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Collaborative Project Delivery Models and the Role of Routines in Institutionalizing Partnering

Abstract

It is widely held that collaborative project delivery models, such as partnering, represent a key means of improving construction project performance. Institutionalizing these models in practice, however, is not straightforward. We suggest that the (in)ability to establish new routines may be one reason for the variance in partnering outcomes. Based on a study of a partnering project, we develop a model of how partnering is institutionalized through the establishment of routines, enabled through common understanding and *truces* between the partners' interests. The model illustrates how such routines develop through a balance between top-down structural interventions and emergent social learning processes.

Keywords

construction projects, collaborative delivery models, partnering, routines, practice

Introduction

Undertaking construction and infrastructure projects requires the involvement of many different specialties and competences that do not necessarily reside within the boundaries of a single firm. Rather, such projects rely on a coalition of independent firms (Winch, 1998) with only partly overlapping interests, systems, and routines (Jones & Lichtenstein, 2008). The fragmentation and lack of coordination and integration between these firms have been considered root causes of the construction industry's perceived underperformance (Cox & Ireland, 2002; Egan, 1998; Eriksson, 2010; Fellows & Lui, 2012; Gadde & Dubois, 2010). To alleviate these perceived deficiencies, many firms have turned their attention toward collaborative arrangements and new delivery models, such as partnering (Lahdenperä, 2012). As London and Kenley (2001, p. 778) state: "...improved relationships and integration of key stakeholders are critical to addressing the perceived ills of an industry that is underperforming, inefficient, unproductive and wasteful." (p. 778).

Partnering represents a fundamental shift away from the traditional adversarial and short-term relationships in construction (Barlow & Jashapara, 1998; Bresnen & Marshall, 2000; Bygballe, Jahre, & Swärd, 2010; Crespín-Mazet, Havenvid, & Linné, 2016; Gadde & Dubois, 2010; Wood & Ellis, 2005). However, despite the perceived benefits of partnering and the identification of a range of critical success factors (Black, Akintoye, & Fitzgerald, 2000; Chan et al., 2004), partnering remains an elusive concept (Bresnen & Marshall, 2000) and its impact on performance ambiguous (Beach, Webster, & Campbell, 2005; Bresnen, 2010; Bresnen & Marshall, 2010; Hartmann & Bresnen, 2011; Jacobsson & Roth, 2014; Mollaoglu, Sparkling, & Thomas, 2015; Nystrom, 2005). By examining the role of routines in partnering, we aim to contribute to the understanding of partnering and what might explain how and why it is likely to

succeed. Routines are vital for organizational performance (Parmigiani & Howard-Grenville, 2012) and form the basis for building project competence (Söderlund, Vaagaasar, & Andersen, 2008) and capabilities (Davies & Brady, 2016). Furthermore, partnerships in which the partners are capable of developing joint routines have proven to perform better than those in which this is not the case (Zollo, Reuer, & Singh, 2002). Research on partnering in construction projects suggests that partnering implies discarding old routines (Hartmann & Bresnen, 2011). However, we still know little about how new routines are established within a partnering project, and the role routines play in institutionalizing partnering into legitimized and taken-for-granted practice (Bresnen & Marshall, 2010).

To fill this gap, we draw on a longitudinal case study of partnering in a large hospital project in Norway. We explore how the partnering strategy was manifested in the establishment of new practices and routines. In particular, we focus on the lean construction routine that was established in the project and which the respondents referred to as “partnering in practice.” Notwithstanding the differences between the two strategies and their distinctive origins, partnering and lean construction are often used in combination in construction projects (Bygballe, Dewulf, & Levitt, 2015). Partnering represented a fundamental change for the participants in this project and implied the discarding and replacement of existing ways of organizing and managing the construction process.

In line with the recent practice turn in the routines’ literature, we apply a practice lens to our study. Contemporary routines research has turned to practice perspectives in order to explain the dynamic nature and performative aspect of routines (Dionysiou & Tsoukas, 2013; Parmigiani & Howard-Grenville, 2012). It is argued that to understand routines and the role they play in enhancing performance, attention must be given to the consequentiality and recursive interaction between the formal, structural properties of routines and their emergent and socio-dynamic

dimensions (Feldman & Orlikowski, 2011; Jarzabkowski, Lê, & Feldman, 2012). A similar shift can be observed in the project management literature (see, Blomquist, Hällgren, Nilsson, & Söderholm, 2010 for an overview) and in studies of change processes and new delivery models in construction (Bresnen, Goussevskaja, & Swan, 2005; Bresnen, 2009; Bygballe, Swärd, & Vaagaasar, 2016; Cicmil & Marshall, 2005; Gottlieb & Haugbølle, 2013; Harty, 2005; Sage, Dainty, & Brookes, 2012). A practice lens connects macro and micro practices of strategizing (Jarzabkowski, Balogun, & Seidl, 2007) and is therefore relevant to our study of how a partnering strategy and the establishment of new practices and routines interrelate with the actual performance of the routines. Accordingly, we believe that a practice lens provides valuable insights into how to close the gap between good intentions and the actual practice of new models. This is in line with Bresnen et al. (2005), who argued that examining the nature and dynamics of routines is useful for understanding the micro-processes of change that occur when project-based organizations attempt to implement, diffuse, and embed new management practices.

Our article contributes to the ongoing stream of research that seeks to understand change processes in project practices (Bresnen et al., 2005) and the nature and development of new collaborative practices, such as partnering (Bresnen, 2009; Bresnen & Marshall, 2010; Cicmil & Marshall, 2005). It does so in two main ways. First, we show how partnering routines develop through a mutually constitutive relationship between top-down structural interventions and an emergent and social learning process in which existing routines are discarded and new ones are established. This complies with recent routines research focusing on the creation of routines as a collective accomplishment (Dionysiou & Tsoukas, 2013). This helps to nuance the debate in the literature on whether routines (Cacciatori, 2012) and partnering (Bresnen & Marshall, 2002) can be designed or not, demonstrating that it is the balance between design and emergence that

matters. Second, by highlighting the motivational role of routines in partnering relationships (Nelson & Winter, 1982), we contribute to explaining how such routines emerge as a result of negotiation between partners. Although the cognitive role of routines has long been emphasized in the literature, more recently the metaphor of routines as *truces* among conflicting interests has been put on the research agenda, stressing the political and motivational aspects of routines (Zbaracki & Bergen, 2010; Cacciatori, 2012). Notwithstanding this recognition, the motivational dimension is relatively unspecified in the literature on inter-organizational projects, such as in construction, despite the fact that construction projects are characterized by fragmented and diverse functions and interests (Jones & Lichtenstein, 2008). Together these contributions might help us better understand how and when new collaborative delivery models, such as partnering, are likely or not to succeed.

The following section starts with a brief review of the literature on partnering in construction, before we look into recent perspectives on routines in general, and at the literature concerning project management and construction in particular. The methods of the study are then presented, followed by the findings of the case study and a discussion about the role of routines in institutionalizing the partnering concept. We finish with concluding remarks and the key implications of the research.

Theoretical Foundation

Collaboration in Construction Projects

Over the last two decades there have been calls to move away from the traditional adversarial behavior in the construction industry toward more collaborative and integrated approaches. It is argued this will deliver more predictable results to clients and improve project performance

(Egan, 1998). A plethora of different strategies has been heralded as ways to improve construction performance, of which partnering, project alliancing, and integrated project delivery have been central elements. According to Lahdenperä (2012): “Early involvement of key parties, transparent financials, shared risk and reward, joint decision making, and a collaborative multi-party agreement are some of the features incorporated in all the arrangements to a varying degree” (p. 57). These collaborative models are often accompanied by other strategies such as lean construction and building information modelling (Kim & Dossick, 2011; Bygballe et al., 2015). Despite the great attention given to these strategies, however, many observe that the transition to collaborative approaches and partnering has yet to fully materialize (Bresnen, 2010) and partnering remains under-utilized (Gadde & Dubois; 2010; Eriksson, 2010; Mollaoglu et al., 2015). Similar observations have been made about lean construction (Sage et al., 2012) and building information modelling (Dainty, Leiringer, Fernie, & Harty, 2017).

The literature has identified many reasons for the slow adoption of these concepts. For example, many point to the existing institutional logic(s) (Bresnen & Marshall, 2010) and conservatism of the industry (Gadde & Dubois, 2010). It has been questioned whether an environment characterized by frequent one-off contracts and short-term gains is actually capable of supporting partnering, mutual trust, and long-term collaboration (Bresnen & Marshall, 2000). Similarly, in a recent study of barriers to partnering, Mollaoglu et al. (2015) found that cultural barriers were the common obstacles listed by respondents. These attitudinal barriers included lack of trust, misunderstanding of partnering among the members, and communication problems. The second most frequent category was project team barriers, which included resistance from team members, lack of training and early workshops, lack of company management support, and an inability to transfer decision-making powers to the project team. The fact that there still persists considerable ambiguity as to what partnering actually is (Nyström, 2005) and how it translates into

practice (Hartmann & Bresnen, 2011), is also considered a key reason for why the manifestations and outcomes of partnering vary. It is recognized that, in practice, the concept “captur[ed] a wide range of behaviours, attitudes, values, practices, tools and techniques” (Bresnen & Marshall, 2000, p. 231). Finally, the focus on prescriptions, tools, and techniques, often seen as critical success factors for partnering (Black et al., 2000; Chan et al., 2004), and the insistence on proper procurement forms (Eriksson, 2010) has been questioned, and related to the variance in partnering outcomes (Bresnen & Marshall, 2000; Hartmann & Bresnen, 2011). It is argued that partnering cannot be engineered (Bresnen & Marshall, 2002), and approaches must be sensitive to the embedded and emergent nature of partnering. Only in this way can research provide appropriate and realistic models of partnering to practitioners (Bresnen, 2009).

More recently, therefore, many scholars have switched the focus to the dynamic and social aspects of partnering and new collaborative forms, and how they shape and are shaped by the interaction processes among project partners (Bresnen & Marshall, 2002; 2010; Bresnen, 2009; 2010; Cicmil & Marshall, 2005; Clegg, Pitsis, Rura-Polly, & Mosseszzeky, 2002; Dewulf & Kadefors, 2012; Gottlieb & Haugbølle, 2013; Hartmann & Bresnen, 2011; Harty, 2005; Jacobsson & Roth, 2014). This shift in the literature (Bresnen, 2009, 2010) reflects an evolution in the project management literature in general from rational perspectives toward approaches that capture the complex and dynamic aspects of projects (Cicmil, Williams, Thomas, & Hodgson, 2006). These approaches are highly influenced by a *becoming* ontology and practice perspectives (Blomquist et al., 2010), and by examinations of what people actually do in projects and how they make sense of the ongoing interaction patterns in the context of projects (Bygballe et al., 2016). Accordingly, in the literature on partnering, scholars have turned their attention from what partnering is to how partnering functions and interacts with construction dynamics (Gottlieb & Haugbølle, 2013). Viewing partnering as emergent practice has revealed the local and situated

nature of partnering, and that partnering is often a combination of specific manifestations of local practices, different tools and techniques, and wider sector-level practices (Bresnen, 2009).

Despite the valuable insights provided by these recent contributions, the observed variance in partnering manifestations and outcomes continues to puzzle researchers, and there are calls for further research on how partnering emerges and becomes institutionalized (Hartmann & Bresnen, 2011). In other words, we need to know more about the processes in which partnering replaces old working modes, and becomes legitimized practice (Bresnen & Marshall, 2010). Routines are key to institutionalizing organizational practice (Nelson & Winter, 1982), and have been considered a useful lens through which to study change processes in project settings (Bresnen et al., 2005). Based on this recognition, in the following section we will look further into the role of routines and how they might help us better understand the institutionalization and embedding of partnering in project practice.

Routines and Their Relevance for Understanding Collaboration in Construction Projects

Routines are generally defined as repetitive, recognizable patterns of interdependent actions, involving multiple actors (Feldman & Pentland, 2003). Routines are important for organizational performance (Levitt & March, 1988; Nelson & Winter, 1982) and reflect not only what should be done and how, but also *why* things are done (Cohendet & Llerena, 2003). As such, routines are important for capability building in organizations (Zollo et al., 2002). While routines have traditionally been used to explain stability in organizations (as well as inertia), more recently scholars have acknowledged their inherent potential for bringing about endogenous change (Feldman, 2000). Influenced by the general practice turn in the social sciences, routines scholars

have turned their attention to the dynamic nature of routines (Parmigiani & Howard-Grenville, 2012). This is based on the assumption that to understand how routines influence performance, we need to open the black box of routines, and understand the relationship between their structural features and their enactment in practice (Feldman & Orlikowski, 2011; Jarzabkowski et al., 2012). Routines are here considered effortful accomplishments, which involve complex patterns of interpretation, learning, and connections among individuals (Pentland & Reuter, 1994).

To capture the duality between stability and change in organizational routines, many scholars have adopted Feldman and Pentland's (2003) conceptualization of the *ostensive* and *performative* aspects of routines. The ostensive aspect of a routine refers to the abstract, generalized idea of the routine—the routine in principle. The performative aspect of a routine refers to the specific actions, by specific individuals, that constitute the routine—the routine in practice. It follows from this that routines do not arise as ready-to-use procedures, but are constituted through actors' enactment and as they iterate between the abstract concept of the routine and its performance. Routines are not simply followed and reproduced; instead, people will actively choose to follow or change the routines (Feldman, 2000; Feldman & Pentland, 2003). The performance of a routine is therefore both a cause and a consequence of the abstract, ostensive patterns of the routine (Jarzabkowski et al., 2012).

An important implication of the dual nature of routines is that the design of routines, which is often accompanied by various artifacts, often fails. As Pentland and Feldman (2008) observe, people tend to design artifacts, such as checklists, diagrams, and procedures, when they seek a pattern of actions; however, this is not always what they get. One explanation offered is that artifacts interact and operate in systems, influencing behavior and attempts to establish new routines in various ways (Cacciatori, 2012). Another explanation is the embedded nature of

routines (Howard-Grenville, 2005) and the fact that routines are interdependent, which influences how they are enacted by people (Spee, Jarzabkowski & Smets, 2016). In sum, the creation and re-creation of routines is found to rely on the fitting together of individual actions and the understanding of susceptible participants and their collective schemata through their performance of various roles (Dionysiou & Tsoukas, 2013).

In the project literature, routines have primarily been considered in relation to the development of capabilities in project-based organizations (Davies & Brady, 2016). For example, Davies and Brady (2000) showed how suppliers of complex product systems (CoPS) build capabilities and *economies of repetition* through routinized learning and the recycling of experiences across projects. The authors elaborated on this in a later study, showing how project capabilities are built through cycles of project-led and business-led learning, capturing the explorative and exploitative (i.e., routinized) dimensions of capability building (Brady & Davies, 2004). The ability of project-based organizations to balance between routine and innovative capabilities (i.e., ambidexterity), in order to achieve a close fit with contingent conditions, is vital for their competitive advantage (Davies & Brady, 2016).

While the above contributions are inspired by the evolutionary perspective on routines, viewing routines as a means to enhance performance (Nelson & Winter, 1982), other researchers have looked more deeply into the nature of routines to explain how change happens in project-based organizations. For example, Bresnen et al. (2005) showed how the dynamic, collective, distributed, and embedded nature of routines in project-based organizations strongly conditions attempts at changing project management practices. They found that locally established routines are instrumental in shaping and reinterpreting new initiatives, and that existing routines embed power and knowledge relationships. New initiatives that interfere and collide with these relationships are likely to incur resistance and a reluctance to adopt the strategies (Bresnen et al.,

2005). This is particularly interesting in inter-organizational project settings, such as construction projects, where partners often need to develop new routines.

New collaborative initiatives, such as partnering, often imply breaking with existing routines and establishing new ones (Hartman & Bresnen, 2011). This, in turn, creates tensions in and between existing institutional logics (Bresnen & Marshall, 2010) and institutionalized activity systems (Gottlieb & Haugbølle, 2013). The willingness to adapt and create common routines is higher when there is high-quality cooperation (Luo, 2002), and when the partners have previous experience cooperating with each other. Enduring relationships are important for capability building (Davies & Brady, 2016). Such relationships allow for mutual learning and alignment of the partners' goals and intentions. This means that social ties and reciprocal understanding can be developed, which, in turn, assist in the emergence of common routines (Feldman & Rafaeli, 2002; Turner & Rindova, 2015).

A key challenge in construction projects is that the relationships between the parties have traditionally been quite adversarial and confined to the individual project (Dubois & Gadde, 2002a). It follows that construction parties are likely to have only partly overlapping interests and goals, as well as incompatible systems and routines (Jones & Lichtenstein, 2008). Thus, the value of establishing routines in a construction project may lie not merely in their function as devices for what to do and how, but also because they represent a *truce* between the parties' conflicting interests (Nelson & Winter, 1982). Compared to their cognitive role, the motivational and political roles of routines have been relatively overlooked. More recently, however, the way that routines embed power relationships has been increasingly recognized (Zbaracki & Bergen, 2010), and is strongly influenced by the dynamic perspective on routines (Feldman & Pentland, 2003). The emphasis on artefacts in the literature on routines has also been related to the motivational role of routines. It is argued that interacting artefacts mediate problem-solving needs and resolve

conflicts, and that this feature might explain whether or not new routines emerge. (Cacciatori, 2012).

It follows from the discussion above that existing routines and institutionalized activity systems can stand in the way of successfully introducing new routines and delivery forms in construction (Hartman & Bresnen, 2011; Gottlieb & Haugbølle, 2013). A key reason is that they potentially disturb the truce and the existing power relationships among the actors (Bresnen et al., 2005). Despite the valuable insights provided by previous research, we know little about the role of routines in partnering projects. Thus, the above review of the literature allows us to develop the following research question: *What is the role of routines in institutionalizing the partnering concept in project practice?* Finding answers to this question involves looking into the nature of routines, and examining how routines are likely to influence partnering performance.

Methods

Research Setting

To answer the research question, we draw on a longitudinal case study of a large-scale hospital project in Norway. The construction project was conducted between 2002 and 2014. The project provides a suitable setting to answer our research question: *What is the role of routines in institutionalizing the partnering concept in project practice?* Finding answers to this question involves looking into the nature of routines and examining how routines are likely to influence partnering performance. This also means that we were looking for detailed and rich descriptions to understand an unexplored phenomenon, which is the reason for relying on one case for this study (Langley, 1999). In the case we investigated, partnering represented a fundamental change for the participants, and resulted in the discarding and replacement of existing ways of organizing

and managing the construction process. The case provides insight into this process in which partnering replaces old ways of working and established routines and, over time, becomes legitimized practice.

The hospital is owned by one of the public regional health authorities in Norway, which derives its funding from the Ministry of Health. For the purposes of the hospital development project, a temporary client organization was formed on behalf of the owner. The project had a total budget of 1,5 billion USD, and included the construction and refurbishment of 220,000 square meters. The construction was conducted in two phases (see timeline in Figure 1): Phase one (2003–2006) and phase two, which in turn was split into two parts between 2006 and 2014. In each of the phases several sub-projects were run, including the construction of three new medical centers in each phase. The same design team was involved in both phases. In phase one, there were traditional design-bid-build contracts with multiple contractors across the sub-projects. Phase one completed on time and on budget, but was nevertheless considered troublesome due to the great coordination needs.

Insert Figure 1 about here

The project and the client organization had the explicit ambition of driving development in the industry, which was seen as lagging behind in terms of productivity and innovation. Motivated by the challenges perceived in phase one, and by an unexpected 10% reduction in the budget, the client organization decided to use a different delivery model based on collaboration and partnering when starting to plan the second phase in, which took place between 2004 and 2005. This change was driven by the new CEO, who joined the project in 2002, but after the delivery model of phase one had been decided on. The CEO came from a company experienced

in partnering. In the first part of phase two, five design and build contracts were established for work across the three medical centers with, respectively, a building contractor, a ventilation and heating contractor, an electrical contractor, a plumbing contractor, and a technical systems integration contractor. The idea was to enable learning and facilitate better coordination across the centers, which were built in a sequence. The contract with the building contractor included a partnering agreement, with a target price, open book, and an equal sharing of risk and reward sharing. Similar partnering agreements were not established with the specialist contractors. The reason for this was their lack of previous experience with partnering—compared to the building contractor, who had used partnering in other projects. Despite the lack of a formal partnering contract with the specialist contractors, it was nevertheless clearly stated in the contracts that the project should be conducted in a collaborative manner. The contractors were involved early in two collaboration phases, allowing them to influence the project in the planning phase. In a similar fashion to that in phase one, the first part of phase two finished on time and within budget, in addition to reaching expected quality, health, environment, and safety levels. The partners also collectively expressed overall satisfaction with the collaborative model employed.

Data Collection

The study was long-term and process-oriented, meaning that it was conducted in real-time, was theory-led, and contextual (Pettigrew, 1997). The primary data collection took place between 2007 and 2009, following the construction of the three medical centers in part one of the second construction phase. Over this three-year period, one of the authors visited the project on average every third month, conducting formal interviews and participating in several formal and informal meetings.

The first contact with the project was made at the end of 2006 via one of the sub-contractors, who supplied the project with prefabricated concrete elements. The subcontractor characterized the project as demonstrating best practice in terms of involving contractors and subcontractors early in the project. The subcontractor had been involved in phase one and asked to join the early discussions with the client and the consulting team. These discussions resulted in new solutions that saved both the subcontractor and the project millions of euros. The collaborative approach was continued in the main phase of the project involving the building contractor, who was in fact responsible for hiring the subcontractor. Following this first contact and more informal feedback from the project, two formal interviews were conducted with the subcontractor's project manager in the hospital project. The project manager suggested a joint interview with the building contractor's project manager, and a new interview with the two project managers was conducted in January 2007. This interview provided a good overview of the project and how the two partners worked together, and also shed light on relationships with the other subcontractors and the client. This interview was followed up by an additional interview with the building contractor's project manager, this time alone. The project manager, in turn, provided contact details for one of the project managers from the client organization. As such, the interviews followed a 'snow-ball' logic in the years to follow, where we asked respondents about who would be relevant to speak with next. The contact with the client organization proved particularly valuable, and the client's communication director came to act as our main contact in the research project from the end of 2007. This was very helpful, because the director provided access to various documents, including memos from meetings, strategy documents, contracts, agreements, standard operating procedures, presentations, communication plans, surveys, and pictures. In addition, the contact provided access to various people and also to meetings with the project managers of the different partners involved in the project. Using different data sources

proved to be valuable as it enabled consistency in the data and helped ensure the quality of the study (Eisenhardt, 1989).

In total, 33 formal interviews were conducted with representatives from the different partners involved in the project, including the client's CEO, project director, communication director, and project managers. This was in addition to interviews with people in similar positions employed by the various contractors and consultants (see Table 1). We used a semi-structured interview guide in which the questions concerned the representatives' roles in the project and their interactions and relationships between the partners. There were also questions about the specific partnering practices and routines involved, particularly the lean construction routine—including how the routines emerged over time and what challenges they encountered. The interview notes were transcribed and returned to the interviewees for comments and clarification. To increase the reliability of the study, a database was developed by using the software tool, NVivo, which included the transcriptions of each interview and other relevant documents such as minutes from meetings and company reports. The interviews continued until theoretical saturation was reached, meaning that no further theoretical insights were added (Glaser & Strauss, 1967).

Insert Table 1 about here

Data Analysis

The data were analyzed according to the constant comparative method (Glaser & Strauss, 1967) and systematic combining (Dubois & Gadde, 2002b). This implies an iterative process between the theoretical analysis and data collection, whereby the empirical findings direct attention to the theoretical analysis and vice versa. Thus, the analysis took place throughout the study. Some of

the events had occurred prior to the study, and were subject to retrospective analysis, whereas others happened in real time. Insights from the interviews and field notes were compiled into a report, which, in combination with archival material, became a narrative of the dominant themes and events expressed by the interviewees in relation to the project and the partnering concept (Miles & Huberman, 1994). The narrative was important for gaining an overview of the project. Specifically, we used time to understand the complexity of the project, both organizationally and technically. We sought to understand the relationships between the partners and the timeline in which the project and specific events related to the collaboration had occurred and were occurring. This ongoing narrative was discussed with contacts in the project. Following this narrative, which established an overview of the project, we started coding the data (Nag & Goia, 2012), using NVivo. We probed the interviews for recurring themes on the basis of terms and phrases used by the interviewees. For example, statements by the interviewees about the various partnering practices and routines that were initially established, and examples of how the partners actually collaborated as the project progressed, were collated into first-order categories. One example of such a first-order category was the client's decision to co-locate all the partners from the beginning of the project, which we interpreted as a typical partnering practice. Another example was how new meeting and planning routines were established. Simultaneously with the development of the first-order categories, we looked for connections among them, leading to second-order themes. For example, the focus of the client's management team on learning from others' experiences with partnering was interpreted as a means of creating a common understanding of the partnering project. The deliberate use of colocation and the establishment of new planning routines, based on lean construction, were coded as *structural interventions*, which represented a break with the existing way of doing projects. Lastly, the second-order themes were assembled into aggregate dimensions that allowed us to develop our theoretical process model of

the institutionalization of partnering and the role of routines in this process. We discovered how structural interventions and deliberate efforts, associated with typical partnering practices, both influenced, and were influenced by, the actors' abstract representation (ostensive aspect) and performance (performative) of the practices and routines. Figure 2 shows the data structure, whereas the theoretical model (Figure 3) will be discussed following the presentation of the findings.

Insert Figure 2 about here

Findings

This section presents the findings of the study and shows how partnering was institutionalized in the hospital project through the establishment and development of various practices and routines.

Designing a new, collaborative model based on initial understandings of partnering

In 2004, as phase one of the hospital project reached its production peak, planning of phase two and the construction of the subsequent three medical centers commenced. Severe, conflict-inducing, coordination challenges experienced in the first phase, along with an unexpected 10% budget decrease for the next phase, underpinned a perceived need to do things differently among managers in the client's team. The CEO was the strongest champion, explaining: "We were told that people didn't like to work here. This is an important driver to do something different." He was backed by one of the project directors, who had recently been involved in another hospital project: "In that project it was more a matter of 'divide and conquer'," the director said. "I

wanted an alternative. Fighting with the contractors is simply not very valuable.” The two argued for developing a new, collaborative model, based on partnering. The CEO’s former employer had been in the forefront of introducing the partnering concept in Norway. The concept was still considered new, however, and the CEO had no personal experiences with partnering.

Despite lack of experience, the client’s management team regarded partnering as very promising and appropriate in terms of what they wanted to do. They acknowledged that they needed to learn more about it, so they visited partnering projects in Denmark and the United States. These visits reinforced the desire to adopt partnering, and also to combine it with lean construction which was another concept that had attracted burgeoning interest in the national and international construction communities. The experiences from abroad suggested that combining lean construction and partnering could result in cost and time reductions, better quality control, and a more affable working atmosphere. Throughout 2004, the client sought to learn about partnering and to create a common understanding of what it involved. Based on these experiences, the management team, including the project managers, sat down and outlined what they considered to be key elements of the new, collaborative model. These elements were: early involvement of contractors to give them real influence through their competence, equality among the partners and joint ownership of solutions, smooth production of drawings, and colocation. The contractors would be involved early in planning the project through two collaboration phases. As such, they drew on what the literature has identified as “typical partnering techniques” (Bresnen & Marshall, 2000).

Lateral design & build contracts were drawn up for the five main trades (i.e., construction, electricity, plumbing, ventilation and heating, and technical integration/ICT) across the three medical centers. The client would coordinate between the contractors. The construction contract included an additional formal partnering agreement with open books, a target price, and shared

incentives. Even if the technical contracts did not include a similar partnering agreement, these contractors would also be involved early and take part in formulating the overall collaborative model. The new model represented a fundamental change from the existing way of doing projects. In the words of one of the client's project managers: "Partnering is quite the opposite of traditional models, where we're used to conflicts. It requires another competence."

Being a public project, the tendering process had to comply with public procurement regulations. However, instead of detailing the technical specifications, functional specifications were outlined to allow for utilizing the contractors' competence in the design and planning phase. In the selection of the construction contractor, the price accounted for 20%, the project delivery plan 40%, competence 30%, and health, environment and safety procedures 10%. The winning contractor could refer to the company's partnering experience, which was a plus point, as the client wanted a contractor who complied with their own ambitions. Intent contracts were signed with each of the five contractors in the first half of 2005, followed by two collaboration phases, which were considered essential for creating a common understanding among the partners:

What is important is that you have a common understanding of what partnering is. It is easy to lose the way, since the concept is broad and vague. A well-defined foundation in terms of creating a common understanding of what is being bought and what is being sold is necessary. Partnering must not be used as an excuse for not doing proper contractual work. (Project manager, Client)

The first, single-discipline collaboration phase lasted throughout 2005, and the client, the consultant team, and the individual contractors sat down together and planned the work of the respective trades. The teams included project directors and project managers. Following this phase, the target price was set for the construction contract and fixed prices were set for the technical contracts. Then, at the end of 2005, a second, six-month, multidisciplinary collaboration

phase commenced. This phase involved working groups comprising representatives from all the partners who developed a joint, overall production plan. Key routines for meeting, planning, and producing, as well as overall lean construction principles, were outlined. In June 2005, a Danish lean construction expert was invited to present lean construction and the experiences in Denmark in more detail. The result of the work was described in the partnership's own document, called *Foundation, Collaboration, and Production* (FCP). This document was used as a reference throughout the project, and outlined the content and practices of the new, collaborative delivery model, which was termed *C5* for *Companionship, Competence, Communication, Coordination, and Creativity*. The multi-disciplinary collaboration phase ended with a social trip to Amsterdam, the Netherlands, where representatives from all the parties signed a formal code of conduct, stating a willingness to collaborate.

A new organizational structure was established to facilitate more efficient problem and conflict solving, which involved replacing existing role titles with codes. For example, project directors were titled M1 (Management Level 1) and project managers were titled M2. At the construction sites, the different management levels were coded in a similar way. The new organizational structure was reflected in the colocation of the partners, which marked a break with existing roles and responsibilities. While the client CEO and the various project directors and project managers of each partner sat together in a building a 10-minute walk from the construction site, the foremen and team managers were co-located at the construction site. The main idea behind the split was a clear division of responsibilities and an intention that managers on the same level should communicate. Project managers were responsible for contractual issues and overall problems, while the site managers handled production-related issues. Formal meeting routines were established to support the new structure, and managers on the same level met

regularly. The project managers of the respective contractors met every other week to discuss overall issues. On the construction site, the partners met on a regular basis to discuss and plan the production in line with the overall lean construction concept, which implies a systematic planning routine (Ballard & Howell, 2003).

In mid-2006, after one year of preparations, the final contracts were signed. In the autumn of 2006, all the project managers of the involved partners were sent to a course to learn about collaboration and how to manage interaction processes and conflict resolution. This was considered vital for establishing a common platform for collaboration, as it was noticed that “engineers are not usually very good at dealing with conflicts ... in fact, they are not very good at collaborating in general.” (Project director, Client)

Accomplishing routines and institutionalizing partnering in practice

Despite the establishment of what the partners considered typical partnering practices (e.g., early workshops, colocation, open books, etc.), the situation in 2007—one year into the project—was that the project was at risk, beset by delays and strained relationships. This confirms that structural interventions are not sufficient for collaboration to take place (Cicmil & Marshall, 2005). The problems were attributed, among other issues, to the inability of some of the key managers to comply with the partnering idea and to fully discard existing roles and behaviors. As one of the client’s project managers explained: “The new way of organizing has been painful, because it has torn apart old boundaries.” Breaking with the existing structures was considered challenging, and colocation was taken to the extreme, where managers from the respective parties literally shared the same desk. To solve the problems that had occurred throughout the first year of the project, it was decided to replace the client’s project director responsible for the

construction contract and his counterpart in the construction company, due to poor chemistry. This was a difficult but, as the CEO noted, a necessary decision. The client's project director responsible for the technical trades now took over responsibility for all the contracts. This turned out to be a smart move because it enabled coordination and integration between the construction and the technical trades, which had increasingly grown apart. Furthermore, this project director had been pro-partnering from the very beginning. Similarly, his new counterpart in the construction contractor was in line with the partnering way of working, and the two managers had good chemistry.

Although some of the managers had a hard time adjusting, physical proximity was considered a key means in creating the collaborative culture by the participants:

We play ball through our daily work. For example, I share a desk with (...) (ref. the client's project director). Being located together enables us to pay attention to the small details and watch each other's body language. (Project director, Construction contractor)

The co-location and the benefits of personal relationships proved to be important elements in getting the project back on track again. In the beginning, the client attributed the delays to the construction contractor not putting enough resources into the project. However, the contractor retorted that the client should have been more involved in the planning phase:

The client was busy with finalizing the first construction phase, leaving all the work to us. We had to make some decisions that turned out to be inappropriate. (Managing director, Construction contractor)

However, after some months of lengthy discussions, the client and the construction contractor realized that they had to solve the problems together. As one of the client's project managers acknowledged: "Because of the partnering agreement, we cannot just blame the contractor." Rather than pushing the contractor further, the client increasingly acknowledged that they had to help with getting things running again. In the re-negotiations that followed in the

beginning of 2008, the two responsible project managers from the client and the construction contractor sat down together and went through the whole project to find solutions. As a result, it was decided to extend the contract sum, since the initial calculations had been too ambitious. Both acknowledged that the fact that they had worked together closely throughout the project, seeing each other every day as a result of the colocation and having regular formal meetings every other week, had resulted in mutual trust. This was seen as vital to solving the problems and illustrates the embedded, social nature of partnering (Bresnen, 2009).

The delays that occurred were largely ascribed to the inability to implement the lean construction routine properly, and a common maxim in that period was that “the lean construction routine is creaking ...” The overall principles described in the FCP document were general, and there was confusion about what the concept actually implied. One of the construction contractor’s project managers explained:

Lean construction comes from our headquarters in Denmark but is new to us. The method is described in our company’s documents, available to all project managers, and also included in this project’s overall project plan. The key issue is to structure the work to enable the flow of information. On small projects, we communicate and work this way without being aware of it. The idea is to transfer this way of working to larger construction sites. It is particularly important for the interior phase, where there might be as many as 300 to 400 people involved simultaneously. Lean construction means that all specialists involved in one area participate in three planning meetings, where the participants together look into and discuss the drawings and the resources required, and then decide who is to do what and when. Of course, we have learned throughout the process and adjusted the structure of the meetings. We have also experienced that the concept is more appropriate for some areas than others.

The idea behind the lean construction routine was that experiences from the first center would be transferred to the next two centers, although this proved to be a challenge. The centers differed in

terms of complexity, and the second center in particular involved a much larger number of specialists and workers entering the project:

Even if the procedures are available to us, the client and the other contractors, it is a trial–error process. The main problem is poor training, and our team managers say that it is simply not working, particularly as new construction workers join the project. (Project manager, Construction contractor)

When some activities are delayed, it influences the whole progress. If new sub-contractors do not know about lean construction, it soon becomes a mess. Lean construction must include everyone. (Project manager, Specialist contractor)

Aside from complexity and new people being involved, the challenges were attributed to attitudes among the project participants:

“There’s confusion among our site managers. They have to put aside the classic client role and contribute to developing the solutions instead of being the ‘watchdog’” (Project manager, Client).

Similar to the situation at the upper echelons of the organization, implementing the new model interfered with the existing interfaces onsite, and required that the project managers transferred responsibilities down to the site managers. In other words, it interfered with the existing knowledge and power structures (Bresnen et al., 2005).

To cope with these problems, a resource group was established consisting of project managers and site managers from each of the main partners. The group was given the responsibility to work through and streamline the lean construction routine based on their experiences. This work resulted in a small brochure called *Lean Construction for Dummies*, which was a refinement of the basic principles and lean construction procedures stated in the overall project plan and the FCP document. The new principles included a more detailed description of the seven prerequisites for lean activities: (1) previous activities finished, (2)

necessary information, (3) materials, (4) equipment, (5) staff available, (6) clean working area, and (7) external factors such as permissions), and outlined a three-stage meeting routine (six weeks, three weeks, and one week ahead of production) for planning the work at the different planning levels and for the different areas. Involving those who would actually do the work in systematically planning it, known as the ‘Last Planner’ principle, was a key element in the lean construction concept (Ballard & Howell, 2003). In addition, there were lean construction meetings at the M1 level, where the top managers of the project received information about progress. The involvement of top management was considered important, because it enabled information to flow all the way through the project and organizational levels.

The *Lean Construction for Dummies* brochure provided a much more systematic approach than had been the case earlier—it was more concrete and reflected what the participants considered to actually work onsite. The brochure was also used as the basis for a formal training program for all workers joining the project. This was considered important, especially as many new people were brought in. In the interior phase, there could be 300 to 400 people involved, many of them new. In addition to formal training, it was decided to transfer half of the people from a team that had finished to new teams to encourage social learning. Finally, a new logistics routine was established, ensuring that materials (one of the seven prerequisites) were delivered onsite in compliance with the lean construction planning schedule. Earlier, this had been rather chaotic, with many trucks trying to deliver at any time of the day. With the new routine, the drivers were assigned a slot, and then routed to the area onsite where the materials were going to be used.

Following what was considered a necessary ‘time out’ to ensure that everyone understood what lean construction was, the lean construction routine finally stabilized, and the production of

the final parts of the hospital proceeded more smoothly. As one of the managers in the construction contractor noted:

It is not possible for the individual contractors to do their job 100% effectively, because it will be at the expense of the others. They might be 75% effective. This compromise is important to ensure that the overall project is effective.

The lean construction routine was deemed crucial for accomplishing partnering and the overall project objectives. As one of the construction contractor's top managers explained: "Lean construction is partnering in practice." Several argued that, although partnering was more evident at the top level in the beginning of the project, the lean construction routine represented an operationalization of the concept on the site level. As one of the technical project managers observed early in the project: "The problem was that the word *partnering* was used before the real actions." Another added: "There is just as much conflict in phase two as in phase one. The difference is that then we played by well-known rules of the game, while now we don't." In other words, partnering and the new routines were breaking down the existing *truces* among the partners (Nelson & Winter, 1982), which had to be rebuilt. Lean construction was one way of doing that, and the client's CEO emphasized that, although the decision to implement lean construction was a key milestone in the project, things really got on track when those actually using it were given the responsibility of developing the guidelines based on their own experiences. It was widely recognized that it had been an enormous learning process, with the need for adaptations throughout the project, something that illustrates the *live* nature of routines (Pentland & Feldman, 2008).

Discussion

This article set out to study the role of routines in institutionalizing partnering in project practice. The basic premise underpinning the study is that a better understanding of how routines are accomplished within partnering projects is important for bridging the gap between the intentions and outcomes of partnering. The main theoretical contribution of the study is to operationalize partnering through the concept of routines. In doing so, we provide further insights into the processes of partnering and when and why it might succeed or fail. Figure 3 captures the findings and the process by which partnering becomes institutionalized and the role of routines in this process. The partnering process starts with the joint interpretation and conceptualization of partnering practices and routines based on previous experiences (1), resulting in an initial abstract and generalized idea of the concept in principle (ostensive aspect). This initial common understanding forms the basis for structural interventions to support partnering (2), which are further enacted (3) through the partners' actions and interactions (performative aspect). As partnering is practiced, potential gaps between intentions and performance are revealed, requiring further adjustments and refinement of the structural interventions (4). This is a continuous learning process. Depending on how well the partners align their interests (i.e., establishing truces) and create a more coherent and joint understanding of the partnering practices and routines, partnering might institutionalize, thereby instilling reliability and stability in performance (5). This model resembles Dionysiou and Tsoukas' (2013) process model of the (re)creation of routines. These authors strive to find a generic model of how routines change endogenously, but acknowledge that their model needs empirical exploration that captures the situated actions and understanding of participants. Our research and subsequent model of the institutionalizing of partnering concur with this call.

Insert Figure 3 here

With regard to the process of institutionalizing partnering, as illustrated in Figure 3, there are two key insights we would like to discuss further. First, we show how partnering and the subsequent routines develop through a mutually constitutive relationship between top-down interventions and an emergent social learning process in which existing routines are discarded and new ones established. We observed that creating a common understanding of the partnering practices and routines was vital in institutionalizing partnering and therefore in ensuring performance efficiency and reliability. The common understanding of the various partnering practices and routines, and the relations between them, gave the concept concrete reality and identity (Pentland & Feldman, 2005).

The notion of routines has been rather implicit in the previous literature on partnering and, where routines are acknowledged, partnering is viewed as a means of discarding existing routines (Hartmann & Bresnen, 2011). However, how new routines are established to support and constitute partnering has not been specified. In recent studies, partnering has been studied from a practice perspective, which views it as an emergent practice (Bresnen, 2009). Similarly, in the routines literature, a practice perspective has been employed (Parmigiani & Howard-Grenville, 2012) and routines are portrayed as effortful accomplishments (Pentland & Reuter, 1994), with the ability to change endogenously (Feldman, 2000). Our findings are in line with these views, and suggest that the partnering process occurs through a mutually constitutive relationship between structural interventions and interaction processes (Jarzabkowski et al., 2012), resembling the relationship between the ostensive and performative aspects of practices and routines

(Feldman & Pentland, 2003). This mutually constitutive relationship between structural interventions and performances adds nuance to the debate about whether partnering and new collaborative models can be designed or not (Bresnen & Marshall, 2002; Cicmil & Marshall, 2005). Our findings suggest that even if there is not a direct relationship between the representation of partnering in terms of formal practices, routines and artefacts, and how they are performed (Pentland & Feldman, 2005), such representation guides and funnels action (Cacciatori, 2012). Furthermore, the findings illustrate the embedded and interdependent nature of routines (Howard-Grenville, 2005). While the lean construction routine proved to be important for operationalizing partnering, it was made up of various sub-routines such as meeting, planning, and logistics routines. In addition, the routine was tightly connected to various artifacts, such as the procedures outlined in the new brochure (Cacciatori, 2012).

The funneling of action that these representations provided brings us to the second contribution of our findings to understanding partnering. This contribution relates to the role routines play as *truces* among conflicting interests (Jones & Lichtenstein, 2008). Aside from the cognitive dimension of routines, which in our setting has been reflected in the notion of routines as building blocks of project competence (Söderlund et al., 2008), routines also play a motivational role (Nelson & Winter, 1982). Problems of decision making, conflicting interests, and cooperation are vital to understanding routine-based behavior. The motivational role of routines has been captured by the metaphor of the “routine as truce” (Zbaracki & Bergen, 2010). The findings from our study illuminate this role of routines, since partnering and subsequent practices and routines disturb and interfere with existing knowledge and power structures among the partners (Bresnen et al., 2005). Routines embed such structures, and as such may be defined as truces among partners, reflected in familiar roles and divisions of responsibility (Nelson & Winter, 1982). Partnering implies discarding existing routines and establishing new ones, and

therefore instituting new truces. One example from our study is the decision to transfer responsibilities for lean construction planning from project managers to site managers and workers, which was considered “painful” as it challenged established ways of working and existing roles and power relationships. The findings show how existing truces were challenged and changed and how, over time, the partners engaged in a substantial learning process, through which they succeeded in adjusting to each other and establishing new routines and truces. Thus, while the notion of routines as truces is well-established in the routines literature, our study of partnering in the inter-organizational project setting provides further insights into the dynamics of the truces, the latent conflicts within them, and how they change over time (Zbaracki & Bergen, 2010). This finding is also relevant for the ongoing debate on the broader uptake of various improvement strategies in the industry, including partnering (Bresnen & Marshall, 2010), lean construction (Sage et al., 2011), and building information modelling (BIM), referred to as the “BIM-revolution” (Dainty et al., 2017). To a large extent, this debate concerns the influence of institutional factors, such as power relationships, in which truces are likely to play an important role.

Conclusion

Routines are important for organizational performance (Parmigiani & Howard-Grenville, 2012), including for project-based organizations (Davies & Brady, 2000; 2016) and temporary organizations, such as projects (Söderlund et al., 2008). Thus, examining routines is likely to provide insights into partnering performance. In this article, we set out to scrutinize the role of routines in collaborative project delivery models and, more specifically, how such routines help to institutionalize partnering in construction projects. Recent contributions within both the

partnering and routines literatures have turned to practice perspectives to understand the simultaneous change and stability of routines (Parmigiani & Howard-Grenville, 2012) and partnering processes (Bresnen, 2009). In line with these contributions, we applied a practice lens to our study, which enabled us to observe the processes and dynamics of partnering and the accompanying routines. Our key contribution is to provide insights into the process of partnering, and theorize around routines to explain why partnering is likely to succeed or not. We developed a model that showed this process. We argue that examining the routines associated with partnering may extend current research looking into the socio-dynamic aspects of partnering and how collaboration is operationalized through the concept of routines.

For construction practice, an important implication of our research findings is that managers in construction projects should aim to establish interorganizational routines to enhance project efficiency. At the same time, managers need to acknowledge and appreciate the social and dynamic aspects of these routines and how they emerge. Routines are results of bargaining processes and must be accepted and embedded by the people performing them. This acknowledgment, in turn, requires that the routines are continuously evaluated to make sure that they are still fit for purpose. This point is particularly important when companies aim to transfer and exploit routines established and used in one project to new projects, which has proved to be a paramount and delicate task in a project context (Davies & Brady, 2016).

We acknowledge that the general limitations of single case studies are relevant for our study too. However, the approach taken allows for theoretical and analytical generalization (Dubois & Gadde, 2002b; Eisenhardt, 1989). Analytical generalization requires substantial commitment to theory in order to ensure the explanatory power of the case study (Dubois & Gadde, 2002b), and we have sought to comply with this requirement by relating our findings to

the latest advances within the literature. In addition, we have provided rich data and offered a detailed explanation of our analytical process, which helps to create transparency and thus enable the reader to judge the relevance of the study (Langley, 1999). Partnering and other collaborative models are popular for delivering projects, not only in construction. The findings from our study of the role of routines within these models are likely to be relevant for other public and private organizations pursuing such new collaborations. Future research could, of course, seek to overcome the limitations with regard to statistical generalizability. One option is to test the insights developed in this article in other construction projects or in other settings where partnering is being used. Another option is to compare and contrast the findings with other infrastructure delivery models. Much of the research on partnering and learning in construction is based on single case studies. It would be interesting to compare different projects in terms of the structures and processes of partnering. The case study presented in this article concerns a very large and complex project. However, the project shares many similarities with other hospital projects, being complex in both technical and organizational terms. A multiple case study of hospital projects delivered through partnering and/or other collaborative models would be useful to saturate the concepts and extend our understanding of the role of routines in collaboration between partners with diverse interests, systems, and routines. Finally, and related to the previous point would be to use a routines perspective to study the broader uptake and institutionalization of partnering on an industry level, following in the footsteps of Bresnen and Marshall (2010).

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Table 1. Overview of Formal Interviews and Interviewees

	<i>CEO/Managing Directors</i>	<i>Project Directors/Other Directors</i>	<i>Project Managers and Logistics Managers</i>
Client	Two interviews with the CEO	Three interviews with project directors (one joint with a project manager) and four interviews with the communication director	Six interviews with project managers and project developers
Consultant team		One interview with the quality manager	One interview with a project manager
Construction contractor	One interview with the managing director of the local office responsible for the contract	One interview with the project director	Seven interviews with project managers and one interview with a logistics manager
Technical specialist contractors		One interview with the plumbing contractor's project director	Two interviews with the project managers of the ventilation and heating contract and with the technical integration contract
Sub-contractors			Two individual interviews with the project manager of the concrete sub-contract and one joint interview with the project manager and a project manager of the construction contract

Figures

Figure 1, Timeline of the case.

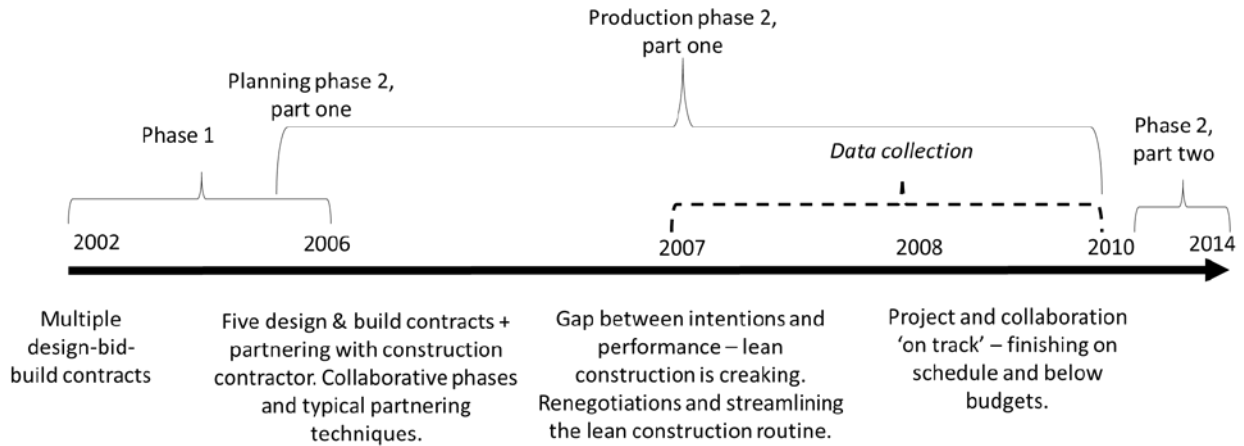


Figure 2. Data structure.

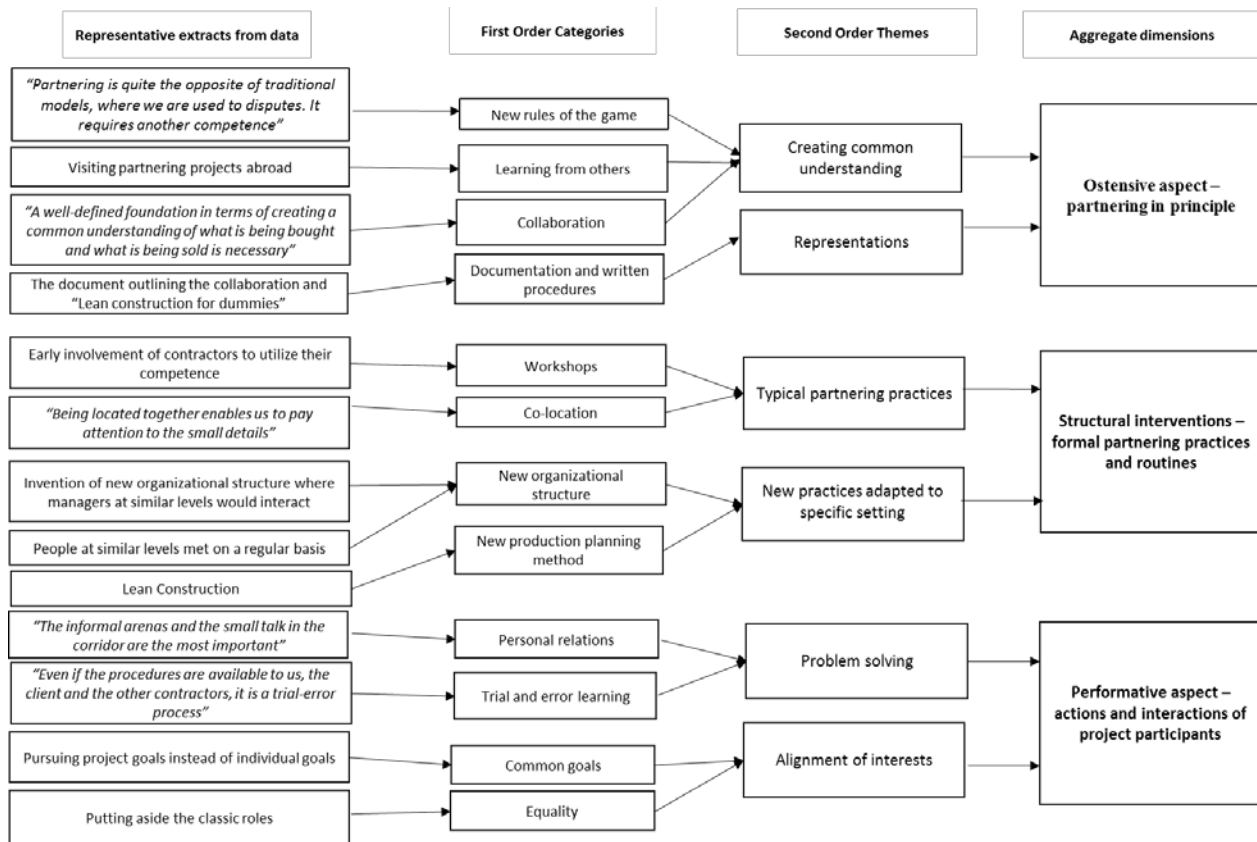


Figure 3. Conceptual model of the institutionalizing of partnering.

