desired outcomes (Van de Ven and Poole, 2005). Normally, variance research ensures controllability, cumulative tradition, and efficiency in data collection and analysis (Fichman, 2004). For its part, the process-oriented perspective focuses on explaining *how* things or events happen over a period of time to give place for more exploration and complexity (Langley, 2009; Van de Ven, 1992). Hence, variance theories offer explanations on relationships between dependent and independent variables, while process theories provide explanations in terms of patterns in events, activities, and choices over time (Langley, 2008).

² According to Varkey and collaborators (2008), a product innovation is the care the patient receives that typically consists of services and potentially goods linked to this service (for example, clinical procedure innovations).

It cannot be argued that one perspective is superior to the other (Markus and Robey, 1988). Rather, each perspective provides a different view of the same social reality. However, Fichman (2004) showed in his review of IT innovativeness that research in the innovation field has been completed under a dominant paradigm, namely, variance research. Indeed, this paradigm, shown in Figure 1, describes the most common research structure in organizational innovativeness to be economic-rationalistic models (variance). In these studies, organizations that have a greater quantity of what might be called the “right stuff”, are expected to exhibit a greater quantity of innovation, such as greater frequency, earliness, and/or extent of adoption and assimilation (Fichman, 2004). The “right stuff” has been conceptualized as the degree to which organizations possess certain characteristics, for example, the organization’s size, structure, knowledge, resources, support, and environment, that increase the need for innovation and the ability to innovate successfully (Fichman, 2004).

Figure 1 Dominant paradigm in innovation research



Adapted from Fichman (2004)

While variance research and models have been useful to better understand the characteristics that may lead towards a greater quantity of innovation, an increased quantity of innovation does not ensure greater innovation quality. In fact, the ultimate outcomes or benefits of an innovation (i.e., quality) are rarely considered in studies within the dominant paradigm (Fichman, 2004). To this effect, Mohr (1987) has criticized this type of research, highlighting its lack of attention to the specific organizational processes by which innovations normally penetrate organizations. Accordingly, Tzoukas (2005) showed the necessity to isolate the investigated variables from their environment to create results that would not take into consideration other influential factors. In short, it appears that variance research might have reached the point of diminishing returns in innovation research (Fichman, 2004), and that it might be

time to develop different research approaches (Langley, 2009; Taylor and McAdam, 2004).

In seeking to explore what leads innovation processes towards the expected outcomes, a process type of research appears suitable for the present study. My views align with those of Langley and collaborators (2003) in showing that process research provides a good foundation for exploratory research. In turn, this permits the addition of more depth and perspective to the understanding of innovations and change in healthcare organizations.

13 A promising conceptual lens

Organizations need to understand their particularities and adapt each innovation process (Fiol and O'Connor, 2003; Swanson and Ramiller, 2004), especially in pluralistic organizations where there are multiple stakeholders and change is complex. Contextualizing decisions within the innovation process and implementation sequence could explain or influence, in part, the decision-making process and its impact on success. Thus, the innovation process, including its context, must be analyzed. Accordingly, process theory provides a solid basis for structuring the various events in the innovation process and showing causality (Langley, 1999, 2009).

The concept of mindfulness, used to analyze innovation processes, seems promising in the quest to better understand innovation dynamics and success in these organizations (Swanson and Ramiller, 2004). Mindfulness, introduced in social psychology by Langer (1989), is defined as a state of alertness and awareness that stimulates active information processing and the understanding of multiple perspectives. The concept of mindfulness was first meant to characterize cognitive individuals' abilities (Sternberg, 2000) that are reflected by (Langer, 1997). In contrast, mindlessness reflects the lack of these attributes and is characterized by a less conscious state in which people tend to function habitually and automatically (Brown and Ryan, 2003).

Subsequently, researchers applied the concept of mindfulness at the organizational level (Weick 1995; Weick and Sutcliffe, 2007; Weick *et al.*, 1999), identifying various attributes of organizational mindfulness that will be detailed in the following chapter. These attributes appear to be an advantageous state that all organizations should strive to

achieve, particularly in pluralistic environments, such as healthcare organizations, where there are diffuse power and varying objectives (Denis, Lamothe and Langley, 2001). Organizational mindfulness has even been shown to be an enabler of readiness to change and should be further capitalized (Gärtner, 2013). Indeed, mindfulness would increase the comprehension of complexity and skills in managing the unexpected, and encourage organizations to constantly probe their environments for ways to stay ahead through innovation (Fichman, 2004; Fiol and O'Connor, 2003; Swanson and Ramiller, 2004).

Swanson and Ramiller (2004) applied and extended the concept of organizational mindfulness in the innovation process, arguing that mindfulness occurs when a firm attends to an innovation process with reasoning grounded in its own organizational facts and specifics. Indeed, understanding and comparing the firm's characteristics, the innovation itself, the process, and other specifics (i.e., being mindful), to the extent observable, is likely to be a better indicator than just taking into consideration the large organization's positive results. Therefore, mindfulness would appear to shape an organization's capacity to learn and adapt, thus increasing the probability of a successful innovation process (Swanson and Ramiller, 2004; Weick and Putnam, 2006; Weick and Sutcliffe, 2007; Weick, Sutcliffe, and Obstfeld, 1999). Ray and collaborators (2011) further characterized organizational mindfulness by separating it into two constructs. First, they proposed that organizational mindfulness conducted by upper management focuses on strategic elements and on the organization as a whole. Second, they introduced the concept of mindful organizing focused on specific events to achieve the desired operational outcomes.

Ray and collaborator's (2011) distinction appears fundamental, as mindful organizing permits focusing on a specific innovation process. Evaluating mindfulness in a specific project would not, however, represent the organization's overall mindfulness. As my unit of analysis is the innovation process and not the organization as a whole, I have chosen to focus on mindful organizing in innovation processes. It is my contention that the notion of mindful organizing will help researchers to better understand how and why innovation-based transformations in healthcare organizations achieve, or do not achieve, the expected outcomes.

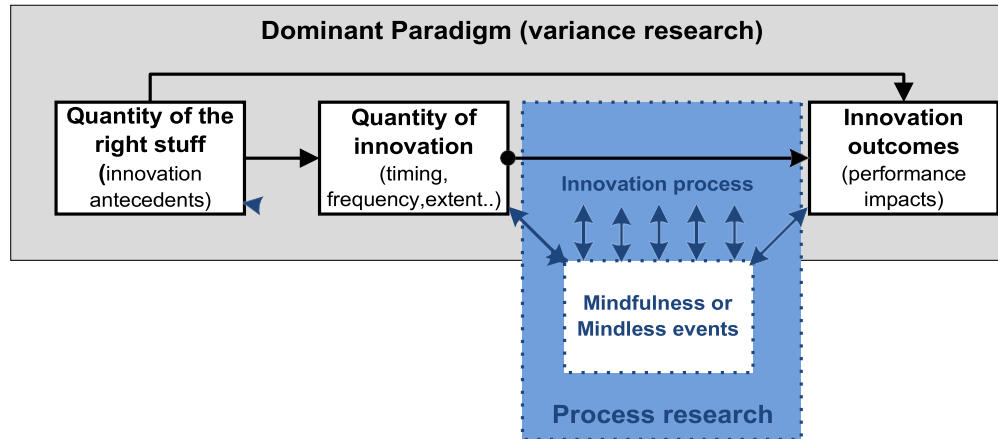
14 Research objective and questions

Following the work of Weick and colleagues (Weick *et al.*, 1999; Weick and Sutcliffe, 2007), scholars have paid considerable attention to the notion of organizational mindfulness (Ray, Baker and Plowman, 2011; Swanson and Ramiller, 2004; Vogus and Sutcliffe, 2012; Weick and Putnam, 2006). However, the concept of mindful organizing, distinguished from organizational mindfulness, is still relatively recent (Ray, Baker and Plowman, 2011; Vogus and Sutcliffe, 2012). Indeed, mindful ways of organizing relate to operational events conducted by individuals, or groups of individuals, in the organization that seek to achieve the desired operational outcomes (Ray *et al.*, 2011). Vogus and Sutcliffe (2012) proposed the use of Weick and collaborators' (2007; 1999) mindfulness attributes to assess mindful organizing. Swanson and Ramiller (2004) had also used these attributes to analyze mindfulness in the innovation process but did not supply a complete conceptualization of mindfulness in the innovation process or demonstrate similarities and differences from organizational mindfulness. Since the publication of their article, few studies have developed the concept of mindfulness in the innovation process or investigated its impact on project performance, especially in the healthcare sector (Trudel *et al.*, 2012). Thus, considering the distinction between organizational mindfulness and mindful organizing, and the lack of literature on mindfulness in the innovation process, it appears important to reassess these different concepts.

Another element suggesting this analysis is that innovation research has been mainly conducted through the use of variance type methods. Considering the current limits brought about by variance research (Fichman, 2004), it is proposed here to further develop the concept of mindful organizing using a process logic. Indeed, Fichman (2004) proposed that process research can accommodate a more complex relationship between traditional innovation antecedents than the ones reflected in the dominant variance paradigm. Fichman (2004, p. 339) states, "it could be posited that mindfulness will moderate the link between the quantity of innovation and resulting performance impact the rationale being that for any given amount of innovation quantity, organizations that are more mindful will have better results." Therefore, as shown in

Figure 2, understanding mindfulness does not necessarily result in a higher quantity of innovation but rather generates better results from the selected innovations.

Figure 2 Mindfulness in the dominant paradigm



Adapted from Fichman (2004)

In the search for a better understanding of mindful organizing and how this concept leads innovations towards higher or lower levels of success, process models seem appropriate because they take into consideration contextual data (ref. Fig.2 linking the quantity of the right stuff and of innovation to the events) and give the required data richness. Moreover, linking the events to the results (ref. Fig.2. linking the events to the innovation outcomes) rather than just examining the results allows greater understanding of what leads organizations towards successful innovation processes (i.e., mindful organizing). Indeed, the concept of mindfulness has been shown to have an impact on innovation process success (Trudel, Paré and Laflamme, 2012), as what we do (the result) is no more important than how we do it (the process) (Patton and Patton, 2002). Trudel and collaborators' (2012) findings showed that when healthcare organizations mindfully organize, there is a greater probability of making sound judgments within the implementation process, which, in turn, should increase project success.

Hence, my research questions are formulated as follows:

What characterizes mindful (or mindless) organizing when introducing and implementing management innovations in healthcare organizations?

To what extent is mindful (or mindless) organizing associated with innovation process success in healthcare organizations?

This research is intended to contribute to both academia and practice. First, this study seeks to validate and extend theory about mindful organizing in the particular context of healthcare organizations' innovation processes. Academics have identified the need to pursue innovation research on mindfulness, specifically using process model type research (Fichman, 2004). However, the concept of mindful organizing is still relatively recent, even more so when it comes to characterizing specific innovation processes. Thus, I started by developing and deepening my understanding of mindful organizing through the development of a literature-based framework incorporating multiple concepts to structure my data collection and analysis. Moreover, I developed the literature on the links between mindful organizing and innovation success, specifically for management innovations in hospitals.

Second, this research intends to provide direction for practitioners selecting and implementing management innovations in healthcare organizations. High reliability seeking organizations, such as healthcare organizations (Pronovost *et al.*, 2006; Thakur, Hsu and Fontenot, 2012; Vogus and Sutcliffe, 2012), are expected to take the necessary precautions to minimize accidents and errors in an environment where small but frequent accidents can be expected (Bagnara, Parlangeli and Tartaglia, 2010). The findings of this study could potentially contribute to helping these managers make sound decisions about whether or not to adopt an innovation, what to consider, when, by whom, and how best to manage the innovation process and maximize the outcomes. Therefore, this research aims to structure a framework that would assist these managers in understanding the various elements that influence the innovation process. In order to achieve these goals and answer the research questions, the remaining of this thesis is structured as follows:

- **Chapter 2** presents a literature review on key concepts linked to mindfulness in the innovation process. Specifically, this review aims to clarify the concept of success in the innovation process, explain the current understanding of individual mindfulness, mindful organizing, and organizational mindfulness and link these concepts to the innovation process and context. This review concludes with the creation of a framework to guide the field work.
- **Chapter 3** discusses the methodology used in the research. It first introduces the theoretical aspects, namely, the research philosophy and approach. Then, it addresses a set of practical aspects of the methodology, including research strategy, case selection, study design, data collection methods, and analytical procedures.
- In **chapter 4**, innovation processes for three distinct case studies are separately described, evaluated, and analyzed using the proposed framework and methodology. Following each case study, I incorporate the findings of the previous case study, thus permitting a cross-case analysis. Moreover, I develop the concept of mindful organizing in innovation processes with the creation of research propositions that evolve throughout the various case studies.
- Finally, **chapter 5** concludes by highlighting the findings related to conceptualizing mindful organizing in the innovation process. The last section of the chapter presents the methodological limitations of the study and makes several suggestions for future research.

Chapter 2. LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

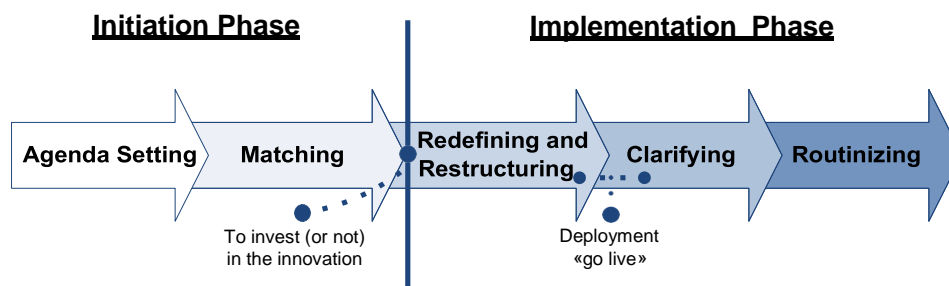
In line with the research objectives, the present chapter aims to identify and describe the key constructs linked to mindful organizing in healthcare innovation processes. To do this, I performed a comprehensive search of the relevant literature. Several key terms were used, including "mindfulness", "organizational mindfulness", "mindful organizing", "innovation or innovation process", "success", "initial conditions or context" and "healthcare or hospitals". Numerous data sources were consulted. The data collection was done primarily using electronic databases, including ABI/Inform, EBSCOhost Business Source Complete, and ISI Web of Science. Moreover, I used the Google Scholar search engine to expand the pool of potential scientific journals and periodically review articles referencing the key sources. These searches, known as the "snowball" method, led to finding related articles and provided a broader view of the literature associated to my research. Finally, the collected articles (approximately 100) were stored using EndNote to facilitate referencing, searches, and management.

Thus, bridging relevant knowledge from the fields of IT, innovation management, project management, and organizational change, the review started by describing the innovation process, a structuring concept in this process type research. The notion of project success is also defined in order to provide a foundation for understanding innovation process success. Then, I present and distinguish the notions of individual mindfulness, organizational mindfulness, and mindful organizing. Finally, this literature review leads to the development of a conceptual framework to assist me in my field work by clarifying the research scope, defining the concepts, and guiding my data analysis. However, as stressed by Eisenhardt (1989), it is important to specify that the identification of constructs prior to data collection is a mere starting point, since theory validation and extension is a highly iterative process. Accordingly, my conceptual framework might evolve during the course of my analysis.

21 Mapping the innovation process

The most recognized and cited author in the innovation process literature is undeniably Everett Rogers (1962, 1971, 1983, 1995, 2003). Rogers (2003) developed an innovation process model in organizations that categorizes the actions taken during the innovation's initiation and implementation phases. As presented in Figure 3, the initiation phase consists of the agenda setting and the matching steps that cover the information gathering, planning, and evaluating that lead to the decision to invest or not to invest in the innovation. The implementation phase groups the redefining and restructuring, the clarifying and the routinizing steps, which consist of actions and decisions put in place before, during ("go live") and after the implementation.

Figure 3 Innovation Decision Process



Adapted from Rogers (2003)

Following Rogers' (2003) innovation decision process or any other process aimed at acquiring and implementing innovations does not ensure success. Indeed, many aspects can go wrong within each step, ranging from a lack of understanding of the organizational context to an unqualified project team. However, the use of Rogers' model to describe the innovation decision process has provided valuable insights in describing the generic steps that most innovation projects go through that lead to success, failure, or somewhere in between.

22 Successful innovation process

A significant amount of research has been initiated on innovation project success, especially in the IT literature, as this field fosters rich grounds for analyzing projects. For over 50 years, IT innovation project success has been inextricably linked with the *Iron Triangle*, which connects project success to cost, time, and quality (Atkinson,

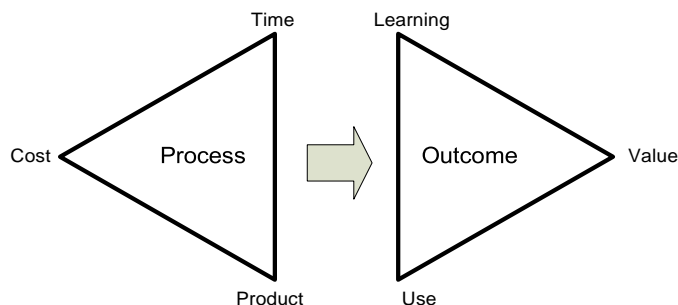
1999). To meet the urgent need to review project success criteria, Atkinson (1999) suggested including qualitative (people-related) with the initial quantitative (task-related) criteria of the *Iron Triangle*, specifically the benefits that different groups of people can receive from the innovation. Hence, many researchers in project management and IT agree that there is more to project success than meeting time and budget, and that these other factors include using a combination of task-related criteria (e.g., quality, adherence to budget and schedule) and people-related criteria (e.g., team member satisfaction, viability of the team) (Atkinson, 1999; Nelson, 2005; Shenhar *et al.*, 2001). Indeed, task-related project success measures might be quite straightforward; however, these measures may not show the true overall innovation success in an organization. For example, if a project was on time, on budget, and represented what had been promised, but the users were not satisfied with the innovation as it was creating new workloads and issues, the project might have a high rating in task-related measures but not rate so high in people-related measures.

I analyzed widely recognized frameworks that structured project success in various contexts ranging from high-tech IT innovations to process improvements and construction (Atkinson, 1999; Nelson, 2005; Shenhar *et al.*, 2001). As my literature review on this topic did not encounter a framework that represented the concepts within my research, I built one using these existing models. I included task-related and people-related measures and attempted to represent the innovation process success ranging from high-tech to no-tech innovations in healthcare settings (Nelson, 2005; Shenhar *et al.*, 2001; Whitworth and Friedman, 2009).

Following a meta-retrospective on 72 IT projects varying in size and industry, Nelson (2005) proposed a multi-dimensional definition of IT project success using a combination of process and outcome criteria. Shenhar and collaborators (2001) also presented a framework on project success that issued from their study of fifteen innovation projects with varying levels of technology ranging from no-tech (i.e., construction of a building) to high-tech (i.e., development of a new electronic and computing module).

As shown in Figure 4, Nelson's (2005) framework covers the evaluation of the process (task-related measures) and the outcomes (people-related measures). This representation is similar to the *Iron Triangle*, in that it captures the efficiency of project processes but also includes the effectiveness of the outcome. Using a process similar to Shenhar *et al.*'s (2001) "project efficiency" dimension, he recommends analyzing whether the project was on schedule, whether it was on budget, and whether it delivered the desired product (according to specifications) to measure process success (Nelson, 2005). To measure the outcome's success he proposed to evaluate people-related measures such as the use of the innovation by the targeted stakeholders, the learning that the innovation project brought to the organization to better engage in future challenges, and the value (Nelson, 2005). Nelson's (2005) conceptualization focused on evaluating success after project completion by specifying the importance of determining specific goals and objectives at the beginning of projects in order to orient the actions and by examining their intensity. Indeed, process and outcome-based metrics such as "Is the innovation doing what it was supposed to do?", "Is it easy to use?", "Are you satisfied with the innovation?", and others appear appropriate to grasp implementation phase success.

Figure 4 Success criteria for IT projects



Adapted from Nelson (2005)

Shenhar *et al.* (2001) also used people-related measures similar to Nelson's (2005), such as customer satisfaction, use, and preparing for the future but did not use such a clear distinction between process and outcome-based measures. They separated their project success dimensions into a chronological manner, starting with "project efficiency" measures (i.e., schedule, budget, etc.) followed by "impact on customer" (i.e., customer satisfaction, use, etc.), "business success" (i.e., commercial success, market share, etc.),

and “preparing for the future” (i.e., new market, new technology, etc.) (Shenhar *et al.*, 2001).

Unlike Nelson (2005), Shenhar *et al.*, (2001) added a temporal angle to their dimensions by proposing that measures can be taken before, during, or after implementation. Evaluating success after the initiation phase is not common and is often dismissed and replaced by focusing on evaluating overall project success after the implementation. However, this time-based perspective aligns with my process type research, which hypothesizes that success can be generated throughout the innovation process. Indeed, value can be assessed following the decision to adopt or not to adopt the innovation, after the implementation, or at any other time during the innovation process in conformity with Rogers’ (2010) innovation decision process. Thus, with their temporal analysis of value, Shenhar *et al.* (2001) convey the possibility of evaluating success multiple times throughout the project. These multiple evaluations could also include a success analysis after the initiation phase to identify whether the innovation process is on the right path or in need of readjustment.

As success in the initiation and implementation phases is distinct, a separate analysis of success appears to be important. Indeed, this distinct analysis enables the researcher to investigate whether the innovation was generally accepted as being a good investment and whether the implementation gave the expected outcomes. Swanson and Ramiller (2004) had suggested that a mindful initiation would result in a mindful implementation. However, Paré and Trudel (2007) presented a case in which the initiation appeared to be mindful but was followed by a mindless implementation. Considering these inconsistent findings, understanding the impact of being mindful or mindless in either or both phases is of interest to better understand project success.

To validate the initiation phase success viewpoint, I examined two studies on academic publishing, which is similar to the innovation process, in which there was possible adoption or rejection of the publication (read: innovation) (Benbasat and Zmud, 2003; Whitworth and Friedman, 2009). According to these studies, the two successful options are, on the one hand, when the innovation is adopted and the stakeholders agree that it should be and, on the other hand, when the innovation is rejected and the stakeholders

agree that rejecting it was the right decision. However, there are also two options that are not considered to be a success. In this context, errors of wrong exclusion (option I) will occur when an innovation is rejected although it should have been adopted, thus creating missed opportunities. These errors of exclusion simply cannot be identified. Errors of omission, also known as errors of wrong inclusion, (option II) occur when an innovation is adopted but should have been rejected according to the vested stakeholders.

Thus, considering my research objectives and the literature on project success Table 1 presents the research innovation project success dimensions, which are based on Nelson's (2005), Shenhar *et al.*'s (2001), and Whitworth and Friedman's (2009) findings. The success dimensions are divided between process and outcome measures but also follow a chronological aspect to represent the distinction between the initiation phase and the implementation phase. As can be seen in Table 1, I have adapted Shenhar *et al.*'s (2001) success dimensions to include indicators of the initiation and implementation phases in the context of public hospitals.

Table 1 Research's innovation project success dimensions

Innovation process phase	Success dimension	Indicators – Success criteria
Initiation	Process - Project analysis and fit	<ul style="list-style-type: none"> Stakeholders' perception on fit and value Whether the project was adopted or not
Implementation	Process - Project management	<ul style="list-style-type: none"> Time Budget Product (Specifications)
Implementation	Outcome (Value) - Short term – User	<ul style="list-style-type: none"> Use Perceived value - Satisfaction
Implementation	Outcome (Value) - Long term – Organization	<ul style="list-style-type: none"> Perceived value - Reached projects objectives Learning

Based on Nelson (2005), Shenhar *et al.*, (2001) and Whitworth and Friedman (2009)

Dividing the concept of project success between outcome-based and process-based criteria allows the identification of successful failures and failed successes (Nelson, 2005). Successful failures occur when a project seems to be successful on the outcome-based measures of success but not in the process (i.e., time, budget, etc.). Failed successes occur when a project seems to be successful on the process-based measures of success but not in the outcome (i.e., use, value, etc.). These half-successes are common specifically when considering the multiple stakeholder perspectives. Indeed,

determining whether or not a project was successful throughout the various phases is not an easy task, for there are multiple perspectives on what can be considered project “success” (Cleland and Ireland, 2004; Glouberman and Mintzberg, 2001; Shenhar *et al.*, 2001; Tregunno *et al.*, 2004).

Thus, depending on the stakeholders, the innovation project success definition might differ. Indeed, there are many challenges in finding common goals between stakeholder groups that can lead to discrepancies between project success perceptions (Nelson and Jansen, 2009). According to Nelson’s (2005) study on success criteria,³ various stakeholders have different perspectives and display different relative priorities, as shown in Table 2 (1 being the most important and 6 being the least important).

Table 2 Varying stakeholder perspectives of success

Success Criteria	Stakeholder Groups					
	Project Manager	Team Members	Users	Sponsor	Top Management	Overall
Time	<u>1</u>	2	5	2	4	4
Product (specifications)	2	<u>1</u>	2	3	5	<u>1</u>
Cost	3	6	6	4	3	6
Value	4	5	3	<u>1</u>	<u>1</u>	3
Use	5	3	<u>1</u>	5	2	2
Learning	6	4	4	6	6	5
N=15 for all stakeholder groups						

Based on Nelson (2009)

Since each individual or group of people involved in projects often have different needs and expectations, it is unknott surprising that they interpret project success in their own way (Cleland and Ireland, 2004; Glouberman and Mintzberg, 2001; Nelson and Jansen, 2009; Shenhar *et al.*, 2001; Tregunno *et al.*, 2004). This is even more true in pluralistic organizations, such as hospitals, where the multiple stakeholder groups have conflicting needs and goals (Denis, Lamothe and Langley, 2001; Glouberman and Mintzberg, 2001). To achieve success an organization must be cautious, knowledgeable, and wary when conducting its activities. Anticipating and becoming aware of the unexpected,

³ Aggregating an equal weight for each stakeholder group.

including knowledge of the various stakeholder perspectives, impacts project success and is a sign of mindfulness.

23 Individual and organizational mindfulness

As noted in the introduction, Langer (1997) indicated that a mindful individual approaches any activity with sensitivity to different contexts, an implicit awareness of multiple perspectives, openness to novelty, alertness to distinction, and orientation in the present. Thus, mindful individuals avoid old ways of thinking, stay alert, and pay close attention to shifts in their environment (Fiol and O'Connor, 2003; Langer, 1989) in contrast to mindless individuals who are characterized by a less conscious state in which they tend to function habitually and automatically (Brown and Ryan, 2003).

Researchers extended the notion of individual mindfulness to study organizational mindfulness (Weick 1995; Weick *et al.*, 1999; Weick and Sutcliffe, 2007) since change and innovations often result in unexpected outcomes (Fichman, 2004; Fiol and O'Connor, 2003; Swanson and Ramiller, 2004). While individuals play an important role in organizations, individual mindfulness and organizational mindfulness are distinct concepts. Indeed, individual mindfulness focuses on the actions (or lack thereof) of each person and is relatively dynamic, while organizational mindfulness is an organizational attribute that is relatively stable and enduring and results from structures and practices implemented by top administrators (Vogus and Sutcliffe, 2012). Organizational mindfulness can be thought of as a desirable state that all organizations, and more importantly high reliability seeking organizations (Weick, 1995), should strive to achieve that makes them more skilled in managing unexpected circumstances in day-to-day operations. Moreover, these attributes were initially created for high reliability seeking organizations but have since been used to describe organizational mindfulness in various industries (Ray, Baker and Plowman, 2011; Swanson and Ramiller, 2004).

More specifically, Weick and collaborators (2007; 1999) identified five main attributes of organizational mindfulness based on Langer's individual mindfulness characteristics (shown in Table 3). These attributes represent a good point of departure to understand how an organization can accomplish a high level of contextually differentiated reasoning (Swanson and Ramiller, 2004). However, it is important to specify that Weick

and collaborators (2007; 1999) did not suggest that all these attributes, created to define organizational mindfulness, need to be present for an organization to mindfully organize, as the use of these attributes may vary depending on the innovation. Each of these attributes is briefly described in the following paragraphs.

Table 3 Weick and collaborators' (2007; 1999) five organizational mindfulness attributes

1. Desire to avoid failure
2. Unwillingness to simplify interpretations
3. Sensitivity to operations
4. Commitment to resilience
5. Reliance on expertise rather than formal authority

According to Weick and collaborators (2007; 1999), mindful organizations understand that long periods of success often hide new developing issues and are therefore wary of success. Being preoccupied with the possibility of failure and recognizing that small issues may conceal large failures ensures that organizations are always looking for errors and incongruences. Learning from these issues and near misses and readjusting demonstrate mindfulness in an organization. In this type of culture, people are inclined to report mistakes as they are immediately dealt with and people are not blamed for pointing them out. Normally, organizations that are preoccupied with failure (i.e., consequences) will have various systems, such as performance management systems or marketplace technology scans, to monitor the organization and the environment in order to pro-actively take corrective actions.

With respect to the second characteristic, the authors indicate that resisting simplification of information or interpretations (reluctance to simplify interpretations) may positively affect and reflect mindfulness. Nowadays, large volumes of data are available to organizations in order to make decisions and move forward. However, when considering a large volume of information, portions often need to be discarded or simplified. This practice is inevitable but dangerous, as it is possible to discard crucial information. Many organizations are not preoccupied with the unknown; however, pluralistic organizations (e.g., healthcare organisations) must make it their duty to discover and plan for the unknown. Mindful organizations should minimize this

simplification, challenge the status quo, take nothing for granted, and organize themselves in ways to process a maximum amount of information through technologies and workforce involvement. Having multidisciplinary committee meetings with members of various backgrounds and experiences on a regular basis could help in avoiding this type of simplification.

The third characteristic, sensitivity to operations, is linked to the frontline workers who need to be aware of the current state of operations (Weick and Sutcliffe, 2007; Weick, Sutcliffe and Obstfeld, 1999). This attribute entails that workers need to be familiar with operations beyond their own job in order to get a clear picture of the situation. These organizations normally attend vigilantly to small and seemingly insignificant details and changes in day-to-day operations before they become issues or failures. This sensitivity to operations enables them to understand what is happening and to speak up if changes or adjustments need to be completed.

The fourth characteristic, commitment to resilience, involves mindful organizations' being flexible and mobilizing themselves in special ways to deal with various events and crises. As it is impossible to prevent all issues and challenges, Swanson and Ramiller (2004) state that a mindful organization should favour improvisation over planning, adaptation over routine, and effectiveness over efficiency. The consequences of being committed to resilience permit them to respond to and recover from unexpected events. Indeed, resilience is the capacity for resisting, absorbing, and responding, even reinventing if required, in response to fast and/or disruptive change that cannot be avoided (McCann and Selsky, 2012). Elements such as contingency plans allow organizations to respond readily to unexpected events. However, Swanson and Ramiller (2004) specify that it is impossible to have contingency plans for all possibilities. Therefore, a flexible system permitting last minute changes and balancing between the quality, the cost, the time, as well as other metrics important to the process, are signs of mindfulness.

Finally, this flexible culture is also present in the fifth and last attribute, reliance on expertise rather than formal authority, as decisions should be made by the people with the greatest expertise or knowledge, which may differ from one situation to the next.

This expertise may vary from very specific, such as technical knowledge, to general, as such knowledge of the organization or its environment. Therefore, organizations that are mindful should be able to gather the appropriate organizational members to generate the required knowledge and foster learning. These networks must be able to rapidly build themselves in case of need and then dissolve as soon as normalcy returns.

In short, these mindfulness attributes have generated interesting insights into understanding organizational dynamics. However, recent developments in the extant literature reveal distinctions between organizational mindfulness, individual mindfulness, and mindfulness in the innovation process.

24 Mindfulness in the innovation process

Swanson and Ramiller (2004) applied and extended the concept of organizational mindfulness to the IT innovation process. They argued that a mindful project occurs when key actors attend to an IT innovation with reasoning grounded in its own organizational facts and specifics. Indeed, mindfulness involves discriminating choices that best fit a firm's unique circumstances, rather than familiar and known behaviours based on what others are doing (Fiol and O'Connor, 2003; Swanson and Ramiller, 2004). Mindfulness shapes an organization's capacity to learn and adapt (Swanson and Ramiller, 2004; Weick *et al.*, 1999; Weick and Putnam, 2006; Weick and Sutcliffe, 2007) and has recently been shown to enable readiness to change (Gärtner, 2013), thus increasing the probability of a successful innovation process.

In seeking to develop the concept of mindfulness in the innovation process, Swanson and Ramiller (2004) based their studies on Weick and collaborators' (1999; 2001) five attributes of organizational mindfulness to explain how to accomplish this kind of contextually differentiated reasoning. According to them, being mindful in the innovation process would support organizations in making sound judgements about whether or not to adopt an innovation and when, by whom, and how best to manage the innovation process. However, as previously stated, they prompted this specific area of research but did not supply a complete conceptualization of mindfulness in the innovation process or compare this concept with organizational mindfulness. Trudel *et al.* (2012) investigated organizational mindfulness in innovation processes through

contrasting case studies on health IT projects. Their findings showed that a consequence of being mindful was the likelihood of making sound judgments throughout the innovation process, which, in turn, increased project success (Trudel, Paré and Laflamme, 2012).

Although having been shown to increase project success, organizational mindfulness is still a difficult concept to grasp. What does it mean to say an organization “pays attention to [...]” or “is preoccupied with [...]”? These statements appear vague because organizations consist of people functioning in different contexts and various roles, and these differing roles often provide a unique perceptual lens (Ray *et al.*, 2011). Also, these statements may appear ambiguous, as it is not clear if those who make them are referring to the organization as a whole, a specific department, or an individual. Accordingly, following several studies on organizational mindfulness, Weick and Sutcliffe (2006) identified issues in levels of analysis (i.e., organization, system, position, etc.). However, they concluded that the fundamental processes involved in reliable performance, referring to the five organizational mindfulness attributes, are indigenous to all levels of analysis, meaning that their attributes were applicable whether for an organization or a project within the organization.

Ray and collaborators (2011) pushed Weick and collaborator’s analysis further and refined the concept of organizational mindfulness in their study conducted in the context of business schools. They proposed that organizations are collections of individuals and groups that may act collectively but may also differ from each other in their goals and objectives, as well as on how they process information, create knowledge, and learn (Ray *et al.*, 2011). They distinguished the concept, stating that there is organizational mindfulness, as organizations may act collectively, and mindful ways of organizing when individuals or groups within the organization act independently. According to them, organizational mindfulness is characterized as collective, strategic, top-down, and enduring. Mindful ways of organizing relate to events conducted by individuals or groups of individuals in the organization that are linked to operational events (Ray *et al.*, 2011).

Vogus and Sutcliffe (2012) recognized the value in Ray and collaborator's (2011) study distinguishing organizational mindfulness from mindful organizing. They retrospectively analyzed their past studies and identified that some focused on organizational mindfulness while others focused on mindful organizing, observing that the same mindfulness attributes could be used to evaluate both concepts. According to them, organizational mindfulness is an organizational attribute that is relatively stable and enduring and results in practices implemented by upper management. They specify that research on mindful organizing makes three different claims (Vogus and Sutcliffe, 2007; Weick and Sutcliffe, 2007). First, mindful organizing results from bottom-up processes, meaning specific events lived by front line workers. Second, it enacts the context for thinking and action of individuals on the front line. Mindful organizing is a social process that becomes collective through the actions and interactions among individuals (Morgeson and Hofmann, 1999). Finally, mindful organizing is a dynamic concept that needs to be continuously reviewed (Vogus and Sutcliffe, 2012), as the reality and contexts change with time. Thus, mindful organizing and the perception of it are more likely to emerge as shared within a department or project team. By contrast, fragmented and divergent perceptions provide strong evidence of low levels of mindful organizing (Vogus and Sutcliffe, 2007).

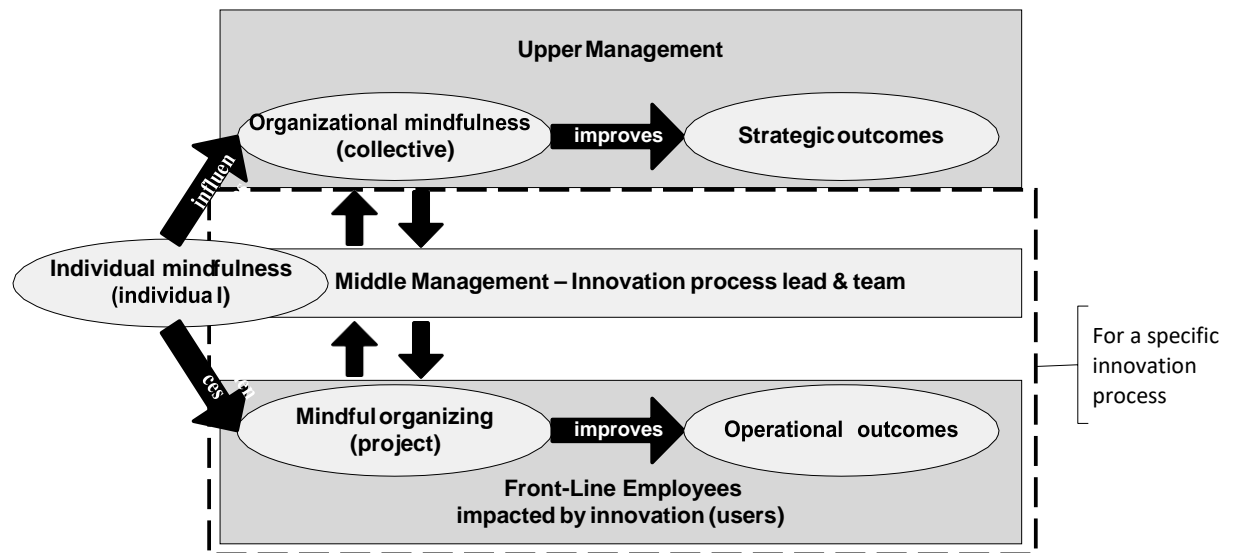
While Vogus and Sutcliffe (2012) provide distinctive definitions of organizational mindfulness and mindful organizing, they state that the same mindfulness attributes can be used to evaluate both. I question how these mindfulness attributes could be used to assess such different units of analysis ranging from individuals, an innovation process (operational), and an organization (strategic).

In their most recent article on mindfulness, Sutcliffe, Vogus and Dane (2016) conducted an extensive review on the current state of mindfulness research. Interestingly, they reference research that brings forward the concept of mindful organizing (Ray, Baker and Plowman, 2011); however, this new distinction between organizational mindfulness and mindful organizing is not alluded to in their extensive review (Sutcliffe, Vogus and Dane, 2016). This is even more curious, as Vogus and Sutcliffe, two of the three authors in this recent literature review, published "Organizational mindfulness and mindful organizing: a reconciliation and path forward" in 2012, which recognized the new

distinction between organizational mindfulness and mindful organizing (Vogus and Sutcliffe, 2012).

Thus, using Vogus and Sutcliffe's (2012) understanding of the mindfulness concepts, Figure 5 represents the link between organizational mindfulness, individual mindfulness, and mindful organizing. As shown below, organizational mindfulness normally issues from events conducted by upper management, then is synchronized across levels by middle managers (bridging organizational mindfulness and mindful organizing), and finally is translated into action by the frontline employees to be transformed into mindful organizing (Rerup, 2009; Ocasio, 2011; Vogus and Sutcliffe, 2012). Professionals, such as middle managers, act as the bridge by reconciling the need for anticipation and careful causal analysis with the need for flexibility and improvisation in the face of unexpected change (Roe and Schulman, 2008; Vogus and Sutcliffe, 2012). Thus, their individual mindfulness has a direct impact on their ability to influence organizational mindfulness and translate their actions into mindful organizing. Vogus and Sutcliffe (2012) proposed that organizational mindfulness could improve strategic outcomes and that mindful organizing could improve operational outcomes. Recently, the link between mindful organizing and positive operational performance, proposed by Vogus and Sutcliffe (2012), was validated through an empirical study (Su, 2017).

Figure 5 Individual mindfulness, organizational mindfulness, and mindful organizing



Adapted from Vogus and Sutcliffe (2012)

Organizational mindfulness, individual mindfulness, and mindful organizing all have important roles in organizations’ success and performance. Articulating the theoretical nuances of these three conceptualizations (as shown in Table 4) clarifies how different groups in the organizational hierarchy contribute to mindfulness. Depending on the need, one might put more emphasis on organizational mindfulness such as the annual review of a department strategy, individual mindfulness of a particular decision maker, or mindful organizing in the context of a specific innovation process.

Table 4 Individual mindfulness, organizational mindfulness, and mindful organizing

Concepts	Descriptors
Individual Mindfulness	Used to analyze: An individual Focused on: Personal/Individual attributes Considers: Personal context, needs and is alert/aware
Organizational Mindfulness	Used to analyze: An organization, large groups of people/ collective actions Focused on: Strategic decisions Considers: Overall context, culture, its various stakeholders, and is alert/aware
Mindful Organizing:	Used to analyze: A process, a project, a department, a project team Focused on: Operational decisions Considers: Specific context, the involved stakeholders, and is alert to/aware of the ongoing process

As individual mindfulness and organizational mindfulness have already generated an important volume of research, the present aim is to characterize mindful organizing, a

relatively new concept. However, as shown in Figure 5, mindful organizing is closely linked to individual mindfulness and to organizational mindfulness. Indeed, middle managers have the difficult task of synchronizing upper management's strategy with frontline employees' operations; and each middle manager's individual mindfulness may influence the outcomes. Consequently, this empirical investigation may also refer to the influence of individual and organizational mindfulness because of their tight links to the core concept of mindful organizing.

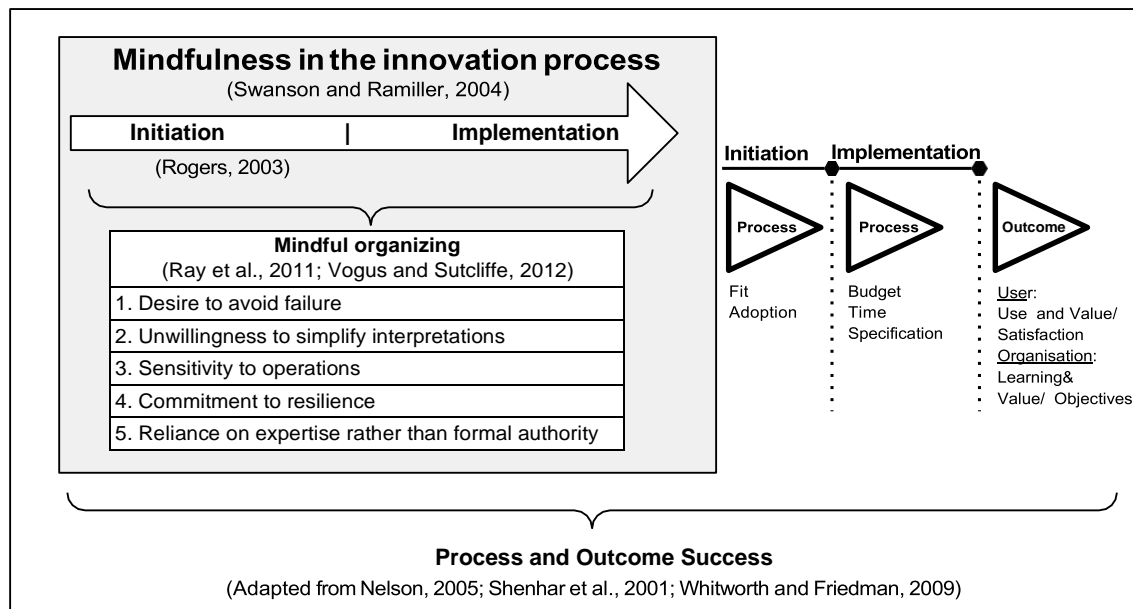
Organizations, such as hospitals, normally have dense hierarchical structures and multiple stakeholder groups. Moreover, these multiple stakeholder groups often have different subcultures, each of which subscribes to different systems of meaning, creating even more complexity (Trice, 1993). Depending on their role and context, decision makers often have different perceptions of mindfulness (Ray, Baker and Plowman, 2011; Teo *et al.*, 2011). Accordingly, Teo *et al.* (2011) found that considering both internal and external stakeholders, who are likely to have different reactions to the same technology, through organizational routines was a sign of mindfulness. This is even more true in healthcare organizations, where various stakeholder groups evolve in different worlds (Glouberman and Mintzberg, 2001). Consequently, when innovating, healthcare organizations should encourage information sharing, alertness, and training and respond quickly to unexpected events (Swanson and Ramiller, 2004; Teo *et al.*, 2011). Considering these various organizational realities is key to mindfully organize in the innovation process.

25 Structuring the present approach: A conceptual framework

The creation and use of a conceptual framework contributes to structuring and orienting theoretical validation and extension research (Eisenhardt, 1989). An important characteristic of theory validation and extension research is to identify a priori constructs, such as those presented in Figure 6. This figure is the first effort in making theoretical statements (Miles, Huberman and Bonniol, 2003). However, even though the identification of possible constructs is helpful, no construct is guaranteed a place in the resultant theory, no matter how well it is presented (Eisenhardt, 1989; Paré, 2004). The development of this framework was important as it helped to represent the map of the

territory being investigated by showing the main concepts, the boundaries, the relations, and the coherence of the proposed research (Yin, 2003; Stake, 1994). In a similar fashion, Miles and Huberman (1994, p. 18) indicated the value of using a conceptual framework as a visual product that “explains, either graphically or in narrative form, the main things to be studied [...] the key factors, concepts, or variables [...] and the presumed relationships among them.”

Figure 6 Initial conceptual framework: Mindfulness in the innovation process



As presented in Figure 6, a process model was developed to explore and identify the critical episodes and encounters within the innovation process following a chronological order (Robey and Newman, 1992). Accordingly, Rogers’ (2003) innovation process model was integrated into this conceptual framework, offering a sound conceptual basis to gather and structure the actual initiation and implementation processes. Also, it is of prime importance to analyze the events that lead a process towards high levels of innovation success, project failure, or somewhere in between in order to better understand the outcomes of the various episodes and encounters and ultimately to promote success. Consequently, on the basis of various conceptualizations of project success (Nelson, 2005; Shenhar *et al.*, 2001; Whitworth and Friedman, 2009), the concept of success at different points in time was integrated by using both process and outcome measures that permitted the analysis of success after both the initiation and the implementation phases.

As this research seeks to further characterize mindful organizing, Weick and collaborators' (2001; 1999) five mindfulness attributes as proposed by Vogus and Sutcliffe (2012) are used. Thus, as previously specified, this conceptual framework is a mere starting point in the quest to explore and understand mindful organizing and its influence on innovation processes' success in healthcare organizations. It will not provide knowledge on "hard facts", but rather "soft interpretation of intentions" that will allow flexibility in the research process (Levering, 2002, p. 38).

Chapter 3. METHODOLOGY

This chapter presents the methodological aspects related to the following research questions previously stated in this thesis:

What characterizes mindful (or mindless) organizing when introducing and implementing management innovations in healthcare organizations?

To what extent is mindful (or mindless) organizing associated with innovation process success in healthcare organizations?

First, the epistemological position that is adopted is presented and then the more practical aspects, namely, the research strategy and methods, the study design, the case study selection, and finally the data analysis structure.

3.1 Research philosophy and approach

The philosophical assumptions underlying this research come from the positivist tradition. This implies an objective epistemology and the ontological belief that there is an observable objective reality waiting to be found. In seeking to validate and extend theory about mindful organizing in the particular context of management innovation process in healthcare organizations, the research approach is partially inductive as observations are used to find patterns and, ultimately, suggest a set of research propositions. An inductive approach seems the most appropriate since this research seeks to obtain a broad understanding of the research context and gain an in-depth understanding of the influence of key events on the innovation process.

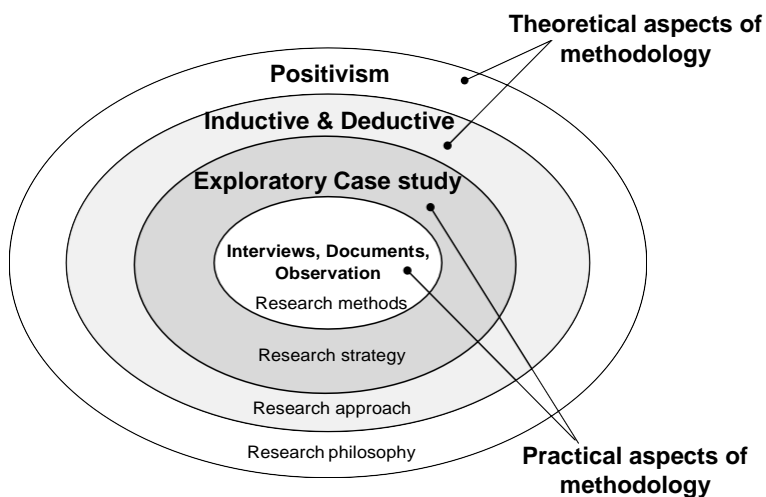
However, the approach is not fully inductive since the conceptual framework developed in the previous chapter will guide the field work and data analysis. This approach provides a flexible structure to collect and analyze data as the research progresses. Typically, quantitative methods are used in positivist research. However, when seeking to validate and extend theory, positivist researchers commonly use qualitative methods to develop propositions. The choice for a specific qualitative research method is independent of the underlying philosophical position adopted. For example, case study research can be positivist (Yin, 2002), interpretive (Walsham, 1993), or critical, just as

action research can be positivist (Clark, 1972), interpretive (Elden and Chisholm, 1993) or critical (Carr and Kemmis, 1986).

The particular research strategy that was adopted in this thesis is a multiple exploratory case study. Proponents of this strategy identify the main potential of case study as its capacity to validate and extend theory from empirical data. Eisenhardt (1989), the methodological authority most closely associated with this position, clearly grounds her defence of the case study's inductive strengths in a "positivist view" of science (Eisenhardt, 1989; Eisenhardt and Graebner, 2007).

The present research's philosophy, approach, strategy, and methods can be represented by the "research onion: (Saunders, 2006) in Figure 7 and are further described in the following sections.

Figure 7 My research onion (philosophy, approach, strategy, and methods)



Adapted from Saunders (2006)

32 Research strategy

As a research strategy, case study methods "involve systematically gathering enough information about a particular person, social setting, event, or group to permit the researcher to effectively understand how it operates or functions" (Berg, 2004: 225). Accordingly, this qualitative research approach oriented towards gaining a holistic understanding of the innovation process appears to be aligned with the adopted epistemological view. Several reasons support the use of a case study approach in this thesis.

First, the study is exploratory in nature and there has been little research on mindful organizing. By its nature, case study research gives the researcher flexibility to respond to the evolving understanding of mindfulness. Not all aspects of the design can be managed or controlled by the researcher as the information gathered and the researcher herself are subject to development and change (Yin, 2003). Accordingly, the conceptual framework allows such flexibility. Thus, when theory is still in the exploratory phase, qualitative research methods, such as case studies, are recommended (Eisenhardt, 1989).

Second, case research has been recognized as being particularly appropriate for examining “why”, “how”, and “what” questions, when exploratory in nature, permitting a relatively full understanding of a complex phenomenon (Meredith, 1998; Yin, 2003). Such questions can lead both to theory testing, but more importantly to theory validation and extension. In theoretical validation and extension research, no matter how inductive the approach is, a view of the general constructs and their relationships is recommended. This approach explains the creation of the conceptual framework in the previous chapter. Indeed, the framework graphically describes the main concepts and relationships and clearly delineates the research boundaries to better understand what is to be considered part of the case study (Yin, 2003).

Third, case study research enables the holistic study of complex phenomena. A complex phenomenon, as an intense and radical set of changes brought about by an innovation in a healthcare organization, cannot be meaningfully reduced to a few elements and relationships. In this context, the researcher’s task normally consists of describing situations, experiences, and meanings through various perspectives before developing and/or testing more general theories and explanations. I agree with Paré and Elam (1997), who argue that case study research makes the capture and understanding of context possible and can be used to achieve a variety of research aims using diverse data collection methods. Case studies permit the examination of data within its context of use (Meredith, 1998; Yin, 2003). This in turn produces qualitative accounts used not only to explore or describe the data in a real-life environment, but also to explain the complexities of real life situations that may not be captured through experimental or survey research.

Finally, case studies are recommended for process research because data tends to be dense and eclectic (Langley, 1999). Indeed, case studies permit the researcher to gather events structuring the study of social processes and to present how things evolve over time (Mohr, 1982; Van de Ven and Poole, 2005). Generally speaking, process research partially explains how independent variables (e.g., the context, antecedents, etc.) shape the evolution of a process and, in turn, how the process influences the dependent variables (e.g., outcomes, effects, or impacts) (Langley, 1999). Thus, process research offers greater flexibility, including the possibility of including social antecedents and contextual factors, such as past projects and their influence on new projects, to grasp the attitudes towards change and potentially influence the innovation process (Aydin and Rice, 1991; Fleuren, Wiefferink and Paulussen, 2004; Klein and Knight, 2005; Meyer and Goes, 1988). Moreover, according to Kling (1987) and Markus and Robey (1988), process models provide a more faithful account of what really happens during projects. This observation is made in comparison to the stage-gate model⁴ which is known to restrict the details of events and assumes that the stages always occur in the same order irrespective of the organization and transformation project involved (Sabherwal and Robey, 1995).

Events within the innovation process are defined as temporally specific outcomes of performed acts by human actors that the actors themselves discern and perceive as influential (Hedaa and Törnroos, 2008; Newman and Robey, 1992; Rogers, 2003). In spite of the apparent temporal precision indicated by the word "event," there are different levels of events, such as a bad year, a merger, a decision, a meeting, a conversation, or a handshake. It has to be noted that events of nature (e.g., hurricanes, droughts, earthquakes) are understood as being distinct while potentially having an influence on events achieved by an actor or group of actors in business processes (Hedaa and Törnroos, 2008).

Robey and Newman (1992) further articulated the notion of events in process models as a consequence of their research on user-analyst relationships in the context of

⁴ The stage-gate model, introduced by Cooper (1968), normally has distinctive and orderly phases. When using this model, the next phase can only start if the project complies with the entire requirements of the prior phase.

information system development. They separated events between episodes, referring to a set of activities over a longer period that typically stands apart from the others, and encounters, marking the beginning and the end of these episodes. Their findings showed that by representing antecedent conditions, events (episodes and encounters), and outcomes over the course of a project, researchers may more easily identify important events, diagnose problems, and study connections between preceding events and their consequences (i.e., mindfulness). This distinction is based on the theory of punctuated equilibrium, which treats change as an “alternation between long periods when stable infrastructures permit only incremental adaptations” (episodes) and “brief periods of revolutionary upheaval” (encounters) (Gersick, 1991). Many researchers have used methods similar to Robey and Newman’s (1992) by identifying critical events as encounters and a group of events as episodes⁵ or phases (Elo, Halinen and Törnroos, 2010; Rogers, 2003; Singh *et al.*, 2010). Thus, I used Rogers’ process model (2003), presented in the literature review, to represent and position the various events (i.e., episodes and encounters) associated with the innovation process.

33 Case selection: Alpha, Beta, and Gamma

This section describes my case selection process and briefly introduces each case. Qualitative researchers often build a sample of cases by selecting them according to different characteristics (Eisenhardt, 1989; Patton, 1990; Miles and Huberman, 2003; Yin, 2003). This is often referred to as “purposive” or “purposeful” sampling (Patton, 1990; Miles and Huberman, 2003).

The “purposeful” sampling in this research aimed for “information rich” cases. The first inclusion criterion was an innovation that created relatively important changes in organizational processes and affected multiple stakeholders. Three other inclusion criteria were considered: the innovation had to be implemented in a hospital setting; it had to be a management innovation (e.g., software, process, equipment, etc.); and the implementation process had to be completed (ideally) or sufficiently advanced. Ultimately, three innovation processes that satisfied the abovementioned criteria were identified by the researcher with the help of her co-supervisors.

⁵ As episodes represent a group of events, it is possible that an encounter may be part of an episode.

The field work was conducted in three distinct Canadian hospital settings between January 2011 and January 2012. Three data collection techniques or tools were used: semi-structured interviews, observation, and documentation. Data about each innovation process was gathered retrospectively. Table 5 shows the general profile of each case. It should be noted that the three hospitals had a variable number of sites (locations) and they all incurred a deficit in their 2010-2011 fiscal year. Beta hospital was affiliated with a university but was not a teaching hospital per se, which explains the lower numbers of surgeries, doctors, and employees. According to the Canadian Institute for Health Information all three sites were considered to be large hospitals.

Table 5 Selected hospitals

	Alpha (2010-2011)	Beta (2010-2011)	Gamma (2010-2011)
Selected project	Prescription medication carts	Centralized transportation system	Bed management system
Timeline	August and September 2011	January and February 2011	September 2011 December 2011 and January 2012
Number of beds	Approximately 700	Approximately 600	Approximately 1000
Number of employees	5,915	4,000	8,275
Number of active doctors	569	366	809
Number of surgeries per year	26,478	13,094	32,318
Number of hospitalizations per year	31,735	22,000	30,713
Teaching hospital	Yes	Affiliated	Yes
Yearly operational budget	\$362,032,000	\$322,489,070	\$758,603,937

Source: Annual reports from each hospital for 2010-2011

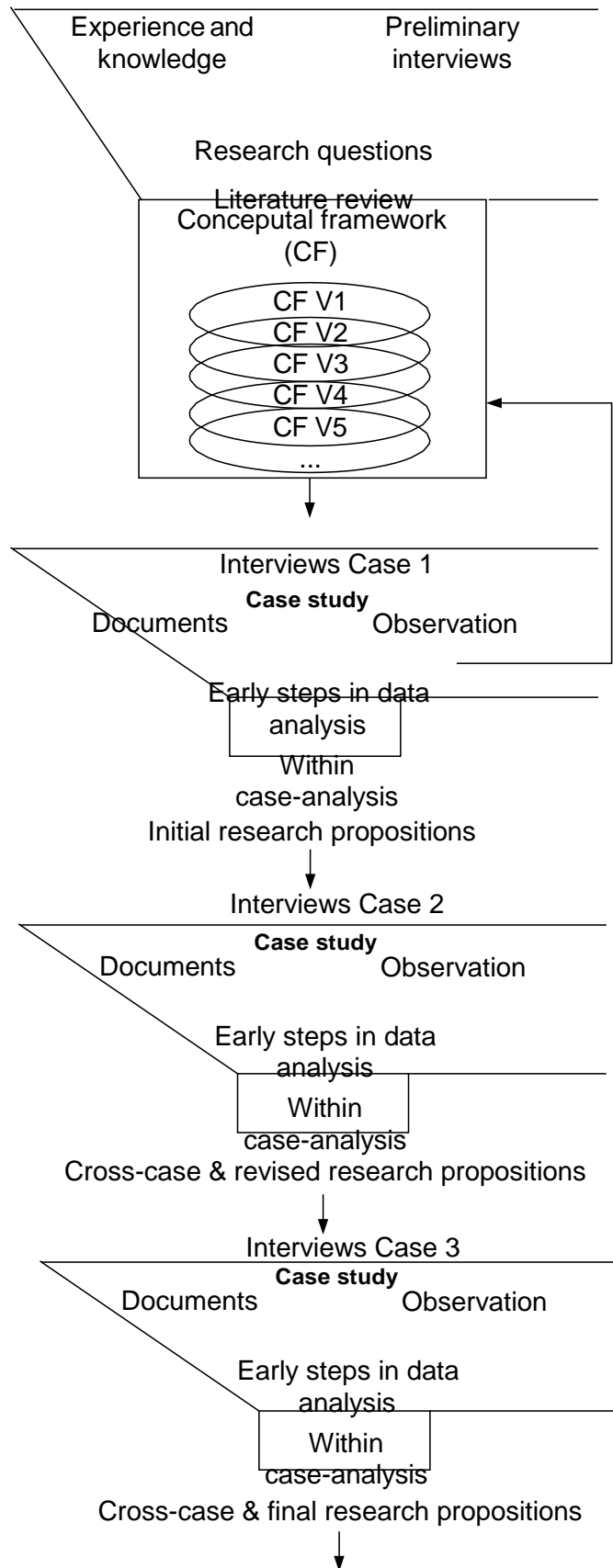
At Alpha hospital the implementation of medication carts that are used by nurses to distribute prescription drugs to patients on the wards was investigated. At Beta hospital the deployment of a centralized patient transportation system was studied. Lastly, at Gamma hospital the implementation of a bed management system on one of its campuses was examined. Contrary to the first two case studies, in which the data collection started once the implementation had been completed, the third case provided the opportunity to conduct interviews prior to innovation implementation as well as after its deployment.

34 Study design

The study design for the exploratory case study is presented in Figure 8. This figure reveals the logical progression of the research project from the preliminary activities that initiated the study, to the development of the conceptual framework, the data collection, the analysis, the refinement of the conceptual framework, and, ultimately, to the development of a set of research propositions.

The preliminary activities that initiated the study were a combination of past experience and discussions with academic specialists. Prior to embarking on my doctoral studies, I had been involved in the deployment and implementation of several innovations in healthcare organizations that, too often, did not produce the expected outcomes. Questions linked to the reasons why some innovation-based projects were successful while others were complete failures had yet to be answered. This “real life” problem sparked dialogues with IT and operation management academics who helped transpose these issues into scientific terms. Following these fruitful exchanges, a set of research questions emerged; and a literature review on the key concepts and notions of innovation, mindfulness, and project success was done. Using the literature review, I then built a conceptual framework for guidance during the data collection process.

Figure 8 Study design



Conclusion

As presented above, I then started the data collection process within the three case studies, which are further described in the following section. The data collection process for each case consisted of semi-structured interviews, observations, and the collection of various documents. Following the production of the transcript, I presented the preliminary conclusions and proceeded with the creation of the case study “story” in which the names of the organizations and people were made anonymous. After these early stages in data analysis, a detailed within-case analysis was completed for each case using my conceptual framework for guidance and ATLAS/TI to illustrate the various concepts.

As suggested by Eisenhardt (1989), following the analysis of the first case study, I proposed a series of research propositions. During the analysis of the second case study I analyzed the findings and revised the research propositions. Finally, building on the findings of the previous cases, the research propositions were finalized following the third case study analysis. A final analysis was then completed across the various cases presenting my conclusions and identifying limitations and possible future research.

3.5 Data collection methods

Data-gathering methods used in process research are typically less structured and more qualitative in nature (Van de Ven, 1992; Van de Ven and Poole, 2005). Therefore, multiple sources of evidence along with several data collection techniques (e.g., interviews, observations, etc.) were used to improve the quality of the data and research findings (Patton, 1990). Accordingly, I collected data using various research methods, namely, semi-structured interviews, documentation, and observation. Moreover, I questioned multiple stakeholders about the same innovation process and the same events to gather multiple perspectives and achieve some level of data triangulation.

For each case study, the primary source of information was semi-structured interviews with the key stakeholders involved in the project team as well as with the change targets (i.e., users). Interviews provided a way of collecting information and finding out about things I could not directly observe (Patton, 1990). These semi-structured interviews also allowed me to be flexible and responsive to unexpected paths and discoveries during the data collection process (Patton, 1990). To structure my approach, interview guides,

presented in the Appendix, were used with all the respondents. The interview guides were flexible in their use, as the goal was for each participant to tell his or her “story” of the innovation process. To maximize the value of each interview, the guide was also used as a tool to verify if the discussion had covered the areas of interest. If some areas had not been covered, the guide included questions to assist the researcher in gathering the desired information. It is important to specify that the guide was slightly adapted for each stakeholder group (i.e., users and innovation process team). Also, some respondents could answer only specific portions of the guide; this was normal as only a few stakeholders were involved in all aspects throughout the innovation process.

Interviews were conducted at each site until saturation was reached (Paré, 2004). During the initial interview with the project manager a list of potential respondents was developed. Occasionally, interviewees suggested other potential candidates for interviews. The first two case studies, Beta and Alpha, were retrospective in nature, while in the third one, Gamma, interviews were conducted prior to and after the deployment of the innovation. Thus, as shown in Table 6, the number of interview minutes for Gamma is significantly higher. During the data collection process, various documents were shared, including information on the innovation itself, the selection process, the implementation process, the training material, and communication materials. Finally, observations of the innovation took place at each site. Even if the observations were not meant to collect large sets of data, they allowed me to see the “reality” as the respondents saw it and to capture the phenomenon in its context.

Table 6 summarizes the number of interviews, documents, and observations during the multiple case study. All 67 audio files were transcribed, representing approximately 42 hours and 1,516 pages of verbatim. At each hospital, the observations consisted of a site visit including a step-by-step description of the new process linked to the studied innovation; further details are provided in Table 6.

Table 6 Innovation processes data collection summary

	Alpha hospital	Beta hospital	Gamma hospital
Innovation project	Medication distribution carts	Centralized patient transportation system	Bed management system
Stakeholder groups involved	Pharmacy department, Nurses from various units, Logistics and Transportation department, Quality department, Engineering department	Nursing auxiliaries from various units, Head nurses from various units, Management, Human resources department, Technology specialist (External), Patient transportation department, Logistics department	Nurses from various units (medical and surgical), Administrative staff from various units, Admissions department, Cleaning services department, Human resources department, Technology supplier (External), Technology specialist (Internal), Doctor
Semi-structured Interviews / total	17 interviews/ 614 minutes	14 interviews/ 686 minutes	37 interviews/ 1200 minutes
Documentation	17 documents	25 documents	14 documents
Observations total /	1 visit General hospital visit, Demonstration of the medication cart, Filling of the medication cart at the Pharmacy, Use of the medication cart in a ward.	2 visits General hospital visit, Demonstration of transportation requests (phone), Visualize transportation request management (software), Observe transportation auxiliaries doing transport.	2 visits General hospital visit, Demonstration of the software. Observation of the various information screens in the units and at admissions. Attendance at a daily bed management meeting.

In short, the use of multiple sources of evidence along with several data collection tools contributed to clarifying the meaning and verifying the repeatability of the interpretation (Stake, 2000). Data triangulation improved my understanding and enhanced the validity of the findings. For example, collecting information on the same innovation process by means of interviews with multiple respondents in each stakeholder group permitted gathering and validating information. Documentation linked to the same innovation process also permitted validating and expanding information on the project. Finally, observations and online research resulted in further understanding of the innovation and its effects.

3.6 Data analysis

Qualitative research tends to produce large amounts of data that are not readily amenable to analysis (Yin, 1994). Indeed, analyzing qualitative data generated through case studies is considered by some the most difficult part of the research process (Yin,

1994; Eisenhardt, 1989). Various methodologies are used to make sense of and structure the analysis of the collected data. In order to structure the data analysis process, I followed Paré's (2004) steps for analyzing data in positivist case studies. Inspired by the work of Miles, Huberman and Bonniol (2003), Paré (2004) divided data analysis into three distinct stages: "Early Steps in Data Analysis," "Within-Case Analysis", and "Cross-Case Analysis".

Early steps in the data analysis consisted in the validation of the coding scheme and the writing of the case narrative. Afterwards, for the within-case analysis, I analyzed the data associated with each case using my conceptual framework as a guide. As mentioned earlier, the cases were analyzed sequentially; and, hence, adjustments to the conceptual framework and data collection tools were made as I saw fit. Indeed, a key feature of this case research is the freedom to make adjustments if necessary during the data collection and data analysis process (Paré and Elam, 1997). Finally, the third and last step was a cross-case analysis, when possible, after each case to identify similarities and differences between the cases. Thus, in the second and third case analyses I included conclusions from the previous case study analysis to further build and develop the concept of mindful organizing.

3.6.1 Early Steps in Data Analysis

Paré (2004) proposed various methods to increase data richness in the early stages of data analysis. This stage normally focuses on readjusting data collection techniques, in developing categories, and a first identification of key case study evidence (Paré, 2004). Interpretations of the evidence found in this stage are mainly completed during the within-case analysis. Some methods proposed to support case researchers during the preliminary steps of the analysis are the development of a case study database (including field notes, reflective documents, and transcriptions), the writing of a case narrative and the coding (including the creation of a coding scheme and its use to code transcriptions) (Yin, 2003).

During the interviews I took field notes that gave me additional information on the context and links between the various participants' arguments. Moreover, by frequently reviewing the field notes I was able to identify conflicting statements and important

events. I adjusted the interview guide, making it more flexible so that the participants could tell their story. I also changed the sequence of questions in the semi-structured questionnaire, as the participants wanted to talk about the core innovation process prior to the other questions. These techniques helped me adjust my data collection tools and methods during the field work to enhance data richness.

The documents gathered during each case study were analyzed to determine their use and importance for the research, as some respondents provided a very large number of documents. I established a file for primary and secondary documents. Again, the main objective was to make the documents readily retrievable for later inspection. On the occasions when the documents were relevant to specific interviews, a cross-reference was included (Yin, 2003).

After the data had been collected, the interviews were transcribed. Transcriptions of the first case were completed by the researcher. Transcriptions for the second and third case were subcontracted to a skilled professional. Once the transcriptions were completed, a narrative of each case was prepared using documents, field notes, observations, and transcriptions. This type of narrative strategy involved the construction of a storyline based on the raw data incorporating excerpts (translated from French to English). In fact, almost all process type research includes a narrative strategy at some point because it is considered a preliminary step aimed at preparing a chronology for subsequent analysis. It is essentially a data organization method that can also serve as a validation tool (Langley, 1999). For each case, I interviewed users (frontline employees) and the team (middle management). According to Vogus and Sutcliffe's (2012) conceptualization, these stakeholder groups are key in understanding mindful organizing. The users, or frontline workers, were those whose activities had been directly impacted by the innovation. The team included middle management and other ad-hoc specialists involved in different portions of the process, including knowledgeable users, technology representatives, and others. Upper management representatives were also interviewed to better understand the envisioned strategy (organizational mindfulness) underlying the innovation process. Overall, these respondent groups enabled me to circumscribe middle management's and frontline employees' perspectives on the innovation process, thus facilitating my analysis.

Another method that was useful during the early stages of the data analysis was the creation of the coding scheme to be used in conjunction with the ATLAS TI software. This coding scheme ensured that the gathered elements were linked to the context, the innovation process, and the project success. As previously described, I sought to identify and extract the key events, including the critical episodes and encounters that led towards mindfulness or mindlessness in the innovation process.

This approach is similar to the one used by Paré and Elam (1997) in their study on the dynamics of clinical information systems implementation in US hospitals. The initial codes were aligned with my conceptual framework and new codes emerged during the later stages of the analysis process. This helped me visualize the categories and links between the codes. To increase objectivity and reliability, a detailed definition of each code, based on the conceptual framework, was completed prior to the actual coding process. As presented in Table 7, the initial codes included context, whether the selected event was viewed as having a positive or negative influence by the respondents, whether the selected event took place during the initiation or implementation, and finally to identify quotes linked to the success of the innovation process. Initiation and implementation phase codes were used to identify episodes and encounters that had an influence on the project's outcome. Lastly, the context and success codes were used to identify short to medium length text passages to permit condensation of the appropriate information to delineate the case's initial conditions and the overall success.

Table 7 Initial coding scheme

Codes	Description
Context	Including information on the environment (changes, threats and opportunities external to the organization), the innovation attributes (such as the degree of novelty, the level of radicalness, and the relative cost), the organization (such as organizational size, organizational structure, etc.) and the users (such as experience/knowledge, turnover, ownership/involvement, and capacity) (Meyers and Goes, 1988).
Success	Including information on process, such as if the project was on schedule, if it was on budget, and if it delivered the desired specifications. Also, the processes' outcomes, including the value for customers and the value for the organization. (Nelson, 2005; Shenhar <i>et al.</i> , 2001; Whitworth and Friedman, 2009).
Initiation Phase	The initiation phase consists of the agenda setting and the matching steps that cover the information gathering, planning, and evaluating that lead to the decision to invest or not to invest in the innovation (Rogers, 2003).
Implementation Phase	The implementation phase groups the redefining and restructuring, the clarifying and the routinizing steps that comprise the actions and decisions put in place before, during ("go live"), and after the implementation (Rogers, 2003).
Events with positive or negative influence	Events are episodes or encounters (Newman and Robey, 1992) that had a positive or negative influence on the outcome.

3.6.2 Within-Case Analysis

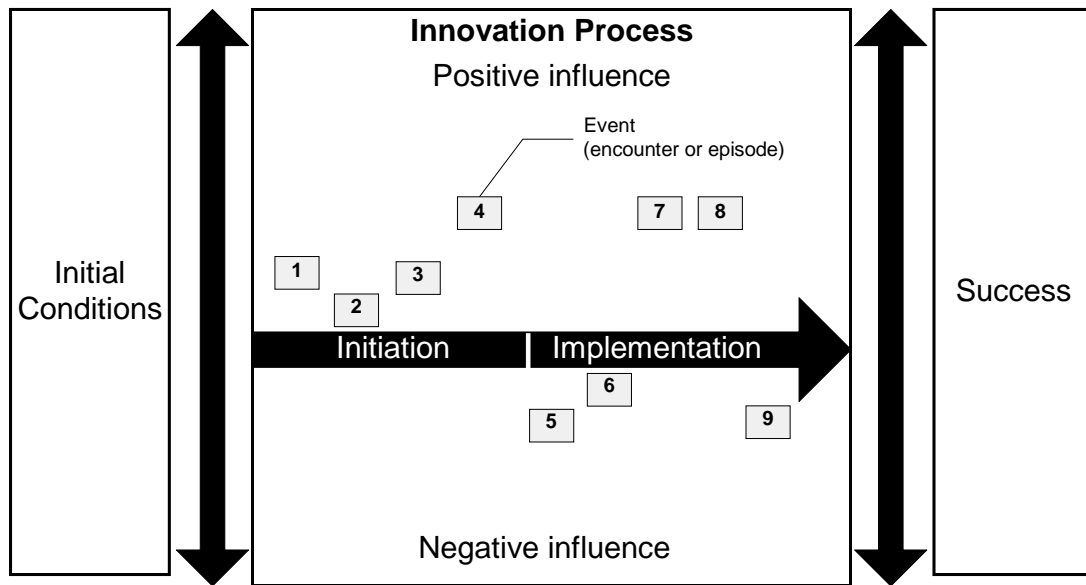
Following Paré (2004), I used a within-case analysis as the second stage in the data analysis process. This stage is key in validating and extending theory through the use of various analytical techniques such as a dominant mode of data analysis and visual data displays to guide the decision regarding what will be analyzed and for what reason.

Thus, the analytic strategy selected in my exploratory case study process research was explanation-building, also considered a form of pattern-matching, because it is aligned with my research approach. This analytic strategy, normally used in explanatory case studies, is also possible for exploratory cases, as Paré and Elam (1997) show in their exploratory study on the dynamics of system implementation processes in hospitals. I sought to use a similar method employing a conceptual framework followed by the development of a case description and including a logical chain of evidence based on sufficient transcription quotes (Yin, 2003). This method enables the researcher to understand the "how" and "why" associated with each innovation process while providing answers to the research questions.

Explanation building appeared suitable because my research approach was both deductive and inductive. Thus, it was essential to analyze each case study individually, starting with the actual success of the innovation process, in order to identify the influential events. Adopting Langley and collaborators' (2003) view of process research and Newman and Robey's (1992) definition of events, I separated the events between encounters and episodes in a longitudinal manner. Before conducting the mindfulness analysis, I analyzed the context, including the environment, the organization, the people, and the innovation itself to paint a complete picture of the elements that could potentially influence the innovation process.

To make sense of the large volume of data, the analysis was facilitated by visual data displays, another method proposed by Paré (2004). Displaying data in a visual manner in qualitative analysis is a powerful means to discover connections between concepts, to present data, and to permit data reduction (Miles and Huberman, 2003). In accordance with Paré (2004), I synthesised and presented the context, the success analysis, the selected episodes and encounters, and the timeline, supplying a compelling visual to initiate the mindful organizing analysis for each case study. Using the case study, I summarized the various influential events in tables. In these tables, I identified the most influential episodes and/or encounters associated with the innovation process. Each encounter and episode was then analyzed in relation to the context, the events themselves, and the success in order to determine if these had a positive or negative influence on the project's outcome. For each case study, the creation of tables and graphs was a highly iterative process. For example, before an episode or encounter was assessed to have a positive or negative influence, a considerable amount of cross-checking of the context factors, the various perspectives on the process events, and the resulting success was performed. Finally, I prepared a visual representation of the event analysis that integrated context, the various events throughout the innovation process, and the success, as shown in Figure 9, to provide an interesting foundation for my mindfulness analysis.

Figure 9 Innovation process analysis



The mindful organizing analysis followed this step. Before providing the specifics of my analysis methodology, I briefly summarized various studies that conceptualized mindfulness, as a way of justifying my approach. Table 8 illustrates the conceptual evolution of mindfulness and mindful organizing.

Table 8 Conceptualizing mindful organizing

Authors (year)	Method used (or proposed) to conceptualize mindfulness
Weick and collaborators (2007; 1999)	Organizational mindfulness measured through the use of 5 attributes: the desire to avoid failure, unwillingness to simplify interpretations, sensitivity to operations, commitment to resilience, and reliance on expertise rather than formal authority.
Swanson and Ramiller (2004)	Propose to use Weick <i>et al.</i> 's 5 attributes to measure mindfulness in the innovation process. Concluded by stating that organizations must also base themselves on their own facts and specifics to make sound judgements about whether or not to adopt an innovation and when, by whom, and how best to manage the innovation process.
Ray and collaborators (2011)	Used Weick <i>et al.</i> 's 5 attributes to measure (survey) mindfulness per position in a university. Distinguished the concept into two: organizational mindfulness, as organizations may act collectively; and mindful ways of organizing linked to operational events when individuals or groups within the organization act independently.
Vogus and Sutcliffe (2012)	Propose to use Weick <i>et al.</i> 's 5 attributes to measure mindful organizing. Specifying that mindful organizing results from bottom-up processes, it enacts the context for thinking and action of individuals on the front line, and it is a dynamic concept that needs to be continuously reviewed.

As presented in my literature review and summarized above, Weick and collaborators' (1999; 2001) attributes have been used in a number of organizational mindfulness studies. While these attributes were initially created to define organizational mindfulness, Ray and collaborators (2011) proposed that these same attributes could be used to analyze both operational (i.e., mindful organizing) and strategic events (i.e., organizational mindfulness). This proposition was acknowledged by Weick's research collaborators (Vogus and Sutcliffe, 2012), as they proposed to use the same organizational mindfulness attributes to measure mindful organizing.

Thus, in alignment with my positivist approach and with Vogus and Sutcliffe's (2012) suggestion, I used Weick and collaborators' (1999; 2001) attributes as my baseline proposition to develop the concept of mindful organizing in the innovation process. This baseline proposition is that mindful organizing may occur when the involved stakeholders:

1. have a *desire to avoid failure*;
2. are *unwilling to simplify information*;
3. are *sensitive to operations*;
4. are *committed to be resilient*;
5. and *rely on expertise rather than formal authority*.

As previously stated, my conceptual framework (Figure 6, p. 31), which includes these five attributes, was the mere beginning of my research process. I further developed the mindful organizing concept by means of the three case studies presented in the following chapter.

Chapter 4. RESULTS AND ANALYSIS

This fourth chapter seeks to *characterize mindful (or mindless) organizing when introducing and implementing management innovations* and to explore *to what extent mindful (or mindless) organizing is associated with innovation process success* by means of three distinct innovation processes within Canadian healthcare organizations. As proposed in the literature review and developed within the methodology chapter, Weick and collaborators' organizational mindfulness attributes (a1 to a5) have been suggested to characterize mindful organizing. Consequently, these attributes, summarized in Table 9, constitute a baseline to initiate my analysis.

Table 9 Definition of Weick and collaborators' mindful attributes: Baseline proposition

Attributes	Weick and collaborators' original definition
Desire to avoid failure (a1)	Being preoccupied with the possibility of failure and recognizing that small issues may hide large failures ensure that organizations are always looking for errors and incongruences.
Reluctance to simplify interpretations (a2)	Large volumes of data are available to organizations in order to make decisions and move forward. They tend to use caution when choosing to simplify or discard information.
Sensitivity to operations (a3)	Frontline workers need to be aware of small and seemingly insignificant details and changes in day-to-day operations before they become issues or failures. The workers should be familiar with operations beyond their own job in order to get a clear picture of the situation.
Commitment to resilience (a4)	Organizations should be flexible and mobilize themselves in special ways to respond to and recover from unexpected events.
Reliance on expertise rather than formal authority (a5)	Decisions should be made by the people with the greatest expertise or knowledge, which may be different from one situation to the next.

4.1 Case 1 – Medication Carts at Alpha Hospital

This first case study explores the adoption and implementation of medication carts at Alpha hospital. I conducted over 17 interviews with various stakeholders involved in the innovation process, received documentation, observed the medication cart, and did a site visit in order to create the following case study.

4.1.1 Case study

Alpha, a large hospital of approximately 700 beds, offers general, specialized and emergency care services. Its mission is to provide high quality care services to the serviced population while remaining on the forefront of healthcare innovation, teaching, and research. In the 2010-2011 fiscal year, the hospital counted nearly 6,000 employees. Teaching and research activities were conducted in this hospital with roughly 600 teachers and 2,500 students. In this same period, the hospital conducted approximately 25,000 surgeries and had nearly 90,000 emergency room visits and 30,000 hospitalizations. The operational budget of the hospital for 2010-2011 was \$415 million CAD, including \$360 million for primary care activities and \$55 million for research and teaching activities.

In 1995, the hospital had been merged with four other healthcare facilities located in the area, including another hospital. Although they shared the same name, these various entities remained in their separate facilities with their own organizational culture. This organizational merger created various frictions and complexity in managing change initiatives, especially between the two hospitals. For example, the pharmacy manager explained that new projects were often initiated from the larger site and were then replicated in the other locations where more resistance to change was always encountered. Additionally, some respondents stated that both hospitals were reputed to have vertical (silo) structures with multiple hierarchical levels, limited resources, and diverse objectives that often resulted in political issues.

At the time of the study, Alpha was in constant re-organization linked to the changing landscape, including resource shortages and emerging clinical practices. Sometimes these projects were imposed by the regional agency⁶ or upper management, but at other times they came from various stakeholder groups within the hospital. Innovation projects within the hospital had not always gone as planned; initial high hopes of the stakeholders had produced variable results. An example of this was the arrival of new smart pumps in 2007-2008 that had been much desired by nurses to improve nursing care. However, the nurses were not satisfied with the new pumps, as

⁶In Quebec, Canada, the agency in the context of health care is a governmental entity responsible for all the health and social services provided in their territory. Thus, there are multiple regional health agencies in the province of Quebec that are supervised by the government agency.

they had not been appropriately involved in the needs identification and evaluation of the selected technology. According to a nurse manager, *“The pumps didn’t meet our (nurses’) needs [...] it was more a technology selection issue rather than an implementation issue [...] it wouldn’t stop automatically.”* Other projects with similar faults were not uncommon. Many issues, such as miscommunication, lack of mutual understanding about each stakeholder group’s responsibilities, and political games between units, posed several challenges.

Bottom-up changes were quite recent. Since mid-2008, the hospital had slowly developed a lean (continuous improvement) culture promoting employee involvement in initiating change aligned with the arrival of a lean specialist on the hospital management team. The hospital had subsequently conducted three major lean projects with much success, creating interest in these projects. Interestingly, many employees in support services (i.e., logistics, accounting, project management, etc.) and upper management came from industries other than healthcare, a situation which created, according to the continuous improvement manager, more openness to change.

Various managers reported that Alpha, like most Canadian hospitals, had nursing recruitment issues. Nurses were thought to be overburdened, and there were a large number of new, inexperienced nurses. According to management, this situation, combined with the increased demand for care services, created the potential for an increased number of medical errors. There was pressure from health authorities to improve patient care and reduce medical errors in all hospitals across the province. In 2007-2008, the regional health agency launched an initiative with various phases aimed at reducing medical errors and increasing patient safety with the use of combined methods, such as a unit-dose machine in the pharmacy, patient pharmaceutical profiles, and medical carts for distribution. As a result, Alpha created its own committee to monitor the hospital’s situation and implement, when possible, their recommendations. Alpha had already implemented patient pharmaceutical profiles and a unit-dose machine that increased security and patient care. It also had previously considered implementing medication carts, but the project had never gone forward because of a lack of funds and low organizational priority.

Medication carts, composed of a variable number of code-locked drawers for each patient’s medication and common medical supplies, could also be mounted with computers and Wi-Fi.

These various medication carts were fairly common in Canadian hospitals and their benefits had been widely recognized. Several nurses who had worked in other hospitals were surprised that a teaching hospital of this size did not yet have medication carts in place to achieve prescription medication distribution. As a nurse manager said, *“In the hospital I worked before we implemented these carts many years ago [...] I was surprised they didn’t have them here [...] others like me believed we needed to push this initiative forward.”*

Other initiatives linked to reducing medication were underway in the hospital. Indeed, Alpha had already applied for funding opportunities within the various phases of this initiative with much success. In late 2008, the regional health agency indicated that there was funding available for medication distribution carts at Alpha. The medication error committee requested a specific upper management representative, a former nursing manager with experience in medication distribution, to manage the initiation of this new project. The pharmacy manager and a purchasing and logistics specialist supported the project and led in preparing the funding proposal. During the planning stage, the committee determined it would be valuable to evaluate and possibly review the current medication distribution process to maximize the carts’ benefits. Therefore, they involved a lean specialist who had recently led successful process improvement projects within the hospital.

Description of the “as-is” medication distribution process:

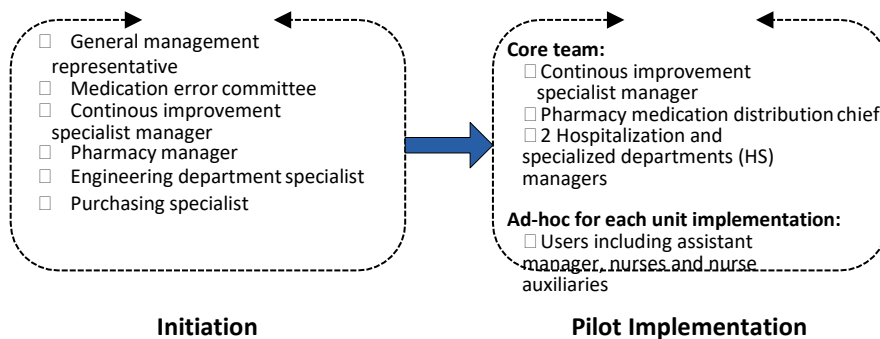
The initial medication distribution process started with the doctor’s prescription request, which was sent to the pharmacy; the pharmacy prepared medication for each patient and distributed the medication to each unit’s pharmacy area in a specific timeframe. They would place the medications per room number in small bins on a shelf. Also, they would replenish a common medication shelf. Afterwards, when the nurses started their rounds, they would prepare a tray with small cups, identify each patient by placing a small tag in the cup, verify that the medication and the patient’s pharmaceutical profile corresponded, and finally place the correct medication in each cup. When medication was missing from their small unit pharmacy, they would look in their medication return bin or another unofficial stockpile. The nurses would remove the individual patient identified packaging and place the pills in the small cups to accelerate their work and facilitate the process for patients. This procedure could take them from 30 to 40 minutes before each nursing medication round. Once all the medication was gathered and verified, they would put various supplies in their pockets to avoid coming back to the station, and they would start their rounds. They would go from room to room carrying the tray and administering medication to patients. Various problems could inadvertently happen, pills could fall off the tray, pills or patient identifications could get mixed up, resulting in events such as giving the wrong medication, the wrong dosage, or treating the wrong patient. Thus, nursing personnel was ready for this innovation and was looking forward to reducing steps and medication errors and providing better patient care.

The project initiation team, presented in Figure 10, met on several occasions in January 2009 to prepare the proposal and determine their line of action if the project were to proceed. They took the decision to initiate the project with a pilot project before conducting a phased implementation throughout the hospital. This pilot project, called “medication cart kaizen” would follow a lean methodology and be led by the continuous improvement (CI) manager. The CI manager developed an initial project plan for the pilot to evaluate the timeline, the objectives, the required resources, etc. Shortly after the funding proposal was sent to the health authorities, the hospital received a positive response meaning that Alpha could move forward with the medication distribution process reorganization and cart implementation project.

Once the funding was approved by the regional health agency at the end of January 2009, the continuous improvement (CI) manager became the new project head and was supported by the upper management nursing representative. Also, in place of the pharmacy manager, a new pharmacy representative, specialized in medication distribution, took over leadership of the project, keeping the manager informed and involved when needed. The core team for the pilot phase, as shown in Figure 10, also included two nursing department managers; their departments

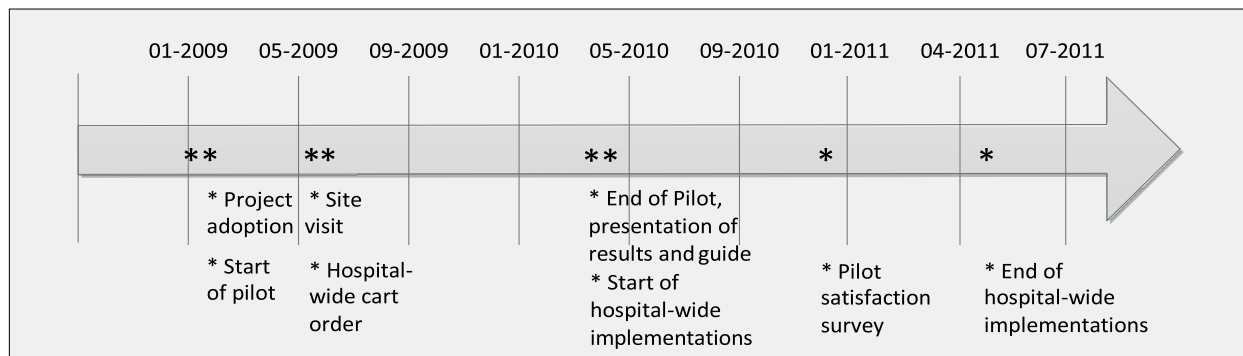
had been selected for the pilot because of their interest and eagerness to improve medication distribution. Supporting the core team, a purchasing and logistics specialist was designated manage the purchasing and reception of the carts. Upon their reception, an engineering department representative would also be involved to manage and prepare the equipment. This multi-disciplinary team combined the knowledge and political influence required for such a project.

Figure 10 Alpha's initiation and pilot implementation teams



The initiation phase ended with the start of the pilot project in early February 2009, as shown in Figure 11, with a large meeting involving all team members and nursing staff as well as pharmacy management and upper management representatives.

Figure 11 Alpha's innovation project timeline



*: Events

During this meeting, the core team presented the pilot project summary and plan. Open discussion followed in which some nursing managers verbalized their questions and concerns. The summary included information, such as the current issues, the project description, the general objectives, the scope, the opportunities, the desired timeline, and the stakeholders.

involved. Additionally, they created a detailed project plan with the various activities, their owners, and the approximate timeline. The pilot project had five goals: to evaluate and map the current medication distribution process; to determine the future process, eliminating non-value added activities when possible; to test and adjust the future process with a prototype in a pilot implementation; to confirm the value that the use of medication carts would bring to administering drugs; and to document the process of using the carts in a unit and to identify the key implementation success factors. As mentioned above, none of these goals had measurable objectives. This was also true for the large-scale deployment, where the overarching objective was to minimize medication errors; but no specific metrics on current medication errors or on other indicators had been determined and shared.

Various managers stated that once they understood the project's objectives, anticipated benefits, and the efforts required to achieve them, they would be more inclined to collaborate:

At the beginning of the pilot project we had a big meeting with all the department managers [...] some were not too keen on this new project [...] we answered their concerns and had invited users that had experienced a medication cart implementation in the past [...] this helped them understand the upcoming change. - Core pilot implementation team member

In February 2009, the CI and nursing managers assessed the current medication distribution process in line with the first objective of the pilot project. To do so, they measured the performance of the process through a time and motion analysis. They also filmed the distribution process live in the nursing unit. Afterwards, the entire pilot nursing personnel identified the non-value added activities involved in the process. Hospital management had approved budget hours freeing nurse managers, nurses, and nurse auxiliaries so that they could be actively involved in the project. The inclusion of various stakeholders permitted them to identify and include other small improvements linked to medication distribution, such as issues about obtaining the narcotics key in a timely manner.

Once the current process in the nursing units was understood and the wastes identified, the core team started the elaboration of the “to be” medication distribution process. At that time, the pharmacy representative was asked to join the core team, since the pharmacy was actively involved in the process. Coordination between care units and the pharmacy was critical to obtain

patient medication. However, at the time of the project, there was a general lack of trust and collaboration between the pharmacy and the care units, as was stressed by the core pilot implementation team leader:

One of the hardest elements in this project was to manage the links between pharmacy and all the teams (night, evening, day) [...] as each unit had their own practices, creating difficulty in the replenishment process such as a different medication tray location in each unit. - Core pilot implementation team member

The pharmacy was often criticised by the units for delays, schedule, or missing medication. The pharmacy also criticized the units, stating, for example, that they would use medication from other patients like an “open bar” instead of creating new orders to the pharmacy, resulting in missing medication. Fortunately, as the CI manager had good relations with the pharmacy and the nursing units in connection with past projects, collaboration and communication between the departments was facilitated. Moreover, as all knew that the main motivation underlying this project was to increase patient safety and quality of care, both the units and the pharmacy were willing to put the required efforts into the project.

In order to determine and test the “to be” process, the CI manager proposed to build home-made medication carts using standard pushcarts and empty bins as a valuable simulation. The team and the pilot unit employees prepared and used these carts to conduct medication distribution rounds. Then, following various tests and discussions they jointly determined the future process, eliminating non-value added activities when possible, and finalized the standard list of supplies that would be on the cart. When people disagreed or had concerns about the new process or cart content, the team would listen; and they would jointly with the rest of the personnel investigate, test, and find solutions. The pharmacy also participated in these tests, replenishing the home-made carts instead of the unit pharmacy, which was time consuming and greatly affected their work. They could also use a new medication distribution cart, allowing them to replenish the new carts directly. These tests enabled the participants in the pilot *”to test and visualize the different options, to determine what we needed on the carts [...] and anticipate issues.”* - Core pilot implementation team leader

The team organized a visit to another hospital to see the medication carts in action and to have the opportunity to investigate the experience of using them to better define the new process. Various stakeholders, including some of the pharmacy personnel, the nursing managers, and pilot nursing personnel, were able to join the core team for this symbolic visit, creating much enthusiasm and gratification. Following this step, they were now ready to test the new process of using the future medication carts instead of their home-made carts. However, the purchasing/logistics specialist and the engineering representative pointed out many problems in obtaining the promised demonstration medication carts from the vendor (e.g., difficulties in contacting the representative, additional delays, etc.). When the demonstration units finally arrived in the pilot unit (as shown in Figure 12) and in the pharmacy, both users and team members were not impressed with the carts that had been selected by the agency; they found the carts too heavy and difficult to manoeuvre. The team listened to the users' complaints and jointly found solutions, such as methods to move the carts, that minimized difficulties. The team and the pilot personnel proceeded with testing the medication carts to rationally adjust the future processes. Stakeholders involved felt their input was appreciated, and this reinforced their desire to make the project a success.

Figure 12 Alpha's medication cart



Upon the first use of the demonstration transportation cart, the pharmacy medication distribution chief realized that the software did not support specific patient groupings according to each unit's specifications, and that the actual process of replenishing the large transportation cart created much waste. Their new transportation carts could hold less stock, having a unique bin per patient, thus creating more movements. As a consequence, the pharmacy had to have twice as many carts, which resulted in approximately double the preparation time under the new system.

While the software issues could have been anticipated prior to the arrival of the demonstration carts, Alpha had little decision power over the actual choice of the pharmacy medication distribution cart.

Even when considering the increased workload, the pharmacy personnel reacted positively, understanding that this process would reduce patient medication errors. The CI manager assisted them in finding solutions to adjust their work processes and minimize the new issues. Moreover, it was then determined that a new kaizen improvement project would be conducted to optimize medication preparation and distribution in the pharmacy, and this resulted in much encouragement.

Hence, the pilot team created an implementation guide to assist units during their hospital-wide deployment. This detailed guide served as a training tool, defining the appropriate use of the cart and sharing a series of best practices. While this guide was being created, the regional health agency requested that cart specifications be determined for each department (including the pilot), as the cart had several options to support their activities and volumes. The team found this exercise very difficult, as the nursing managers, apart from those in the pilot, had not visualized a cart-enabled medication distribution process.

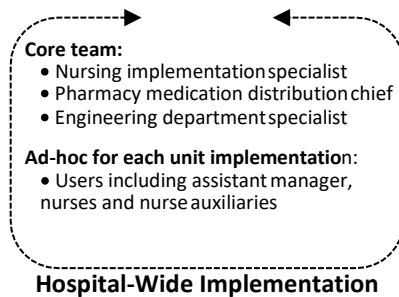
In parallel, upper management and the project leader took the decision to appoint a new core team, consisting of a nursing specialist and a project management specialist supported when needed by the pharmacy specialist, which would proceed with the hospital-wide implementations. It had been clear from the start of the project that the CI manager would not lead the hospital-wide implementation, as upper management sought to embark on other kaizen projects throughout the hospital that would require the CI manager's expertise. Indeed, *"the results would have been better if I had stayed involved in the hospital-wide implementation but I couldn't [...] I would have had more arguments and sold the improvement ideas better [...] but I was to start another project."* - Core pilot implementation team leader

Thus, the pilot team transferred knowledge to the newly-created team, invited the new team members to their meetings, shared the project implementation guide, and remained available for any questions. The pilot team head continued, on a part-time basis, to support the pilot units in

improving the medication distribution process. The CI manager finalized the pilot project film showing the “before and after” of the new medication distribution process. Finally, in this same period (2010), he wrote and published an article in the hospital’s magazine describing the project, the team’s involvement, and the anticipated benefits.

The members of the new team, as shown in Figure 13, planned the implementation sequence over a period of one year starting in May 2010 and considered various aspects, such as other projects and prioritizing units that showed the most interest. They used a highly structured approach that employed the provided implementation guide, support material, and a cart demo. In each implementation, they created a multi-disciplinary team that included the nursing manager, a nurse, a nurse assistant, and a nursing auxiliary who were actively involved in adapting the implementation steps to their unique reality.

Figure 13 Alpha’s hospital-wide implementation team



For each new deployment, the new core team had planned approximately four meetings to prepare each ad-hoc implementation team and then assist them with the go-live by staying on site the first day and coming back once or twice shortly after implementation to provide recommendations and answer questions. Furthermore, this core team was supported by a pharmacy specialist to provide any additional information and ensure coordination to avoid pharmacy-related issues. Over time, the core team realized the guide could not be replicated “as is” because not all units were alike and had varying levels of readiness (and/or resistance) and different schedules and activities. When members of the hospital-wide implementation core team could not resolve problematic situations, or had concerns, they would contact the pilot nursing managers or CI manager for assistance. In the few departments where they encountered resistance, they adapted their approach, conducting more meetings, increasing communications,

and requesting, whenever needed, upper management interventions to assist them. Accordingly, the upper management representative noted being *“involved only upon demand in units where there was more resistance.”*

However, some deployments were more difficult than others, as the hospital-wide implementation team members did not clearly understand the objectives that had been pursued during the pilot. For example, some departments did not want to implement the double-bin within the carts to replenish the supplies and common medication. With this system, users had to check the item on a list (on the cart) once the front bin was empty and use the units from the back bin until the stock was replenished and rotated by the nursing auxiliary. In this way, with a quick glance, the auxiliary nurse knew exactly what items were needed and did not have to open all the drawers. However, the implementation team members were not convinced of the value of this change; and as a result, they accepted the refusal of various users to comply with this change and focused their energy on elements impacting medication distribution security rather than efficiency. When the initial pilot team and the pharmacy specialist learned about this omission, they were somewhat disappointed because it minimized the potential benefits associated with the cart.

The new cart-enabled medication distribution process was significantly different except for the doctor's medication request that was sent directly to the pharmacy. The team created a list of patient groups, with colour codes, that would be distributed among the nurses. Each nurse would have a medication cart that grouped her patients (by colour). Each patient would have his or her own bin that already included all the prescription medications. The non-prescription medications were placed in the cart in a specific common medication bin. The cart also included the necessary supplies for administering medication, such as disinfection swabs, syringes, etc.

Medication carts were located in strategic places in the hallways that were identified with tape on the floor and a sign on the wall. This minimized steps when medication or items were required during the day, the pharmacy would not have to look for the carts, and they would have a reserved position near an electrical outlet to permit charging. At the beginning of her rounds, a nurse would take the medication cart, transport it to the first patient's room, unlock the cart, and

take the patient's bin from the cart. The nurse would validate the patient's profile with the medication, prepare the necessary supplies found in the cart, unpack the unit-dose medication (identified with the patient's name), and administer the medication. The nurse would then proceed to the other rooms. Each night, the nursing auxiliaries were expected to replenish supplies in all the medication carts. For its part, the pharmacy was expected to change the medication bins and replenish the common medication in the medication cart on a daily basis. This new process was facilitated by using the colour-coded bins when they were exchanging complete sections from their large transportation cart to the medication cart in the unit.

The revised process brought some important advantages. Most nurses perceived that it permitted them to give better service to patients as it saved them time in preparing the medication at each round. As one nurse said, *"We save at least 15 minutes per day as we don't look for medications and have to prepare at the beginning of our shift [...] we are quickly at the bedside and spend more time with patients."* One of the pilot units had measured the time it took to prepare medication before and after the implementation and found that it took 30% less time. Also, they had less wasted time walking to the unit pharmacy and searching for various supplies. According to the nurse managers involved in the pilot, these improvements offered the possibility for staff nurses to spend more time at the patients' bedside.

However, observed benefits varied from one ward to another depending on the cart's use. For example, some units would leave the cart outside the patient's room, preparing the medication in the hallway away from the patient. This minimized time spent at the patient's bedside and required more steps as they had to access the cart stationed outside the room a number of times during their visit. Issues linked to cart content (missing or overflowing), carts not parked in their reserved position, and carts being left unlocked were relatively common in some departments. According to the CI manager, each department had its own specificities, depending on the leadership assumed by the nursing manager; the manager could be involved and continually improving the process, uninterested and using the cart to facilitate the old process, or somewhere in between. If the head nurse did not prioritize the project, sufficient time would not be invested to make sure nurses use the cart appropriately and long-term benefits would be undermined. Some members of the pilot team suspected that other units, whose staff was not involved in the

pilot, did not feel as involved or part of their respective implementations. According to these members, this affected the project's benefits as these units experienced a top-down implementation approach rather than a kaizen bottom-up participative approach.

About six months after the pilot project, the CI manager conducted a survey in the participating units. Results showed a very high satisfaction level from the nursing staff. Although this survey was conducted only in the pilot units, upper management believed that the positive reaction was felt across the entire hospital. There were still a few unresolved issues, such as determining who would implement and manage personal cart security codes to increase security. The engineering department normally took care of innovations that directly pertain to the patients. However, the carts were used by nurses for medication distribution. Since the carts did come into direct contact with the patients, the engineering department thought the facility department should manage the carts. For its part, the facility department, which managed projects such as construction, did not have the infrastructure to manage security codes. Discussions were not moving quickly.

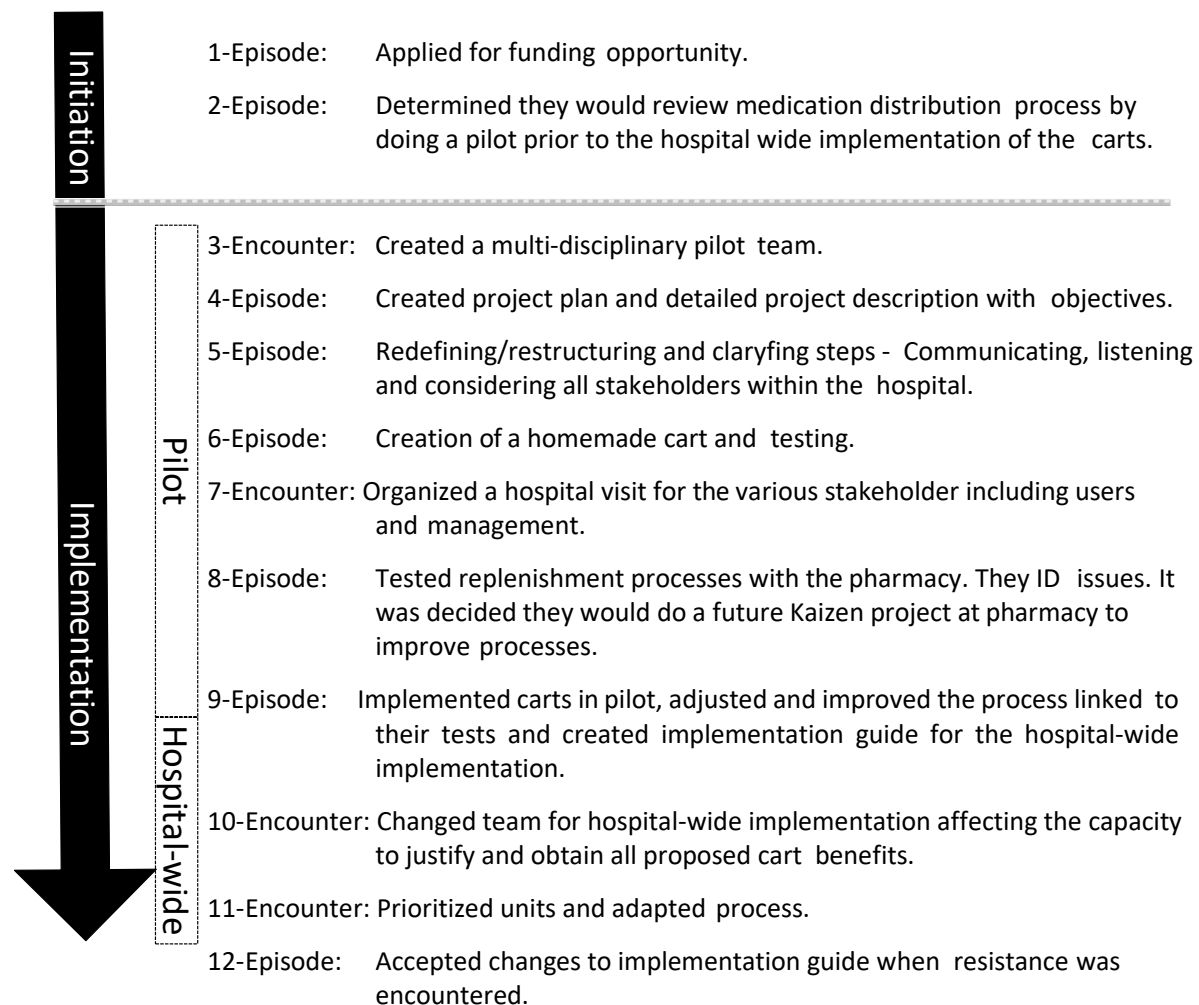
Nursing managers needed to provide continuous training to their employees as well as training sessions for new employees to make sure they would conduct replenishment activities, stay aligned with the pharmacy (keeping the bins in the agreed order and location), and use the cart as it had been planned for in the pilot project. Upper management and the CI manager hoped that the benefits would endure, stating that the hospital's upper management team had prioritized the reduction of medication errors. When asked if the medication errors had diminished after the project implementation, upper managers could not answer. To analyze the impact of medication carts on medication errors, they alleged that they needed to know the number of errors compared to the amounts of drugs administered, information they did not collect before or after the implementation. Thus, minimal learning resulted from the hospital-wide implementation. Nevertheless, even with these issues, the nursing personnel did not want to go back to the old system. The managers involved were very proud of this project, as it improved security around the medication distribution process and, ultimately, enhanced patient care. Continuous improvement was gaining more and more importance in the hospital's organization strategy. Not long afterwards, the hospital's upper management increased the CI department manager's

budget. Indeed, new resources were hired in the continuous improvement and project management units, coordinating the multiple lean initiatives taking place in the hospital.

4.1.2 Developing the concept of mindful organizing

This section provides an in-depth analysis of the Alpha case study using the conceptual framework on mindful organizing in the innovation process developed in Chapter 2 as a starting point. Prior to presenting the analysis, I survey twelve significant events, throughout the initiation and implementation phases, that had either a positive or negative effect on Alpha's medication distribution carts' innovation process. These significant encounters and episodes will be used throughout the analysis and are shown in Figure 14.

Figure 14 Alpha's innovation process summary



As proposed, I initiated my analysis using Weick *et al.*'s mindfulness attributes (a1 to a5 shown in Table 9) as the baseline proposition to develop the concept of mindful organizing. I wanted to validate the use of these attributes to characterize mindful organizing in the context of healthcare organizations' innovation processes. As previously stated, Vogus and Sutcliffe (2012) recommended the use of Weick and collaborators' (2007; 1999) mindfulness attributes to evaluate and characterize mindful organizing. Thus, as proposed in my methodology chapter, these various attributes (a1 to a5 previously shown in Table 9) served as a baseline for my initial proposition that Weick and collaborators' organizational mindfulness attributes can be used to assess mindful organizing. Using these attributes and the selected influential episodes and encounters, my initial analysis is summarized in Table 10.

Table 10 Alpha's mindful organizing initial analysis using Weick and collaborators' attributes

Weick and collaborators' attributes	Mindful Organizing (Events with + = Positive influence, - = Negative influence, +/- = Positive and negative influence)	
	Initiation	Implementation
Desire to avoid failure (a1 - learning from issues and near misses)	+ Determined to conduct pilot to review medication distribution process (#2).	+ Created homemade carts for new medication distribution process to improve and test solutions (#6). + Tested replenishment processes with the pharmacy. They IDed issues. It was decided they would do a future kaizen project at pharmacy to improve (#8). + Implemented carts in pilot, adjusted and improved the process linked to their tests and created implementation guide for the hospital-wide implementation (#9). - Changed team for hospital-wide implementation affecting the capacity to justify and obtain all proposed cart benefits (#10).
Unwillingness to simplify interpretations (a2 - considering large volumes of information)		+ Created a multi-disciplinary pilot team (#3). + Communicating to, listening and considering all stakeholders in the hospital (#5). + Created homemade carts to create new medication distribution process to improve and test solutions (#6). - Prioritized units and adapted process (#11).
Sensitivity to operations (a3 - front-line workers need to be familiar with operations beyond their own job in order to get a clear picture of the situation)	+ Determined to conduct pilot to review medication distribution process (#2).	+ Communicating to, listening and considering all stakeholders in the hospital (#5). + Prioritized units and adapted process (#11). - Changed team for hospital-wide implementation affecting the capacity to justify and obtain all proposed cart benefits (#10).
Commitment to resilience (a4 - when there are issues, organizations should be flexible and mobilize themselves in special ways to deal with various events and crises)		+ Tested replenishment processes with the pharmacy. They IDed issues. It was decided they would do a future kaizen project at pharmacy to improve (#8). + Implemented carts in pilot, adjusted and improved the process relation to their tests and created implementation guide for the hospital-wide implementation (#9).
Reliance on expertise rather than formal authority (a5 - when there are issues, gather the appropriate organizational members to generate the required knowledge and foster learning)		+ Created a multi-disciplinary pilot team (#3). - Changed team for hospital-wide implementation affecting the capacity to justify and obtain all proposed cart benefits (#10).
Events that were not categorized	+ Applied for funding opportunity (#1).	+ Created project plan and detailed project description with objectives (#4). + Organized a hospital visit for the various stakeholders, including users and management (#7). - Accepted changes to implementation guide when resistance was encountered (#12).

First, in both the initiation and implementation stages, an important volume of events showed the team's *desire to avoid failure (a1)*. As previously detailed, desire to avoid failure in an innovation process is to be preoccupied with small issues in order to learn and avoid larger issues. The team conducted a pilot project using lean methodology to minimize risks and develop internal learning prior to the hospital-wide implementation (#2+). The CI manager proposed to create homemade medication distribution carts to test and validate their findings (#6+) prior to implementation. Moreover, the team tested the new medication distribution process with the pharmacy to identify possible issues (#8+) and identified future improvement projects. Once the carts were delivered, the team showed, once again, its desire to avoid failure by testing and improving the process in collaboration with the various users (#9+). This attribute (a1) was significantly present during the first stages of the innovation process. The pilot project team proved to be alert to the various changes. However, when considering the positive context and the fact that this innovation was widespread and accepted, a question can be raised about the resources (e.g., time and money) put into the initiation and pilot implementation processes. It is even more questionable when one notes the removal of the original core team prior to the hospital-wide implementation and how it affected the end result.

Indeed, during the hospital-wide implementation phase, the core team changed (#10-) affecting the team's capacity to justify the proposed changes (i.e., due to a lack of credibility and knowledge of the previous changes). While this decision came from upper management (rather than the core team), it did not show a desire to avoid failure. This change in the core-team resources and lack of benefits in the hospital-wide implementation could indicate that their purpose was not necessarily aimed at generating the best long-term results, but rather showing the benefits of the lean methodology and developing their department. Therefore, the project's context, available resources, and objectives may have influenced the events that took place in the innovation process. This led me to consider that they were somewhat mindless, since they were overly preoccupied with failure concerning some events (e.g., #2, #6, #8, #9) while they were not preoccupied with failure for others (e.g., #10). *My analysis of Alpha's innovation process using this attribute was useful because it showed that the overall team (including both the initiation*

and hospital-wide implementation teams) did not truly seek to desire to avoid failure (a1), and this resulted in mindless organizing in the innovation process.

Second, the team showed *reluctance in simplifying information (a2)*, especially in the pilot phase where a multi-disciplinary team (#3+) was actively involved in the implementation process enabling them to process an increased amount of information and prevent possible issues. Indeed, many stakeholders at different steps of the pilot project were considered (#5+) and involved throughout the innovation process. Finally, within the selected events, the creation of the homemade carts for testing and readjusting the process showed the team's reluctance to simplify information. This episode (#6+) exhibited that challenging status quo, taking nothing for granted, and organizing in ways to process a maximum amount of information (i.e., reluctance to simplify information) contributed to the wellbeing of the innovation process.

While the pilot team showed reluctance to simplify information, the hospital-wide implementation team appeared lenient towards changes to the implementation guide carried out by the users (i.e., simplifying information). For example, some users changed the items found in the carts, did not park the cart in the reserved position, and left the cart's medication drawers unlocked. Although being positive and involved, this new hospital-wide implementation team questioned the validity of some actions within the implementation guidelines. As resources were limited, they altered the implementation guidelines to the best of their knowledge (#11-). According to the CI manager this contributed to reducing the benefits from the medication carts implementation. *As a result, questions could be raised about the large amount of resources employed by the pilot team in their reluctance to simplify information and the information simplification that took place during the hospital-wide implementation, both of which translated into varying levels of mindless organizing. In light of the above analysis, the reluctance to simplify information attribute (a2) appears to have a function in preventing possible mindless organizing in the innovation process.*

Third, I found a large number of events that were linked to the *sensitivity to operations (a3)* attribute, whereby frontline workers need to be aware of the current state of operations beyond their own job in order to get a clear picture of the situation. In the initiation, the team showed

sensitivity to operations by seeking to get a clear picture of the medication distribution process through the use of the pilot (#2+) before implementing the carts throughout the hospital. They were sensitive to the local operations and work practices throughout the pilot project by communicating and listening to the various stakeholders involved in the process (#5+). A lean methodology was adopted in the pilot project that contributed to this sensitivity to operations by prioritizing units that had interests in this change (#11+). However, once the hospital-wide implementation started, the new core team had a different view on sensitivity to operations (#10-) in comparison with the pilot team, which had used a lean methodology. It is not surprising that this created some questions and resistance in regard to some of the proposed changes and resulted into mindless organizing.

As proposed by Weick and collaborators, being aware of (or sensitive to) frontline workers' day-to-day activities and state is crucial, especially in the context of implementing an innovation that affects multiple stakeholder groups. This alertness and sensitivity to operations are important, for they permit innovation process teams to take actions and improve actions during the implementation process in the quest to positively alter the outcome (as shown in the pilot project). However, different individuals and groups of individuals may have a different perspective on the various operations (i.e., the initial pilot project team versus the hospital-wide implementation team). Thus, in this context, it should not only be frontline workers (i.e., medication cart users in the various units and the innovation process team) as proposed in Weick's definition of the sensitivity to operation attribute, but rather both frontline *and back-office* workers⁷ (i.e., innovation process team and upper management) that need to be sensitive to the context, process, and desired results in order to ensure alignment and continuation. *In light of the above analysis, sensitivity to operations (a3) appears to have its place in characterizing mindful or mindless organizing in an innovation process. However, in this context, I adapted*

⁷ Figure 5 in the literature review gives a visual representation of the innovation process team that supports the back-office (upper management) and the front-line workers (users).

Weick and collaborators' attribute to include sensitivity to operations of frontline and back-office workers (a3)⁸ in order to prevent issues from occurring and to mindfully organize.*

The fourth attribute, *commitment to resilience* (a4) was less obvious in my evaluation. Following this initial analysis, I realized that the concept of resilience appears inappropriate to evaluate mindful organizing within an innovation process. Organizational resilience is defined as a firm's ability to effectively absorb and develop situation-specific responses *following* disruptive events (Coutu, 2002). As organizational resilience occurs within varying time periods after disruptive events this concept does not appear suitable to analyze mindful organizing *during* an innovation process. For example, during the pilot implementation the pharmacy team realized the effects of this innovation on their workload. After this realization, the initial core team took action and proposed solutions, including a future improvement project (#8+). Moreover, the team was flexible during the pilot implementation process (i.e., creation of the implementation guide) to improving and changing the process on the basis of findings from the various stakeholders (#9+). The organization's agility (i.e., dynamic capabilities), where it had to be flexible, change rapidly, and adapt to an unpredictable environment (Eisenhardt and Martin, 2000) appears more fitting as a way to characterize mindfulness within the innovation process.

However, being agile, on its own, does not translate into mindful organizing. For example, in the hospital-wide implementation, the new team also showed a certain level of agility, favoring improvisation over planning and adapting the implementation guidelines to unpredictable events. However, their agility (i.e., modifying the implementation guidelines) during the hospital-wide implementation minimized, according to the CI manager, the project's results. This example demonstrates the need to identify clear project goals to facilitate alignment between the various stakeholder groups. This "misaligned" agility contributed to the mindless organizing that took place within the innovation process. *In light of the above analysis, I modify Weick and collaborators' commitment to resilience attribute (a4) as commitment to agility (a4*) in order to better conceptualize mindful organizing when containing issues within an innovation process. Moreover, I recommend further contextualizing the use of these attributes, in this case*

⁸ I identify the attributes that were modified following my analysis with an asterisk (*).

commitment to agility, in order to ensure alignment between the various stakeholder groups' desired outcomes.

Finally, my analysis of the fifth and last attribute, *relying on expertise rather than formal authority* (a5), revealed mixed results. While the pilot project multi-disciplinary team *relied on expertise* and had upper management's support (#3+), the hospital-wide implementation team did not have the same level of expertise (#10-), which resulted in some initiatives and best practices from the implementation guide not being adopted.

More specifically, the hospital-wide implementation team bypassed the implementation guide, relying on their view and authority rather than the expertise that had been previously developed (#10-). This simplification is not uncommon in Canadian hospitals, where formal authority (i.e., the public sector) has as much importance as expertise. Expertise is required to understand the reality of each stakeholder group and adapt; however, authority is required to ensure alignment (i.e., decisions are mutually beneficial) in achieving the organizational goals. Thus, in a complex environment with multiple stakeholder groups, reliance on both expertise and authority would be a sign of mindful organizing.

Thus, while the initial pilot project team demonstrated mindful organizing because it relied on expertise and authority, the hospital-wide implementation team did not have as much expertise or as many resources in comparison to the initial pilot project team, and this resulted in mindless organizing. In light of this analysis, *I modify Weick and collaborators' fifth attribute relying on expertise rather than formal authority to include a combination of expertise and formal authority (a5*) in order to better contain issues when they occur and to mindfully organize. This adapted attribute contributed to characterizing the mindful and mindless organizing that took place within this innovation process.*

While generating some interesting insights to characterize mindful and mindless organizing in the innovation process, the use of the proposed attributes was difficult and time consuming. As presented in Table 10 and explained above, certain events could not be categorized when using

Weick and collaborators' (2007; 1999) original mindfulness attributes' definitions.⁹ For example, I was not able to categorize the episode (#1+) in which they applied to receive government funding. Furthermore, I could not categorize episodes in which they created the project plan and detailed project description with objectives (#4+), when they organized a hospital site visit (#7+), and when they accepted changes to the implementation guide upon resistance (#12-).

By contrast, the other episodes and encounters (i.e., events) were categorized as multiple attributes (i.e., 7 under multiple attributes). For example, the innovation process team was changed, once again, for hospital-wide implementation, and that affected the capacity to justify and obtain all proposed cart benefits (#10-). This episode did not show the team's *desire to avoid failure*, as the new team did not have the same contextual knowledge of the project. Moreover, this same episode was categorized under the new *sensitivity to operations* (a3*) attribute, as the new core team (i.e., the back-office workers within the innovation process team according to the revised a3* attribute) were as familiar with the effects of this change on the operations.

In light of this analysis, and the overlapping of these attributes as presented within the previous examples, I combined these attributes (i.e., a1, a2 and a3*) in a single proposition focused on anticipating and adjusting actions to prevent issues. Thus, as presented in my analysis and in Table 11 below, *desire to avoid failure* (a1), *unwillingness to simplify interpretation* (a2), and *sensitivity to operations* (a3*) appear to be closely linked to being alert and anticipating the unexpected in order to prevent issues from occurring. Realizing this, I combined my analysis of these anticipation attributes into a single proposition (1a).

⁹ *Being preoccupied with the possibility of failure* small issues may hide large failures ensures that organizations are always looking for errors and incongruences. Resisting simplification of information or interpretations (*reluctance to simplify interpretations*) may positively affect and reflect mindfulness. *Sensitivity to operations* entails that workers need to be familiar with operations beyond their own job in order to get a clear picture of the situation. *Committed to resilience* by being flexible and mobilizing themselves in special ways to deal with various events and crises. And *reliance on expertise rather than official authority* where decisions are to be made by the people with the greatest expertise or knowledge, which may be different from one situation to the next. More details on these mindfulness attributes are found in section 2.3.

Proposition 1a

Mindful organizing in an innovation process occurs when the innovation process team anticipate and take action to *prevent* issues.

- This proposition incorporates the following mindfulness attributes: desire to avoid failure (a1), reluctance to simplify interpretations (a2), and sensitivity to operations from frontline and back-office employees (a3*).

Table 11 Mindful organizing attribute analysis

Attributes	Weick's mindful organizing is:	Example at Alpha	Category
Desire to avoid failure (a1)	<i>To anticipate possible issues</i> and react in accordance with the project's context, resources, and objectives. Appears to be closely linked to being "unwilling to simplify information" and "sensitive to operations", as it stresses the importance <i>to be alert to details and plan for the unknown in order to avoid failure</i> .	The core team changed (#10), affecting the team's knowledge and credibility. = Mindless organizing	Anticipation
Unwilling to simplify interpretation (a2)	To consider varied and large amounts of valid data to ground decision making in the organization's facts and specifics. Appears to be closely linked to having a "desire to avoid failure" and a "sensitivity to operations", as it stresses the importance <i>to be alert to details and plan for the unknown in order to avoid failure</i> .	The new team altered the implementation guidelines (#11). = Mindless organizing	Anticipation
Sensitivity to operations (a3) New: Sensitivity to operations of frontline and back-office workers (a3*)	<i>To be aware of the current state of operations</i> of the complete process in order to get a clear picture of the situation, anticipate possible issues, and take the appropriate actions. Appears to be <i>expected from frontline and back-office workers</i> , as all involved in the innovation process need to be aware of the current state of operations.	Communicating and listening to the various stakeholders involved in the process (#5). = Mindful organizing	Anticipation
Commitment to resilience (a4) New: Commitment to agility (a4*)	In the context mindful organizing in an innovation process, I alter this attribute to <i>commitment to agility</i> rather than resilience. <i>To be flexible, rapidly change, and adapt when facing adversity during the innovation process (i.e., to be agile)</i> .	Proposed a future improvement project (#8). = Mindful organizing	Containment
Relying on expertise rather than formal authority (a5) New: Relying on expertise and formal authority (a5*)	I alter this attribute to <i>relying on expertise and formal authority</i> rather than just expertise. As Canadian healthcare organizations have multiple powerful stakeholder groups with varying views, authority is often required to make projects go forward.	The implementation team did not have the same level of expertise (#10), resulting in some initiatives and best practices not being adopted. = Mindless organizing	Containment

Also in Table 11, I present mindful attributes focused on containing issues as *Commitment to agility* (a4*) and *Relying on expertise and formal authority* (a5*). In the Alpha case study, the innovation process teams did not contain the unexpected, which resulted in mindless organizing. Consequently, I combine my analyses of these containment attributes into a single proposition (1b).

Proposition 1b

Mindful organizing occurs when the innovation process team show agility and *contain* the unexpected.

- This proposition incorporates the following mindfulness attributes: commitment to agility (a4*) and relying on expertise and formal authority (a5*).

As initially proposed, I conducted this first case study analysis using Weick's attributes to characterize the mindful organizing that took place within this innovation process. I adapted their mindfulness attributes to better fit the innovation process's reality. This analysis revealed that a combination of anticipating and containing the unexpected, if need be, is important to mindfully organize. The results of this initial analysis, using the mindfulness attributes (a1 to a5), indicates that they were relatively mindless. However, I question this result, as this analysis does not consider, in my view, all the required elements (e.g., the need to further contextualize the lack of clear objectives) that would determine whether or not the innovation process was mindfully organized.

4.1.2.1 Considering project context

I believe that project context is of prime importance in characterizing the concept of mindful organizing in an innovation process. Indeed, the foundations of mindfulness are linked to alertness to context (Langer, 1997) and considering the organization's own facts and specifics (i.e., resources) in decision making (Swanson and Ramiller, 2004).

Mindfulness in an innovation process occurs when organizations ground decisions on their own facts and specifics, also referred to as context, antecedents, or initial conditions (Swanson and Ramiller, 2004). Swanson and Ramiller (2004) identified various contextual elements that should be considered during the innovation process, such as the nature of the innovation, the community

reception of the innovation (referred to as organizing vision), the normative force of diffusion (i.e., it should be easier when more knowledge exists), and the firm's characteristics (i.e., past performance and quantity of innovation/experience). In fact, various authors state the importance to consider social and contextual factors to grasp the attitude towards change and potentially be able to influence the innovation process (Aydin and Rice, 1991; Fleuren, Wiefferink and Paulussen, 2004; Klein and Knight, 2005; Meyer and Goes, 1988). This is especially true in complex environments and organizations, as multiple factors may affect the innovation process (Weick, 1995).

For example, the pilot team considered the delicate relationship between the pharmacy and the multiple nursing units prior to the project as being linked to supply and service issues. Consequently, the team involved both parties during the pilot, stimulated exchanges, and increased collaboration between these stakeholder groups, and this resulted in less resistance and fewer concerns. This example shows that by considering their contexts, organizations can adapt their decisions (i.e., events) for each innovation and potentially affect the process and outcomes (Fiol and O'Connor, 2003; Swanson and Ramiller, 2004).

To better understand the different components affecting the organizational assimilation of innovations, Meyers and Goes (1988) suggested grouping the context under three categories: the innovation, the context, and those coming from the interaction between the innovation and the context. For their part, Fleuren and collaborators (2004) further developed these three categories by dividing the context into the characteristics of the environment, the characteristics of the user groups, and the characteristics of the organization. Thus, the *innovation*, *environment*, *user*, and *organization* categories are appropriate for my research, since Fleuren and collaborator's (2004) findings were based on innovation within healthcare organizations and are recognized for identifying determinants of innovation in the health sector.

The *innovation* category refers to elements such as the degree of novelty, the level of radicalness, and the relative cost of the innovation. Thus, it is important to understand the types of innovations, as research findings suggest that the challenges and the facilitating factors vary among them. To distinguish these various types, multiple taxonomies have been used in the

innovation literature (Kimberly and Evanisko, 1981; Swanson, 1994; Tidd, Bessant and Pavitt, 2001; UNESCO, 2005; Varkey, Horne and Bennet, 2008) with varying levels of materiality, such as equipment, software, or processes (Tidd, Bessant and Pavitt, 2001) and ranging in intensity from disruptive/radical to non-disruptive/incremental (Christensen, Grossman and Hwang, 2009; Omachonu and Einspruch, 2010). In the Alpha case, medication carts were a relatively simple innovation that had been successfully implemented in several hospitals of comparable size, and this consideration reduced the perceived risks linked to the technology itself.¹⁰ As mentioned earlier, Alpha could be considered a laggard in implementing this technology; however, they had been quite active in other medication error reduction initiatives in the past.

The *environment* category refers to changes, threats, and opportunities (Tidd, Bessant and Pavitt, 2001), such as a new law or governmental funding opportunity, directly impacting operations. In this case, there were government-led initiatives to reduce medication errors that provided funding for various hospitals. Alpha took advantage of this opportunity because of the hospital's limited funds.

The *organization* category can be evaluated through elements such as organizational size, organizational structure (Tidd, Bessant and Pavitt, 2001), department collaboration history, time availability, organizational climate, financial resource availability, and management support (Fleuren, Wiefferink and Paulussen, 2004; Klein and Knight, 2005). The hospital had conducted various projects to reduce medication errors (i.e., internal committee, unit-dose packing robot in pharmacy, etc.). Moreover, some lean projects had been carried out with much success in the organization, as they involved the appropriate people, creating a positive momentum around future initiatives. Thus, several units were looking forward to participating in this error reduction initiative. However, this eagerness was not shared throughout the organization. Alpha had multiple sites with different cultures, and this situation created much difficulty in generating beneficial change for all stakeholders.

¹⁰ In a 2005 study in 44 hospitals in the province of Quebec, this technology ranked 4th on 12 common projects aimed at reducing medication errors, and it was shown that over 50% of these hospitals had implemented the medication carts (Gouvernement du Québec, 2005).

Finally, the *user* category can be assessed with elements such as experience/knowledge, turnover, ownership/involvement, and capacity (Fleuren, Wiefferink and Paulussen, 2004; Klein and Knight, 2005). Nursing staff at Alpha were looking forward in the implementation of medication distribution carts and had been inquiring about when this project would go forward.

The only negative contextual factors fell under the *user* category: some recurring skirmishes between the pharmacy and several wards and the cultural divide between the two hospital sites. The trust issues between the pharmacy and the units resulted from delays in receiving medication, restrictive pharmacy schedules, and missing medication. It is important to specify that these issues were minimized as a result of the growing lean culture within the hospital and the CI manager's involvement, which produced increased collaboration between these two work groups. Moreover, the rivalry between the two sites stemmed from the fact that projects were often initiated by the larger hospital and then implemented in (imposed on) the second smaller hospital, resulting in varying levels of resistance. Many respondents referred to these contextual factors in their comments, as illustrated below:

Both hospitals are quite proud and like to be independent [...] there are really two distinct cultures [...] they like to adapt projects to their own reality [...] it's very difficult to have standardized changes. The larger hospital determines their own methods, as long as they achieve results and the smaller hospital is just straight-out resistant to change. -Pharmacy Manager

However, the rivalry between hospitals was minimized for this specific project, since users from both hospitals were looking forward to receiving medication distribution carts even though the pilot was conducted only in the larger hospital.

Alpha's initial context (summarized in Table 12) appeared to be relatively favourable and the risk of failure relatively small. This technology was simple and proven within the healthcare landscape, the users were looking forward to the arrival of these carts, and they had received government funding to implement this innovation.

Table 12 Alpha's initial context

Contextual (Environment, Organization, People, Technology)	
Positive influence	<ul style="list-style-type: none"> • Environment: Government funding opportunity to reduce medication errors. • Organization: Successful lean initiatives (people-oriented) and other error reduction initiatives in the hospital. • People: Many users were asking when they would obtain medication distribution carts. • Technology: Medication distribution carts are a simple, yet proven technology.
Negative influence	<ul style="list-style-type: none"> • Organization: There was a merge of two sites with distinct cultures. • People: There was a general lack of trust between wards and the pharmacy department.

Considering all of the above elements, I question the decision that was made to conduct a resource intensive pilot project within this innovation process, even more so when considering that the pilot project's implementation guidelines were not fully utilized for the hospital-wide implementation. Thus, in alignment with the Alpha case study findings, I formulated the following proposition:

Proposition 2a: Mindful organizing implies that the initial project context *is* considered by the innovation process team in the innovation process.

4.1.2.2 Project success

Project success was analyzed using the framework discussed in the literature review chapter. As initially presented, innovation success was divided between process and outcome measures and followed a temporal sequence to represent the success analysis for the initiation and implementation phases (Nelson, 2005; Shenhar *et al.*, 2001; Whitworth and Friedman, 2009). As Alpha's implementation was conducted in two consecutive steps, the first being the pilot and the second being the hospital-wide implementation, I divided my analysis accordingly. Using information provided by key informants, Table 11 summarizes my analysis of Alpha's innovation project's success.

Table 13 Alpha's project success summary

Initiation:	
Process-Project analysis and fit	Stakeholders agreed upon the technology fit needed and financing offered. The nurses and pharmacy (key stakeholders) believed it was a good investment for the hospital. The technology was adopted (decision to go forward with the project).
Implementation:	
Process-Project management	Pilot: Minimal delay and on budget. Specifications: Five pilot goals represented the project specifications were met; however, none had measurable objectives.
	Hospital-wide: On time and on budget. Specifications: The technology itself met the agency's specifications. The implementation project goals were not defined.
Outcome-User	Pilot: Users were pleased with the innovation, were all using it, and did not want to go back to the old system. Efficiency gains were perceived by change targets (nurses).
	Hospital-wide: Users were pleased with the innovation, were all using it, and did not want to go back to the old system. There were variable benefits in each unit, as the implemented process was not standardized (i.e., more/less steps, time and security in the medication distribution process).
Outcome-Organization	Pilot: Five specified pilot goals were met. Hospital management capitalized on the learning, requesting the creation of an implementation guide for future hospital-wide implementation.
	Hospital-wide: Incapacity to measure specific outcomes in regard to medication distribution errors (no measures). Minimal learning derived from hospital-wide implementation.

In the initiation phase, the upper management representative, leading the core team at that time, decided to adopt the medication carts on the basis of the ongoing medication error reduction initiatives in the hospital, the funding opportunity, and the overall willingness from the various stakeholders to receive this innovation. Accordingly, he determined to go forward with the medication distribution carts, and all the involved stakeholders demonstrated a positive reaction to this decision, which translated into overall initiation phase success.

As previously specified, implementation phase success was analyzed in two deployments: the pilot project followed by the hospital-wide implementation in the remaining units. The pilot started in January 2009 and was intended to be completed within a year. In my process success analysis, I noted that minimal delays were experienced, such as those linked to the late arrival of the demonstration carts. The budget was not an issue, as the carts themselves were financed by the government. However, the hospital had to provide the time and effort for the implementation. Finally, the pilot specifications, divided into five goals, were accomplished during this initial

implementation process. These five goals were specific¹¹; but none of them had measurable or tangible objectives, making it difficult to truly assess success. A member of the initiation team observed that:

There is a general problem with projects in hospitals, there are rarely measurable objectives at the beginning of a project [...] in this project there were no measurable objectives, it was clear they wanted to reduce medication errors; but when I asked. How many errors are done today? Do we want to reduce them by half? [...] I did not receive an answer [...] I think they have some of this information but don't want to share it. - Purchasing and logistics specialist

In the pilot, users were pleased with the innovation; they were all using it and did not want to go back to the old system. Nurses were taking advantage of the numerous benefits (i.e., fewer steps, less preparation time, etc.) they had participated in creating during the lean project. Organizational outcomes for the pilot were also positive, as Alpha had reached its project objectives and capitalized on the knowledge built during the pilot with the creation of a guide for future implementations (i.e., organizational learning).

As for the hospital-wide implementation's success, I began by analyzing the deployment process. The hospital-wide implementation that started in May 2010 was completed within the planned timeline and budget. While the technology itself met the agency's specifications, no project specifications were clearly stated following the pilot besides rolling out the implementation in all other nursing units within a year, which was accomplished; but because of this generality, much difficulty was created in evaluating user and organizational outcomes. Consequently, the outcome analysis is based on perceptions.

As with the pilot, the users were generally pleased with the innovation itself; they were all using it and did not want to go back to the old system. However, according to the implementation team, the use and value of this innovation varied across units, as many did not follow the implementation guide and best practices (i.e., missing items, carts not parked in reserved

¹¹ The goals were to evaluate and map the current medication distribution process, to determine the future process through eliminating non-value added activities when possible, to test and adjust the future process with a prototype in a pilot implementation, to confirm the value that the use of medication carts would bring to administering drugs, to document the process of using the carts in a unit, and identify to key implementation success factors.

positions, unlocked drawers, etc.). The hospital-wide implementation team accompanied each unit during their implementation, giving them training and support. However, upon encountering resistance, they did not impose the use of the guidelines and best practices found within the implementation guide. Also, they noted that the nursing manager's involvement in each unit was directly related to project's success, as the nursing managers were responsible for supporting and directing their personnel towards the desired results. Organizational outcomes were somewhat positive, since Alpha reached its goal to implement in all units within a year. However, benefits varied between units and project results were not objectively or quantitatively measured. Although unsure of whether the medication errors had diminished, management and users were content with this more secure distribution process.

Finally, while users' and management's perception was that the project was successful, my own analysis was not so conclusive. The initiation and the pilot implementation appeared to be successful; however, the result of my hospital-wide implementation success analysis was mitigated. The lack of clear measurable objectives minimized the perceived success. Thus, this innovation process can be considered a half-success (i.e., a successful failure) in which users and management perceived the innovation process as being a success but the project specifications (i.e., desired outcomes) had not been clearly specified (Nelson, 2005).

As presented in my literature review, the process and outcomes goals must be defined in order to compare the current and future states and to determine if the project was successful. Process goals include the following: if the project was on schedule, if it was on budget, and if it delivered the desired product. Outcome goals include the use of the innovation by the targeted stakeholders and the value and learning that the innovation project brings to the organization to better engage with future challenges (Table 1 Research's innovation project success dimensions, p. 20).

However, as presented in this case study, while some process goals had been identified (i.e., time and budget), no measurable outcome goals had been explicitly identified and shared. Thus, it was difficult to determine if more or fewer actions were required to achieve success during the innovation process. For example, in the Alpha case study, the new hospital-wide implementation team let users defer from the implementation guide upon resistance. According to the CI

manager, this situation generated varying levels of benefits within each unit. Moreover, as the project outcome was not being measured, the implementation team did not have the incentive to increase their efforts in implementing all the proposed changes.

Thus, beyond consideration of the context, mindful organizing is also linked to the establishment of one or more clear, realistic, and measurable objectives that guide the innovation process team's actions. Identifying specific objectives, or desired outcomes, would help project teams select the appropriate events and their intensity in order to obtain success. As shown in this first case study, not having clear, realistic, and measurable objectives led project team members towards mindless organizing. Consequently, I put forward the following proposition:

Proposition 2b: Mindful organizing implies that measurable process and outcome goals are explicitly stated by project team leaders and shared among key stakeholders.

As proposed, decisions within the innovation process (i.e., the events to be conducted) should consider the context of the process prior to and during the innovation process as well as the desired outcomes. However, considering context and desired outcomes in a decision-making process can be quite cumbersome if not appropriately focused. Thus, in order to pursue the development of mindful organizing, the following section presents a multi-perspective framework to help investigate and further contextualize decision making in the innovation process.

4.1.2.3 Mindful organizing: a multi-perspective concept

Alpha's case study analysis showed that specific mindfulness attributes were valuable in providing a general view of mindfulness; however, they appeared somewhat restrictive in my understanding of innovation process outcomes. Moreover, I realized the importance of considering context prior to and during the innovation process in combination with the desired outcomes as a requirement to mindfully organize. Thus, complementing Weick and collaborator's specific attributes, I propose another framework described in the following paragraphs as one that will further contextualize mindful organizing in the innovation process.

It is believed that individuals, or group of individuals, who understand and utilize various frames instead of being stuck in a single narrow perspective are better equipped to comprehend and manage complex situations in organizations (Bolman and Deal, 2008; Rivard and Lapointe, 2007). Accordingly, Rivard and Lapointe (2007) showed that using various frames to answer different questions in information technology implementation processes gave a more complete understanding of the factors and mechanisms that played a role in explaining implementation outcomes.

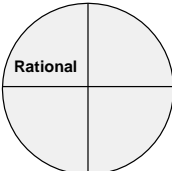
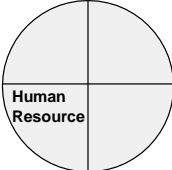
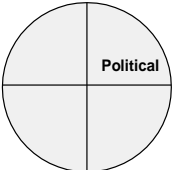
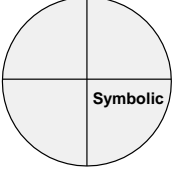
These frames or perspectives have been extensively used in the leadership and organizational literatures. Many organizational theorists agree that no single conceptual model or framework can fully capture the complexity and multifaceted nature of organizational reality (Bolman and Deal, 2008; Linstone, 1984; Morgan, 2006). Frames serve multiple functions; they serve as filters for sorting the important from trivia, they help for navigation, provide tools for solving problems, and in getting things done. As the concept of mindfulness in the innovation process is linked to grounding decisions in organizational facts and specifics, the use of multiple perspectives may facilitate the development of a more comprehensive view of the events.

The frames group numerous perspectives that enable decision makers to imagine the perspectives of others, better match solutions to challenges, and meet different needs through creative solutions (Linstone, 1984; Quinn, 1984; Bolman and Deal, 2008). Linstone (1984) developed various perspectives for decision makers to bridge the gap between analysis and action. He recognized that decision makers could not rely solely on technical analysis and modeling when dealing with complex real-life systems. His framework included a technical/analytic perspective augmented by two other types of perspective, the organizational/institutional and the personal/individual. Quinn's (1988) competing values model was developed to analyze the complexities of organizational and managerial performance. His model had four essential components: human relations, internal process, rational goal, and open systems. From these components, four competing organizational demands emerge that all leaders face: innovation, commitment, efficiency, and performance; and from these demands, a corresponding role is given to the leader as being either a vision setter, motivator, analyzer, or task master, respectively.

Quinn's (1988) competing values model is closely related to Bolman and Deal's (1984, 1997, 2003, 2008) four-frame theory as it argues that effective leadership and management require the ability to utilize different orientations of leadership style. Bolman and Deal (2008) ponder that change efforts often fail because leaders operate with a limited perspective using only one or two lenses to conceive projects and then misread, or entirely miss, unanticipated consequences of their actions. Accordingly, their multi-perspective framework presented in Table 14, greatly referenced in the organizational change and leadership literature, has been proven useful to analyze context from different angles, including the rational, human resource, political and symbolic perspectives. For example, depending on the context and the desired outcome a meeting can be a formal occasion for decision making (rational frame), an occasion for sharing feelings (human resource frame), an opportunity to “win points” (political frame), or a sacred occasion to celebrate and transform the culture (symbolic frame).

Supplementing their predecessors, Bolman and Deal (2008) include a symbolic lens that represents events such as celebrations of various “wins” and the official shutdown of an old system, often overlooked in other multi-perspective frameworks (Ash *et al.*, 2001; Linstone, 1984). I would expect the symbolic perspective to be important in the healthcare context as the culture, traditions, and various stakeholder groups exert a strong influence on change initiatives. Thus, following my survey of multi-perspective frameworks and my intimate knowledge of the Alpha case, I selected the framework proposed by Bolman and Deal (2008) to further conceptualize mindful organizing. This framework offers a simple but comprehensive view of the various events within the innovation process in order to evaluate if the context was considered throughout the innovation process team’s decisions.

Table 14 Bolman and Deal's (2008) multi-perspective frames

Multi-perspective frames	Description and examples
	<p>The rational frame emphasizes productivity, clear goals and roles, coordination of individuals/groups through appropriate organizational structure, policies, and rules (i.e., need for different formalized relationships and alignments). Views the organization as a “machine”. Event examples:</p> <ul style="list-style-type: none"> • Assignment of roles and responsibilities to fit tasks; • Creation of plans, reports, control systems, and others that transform in a deliverable; • Planning and monitoring of the strategies, goals, expectations and procedures.
	<p>The human resource frame focuses on people's skills, attitudes, energy, and commitment. Organizations need to consider individuals, each of whom has his or her own feelings, needs, and biases as well as his or her own skills and potential (i.e., need for individuals to feel valued, effective, and in control). Views the organization as a “family”. Event examples:</p> <ul style="list-style-type: none"> • Offering training, seminars, and other development opportunities; • Communicating, listening, and involving stakeholders; • Considering the various stakeholders' needs, including physiological (e.g., health), safety (e.g., financial), esteem (e.g., recognition), and self-actualization needs (e.g., training).
	<p>The political frame concentrates on groups with distinct agendas, power and influence games, alliances and coalitions, negotiating conflicts, and creating compromises (i.e., need to manage the inevitable conflict between supporters and opponents of the new order). Views the organization as a “jungle”. Event examples:</p> <ul style="list-style-type: none"> • Negotiating and bargaining; • Distributing scarce resources (e.g., resource allocation); • Strategy and tactics associated to power (e.g., influencing stakeholders).
	<p>The symbolic frame underlines the need to create symbols¹² such as stories, heroes, rituals, and ceremonies to cultivate commitment, meaning, and enthusiasm (e.g., grief and loss of meaning). Views the organization as a “theatre”. Event examples:</p> <ul style="list-style-type: none"> • Cultivating belief and faith; • Demonstrating changes such as demonstrations or visits; • Considering stakeholders' interpretation of events: “what it looks like”; • Forming of the culture through myths, ceremonies, and stories.

I used Bolman and Deal's frames to explore Alpha's innovation process. As previously specified, the events can be analyzed under each frame. However, each event has a prominent frame (i.e., rational, human resource, political, or symbolic). Thus, to simplify my categorization during this analysis, I positioned the events under their “main” (i.e., most influential) frame. As described below and summarized in Table 15, the use of this framework permitted to categorize all influential episodes and encounters, including those excluded in my initial analysis using Weick and collaborators' attributes (events #1+, #4+, #7+, #12-).

¹²“A symbol is something that stands for or suggests something else; it conveys socially constructed means beyond its intrinsic or obvious functional use” (Zott and Huy, 2007). Symbols govern behavior through informal agreements, shared values, and implicit understandings; they can bring together an organization and individuals to accomplish common events.

Table 15 Alpha's multi-perspective mindful organizing analysis

Perspectives	Mindful Organizing (Events with + = Positive influence, - = Negative influence, +/- = Positive and negative influence)	
	Initiation	Implementation
Rational	<ul style="list-style-type: none"> + Applied for funding opportunity (#1). + Determined they would review medication distribution process by doing a pilot prior to the hospital wide implementation of the carts (#2). 	<ul style="list-style-type: none"> + Created project plan and detailed project description with objectives (#4-pilot). + Tested replenishment processes with the pharmacy. They IDed issues. It was decided they would do a future kaizen project at the pharmacy to improve (#8-pilot). + Implemented carts in pilot, adjusted and improved the process linked to their tests and created implementation guide for the hospital-wide implementation (#9-pilot).
Human Resource		<ul style="list-style-type: none"> + Communicating with, listening to, and considering all stakeholders in the hospital (#5-pilot). - Accepted changes to implementation guide when resistance was encountered (#12-hospital-wide).
Political		<ul style="list-style-type: none"> + Created a multi-disciplinary pilot team (#3-pilot). - Changed team for hospital-wide implementation affecting the capacity to justify and obtain all proposed cart benefits (#10-hospital-wide). + Prioritized units and adapted process (#11-hospital-wide).
Symbolic		<ul style="list-style-type: none"> + Creation of a homemade cart and testing (#6-pilot). + Organized a hospital visit for the various stakeholders, including users and management (#7-pilot).

An important volume of influential events both in the initiation and pilot implementation under the *rational* frame were highlighted using this framework. The events under this perspective are common as there is a need to structure and plan various events. For example, within the pilot implementation, rational events included the official project plan (#4+), determining that there would be a future lean project in the pharmacy (#8+), and testing the proposed changes and creating a guide for the hospital-wide implementation (#9+). Alpha's relatively positive context could partially explain this focus on rational events. Indeed, at the beginning of the project, there was no political or human resource issue, the project was symbolically accepted by all stakeholders, and they simply needed to conduct the required rational events to conclude the innovation process. Considering the hospital's reality, where various stakeholder groups often had different agendas, formalizing, testing solutions, and sharing the project information (i.e., rational events) were important to improve potential outcomes.

Also, some events were oriented towards the *human resource* frame, such as the bi-directional communications between the frontline workers and middle management (#5+) during the pilot's lean project and the hospital-wide implementation team's acceptance of various changes upon encountering resistance (#12-). This last example is an interesting case in which the initial mindfulness attributes did not provide insight on the event. Considering the human resource frame in analyzing this episode, I detected a permissive ("laissez-faire") strategy according to which the team did not push the implementation of all initiatives found during the pilot (i.e., within the guide) when faced with resistance. This appeared to have a negative influence on the innovation process outcome, first because it created variability in the benefits obtained between departments and second because they did not capitalize on the learning done during the pilot. This resulted in mindless organizing as the new team did not have the required skills and commitment to support these initiatives. Considering this frame in my analysis showed that human resources, including the team itself, must have the right skills and knowledge to support the innovation process. Thus, evaluating the events under the human resource frame highlights the team members' individual mindfulness as it affects mindful organizing in the innovation process. This is especially important in the healthcare context where change leaders, such as an implementation team, must keep their credibility in order to align and support the multiple stakeholders.

Few events belong to the *political* frame; however, they had the most important impact on the innovation process during the hospital-wide implementation. For example, the core team changed for the hospital-wide implementation, negatively affecting their capacity to justify and obtain all proposed cart benefits (#10-). According to the CI manager, this change generated repercussions that were not viewed as too unreasonable, especially when taking into account the organization as a whole (organizational mindfulness). However, my analysis of this project showed that the new core team did not have the same experience and expertise, and this directly affected the end results. The use of this frame in my analysis revealed that the political frame, for example, the power shift brought about by the change of the implementation team, generated mindless organizing in the innovation process. Indeed, considering politics is of prime importance in complex environments such as government entities and healthcare organizations in

which there is a combination of scarce resources and resistance from various groups that have different values, preferences, beliefs, and perceptions of reality (Glouberman and Mintzberg, 2001).

Finally, the pilot team conducted different events that had a *symbolic* meaning, notably the creation of homemade carts (#6+) and the organizing of an external site visit (#7+). These permitted various stakeholders to visualize a medication distribution process and validate their findings, thus reducing stress and risks. For both events, they created a sense of involvement in the change for the frontline workers, making it fun, giving them pride, and providing a visualization of the impending change. In the healthcare sector, this frame holds a particular meaning, especially if it can affect patient care, as many employees in this field feel a sense of vocation and seek to make a difference in human welfare. However, for this specific innovation process at Alpha, the innovation had already been proven to positively affect patient care, making one wonder if these symbolic events were required to achieve the desired results (i.e., mindless organizing).

Using Bolman and Deal's frames to analyze specific events in the innovation process revealed additional perspectives and understanding on various episodes and encounters, helping me to determine if the team considered the context throughout their decisions. For example, at Alpha, nursing personnel were eager to start using medication distribution carts prior to the innovation process. Moreover, as this innovation was simple and had proven results, it had a low probability of generating issues. Nevertheless, the organization decided to conduct the initial pilot implementation using a lean methodology. This method required users to participate in every stage of the process to maximize adherence and results, thus demanding more resources (especially time).

Using my multi-perspective framework to analyze this event, it appears that the important efforts and resources, under the rational and human resource frames, invested in this project could be questioned, considering the positive context and pilot objectives (as shown in Figure 15 below). At the time of the implementation, lean projects were still fairly new in the hospital. One might suppose the true intent of conducting a lean project in this context was to promote the lean

approach (i.e., political intent) for future projects rather than to ensure this particular project's success, especially when taking into account the changes encountered during the hospital-wide implementation.

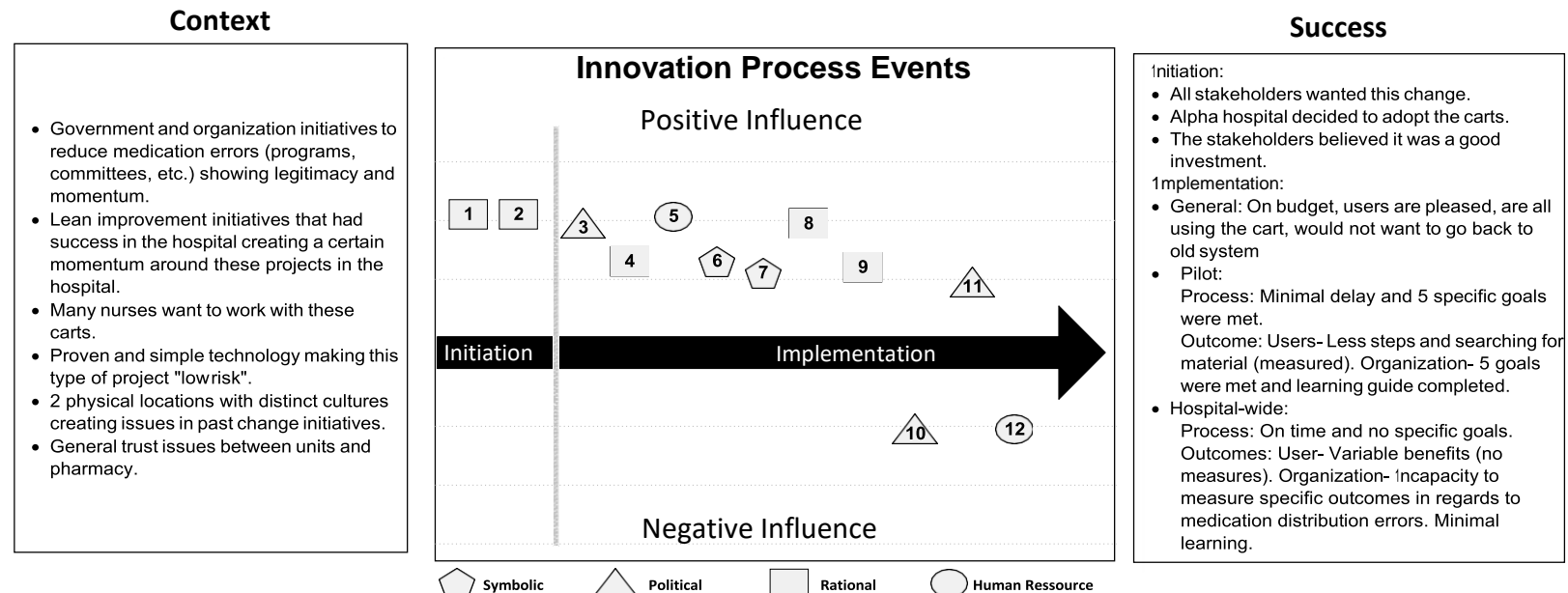
Thus, from analyzing Alpha's very positive context and vague outcome expectations (i.e., no measurable outcome goals specified), I question the intensity of the multiple events that took place within this innovation process that resulted in mindless organizing. This analysis demonstrates that considering the context and desired outcomes should help innovation process teams identify and modulate the required rational, human resource, political and/or symbolic events to positively influence the innovation process outcomes (Figure 15 below). For instance, a project affecting various stakeholder groups combined with aggressive goals would indicate the importance of prioritizing events under the political frame to achieve the desired outcomes. I formulated the following proposition to include lack of consideration of the context:

Proposition 2c: Mindful organizing implies that the innovation process team members identified and modulated rational, human resource, political and/or symbolic events according to context and desired outcomes.

In this first case study I investigated the implementation of medication carts, used by nurses to distribute prescription drugs to patients in the wards, based on my initial conceptual framework (Figure 6 presented in my literature review). Following this analysis, I realized that Weick and collaborator's mindfulness attributes needed to be adapted in order to be meaningful in an innovation process context. I demonstrated the use of including the innovation process's context to mindfully organize. Thus, I incorporated Bolman and Deal's multi-perspective frames to enhance contextualisation when determining the events that will be conducted within the innovation process. The inclusion of this multi-perspective frame permitted to increase my understanding of the links between mindful organizing, context and success.

Focused on the planning stages, this frame complements Weick and collaborators' attributes for anticipating and containing issues during the innovation process. Considering the theoretical developments presented in this first analysis, I adapted my analysis methodology to include the context and Bolman and Deal's multi-perspective framework for the subsequent case study analyses.

Figure 15 Alpha's innovation process, context and success



Note: Numbers 1 to 12 represent Alpha's twelve innovation process events shown in Figure 14

4.2 Case 2 – Patient Transportation System at Beta Hospital

This second case study investigates the adoption and implementation of a patient transportation system at Beta hospital. I conducted over 14 interviews with various stakeholders involved in the innovation process, received documentation, observed the system, and made a site visit following the implementation in order to develop the following case study.

4.2.1 Case study

Beta, a Canadian hospital of over 554 beds offering medical and surgical care, had been under pressure to reduce the operational deficit while maintaining service levels. Its mission is to give general and specialized care, to teach, and to conduct research. In the 2007-2008 fiscal year it had admitted nearly 15,100 patients, conducted 10,400 surgeries (minor and one day) and handled 197,000 outpatient visits. To conduct these operations, Beta had over 363 physicians, 3,900 employees (nurses, professionals, technicians, etc.), 110 managers, and 170 volunteers spread over 30 services including emergency, specialized departments, hospitalization units, and support services. Except for the deficit, Beta's environment had been relatively stable; and there were no plans for a merger, new constructions, or changes in their organizational strategies. However, Beta, like many hospitals in Quebec, was undergoing multiple innovation initiatives, such as the construction of new infrastructures (e.g., emergency), the deployment of new clinical information systems (e.g., electronic medical systems), and the introduction of other medical technologies.

Offering a wide variety of services, Beta had no important recruiting issues. Employees were reputed to be very loyal, and they often stayed for their entire career. Consequently, the respondents interviewed during my data collection had an average of over 20 years of seniority. According to a manager who had worked in a number of hospitals, this organizational culture was thought to render change more difficult, as each stakeholder group (i.e., doctors, nurses, or units) was seen to be like a family trying to guard its rights and specific interests:

This hospital has a very strong culture [...] this could be linked to the fact that many doctors and nurses spend their entire career here [...] they haven't seen other ways of doing things [...] often the various silos (departments) are up against each other [...] they

have different views on various issues [...] and compete to obtain limited resources. - ES Manager

During the 2007-2008 fiscal year, the hospital spent \$289 million CAD and produced an operating deficit of \$5 million CAD. This situation was not uncommon; previous fiscal years had also shown operating deficits oscillating around the authorized \$5 million CAD threshold imposed by the regional health agency.¹³ As operating deficits directly impact funding and reputation for years to come, Beta had already undertaken the task of revising its processes. Numerous innovations, such as new forms of treatment (e.g., heliotherapy, new transplants), new technologies (e.g., ADT for appointment management and virtual patient files), and tools (e.g., bed management dashboard) were either being evaluated or implemented with varying levels of success. In May 2008, two committees were created to get the hospital back on track. The first focused on a clinical reorganization, and the second aimed to improve financial performance. During that same period, Beta hired a consulting firm to analyze its operations. The consultants identified various improvement opportunities. One of these opportunities was related to the patient transportation process. Management's understanding of this patient transportation project was that it would auto-finance itself by improving operations while improving financial performance. Patient transportation at Beta was managed in a decentralized manner that created unnecessary resource duplication, and they also had limited personnel.

¹³ In Quebec, Canada, the agency in the context of health care is a governmental entity responsible for all the health and social services provided in their territory. Thus, there are multiple regional health agencies in the province of Quebec that are supervised by the government.

Description of the “as is” patient transportation process:

The emergency and specialized (ES) departments¹⁴ arranged for patient transportation using dedicated nursing auxiliaries. When requested, their staff went to the hospitalization unit with the appropriate equipment (e.g., wheel chair, stretcher, etc.). The nursing auxiliary would greet the patient, who had been prepared by another nursing auxiliary in the hospitalization unit and transport him to his appointment. Once the appointment was over, she returned the patient to the hospitalization unit. When the patient was not ready or there was an issue at the hospitalization unit, the nursing auxiliary would call the affected ES department to notify them of the delay, giving possibilities for schedule readjustments. These dedicated transportation resources would also help nursing auxiliaries in the hospitalization units prepare the patient when necessary. The ES department managers were content with their services. However, these nursing auxiliaries were often idle, waiting for transport requests or for a patient to finish his appointment, instead of giving care to patients.

In addition to resource duplication and idle time, the hospital did not know how many transports were conducted or if there was any wait time for transportation. According to the logistics manager, this lack of transparency of operations was felt between the departments, creating inefficiencies and wait times for patients and/or personnel. Indeed, emergency and specialized (ES) departments would often complain that nursing auxiliaries in hospitalization units did not assist in preparing the patients. This lack of assistance created appointment delays and cancellations in ES departments, justifying the need to use a dedicated nursing auxiliary who could prepare the patient upon arrival in the nursing unit. Indeed, an ES Manager stated *“When the dedicated transportation clerk arrives, the patients are normally not ready [...] many excuses are given [...] such as the patient needed to go to the washroom.”*

According to the associate manager of logistics, many hospitals had since 2000 centralized their patient transportation process to address these issues, and most seemed to have achieved good results. A small team of upper management representatives at Beta went to visit one of these sites. They came back convinced of the benefits that such an initiative could bring. This new technology would allocate staff to patient transportation requests using a telephone infrastructure (landline or cellular) and computer network. The system, called SERVVOX, would require users to call the transportation central when patient transport was needed. Using the telephone keypad,

¹⁴ Emergency and Specialized departments (ES) comprise departments such as emergency, radiology, physiotherapy, operating room and other departments where the patients see specialists, are diagnosed, and receive treatment. Hospitalization units are locations where patients have their rooms and receive general care.

the applicant would have to indicate her origin, type of transport required, and destination. The applicant could also record, in a voice message, any special instructions for the transportation auxiliary (TA) when she took charge of the specified transport. In response to the user's requests, the system would assign the transportation to staff through the telephone infrastructure. When a TA became free (i.e., had completed the last transport or just started working), she would call the central system. This call would either identify that she had started working or that the last assigned transportation had been completed and would identify the TA's location. The system would then allocate the next closest transportation, giving verbal orders with a synthesized voice. This software had the capability to optimize routes, assign priorities, minimize response time, and distribute the requests fairly between staff members. In addition, the new transportation manager would have a computerized display panel allowing him to view all the completed, current, waiting, and planned transportations in "real time". Users, mainly ES managers, could also have the software installed on their workstations to view pending requests. Furthermore, since information on each call would be stored in a database, the transportation manager could generate reports to better understand operations and potentially improve them.

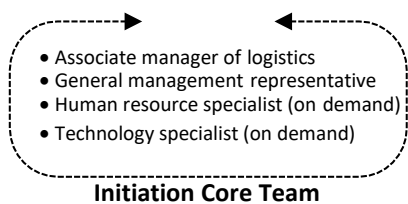
Upper management believed that patients would also benefit from this innovation by having less waiting time. The departments would profit by relieving care resources from non-care activities. The personnel conducting transportation activities would be valued by having the importance of their job recognized. And, finally, the operational budget would benefit by eliminating the nursing auxiliary positions that conducted patient transportation tasks with much idle time.

In October 2008, upper management finally determined it was time to move forward with this project. The associate manager of logistics (Logistics AM) was appointed project leader because he had experience with patient transportation and sufficient knowledge of the hospital context. A few months after the decision to conduct a preliminary project evaluation, the upper management committee enquired why the project had not yet started. Indeed, the Logistics AM had foreseen problems with this project, since it would affect resource allocation. The main difficulty was to have the project auto-finance itself through budgetary cuts that needed to be accepted by the concerned ES departments. Upper management had stated that the new centralized patient transportation department would be created with resource hours that were currently allocated for

transportation by nursing auxiliaries in the ES departments. Thus, the Logistics AM needed appropriate support from upper management and had started soliciting various stakeholders to get their buy-in; but this, in turn, delayed the preliminary project evaluation: *“I always go talk to my clients prior to a project [...] to motivate them [...] I normally start by those that have the power to say “no”; [...] however, we should never underestimate the roles of each stakeholder even if they are not up in the hierarchy.”* - Logistics AM

This support was crucial as many stakeholder groups would be impacted by this project and some did not want the change. Indeed, the Logistics AM specified that changes affecting multiple stakeholder groups in the hospital were more difficult because these groups normally worked in silos and clung to their own benefits over the success of the whole organization. In light of this reality, an upper management representative was appointed to support the Logistics AM to give enough “power” and “credibility” to the core team. As shown in Figure 16, the initiation’s core team was assisted by a human resources specialist, who would provide information on various constraints and propose alternatives, and a technology specialist, who would specify the requirements and prepare the implementation plan.

Figure 16 Beta’s initiation team – Core team

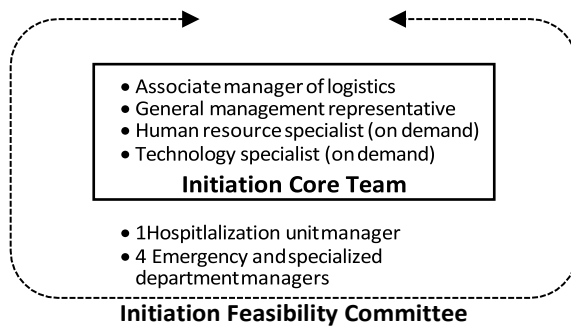


In November 2008, after discussions between the core team and human resources, it was determined that the project could potentially auto-finance itself by cutting transportation hours in each department the creation of a new position called transportation auxiliary (TA). Satisfied with this recommendation, upper management decided to go forward with a second step in the initiation phase.

The goals of this step were to identify system requirements, to prepare feasibility hypotheses, to prepare a project plan (including a timeline and action plan), and to review the preliminary financial plan (auto-financing). To do so, a feasibility committee including members of various

ES departments (5) and a member of a hospitalization unit was created (see Figure 17). This committee would be involved on an ad-hoc basis, depending on the core team's needs. One ES department member noticed that the hospitalization units were underrepresented in the committee: *"I didn't see many hospitalization unit managers at the meetings [...] we were told that their committee representative diffused the information to all hospitalization units managers."* - ES department manager.

Figure 17 Beta's initiation team – Feasibility committee



The core team and feasibility committee's mandate was to complete their evaluation before the end of January 2009. They started by visiting 3 hospitals that had centralized their patient transportation services. The core team was highly interested in using the same technology, as the visited hospitals appeared to generate good results. However, each site was different. The core team created a table to compare what had been implemented in each site, the requirements, how it was done, the results, the tools that were used, various suggestions, etc. Indeed, *"during the visits we saw the technology in action [...] we created a comparative table [...] we summarized the best practices of each implementation [...] and shared the information with those who had not come to the visit."* - Upper Management Representative

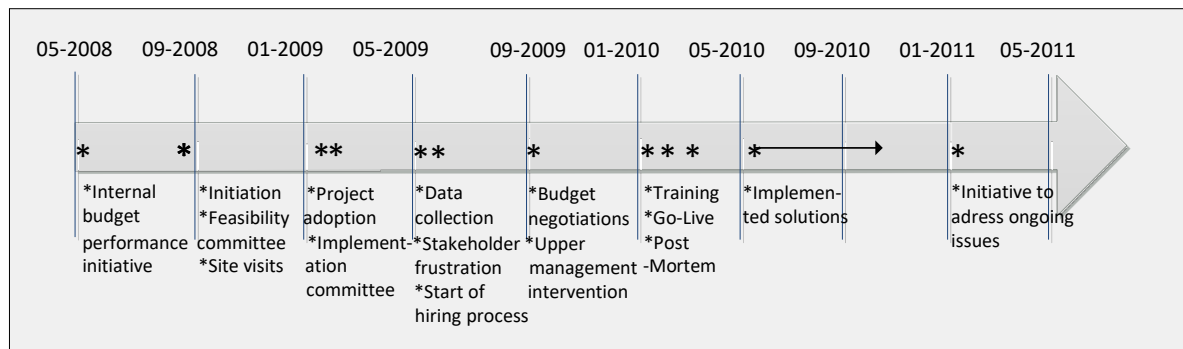
With this comparative table they were able to determine exactly what they wanted. Many meetings took place where the core team presented their vision of the department to the rest of the committee. The core team envisioned a centralized patient transportation service that used the patient transportation software in combination with the current infrastructure (telephones and computers) to minimize cost and facilitate implementation. Moreover, they determined that it would be profitable to include the repositioning and disinfection of the transportation equipment

in this project to eliminate current equipment issues. Nursing auxiliaries conducting patient transportation would be freed for care-oriented tasks, and Beta would hire transportation auxiliaries, a position that required less training and a lower salary and who were already present in the union's collective agreement. The ES managers liked the idea that they would have more personnel conducting clinical tasks.

The ES managers questioned the scope of services that would be provided by the centralized transportation service. The transportation department's working hours would be Monday to Friday from 7:00 to 24:00 o'clock and weekends and holidays from 7:30 to 18:00 o'clock. The core team told users that this new department would eliminate all tasks linked to transportation between departments, including emergency transportation (STAT). Nevertheless, some ES managers verbalized their concerns related to the promises that came with this innovation: *"Prior to implementation they had told me the system would cover our STAT requests [...] but for us STAT is an immediate need, not when the next clerk is available."* Moreover, *"some ES managers were very frustrated as they felt they were not listened to [...] we told you about this and that but you did not consider them."*

Considering the hospital's cultural reality, the core team did not investigate these concerns any further and saw them as mild "resistance" to change. During this period, word of this initiative started spreading non-officially in the hospital hallways: *"In the hallways people were saying it's (the arrival of SERVUX) coming [...] and many thought it wouldn't work."* - Nursing Auxiliary

Figure 18 Beta's innovation process timeline



*: Events

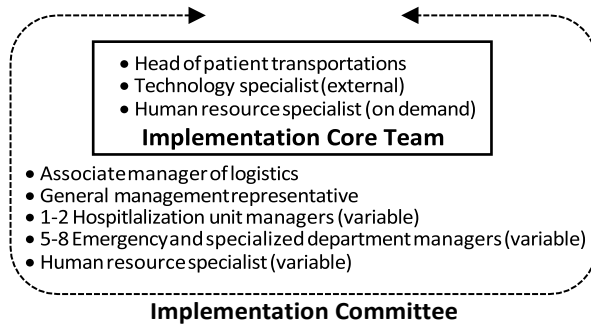
As shown in Figure 18, the core team presented the feasibility report to upper management, fulfilling the various initiation goals, and received the approval to go forward with the project adoption in February 2009. The feasibility committee ES managers had mixed feelings about the initiative. Some heard that a centralized patient transportation service implementation using the same technology went wrong in a nearby hospital and were sceptical about the anticipated benefits. This nearby hospital had not been selected for the site visits: *“I called in a few hospitals that had experience with this technology, one had back tracked and went back to the old system because of coordination issues between departments.”* - ES Manager

Also, some ES managers were wondering if they would really benefit from this initiative.

Upper management requested that this implementation be completed in a little less than a year, that is, by January 2010. Without establishing specific goals, upper management sought to improve patient transportation and free clinical personnel from non-clinical activities. The core team created a new implementation committee with the mandate to facilitate the centralized patient transportation system implementation (see Figure 19). For the most part, all feasibility committee members went onto the implementation committee. Additionally, other managers (users) from ES departments, a human resource specialist in change management, and another hospitalization unit manager joined the group. Members were involved in the official meetings to provide information, receive updates, and ask questions. Some ES managers thought that the hospitalization units were being underrepresented on the implementation committee, mainly because the newly involved hospitalization unit manager rarely came to meetings: *“If I recall there were only one or two hospitalization unit managers involved; actually I remember that only one of them was actively involved [...] it was mainly ES department managers.”* - ES Manager

However, the ES managers were told by this hospitalization unit manager that the information was transmitted to the other hospitalization units: *“I would bring back the information related to the patient transportation project and share it during our weekly meetings.”* - Hospitalization Manager

Figure 19 Beta's implementation team



The core team underwent certain changes at the start of this new implementation phase. In February 2009, the newly promoted head of the patient transportation (PT) department, already employed at Beta, took over leadership of the implementation. The upper management representative and the Logistics AM stepped down but still followed the project in supporting roles and by attending implementation committee meetings. The Logistics AM, the direct superior of the head of PT, was informed of the project's advancement but was not involved in the day-to-day tasks. The core team also included an external technology specialist and a human resources representative. The technology specialist, contacted by the Logistics AM, had worked on the successful implementation of this technology in two other hospitals. Also, involvement of the human resources (HR) department was necessary to manage the HR technicalities and to address staffing and change management issues. One of the first tasks of this new committee was to confirm the number of budget hours to be recuperated from each department. Thus, in February 2009, the core team requested additional data from the various departments, for example, the number of transports per day. However, they did not receive much information in return. The new head sent reminders and spoke with some managers but without much success.

When the upper management representative came back from vacation four weeks later, she found that the project had not progressed as anticipated. The core team was facing issues in gathering data to complete the resource evaluation. Following a meeting with the head of the new PT department, the upper management representative decided to create a project plan with responsibilities to increase accountability and move things along. This project plan included elements linked to communication, human resources, programming, construction of the new offices, finances, etc. By April 2009, the core team had finally received general data from each

department. According to the team's calculations, there were on average 400 patient transports per day in the hospital.

At that time, word of mouth had it that all the nursing auxiliaries' doing transportation would lose their positions and be redirected towards care activities. These nursing auxiliaries conducting transportation activities were normally the most senior employees. According to the nursing auxiliaries, this position was sought after, as it offered more socializing opportunities, idle time, and was generally easier than performing clinical activities. These nursing auxiliaries were frustrated because they had not been involved in or formally advised of the upcoming change. No official communication on the project had been transmitted to all. They approached their union with this situation in May 2009: *"We heard about the project unofficially in the hallway [...] the union didn't get involved [...] one week before go-live we had an official announcement telling us that the nursing auxiliaries would not conduct transportation activities anymore."* - Nursing Auxiliary

According to the core team, the union could not do much since no nursing auxiliary was losing his or her job, but just being asked to perform nursing auxiliary care instead of transportation tasks. Moreover, even if there were no transportation auxiliaries at Beta, the position existed in the collective agreement. Considering these facts, the core team did not need to negotiate or gain approval from the union to move forward with this initiative, and this created even more frustration for the senior nursing auxiliaries who felt they were being robbed from their jobs. For example, the ES Manager stated that *"Nursing auxiliaries were not happy as their job changed [...] they would now stay in the units and conduct care activities."* Also, a core team member expressed that following their meeting with the union both teams *"were happy that nursing auxiliaries would stay in the units to perform care activities [...] when they realized that transportation activities would be conducted by another position, with a lower salary, they changed their opinion."* However, the core team member ensured the organisation was following all the rules resulting in no possible objection from the union.

In May 2009, the head of the PT department and the technology specialist went to get more information in the ES and hospitalization units. They performed some observations, spending a

few hours in each unit, to help them evaluate the number of hours spent on transportation. Using this information, they conducted a preliminary evaluation of how many hours each department would allocate to finance the PT department. However, some ES managers thought this evaluation was not sufficient to represent their reality and determine hours to be claimed to finance the transportation department. As an ES manager said, *“One of the biggest project flaws was the data collection [...] they came a few hours randomly [...] a few hours cannot represent our reality [...] demand fluctuates every day.”* The hospitalization units supported this project and did not have specific concerns, as they were not losing budget hours to finance the project. Finally, the core team evaluated the transportation equipment and concluded that additional equipment should be purchased.

At about the same time, the core team noticed many absences during the implementation meetings, more specifically of the ES representatives who did not want hours cut out of their budget. These ES managers felt there was no real value in going to these meetings since they were not listened to. Some of the ES representatives stated that they did not think the initiative would be successful, as they were not convinced of the benefits of adding steps in the transportation process. Indeed, as one ES manager stated, *“Many managers were like me and had a hard time seeing the true gains and value of this project for ES departments [...] incoming patient flow is crucial in our activities.”* As a matter of fact, the new system would have the ES department call the hospitalization unit before the patient’s appointment to advise them. The hospitalization unit would have to ask their nursing auxiliaries to prepare the patients and then call the transportation system to place a request. The TA would arrive as soon as possible; she would greet the prepared patient, transport, and leave him at the requested destination. After the appointment, the ES departments would request a new transportation to bring the patient back to his room. Many, including radiology and physiotherapy department (ES) managers, wondered if this system would be reliable, as they were depending on many people to receive their patients on time. They did not want to lose control over their transportation because this activity was critical in ensuring a continuous flow of patients in their departments.

Towards the end of May 2009, the core team presented their findings to the implementation committee. Various issues were discussed during the meeting; for example, resources that

currently conducted the ES department transportation would also have to perform other tasks and fulfill replacements during breaks. With part of the transportation employee hours gone, the ES managers would have to deal with even more pressure. Some ES managers wondered how they would do emergency transportations, since the new system was not able to conduct this type of request. Others questioned the data that had been collected, stating that demand in their departments was so variable that a few hours spent in their department could sparsely portray their true patient transportation volumes. The ES managers, members of the implementation committee, felt that they did not receive satisfying answers to their questions. Accordingly, an ES manager said, *“I was afraid the coordination problem would be even worse with the new system [...] this could be seen as resistance to change [...] however, I’m not against change but just not convinced of the benefits [...] many had feelings similar to mine.”* However, the core team interpreted this as “normal” resistance to change and did not engage in further discussion to resolve potential problems. The core team went forward with the new process as planned.

In June 2009, the TA positions were posted. According to the human resources representative, hiring was not an easy task because they did not have a large volume of internal applicants. Various ES employees, including the nursing auxiliaries, expected this patient transportation project would fail. Many nursing auxiliaries believed that if they stuck together and did not apply for the positions, the human resources department would have to alter the new position’s title from TA back to nursing auxiliary so that they could apply and keep their advantages. Thus, very few applied because they did not want to lose salary and risk being bullied by senior nursing auxiliaries. To their dismay, management did not change the employment title and the nursing auxiliaries were even more frustrated: *“Not many internal employees applied for the positions, mainly people from the kitchen or cleaning [...] for whom it was an increase in salary [...] but no nursing auxiliaries... they were sure the project would fail.”* - Transportation Auxiliary

Therefore, following the internal job posting, the TA position was also posted for external applicants. Finally, the positions were given to a few external applicants but mainly to internal workers from the kitchen, laundry, and materials departments, for whom it was considered a promotion. In agreement with the human resources representative, the technology specialist stated that the hiring process was difficult as there were barely enough employees to support the

department at the go-live stage. However, the upper management representative stated that they had hired one TA more than the number allocated by the budget, which reveals a certain disconnect between the needs and the budget.

In September 2009, the core team revived the negotiations with each ES department to validate the budget hours that had been initially estimated and those that were needed to finance the project. According to the head of the transportation services and upper management, the departments that had created the most resistance were those, such as radiology and physiotherapy (ES), that had the highest transportation/appointment volumes from patients in nursing units and external. As they required a tight schedule to supply demand, these ES managers wondered if this new service would meet their needs and knew that once those hours were out of their budget, they were gone for good. In November 2009, agreements with some departments were still not concluded and the January 2010 go-live deadline was approaching. The upper management representative participated more intensively and used her authority to conclude what the core team called the “negotiations”. According to the HR specialist, *“At one point we didn’t have a choice [...] to make things go forward, if she hadn’t imposed some decisions we would still be negotiating.”*

In parallel to the negotiations, parameterization activities were taking place. The head of the patient transportation department and the technology specialist prepared the infrastructure and the data to be programmed in the system. They created over 30 hospital zones, measured the distance between them, identified origins and destinations, and entered request priorities.

In January 2010, a three-day training program for the transportation auxiliaries was structured and was planned to be given two weeks before going live. Also, a quick 30-minute tutorial was prepared for the targeted users. The core team thought this would facilitate the transition of internal resources and ensure that the training would be fresh in their memories. On the first day, almost no users showed up for training. The upper management representative had to call the managers of each department to remind them that the training was mandatory for the users. The next day, the situation was resolved. During that week, over 350 employees from various departments followed the training. Those who had followed the training were assigned to train

others within their departments so all could be able to place calls once the system was up and running.

Just a few weeks behind the initial schedule, the go-live took place on February 15, 2010, throughout the hospital in the same way in which the technology specialist had implemented this innovation in other hospitals. The transportation auxiliaries were trained and ready in their new distinctive uniform. The users had been given a checklist to assist them in entering their first transportation requests into the system. The core team was ready to supervise the operations and had a contingency plan in case the system went down. Their contingency plan was quite simple: in case of problems in placing transportation requests, users could page the transportation department supervisor who would in turn manually distribute the calls to transportation auxiliaries.

On the day of the go-live, the first calls started at 7:00 a.m. The head of the patient transportation department and the technology specialist acted as a help desk and assisted users in distress. However, the first day did not go as planned. At the worst, there was more than a 1.5 hour wait for transportation that would normally take under 20 minutes. Some transportation auxiliaries were literally running trying to reduce the wait. Some, not used to moving around in the hospital got lost; others had to deal with many patients not being ready or with nursing auxiliaries asking them to perform tasks they were not supposed to do. The interviewed transportation auxiliaries said that senior nursing auxiliaries, impacted by the change, purposely created some delays and even sabotaged the go-live by entering false transportation requests into the system. The head of the department confirmed that transportation auxiliaries would sometimes arrive in hospitalization units where no patient required transportation but did not blame the nursing auxiliaries.

Following the go-live, many ES department nursing auxiliaries, including those who had lost their positions, showed their dissatisfaction and did not collaborate with the new transportation auxiliaries. The nursing auxiliaries in the nursing units were used to having the ES department nursing auxiliaries assist them in preparing the patients and were not keen to help the new transportation auxiliaries. Moreover, at the time of the implementation, some ES nursing

auxiliaries and ES managers still hoped that the project would be abandoned, so they were not inclined to facilitate the go-live: *“The first day was hell [...] we would arrive in the different departments and the nursing auxiliaries and even the nurses looked at us with knives in their eyes [...] patients were not ready when we arrived and they would purposely make us wait.”* - Transportation Auxiliary

The head of the transportation department was aware of the go-live issues with the nursing auxiliaries and supported his team as best he could. To compensate for his team’s inexperience, he increased the number of transportation auxiliaries on duty and hired one additional nursing auxiliary. In addition to being available for calls from his internal clients, he routinely called the department managers to investigate their satisfaction with the patient transportation services and find solutions when possible. According to an ES manager, *“He did many follow ups [...] he supplied some data from the new system [...] we did many adjustments.”* For example, the technology specialist had to readjust some distances in the system and reduce the number of zones because they were creating inefficient TA movements. The technology specialist was present during the first few days to ensure the system was stable; and then, the head of the department provided support.

Some transportation auxiliaries left the department within a few days after go-live. Some stated that the intimidation and pressure were too much to handle. Others expected the work to be similar to what the transportation nursing auxiliaries had done before this centralization, but such was not the case. Indeed, according to the department head, the transportation auxiliaries’ every move was now monitored in the system and there was very little idle time. To compensate for these departures and high transportation volumes, the core team sought to hire and train more transportation auxiliaries.

By mid-March 2010, the technology was working without problems. However, according to the transportation department head, it was not so much the technology that had caused problems, but rather organizational issues such as patients not being there or not being ready, peaks in demand, missing equipment, and inefficient task distribution.

Specific problems had occurred shortly after the go-live, such as a patient whose oxygen cylinder emptied during his transportation or when a hospitalization unit called the transportation system for an emergency situation (STAT) and was not answered quickly enough. During the first implementation committee meeting after the go-live, ES members stated that these problems, long delays, and missed appointments were unacceptable. They now had to rely on the hospitalization and transportation departments instead of being self-sufficient. ES managers specified that many of these problems had been identified before the go-live but had not been addressed properly by the core team: *“The last meeting was really bad [...] they were not even listening to each other, everyone was arguing [...] sometimes for a good reason while other times not.”* - ES Manager

According to the head of the transportation department, some ES managers collaborated in finding solutions to minimize the wait times while others, such as the radiology department, refused to cooperate and were still frustrated about the recent changes and impacts on their activities. The radiology department manager had identified issues before the implementation but had not agreed to the cut in budgeted transportation hours. Accordingly, this department was now suffering delays in patient arrival and multiple missed appointments. The head of the transportation department noted an increase in the tension between radiology and the core team throughout the project that had created a lack of communication and collaboration.

As for STAT transportations, identified as a potential problem by ES managers, the core team's initial solution did not meet their requirements. Indeed, even considering the priority placed on the call, there was still some waiting time as the transportation auxiliaries did not have a telephone on them. The STAT request was on hold until the next TA was available to take the call, and this could take up to 20 minutes. After an explosive implementation committee meeting, the ES managers concluded that they would have to ensure their own emergency transportations. They requested a re-adjustment of the budget hours taken from their department. The upper management representative told them it was too late. The ES managers were furious: *“Transportation auxiliaries don't come fast enough when there is an emergency transportation request [...] we do these transportations [...] but we gave away our budget hours [...] they had promised we would have this service [...] this is a big problem.”* - ES Manager

According to ES managers, another issue was that secretaries taking their calls in the hospitalization units would not always proceed with the transportation request in a timely manner, verify if the patient was in his or her room, and call the transportation or ES departments when there was an issue (e.g., delay). For their part, the nursing auxiliaries in the hospitalization units stated that they were not always available to prepare a patient for transportation when a request arrived and could not predict when the patient would need to go to the washroom or have other medical issues, which created some delays. Some ES managers decided to manually measure the time between their call to the hospitalization unit to advise of an imminent appointment, and the time the request was entered in the transportation system showing the impact the nursing departments had on the delays. They communicated this information to the head of the transportation department telling him that his team was not the root cause of these problems, but that it was the staff in the various hospitalization units.

After the first month, the head of the patient transportation department had a better picture of the transportation demand. He adjusted the department schedules from 7:00 a.m. to 10:00 p.m. instead of 7:00 a.m. to 12:00 a.m. to recuperate hours and give better service during peaks. However, there was still congestion between 9:00 a.m. and 10:00 a.m. and between 1:00 p.m. and 2:00 p.m. In fact, almost all ES departments requested patients at the same time in the morning and after lunch, creating a bottleneck followed by a period of few to no requests. This created much fluctuation during the day, making it difficult to plan a feasible schedule and maintain low wait times. Moreover, the head of the transportation department realized that some departments were batching their calls and were thus creating artificial demand peaks. The ES departments showed, once again, their disapproval regarding the schedule change during the implementation committee meetings. These departments still had requests after 10:00 p.m. and would now have to conduct these transportations even though they had given away their budgeted hours that would have covered that period.

Discussions took place during the post-implementation meetings (post-mortem) to find solutions to appointment (demand) bottlenecks, such as spreading out demand more evenly throughout the day or interchanging patients who needed transportation and those who did not. The core team proposed the entry of pre-schedules to incorporate known appointments in the system, which

created a more even transportation flow towards ES departments, thus eliminating the need for the hospitalization unit to call the transportation system for these specific appointments. Some ES departments changed their method while others, such as the radiology department, refused to collaborate and used their own system. Indeed, the radiology department would request their entire patient load at 9:00 a.m. for appointments to be given in the following two hours to minimize late patient arrivals and missed appointments. However, this contributed to creating even higher demand peaks and delays.

Shortly after system deployment, the head of the radiology department departed. The new manager stated that the circumstances around this departure were not completely clear, but it appeared to be linked to the recent events. Many issues were resolved with the arrival of the new head who came from another hospital where a patient transportation system had been deployed with much success. According to the head of the patient transportation department there was increased communication and a desire to put the department back on track, as this department was still suffering important delays and many missed appointments. Routine implementation committee meetings stopped shortly after the go-live because these meetings were meant to coordinate the implementation process. However, some ad-hoc meetings were organized between the transportation team head and various ES department managers: *“Not all departments were having issues [...] implementation committee meetings were not as important for some at one point.”* - ES Manager

When upper management looked back at the first year after implementation, there were unquestionably some issues, but there were also some benefits. The implementation had been completed with very little delay and was only slightly over budget. As previously specified, they had hired an extra transportation auxiliary, which affected recurring costs. Patient transportation was now centralized and accounted for. Indeed, they now had better control and detailed information to monitor performance and take corrective actions. The transportation auxiliaries were now recognized as a distinct position throughout the hospital. Personnel no longer had to search for equipment, as it was strategically positioned by the transportation auxiliaries. Also, the transportation equipment was well maintained and disinfected. Nursing auxiliaries could focus

on caregiving activities. Moreover, resource duplication and nursing auxiliary idle time related to patient transportation was eliminated.

However, while tensions and issues had diminished, they were still present. Depending on the perspective, there were still mixed feelings about the system. The hospitalization unit managers were pleased because they had more nursing auxiliaries to fulfill patient care tasks. The ES department managers would still prefer going back to the old system since they had more transportation issues and delays impacting their day-to-day work. They partially blamed the hospitalization units for the delays affecting their department. ES managers stated that performance with patient transportation was variable. Some days were perfect, but others were catastrophic. Some ES managers thought that no system would be able to fix the issue, that it was a problem associated with current work methods and a lack of collaboration between departments: According to an ES manager, *“Hospitalization departments don’t cooperate [...] that’s the real problem [...] not the transportation department.”* The nursing auxiliaries who were impacted both in the nursing and ES departments were still unhappy and would prefer to go back to old methods. Finally, the head of the patient transportation department was pleased with the progress made in the last year. Indeed, the transportation department had continuously improved the services across the hospital. For his part, the Logistics AM was aware of the ongoing issues and intended to resolve them by increasing collaboration between departments and eliminating silos. He was looking into the creation of a new interdisciplinary committee to identify solutions for the existing problems.

4.2.2 Refinement of the mindful organizing characterization

The aim of this section is to characterize Beta’s mindful or mindless organizing that took place within the patient transportation system innovation process. Throughout this second case, I progressively developed my research propositions (presented in Table 17), seeking to conceptualize mindful organizing in the innovation process. As proposed during the first case study, I supplemented my analysis with Bolman and Deal’s multi-perspective lens and separated Weick and collaborators’ mindful organizing attributes into two distinct categories: those to anticipate and those to contain the unexpected.

Table 16 Research propositions following Alpha case study

<p>Proposition 1a: Mindful organizing in an innovation process occurs when the innovation process team anticipate and take action to prevent issues.</p> <ul style="list-style-type: none"> Includes the following mindfulness attributes: desire to avoid failure (a1), reluctance to simplify interpretations (a2), sensitivity to operations from frontline and back-office employees (a3). <p>Proposition 1b: Mindful organizing occurs when the innovation process team show agility to contain the unexpected.</p> <ul style="list-style-type: none"> Includes the following mindfulness attributes: commitment to agility (a4*) and relying on expertise and formal authority (a5*).
<p>Proposition 2a: Mindful organizing implies that the initial project context is considered by the innovation process team in the innovation process.</p> <p>Proposition 2b: Mindful organizing infers that measurable process and outcome goals are explicitly stated by project team leaders and shared among key stakeholders.</p> <p>Proposition 2c: Mindful organizing implies that the innovation process team members identified and modulated rational, human resource, political and/or symbolic events according to context and desired outcomes.</p>

In the same manner as I analyzed the first case study, I selected fourteen influential encounters and episodes (described in Figure 20) that had a positive or negative effect on Beta's patient transportation innovation process. As in the first case, I followed my analysis with the evaluation of the project's context and then assessed the extent to which the project was successful.

Figure 20 Beta's innovation process summary



As with the Alpha case study, I initiated my analysis by using Weick *et al.*'s mindfulness attributes (a1 to a5 shown in Table 9, p. 51) as my baseline proposition aims to develop the concept of mindful organizing in the context of healthcare organizations' innovation processes. Relating the selected influential episodes and encounters to Weick and collaborators' (2001; 1999) adjusted mindfulness attributes (a1 to a5) to facilitate comparisons within the three case studies, I present my initial assessment in Table 17.

Table 17 Beta's mindful organizing attribute analysis

Attributes	Mindful Organizing (Events with + = Positive influence, - = Negative influence, +/- = Positive and negative influence)	
	Initiation	Implementation
a1- Desire to avoid failure (learning from issues and near misses)	+ Identified improvement opportunity following recurring operational deficit and consulting evaluation (#1).	- Changed leadership in core team and committee members for implementation, affecting their capacity to generate change (#6). - Stopped the implementation committee meetings while there were still issues to be resolved (#14).
a2- Unwillingness to simplify interpretations (considering large volumes of information)	+ Created the initial core project team (2#).	- Communications to stakeholders were few, brief, and mainly uni-directional (Redefining, restructuring, and clarifying steps) (#8). - Minimized nursing auxiliary and implementation committee resistance issues (#9). - Stopped the implementation committee meetings while there were still issues to be resolved (#14).
a3- Sensitivity to operations (frontline workers need to be familiar with operations beyond their own job in order to get a clear picture of the situation)		- Evaluation of budget hours to be recuperated: collaboration issues (#7). - Communications to stakeholders were few, brief, and mainly uni-directional (Redefining, restructuring, and clarifying) (#8). - Minimized nursing auxiliary and implementation committee resistance issues (#9). - Stopped the implementation committee meetings while there were still issues to be resolved (#14).
a4*- Commitment to agility (when there are issues, organizations should be flexible and mobilize themselves in special ways to deal with various events and crises)		- Evaluation of budget hours to be recuperated: collaboration issues (#7). - Negotiations with upper management and departments to finalize budget hours (#10). + Supported patient transportation team at go-live and completed a few readjustments (#12). + Realized organizational issues and problems, created and implemented solutions in collaboration with the users (#13). - Stopped the implementation committee meetings while there were still issues to be resolved (#14).
a5*- Reliance on expertise and formal authority (when there are issues, gather the appropriate organizational members to generate the required authority and knowledge)	+ Created the initial core project team (2#). -/+ Involved upper management representative (#3). +/- Created the feasibility committee (4#).	- Changed leadership in core team and committee members for implementation affecting their capacity to generate change (#6). - Evaluation of budget hours to be recuperated: collaboration issues (#7). - Negotiations with upper management and departments to finalize budget hours (#10). + Supported patient transportation team at go-live and completed a few readjustments (#12). + Realized organizational issues and problems, created and implemented solutions in collaboration with the users (#13). - Stopped the implementation committee meetings while there were still issues to be resolved (#14).
Events that were not categorized	+/- Feasibility committee evaluation: - user involvement, + site visits, - auto-financing (#5).	+ Prepared and gave adapted training sessions (#11).

In contrast to the first case (Alpha), this innovation process encountered various unexpected events (i.e., issues) that permitted me to analyze how those involved reacted. Thus, events linked to attributes focused on preventing problems (including desire to avoid failure, reluctance to simplify information, and sensitivity to operations) and attributes focused on resolving problems (including commitment to resilience and relying on expertise rather than formal authority) were present in my analysis.

Consequently, I conducted the analysis of the selected influential episodes and encounters (events #1 to #14 presented in Table 17) using the following attributes: the desire to avoid failure (a1), sensitivity to operations (a2), unwillingness to simplify interpretations (a3*), commitment to agility (a4*), and reliance on expertise and formal authority (a5*).

First, the initial project team members showed their *desire to avoid failure (a1)* in the initiation by following upper management's recommendations to improve the transportation process because of a recurring operational deficit and a report from an external consultant (#1+). In contrast, the arrival of a new project team in the implementation phase affected the team's capacity to generate change (#6-) and the termination of implementation committee meetings, while there were still issues to be resolved (#14-) and no desire to avoid failure was demonstrated. When considering the peculiar context (presented in section 4.2.2.1), it is surprising that the team's actions did not display a greater desire to avoid failure. These two events (#6- and #14-) showed that contextual knowledge was not fully considered in their decision, and this lack of taking into account contextual knowledge translated into mindless organizing.

In light of the analysis above, I maintain that the desire to avoid failure attribute (a1) appears to have its place in characterizing mindful organizing in an innovation process. Interestingly, both Alpha and Beta underwent a change of leadership in their core team during the innovation processes, and this change negatively impacted the subsequent events (i.e., due to a lack knowledge of the initiation). In both cases this decision came from upper management (rather than the core team) and did not demonstrate a desire to avoid failure, with the result being mindless organizing.

Second, the organization showed its *unwillingness to simplify interpretations (a2)* when they created the initial core project team (2#+) including stakeholders with the knowledge and the power to initiate this innovation. However, the implementation phase was not as positive, since the initial project team simplified their interpretations of various events and transmitted this simplified interpretation to the new implementation project team. First, communications to stakeholders were few, brief, and mainly uni-directional (#8-), creating a disconnect between the team and the users. Next, they minimized nursing auxiliary and implementation committee resistance issues (#9-), resulting in greater problems during and after the go-live. Finally, they stopped the implementation committee meetings while there were still issues to be resolved (#14-).

Three of the four events classified under this frame showed the project team's lack of alertness to the ongoing events before larger issues arose. As communications were already an issue between stakeholder groups, ceasing implementation committee meetings produced a larger disconnect and information simplification. The team did not challenge the status quo, took people and process for granted, and did not organize in ways to process a maximum amount of information through technologies and workforce involvement. These events showed a lack of bi-directional communications and revealed that minimizing resistance issues (i.e., *information simplification*) contributed to the mindless organizing within this innovation process.

I posit that the project team simplified their interpretation process, thus contributing to the mindless organizing within this innovation process. Beta's innovation process team did not show their desire to avoid failure and simplified information in a context in which they should have sought to anticipate the unexpected. Alpha's pilot project team did the opposite. They showed their desire to avoid failure and unwillingness to simplify information in a context in which the value of such important efforts could be questioned (i.e., proven technology, users wanted the innovation, funding opportunity, etc.). This realization contributes to showing, I believe, that Weick and collaborators' mindful attributes should not be used "on their own" but complemented with a contextual analysis to ground decisions in the organisation's facts and specifics. As there is a relative cost associated with each event conducted within the innovation process, including a relative cost to consider large amounts of data in the decision

making process (i.e., reference to reluctance to simplify information), organizations should strive to achieve the right equilibrium between the desired results and the required resources.

Both Alpha (following my revised view including the context) and Beta simplified information, which resulted in mindless organizing within their respective innovation processes. Consequently, the reluctance to simplify information attribute (a2) appears to have its place in preventing possible mindless organizing in an innovation process.

Third, the team showed very little *sensitivity to operations* (a3*). As proposed in the previous case study, it is not just the frontline workers (i.e., those replenishing or distributing medication using the carts) but rather frontline *and back-office* workers (i.e., the innovation project team) that need to be sensitive to the context, process, and desired results when conducting an innovation process. For example, during the implementation phase, the team completed a hasty evaluation of budget hours to be recuperated in each department, and this resulted in collaboration issues (#7-), and they minimized nursing auxiliary and implementation committee concerns (#9-) and stopped implementation committee meetings while there were still issues to be resolved (#14-). Moreover, communications to stakeholders during the innovation process were few, brief, and mainly uni-directional (#8-).

This lack of sensitivity of the project team caused many difficulties with various stakeholders, as the latter did not think the project team acknowledged their reality. This insensitivity was replicated at the upper management level (i.e., hours to be recuperated, decision to stop committee meetings, etc.), increasing the “disconnect” between each stakeholders’ goal to reduce operational cost (i.e., upper management) and the need to maintain high services levels (i.e., departments). As a result, none of the most influential events categorized under the sensitivity to operations attribute had a positive impact on the innovation process, and this in turn contributed to the project team’s mindless organizing.

In both the Alpha and Beta case studies, I realized that Weick and collaborators’ proposition that frontline workers need to be sensitive to operations (i.e., those requesting or preparing patients for transportation) required further development.

Indeed, both frontline (i.e., innovation users) *and back-office* workers (i.e., the innovation project team and upper management) needed to be sensitive to operations while considering the context in order to anticipate and possibly avoid issues in the innovation process. *Thus, in light of the above analysis, I support Weick and collaborators' sensitivity to operation (a3*) attribute and maintain my previous addition that includes sensitivity of frontline and back-office workers' operations in order to mindfully organize.*

As initially proposed, the first three attributes (a1, a2 and a3) appear to be linked to preventing issues in the innovation process. However, these attributes were somewhat overlooked in Beta's innovation process (e.g., lack of alertness to failure (*a1*), information simplification (*a2*) and insensitivity to operations (*a3**)), resulting in mindless organizing. Thus, following this second case study analysis, I retain my aggregation of the first three mindful organizing attributes under a "prevention proposition".

Proposition 1a:

Mindful organizing in an innovation process occurs when the innovation process team anticipate and take action to *prevent* issues.

My analysis of the fourth attribute, *commitment to agility (a4*)* rather than commitment to resilience, showed that the project team did not respond or recover well from unexpected events during the implementation. While the project team had a contingency plan in case of technology failure, most issues were not technology-related but people-related. Indeed, Beta's innovation process team showed little agility, such as not being receptive and taking action, to the various crises (mentioned above) that were unfolding with the managers (i.e., loss of budget hours and less service), the employees (i.e., loss of positions), and the patients (i.e., increased delays).

For instance, there were problems in evaluating budget hours to be recuperated in each department. Even with the upper management representative's involvement, collaboration with ES managers was difficult (#7-) because the latter group generally believed their needs and concerns were not being considered. As negotiations were stagnant, the upper management representative dealt with this situation in a special way

by imposing the budget cuts (#10-). While this event showed agility to organize in a special way, it resulted in various levels of frustration within the ES departments. For example, following the go-live, the core team recognized that the transportation system could not truly conduct emergency transportation (i.e., STAT). Thus, nursing auxiliaries in the ES departments still conducted STAT transportation services. This resulted once again in much frustration among the ES department managers as they still had to conduct STAT transportation services and management did not return part of the transportation hours taken from the ES department's budget. Furthermore, the project team stopped the implementation committee meetings while there were still issues to be resolved (#14 -).

Finally, the head of the transportation department did show some *agility* following the go-live by supporting the transportation auxiliaries (#12+) and collaborating to find solutions to various issues brought forward by the users (#13+). However, this appeared to be insufficient (i.e., “too little, too late”) to change the negative opinion produced during this innovation process.

As previously described, when coping with the unexpected, mindful organizing in an innovation process appears to be focused on agility and considering the context and desired outcomes. However, in both Alpha and Beta, the various examples revealed that the project team did not anticipate, respond, or recover in a positive manner from unexpected events. Indeed, Beta's innovation project team showed very little agility and consideration of the context prior to the go-live (e.g., to conclude budgetary negotiations), resulting in mindless organizing. *In light of the above analysis and in agreement with my initial case study, I maintain that innovation project teams need to be agile (commitment to agility, a4*) in order to mindfully organize in the innovation process.*

My analysis of the fifth and last mindfulness attribute, *reliance on expertise and formal authority (a5*)*, showed varied results. Interestingly, the initial core team was created on the basis of expertise and authority (#2+) and included specialists and management. However, once the initiation was completed, the new team relied on authority rather than expertise for ad-hoc requests (#3+/-). While having upper management's support

can sometimes be beneficial, Beta's upper management representative was primarily focused on meeting time and budget metrics and using her power to make the process go forward. Although, the feasibility committee included various stakeholder groups, hospitalization units were greatly underrepresented. This contributed to a lack of understanding between the hospitalization units (i.e., where the patients are located) and the emergency departments (i.e., where the patients had to go for their appointments) when there were underlying coordination issues. This lack of expertise in the innovation process team resulted in mindless organizing.

Moreover, feasibility committee members were not treated as experts but rather as spectators (#4+/-), and this created much frustration for the ES managers. In the implementation phase, the ES managers' frustration grew as the project team relied on formal authority (i.e., on the Logistics AM and upper management representative) rather than expertise by imposing budget hours to be recuperated from each ES department (#7- and #10-) and stopping implementation committee meetings while there were still issues to be resolved (#14-). This was perceived as the project team's lack of interest in resolving issues with the process experts (i.e., emergency services and the hospitalization departments). After the go-live the Logistics AM and upper management representative were less present. The transportation department head took greater initiatives and sought to resolve various issues by collaborating with the different stakeholder groups (#12+ and #13+).

In this case study, the project team generally relied on formal authority rather than expertise and created much frustration (i.e., cutting budget hours for transportation services they would still have to conduct). In a similar fashion, both the Alpha and Beta innovation processes were initiated with teams having more expertise but were implemented by teams that relied on authority. *Interestingly, this same combination resulted in mindless organizing in Beta's innovation process.* While formal authority is of great importance in Canadian healthcare organizations (i.e., the public sector), there should be a certain equilibrium between authority and expertise in order to mindfully organize.

Thus, this second case study moved in the same direction as the initial case study and suggests a link between a lack of agility and mindless organizing. Moreover, in the first case study it appears that formal authority can be beneficial in order to make innovation projects go forward when multiple stakeholder groups are involved. *Thus, I support Weick and collaborators' previously modified fifth attribute, relying on expertise and formal authority (a5*), in order to mindfully organize.*

My analysis of Beta using these two “containing” attributes revealed that the team did not show a commitment to agility (a4*) and relied on authority rather than the combination of expertise and authority (a5*), resulting in mindless organizing. The Beta case study revealed that the core team did not rely on expertise but rather formal authority and they did not show commitment to agility when there were issues and resistance from various stakeholder groups. Conversely, Alpha’s pilot implementation revealed a reliance on expertise and a commitment to agility in addressing issues and concerns immediately. Alpha’s hospital-wide implementation did not continue with the same approach, however. Indeed, the situation was reversed following the change of leadership for the hospital-wide implementation, as they relied on authority rather than expertise, which resulted in mindless organizing.

Thus, following this second case study analysis, I retain my previous 1b proposition that groups the two last mindful organizing attributes under containing unexpected events.

Proposition 1b:

Mindful organizing occurs when the innovation process team show agility to *contain* the unexpected.

As presented in Table 20, and explained above, the use of Weick and collaborators’ five attributes to characterize Beta’s mindful organizing appeared vague in terms of providing meaning because certain events could be categorized, once again, under multiple attributes (i.e., #6, #7, #8, #9, #10, #12, #13, #14) while others could not be categorized (i.e., #5, #11), thus minimizing its value. While improved, the combination of these five attributes within a proposition on preventing the unexpected (1a) and containing the unexpected (1b) to characterize mindful organizing in an innovation process would be incomplete. Indeed, my previous case study showed that considering

the context should influence the mindful organizing events that take place within the innovation process. For example, according to my analysis of Alpha's very positive context, the innovation process team appeared to have used more resources than required, which resulted in mindless organizing. Conversely, considering Beta's difficult context would have identified various issues to consider and address, such as employee resistance.

4.2.2.1 Project context

As proposed in my previous case study, various elements influence healthcare organizations' innovation processes, such as rigid structures, complex decision-making processes, risk aversion, limited financial support, and the conflicting goals and needs of multiple stakeholder groups. These contextual elements ought to be considered in order to mindfully organize. Thus, as suggested by Fleuren and collaborators (2004) and accomplished within my first case study, I evaluated Beta's context using the following categories: the innovation, the environment, the user group, and the organization.

The *innovation* category refers to elements such as the degree of novelty, the level of radicalness, and the relative cost of the innovation. Patient transportation technologies, an innovation implemented in various hospitals in the region, had proven benefits. This innovation was not considered highly complex or radical, as it used current infrastructures and the task at hand remained the same, being to transport patients from point A to point B. However, it still impacted work processes because management was centralized and simple technologies were used to optimize transportation auxiliaries' tasks.

The *environment* category refer to changes, threats, and opportunities (Tidd, Bessant and Pavitt, 2001), such as the current tendency towards centralization of patient transportation services in hospitals, that generate a certain momentum towards this innovation.

The *organization* category can be evaluated through elements such as organizational size, organizational structure (Tidd, Bessant and Pavitt, 2001), department collaboration history, time availability, organizational climate, financial resource availability, and management support (Fleuren, Wiefferink and Paulussen, 2004; Klein and Knight,

2005). Beta had already initiated committees to review processes and budget performance. Moreover, an external consulting firm had identified patient transportation centralisation as an opportunity for the hospital to generate savings and improve processes.

As summarized in Table 18, Beta's initial project context appeared to have a mixed (positive and negative) influence on the innovation process. While some contextual factors showed possible positive influence on the project, other negative factors could easily outweigh them. Thus, the context of Beta indicates that the innovation process team ought to have been cautious and alert and have used the necessary precautions to avoid surprises.

Table 18 Beta's project context

Contextual (Environment, Organization, People, Technology)	
Positive influence	<ul style="list-style-type: none"> • Environment: Tendency towards patient transportation centralization in hospitals. • Organization: Need to review processes/budget performance, and a consulting firm identified patient transportation opportunity. • Technology: Centralized patient transportation technologies have proven benefits.
Negative influence	<ul style="list-style-type: none"> • Environment: General resource shortage in hospitals and at Beta. • Organization: Operating deficit, lack of funds to finance project (need for auto-financing), politicized culture. • People: Strong silo culture rendering cross-functional change difficult. Patient transportation is a critical activity for ES departments, making them guarded in relation to change.

I discovered examples where the consideration of context avoided possible issues (i.e., mindful organizing) and where context was not considered, resulting in various problems (i.e., mindless organizing). For instance, during the project initiation, the Logistics AM considered context (i.e., organization and people) when he discussed the upcoming project with some managers. Indeed, several managers were interested in this initiative but sceptical of its promised benefits, as there were many possible issues. The Logistics AM demonstrated some mindful organizing when he spent time with these managers, seeking to stimulate engagement and minimize resistance prior to the implementation.

Some contextual factors had a negative influence on the project's innovation process. Beta's recurring operational deficit and resource shortage led upper management to go forward with the centralization of patient transportation services to reduce costs. They sought to auto-finance the project by recuperating budget transportation hours within each affected department (#5-, #7), which instantly created resistance from the various ES departments, especially in regard to the loss of control over their incoming flow of patients (i.e., ES department's nursing auxiliary with the old system versus the transportation auxiliary and the nursing department's nursing auxiliary with the new system). Patient transportation was a critical activity in the emergency and specialized (ES) departments: the incoming patient flow directly affected their ability to work. They were therefore cautious about any change that could impact this flow: *"Many managers were like me and had a hard time seeing the true gains of this project for ES departments [...] incoming patient flow is crucial in our activities."* - ES Manager

Thus, considering the context is important, but the process to achieve the desired outcome is equally important. In this case, the implementers did not mindfully organize because they focused on reducing the operational deficit (i.e., context), which consequently disadvantaged the ES departments and ultimately the patients.

Interestingly, during this case study analysis I realized that the context changed during the innovation process. For example, the nursing auxiliaries' showed much dissatisfaction towards this innovation from the moment they heard, unofficially, that those conducting transportation activities would be losing their positions. While this situation (i.e., dynamic context) was acknowledged by the project team, no compensatory actions were taken because they were following all the union's requirements (i.e., no one was losing his or her job, and the transportation auxiliary position existed in the collective agreement) and they had upper management's support. This situation generated numerous subsequent difficulties, such as the lack of nursing auxiliary collaboration with the new employees at go-live, which created long wait times and stress.

In retrospect, Alpha's pilot project team was alert and realized that their innovation would create a workload increase for the pharmacy (i.e., they considered new

information related to the innovation's dynamic context). They evaluated this "unexpected outcome" and determined, in collaboration with upper management, that a future improvement project would take place in their department to improve current processes and reduce the workload. On the contrary, Alpha also showed some mindless organizing when they did not consider the effects of changing the team head for the hospital-wide implementation. Even though this decision was planned, it had a major impact on the context of the innovation process and was evaluated as an occurrence of mindless organizing (i.e., loss of project-related knowledge). Thus, considering the evolving context during an innovation process appears to be relevant to characterizing mindful organizing.

As a complement to my first case study, I believe that considering the innovation process's initial and dynamic context, including its environment, the organization, the people and the innovation itself, is of prime importance to characterize the concept of mindful organizing. *Beta's project team did not unambiguously consider and react appropriately to changes in the context, more specifically those linked to the organization and people, as in the examples listed above.* Thus, as shown by the Alpha and Beta case studies, not considering enabling and negative contextual elements prior to *and during* the innovation process may result in mindless organizing because the core team will not have the correct information to develop compensatory mechanisms.¹⁵ This dynamic aspect of context is alluded to in Vogus and Sutcliffe's (2012) conceptualization of mindful organizing, when they stress that it needs to be constantly reasserted, and complements Swanson and Ramiller's (2004) proposition that an organization must consider its own facts and specifics to obtain mindfulness in the innovation process.

Thus, in line with the previous literature (Swanson and Ramiller, 2004; Vogus and Sutcliffe, 2012) and my initial case study, I modify the second proposition to include consideration of the changing context during the innovation process.

¹⁵ Compensatory mechanisms permit innovation project teams to react and adjust to the unknown in order to achieve the desired results.

Proposition 2a*: Mindful organizing implies that project context *is* assessed by key stakeholders *prior to and during* the innovation process.

4.2.2.2 Project success

As proposed in the literature review, project success is more than just meeting time and budget. Process and outcome-based metrics appear appropriate to evaluate innovation process success. Interestingly in both the Alpha and Beta case studies, very little quantitative data or metrics were shared. As a result, my analysis of its success was based on information provided by key informants. Table 19 presents my analysis of Beta's innovation process success.

Table 19 Beta's project success summary

Initiation:	
Process-Project analysis and fit	Not all stakeholders wanted this change. The technology was adopted. Some key stakeholders did not believe it was a good investment for the hospital and, hence, thought it was not a good decision.
Implementation:	
Process-Project management	Minimal delay. The project did not auto-finance itself (e.g., recurring cost of an extra transportation auxiliary). Only process-related goals specified. The technology met most specifications; however, those that were not met (e.g., STAT transportation requests) had major repercussions.
Outcome-User	Users were generally not pleased with the innovation; they were using it for most transportation but wanted to go back to the old system (not for intra-department and emergency transportation). They had less transparency and control over the process.
Outcome-Organization	No specific organizational learning. There were more delays, missed appointments, and continued major coordination issues between departments.

The initiation process began in October 2008 with an initial evaluation of the project from the core project team. Following this initial evaluation, upper management decided to go forward with an in-depth feasibility analysis. Thus, in late November 2008 the core team and feasibility committee started their mandates. The objectives pursued during the initiation phase were to prepare a feasibility report that included the implementation prerequisites for the centralized transportation system, to identify a feasibility hypothesis, to prepare an action plan including a time line, and to analyze auto-financing feasibility. At this early stage, nursing auxiliaries were already opposed to this change, and many ES managers were questioning the anticipated benefits for both

the patients and their departments. The core team presented a feasibility report in January 2009 and fulfilled their planned objective of completing a preliminary project evaluation to verify if the project could auto-finance itself. The project was approved by top management before the end of January 2009. According to my definition of project success, it would appear that the initiation phase was a mitigated “failed success”, for the initial objectives were met and the technology was adopted (i.e., process). However, not all stakeholders thought that this innovation had the potential to improve transportation operations for patients and departments (i.e., outcome). Moreover, there were already some signs of resistance from the nursing auxiliaries.

For the implementation success analysis, I also considered process (i.e., time, budget, and specifications) and outcome measures (i.e., users and organization). For the process analysis, the initial deadline was January 2010; however, the go-live occurred in early February 2010, a few weeks behind schedule, which management considered to be an acceptable delay. The project budget was an important concern, as the initial request was that the project would auto-finance itself. This created much pressure on the project team because the ES managers did not want to give away their transportation budget hours. In the end, the project was not on budget. Prior to go-live, the transportation department had already hired one TA (transportation auxiliary) more than allocated for by the budget to cope with various issues. Thus, without even receiving exact budget figures, these facts indicated that the project was not auto-financing itself (i.e., more costs than savings).

The technology met most specifications, meaning that transportation requests were now managed under a centralized software connected to the telephone infrastructure. This software/telephone infrastructure was easy to use and facilitated resource allocation modifications. However, with the arrival of this system, the roles and responsibilities of the new TAs were not clearly defined. In turn, this created situations in which TAs refused to fulfill some demands. Moreover, the service was supposed to supply emergency transportation (STAT), but ES managers quickly realized that they would not receive the expected service. This realization resulted in their having to conduct STAT transportation without recuperating budget hours. This contributed to their negative perception of the project.

As for the project's outcomes, the centralized transportation system was used by the targeted users. However, contrarily to what was initially planned; they still conducted their own transportation for movements within the department, for urgent STAT requests, and for transportation outside the new service hours. Overall, users were not satisfied with the new work methods. The emergency and specialized department users who requested high volumes of transportation services suffered from an increased volume of appointment delays and cancellations. After the change, users had less transparency and control over the transportation process.

Moreover, it is interesting to note that the core team and upper management had a relatively positive view of the project's success, whereas most users, with the exception of nursing units, had a relatively negative view of the project and affirmed that they would rather go back to the old system because they were not getting better service. Indeed, the project's organizational value was difficult to evaluate since there were no measurable implementation objectives. Users did not perceive that the innovation brought value or generated organizational learning.

The implementation did free numerous nursing auxiliaries in the emergency and specialized (ES) departments so that they could concentrate on care activities. However, the nursing auxiliaries affected by this innovation showed much resistance in regard to the change in their daily tasks. Furthermore, the organization was able to understand and evaluate their transportation activities because there was more transparency to measure current performance, understand the demand patterns, and take corrective actions. Immediately after the implementation there were more delays, missed appointments, and important coordination issues between the hospitalization and ES departments. One year later, some ES departments still had to conduct some transportation activities (i.e., STAT when transportation department was closed, and internal transportation). Thus, the implementation appears to have been a relative failure both from a process and an outcome perspective.

Following the Beta success analysis, I realized once again that both process and outcome goals must be defined in order to compare current and future states and to determine if a project is successful. While some process goals had been identified (i.e.,

time and budget), no measurable outcome goals had been explicitly identified and shared. For example, in the Beta case study, various stakeholder groups had different agendas, which created different perceptions of what “project success” should be. While time and budget goals had been defined (i.e., process) for this project, there were no specific outcome goals.

Thus, beyond consideration of context, mindful organizing is linked to the establishment of one or more clear, realistic, and measurable objectives that can guide the innovation process team’s actions. Identifying specific objectives, or desired outcomes, would help project teams select the appropriate events and their intensity in order to obtain success. Thus, as presented in the Alpha and Beta case studies, it was difficult to determine if more or fewer actions were required to achieve success, as the organizers had not defined what “success” means. Thus both the Alpha and Beta case studies revealed that not having clear, realistic, and measurable objectives led project team members towards mindless organizing. Consequently, I advance the following proposition.

Proposition 2b: Mindful organizing implies that measurable process and outcome goals are explicitly stated by project team leaders and shared among key stakeholders.

Considering context and desired outcomes is essential to mindfully organize within an innovation process. However, this can be quite cumbersome if it is not appropriately focused. Thus, as per the first case study, I utilized a multi-perspective framework to investigate if Beta’s innovation process team considered both context and desired outcomes while anticipating and containing issues within their innovation process.

4.2.2.3 Mindful organizing: a multi-perspective concept

Both my analyses of Alpha and Beta revealed that mindfulness attributes linked to anticipating and containing unexpected events were valuable in achieving mindful organizing. However, I realized that considering context prior to and during the innovation process in combination with the desired outcomes is definitely required in order to truly contextualize decisions and mindfully organize. Thus, complementing Weick and collaborators’ specific attributes, I used Bolman and Deal’s multi-

perspective lens¹⁶ to analyze whether Beta had appropriately contextualized their decisions (i.e., events). As previously specified, the use of this multi-perspective lens facilitated my analysis by categorizing the events under their “main” frame (i.e., most influential lens). My results for the Beta innovation process are presented in Table 20.

Table 20 Beta’s multi-perspective mindful organizing analysis

Perspectives	Mindful Organizing (Events with + = Positive influence, - = Negative influence, +/- = Positive and negative influence)	
	Initiation	Implementation
Rational	+ Identified improvement opportunity following recurring operational deficit and consulting evaluation (#1). + Created the initial core project team (2#). +/- Created the feasibility committee (4#).	- Evaluation of budget hours to be recuperated; collaboration issues (#7).
Human Resources		- Communications to stakeholders were few, brief, and mainly uni-directional (Redefining, restructuring, and clarifying steps) (#8). - Minimized nursing auxiliary and implementation committee resistance issues (#9). + Prepared and gave adapted training sessions (#11). + Supported patient transportation team at go-live and completed a few readjustments (#12). + Realized organizational issues and problems, created and implemented solutions in collaboration with the users (#13).
Political	-/+ Involved upper management representative (#3).	- Changed leadership in core team and committee members for implementation, affecting their capacity to generate change (#6). - Negotiations with upper management and departments to finalize budget hours (#10).
Symbolic	+/- Feasibility committee evaluation: - user involvement, + Site visits, - auto-financing (#5).	- Stopped the implementation committee meetings while there were still issues to be resolved (#14).

Interestingly, this multi-perspective lens enabled me once again to categorize all the influential episodes and encounters, including those excluded (events #5+/-, #11+) in my initial analysis. The use of Bolman and Deal’s framework permitted highlighting some influential events under the *rational* frame. I included the identification of an improvement opportunity to address the recurring operational deficit following a

¹⁶ As noted in the first case study analysis, Bolman and Deal (2008) believed that individuals, or group of individuals, who understood and utilized various frames were better equipped to comprehend and manage complex situations in organizations in contrast to those stuck in a single narrow perspective.

consulting evaluation (#1+). This improvement opportunity focused on reducing operational costs rather than improving patient service. This appeared inconsistent with upper management's desire to improve patient transportation services and showed mindless organizing. The initial core project team (#2+) and a committee to evaluate the feasibility of this initiative (#4+/-) were created in the initiation phase. In the implementation phase, I included a unique influential rational episode in which there were issues in determining the budget hours to be recuperated, which resulted in decisions being generally imposed rather than mutually agreed upon (#7-).

While a substantial number of influential events were highlighted under the rational frame in the Alpha case, I selected only very few influential rational events in Beta's innovation process. Thus, I realized there is not a fixed quantity of rational events required to generate innovation process success. Alpha appeared to conduct too many in relation to their needs, while Beta did not have enough for their needs. Thus, my findings show that it is not the number of events within this frame but rather the appropriate selection of the events in relation to the context and the desired results.

The perspective with the most events, whether having a positive or negative influence, was the *human resources* frame. This frame presented the idea that organizations can be stimulating, rewarding, and productive if they concern themselves with employee welfare. Thus, some of the most influential events in Beta's implementation phase were under the human resources frame. For example, the project team did not appropriately communicate and listen to stakeholders (#8-) and minimized problems that arose with nursing auxiliaries and implementation committee members (#9-). This lack of consideration of the human resources within multiple events resulted in greater problems further on in the process.

From a more positive viewpoint but still under the human resources frame, the project team prepared and gave adapted training sessions (#11+), supported the patient transportation team at go-live (#12+), and created solutions in collaboration with the users to address post-implementation issues (#13+). After the go-live, the head of the patient transportation department became the "true" project lead, proposing various solutions in collaboration with the users (from the bottom up rather than top down)

which gave better results and had a positive influence on the process. However, these few positive events were in reaction to adverse events (i.e., containing the unexpected) rather than addressing the core issues (i.e., coordination).

Evaluating the events using the human resources frame highlighted the importance of considering team members' individual and collective mindfulness, for they both affect mindful organizing in the innovation process. This is especially important in the healthcare context where change agents, such as the members of an implementation team, must consider and support multiple stakeholders (e.g., different departments or job positions) in order to generate successful change initiatives.

While only a few events were categorized under the *political* frame in the Beta case study, they had an important impact on the project's perceived success and corroborated my previous statement about the relative importance of events rather than the number of events. For example, in the initiation, the decision to involve the upper management representative (#3+/-) had an important impact on the entire innovation process. While the representative's role was more present during the initiation, it was still of prime importance during the implementation to give the necessary direction and "power" to make some decisions go forward, such as the negotiations with the departments to recuperate budget hours (#10-). The upper management representative's focus stemmed from the organizational initiative to improve budget performance and reduce the operational deficit. According to the feasibility committee, including the upper management representative, the project was meant to auto-finance itself (#5+/-). While the feasibility committee sought to auto-finance this innovation process, ES managers wanted to increase service levels for patients. This divergence in objectives within the different stakeholder groups was a source of conflict (i.e., political impact).

Another event that had an important political effect was the change of leadership in the core team for the implementation (#6-), previously analyzed under the human resource lens. This change of leadership affected the team's capacity to generate change as the new transportation department head did not have the same expertise and power as the Logistics AM. Interestingly, the implementation team head was changed in both the Alpha and Beta case studies, and in both cases these events had a "political" impact on

the innovation process (i.e., loss of contextual knowledge and power). Indeed, considering politics appears important in complex environments such as government entities and healthcare organizations where there is a combination of scarce resources and resistance from various groups that have different values, preferences, beliefs, and perceptions of reality (Glouberman and Mintzberg, 2001). In this case, the nursing auxiliaries wanted an easy job, the ES managers wanted their patients to arrive on time, the patients did not want to wait, the hospitalization units staff wanted to do less patient preparation for transportation activities, and the transportation team head wanted to offer effective and efficient services.

Finally, the team conducted different events that had a *symbolic* impact on the process. For example, during the initiation phase the feasibility committee involved various stakeholders in the site visits so that they could see the patient transportation system in action (#5+/-). However, as previously specified, while the innovation project team invited some stakeholders to the site visits, they did not truly involve them (i.e., frontline workers) in the innovation process. This project was pushed from the top down, focusing on cost reduction rather than patient service, and this made it difficult for the affected departments to accept these changes. The committee members, more specifically the ES managers, believed they were spectators rather than contributors in this process. An ES manager stated that *“Some [ES managers] were very frustrated, they felt they were not listened to [...] we told you about this and that but you did not consider them.”* A few months following the go-live, the implementation committee meetings stopped (#14-). Yet, there were still issues to be resolved, which demonstrated that project closure was not dependent on the project’s outcome. My analysis of Beta’s innovation process revealed that the implementation team did not appear to consider the *symbolic* impact of their decision.

As initiated within the Alpha case study, the use of Bolman and Deal’s multi- perspective lens facilitated my analysis by categorizing the events under their “main” frame (i.e., most influential lens). Beta’s event categorization, detailed above and represented in Figure 21 below, helped me determine that the team did not truly consider the context and desired objectives in their decisions throughout the initiation

and implementation phases (as shown by the events). Many of these events had a negative influence on the innovation process, demonstrating mindless organizing.

For example, the project was meant to auto-finance itself; therefore, management needed to cut budget hours within each department in which nursing auxiliaries conducted transportation activities. Negotiations between upper management and the departments took place to finalize the project's budget (#10-). There was much resistance from the different departments during the so-called negotiations. In the end, the budget cuts were imposed. Additionally, following the implementation, the new transportation service was not able fully to service some departments. These departments still had to conduct some transportation activities but could not recuperate budget hours (e.g., STAT transportation). Using my multi-perspective framework to analyze this episode, I highlighted some political and human resource events that had an important impact on the innovation process. Under the human resources frame, this project was not aligned with the needs of the nursing auxiliaries (they wanted an easy job), the ES managers (they wanted their patients on time), the patients (they did not want to wait) and the hospitalization unit staff (they wanted to do less patient preparation for transportation activities). Under the political frame, the departments and resources impacted by this change showed much resistance prior to and after the implementation especially as this decision had been imposed from above and was now impacting the patients (i.e., delays). This situation generated much dissatisfaction within the departments, and ultimately the patients, as they encountered more waiting related to transportation. Moreover, the political frame showed that resistance and objections from different stakeholders (such as some nursing auxiliaries and department managers) were not taken into account.

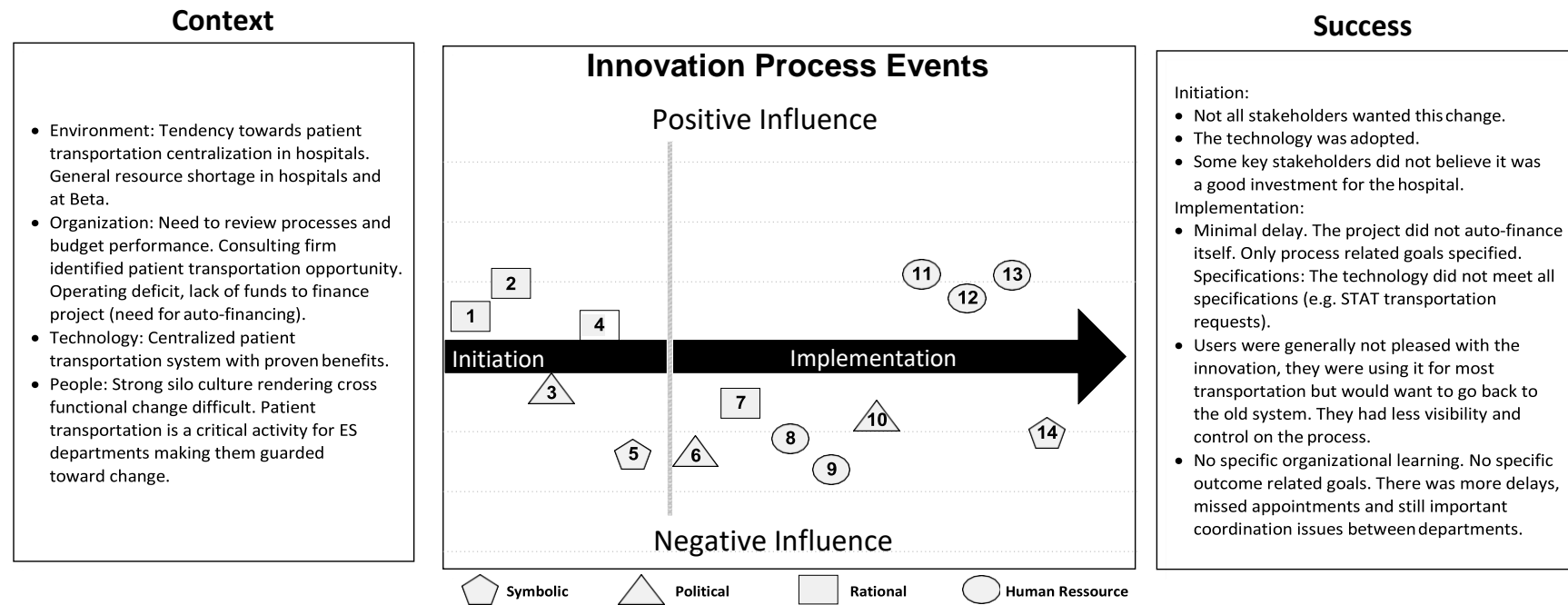
Hence, considering the context and desired outcomes should help innovation process teams identify the events that need to be conducted (or not) within the rational, human resources, political, and/or symbolic frames and their intensity, positively influencing innovation process outcomes (i.e., mindful organizing). Thus, I maintain the following proposition:

Proposition 2c: Mindful organizing implies that the project team members identified and modulated the rational, human resource, political, and/or symbolic events according to context and desired outcomes.

In this second case study I studied the deployment of a centralized patient transportation system. I used my conceptual framework, with Weick and collaborator's adapted mindfulness attributes¹⁷, and my revised propositions (presented in Table 16) as a baseline. This case analysis permitted to further develop the links between context and mindful organizing (2a*) and validate my other propositions. Indeed, this case showed that context may change during the innovation process and if not considered, as per Beta's innovation process, may direct towards mindless organizing. Thus, context should be considered prior and during the innovation process to adapt events accordingly.

¹⁷ As proposed within my Alpha case study.

Figure 21 Beta's innovation process, context and success



Note: Numbers 1 to 14 represent Beta's fourteen innovation process events shown in Figure 20

4.3 Case 3 – Bed Management System at Gamma Hospital

This third case study presents my investigation of the adoption and implementation of a bed management system at Gamma hospital. I conducted over 37 interviews with various stakeholders involved in the innovation process, received documentation, and made visits and did observations that were equally distributed prior to go-live and following the implementation in order to create the following case study.

4.3.1 Case study

Gamma, a Canadian hospital of approximately 1250 beds (2009-2010) across three sites is a university hospital that offers medical and surgical care. Its mission is to give general and specialized care, to teach, to conduct research, and to evaluate technologies and methods of health intervention. In the 2009-2010 fiscal year, it admitted nearly 15,000 patients, conducted almost 20,000 surgeries (minor and one day), and had roughly 500,000 outpatient visits. To carry out these operations, Gamma collaborates with over 17,000 people, including roughly 900 physicians and 4,000 nurses. Over the past years, Gamma has met the budget targets set by the local health and social services agency with a deficit of \$11.8 million CAD (expenses of \$756.4 million CAD and revenue of \$744.6 million CAD for 2009-2010). Gamma's environment was in constant change; it had undergone an important merger in the late 1990s and was planning to move into a super hospital combining the different sites within approximately 5 years.

Following my discussions with the interviewees, I noted that Gamma faced concerns, like other healthcare organizations in Quebec, such as a lack of resources, a high volume of innovations, and dealing with multiple stakeholder groups. For example, the large number of stakeholder groups and specialities in the hospital created much complexity, as they each had their own agendas and often worked in silos. Moreover, "top-down" projects coming from partner hospitals, or even just projects emerging from a specific stakeholder group, had negative effects on the level of stakeholder ownership and involvement. For instance, the duality between clinicians and managers was often problematic because projects led by managers often faced resistance by or lack of interest from the clinicians.

As with most teaching hospitals, Gamma hospital had no major employment issues in accessing recent innovations and special funding opportunities. Thus, as shown in their yearly reports, Gamma dealt with a large volume of innovation and the changes they warranted. In combination with their relatively high employee turnover rate this affected knowledge continuity and the implementation success rate of these various innovations. For many of the employees interviewed, this high volume of projects (i.e., innovations) within different services created a sense of "saturation" with respect to change and a disillusionment regarding the promised benefits. For example, some of the interviewed employees had gone through the implementation of manual dashboards to facilitate and streamline bed management. However, this innovation required that employees manually update the dashboards: *"The dashboards were a good idea, but they were not reliable [...] the magnets would fall off [...] we depended on people [...] and people can forget to update."* – Associate Director General (ADG)

Predictably, the dashboards were used for the first few weeks; then given lack of time and perceived benefits in combination with the high employee turnover rate, the dashboards were slowly put aside in certain units. Consequently, this innovation did not withstand time, as relying on people to manage these dashboards in a context in which there were multiple projects and knowledge continuity issues did not prove to be successful.

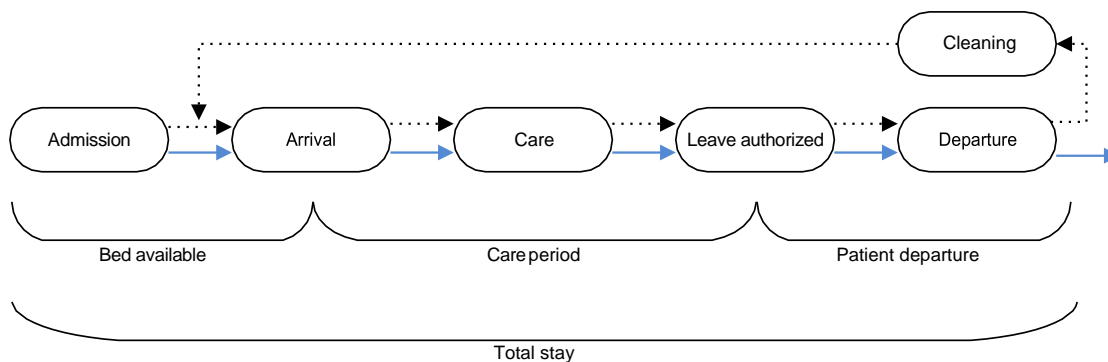
4.3.1.1 Bed management

The current bed management process, presented in Figure 22, starts when a patient is admitted in the hospital either through the emergency room or from another hospital. Following an initial examination by a nurse, the admission clerk allocates the patient to a bed in the unit linked to his or her condition. Elective patients may also be admitted either directly from home or from an external clinic.

When the emergency room is busy and there are no available beds in a unit, patients are placed in temporary locations (e.g., hallways, offices, or another unit) until a place is freed up. In situations where there are not enough beds to supply demand, bed management becomes increasingly important. The doctors also play an important role in predicting bed availability when patients leave, which is linked to timely diagnosis and

planned treatment required prior to the patient's release. Once the patient leaves, the nursing unit needs to enter the patient's departure in the system to advise nursing auxiliaries and hygiene and sanitation clerks they may start cleaning the room for the next patient. Thus, during the hospitalization (i.e., care period), bed management considers various kinds of workflow both clinical (e.g., treating the patient and authorizing the patient's release) and administrative (e.g., cleaning and disinfecting the room). This process is currently enabled through a software system called ADT (admission departure transfer). A patient may also require transportation during his or her hospital stay (i.e., exams in other departments). In this case, a request is made to the patient transportation team through a telephone system (i.e., SERVVOX).

Figure 22 Bed management process



Arrows: Full blue line represents patient flow and dotted black line represents work/information flow

Multiple issues that had arisen during this process revealed that something was wrong. An example of these problems was the wait, sometimes voluntary and sometimes not, before advising the cleaning team to prepare the patient's room, which created an extra delay in the admission of a new patient. In this situation the units could easily blame the cleaning team for the delay. Indeed, a hygiene and sanitation manager stated, *"They [the nursing unit] sometimes delayed the patient's official departure in the system, they don't tell admissions, impacting our work."* They were not advised that the room was ready for cleaning, creating unnecessary delays. These same units would delay the use of the newly freed beds to facilitate their schedule and reduce their work load, as units were often short staffed. According to the internal project manager, *"As long as the details [in the software on the patient's release] are not completed, they [the nursing units] can delay the patient's departure from 2, 3, 4 hours."*

Another example is the coordination issues between patients and specialists, such as receiving treatment in a timely manner or the time between the moment a patient receives her release and her actual departure from the room, resulting in both cases in wasted bed time. Examples of possible bed management issues are described in Table 21 below.

Table 21 Bed management issues - Root cause analysis

Problem	Cause/Source
Empty, dirty beds - Delays in entering patient departure in ADT, pushing back cleaning activities and new patient arrival.	Nursing personnel do not want new patients at the end of a work shift and would rather push back the arrival of new patients. This also occurs when they are short staffed.
Empty, dirty beds - Coordinating cleaning activities: wait between stakeholder actions.	The wait between actions is in part caused by the lack of transparency of when each action starts and finishes (notifying departure, cleaning “large items”, then cleaning “small items”). This lack of coordination lengthens the cleaning process.
Empty, clean beds due to “reservation”.	Some beds are reserved in advance and are either waiting for patients that have been transferred temporarily or for patients that will be arriving shortly.
Beds used longer than necessary (Delays in obtaining release from hospital).	There are difficulties in coordinating specialists, treatment, and departure from the room. They result in patients occupying a bed longer than required.
Patients in emergency department waiting to get a bed.	Unnecessary delays in patient stay and departure process. Lack of beds ready and available for transfers. Issues in coordinating and streamlining processes.
Phone calls and movements to physically assess bed status “on site”.	Admissions and bed management do not have access to constant and precise information on bed status. Inefficient communications and lack of transparency.

These issues generated several unnecessary tasks and redundant communications, resulting in delays and non-usage of available beds in a context in which the hospital did not have enough beds to support patient needs. Thus, in order to facilitate bed management, meetings took place every morning between unit managers, emergency staff, admissions, the beds coordinator, and several others that aimed to assess the current situation, resolve issues, and coordinate future actions. While these meetings were useful, they did not address one of the main underlying causes which was, according to upper management, the lack of transparency of the information required to manage this process. For example, the bed coordinator specified that *“in order to have the appropriate information, I had to go [physically] to each nursing unit and see for*

myself.” There was no standard system to gather and transmit this information to him. Moreover, he could not rely on receiving information over the telephone as some employees would purposely postpone the arrival of new patients through various schemes.

Bed management problems are common within Canadian hospitals and are widely publicized in connection with emergency departments’ poor performance. The multiple stakeholders involved in the bed management processes can generate various political disputes and coordination problems. Bed management issues were also present at Gamma. These issues, described in the following section, involved multiple stakeholders (presented in Table 22) in the ongoing process between admissions, clinical staff, cleaning staff, and other groups.

Table 22 Gamma’s stakeholder groups (users and providers)

Stakeholder groups: Short description of the information they require (users) and/or give (providers)	
Admissions: Patient entry point, allocates patients to beds (clerk) Emergency: Patient entry point Nursing (unit): Patient care activities Nursing auxiliaries (unit): Non-care-related patient activities (e.g., washing, food, etc.) Doctors: Consultations, diagnoses, and patient release	Bed management: Bed management and allocation activities Hygiene and sanitation: Cleaning activities Diagnostic departments (appointments): Diagnostic and treatment activities Transportation: Patient transportation activities (transportation auxiliaries)

As the previous “manual dashboards” had not produced the expected results of increasing transparency in the bed management process, upper management determined it was time to renew their efforts to improve this process. Thus, in late 2010, they capitalized on the interest and knowledge base created during the first dashboard project to investigate bed management enabling technologies.

The Associate Director General (ADG), a charismatic leader, took on this challenge. Her vision was to provide an automated dashboard, making essential information visible to all the concerned stakeholders, with minimal dependence on human intervention. As she stated, *“We are more ready than ever [...] we need to improve [...] we can’t just expect more from our people [...] we need to provide better tools.”*

Interestingly, her implementation strategy consisted of two steps. The first did not require changing current processes but rather implementing the technology to make it possible to measure current performance and render bad results visible to all. According to the ADG, this collective realization would encourage nursing units to modify their habits and facilitate coordination, decision making, and time management. The second step in this implementation strategy would use the collected management data (i.e., proof of inefficiencies) to improve performance (i.e., other system functionalities, such as incorporation of clinical results and patient transportation).

It was announced that the local health and social services agency would provide Gamma with funds to improve bed management and, thus, accessibility to care. Approximately 1 million dollars¹⁸ would be funded externally to support this project. Without going through the typical sourcing process, the ADG went forward, along with a team consisting of upper management representatives, a human resources director, and a bed management coordinator (referred to as the “initiation team” in this case study), with the technology selection process. Three possible solutions were evaluated: According to the ADG, the first solution was primarily clinical software (i.e., 70% clinical – 30% administrative) and required too many manual data entries. The ADG thought the second was an administrative rather than a clinical solution, with not enough clinical functionalities (i.e., 30% clinical – 70% administrative). Interestingly, this second solution was already present at Gamma through their current admissions system (i.e., ADT). Some of Gamma’s IT employees thought that the ADT’s bed management functionalities could be further developed and made easier to implement. However, even after taking into account this information, the ADG thought the third solution provider had proposed the best solution for this initiative, as the HEV system had an ideal balance between clinical and administrative functionalities (i.e., 50/50). Moreover, this service provider made an interesting offer because they wanted to develop this provincial market and Gamma’s implementation would serve as a showcase for future sales.

¹⁸ Including the system installation and recurring costs for the five first years.

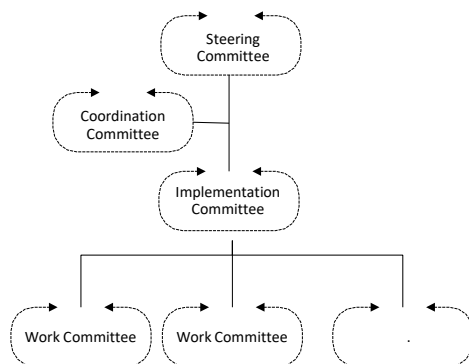
The project goals specified in the provided documents were to consolidate and synchronize information between actors. They were (1) to improve resource efficacy and process efficiency by reducing delays and interruptions that came from waiting for information or the volume of coordination calls; and (2) to identify best practices and share them among hospital users; and, lastly, (3) to improve the hospital's performance in relation to bed management and patient flow. While these various goals and means were clearly stated, the first and the third should have had measurable targets to assess the implementation's success.

In January 2011, the ADG and the initiation team presented the selected software and the objectives to be pursued to upper management. Following upper management's approval in February, the project went forward in combination with the appointment of the bed management coordinator as the project head. Most nursing managers learned about this initiative when the project manager resigned his functions as the bed management coordinator. Indeed, a nursing assistant manager specified *"the first time I heard about the project [...] because it impacted us [...project manager's name...] was leaving his functions."* Moreover, the hygiene and sanitation manager *"heard about this project in the hallways [...] we end up knowing everything [...] in the hallways."*

The adoption of the new technology was well received by most stakeholder groups because they would not have to add any tasks, with the exception of the admissions department. Respondents from the admissions department stated their lack of enthusiasm about the innovation; they already had the required information through another software product and this duplication created more work for them. According to the admissions manager, *"We were not too happy with the arrival of this new software [...] we already had ADT which we used for all the required information [...] this new system meant extra work for us."* Moreover, as previously stated, some staff in the hospital's IT department wondered why this solution had been chosen over the ADT software currently in use in the hospital, as the latter would have facilitated the implementation: *"If we would have implemented the bed management software from ADT, it would have been much less effort [...] we were not involved in the selection and political decisions."* - IT specialist

Many committees were created to govern this implementation (Figure 24). First, there was a steering committee made up of various management members to establish the strategy, vision, and final approvals. The implementation committee, also called the core team, was composed of the new team head (i.e., internal project manager), an internal IT manager, a software provider representative manager, and an assistant who ensured project management, coordination, and training. The ADG, also part of the implementation committee, played an upper management supporting role throughout the process. There was a coordination committee, consisting of the head of each affected department, and the implementation committee, whose mission was to determine the direction for their unit, validate software development, etc. The coordination committee was assembled on an ad-hoc basis. Finally, many working committees were created to parameterize the system, such as the technology committee for programming and tests, the training committee, management process committee, clinical process committee, and others, each contributing to different portions of the implementation process. According to the internal project manager, this governance structure appeared to be appropriate for the task at hand and involved the appropriate stakeholders for each committee.

Figure 24 Gamma's committees



The software provider (SP) representative, a core member of the implementation committee, was under much pressure because it was the company's first implementation in Canada and the first in French. This project could possibly be their gateway to future developments on the local market. Consequently, this provider invested an increased number of resources. According to the SP representative, *"Many resources are put in this project [...] I normally work on four projects at the same time [...] I've already*

been working full time on this project for a few months [...] it will be used as a technological showcase [...] we need to generate good results.” The SP representative managed the creation of various documents, including a project charter, roles and responsibilities descriptions, and various status reports in order to facilitate the implementation process. His assistant, employed by the software provider, supported him in this project. The internal project manager also prepared various documents, including their own version of the project charter. He was fully involved with the various work groups and worked closely with the internal IT manager from early April 2011 in preparation for the implementation: *“The project manager is a bed management specialist [...] I’m an information technology specialist [...] we should complement each other during the process [...] communications are important to coordinate.”* - Internal IT manager

As shown in Figure 25, following a presentation to the steering committee in May 2011, the core team (i.e., implementation committee) started parameterizing and testing the software with the various work groups in preparation for the implementation. In September 2011, this same team, supported by the ADG, conducted a pilot project for a few system functionalities within two departments. This was not the supplier’s standard implementation procedure. The pilot project, involving users, the core team, and specific technology oriented work groups, was meant to identify possible system flaws, observe the adoption process, and minimize possible issues prior to the general deployment.

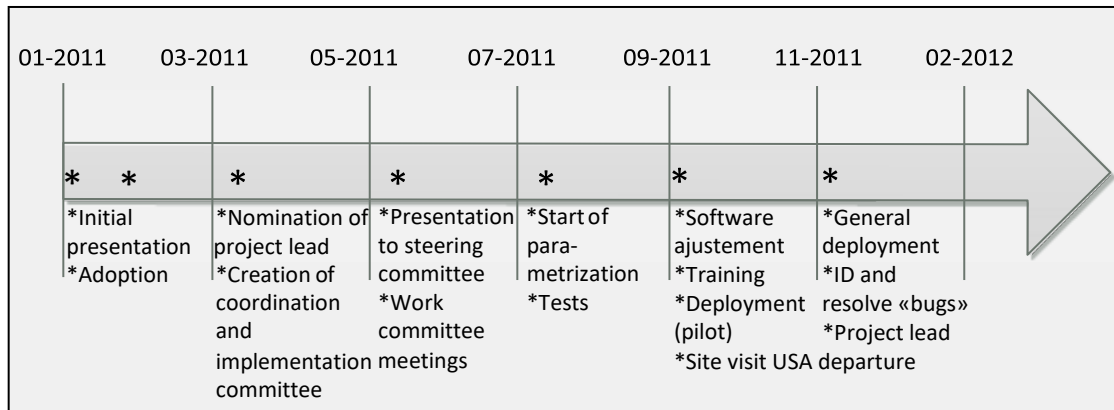
Two units that had a very efficient and clear bed management process were selected: a nursing unit and a treatment (i.e., surgery) unit, to experience different perspectives. As expected, these tests cast light on some concerns, for example, some portions of the software still needed translation, and they permitted a go-live run-through for the core team. In parallel to the pilot implementation, the core team visited, in October 2011, a hospital in the United States that had recently implemented the same software.

As little change in the bed management process was required in this implementation, only the stakeholders directly affected by the arrival of this software were involved in the pilot. Other stakeholders, less affected by this change, were advised of the upcoming

implementation: *"Employees know something is coming but don't have more information than that."* - Hygiene and sanitation manager

Some of the hygiene and sanitation employees not involved in the pilot thought this new system was meant to control them, as their work would be monitored in the software. Management explained that this system was meant to minimize unnecessary communications and streamline processes.

Figure 25 Gamma's innovation process timeline



*: Events

During the course of the implementation there were problems linked to the software's translation, delays in integrating SERVIX¹⁹ to HEV, and lost corrections between software versions. According to the internal project manager, the software provider representative was not taking these issues seriously and was minimizing their significance and postponing their resolution. The internal IT manager expressed her mixed feelings about the software provider: *"They have a different culture [...] but they are cooperative as they want to use this implementation for future sales [...] we are very dependent; the system is like a black box [...] we can't access it; we have to go through the provider [...] this is different than with other providers."* One of the IT staff members displayed a good deal of sarcasm in his opinion on the selected software and implied that the software was not at all a turnkey because they had a large amount of

¹⁹ SERVIX is a transportation management software used in the healthcare sector.

work to prepare for the implementation: *“They sold us a turnkey²⁰ project where they [the provider] have the key to the safe [software] and we are the hands!”*

Consequently, as the project went forward, the project manager questioned the SP representative’s implementation methods (linked to software programming issues) and client management skills (as he was not fostering a collaborative relationship with the core team). This situation could develop into implementation delays and system quality issues: *“ At one point I had to involve the ADG [...] she requested a meeting with the software provider’s upper management as we were not satisfied with some deliverables and felt that we were not taken seriously.”* - Project manager

The ADG concurred stating that *“We had to meet with the software provider’s upper management and show our dissatisfaction to obtain what we wanted.”* After this intervention, the core team, including the ADG, felt that the software provider representatives improved their attitude, following up on requested changes and giving them status updates on the software provider’s implementation activities.

4.3.1.2 Testing and pre go-live activities

The core team delayed the go-live by approximately one month to resolve the most pressing issues (e.g., translation). This delay was not well received by upper management, as the directive was to meet the initial timeline impacted the team’s subsequent tasks. During this extra delay, the internal project manager and the IT manager were under the impression that the SP representative was slowly phasing out of the project and leaving more tasks to his assistant before the final implementation. On his side, the SP representative now questioned the hospital’s project manager selection because the latter did not have project management or software implementation experience, implying that the current project manager might not have been the best candidate for this task. However, the project manager had been selected by the ADG for his in-depth knowledge of bed management within the hospital, possibly facilitating this initiative. Moreover, the SP representative deplored that the project team members,

²⁰ A typical turnkey project is completed by the supplier. Following the implementation, the figurative “key” is given to the client. Thus, the client needs only to “turn the key” for use.

excluding the project manager, were fully dedicated to the project and were creating delays in parameterizing and validating.

Training was given approximately two weeks prior to the go-live and consisted of a generic thirty-minute training session for small groups. Participants within the first few training sessions could not test the system, as the hardware (i.e., the screens) was not yet installed. These training sessions were mandatory for managers of each affected department (i.e., nursing, diagnostic, hygiene and sanitation, admissions, etc.). Managers were responsible of ensuring that a majority of their employees received training during their work hours. The project manager estimated that at least 60% of the staff followed the training prior to go-live; and this appeared satisfactory, as this innovation would provide extra information with few changes to the current processes.

Installation of the equipment in each nursing unit was finalized the day before go-live. The screens at the nursing station and in the hallway showed each bed in the unit, giving various information to all.

4.3.1.3 Go-Live

The go-live took place on November 9, 2011. The project manager and the SP representative visited each unit to deploy the software and answer questions upon request. A super-user, designated by the core team, was assigned to each unit the first day to answer questions and assist users. A few units, whose employees had not attended the training sessions, were not ready. Accordingly, the project manager stated, *“The auxiliaries in this unit were not ready, they didn’t know their codes [...] they had not attended the training [...] their nursing manager was not present on the go-live day and was considered resistant to this change.”* The start-up was slightly more difficult in these units, but they were on track within the first few days because the software was easy to use. In contrast, many units were eager to start. The project manager specified that *“When we arrived in some units, the monitor and system were already open [...] they had started entering some data and already had questions for us.”* Moreover, *“as long as someone took the leadership in the unit [...] there was more success [...] it could be the head nurse or the assistant.”* All things considered, the go-live occurred without major issues, such as system crash or extensive boycott.

In the weeks following the implementation, the effects of this new tool were felt. According to a hygiene and sanitation manager *“it is common that nursing units delay the arrival of new patients in their units.”* However, with the arrival of this new innovation, *“nursing units could not just say the easy excuse, being that the room is not clean, to delay the arrival of a new patient in a free bed.”* - Project manager

Information on beds in each unit was now accessible in real time, and bed management performance could be easily measured. As soon as a patient “checked out” of the hospital, hygiene and sanitation could start cleaning the room, whether or not the unit assistant had entered the patient’s departure in the system. This quickly identified the nursing units that would not enter their patients’ departures in a timely manner in the software, as the screens would show a question mark on the beds that were being cleaned before being “officially” freed, thus giving more transparency to the process (as seen for room 257 in Figure 24). However, there were still some discrepancies in the information (i.e., timing, details, etc.), as some information, such as a patient’s departure, still had to be manually entered by users. Nurses and assistants now had to explain why they delayed the arrival of a new patient in a free bed. Information transparency in each unit stimulated the stakeholders involved in the bed management process to streamline their processes. However, greater transparency also caused various issues, frustration, and mismanagement. As the beds showed up as cleaned and free in the software, patients would be sent to units, bypassing the typical courtesy phone call before bringing a patient. This created some confusion upon the patient’s arrival. Indeed, this caused some issues, as clinical staff were not always ready to accommodate the incoming patients.

The daily bed management meetings had started to change, going from sharing their current and forecasted free beds to problem resolution and transfers between departments. This shortened the meetings, as this information was now available to all prior to the meetings. The project manager envisaged that these daily meetings would slowly lose their importance as HEV would provide this information to all and the bed management group would only need to convene for special situations on an ad-hoc basis.

The arrival of this technology had improved the process and could result in reducing the number of phone calls related to the bed management process (i.e., patient arrival and departure) that were required, but the human side of the process had not been addressed. According to a project manager, *“we knew the volumes of calls would diminish, but we didn’t specify which calls would be eliminated.”* Interestingly, many users stated that they wanted to maintain these calls out of habit rather than necessity; they reassured them, as they received extra information on the patient, kept a “human” contact with the different departments, and were sure the information was received prior to the patient’s arrival.

Following the implementation, the project manager was responsible for user support, with the exception of technical issues resolved by the IT department or the software provider. Occasionally issues occurred, the project manager would then sit down with the affected stakeholders, discuss problems, and find solutions. These solutions were then replicated in other departments when possible. According to the project manager, one of the biggest problems was the creation and use of personalized access codes. Most users entered a general access code instead of a user-specific one, and some did not even have a personal code. This situation was problematic in regard to information security.

On a more positive note, the system gave an increased amount of information to the hospital’s bed coordinator, facilitating his decision-making process. Accordingly, this bed coordinator said, *“I gained 10-15% more efficiency in my work [...] beds are emptied and filled faster.”* A number of users believed they had a reduced number of phone calls. Moreover, without giving specific measurements, the emergency and admission departments were under the impression that delays in admitting patients to the hospital had been reduced.

The hygiene and safety clerks and management were quite content with the innovation. After an initial unevenness in regard to the monitoring of their work, the clerks quickly realized that this software actually proved they were not to blame for most delays, and that it helped them better manage their work. One doctor I interviewed was under the impression that even if he did not directly use the system, as other doctors did, the personnel appeared to receive information faster and it was more accurate.

Consequently, less than two months after the go-live, a large majority of users did not want to go back to the old system because the new one gave them useful information. While admissions understood the value of such an innovation, it created more work for them than previously anticipated, making them less enthusiastic about the innovation.

The implementation had been completed over a period of approximately 10 months with very little delay in the initial timeline, and there had been few issues. Indeed, the implementation was done just a few weeks behind schedule. While no official post-mortem was performed, the ADG's plan of starting with the implementation of the technology without reviewing processes appeared to be successful. Bed management was now monitored, and data and measures were provided. Some changes, such as minimizing "empty bed" time, where a bed was either ready to be cleaned or to receive a patient, occurred naturally in most units because their bed status was exposed to all. However, a few months after go-live, even with the facts brought by HEV (e.g., the time between the departure of one patient and the arrival of another patient, bed utilization), two units had not changed their habit of purposely delaying patient arrivals in their units (i.e., longer lead times to fill their empty beds).

To realize the desired improvements, the ADG's two-step plan was supposed to be followed up with subsequent phases. Some hoped the next phase would be to have the MDs use this system to plan/forecast patient departures. However, this would not be easy, the doctors did not perceive this system as a clinical tool but as an administrative tool. The project manager specified that *"The doctors each have their own agenda [...] we have to be careful in how we approach them in this initiative [...] they need to understand the benefits of using this system [...] individual meetings with each doctor will need to be planned."* According to him, the doctors had not yet agreed to entering patient releases in the HEV system.

A few months after the go-live, the project manager announced he would leave the project for other tasks, and some observers began to wonder if this innovation would achieve its full potential in the future. *"I gave the initial push; however, each unit manager must step up their involvement to make this project successful"* - Project manager.

A new project manager was appointed, but some stakeholders were already cautious. For example, the admissions manager believed that *“The person taking the project manager’s place doesn’t understand the system as well.”* The ADG was aware of these issues and was planning strategies to carry out improvements and capitalize from this investment because it had not yet delivered the full anticipated advantages.

4.3.2 Characterizing mindful organizing in the innovation process

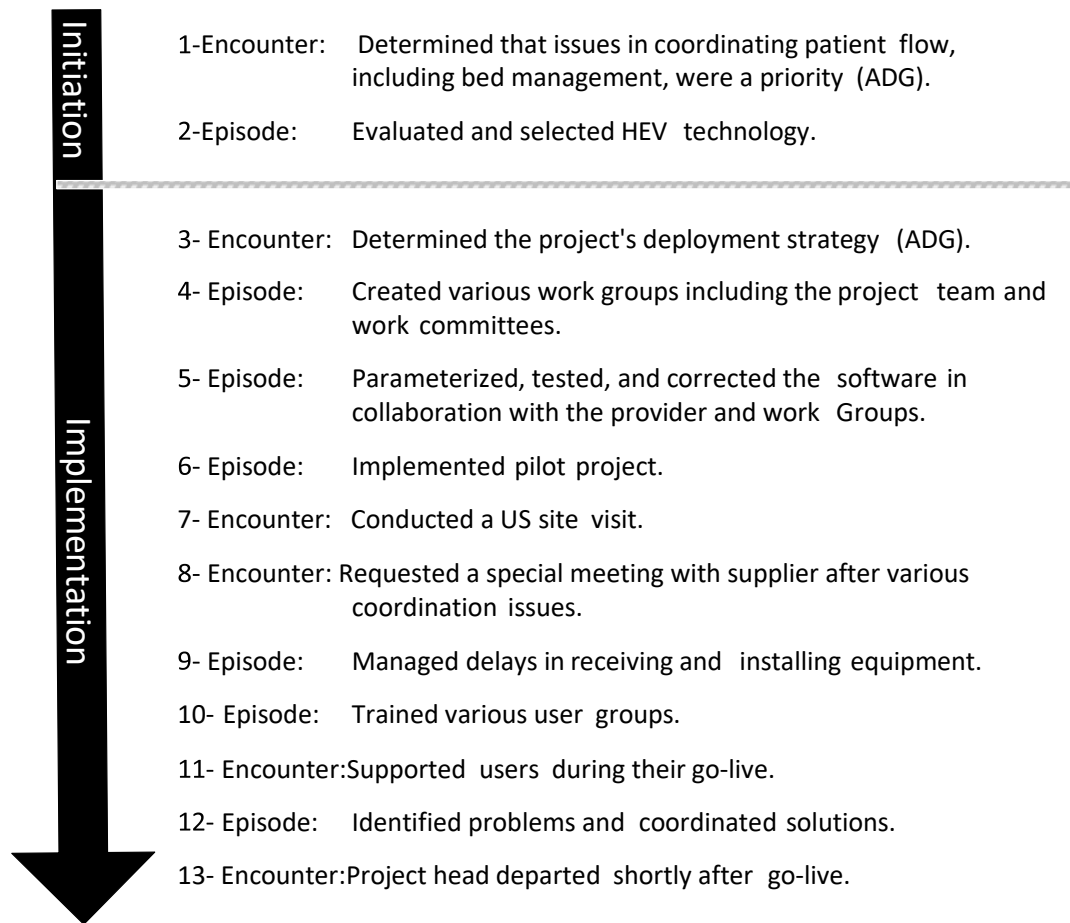
The aim of this section is to provide an in-depth analysis of the Gamma case study based on my conceptual framework and my research propositions. These research propositions, initiated within my literature review and validated using the Alpha and Beta case studies are summarized in Table 23 below.

Table 23 Refined research propositions following Alpha and Beta case studies

<p>Proposition 1a: Mindful organizing in an innovation process occurs when innovation process teams anticipate and take action to prevent issues.</p> <p>Proposition 1b: Mindful organizing occurs when the innovation process team show agility to contain the unexpected.</p>
<p>Proposition 2a*: Mindful organizing implies that project context is assessed by key stakeholders prior to and during the innovation process.</p> <p>Proposition 2b: Mindful organizing implies that measurable process and outcome goals are explicitly stated by project team leaders and shared among key stakeholders.</p> <p>Proposition 2c: Mindful organizing implies that the innovation process team members identified and modulated rational, human resource, political, and/or symbolic events according to context and desired outcomes.</p>

Throughout this third and final case study analysis, I continue the conceptual development of mindful organizing in innovation processes and validate my research propositions. Prior to the analysis, I present the thirteen influential encounters and episodes (Figure 26) selected to describe Gamma’s case study.

Figure 26 Gamma's innovation process summary



For this third and final case study, I combined my two Gamma data collections²¹ and reviewed my analysis sequence²². Thus, I divided the Gamma case study analysis into four sections. The first section addresses the project's initial and dynamic context. The second section addresses the innovation process's success, including the importance of planning and identifying the desired process and outcome success goals followed by the need to measure these goals. The third section focuses on analyzing Gamma's innovation process using my adapted mindful organizing propositions: anticipating and containing the unexpected to mindfully organize. Finally, the fourth and last section builds on the previous sections and applies Bolman and Deal's multi-perspective frames to conceptualize mindful organizing in innovation processes.

²¹ As presented in my methodology section, Gamma was the only case study in which I completed two rounds of interviews. The first during the implementation prior to the go-live, and the second occurred a few months after the go-live.

²² The new proposition analysis sequencing for the Gamma case study is 2a*, 2b, 1a, 1b and finally 2c.

4.3.2.1 Project context: initial and dynamic

Following my analysis of both the Alpha and Beta case studies, I realized that understanding and considering the initial project context was valuable in order to avoid issues in the early stages of an innovation process. Moreover, I realized that context is a dynamic concept, as it can change during the innovation process. Thus, I present Gamma's initial context as analyzed during the project's initiation and followed by examples of contextual elements that changed during Gamma's innovation process.

Considering the context is of prime importance in characterizing the concept of mindful organizing in an innovation process. Indeed, the foundations of mindfulness are linked to alertness to context (Langer, 1997) and to considering the organization's own facts and specifics (i.e., resources) in decision making (Swanson and Ramiller, 2004). Therefore, as in my previous case studies, I analyzed Gamma's project context, including its environment, organization, people, and technology, as suggested by Fleuren and collaborators (2004). Table 24 shows the major initial contextual factors that had a positive or negative impact on Gamma's innovation process.

Table 24 Gamma's context

Contextual (Environment, Organization, People, Technology)	
Positive influence	<ul style="list-style-type: none">• Environment: Pressure to reduce wait time in the Emergency Room. Funding available for wait time reduction initiatives.• Organization: Upper management's desire to reduce wait. Not enough beds to meet demand. Past bed management initiative (dashboards) and bad performance/publicity created the appropriate setting for this project. Reception of governmental funds (approximately \$1 million CAD).• People: ADG highly involved and motivated to improve bed management performance.• Technology: New technology (i.e., HEV) available to improve bed management transparency and performance.
Negative influence	<ul style="list-style-type: none">• Organization: Organizational complexity, silos, and many initiatives, rendering change difficult.• People: Feeling overwhelmed by change, low levels of ownership, and no interest to change the status quo in bed management.• Technology: No HEV implementations in Canada and none in French.

The *environment* context refers to threats and opportunities that might influence an organization's activities, such as a large volume of innovations (i.e., new technologies, procedures, and laws) and general issues that hospitals need to manage. Issues linked to

bed management, such as its impact on wait time in emergency departments, were fairly common in the healthcare landscape. These recurring issues created a general desire from the government and health organizations to accelerate patients' transfer to beds to reduce wait times in the emergency room. Accordingly, the government was ready to allocate funds for bed management improvement initiatives.

The *organization's* context (e.g., size, structure, resources, climate, etc.) can also influence an innovation process. Thus, Gamma met its budget targets and had important modernization plans for the near future. The hospital had no major employment issues and, as with most teaching hospitals, access to recent innovations and special funding.

Gamma had multiple ongoing and planned projects that were intended to deal with various silos (stakeholder groups), lack of resources, and "top-down" projects coming from partner hospitals. This important volume of change and complexity had effects on the level of stakeholder ownership and involvement in the various innovation projects. Bed management was a known issue that needed to be addressed and was, at times, given bad press (i.e., long wait times, not enough beds to meet the current demand). Gamma had already invested in improving bed management with the implementation of manual dashboards. While this past experience (i.e., the rise and fall of the manual dashboards) did not generate the expected results, it set a precedent for future initiatives and provided the right kind of questioning for management. Consequently, upper management decided to pursue bed management initiatives.

The users, referring to those impacted by the innovation, can also influence an innovation process's context. Many employees were overwhelmed with the constant change and improvement promises that did not always materialize, creating a sense of "saturation" and disillusionment regarding the promised benefits. While the various stakeholders (e.g., clerks, nurses, H&S, admission, etc.) generally enjoyed having access to more information linked to bed management, they did not want to increase their work load (e.g., conduct manual data entries, etc.). As a result, some units purposely delayed bed assignments (i.e., they wanted the status quo maintained) to reduce their significant workload because they were often short staffed.

Another positive contextual element was linked to the *innovation* itself, namely, the degree of novelty, the level of radicalness, and the relative cost of the innovation. The new bed management software provided novel options to improve processes. However, while the bed management innovation's "newness" would bring interesting recognition to the hospital, it could also hinder the implementation processes. Indeed, this innovation was considered moderately complex as it could be used to change the entire bed management process. Moreover, it was to be HEV's first implementation in the province of Quebec and the first in French, which increased the implementation risks.

Following this brief analysis, *Gamma's initial context, including the environment, the organization, the users, and the innovation itself, appeared relatively positive*. While, the initial project context at Gamma was relatively good, my innovation process analysis showed some changes in the context that resulted in various issues during the innovation process.

For example, during the innovation process there were software implementation problems (i.e., issues concerning software translation, delays in integrating SERVVOX to HEV, and lost corrections between software versions). While the initial context with the software provider was good, issues had slowly escalated because the ongoing issues were not being addressed. The ADG requested a meeting with the software provider's upper management to prevent issues from escalating any further (i.e., containing the unexpected). In this case, the software provider reacted and improved the collaboration by sending status updates on the requested changes and other implementation activities.

Also, the ADG considered the initial "overwhelmed" feeling managers had towards the high volumes of projects and innovations in the organization to justify her approach in this initiative. According to her, they did not have sufficient measurable facts to justify the need to improve the bed management process (i.e., claims that some units were purposely delaying new patient arrival). Thus, she proposed to implement a software that would render the bed management process transparent and measurable to everyone without major process changes and that minimize possible implementation issues (e.g., resistance). Once the software had been implemented and the data captured, she

anticipated having the necessary proof to legitimize bed management process improvements in a subsequent phase.

Her strategy was based on the initial context; however, there were contextual changes in the organization that had a negative impact on the innovation process events. For example, the project head departed shortly after the implementation and there were no specific plans for future improvements. Consequently, while the ADG considered the initial context in her “implement then transform” strategy, she did not review her strategy following changes in the context, and this has led to insufficient results at the time of my data collection.

The aforementioned examples show that lack of consideration of the context prior to and during the innovation process make it difficult to develop the appropriate compensatory mechanisms.²³ Therefore, in accordance with the context changes in my three case studies (e.g., departure of project head, user resistance, etc.), the innovation process should also change through compensatory mechanisms. I believe that considering contextual elements,²⁴ rather than just the “current state of operations”, as proposed by Weick and collaborators, gives a broader view to contextualize decisions based on the organization’s facts and specifics. Thus, in alignment with previous literature (Swanson and Ramiller, 2004; Vogus and Sutcliffe, 2012) and my previous case studies, I maintain that:

Proposition 2a*²⁵: Mindful organizing implies that **project context is** assessed by key stakeholders **prior to and during** the innovation process.

As was discussed in the previous case studies, the innovation project team should consider the process’s context prior to and during the innovation process in combination with the desired process and outcome goals in order to mindfully organize.

²³ Compensatory mechanisms permit innovation project teams to react and adjust to the unknown in order to achieve the desired results.

²⁴ Including details on the innovation, the organization (i.e., operational and strategic elements), the environment, and the people.

²⁵ The new analysis sequencing of the propositions is 2a*, 2b, 1a, 1b and finally 2c.

4.3.2.2 Project success: goals and results

My evaluation of the project's success, as per the previous case studies, was based on information provided by key informants, including the core team (i.e., management) and various users (i.e., frontline). Thus, the following analysis, summarized in Table 25, is based largely on perceptions, as very few measurements had been conducted.

Table 25 Gamma's project success summary

Initiation:	
Process-Project analysis and fit	Not all stakeholders wanted this change (i.e., Top-down management initiative, clinical personal showed less interest). The technology was adopted. Some IT personnel did not believe the software selection was a good investment for the hospital in comparison to another software provider already present in the hospital.
Implementation:	
Process-Project management	Minimal delay in implementation (i.e., few weeks). Budget was not flagged as an issue, overall predicted budget numbers were shared, no details (i.e., government funding). Only process-related goals were specified without measurable goals. Impression of increase in efficiency of 10-15%. Specifications: The technology met all specifications; however, it was not being implemented at full potential (e.g., automating rather than improving current processes, security keys not in use, etc.).
Outcome-User	Users were generally pleased with the innovation, they were using it and did not want to go back to the old system. Users and management had more transparency on the process. Some showed mild resistance: admission clerks linked to the increased workload and two clinical units that continued delaying bed utilization.
Outcome-Organization	According to the project manager, there were fewer coordination issues between departments, and bed fulfillment delays appeared shorter. The desired organizational outcome, to increase bed utilization, was not measured and did not appear to be achieved with the selected implementation strategy (i.e., as it informed the current process). There appeared to be organizational learning, as many positively modified their habits with the arrival of this innovation.

This project officially began (i.e., the initiation phase) with the investigation of available bed management technologies towards the end of 2010. However, many stakeholders involved within the bed management process did not believe the current process could change, even with the arrival of this new technology. While the desired project

outcome,²⁶ to address these bed management issues, was clearly stated, no precise targets had been defined. The only measurable goal that had a target was upper management's desire to complete the implementation process within a set time frame (approximately 10 months).

Thus, after presenting the shortlisted contenders, upper management decided to move forward with the implementation of HEV in one of their hospitals. This decision was not surprising considering the ADG's preference for the HEV solution and her recognition in the organization. Most of the involved stakeholders showed a positive reaction to this decision. However, some admissions and IT employees wondered why this software provider had been selected over another provider with similar software already being used in the hospital. Since no measurable goals and targets had been identified, the overall initiation phase analysis was viewed as a relative success.

For the implementation success analysis, I considered process (i.e., time, budget, and specifications) and outcome measures (i.e., user and organization). For the process analysis, the initial deadline was to complete the implementation within 10 months. The go-live took place just a few weeks behind schedule, which was considered to be a very short delay and was connected with a few minor adjustments, such as software translation issues. Project management was not simple because there were multiple stakeholder groups, the local software provider representative had little experience with the innovation, the software specialists were US based, and the internal project manager was a nursing manager, not a software implementation specialist. Moreover, the internal project manager was the only resource fully dedicated to this project. This reality created some frustrations both on the software provider and internal project sides. The project budget did not appear to be a major concern, as the hospital had received government funding. In the end, the project had been budgeted approximately \$1 million CAD, but no specific financial figures had been shared, making it impossible to evaluate whether the project had gone over or under budget. While the technology itself met the hospital's needs in making the bed management activities transparent to all, no

²⁶To consolidate and synchronize information between actors, to improve resource efficacy and process efficiency by reducing delays and interruptions such as calls, to identify best practices and share them throughout hospital users, and to improve the performance of bed management and patient flow.

measurable goals besides the implementation timeframe of 10 months were clearly stated, creating much difficulty in evaluating user and organizational outcomes. Also, the creation and use of personalized access codes to manage and restrict medication cart access (i.e., security) was not yet deployed, and this generated some information security concerns.

The various stakeholders were generally pleased with the innovation as most would not go back to the old system as presented in Table 26. While the initial expectation was that this innovation would reduce the number of calls linked to bed management between the different stakeholder groups, the outcome proved to be different. Indeed, a study on users' and management's perceptions of HEV conducted in 2014 at Gamma (Paré and Jobin, 2014) showed that delays in data entry from the various stakeholders impacted data validity. Thus, many stakeholders would still call to validate information, resulting in only a very slight decrease in calls following the implementation.

The hygiene and sanitation (H&S) clerks appeared to be the biggest “winners” in this innovation, as they could signal their work start (and end) when cleaning each room and bypass the “information control” that the nursing units had on their workflow. Therefore, the nursing units could no longer blame H&S clerks for beds (i.e., rooms) not being ready. While this innovation had initially sparked some concerns related to the “time control” of their work, it was quickly transformed into a tool that proved that H&S clerks were not the main cause of delays in the bed management process, giving them much pride and recognition. Conversely, an admissions clerk specified that this new software slightly increased their workload as they had to consult an extra screen and manually enter some information. Interestingly, a few nursing units did not change their practices (i.e., purposely delaying patient arrivals) even with the arrival of this transparency system. Thus, benefits varied between each unit.

Table 26 Gamma’s stakeholder value perspective

H&S clerks	Care unit personnel	Admissions clerks	Doctors	Bed managers
<ul style="list-style-type: none"> Initially HEV = GPS; perception of ↑ control Now: ↑ importance of their work and recognition ↑ access to information and ability to plan their work ↓ blame of delays ↓ number of calls ↑ visibility to managers to allocate extra staff in need 	<ul style="list-style-type: none"> ↓ communications of people at station Units with good performance appreciate visibility and transparency Units with bad performance need to justify their actions to coordinator Information more precise Don’t want to eliminate calls but now calls are at the right time Better coordination with H&S 	<ul style="list-style-type: none"> Initial resistance Sentiment that HEV is imposed ADT is still their main tool ↑ additional data entries Have fewer ↓ calls to make Are wrongfully contacted for system support Lack of understanding of the overall benefits and value of their work (local process vision) 	<ul style="list-style-type: none"> HEV is currently not for their use Little involvement / mobilization (indifference) HEV seems very useful for the unit They receive faster and more precise answers to their questions 	<ul style="list-style-type: none"> Drastically changed their day to day Now: ↑ access to more precise information in real time Global vision of the situation at all times Units need to explain why they delay the arrival of new patients (i.e., lack of staff, issues, etc.) Tool that helps evenly distribute beds between units

Organizational outcomes were somewhat positive since management could now measure and compare various metrics on the bed management process, such as the time between a patient’s departure and the arrival of a new patient or the time to clean a room. The general impression was that patients were admitted faster to beds and that coordination was already much better. Yet, much inefficiency remained, such as unnecessary phone calls, deliberate delays to fill beds, and daily bed management meetings still taking place.

At the time of my second round of interviews, after implementation, some users had instinctively started to review their operations, as they were now visible to all. However, the second phase aiming to improve and streamline bed management processes by utilizing these newly acquired facts, such as bed utilization, time to clean rooms, and other time-related metrics, had not yet begun.

Indeed, this project had purposely “only” rendered information on the current bed management process available by means of various kinds of hardware (touchscreens and computer screens) instead of transforming the process and minimizing possible resistance. Their strategy was meant to provide information (i.e., measurements) on the current situation prior to improving and streamlining the bed management processes. In

light of this strategy, I now reviewed Gamma's level of achievement in relation to the initial project objectives. They met their first project objective, which was to consolidate and synchronize information between actors by providing real-time information. Second, they had not yet improved resource efficacy and process efficiency by reducing delays and interruptions (e.g., calls, waits, etc.). Third, they did not identify best practices and share them among hospital users. And, finally, they could only presume that they had improved the hospital's performance in relation to bed management and patient flow (e.g., reduce length of stay, etc.) as no actual process improvements had taken place.

While users' and management's perception was that the project was successful, my success analysis was not so conclusive. As previously specified, while the project objectives were clearly stated, management had no baseline measures or clear targets that would impact my success analysis. The users appeared satisfied with the innovation; however, as explained above, they did not achieve all the project goals (i.e., some users were still delaying patient flow). Consequently, at the time of my case study, the implementation was considered a relative failure because the process improvement step that was needed to achieve these incomplete goals has not been planned, and the current project manager was about to change positions, creating even more uncertainty.

As in my previous case studies, my analysis of Gamma's success is based on process and outcome-based metrics. Process metrics include whether the project was on schedule, whether it was on budget, and whether it delivered the desired product. Outcome metrics include the use of the innovation by the targeted stakeholders, the value, and the learning that the innovation project brings to the organization to better engage in future challenges.

While the desired project outcomes to address these bed management issues were clearly stated, no precise targets had been defined. Indeed, Gamma's innovation process team did not determine measurable goals and did not share quantitative data at the beginning of the innovation process (i.e., initiation). Without an initial reference point to objectively evaluate the success of these innovation processes, project managers were deprived of reliable guidance on the required effort intensity or alignment of their

actions to reach the desired outcomes. In these kinds of situations, it is difficult to determine whether more or fewer actions are required.

Gamma's initial project objectives were to consolidate and synchronize information between actors, to improve resource efficacy and process efficiency by reducing delays and interruptions such as calls, to identify best practices and to share them among hospital users, and to improve the performance of bed management and patient flow. My evaluation showed that the team had somewhat fulfilled these project objectives and that there were no plans to pursuing improvements at the time of my data collection.

The only project goal that had a measurable target was Gamma's upper management's desire to complete the implementation process within a set time frame of approximately 10 months, which they achieved. However, their time-based achievement was not synonymous with their success. The lack of a varied set of measurable goals, including process and outcome performance indicators, rendered my assessment of the success of the innovation process difficult.

This lack of measurable goals was a common factor within my previous case studies. For example, in the Alpha case study, there were no measurable goals that had been defined prior to the hospital-wide implementation. Thus, without precise goals and transparency about the required improvements, the new hospital-wide implementation team let users defer from the implementation guide whenever resistance occurred. This new project team did not perceive the value of all of the proposed changes and had the authority to modify the implementation process. Moreover, there were no established measures to ensure the implementation of these proposed changes. Consequently, the team altered the implementation guide, generating varying degrees of benefits within each unit.

These examples, both in Alpha and Gamma, reveal that the lack of clear measurable goals, whether at the beginning of the innovation process or during the implementation phase, impacted project success. Measuring a project's process and outcome goals during the innovation process identifies whether the project is "on track" or whether it needs to be readjusted to achieve the desired results. Thus, process *and* outcome-related

measurements could be useful to better focus efforts, continuously evaluate performance, and identify the need to readjust.

In light of the aforementioned, I was able to further develop my understanding of the links between mindful organizing and success. To mindfully organize, the desired outcomes of an innovation process must be clearly stated (i.e., measures), have targets, and be considered by project team members at the beginning of and during the innovation process. While all three case studies had a measurable implementation deadline and project budgets to respect (i.e., process-related measures), they did not identify outcome-related measurements, which made it difficult to assess whether or not the process was a success. This lack of measurable goals at the beginning of and during the innovation process demonstrated the team's mindless organizing. In light of this analysis, I further developed my outcome propositions:

Proposition 2b*: *Mindful organizing implies that measurable process and outcome goals are explicitly stated by project team leaders and shared among key stakeholders at the beginning of the innovation process.*

Proposition 2b:** *Mindful organizing implies that measurable process and outcome goals are measured by project team leaders and shared among key stakeholders during the innovation process.*

4.3.2.3 Innovation process: anticipating and containing

In consequence of my Alpha and Beta case study analyses I proposed to combine the mindful organizing attributes within two categories. The first aimed at anticipating the unexpected and the second aimed at containing the unexpected when such events occur. In accordance with this development, I initiated my Gamma innovation process analysis with the first category aimed at anticipating the unexpected (summarized in Table 27). Consequently, I continued with the analysis of the selected influential episodes and encounters (events #1 to #13 presented in Figure 27) to evaluate whether Gamma had anticipated the unexpected by showing the desire to avoid failure (a1), sensitivity to operations (a2), and unwillingness to simplify interpretations (a3).

Table 27 Anticipating the unexpected

Anticipating the unexpected Attributes	Mindful Organizing (Events with + = Positive influence, - = Negative influence, +/- = Positive and negative influence)	
	Initiation	Implementation
a1- Desire to avoid failure (learning from issues and near misses)		+/- ADG determined the project's deployment strategy: implement technology without changing the process to minimize nursing resistance (#3). + Created various work teams including the executive project team and several work committees (#4). + Parameterized, tested, and corrected the software in collaboration with the provider and work groups (#5). + Implemented a pilot project (#6). -/+ Managed delays in receiving and installing equipment (#9). + Identified problems and coordinated resolution (#12). - Project head departed shortly after go-live (#13).
a2- Unwillingness to simplify interpretations (considering large volumes of information)	+/- Evaluated and selected HEV technology (#2).	+ Created various work groups, including the project team and work committees (#4). -/+ Requested a special meeting with supplier after various coordination issues (#8). +/- Trained various user groups (#10). + Supported users during their go-live (#11).
a3- Sensitivity to operations (frontline workers need to be familiar with operations beyond their own job in order to get a clear picture of the situation)	+ Determined that issues in coordinating patient flow, including bed management, were a priority (#1).	+/- ADG determined the project's deployment strategy (#3). + Created various work groups, including the project team and work committees (#4). -/+ Requested a special meeting with supplier after various coordination issues (#8). + Trained various user groups (#10). + Supported users during their go-live (#11).

Thus, I initiated my analysis with the attributes related to preventing issues in the innovation process. First, the project management team showed their ability to anticipate possible issues (*desire to avoid failure - a1*) several times during the implementation phase. For example, a governance structure was created comprising many committees, each involving the appropriate stakeholders, to gather useful information on activities, issues, and near misses throughout the process (i.e., steering committee, the executive project team, and several work committees) (#4+). Some of these committees were dedicated to parameterizing, testing, and correcting the software in collaboration with the provider (#5+) to meet stakeholder needs and minimize the risk of failure in the technology implementation. In addition, the implementation team conducted a pilot project (#6+) to experience different perspectives and once again minimize possible failure. Moreover, as soon as bed management information became available through HEV, the various stakeholders started using it, showing a desire to avoid failure by

shifting the focus of their daily bed management meetings from information sharing to problem solving (#12+).

Other events did not show the team's ability to anticipate possible issues. Indeed, to minimize stakeholder resistance, particularly by nursing personnel, the AGD decided to implement the technology without changing current processes (#3+). However, this strategy, of comforting stakeholders by retaining their current practices instead of improving processes in parallel to the implementation, could reduce the probability of making future bed management process improvements (#3-). Another event with a possible negative effect was the departure of the project head shortly after the go-live (#13-). This decision did not show management's desire to avoid failure, as it separated the implementation team from a key member. The internal project manager had strong bed management process knowledge coupled with newly acquired HEV implementation experience. Finally, Gamma encountered a near miss with the equipment purchase and installation process because they received the equipment later than initially planned (#9-). Consequently, they did not have the appropriate material for training purposes prior to implementation.

Curiously, the three case studies within my research underwent a change of core team leader during the innovation process that negatively impacted the subsequent implementation process. Moreover, the ADG's decision to implement the technology without improving the bed management process did not show a desire to avoid failure, especially since the process improvements did not subsequently take place, something that resulted in mindless organizing. *Thus, in light of the above analysis, the desire to avoid failure attribute (a1) has assured its place in preventing mindless organizing in an innovation process.*

Second, the initiation team also demonstrated its ability to anticipate possible issues (*unwillingness to simplify interpretations, a2*) when they evaluated and selected the HEV technology (#2+) because they took into consideration the needs of a larger set of stakeholders (i.e., considering the right balance between clinical and administrative needs and minimal reliance on human intervention). They could have selected the easiest solution to implement from a technical point of view as requested by IT staff

(i.e., the ADT's solution was compatible with current Gamma systems). However, according to the ADG, this was not the solution with the most potential. Nevertheless, the fact that the IT department, as a suitable source of information, was not officially involved in the evaluation and selection processes for HEV (#2-) illustrates that the initiation team might have simplified interpretations. Indeed, they demonstrated a simplified interpretation of this situation, and their doing so contributed to frustrations within the IT department, who were key players in the implementation. Moreover, this event showed that the team relied in this situation on authority rather than a combination of authority and expertise, and that this resulted in mindless organizing.

The team's reluctance to simplify interpretations was perceptible in the creation of the various work groups (#4+). They included relevant stakeholders in the coordination, implementation, and various works committees in order to coordinate, parameterize, and validate the specificities of each involved stakeholder. However, I noted a certain problem escalation (i.e., information simplification) between the software provider representative and Gamma's project team members (#8-). The software provider representative was not responsive to the project manager's requests. Subsequently, the project manager discussed these issues with the ADG because they did not want to simplify their interpretation. Shortly afterwards, the ADG intervened and requested a meeting with the software representative's superiors (#8+).

As shown in this example (#8+), Gamma's innovation process team generally considered large amounts of information and were unwilling to simplify their interpretations as a way of seeking to take action before important issues arose. Alpha's pilot project team showed their unwillingness to simplify information mindfulness in a context in which the value of such efforts could be questioned. And, finally, Beta simplified their interpretation of various situations (i.e., mindless organizing) when they should have considered the context in their decision-making process. This realization contributes to confirming, I believe, that Weick and collaborators' mindful attributes should not be used "on their own" but should be complemented with a contextual analysis to ground decisions in an organisation's facts and specifics. As there is a cost associated with each event conducted within the innovation process, including a cost to consider large amounts of data in the decision-making process (i.e., reference to

reluctance to simplify information), organizations should strive to achieve the right equilibrium between the desired results and the required resources. *In light of this analysis, my findings reveal a link between the reluctance to simplify interpretation attribute (a2) and anticipating the unexpected. Thus, the reluctance to simplify interpretation attribute was even more present in the Beta case study, where the implementers did not properly anticipate the unexpected, and their not doing so resulted in mindless organizing.*

In the initiation phase, Gamma's upper management showed their ability to anticipate possible issues (*sensitivity to operations, a3*) by recognizing the need to renew efforts to improve the bed management process (#1+). Various work groups and the multidisciplinary committees were created (#4+) in the implementation phase to parameterize the system and support the implementation process by providing valuable information. Moreover, providing training for the various user groups (#10+) and support during/after their go-live (#11+) gave valuable information to the core team (i.e., sensitivity to operations) and permitted adapting their support for each stakeholder's reality.

The project's deployment strategy, to implement first then improve processes in a later stage, considered Gamma's reality and indicated sensitivity to operations (#3+). The ADG sought to get a clear picture of bed management, including metrics, within the hospital and expose the data to all concerned stakeholders through HEV (i.e., automated dashboards). While this strategy had its advantages, it also involved the risk of losing sight of the main objectives (i.e., process improvements) and not capitalizing on the implementation momentum to generate change in practices (#3-).

Finally, according to the project manager, the software provider representative demonstrated little sensitivity to operations by not appropriately following the parameterisation process (i.e., operational information), which resulted in many issues detected later during the process (i.e., one month before implementation) (#8-). As previously noted, once the ADG was advised of the situation, she promptly addressed these issues by requesting a meeting with the providers (#8+). These coordination issues

exposed the lack of experience of the core team in project management and the need to define a clear *modus operandi* to intercept problems during the innovation process.

From these examples, my third case demonstrates that the innovation process team attempted to anticipate some issues (*i.e., sensitivity to operations*), such as involving frontline workers and being aware of issues with the provider. Thus, in agreement with my previous case studies, I realized that both frontline workers (e.g., those distributing medication, preparing patients for transportation, or cleaning rooms) and *back-office* workers (*i.e., innovation project team and upper management*) need to be sensitive to operations and to anticipate and possibly avoid issues in the innovation process. *Thus, in light of the above analysis, sensitivity to operations (a3*), including sensitivity to frontline and back-office workers' operations, is linked to preventing issues from occurring.*

Following this third and last case analysis, I realized that all three cases did not prevent, to differing extents, issues from occurring. While Gamma did conduct many events aimed at preventing issues, it was not the quantity of mindful organizing events that generated a successful project, but rather the appropriate selection of the mindful organizing events in accordance with desired results and context. The Gamma case demonstrated this lack of alignment by going forward with a strategy that minimized resistance by proposing to change the process after the implementation. However, they did not anticipate the effects of losing change momentum²⁷ and losing key knowledge when the project head departed, rendering future changes increasingly difficult. Thus, I uphold my previous 1a proposition that combines the three first mindful organizing attributes (a1, a2 and a3) to prevent issues.

Proposition 1a:

Mindful organizing in an innovation process appears to be when the involved stakeholders anticipate and take action to *prevent* issues.

As proposed, anticipating and preventing issues is a sign of mindful organizing. Containing the unexpected when adverse events occur is also a sign of mindful

²⁷ By means of implementing the technology first and changing the process afterwards to minimize resistance.

organizing. Consequently, I continued the analysis of the selected influential events to evaluate whether they had committed to agility (a4*) and whether they relied on expertise and formal authority (a5*), as shown in Table 28.

Table 28 Containing the unexpected

Containing the unexpected Attributes	Mindful Organizing (Events with + = Positive influence, - = Negative influence, +/- = Positive and negative influence)	
	Initiation	Implementation
a4*- Commitment to agility (when there are issues, organizations should be flexible and mobilize themselves in special ways to deal with various events and crisis)		-/+ Requested a special meeting with supplier after various coordination issues (#8). -/+ Managed delays in receiving and installing equipment (#9).
a5*- Reliance on expertise and formal authority (when there are issues, assemble the appropriate organizational members to generate the required authority and knowledge)	-/+ Evaluated and selected HEV technology (#2).	+/- ADG determined the project's deployment strategy (#3). + Parameterized, tested. and corrected the software in collaboration with the provider and work groups (#5). -/+ Requested a special meeting with supplier after various coordination issues (#8). - Project head departed shortly after the go-live (#13).

The innovation process team had to contain the unexpected (*commitment to agility, a4**) within various events. For example, the multiple misunderstandings with the software provider during the implementation escalated into important coordination issues (#8-). The internal project manager and the ADG took control of this unplanned event and solved the situation with the supplier (#8+). The implementation team also showed agility in managing the tardy reception and installation of the equipment. As the screens were not installed on time for the first few training sessions and no special measures were taken to reschedule them, the team showed little commitment to resilience (#9-). However, this was moderated by the fact that they had little control over the supplier's delivery delays and they finally received and installed the equipment on time for the go-live (#9+). These various events reveal that the project team was generally agile and recovered in a positive manner from unexpected events.

When coping with the unexpected, the Alpha and Gamma innovation process teams appeared to be agile, mobilizing themselves in special ways to deal with various events and crises (i.e., commitment to agility), with examples such as proposing a future

improvement project or organizing a meeting to address new issues in a timely manner. This was contrary to the Beta case study, in which the innovation project team showed very little agility and consideration of the context prior to the go-live (e.g., to conclude budgetary negotiations). *In light of the above analysis and in line with the Alpha and Gamma case studies, commitment to agility (a4*) permits innovation process teams to recover from unexpected events (i.e., to contain them).*

Finally, the innovation process team did not constantly *rely on expertise and formal authority (a5)* to contain the unexpected. In the initiation stage, the technology selection process was managed by the ADG with some support from the initiation team (#2+). However, the fact that internal IT experts were not part of the initiation team in order to support the evaluation and selection process showed possible flaws in their selection process, as they did not rely on expertise (#2-). Furthermore, the decision to select HEV was not a consensus decision among members of the initiation team given that ADG seems to have chosen it on the basis of her own beliefs, showing more reliance on authority than on expertise.

Within the implementation phase, reliance on expertise and formal authority was clear when various work groups and committees were created to work with the supplier on the parameterization of the software (#5+). It was also noticeable when the ADG determined the project deployment strategy (#3+), first to implement and second to improve, on the basis of her own expertise about internal reluctance linked to process improvement initiatives. However, not involving concerned stakeholders and deciding alone is considered a sign of reliance on formal authority (#3-). The ADG showed reliance on expertise when she considered the internal project manager's warnings about the coordination issues with the software provider (#8+). Nevertheless, she relied on authority to impose her view during a special meeting with the software provider's upper management (#8-). Finally, the departure of the internal project manager (#13-) shortly after the implementation could have also affected the results for the process improvements that were still to come, as the project was losing some important expertise.

While formal authority is of great importance in Canadian healthcare organizations (i.e., the public sector), there should be a certain equilibrium between authority and expertise in order to mindfully organize. The difficulty here lies in determining the situations in which using authority is required and beneficial. In this case, the project team relied on formal authority for some events and on expertise for others, creating some frustrations within various stakeholder groups (e.g., the IT department, admissions, the software provider, etc.).

Thus, this third case study moves in the same direction as the other two case studies in proposing that in some situations reliance on expertise and authority can be beneficial to make innovation projects go forward. *Thus, in healthcare organizations, my modified attribute, relying on expertise and formal authority (a5*), permits innovation process teams to contain the unexpected.*

Following my analysis, the two last mindful organizing attributes (a4 and a5) appear to be aimed at containing and resolving issues when they occur. For example, the ADG requested a special meeting with the supplier as recommended by the internal project manager following various coordination issues (#8); this shows a commitment to agility (a4*) and reliance on expertise (i.e., internal project manager's warnings) and the ADG's authority (a5*).

While Gamma did conduct procedures to contain issues, I reassert that it is not the quantity of mindful organizing events that generates a successful project but rather the appropriate selection of the mindful organizing events in accordance with desired results and context. The Gamma case demonstrates this lack of alignment because it went forward with a strategy that minimized resistance and it proposed to change the process following the implementation. This decision resulted in a loss of momentum in improving the bed management process. Moreover, the departure of the project head after the go-live and prior to the process improvements increased the difficulties in addressing future changes. Thus, as in the previous case analysis, this third case showed that not containing the unexpected (i.e., in opposition to *reliance on expertise and authority* and *commitment to agility*) led to mindless organizing. Thus, I maintain proposition 1b as presented in the previous case study.

Proposition 1b:

Mindful organizing occurs when the innovation process team show agility to *contain* the unexpected.

The use of Weick and collaborators' adapted attributes was once again interesting to analyze mindful organizing in the innovation process. However, similar to what I found for Alpha and Beta, this exercise was still complex, as is demonstrated with the repetition of some events under multiple attributes. Tables 27 and 28 show that only three events could be categorized under a specific attribute, namely, the determination of patient flow and bed management as priorities (#1) and the implementation of the pilot project (#6). Nine events were categorized under two or more mindfulness attributes, including the creation of various work groups, among which were the project team and work committees (#4), and determination of the project's deployment strategy (#3). These multiple categorizations for the same events within the five attributes resulted in more complexity and less meaning in seeking to explain what leads innovation projects towards success. This realization confirmed the value of grouping the events using the prevention and containment categories rather than the five mindful organizing attributes.

4.3.2.4 Mindful organizing: finding equilibrium

As with the previous case studies, Bolman and Deal's multi-perspective lens was used to analyze links between context, the desired outcomes, and the events conducted within the innovation process. This lens permitted me to categorize the political, human resource, rational, and symbolic events that took place and verify whether these events were aligned with the context and the desired results.

As shown in Table 29, I used Bolman and Deal's frames to explore the events within Gamma's innovation process. Interestingly, this framework permitted me once again to categorize all influential episodes and encounters, including the one that could not be categorized using Weick and collaborators' mindful organizing attributes (event #7). Thus, as previously specified, I categorized the events under their "main" (i.e., most influential) frame to simplify my analysis.

Table 29 Gamma's multi-perspective analysis

Perspectives	Mindful Organizing (Events with + = Positive influence, - = Negative influence, +/- = Positive and negative influence)	
	Initiation	Implementation
Rational	+ Determined that issues in coordinating patient flow, including bed management, were a priority (#1). +/- Evaluated and selected HEV technology (#2).	+ Created various work groups, including the project team and work committees (#4). + Parameterized, tested, and corrected the software in collaboration with the provider and work groups (#5). + Implemented pilot project (#6). -/+ Managed delays in receiving and installing equipment (#9). + Identified problems and coordinated resolution (#12).
Human Resource		+ Trained various user groups (#10). + Supported users during their go-live (#11).
Political		+/- ADG determined the project's deployment strategy (#3). -/+ Requested a special meeting with supplier after various coordination issues (#8). - Project head departed shortly after go-live (#13).
Symbolic		+/- Conducted a US site visit (#7).

The use of Bolman and Deal's framework allowed me to highlight some influential events under the *rational* frame. Upper management were well aware of the recurring operational deficits stemming from deficient patient flow and bed management coordination. To address these issues, upper management determined that coordinating patient flow, including bed management, was an organizational priority (#1+). The following episode, conducted by the ADG and supported by "the initiation team", focused on evaluating and selecting the bed management software (#2+). However, the ADG ultimately took the final decision to select HEV (#2-).

Almost half of the events in the implementation phase were categorized under the rational frame. These rational events showed a rather positive view of the implementation committee's (core team's) activities. As an IT implementation was required, efforts were put in place to skilfully structure the innovation process, such as the creation of appropriate workgroups (#4+); the implementation, parameterizing, and testing of the software (#5+); and the setup of a pilot project to start the implementation process (#6+). In addition, HEV's deployment had a positive result on bed management meetings. Having access to new data enabled the various stakeholders to be more productive in the bed management meetings by focusing on problems and coordination

issues (#12+). However, my analysis did show some inefficiencies in regard to the delays encountered in the reception and installation of the equipment (#9-). Luckily, the equipment was installed just-in-time one day before the go-live (#9+).

Interestingly, all three case studies had an important proportion of rational events that generally had a positive influence on their innovation process. Following my analysis of the various events categorized under the rational frame, I was able to observe that these events often helped to structure, address, and coordinate various aspects of the innovation processes and, in turn, had a positive influence on the outcomes. Gamma's large scale implementation, which involved technology and process change within each unit, could explain the intensity of rational events in comparison to the other cases.

Two events were categorized under the *human resource* frame in this implementation process, more specifically in the implementation phase. The way these encounters/episodes were mindfully organized played an important role in the success of the HEV deployment. The managers, within each unit, had the responsibility to ensure that a majority of their employees received training prior to the go-live (#10+). Approximately 60% of the affected staff received training before the go-live (which was sufficient according to the project manager). The core team created an implementation plan phased throughout one day. They appointed a super-user within each unit to support users during the go-live (#11+). Moreover, the core team provided supplemental support and visited each unit on the go-live day (#11+). The fact that various user groups were considered and that some of them were eager to start using HEV created a positive dynamic around the HEV integration. Thus, HEV could be implemented, counting on the skills and commitment of most of the staff.

Various stakeholders (i.e., human resources) played an important role in addressing all the changes that come with innovation processes. Their involvement, or minimally their consideration, is crucial to achieve success in a service industry context where human resources are key players in all processes. However, as resources have a limited capacity to be involved in multiple innovation projects, their level of involvement must be appropriate (i.e., "just enough") to contribute without creating a work overload. This is especially important in the healthcare context, where change agents, such as the

members of an implementation team, must consider and support multiple stakeholders (e.g., different departments or job positions) in order to generate successful change initiatives.

When analyzing the innovation process using the *political* frame I found events that had an important influence on the innovation process's outcome, more specifically in the implementation phase. The ADG's decision to go forward with the implementation of HEV (#3+) without changing the current process was initially politically smart, considering the resistance they had encountered during the previous bed management dashboard initiative. It was also interesting as it permitted attaining part of the improvement objectives quickly (i.e., providing transparency in the process and providing better tools in managing the cleaning workload) without overwhelming collaborators with additional projects. However, this strategy was risky, as implementing the technology without improving the process could lead to various issues (#3-). First, if the stakeholders were content with the current practices, it could reduce their motivation to pursue change in a second phase. Second, I observed that old habits, such as calling for validations even if the information was available, were difficult to change. This was also true for the bed coordination meetings; a shorter version was still taking place each week even if they were supposed to disappear following the implementation. This encounter had an important impact on the project's success because the bed management process had not yet been improved upon at the time of my last interviews and no specific improvement plans had been made.

Another episode that had an influence, under the political frame, was the ADG's request to meet the software provider's upper management in regard to obligations that were not being met and the need for them to be more cooperative (#8+). The situation had escalated significantly before the ADG intervened to address the divergent views and agendas between the internal project manager and the software representative (#8-). The internal project manager thought the coordination issues could compromise the project (i.e., delays, quality of the system), while the provider's representative seemed to minimize their impact (i.e., possibly because he was slowing phasing out to another project). Interestingly, comparable events were found in Alpha and Beta, where the involvement of an upper management representative appeared to generate the required

influence to make decisions go forward. However, these occasional “hierarchical power” involvements might have impeded relations with the other parties (e.g., the software representative at Gamma or the ES managers at Beta).

Viewing the innovation process under this political frame brought out the risks associated with the project head’s departure following the initial implementation (#13-). Indeed, following the technology implementation, the plan was to measure the current bed management processes and subsequently proceed with improvements. This is similar to events seen in both Alpha and Beta, where the project team, or their leadership, was changed while the implementation process was not yet completed. In all three cases, this change of leadership was identified as mindless organizing, as these encounters did not consider the context and had a negative influence on the innovation process outcomes.

Finally, the team conducted an event that had an important *symbolic* impact on the process. During the implementation phase the team participated in visit to a US site where the same software had been implemented. This type of visit can be very beneficial because it offers the possibility to get third-party feedback, to see the solution in action, and to comfort clients in their choices, among other things (#7+). However, in Gamma’s case, the pilot was already under way when the visit took place. This leads one to question the usefulness of such a visit given that the technology was already selected and portions of the implementation had already been completed (#7-). Interestingly, when analyzing the events using Weick’s attributes, I could not categorize the site visits found within my three case studies. While some information was gathered during these visits, to compare and evaluate (i.e., rational frame) the main focus was to have a representation of what the system could do and show various key stakeholders its usefulness during the visit. Interestingly, events under the symbolic frame did not appear to have an important impact within the three cases, making me wonder in which context the use of events under this frame would have a greater influence in the innovation process.

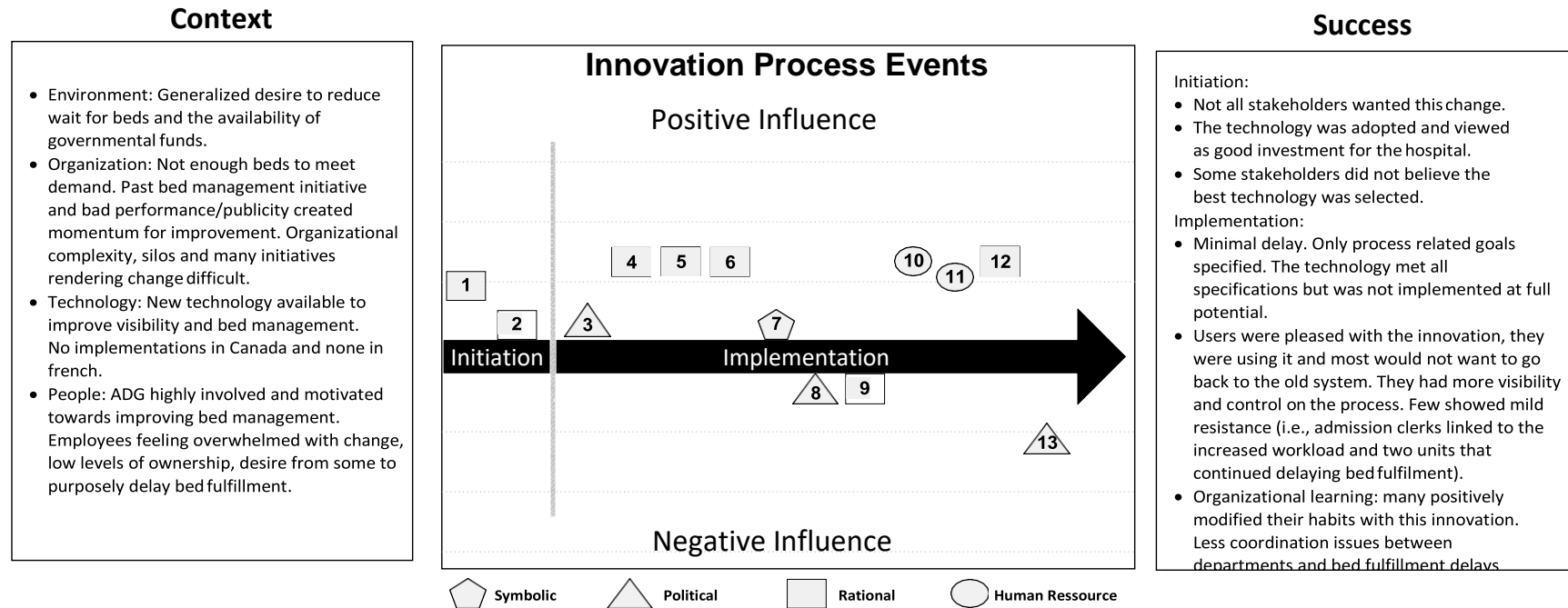
Consistent with my analysis of Alpha and Beta, the use of Bolman and Deal’s frames to analyze Gamma’s innovation process gave additional perspectives and understanding on

various episodes and encounters. As proposed in my methodology chapter, I prepared a visual data display (Figure 27) to summarize Gamma's context and project success, including the thirteen selected events that had a positive or negative influence on the innovation process. This visual representation allowed me to analyze whether Gamma's innovation process team had mindfully organized throughout the process by putting into perspective the context and the desired outcomes throughout their decisions.

My analysis of Gamma's innovation process showed that events under the political frame had the most influence in the innovation process. Interestingly, most of these political events were conducted by the ADG and were intended to make the project go forward in a context of multiple stakeholder groups with varying goals and objectives. This highly political context required political manoeuvres to maximize chances of success.

When I used my multi-perspective framework to analyze this event, it appeared that the efforts and resources under the political frame were of great influence in the innovation process. Considering the ADG's strategy to implement the technology first and then to improve the bed management process, events following the go-live were expected to generate the desired outcomes.

Figure 27 Gamma's innovation process, context and success



Note: Numbers 1 to 13 represent Gamma's thirteen innovation process events shown in Figure 26

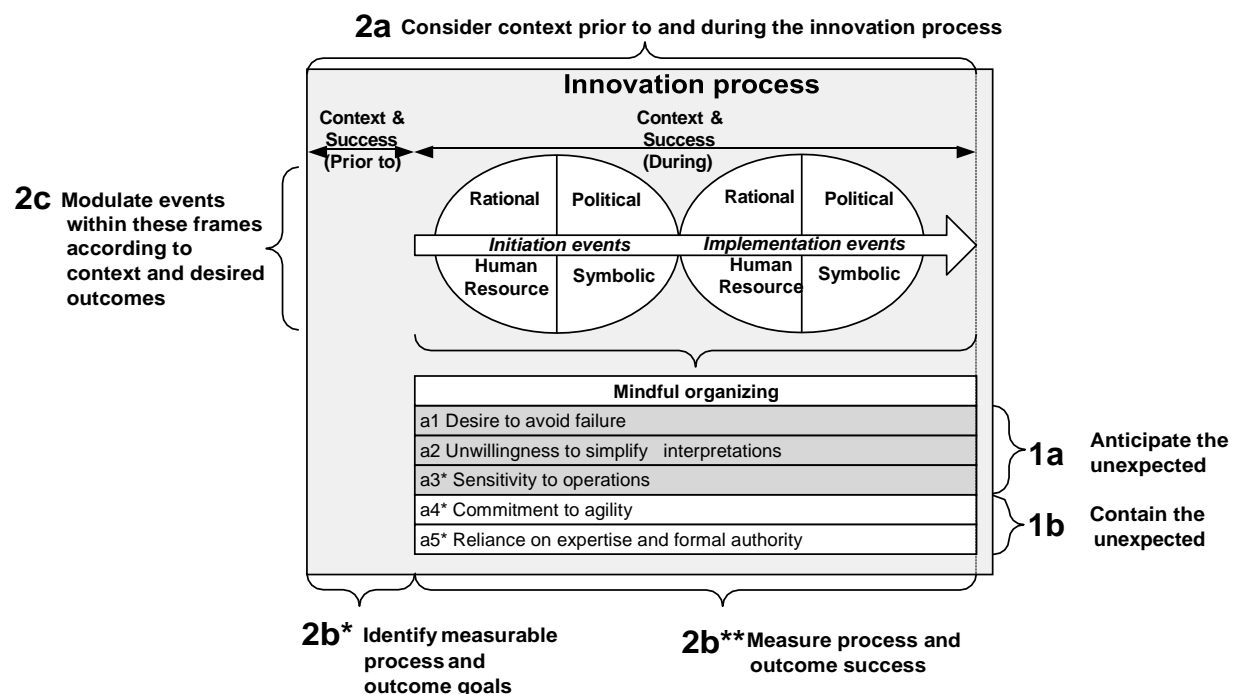
However, the changes in the context delayed these subsequent improvement activities; and at the time of my last data collection, they had not yet taken place. This would indicate that conducting events within an innovation process is not sufficient to generate successful project outcomes, as was revealed within this process. Not considering the changing context, including the departure of the project head, appears to have contributed to the mindless organizing in this innovation process. Therefore, I would conclude that conducting events on the basis of the desired outcomes and the dynamic context ought to be considered mindful organizing.

The innovation project team's goal should be to conduct the events to achieve the desired results. It is not the number of events under each frame or their categorization but rather the alignment between these events, the context, and the desired outcomes (i.e., to mindfully organize). In this case, the organizers displayed mindless organizing because they did not readjust their actions (i.e., HR and political) following a change in the context during the innovation process. Thus, I support the following proposition:

Proposition 2c: Mindful organizing implies that the project team members identified and modulated the rational, human resource, political, and/or symbolic events according to context and desired outcomes.

Considering the context and the desired process and outcome goals (i.e., success) should help innovation process teams identify the events that need to be conducted (or not) within the rational, human resource, political, and/or symbolic frames and their intensity to positively influence the innovation process outcomes (i.e., mindful organizing, as shown in Figure 28).

Figure 28 New multi-perspective conceptual framework



In this third and final case study I investigated the implementation of a bed management system. Once again, I used my conceptual framework, including Weick and collaborator's adapted mindfulness attributes and my revised propositions (presented in Table 16), as a baseline. This case analysis permitted to further develop proposition 2b²⁸, that conceptualized the links between lack of success and mindful organizing. The new propositions that stemmed from proposition 2b are *identifying measurable process and outcome goals at the beginning of the innovation process* (2b*) and *measuring them during the innovation process* (2b**). Moreover, following this analysis I further supported my other propositions presented in Table 30.

²⁸ Proposition 2b following Beta: Mindless organizing implies that measurable process and outcome goals are not explicitly stated by project team leaders and shared among key stakeholders.

Chapter 5. DISCUSSION AND CONCLUSION

This last chapter highlights the learning gained throughout this research project. First, an overview of the research objectives and my case studies is described. Then, the practical and theoretical implications of this study is discussed; and, finally, the limitations of this research as well as future avenues for research is presented.

5.1 Research objective and structure

The aim of this doctoral thesis was to conduct retrospective analysis of various administrative innovations in healthcare organizations in order to develop the concept of mindful organizing. As presented in the introduction and pursued in the literature review, the motivations underlying my research project are aligned with some of Quebec's health network problems, such as the rising costs of care, an aging population, a growing shortage of labour, complex processes, and an ever-changing environment linked to technologies, regulations, and health issues. This reality fosters growing concerns among the population and incentives to drive healthcare organizations towards change through the implementation of various management innovations.

However, implementing innovations does not guarantee improvement. Multiple factors influence an innovation's outcome. As presented in my doctoral research, the success of these innovation implementations appears to be linked to the concept of mindful organizing. According to my literature review, mindful ways of organizing relate to events conducted by individuals or group of individuals in an organization that are focused on achieving the desired operational outcome for specific events (Ray *et al.*, 2011). Being mindful in the innovation process would support organizations in making sound judgements about whether or not to adopt an innovation and when, by whom, and how best to manage the innovation process.

While Vogus and Sutcliffe (2012) provide distinctive definitions of organizational mindfulness and mindful organizing, they state that the same mindfulness attributes can be used to evaluate both. I questioned how these mindfulness attributes could be used to assess very different units of analysis ranging from events within an innovation process (operational) to strategic decisions within an organization. Thus, my research questions were twofold: first, *what characterizes the*

concept of mindful (or mindless) organizing when introducing and implementing management innovations and, second, *to what extent is mindful (or mindless) organizing associated with innovation process success* in healthcare organizations.

The methodological approach to address these research questions was a set of three exploratory case studies. This was considered the most appropriate method because each case study was on different innovative technologies, for which no comparable studies had been found. In addition, an exploratory approach permitted the inclusion of various concepts such as the innovation process's context and success, contributing to the analysis. These concepts are represented in my conceptual framework (shown in Figure 28 above), which evolved throughout this analysis and enabled me to structure and develop my understanding of mindful organizing.

I completed the data collection between January 2011 and January 2012 on the initiation and implementation of various management innovations in three healthcare organizations. In the first case study, at Alpha hospital, I investigated the implementation of medication carts used by nurses to distribute prescription drugs to patients in the wards. In the second case study, at Beta hospital, I studied the deployment of a centralized patient transportation system. Lastly, in the third case study, at Gamma hospital, I investigated the implementation of a bed management system in one of its campuses. Contrary to the first two case studies, where the data collection took place once the implementation had been completed, I conducted interviews at Gamma hospital prior to implementation as well as after the innovation's deployment.

For each case study, I conducted multiple semi-structured interviews with various stakeholders and received documentation and observations. These various data sources combined with interviews with multiple stakeholders on the same innovation process facilitated data triangulation. Following the transcription, I proceeded with the initial steps in the data analysis, which consisted of the validation of the coding scheme and the writing of the case narrative. Afterwards, in the within-case analysis, I analyzed the data associated with each case using my evolving conceptual framework for guidance. I developed a set of research propositions on mindful organizing in the particular context of management innovation in healthcare organizations that evolved during the analysis of the three case studies (Table 30).

Table 30 Research proposition evolution

Segment	Mindful organizing conceptualization
Initial Literature based on Weick and collaborators	<p>Proposition 1: Mindful organizing in an innovation process follows the same attributes as organizational mindfulness, including desire to avoid failure (a1), reluctance to simplify interpretations (a2), sensitivity to operations (a3), commitment to resilience (a4), and reliance on expertise rather than formal authority (a5).</p>
Case 1: Alpha	<p>Proposition 1a: Mindful organizing in an innovation process occurs when innovation process teams anticipate and take action to prevent issues.</p> <ul style="list-style-type: none"> Includes the following adapted mindfulness attributes: desire to avoid failure (a1), reluctance to simplify interpretations (a2), sensitivity to operations from frontline and back-office employees (a3*). <p>Proposition 1b: Mindful organizing occurs when the innovation process team show agility to contain the unexpected.</p> <ul style="list-style-type: none"> Includes the following adapted mindfulness attributes: commitment to agility (a4*) and relying on expertise and formal authority (a5*). <p>Proposition 2a: Mindful organizing implies that the initial project context is considered by the innovation process team in the innovation process.</p> <p>Proposition 2b: Mindful organizing implies that measurable process and outcome goals are explicitly stated by project team leaders and shared among key stakeholders.</p> <p>Proposition 2c: Mindful organizing implies that the innovation process team members identified and modulated rational, human resource, political, and/or symbolic events according to context and desired outcomes.</p>
Case 2: Beta	<p>Proposition 1a: Mindful organizing in an innovation process occurs when innovation process teams anticipate and take action to prevent issues.</p> <p>Proposition 1b: Mindful organizing occurs when the innovation process team show agility to contain the unexpected.</p> <p>Proposition 2a*: Mindful organizing implies that project context is assessed by key stakeholders prior to and during the innovation process.</p> <p>Proposition 2b: Mindful organizing implies that measurable process and outcome goals are explicitly stated by project team leaders and shared among key stakeholders.</p> <p>Proposition 2c: Mindful organizing implies that the innovation process team members identified and modulated rational, human resource, political, and/or symbolic events according to context and desired outcomes.</p>
Case 3: Gamma Final research propositions	<p>Proposition 1a: Mindful organizing in an innovation process occurs when innovation process teams anticipate and take action to prevent issues.</p> <p>Proposition 1b: Mindful organizing occurs when the innovation process team show agility to contain the unexpected.</p> <p>Proposition 2a*: Mindful organizing implies that project context is assessed by key stakeholders prior to and during the innovation process.</p> <p>Proposition 2b*: Mindful organizing implies that measurable process and outcome goals are explicitly stated by project team leaders and shared among key stakeholders at the beginning of the innovation process.</p> <p>Proposition 2b**: Mindful organizing implies that measurable process and outcome goals are measured by project team leaders and shared among key stakeholders during the innovation process.</p> <p>Proposition 2c: Mindful organizing implies that the innovation process team members identified and modulated rational, human resource, political, and/or symbolic events according to context and desired outcomes.</p>

As shown, my propositions evolved throughout my analysis consolidating my understanding of mindful organizing within the innovation process. The theoretical and practical implications linked to my final propositions are presented in the following section.

52 Discussion on the theoretical and practical implications

My study sought to *characterize the concept of mindful (or mindless) organizing when introducing and implementing management innovations in healthcare organizations*. This characterization enabled me to develop my understanding of what mindful organizing is and *to what extent is mindful (or mindless) organizing associated with innovation process success* through the creation of multiple research propositions (presented in Table 30 above and further described below). The following section presents the underlying theoretical implications for researchers and the practical implications for practitioners associated with my research questions.

5.2.1 Mindful organizing attributes: Propositions 1a and 1b

Weick and collaborators' (2007; 1999) mindfulness attributes were initially created to measure organizational mindfulness. Ray *et al.* (2011) clarified the concept by distinguishing organizational mindfulness and mindful organizing. Using this new distinction, Vogus and Sutcliffe (2012) proposed that the same mindfulness attributes could be used to measure both organizational mindfulness and mindful organizing.

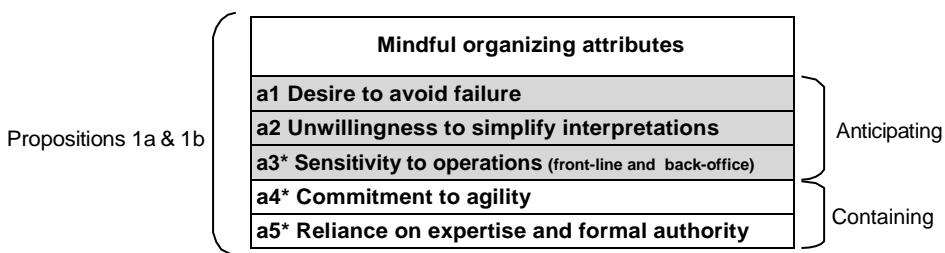
My analysis revealed that using Weick and collaborators' mindful organizing attributes to analyze my innovation processes was useful; however, three of the five attributes required some adjustments to appropriately characterize innovation processes. For example, the third attribute was changed to include *back-office* workers (i.e., the innovation process team) as well as frontline workers to be *sensitive to operations*. Moreover, the fourth attribute was altered from *commitment to resilience* to *commitment to agility*, as agility appeared more suitable to characterize the dynamic capabilities required to mindfully organize.

These attributes provided interesting insights into general principles that should be followed, but my research showed they were not sufficiently precise. When using these attributes to understand how the innovation process team conducted their innovation process, I often categorized the

same events under multiple attributes. For example, Beta minimized nursing auxiliary and implementation committee resistance issues (#9), showing a perfect example of an event that could be categorized under the unwillingness to simplify interpretations and the sensitivity to operations attributes. This situation was similar in all three case studies, where multiple events were categorized under more than one attribute while some events could not be categorized under any attributes.

Considering the proximity between the three first attributes; *desire to avoid failure* (a1), *unwillingness to simplify interpretation* (a2) and *sensitivity to operations* (a3*) and the two last attributes; *commitment to agility* (a4*) and *relying on expertise and formal authority* (a5*), I developed two propositions (propositions 1a, and 1b) as shown in Figure 29 below. Thus, I proposed that when anticipating the unexpected, mindful organizing in an innovation process appears to be centred on *being preoccupied with failure, being sensitive to operations, and unwillingness to simplify information* (1a). These three first attributes focus on preventing and avoiding possible mishaps. I proposed a second grouping centring on containing the unexpected in healthcare organizations, in which mindful organizing in an innovation process appears to be focused on the two last attributes: *reliance on expertise and formal authority* and *commitment to agility* (1b).

Figure 29 Mindful organizing attribute propositions



Practitioners in healthcare organizations could benefit in considering my propositions 1a and 1b when implementing innovations. These propositions suggested that being pro-active, or reactive, according to the organization's facts and specifics would demonstrate the practitioners' ability to mindfully organize. Indeed, practitioners should first and foremost anticipate the unexpected (1a) to avoid issues as preventing them is often less resource intensive than containing them. Upon issues, practitioners must contain the unexpected (1b) and learn to be reactive in order to

minimize impact on the project outcome. Thus, using these two propositions rather than utilizing Weick and collaborators original mindfulness attributes provides meaningful categorization that contributes in describing mindful organizing in the innovation processes.

5.2.2 Context: Proposition 2a*

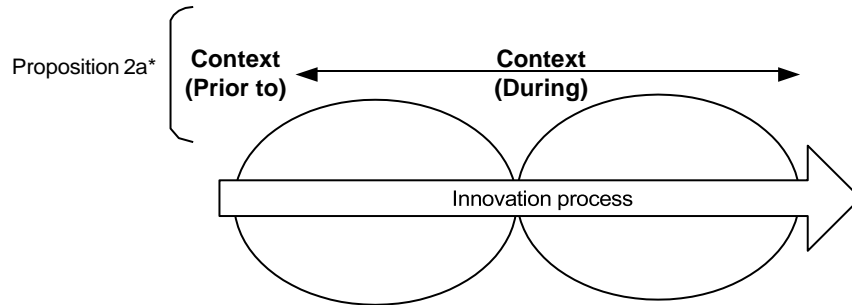
Swanson and Ramiller (2004) stated that mindfulness in the innovation process occurs when organizations ground their decisions in their own context. Thus, to evaluate the link between context and mindful organizing in the innovation process, I used Fleuren and collaborators' (2004) attribute categories (the innovation, the environment, the user, and the organization), which led to the creation of proposition 2a*. My results support Swanson and Ramiller's (2004) findings indicating that mindfulness in the innovation process occurs when organizations ground decisions in their *initial context (prior)*. For example, many decisions taken by upper management representatives in the initiation phases of Alpha and Gamma contributed to mindfully organizing the innovation process because they took into account organizational and user contextual elements such as the organization's ability to endorse additional change and the stakeholders' capability to adopt new technologies. This contextual information helped the project team manage their capacity (i.e., workload) by focusing on pertinent areas of intervention.

Moreover, consideration of context *during* the innovation process was beneficial in managing Gamma's relationship with the software provider. In reaction to various difficulties (i.e., change of context during the innovation process) with the software provider, the ADG decided to intervene to improve the collaboration between the core team and the provider. In contrast, there is an example in which the context was not considered and which negatively impacted the project's outcome.

While Alpha's innovation process appeared to be a relative success, my mindful organizing analysis using my framework showed that they did not consider contextual factors in determining their implementation strategy. Indeed, coordinating a pilot project using a lean methodology took up a significant number of hours. Considering Alpha's positive context (i.e., a proven technology that was common in the environment and users and an organization that

wanted it) revealed that such a large number of resources (i.e., human and financial) deployed during the innovation process were not required, thus showing the team's mindless organizing. These examples demonstrate my proposition (2a*) that *project context should be assessed by key stakeholders prior to and during the innovation process* (as shown in Figure 30).

Figure 30 Positioning my context proposition



For practitioners, developing a clear understanding of the context prior to and during an innovation process, including the environment, the organization, the stakeholders, and the innovation itself, makes the innovation process team aware of possible issues in order to compensate for them, and of advantages, in order to capitalize on them.²⁹ Thus, one of my research contributions is demonstrating that context awareness is one of the components that lead to mindful organizing.

One could argue that considering the context is comparable to Weick and collaborators' third attribute, *sensitivity to operations*. However, their definition of sensitivity to operations focuses on frontline workers who need to be aware of the current state of operations (Weick and Sutcliffe, 2007; Weick, Sutcliffe and Obstfeld, 1999) rather than considering the dynamic context (i.e., prior to and during the innovation process), including the innovation, the organization, the environment, and the people.

5.2.3 Success: Propositions 2b* and 2b**

Evaluating the level of success within innovation processes is of great importance because it permits assessing whether goals have been met, and if they have not, taking actions to achieve

²⁹ Mindful organizing implies the consideration of enabling contextual elements as levers and of negative contextual elements through compensatory mechanisms.

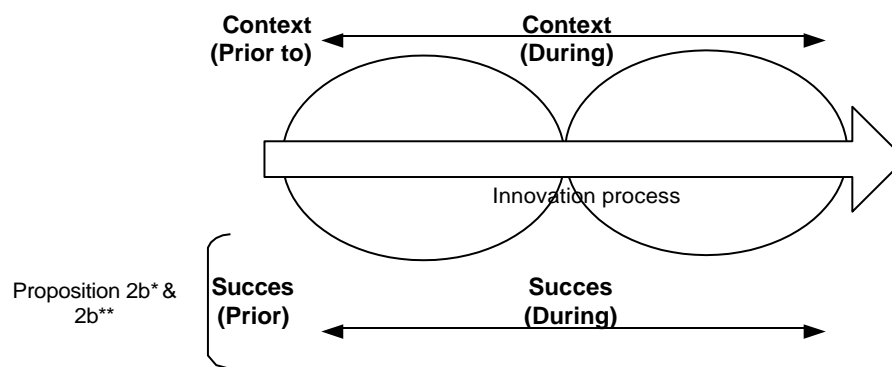
the desired results. To evaluate process success, I used Nelson's (2005) conceptualization for measuring process success, which includes whether the project was on schedule, whether it was on budget, and whether it delivered the desired product (according to specifications) (Nelson, 2005) (Nelson, 2005) (Nelson, 2005) (Ryan Nelson, 2005) (R. Nelson, 2005) (R. Nelson, 2005) (R. Nelson, 2005) (Nelson, 2005). To measure the outcome's success Nelson (2005) proposed to evaluate people-related measures, such as the use of the innovation by the targeted stakeholders, the organizational learning created by the innovation to better engage in future challenges, and the innovation's value (Nelson, 2005) (Nelson, 2005) (Nelson, 2005) (Ryan Nelson, 2005) (R. Nelson, 2005) (R. Nelson, 2005) (R. Nelson, 2005) (Nelson, 2005). Nelson's (2005) conceptualization focused on evaluating success after project completion and specifying the importance of determining specific goals and objectives in order to orient actions and assess their relative intensity.

Nelson's (2005) success conceptualization provided the theoretical foundation to analyze my case studies and answer my second research question: *to what extent is mindful (or mindless) organizing associated with innovation process success?* I formulated two propositions (2a* and 2b). First, mindful organizing implies that desired outcomes are clearly stated at the beginning of innovation processes and considered by project team members throughout the innovation process (2a*) in order to achieve success. The main message for researchers is that the concept of mindful organizing is closely related to the means (i.e., events) taken to achieve success. I encountered issues in evaluating success in my three case studies. The organizers had not identified specific measurable objectives and targets during the initiation phase, which made it difficult to evaluate projects' performance (2a*). While Alpha did provide some objectives for their pilot project, this was not the case for their hospital-wide implementation. Beta had no measurable objectives linked to the desired outcomes besides delivering a project "on-time, on- budget". Gamma had determined project objectives; but they did not provide initial measures and targets, rendering it almost impossible to truly evaluate the project's success. My first proposition stresses the importance of defining precise outcomes at the beginning of the innovation process to orientate the project management team (i.e., evaluate the required efforts, or events, to achieve these outcomes). Thus, as revealed in all three case studies, not having

specific measurable objectives and targets led project team members towards some mindless organizing decisions, as they did not align their events in relation to specific desired outcomes.

Second, mindful organizing implies that project team members evaluate the innovation process's success following the implementation according to desired outcomes and take corrective actions if required (2b*). My second proposition (2b**) highlights the importance of comparing the post-implementation achievements with the desired outcomes (i.e., continuous improvement). However, the perception of success in the project management teams within the three case studies appeared to rely more on the effective implementation of the technology (i.e., process success metrics) rather than the outcomes. Indeed, except for evaluating whether the project was “on-time and on-budget”, none of the three cases evaluated their outcomes after implementation (i.e., value to user and organization), again making it difficult to judge project success.

Figure 31 Positioning my success propositions



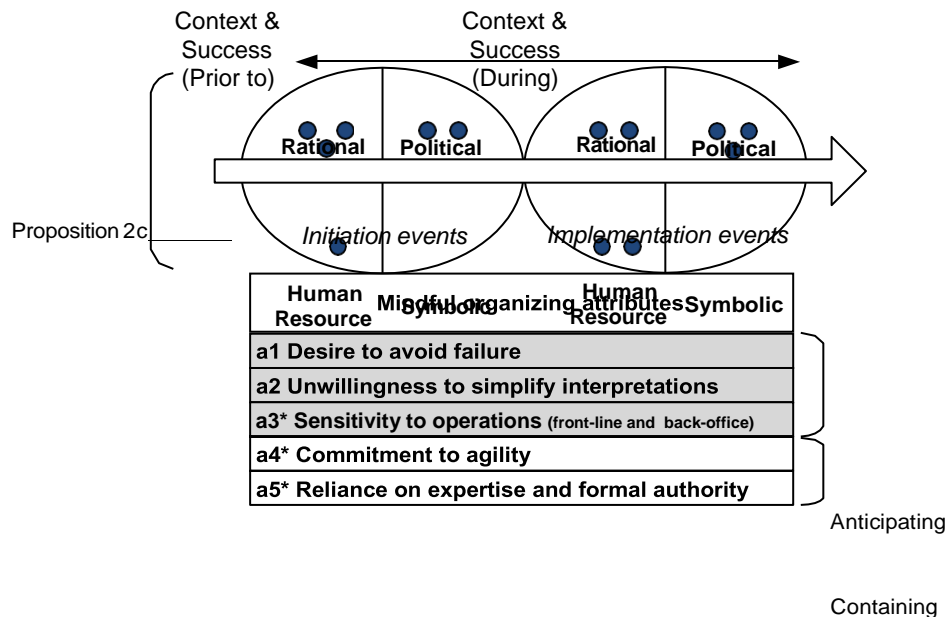
As shown in Figure 31, and answering our second research question, practitioners should benefit from having clearly defined measurements and targets at the beginning of the innovation process (i.e., prior to) and success evaluations at different moments during the process, depending on the project's scope, offering valuable guidance. This phased success evaluation allows project management teams (practitioners) to mindfully organize. More specifically, to weight their actions towards success, to evaluate if the project is on track, and, lastly, to readjust if success has not been reached. Indeed, if an innovation process team deploys an innovation mindfully, there is a greater probability of making sound judgments *throughout* the initiation and implementation processes, which, in turn, increases project success.

5.2.4 Multi-perspective frames : Proposition 2c

Mindful organizing occurs when project leaders and their project team evaluate the context and the desired outcomes to determine the various events that need to be completed to achieve success (2c). As there are limited resources within the healthcare sector, the use of this multi- perspective framework appeared to be an interesting opportunity to plan the appropriate events that need to be conducted within the initiation and implementation phases.

Bolman and Deal's multi-perspective frames (i.e., rational, human resources, political, and symbolic), borrowed from leadership literature, were used to assist in structuring and categorizing the various events that took place within the initiation and implementation phases of my three case studies. Following my analysis of these case studies, I realized that mindful organizing implied that the innovation process team members identified and modulated rational, human resource, political and/or symbolic events according to context and desired outcomes (2c). Since the concept of mindfulness in the innovation process is linked to grounding decisions in organizational facts and specifics (i.e., context and success), the use of multiple perspectives enabled the development of a more comprehensive view of the events (as shown in Figure 32).

Figure 32 Positioning my multi-perspective frame propositions



Interestingly, all three case studies had an important proportion of *rational* events that generally had a positive influence in their innovation process. Following my analysis of the various events categorized under the rational frame, I could observe that these events often helped to structure,

address, and coordinate various aspects of the innovation processes that, in turn, had a positive influence on the outcomes. Gamma's large-scale implementation, technology, and process change within each unit could explain the intensity of rational events there in comparison to the other cases.

The *human resource* frame was also present within each case study, as human resources are key players in all processes within this service industry. Their involvement is often crucial to achieve success. However, as resources have limited capacity and cannot be involved in an unlimited number of innovation projects, their involvement must be appropriate (i.e., "just enough") to contribute without creating a work overload. This is especially important in the healthcare context, where the involved stakeholders often have an operational position in combination with involvement in special projects (such as the innovation projects presented in this research). Thus, considering human resources and their capability to contribute to any additional projects is important in order to mindfully organize.

Interestingly, the most influential frame within all three case studies was the *political* frame, with events that had a negative impact, such as change of leadership during the innovation process. The involvement of upper management was also a recurring enabler, or in some cases an issue, to resolve problems and make projects go forward. The use of this frame in my analysis showed that considering politics is of prime importance in complex environments, such as government entities and healthcare organizations, where there is a combination of scarce resources and resistance from various stakeholder groups that have different perceptions of reality (Glouberman and Mintzberg, 2001).

Events under the *symbolic* frame did not appear to have an important impact within the three cases. Few events, such as site visits, had a symbolic value in my case studies. While some information on the innovations was gathered during these visits, in order to compare and evaluate (i.e., rational frame), the main purpose was to provide a visual representation of what the innovation could do and demonstrate the innovation's usefulness to the various stakeholders during the visit.

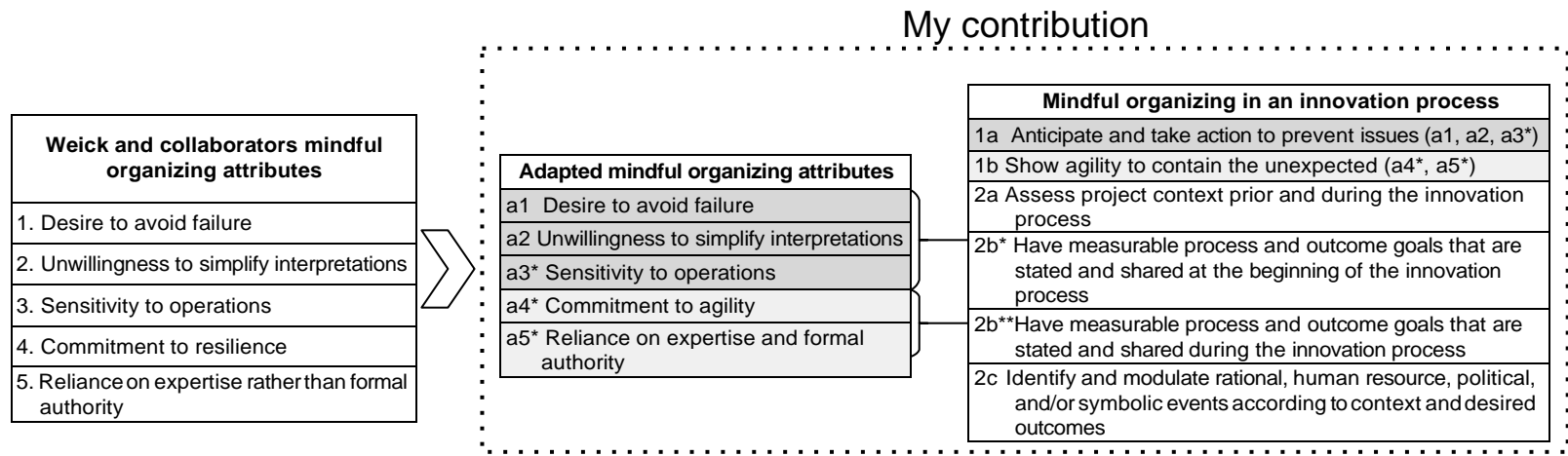
While the purpose of integrating these frames was to contextualize decisions according to context and desired outcomes, meaning that the agreement between the innovation process and the event selection is more important than having multiple events within each frame, it was still interesting to evaluate the most prevalent frames per innovation phase (i.e., initiation and implementation). The three cases showed that in the initiation phase the project team considered primarily rational events, followed by human resource and political events, and acted accordingly. This focus on rational events is not surprising, as the first steps in an innovation process are often structuring in nature (e.g., business case, objectives, etc.).

Moreover, I noted that when mindless events occurred in the political frame they appeared to have repercussions on events in other frames, producing what is sometimes called a “snowball effect”. For example, in Beta and Gamma, I observed that some mindless events, under the political frame, had effects on the events classified under the HR frame and, to a lesser extent, the other frames as well. More specifically, in Gamma’s innovation process, the IT department was not truly involved in the evaluation and selection process of the innovation (i.e., HEV). When the implementation started, some problems occurred that could have been anticipated had the IT department been involved. In other words, the impact of political events appears to have extended consequences in events found under the other frames (i.e., rational, HR, and symbolic). This finding was mainly identified in the implementation phase.

In the implementation phase, the project teams did not generally consider the political and human resource frames sufficiently when conducting their innovation processes, which resulted in a general lack of project success. Events under the political frame appeared important, demonstrating the effects of power and credibility in healthcare organizations. Indeed, my case studies revealed various power-related issues that needed to be contained in order to make the projects go forward (e.g., change in leadership).

In sum, and as shown in Figure 33, my research further conceptualized mindful organizing in healthcare management innovations. First, I demonstrated through the analysis of my three case studies that Weick and collaborators mindful organizing attributes, also used to describe organizational mindfulness, were not sufficiently precise to characterize mindful organizing in the innovation process demonstrating the need to further develop the concept (i.e., events categorized in multiple attributes or no attributes). I revised Weick and collaborators mindful organizing attributes by grouping them under two new propositions focused on anticipating and containing the unexpected (i.e., to anticipate and take action to prevent issues and to show agility to contain the unexpected).

Figure 33 Summary of my contribution



I further developed the concept of mindful organizing within an innovation process through the creation of four additional propositions (2a*, 2b*, 2b** and 2c) including the need to consider context both prior to and during an innovation process enhancing the innovation process team's dynamic capabilities to mindfully organize (2a*). I identified that defining and sharing measurable process and outcome goals was crucial at the beginning (2b*) and during the innovation process (2b**). Understanding organizational goals, for a specific project, delivers crucial information enhancing event selection. Moreover, providing measurable objectives permits to identify the required intensity of these events throughout the innovation process. Lastly, I proposed the use of Bolman and Deal's rational, human resource, political and symbolic frames in conjunction with the innovation process's context and desired outcomes order to analyze and modulate the innovation process event selection (2c).

While my analysis was conducted primarily post-implementation, practitioners should use these frames in the first stages of the innovation process to determine where to prioritize efforts as organizations normally have limited resources (e.g., complex innovation would require intense events under the rational frame, or an innovation affecting organizational responsibilities would require intense events under the political frame). Moreover, following the use of my conceptual framework to analyze healthcare management innovations, I realized that not all events have the same relative importance. Indeed, it is not the quantity of events within each frame that leads a team towards mindful organizing and not all frames have equal standing. My research provides a holistic conceptualization of mindful organizing in the innovation process, demonstrating that the selection and intensity of the events within each frame should be modulated according to the context and desired outcome.

53 Research limitations and future research

Although this study was carried out with great precaution to ensure a sound methodological approach, certain limitations were inevitable. An important limitation is the convenience and the small sample size (i.e., three case studies) because of the exploratory nature of this study. Because of the number of cases, my results should be viewed as exploratory and not as conclusive. Moreover, as I studied variable innovations within each case study, this increased the

difficulties in comparing the mindful organizing that took place within each innovation process (i.e., medication carts at Alpha, patient transportation software at Beta, and a bed management system at Gamma).

The sample sizes within each case study could also be questioned. For each case study, I conducted semi-structured interviews with various stakeholders (between 2011 and 2012). Since the number of users affected by the implementation of the innovations in the three case studies was relatively important, a larger sample could have increased information validity. In spite of this, I conducted interviews to the point of saturation, indicating that sufficient information was gathered to establish a general view of the innovation's initiation and implementation processes. If future studies were to be conducted on this topic, the use of a survey could increase the study's validity by increasing the respondent pool. Following the interviews and writing of the case study, the 12 to 15 most influential events, according to the researcher, were selected within each innovation process. Limiting the number of events in my analysis to include only the most influential was appropriate in order to analyze mindful organizing in an innovation process. However, this strategy could also be viewed as a possible limitation because certain events within my analyses were omitted.

Thus, a first area for future research lies in the development of a similar study within other comparable organizations in order to validate the developed propositions. It would be of great interest to repeat this study with cases that identified and measured process and outcome goals to evaluate their influence on project success.

Moreover, as my research case studies were retrospective and were conducted over a short period of time following the implementation,³⁰ it would be of interest to investigate the innovation's success after a longer period of time. This would make it possible to follow the evolution of the changes brought by the implementation of these various innovations and validate whether the pursued benefits had been definitively achieved and were being maintained.

³⁰ With the exclusion of Gamma, which included a data collection process both prior to and after implementation.

In addition to my research propositions presented in Table 30, there were other findings that stemmed from this research project that could be further developed. They include elements related to event intensity versus quantity; the links between individual, organizational mindfulness and mindful organizing; project leadership; and the effects of adopting a lean approach.

First, throughout my event analysis, I noted that it was not the quantity of events within each frame that generated greater or less success but rather the selection of the appropriate events and their intensity according to the desired outcome. Accordingly, even if multiple mindful organizing events occurred within a process, a few intense mindless events could impede the project's outcomes. It would be interesting to quantitatively evaluate the event intensity according to the desired outcomes.

Second, I focused on developing the concept of mindful organizing by analyzing innovation processes. As these processes are managed by individuals, I recognized on a number of occasions the close link between an individual's mindfulness and mindful organizing. Thus, individual mindfulness should be further investigated to increase researchers' and practitioners' understanding of the project leader's roles and responsibilities as their abilities directly impact mindful organizing.

While the concept of mindful organizing is still young, organizational and individual mindfulness are well-developed concepts. Thus, another research avenue would be to further study the link between mindful organizing, individual mindfulness, and organizational mindfulness in order to maintain alignment. Furthermore, individual mindfulness of key personnel in the innovation process, such as the team leader or the upper management representative, would appear to have a big impact on the capacity to transform organizational mindfulness (or mindlessness) into mindful organizing. Throughout my analyses, I observed that the leader's skills played an important role in mindfulness in the innovation process as both the project team's and the leader's leadership abilities were greatly influenced by their own individual mindfulness.³¹ Professionals, such as middle managers, act as the bridge by

³¹ Mindful organizing is a social process that becomes collective through the actions and interactions among individuals.

reconciling the need for anticipation and careful causal analysis with the need for flexibility and improvisation in the face of unexpected changes (Roe and Schulman, 2008; Vogus and Sutcliffe, 2012).

Finally, one of my case studies (i.e., Alpha) used a “lean” approach to structure the pilot within their innovation process. This methodology appeared to be appreciated by the stakeholders because they were actively involved in the innovation process. Lean projects in health care seem to minimize effects related to hierarchy, bureaucracy, and the silos found in hospitals because the stakeholders participating in the project (change process) are the ones “responsible for” or “affected by” the process at stake. However, this approach appeared to be resource intensive (i.e., human resources) and questionable in a context in which the project had low implementation failure risks (e.g., the implementation of medication carts, a proven technology).

Practitioners involved in innovation processes should keep in mind that a good understanding of the contextual elements prior to and during the innovation process can exert a strong influence on mindful organizing. Identifying measurable goals and objectives, including measuring the process prior to the implementation, will facilitate the selection of the required events to successfully conduct an innovation process and demonstrate improvements. Mindful organizing in an innovation process is a dynamic concept that must be continuously reviewed in order to adapt to the evolving context. It is important to consider the cost related to evaluating initial and ongoing contextual conditions. As previously mentioned, the goal is to invest the right number of resources to achieve the desired outcomes.

Chapter 6. BIBLIOGRAPHY

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Chapter 7. APPENDIX

7.1 Interview Guide

The following interview guide is presented in French as all the interviews were done in French.

Voici une version préliminaire du guide d'entrevue sur les processus d'innovation dans l'hôpital, plus spécifiquement pour des innovations non-clinique avec les gestionnaires de projet, les utilisateurs, la direction, le département affecté et autre à déterminer. Les entrevues seront effectuées avec 5 différents intervenants à déterminer pour chaque processus étudié.

Introduction

- Se présenter et expliquer les objectifs de l'entrevue. Expliquer que l'entretien s'insère dans une démarche plus large de thèse de doctorat.
- Réitérer l'anonymat et la confidentialité des propos qui seront tenus. Demander l'autorisation pour enregistrer l'entretien. Faire signer le formulaire de consentement.

Corps de l'entrevue

Processus d'innovation

- Valider le processus à l'étude, demander de nous décrire l'innovation en question, demander les informations face au moment où le processus d'innovation a eu lieu.
- Demander de nous parler des particularités de l'organisation, son profil d'innovation et de leur contexte.

Processus d'initiation

Le chercheur doit décrire le processus d'initiation afin que le répondant comprenne les éléments à l'étude.

- Décrire comment le processus avait commencé (qui, pourquoi, comment).
- Quelles étapes/activités ont été faites?
- Comment avez-vous été impliqué dans le processus?
- Selon vous, est-ce que l'investissement ou le non-investissement dans cette innovation était la bonne option?
- De façon générale, y avait-il certains événements qui selon vous ont grandement contribué au dénouement du processus? Lesquels?
- De façon générale, y avait-il (donner exemples pour que le répondant comprenne)
 - un souci de l'échec?
 - une réticence à simplifier les interprétations?
 - une sensibilité aux opérations?
 - un engagement à la résilience?
 - un recours à l'expertise avant l'autorité officielle?

Processus d'implantation

Le chercheur doit décrire le processus d'implantation afin que le répondant comprenne les éléments à l'étude.

- Décrire comment le processus avait commencé (qui, comment).
- Quelles étapes/activités ont été faites? (chronologique)
- Comment avez-vous été impliqué dans le processus?
- Est-ce que l'implantation s'est passé dans les temps et dans le budget alloué?
- Est-ce que le système est utilisé tel qu'il devrait l'être?
- A-t-il répondu à vos attentes? Est-ce qu'il apporte de la valeur?
- Est-ce que vous sentez que l'organisation et les utilisateurs ont appris du processus?
- De façon générale, y avait-il certains events ou éléments qui selon vous ont grandement contribué au dénouement du processus? Lesquels?

- De façon générale, y avait-il (donner exemples pour que le répondant comprenne)
 - un souci de l'échec?
 - une réticence à simplifier les interprétations?
 - une sensibilité aux opérations?
 - un engagement à la résilience?
 - un recours à l'expertise avant l'autorité officielle?

Conclusion

- Demander au répondant s'il souhaite ajouter d'autres éléments non discutés jusqu'ici.
- Remercier le participant. Terminer l'enregistrement. Conserver le formulaire de consentement.