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Rethinking organizational design for managing multiple projects

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Abstract

This paper aims at positioning organizational design as an important phenomenon in the field of project management with a high potential of contributing to organizational theory. While organizational design has been neglected by scholars of management and organizational theory, it has been of great interest to those from the project management field. This incongruence—comprising the focus of this study—calls for new insights on theorization in context. The paper provides a preliminary theoretical framework combining contingency theory, the historical approach and social theory to understand organizational design, both as a *thing* and as a *process*. It provides empirical evidence from three case studies in healthcare. Findings confirm the specificity of each design while at the same time adopting a similar temporal pattern. We take this opportunity to highlight the seminal work of Rodney Turner on project-based organization and design.

Executive summary: In this day and age, it is commonplace to assert that organizations are complex and that they change continuously over time. The complexity is said to exist, for example, in large organizations dealing with multiple competing projects while at the same time performing their regular operations. The concept of organizational design refers to both the resulting organization (the *thing*) and the *process* of performing the design. The field of project management has made many theoretical contributions to organizational design; yet it has also created confusion by introducing a plurality of terms for describing and understanding such organizations.

Organizational design is increasingly a topic in the literature from management and organizational theory and, especially, from project management. A review of the literature from both fields demonstrates that contingency theory is still considered as a major theoretical foundation for situating the organization within its context. The review also points to an increasing interest in social perspectives taking into account politics, organizational dynamics, paradoxes and pluralism. In addition, it shows an opportunity for scholars in project management to contribute to management and organizational theory.

This research proposes a pluralist theoretical framework for tackling contingency theory with the historical approach and social theory.

The empirical setting is comprised of complex large organizations—in this case, three university hospitals engaged in major organizational transformations—that are challenged to pursue their regular operations while undertaking multiple completing projects. Interestingly, the three hospitals are from the same geographical region. The organizational design was thus a crucial question and, in light of the complexity, no one-size-fits-all type of solution was strived for.

Results confirmed the prevalence of individual organizational design rather than mimetism, or homogenization, between the three hospitals. Being in the same region, the heads of the respective project management offices met on a number of occasions to exchange about their challenges and solutions. Nevertheless, in the end each hospital made an individual decision regarding its organizational design.

The study also identified organizational design as an ongoing process, introducing the concept of trajectory to illustrate how projects and organizational design change over time. In doing so, we observed a pattern where reflection and sense-making took place before engaging in any specific decision regarding the organizational design.

The theoretical contribution of this research is to demonstrate the potential of pluralist theoretical frameworks for understanding complex phenomena such as organizational design in the context of managing multiple projects. More specifically, the process view of organizational design was found to reveal new insights that would have remained hidden otherwise.

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From a practical view, our research challenges certain utopian assumptions regarding the stability and replicability of a one-size-fits-all model in organizational design. Instead, we recommend developing an in-depth understanding of an organization's specific context by means of sense-making activities. The latter should be performed in an ongoing approach to ensure that the organizational design evolves in keeping with its environment.
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Keywords: Organizational design; Project organizing; Project management office; Organizational project management; Organizational transformation; Healthcare; Qualitative research

1. Introduction

"How can I organize my business unit so that it delivers the projects I have in my portfolio?" This is a common question from decision-makers in the corporate world. In academia, this question is examined as part of a research field dedicated to this topic of organizational design. The task is certainly not easy in complex organizations, where hierarchy and projects cohabit (Pettigrew et al., 2003) in multiple layers of power and networks (Clegg et al., 2006). Moreover, such organizations are more likely to be impermanent (Weick, 2009) and are best understood as being in continuous movement (Hernes, 2014). Organizational design is defined as a field that studies "how to organize people and resources in order to collectively accomplish desired ends" (Greenwood and Miller, 2010, p. 78). In this paper, we are interested in organizational design for the management of multiple competing projects in large organizations. Our assumption is that this type of organizational design constitutes a phenomenon distinctive from the design of the overall organization (e.g., Greenwood and Miller, 2010; Van de Ven et al., 2013) or of single projects (e.g., Eppinger, 2001; Shenhar and Dvir, 1996).

A number of scholars from the field of project management have already studied organizational design in different contexts, albeit not, until recently, referring to the concept of organizational design. Among the contexts examined were: P-form organization (Söderlund and Tell, 2009); project-based organization (Bakker, 2010; Miterev et al., 2017); project portfolio (Kopmann et al., 2015; Unger et al., 2012); project business (Artto and Wikstrom, 2005); megaprojects (Miller and Hobbs, 2005); governance (Müller and Lecoeuvre, 2015); project networks (DeFillippi and Sydow, 2016); global projects (Turkulainen et al., 2013); and project management offices (PMOs) (Artto et al., 2011; Aubry et al., 2007). While each of these individual facets is primordial to the understanding of the management of projects, this approach entails the following problems. First, these researches fail to address the wider concept of organizational design. Each study brings piecemeal parts which are then difficult to integrate into a coherent and comprehensive perspective. Very few scholars have proposed to build a coherent integrative framework on these facets, with the exception of Winch (2014) on project organizing and Aubry et al. (2012) on organizational project management. The consequence of such a fragmentation of the field is the difficulty to develop a solid theoretical foundation. Second, in many cases, the organizational design of projects is taken for granted and, therefore, not addressed. For example, DeFillippi and Sydow (2016) suggested the four Rs—Responsibilities, Routines, Roles and Relations—as governance mechanisms in project networks, albeit they say nothing about how these mechanisms are to be brought together in multiple competing networks. Third, these project management scholars missed out on the opportunity to engage in the debate of organizational design within the management and organizational theory field. Finally, very little has been done to provide solutions to managers facing the challenges of organizing projects as a whole.

Borrowing the terms *tall* and *flat ontologies*, namely from Seidl and Whittington (2014), we propose adopting a *tall* view to understanding organizational design as a larger social phenomenon. In that sense, we ask the following research question: "How is organizational design performed in the management of multiple projects?" In answering this research question, we also aspire to revive the field of organizational design. Overall, the field of organizational design has been informed by the seminal works of Galbraith (1977, 1995, 2002, 2010), Mintzberg (1979, 1989), Miller and Friesen (1984) and more recently Pettigrew (Pettigrew and Fenton, 2000; Pettigrew et al., 2003). While these continue to be valid and legitimate foundations for organizational design, the field is in need of a renewal if it is to be able to face the challenge of more complex organizational forms, as underscored by Greenwood and Miller (2010): "[…] we restate the importance of organization design highlighting the relatively recent emergence of highly complex organizational forms and the intimidating challenges confronting the would-be researcher." To engage in such a theoretical renewal, we adopted a pluralist theoretical framework (e.g., Denis et al., 2007) combining contingency theory, the historical approach and social theories. Finally, of all the different types of research fields in management, we consider project management to be in the best, or the most promising, position to bring about this renewal of the dynamic of the field, since it is already exploring various contexts of organizational design.

This paper is part of a research program conducted over a period of four years in three university hospitals where major investments had been authorized for the redeployment of their services (see Acknowledgments). The focus of that program was on the "people" side of such investments and not their construction, information systems or technology aspects. The research methodology followed a qualitative approach mainly based on interviews, and the research activities took place as the project was unfolding.

The main contribution of this paper is to emphasize the project management perspective within the management and organization debate on organizational design. It attempts to renew the conceptual understanding of organizational design within process studies. The three empirical settings underlying organizational transformation projects are indicative of how organizational design is performed. For professionals, this paper introduces the non-technical aspects of organizational design, including the slower, more reflexive approach in contrast to the search for cut-and-paste solutions with immediate impact.

The paper is organized as follows. The literature review covers organizational design first in the management and organization literature and then in the literature from the project management field. The research question is then presented, followed by a theoretical framework elaborated from the combination of three approaches. The methodology presents the qualitative approach, allowing for a rich account of three case studies. Findings from intra- and inter-case analyses are then presented. These finding are subsequently discussed, followed by a conclusion.

2. Literature review

Literature on organizational design is quite abundant in management and organization as well as in the field of project management. Table 1 presents a synthesis of this literature by classifying it into three main theoretical approaches—contingency theory, historical approach and social theories—and theoretical pluralism. In this review, we are interested in how these different theoretical approaches have contributed to understand organizational design.

Overall, contingency theory proved to be the main theoretical lens, and continues to be so in more recent research as well (Fenton and Pettigrew, 2000; Miller, 2017; Van de Ven et al., 2013). However, we also observed emerging research streams that support different theorizations of what we now observe in complex organizations where the social aspects are prevalent (e.g., Clegg et al., 2006). We also found that the organizational and management literature as well as project management literature resorted to theoretical pluralism to address the complexity and variety of organizational design.

2.1. Organizational design in organizational theory

The term *organizational design* is associated with several other terms that have been used almost synonymously, such as *structure* (e.g., Chandler, 1962; Galbraith, 1995; Miles and Snow, 1978) or *architecture* (e.g., Nadler and Tushman, 2003). More recently, under the influence of the research stream examining the constant transformation of organizations, action verbs have been preferred over nouns, giving rise to a process view centered on the act of organizing and structuring (Pettigrew et al., 2003; Weick, 2009). In this paper, we chose to use the term *organizational design*, as it includes both the noun and the action verb *de-sign*, meaning to create, fashion or execute according to plan (Merriam-Webster, 2007).

As we can observe from Table 1, since the 1960s the evolution of research in organizational design evolved from individual theories towards theoretical pluralism. Within the historical approach, organizational design is presented as a universal form of bureaucracy (Weber, 1947) or as multi-divisional (Chandler, 1962). In this approach, organizational design pursues one unified ideal. Contingency theory, by contrast, introduces differentiation to organizational design based on specific variables (e.g., size) or contexts (e.g., innovation). Moreover, it spans from a quest for ideal types (Burns and Stalker, 1961) to a recognition of a limited number of configurations with internal coherence (Miller and Friesen, 1984). We also observe a change in this theory regarding its view of organizational design, namely from a deterministic view based on identifiable variables to an in-depth understanding of context including social and political aspects. The identification of variables has allowed for the development of simulation software (e.g., Burton and Obel, 1980) that can be used to transform organizational design from a resulting structure (e.g., a *thing*) to one that includes the *process*. More recently, scholars of organizational design have begun recognizing the complexity of the task by adopting theoretical pluralism (Denis et al., 2007).

2.2. Organizing for projects

Before engaging further in the literature review on organizational design in the field of project management, we specify the scope of this paper based on two dimensions: the level of analysis and the specificity of the view. The level of analysis is that of organizational project management, which comprises the overall components essential to the management of projects (Aubry et al., 2007; Sankaran et al., 2017). Organizational project management differs from the organizational level in that it covers the entire organization, including all its operations and projects; thus, it goes well beyond the management of an individual project. Organizational design is present at these three levels (organization, organizational project management, and projects). In this research, we focus on organizational project management, and more particularly on organizational design (see Fig. 1).

The literature review on organizational design for managing projects is integrated in Table 1. We can observe that this literature somehow found its inspiration from the literature on management and organization. Scranton (2015), building on the historical practice of business history, looked at projects and short-term actions. Instead of a universal organizational form, he observed “major dislocations for many industrial world companies and workers” (p. 8). Project management scholars heavily contributed to organizational design in contingency theory. They studied different facets of organizational design, first as determined by a limited number of variables and then as evolving towards a process taking into account rich and diversified contexts. It is in this research stream that a variety of terms has been suggested to identify organizations managing multiple projects, among them those conducted in P-form, project-based, project-oriented, multi-project firm and project-led contexts. Transaction cost economic theory has served as a foundation to explain governance decisions. Among the key contributions of this stream is the seminal work done by Turner and Keegan (Keegan and Turner, 2002; Turner and Keegan, 1998,

Table 1
Synthesis of the literature inspired by organizational design.

		From management and organizational literature		From project management literature	
Global theoretical approach	Organizational design as …	Key question/Contribution	Representative authors	Key question/Contribution	Representative authors
Historical approach	… fixed result	History of organizations arguing for universal organizational form: bureaucracy and multidivisional to developing a model of organizational behavior designed to control the activities of members.	Chandler (1962), Weber (1947)	History of individual organization to describe and explain the resulting organizational design and the dynamic process.	Scranton (2015)
Contingency	… determined by a number of specific and identifiable variables	To develop a generalized typology of organizational forms either as ideal types or as variables for modeling organizations.	Burns and Stalker (1961), Donaldson (2001), Lawrence and Lorsch (1967), Stinchcombe (1959), Woodward (1965), Burton et al. (2015), Galbraith (1977)	Matrix type of organization: question of how to organize projects in matrix type of organizations based on a limited number of variables; search for ideal type of PMO	Hobbs and Aubry (2011), Hobbs and Ménard (1993), Larson (2004)
	… determined by a number of specific and identifiable variables and internal processes	Identification of the components of organizational design and recognition of the information processing view of the organization.			
	… determined by a number of specific and identifiable variables	Development of simulation based on micro-contingency; and managerial software toolkit for organizational design based on multiple contingencies.	Burton and Obel (1980), Burton et al. (2015); Levitt et al. (1999)		
	… determined by transaction costs	Industrial economics: transaction cost theory as an approach to establish internal, external or hybrid organizational functions.	Williamson (1975)	Economic theory: transaction cost understanding of governance mechanisms for project-based organizations. Ethics is put in relation with this economic perspective through the governance structure.	Müller et al. (2016), Turner and Keegan (1998), Turner and Keegan (2001), Turner and Müller (2003), Winch (2014)
	… process to develop an in-depth understanding of organization	Refutation of contingency theory as a limited number of variables to explain the variety found. Development of the	Miller and Friesen (1984), Mintzberg (1979)	Diversity of situations: Overall context (including history of the organization) has	Engwall (2003), Hobday (2000), Lampel and Jha (2004)

(continued on next page)

Table 1 (*continued*)

Global theoretical approach	Organizational design as …	From management and organizational literature		From project management literature	
		Key question/Contribution	Representative authors	Key question/Contribution	Representative authors
		configurational approach as few types with internal coherence.		priority over individual variables. Some generic *configurations* are identified.	
				P-form, project-based or project-oriented organizations, multi-project firms.	Cattani et al. (2011), Huemann (2010), Geraldi (2008), Söderlund and Tell (2009).
				Project management capabilities in project-based organization and in relation to permanent functions	
Social theories	… process to take the political system into account; control and power.	Post-bureaucratic: Hierarchy still there; making power system part of organizational design.	Clegg (2012), Clegg et al. (2006)	Power and politics are always part of a governance structure and its evolution in large organizations and major projects.	Flyvbjerg (2001), Miller and Lessard (2000)
	… process to integrate actors and knowledge as key components	Network (N-form) of organization for innovation where knowledge plays a crucial role: In networked organizations, how to make knowledge connection in archipelagos.	Burt (1978), Hedlund (1994), Granovetter (1992), Powell (1990)	Networks are understood as a type of governance with its specific mechanisms.	Bresnen et al. (2005), DeFillippi (2001), DeFillippi and Sydow (2016), Müller et al. (2013)
				Given the network-like structure in project-based organizations, new knowledge mechanisms are developed based on situated learning and reflective practices.	
	… process dynamically bridging strategy and structure and diversity of forms within organizations	Complementarities and process view of strategizing/structuring for innovation.	Pettigrew et al. (2003), Pettigrew and Fenton (2000)	Projects follow a strategy.	Aubry et al. (2012), Morris and Jamieson (2004)
				Competing values in the contribution of PMOs to the organizational performance.	
Theoretical pluralism	… process taking into account pluralist context	Given the complexity of organizational designs today, using theories in concert: contingency, resource-based view and institutional theory; or complexity, creative organizational design.	Greenwood and Miller (2010), Van de Ven et al. (2013)	Tensions and paradoxes in organizational design leading to frequent changes.	Aubry et al. (2014), DeFillippi and Arthur (1998), Müller (2017)
				Governance structure. This perspective admits the coexistence of competing views on governance in a continuum of, on the one hand, maximizing the utility of agency and, on the other hand, governance being a cooperative approach between multiple stakeholders.	

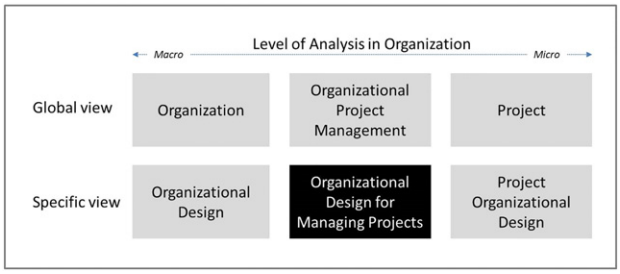

Fig. 1. Scope of this research: level of analysis and specific view.

2000, 2001) on project-based organization and governance. Regarding the organizational design, Turner and Keegan's key contributions are: 1) versatility of governance and operational control in project-based organization; and 2) the identification of new social roles of the broker and steward. As a complement to governance, transaction cost theory has been useful to explain ethics in relation with organizational design (Müller et al., 2016).

Social theories have expanded the process view of organizational design particularly within the network theory as governance type (DeFillippi and Sydow, 2016) and have shed light on the dual control systems of project networks and hierarchy (Clegg et al., 2006). Scholars in the project management field have mainly highlighted differences between temporary and permanent organizations. These differences may be at the origin of tensions and paradoxes within organizations and to frequent organizational changes (Aubry et al., 2014).

From Table 1 we can observe that the two literatures share commonalities in terms of evolution from a deterministic approach in terms of their variables for social and dynamic perspectives or organizational design. Interestingly, the recent project management literature has introduced diversified rich empirical settings while developing the theoretical foundation. It also embraces the complexity of methodological challenges as a means to capture design process across multiple organizational levels. In this regard, scholars in the project management field have explained two of the three reasons for the lack of interest of scholars in the management and organizational field (Greenwood and Miller, 2010). The third stream of literature exhibits an overriding interest in parts of organizational design to the detriment of a more comprehensive perspective. This is what this paper is about. Indeed, our research question is as follows: "How is organizational design performed in the management of multiple projects?" The answer to this question shall provide an overall understanding of the process of organizing (performing the design) and the resulting organizational design.

3. Theoretical framework

Given the current pluralistic context in which organizations operate, we endeavored to adopt a theoretical approach able to capture the complexity of the phenomenon, namely one following Greenwood and Miller (2010), by using "theories in concert […] to unlock the daunting complexity of contemporary organizational designs" (p. 83). In this research, we apply three theories complementarily: contingency theory, the historical approach and social theory (see Fig. 2).

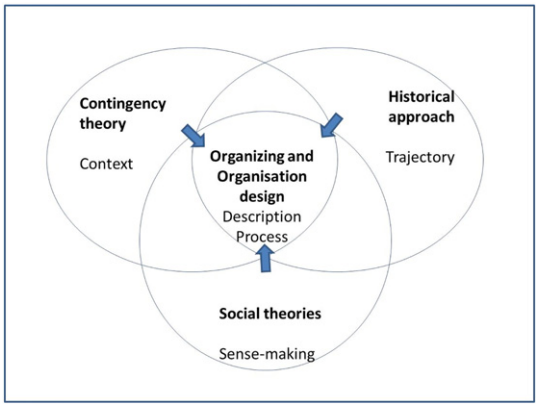

Fig. 2. Theoretical framework for organizing and organizational design.

Contingency theory explains how certain organizational forms or dimensions are more susceptible to be associated with superior performance than others. For example, Greenwood and Miller (2010) acknowledged the findings from contingency theory in professional service firms (PSFs). "These suggestions—higher differentiation, more formal integration, and more extensive lateral integrative structures—have been observed empirically and shown to be associated with superior performance in PSFs" (p. 83). More globally, contingency theory places great emphasis on taking the context of the organization into account (Donaldson, 2001; Engwall, 2003; Van de Ven et al., 2013). However, the context should not lead to a deterministic approach with a limited number of ideal types of structures, since this does not reflect what is found empirically in innovative forms of organizing (Pettigrew et al., 2003). The same has been observed in project management structures where the variety of forms rather than ideal types is the rule (Geraldi, 2008). Scholars in organizational project management have explained the diversity of PMOs using basic contingency variables such as size, region or industrial sector (Hobbs and Aubry, 2010). Incorporating contingency theory into other theories such as complexity theory or the creative design perspective reveals a high potential for understanding the complexity found in organizations (Van de Ven et al., 2013). Also, power, conflicts and tensions are part of normal organizational life (Smith and Lewis, 2011), which leads to the dynamic transformation of organizations. This falls outside contingency theory.

The historical approach takes as a premise that change happens regularly in impermanent organizations (Weick, 2009). A particular phenomenon is best explained by taking into account the history of the global context (Zeitlin, 2008). In this regard, the history of iconic projects has been shown to be very relevant for understanding the evolution and the context of decision-making (e.g., Hughes, 1998; Lenfle, 2011). The historical approach puts the notions of time and temporality, which are so important in the context of the project as a temporary organization (Bakker, 2010), at the core of organizational design. Moreover, the historical approach does not subscribe to any single temporality but rather to multiple temporalities (Boutinet, 2004). This calls for a history taking into account different temporalities that coexist in parallel. For example, Hughes (1987) advocated a technological system

taking into account the multiple contexts of the technological, political, social and economic realms. In project management, this historical view has been adopted to explain how changes happen in PMOs (Aubry et al., 2008). In this way, the historical approach aligns with the process view of organizational design. According to Langley et al. (2013), process research "focuses empirically on evolving phenomena, and it draws on theorizing that explicitly incorporates temporal progressions of activities as elements of explanation and understanding" (p. 1). In this way, this historical approach allows looking at the *trajectory* of organizational design as a process wherein the design is both enabled and constrained by its history.

Adopting contingency theory and the historical approach provides a coherent framework to capture organizational design as a *thing* and as a *process* within a combined ontology and epistemology framework (Van de Ven and Poole, 2005), as exemplified in the research program on PMOs (Aubry, 2013). However, there is a need to include social aspects in the study of organizational design, since any power system is embedded in structures (Clegg et al., 2006; Flyvbjerg, 2001; Mintzberg, 1983). In this vein, our research responds to the call for more organizational social theories in the field of project management (Floricel et al., 2014). A number of theoretical social approaches have the potential to help understanding organizational design, such as actor network theory or post-bureaucracy (Clegg and Pitsis, 2012). We have chosen to adopt "sense-making" (Weick, 1995) as the basis of a social view on organizational design. The sense-making approach puts emphasis on how people go through a collective organizing process of enactment, selection and retention in a context of ecological change (Weick et al., 2005). Interestingly, this theoretical approach aligns well with the conceptualization of new forms of organizing where networks, knowledge and power systems are to be taken into consideration (Fenton and Pettigrew, 2000).

4. Methodology

Exploring organizational design in complex organizations from a social perspective calls for a methodology with a strong potential to capture rich contextual elements. Inspired by the work of Flyvbjerg on *phronesis* (Flyvbjerg, 2001; Flyvbjerg et al., 2012), this research is designed to "address issues in which people are concerned" (Schram, 2012). In this sense, it veers from the classic social science approach of adopting a unifying methodology or a distinctive logic of inquiry. Instead, it applies a pluralistic methodology that considers both qualitative and quantitative data, all of which are analyzed with an interpretative approach.

The overall research design is based on three in-depth case studies from the healthcare sector, all being university hospitals where major transformations were going on at the time of research. While this is, admittedly, an opportunistic choice of cases (Patton, 2002), it does respond to a high level of relevance regarding the organizational issue of how to organize projects in a pluralistic context (Denis et al., 2011). There are several reasons why these cases were relevant for this research. First, hospitals are recognized as a professionalized bureaucracy (Mintzberg, 1979). Undertaking multiple competing projects represented a huge challenge for the hospitals in terms of organizational design. The question of "how to organize for the management of projects" was fundamental for them. Second, we had access to retrospective data, making it possible to follow the emergence and development of these projects. Third, there was a particular momentum of three similar projects in the same regional area, which allowed for a potential comparison between them. Case studies offer the possibility of learning from the actors and their perceptions (Patton, 2002). Multiple case studies, for their part, offer the possibility of comparison (Yin, 2013) between different contexts, which is a core interest of this research. According to Langley (1999), few cases may be sufficient to deliver insightful outcomes using the temporal perspective on process data.

4.1. Data collection strategy

Our research targeted two groups of participants: members of the steering committees; and employees of the PMO. The steering committee is composed of different directors, each representing a different unit in the university hospital and directly involved in the transformation. In a preliminary stage, we asked the PMO directors in each hospital to identify potential participants and to inform them about the research. In a second step, we invited these potential participants by email to participate in this research. In keeping with our ethical standards, all targeted respondents were completely free to participate in the research or not. Respondents who answered positively were asked to participate in an interview and to complete questionnaires. Table 2 presents the respondents' profiles and their participation.

The qualitative data came from multiple sources to allow the researcher to address a broader range of issues and to help in the development of a converging line of inquiry (Yin, 2013). The evidence used in this study was drawn mainly from individual interviews and internal documents. The interviews lasted around 45 min. An interview guide served as the data collection tool for the interviews, which were conducted by the researcher in a private space within the organization. The interview guide and coding system were pilot-tested. The pilot interview was independently coded by two research team members and any coding disagreements were discussed until agreement was reached on all coded portions of the interviews (Tong et al., 2007). All the interviews were digitally recorded with the participants' permission and transcribed verbatim.

4.2. Data analysis strategy

In a first step, intra-case analyses were performed for each of the three university hospitals (Miles and Huberman, 1994). Common formats adopted in individual case analyses facilitated the inter-case analysis. Several iterations were required to make sense of the richness (and the volume) of data from different sources.

The qualitative data were subjected to a content analysis using a variety of methods (Langley, 1999; Miles and Huberman,

Table 2
Interviewees' profiles.

Characteristics		Case A		Case B		Case C		Total
		Steering committee	PMO members	Steering committee	PMO members	Steering committee	PMO members	
Period of interviews		01/14–02/14	01/14–02/14	02/13–05/13	02/13–05/13	09/13–11/13	09/13–11/13	02/13–02/14
Interviewees	Number	9	15	13	12	4	11	64
	Participation Rate	69%	65%	81%	75%	67%	92%	74%
Gender	Female	5	13	7	8	3	6	42
	Male	4	2	6	4	1	5	22
Job level	Expert[1]		9		9		8	27
	Middle Manager	3	1	4	3	2		13
	Director	6		9		2		17
	Project Manager		5				3	8
Mean time in current job (in year)		2.7	2.9	1.8	0.9	3.9	1.8	2.3

1994). In particular, time bracketing was used to analyze how events unfolded over time in the context of each case, and to gain an understanding of processes (Langley, 1999). In a last step, we performed a full cross-sectional analysis of the three cases (Yin, 2013). At this stage, we applied theme-based strategies to identify similarities and differences among the cases (Miles and Huberman, 1994).

5. Descriptions of cases and their contexts

Recent research in project management shows that projects are best understood as situated in their specific context (Engwall, 2003) comprising the technical, strategic and institutional levels and taking into consideration both the internal parent organization and its external environment (Morris and Geraldi, 2011). This section provides a description of the cases with regard to these three levels. The three case studies presented here are situated in the same regional area and thus share a common social, political and technological context. Each of them has passed through a number of stages before arriving at the point of seeing the project finally realized. Moreover, decisions concerning the investments in these three hospitals kept changing in response to current affairs in government and politics, as is often the case in public project management (Flyvbjerg, 2001). Table 3 presents an overall description of the three cases at the moment of the interviews. As shown in the two last columns of Table 3, the age of the PMO is to be interpreted in relation to the phase of the transformation project.

Interestingly, the common external context impacted the three hospitals in different ways. In the following sub-sections we describe each case with a focus on how the organizational design evolved in response to events taking place in their internal and external contexts. We assigned these events to the following context categories: 1) Institutional: government decisions; 2) Strategic: hospital management; 3) Technical-external: construction; and 4) Technical-internal: management of projects. It should be noted that, for purposes of clarity, we do not present all events, focusing instead on those that related more specifically to our research question.

5.1. Case A

This university hospital was borne from an administrative merger between six different hospitals and has been under a single direction since 1997. The merger resulted in the incorporation of a large-scale redeployment of services involving a number of clinical teams while nevertheless giving each of the former hospitals the opportunity to retain their own culture. More specifically, the services were physically merged from the six hospitals into three, one of which being a new hospital. The contract type for this project was a public private partnership (PPP), which was the approach which the government imposed on all major projects at the time. Maybe because it was the first of the university hospitals to embark on this major transformation, the management team was faced with considerable challenges as to how to succeed in this project. For example, it was clear that the PPP model focused solely on the construction aspects of a project while overlooking the human aspects of such an organizational transformation, such as harmonization of clinical processes and team consolidation. Several initiatives were taken to learn from other experiences of

Table 3
Description of the cases.

	Actual size of the organization							
	Number of employees and physicians	Number of sites	Number of beds	Estimated budget in CAD $	PMO Staff	PMO steering committee	Age of PMO (years)	Phase of the transformation project
Case A	10,000	6	1000	2.355 B	26	CEO and all program directors	7	Last phase
Case B	12,000	3	1000	2.439 B	19	Associate CEO and all program managers	2	Early phase
Case C	6000	2	430	995 M	14	Some program directors	6	Middle phase

hospital transformations as well as from an internal consultation process. It also became clear that the coordination of efforts was necessary to manage how employees from the different hospitals might transition into working together in a single unit. Further, the organizational design had to be revised to adapt to this specific transformation project. In 2007, the hospital management decided to centralize these coordination efforts into a centralized unit responsible for the transition, being the so-called project management office (PMO) (reference to be added after the review) along with a steering committee. The PMO was then realized with funding from the government. In 2012, a change of the party in power had profound impacts on this university hospital. Two other major events changed the internal context and the PMO. First, ethical violations took place at the highest level of governance of this hospital. Second, the government asked for an evaluation of the project and for recommendations for tighter budget control of the project. It also changed the funding of the PMO by imposing that this entity be funded by the sales generated from the project. With the nomination of a new general manager, strong control of the project and three years to go before the big transition, the director of the PMO conducted a Transition Readiness Assessment to determine whether the project was on the right track and to identify the work to be done. At the time of interview, Case A was the most advanced of the three hospital projects.

5.2. Case B

In Case B, the announcement of the construction of the new hospital was made in 1999, followed by the identification of the site in 2000. This transformation project included the construction of a new university hospital and the redeployment of clinical services with a focus on the mission of a university hospital: ultra-specialized care as well as research and teaching units. As in Case A, this case was preceded by an administrative merger, here in 1996 and of three hospitals, and with the physical merger involving a move of activities to one single site, namely the new hospital. This case study provides a rich account of the significant degree of turbulence during the period covered. During the front-end phase of this transformation project, political tensions prevailed as to where the new hospital was to be built. Then, in what was seen as a move to secure votes during an election, the site location identified in 2000 was changed, with considerable media coverage and negative impacts on the perception of the project among the population. Multiple changes in the management of the hospital then took place throughout the unfolding of the project. The construction was likewise done under a PPP contract, with the hospital management adopting the same strategy as in Case A regarding the prime importance of managing the people side. A centralized coordination unit (PMO) was put in place to ensure the transitioning of people from the old sites to the new ones, including the new hospital. Moreover, the ethics challenges that had been encountered in Case A had repercussions on this case in the sense that the government changed the regulations regarding how the PMO is to be funded. More specifically, the PMO was then put under pressure to set up portfolio management structures to prioritize projects with the highest potential of return on investment (reference to be added after the review). At the time of the interviews, Case B had reached about midpoint of the project's overall timeline.

5.3. Case C

In Case C, the decision on the investment for this hospital was made in 2002. This case likewise concerns a major transformation project including the construction of a new hospital, albeit it does not involve a merger with other hospitals. It also includes a redeployment of services with the specific objective of gaining in efficiency. As in the other two cases, a centralized unit (PMO) was put in place to coordinate the efforts to support the people side of the transition. Contrary to the two other cases, Case C was not implemented under the terms of a PPP contract and the funding of the PMO was not subjected to the same process. Activities of the PMO started early in the project history, before the construction even started. Case C was at its early stage at the time of interviews.

6. Resulting organizational design

We performed a cross-case analysis of the three major transformation projects making use of both qualitative and quantitative data. The following sub-sections present the results of that analysis on the basis of four dimensions which are relevant for organizational design: number and nature of the projects in the PMOs; mandate of the PMO; roles and deliverables; and trajectory of PMOs.

6.1. The number and nature of the projects

The nature of a project is a common attribute used in project typology (Shenhar and Dvir, 1996). See Table 4 for the description to the project portfolio at the time of data collection.

The nature of the comprehensive transformation project is about the same in the three hospitals. However, there are important nuances between them. The nature of the physical projects is more complex in cases A and B because these projects involved moving to a completely new site, which was not the case for Case C, in which the construction was more like an extension to the existing buildings. This aspect of the nature of the transformation project may have an impact on the types of projects. For instance, in Case C, most projects concern processes and represent less risk and more incremental innovation than those of the two other cases.

6.2. Organizational chart, mandate/roles

Following Engwall (2003), there are some important contextual elements to take into account when describing the organizational design of the three university hospitals. Interestingly, deliberate occasions of mimetism (DiMaggio and Powell, 1983) happened between all three university hospitals. For DiMaggio and Powell (1983), mimetism reflects the process of homogenization among organizations from the same field through different mechanisms, some formal (legal

Table 4
Project portfolio/case.

	Number of projects	Innovation									
		Type					Risk or uncertainty			Degree	
		Prod./serv.	Process	Market	Input	Org.	No/Low	Med.	High	Incr.	Radical
Case A	43	16	31	4	5	23	8	23	11	20	22
Case B	81	25	19	9	7	50	27	20	11	36	22
Case C	39	8	33	1	2	21	28	7	4	22	15

Note: The total is sometimes higher or lower than the number of projects because some projects can be attributed to two types or because other information was unknown at the time of data collection.

rules) and others more informal (legitimacy). In our study, this took place in two ways. First, the three PMO directors met several times to help each other and to share their approaches and processes, discussing questions such as how to perform, what tools to use, or how to implement them. Second, in the context of this research program, transfer activities, which created opportunities for sharing, were organized on two occasions among national healthcare institutions.

Moreover, in all three university hospitals there was a strong conviction of the need to take care of the *people* (employees, managers, physicians, patients) who would be affected by the organizational transformation. This principle guided the transition process as an organizational strategy and was the starting point of the organizational design process. Not surprisingly, all three cases implemented similar mechanisms. First, they created an entity, the PMO, responsible for supporting the success of the transformation at a high level. Second, they set up, in collaboration with the department directors, a coordinating committee with various levels of decision-making authority. And third, all cases adopted a matrix-type project structure comprising a dual "control chain," one focused more on the project and the other concerning everyday clinical operations.

All three cases made individual, context-specific decisions regarding the organizational design. In this section, we analyze the organizational design based on the characteristics of the organizational chart (as a material representation of the formal structure) and the PMO's mandate and roles.

The PMO characteristics were compared between the three cases as presented in Table 5, at the time of data collection.

While the mandates of PMOs were formally defined in each case, we focus on how the two groups of respondents perceived the PMO mandate, namely to ascertain the more informal aspects. Following Miles and Huberman (1994), we performed several iterations of data analyses and identified inferences in order to provide a summary view found in Table 6. We identified a total of eight groups. The assessment of strong, medium and low were determined by counting the number of references found in the interview analyses; blank means that no references were made.

Two elements were common to all cases. The first one refers to the supportive role of the PMO in driving and realizing the projects. This confirms the mandate of the PMO as a supportive entity more so than as an entity that is accountable for the outcome of the project. In other words, it is not the PMO's responsibility to make "business" decisions. The second common role refers to portfolio management, with the planning and coordination between projects including decisions on the prioritization of projects. However, from Table 6 we can also observe variety in the emphases found in the three cases. For example, cases A and C placed great importance on project management, while this was of medium importance for Case B. Mentoring and knowledge transfer was strong in Case C yet not so important in the two other cases.

Globally, in Case B the roles were more blurred than in the two other hospitals, which show a greater variety of roles and

Table 5
Characteristics of PMO organizational design in the three cases.

	Case 1	Case 2	Case 3
The PMO reported to	General manager	Associate general manager	General manager
members of the steering committee	General manager and all department directors	Associate general manager and all department directors	Some department directors
Total number of persons in the PMO	26	19	14
Profile of PMO members	Director (1) and associate director (1)	Director (1) and Associate director (2)	Director (1)
	Project managers (10)	Process experts (3)	Process expert (3)
	Process expert (3)	Project/Change managers (6)	Clinical expert (1)
	Clinical expert (3)	Human resources expert (1)	Project manager (3)
	Knowledge broker (2)	Communication and training advisor	Communication expert (1)
	Change management (1) and communication expert (1)	(1) and training expert (1)	Change management expert (3)
	Performance and evaluation experts (1)	Research expert (3)	Administration advisor (1)
	Senior advisor (1)	Administrative assistant (1)	Administrative assistant (1)
	Administrative assistant (2)		

Italics indicate the roles that are the object of internal partnerships.

Table 6
Perception of PMO mandate and roles across the three cases.

	PMO's mandate/roles	Case A	Case B	Case C
1	Accompany and support the teams/managers	STRONG	STRONG	STRONG
2	Portfolio management: plan, coordinate change, transition and transformation	STRONG	STRONG	STRONG
3	Project management: "patient" orientation, project planning, methodology	STRONG	Medium	STRONG
4	Project evaluation and financial efficiency	STRONG		STRONG
5	Change management and mobilization	STRONG	Medium	Low
6	Mentoring on project management and knowledge transfer	Medium	Low	STRONG
7	Establish collaboration	STRONG	Low	Medium
8	Follow a strategic plan		Medium	STRONG

deliverables. In other words, the two other hospitals have a broader perception of the role of PMOs.

6.3. Organizational design and the trajectory of projects

From our perspective, organizational design is not a static state of a structure, as implied by organizational charts, but instead a process. Time and temporality(ies) are major dimensions to take into account in the study of organizational design (Langley et al., 2013). In this analysis, each case was structured in comparable time periods to allow for inter-case analysis (see Table 7). All three cases featured organizational design activities that prepared for the launch of projects. We considered the PMO start-up as the starting point of the project. After that, we identified three periods: initiation, cruising speed and final sprint. However, only Case A had gotten to the final sprint stage at the time of data collection.

Overall, Table 7 indicates that these three projects did not have the same history, even if they took place in the same sector, are all situated in the same geographic area, and were realized in about the same decade.

What is fascinating in cases A and C was the duration of the preparation aimed at searching for a way to get organized for a major project. For example, in the first case, which was the first major project of this type in Quebec, the managerial team visited hospitals in Europe and the United States where they had done comparable projects. What they learned from these experiences convinced them of the need to manage the "people" side of those major transformation projects. In all three cases, activities were done to learn *how* to do the organiz*ing*. Hospitals are complex organizations in that they are pluralistic (Denis et al., 2007). As there is no model to copy from one organization to the next, there is no choice but to make sense, as in "sense-making," of the situation (Weick, 2009). It seems that this is exactly what these organizations did.

The PMO is often subject to issues, tensions and sometimes conflicts (Aubry et al., 2010). In the three case studies, this made for a climate in which the PMO was less inclined to make decisions and to, instead, retain the role of advisor. The name given to those PMOs is clearly indicative of this intention: "Support Office." To some degree, this may lead to indecision (reference to be added after review).

As illustrated in Table 7, cases A and B were faced with turbulence in the hospital management. This manifested in changes in the organizational design in the mandate of the PMO, in the number of employees in the PMO, and in a new liaison to be set up with other units (reference to be added after the review). Case C was the most stable of the three cases regarding the organizational design, having no organizational turbulence.

7. Discussion

This paper aims at exploring how organizations handle the need to deliver multiple projects. We had the opportunity to study similar transformation projects in three university hospitals from the same region and taking place within about the same time frame. This unique research situation offered the possibility to observe three different dynamics with regard to social, political technological contexts as well as organizational cultures resulting in three specific organizational designs. Our interest is to better understand how organizational design as a theoretical concept can explain decisions regarding the management of multiple projects and, subsequently, how this can contribute to management and organizational theory.

7.1. Questioning mimetism: Similar problems and individual answers

From the results presented above, we observed how the three university hospitals with comparable projects adopted a

Table 7
Trajectory of projects.

	Preparation			◆	1st period: Initiation	2nd period: Cruising speed	3rd period Final sprint
	Taming period	PMO/nomination	Lag period	PMO Start-up			
Case A	Visits to international sites	2007	1 year	2008	Organizational turbulence	Hard [Adverse] control	Making it happen!
Case B	Conflicting period - site	2011	Very short	2011	Organizational turbulence	Organizational turbulence	
Case C	Informal preparation	2009	3 years	2012	Smooth transitioning	Keep moving	

unique organizational design to undertake their respective major transformations in specific contexts. First, each hospital had its own history and culture, some experiencing more turbulence than others. The nature of projects within their portfolio was quite different with regard to the number of projects, the types of deliverables, the level of uncertainty and the degree of innovation.

Second, the PMO's organizational design reflected this diversity. Beyond the fact that all three organizations set up a PMO and a steering committee and adopted a matrix-type of organization, the characteristics and mandate of the PMOs were different. For example, the profiles of the PMO members were oriented either towards project management or towards human aspects. In one PMO, partnerships were developed with other internal units, while in others all expertise was provided from within the PMO. Of great interest was also the role of the knowledge broker within the PMO, recalling the new roles identified by Turner and Keegan (2001). Third, outside the support role of the PMO and portfolio management, other mandates vary widely.

The three organizations had a number of contextual similarities: same medical sector; same geographical region; and a project exhibiting ambiguity and unclear solutions (see Table 5). In addition, they were part of a close network of managers in the healthcare sector dealing with major projects. Knowing that all three organizations had multiple occasions of copying each other, we observed that context and culture seem to play a stronger role than any drive to replicate what has been done elsewhere. Indeed, Case C had a unique clinical mission (a specific population) and did not issue from an administrative merger. The hospital identity is stable and played a positive role during this major project. The two others, by contrast, did go through a merger yet kept their unique hospital culture nonetheless (and probably reinforcing it in face of this "bad" project). Thus, the recent redeployment projects forced the hospitals to face a plurality of identities and to build a new identity through the project. The theoretical value of this discussion is that it examines the question of why mimetism did not apply. The latter would have been, presumably, predicted by DiMaggio and Powell (1983), who emphasize the role of the field level within institutional isomorphism. While our research covers the institutional field only partially, it reveals that each organization does act "rationally" enough to allow for the implementation of an organizational design that best suits its own situation.

7.2. Organizational design as a process: three individual PMO trajectories sharing a common temporal pattern

In line with the specific organizational design (as a *thing*) found in each of the three hospitals, each case had a unique trajectory, albeit within a temporal pattern. The history of each case shows that the majority of disruptive events happened at different levels and impacted the unfolding of the project. Case B, for example, exhibited more turbulence of the context, namely in terms of change in the general management of the hospital, than Case A, where the context was smoother in this regard.

Moreover, we observed a temporal pattern emerging from the three cases. What is worth emphasizing is the front-end period, in other words, the time spent on preparation before the implementation of a PMO and the start of its operations. In all three cases there was a lag between the decision to implement a PMO and the nomination of the leader on the one hand and, on the other hand, the real start of PMO activities. In Case A, visits to international hospital sites were done to sensitize senior executives to the challenges of such major transformation projects. In cases A and C, the nomination of the PMO directors previous to the starting of PMO activities served to prepare the mandate of the PMO and to engage a collective effort towards the upcoming transformation affecting human resources and patients.

To our knowledge, the current literature on PMOs and more broadly on organizational design offers no such description of practices prior to the design. For example, Greenwood and Miller (2010) describe the organizational design for a professional services firm yet fail to examine how this design came into being. This so-called taming period seems essential in a context where there is no ideal type to copy from (Hobbs and Aubry, 2010). It opens up a black-box of sense-making activities that are more likely hidden from the current literature.

7.3. Theoretical contributions

The research question aims at answering the question of how organizing can take place in a context of multiple projects. To answer this question, we suggest a theoretical framework that draws from three complementary theories to address organizational design in a pluralistic context. These are: contingency theory, the historical approach and social theory. In our view, none of these theories would have been able to capture, on their own, the multiple facets of organizational design.

Contingency theory serves to understand the overall context of all three cases. In the internal context, following Mintzberg (1979), university hospitals are best described as a "professional bureaucracy" type of configuration. In fact, all three hospitals have a strong hierarchical culture where a project management culture was either at an early stage or non-existent prior to this major project. A matrix-type of organizing was regarded as fairly new in all cases and its introduction was difficult in certain circumstances. This also explains why the PMO was mainly restricted to be a "support" entity and not allowed to make decisions. From our analysis of the external context in the public sector, politics and the party in power have a strong impact on projects. A look at Tables 4, 5 and 6 are convincing. Cases A and B felt more impact than Case C. For example, in cases A and B, a foregoing government report from 2012 had resulted in significant changes to the funding of PMOs. More specifically, PMOs went from being funded through the government budget to being obligated to become self-funded by the profit generated from individual projects. In Case A, this led to reorganizing the PMO and, in cases A and B, to the prioritization of projects with the best return on

investments, alongside the more or less inevitable implementation of project portfolio management. However, that context does not fully explain the organizational design decision. For instance, when considering the scope of the transformation project and the associated project portfolio, one could conclude that same types of projects (objectives, risk level and innovation) would call for a similar design. In this regard, cases A and B had similarities with regard to the nature of their transformation projects and their project portfolio, while Case C was different. Differences in organizational design do not reflect this result.

The historical approach serves to understand the dynamics of organizing over time. As time went on, we observed that events, issues, tensions or conflicts happened all along the project. In particular, cases A and B suffered from organizational turbulence. However, as mentioned, they had quite different project trajectories and different decision-making approaches to organizing.

Making sense of organizational design brings an important insight to understanding organizational design as an ongoing process (Weick et al., 2005). In cases A and C, we observe a significant period of preparation, with activities taking place before the effective implementation of the PMO. The sense-making process—enactment, organizing and sense-making—is of particular interest. First, as mentioned above, the literature on organizational design usually takes a static stance on organizational design, or one in which organizational design is taken as a given. Case studies reveal organizational design as an ongoing process where the initial stage can be found several months or years back. Examples of sense-making activities are visits to other hospitals, readings of evidence-based literature and collective discussions. This sense-making appears to be essential in the organizational design for project management, as no model can simply be copied from one organization to another (Hobbs and Aubry, 2010). Second, sense-making is an ongoing process. In all three cases, the organizational design evolved as shown by their trajectory. Sense-making had to operate constantly and naturally as events unfolded over time. Third, the sense-making process contributes to the "articulation of organizational meaning structures" (Hernes, 2014, p. 115). Articulation brings together the unit and the whole: "[…] although the acts of articulation are oriented towards the parts to be articulated, the meaning stems from the whole that extends beyond the units in question" (p. 116). Designing organizations for the management of multiple projects has to bring together multiple units (projects, programs, portfolios) into a meaningful whole. Moreover, this articulation is dynamic insofar as meaning evolves towards new "possible."

7.4. Research limitations

This research has limitations. The main limitation is related to theory development. Following Whetten (1989), we have tried to develop the building blocks of the theory—what, how, why, who, when, where—with a primary focus on the what and the how. The why is still not fully answered in this paper and, in our opinion, not ready to allow offering clear propositions that would then be tested through hypotheses. This paper offers a first exploration with the theoretical framework. The three complementary theories have yet to be better developed in the context of organizational design, including their interrelations. This opens up avenues for future research given that this theoretical framework is promising, as was shown in this research.

A second limitation relates to the regional limitation of the three case studies. While this was an opportunity for this paper, as suggested by Greenwood and Miller (2010), future research should expand on larger or more diversified regions.

8. Conclusion

Our paper examines the question "How is organizational design performed in the management of multiple projects?", offering several academic contributions on the topic. First, efforts were made to bridge the research from management and organizational theory to the project management field on organizational design. In this regard, the review of the literature was an attempt to bridge both. The seminal work of Turner and Keegan (1998, 2001) on project-based organizations has largely inspired this stream of project management research. Of particular importance was the identification of new roles of the broker and steward in managing the internal and external relations. Second, the initial theoretical framework proposed in this paper is a first attempt to theorize the "organizational design" so crucial for the management of projects. This is also an attempt at the integration of multiple terms (forms, structure, project-based, project-oriented, matrix-type, etc.) under a coherent theory of organizing for projects. The fragmentation of the field has been noted for the project level (Söderlund, 2011). The same reality exists at the organizational level (Bakker, 2010). Our theoretical framework offers an alternative to the economic view of transaction cost theory (Winch, 2014) and to other contingency approaches.

We draw three main conclusions from this research:

- Context is of prime importance when engaging in organizational design. Context refers to the overall understanding in which the organization is embedded. It includes the technical, strategic and institutional levels (Morris and Geraldi, 2011).
- Organizational design is better understood as an ongoing process that is constantly on the move, as has been posited by process theory (Hernes, 2014).
- Organizational design takes time. This has prompted us to coin the term *slow organizational design*. Overall, this means that there is no ideal model to copy; that the particular context, history and identity of an organization must be taken into consideration; and that one must engage in a collective effort to enact what is found outside and inside the organization—which takes time.

Conflict of interest statement

The authors declare that the manuscript has not been submitted or published elsewhere. A short version for a professional audience was published (Aubry and Lavoie-Tremblay, 2017). There are no other potential conflicts of interest with regard to this submission.

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