



# Coordinating in construction projects and the emergence of synchronized readiness

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## Abstract

A construction project can only succeed when it involves effective synchronization, alignment, and adjustment of multiple project partners' contributions. Using a practice lens, this paper focuses on coordinating and explores how partners deal with the complex social processes of project working. The paper reports research from case studies of three construction projects. We show how the project partners in these projects engaged in coordinating and how they learned what formal and informal coordinating mechanisms to use and how to use them. We also show that as the project partners made sense of their ongoing engagement in coordinating, relational conditions for coordinating emerged. Together, these conditions constitute *synchronized readiness*, which is the overall relational condition that enabled the partners to deal with upcoming coordinating needs. This paper makes two key contributions to the understanding of coordinating in construction projects. First, we show that coordinating is a bottom-up and emergent process. Secondly, we introduce the concept of synchronized readiness, thereby explaining and conceptualizing how coordinated outcomes are achieved in construction projects.

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## 1. Introduction

This paper is about coordinating in construction projects and shows how coordinating is a bottom-up and emergent process. Coordinating in interfirm settings, such as construction projects, relates to the ways in which partners synchronize, align, and adjust their actions to complete their interdependent tasks (Gulati et al., 2012).

Since the late 1980s, the integration, cooperation, and coordination of construction project teams have attracted the interest of construction practitioners and researchers alike (Cicmil and Marshall, 2005). The effective coordination of multiple contractual partners' contributions is a key function in construction projects and is vital for the success or failure of a project (Bresnen, 1990; Sydow and Staber, 2002; Jha and Iyer, 2006; Hui et al., 2008; Jones and Lichtenstein, 2008; Jacobsson, 2011). Extant literature has addressed the need for new reasoning and practices in managing construction projects,

in order to facilitate a change from the traditional adversarial and distrustful relationships towards greater coordination and cooperation among project parties (Cicmil and Marshall, 2005).

The literature offers different tools, techniques, and practices for achieving project team integration, including new and innovative contractual forms and procurement strategies, such as partnering (Bresnen and Marshall, 2000) and relational contracting (Rahman and Kumaraswamy, 2004). However, recognition of the insufficiencies of these formal mechanisms has led to strong calls for new management and research perspectives that acknowledge the informal nature of project work and the complexity, uncertainty and interdependencies of construction projects (Bresnen, 1990). Project management should be seen as a social conduct, defined by context, history, individual values, and wider structural frameworks (Engwall, 2003; Cicmil et al., 2006). Acknowledging the role of context and complexity means that not every coordination challenge can be foreseen when designing and planning the project. The project partners will encounter coordination gaps, i.e. instances where the required coordination is greater than the actual coordinating

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(Gerwin, 2004). As they start orienting towards this absence (Jarzabkowski et al., 2012), and deal with it, they will create new ways of coordinating (Jarzabkowski et al., 2012; Pauget and Wald, 2013). Therefore, it is necessary to understand how coordination activities take the form of an evolving and self-organizing process centering around project goals (Ahern et al., 2014).

The present paper is based on data from case study research and explores how coordinating takes place and how new ways of coordinating emerge as partners in construction projects respond to the coordination challenges they face. In line with extant research (e.g. Cicmil and Marshall, 2005; Bresnen, 2009), we apply a practice perspective on coordinating. This perspective provides an analytical approach for understanding the micro-processes involved in the ongoing accomplishment of coordinating (Feldman and Orlikowski, 2011), and enables us to capture the dynamic and emergent processes of coordinating (Jarzabkowski et al., 2012).

The paper's key contribution is that it empirically demonstrates and conceptualizes the process of coordinating in construction projects. We show how construction partners enact different tools, techniques, and practices (i.e. coordinating mechanisms) and how coordinating is enabled through this enactment and use of formal and informal coordinating mechanisms. As such, we show that coordinating is a bottom-up and emergent process. Furthermore, we show that as the partners engage in coordinating efforts, relational conditions, which we have combined into the label; *synchronized readiness*, emerge over time and enable the effective accomplishment of coordinated outcomes.

The paper proceeds with a theory section on coordinating in construction projects. We revisit relevant project and construction literature as well as recent perspectives on coordinating in the more general literature and, in particular, theories that depart from a practice approach to organizational life. We then present the research approach and methods, followed by a presentation of findings from the case studies. The empirical analysis and discussion lead to the development of a model for understanding coordinating in construction projects. Finally, we outline implications that emphasize the key issues relevant for augmenting the process of coordinating in construction projects beyond structural interventions.

## 2. Towards an understanding of the process of coordinating in construction projects

The performance of a construction project depends on the effective coordination of multiple actors' contributions and interdependent tasks. The general literature (e.g. Grandori and Soda, 1995; Grandori, 1997; Okhuysen and Bechky, 2009; Van de Ven and Walker, 1984) and the literature within project management and construction (e.g. Bresnen and Marshall, 2000; Cicmil and Marshall, 2005; Jacobsson, 2011; Jha and Iyer, 2006; Jones and Lichtenstein, 2008; Van Marrewijk et al., 2008; Rahman and Kumaraswamy, 2004; Winch, 1989) suggest and discuss various ways to achieve coordination and integration among interdependent actors, ranging from more formal tools, techniques and practices to more informal ones, such as trust (Kadefors, 2004). The effectiveness and efficiency of various inter-firm coordination mechanisms are found to depend on the

type and intensity of the interdependencies involved (Van de Ven and Walker, 1984; Grandori, 1997). As Grandori (1997) notices, interdependencies that are transactional and sequential in nature are often handled by programming, rules and supervisory hierarchical roles, especially when the activities are predictable. Interdependencies that require collective action where partners need to combine their resources to solve a common activity in an integrated way on the other hand, require mutual adjustment and group decision making (Grandori, 1997). These latter types of interdependencies comply with what Thompson (1967) referred to as reciprocal interdependencies.

Much of the traditional construction literature has focused on identifying a set of generic and abstract principles for coordinating, constituted by a range of formal mechanisms (for an overview, see, for example, Jha and Iyer, 2006, 2007). However, albeit the belief in these mechanisms for enabling coordination, it is increasingly found that they might also hamper coordination. For example, classical contracts, mostly considered as a salient tool for governing projects, have been found to impede flexible interaction patterns among project participants and, consequently, the ability to coordinate and control (Bresnen, 1990; Cicmil and Marshall, 2005; Clegg et al., 2002; Dahlgren and Söderlund, 2001; Stinchcombe, 1985). Recognition of the inherent limitations in classical contracts and traditional coordination means has led to the development of new contractual arrangements and procurement strategies (such as partnering) to increase collaboration (Cicmil and Marshall, 2005). However, these new collaborative arrangements have neither produced the expected results (Bresnen and Marshall, 2000; Hartmann and Bresnen, 2011), largely because the tools, techniques and practices required to design the partnering relationships have been emphasized at the cost of the social and evolutionary processes (Bresnen and Marshall, 2002; Bygballe et al., 2010). It is increasingly being recognized that various forms of coordinating, such as partnering and collaborative technologies, shape and are shaped by interaction and social processes (Björkeng et al., 2009; Bresnen and Marshall, 2000, 2002; Bresnen et al., 2004, 2005; Bresnen, 2009, 2010; Bygballe et al., 2015; Cicmil and Marshall, 2005; Clegg et al., 2002; Dewulf and Kadefors, 2012; Jacobsson and Linderoth, 2010; Hartmann and Bresnen, 2011; Sage et al., 2012; Tryggestad et al., 2010; Whyte and Lobo, 2010).

The increasing concern with social and evolutionary aspects of collaboration in construction projects mirrors the more general criticism of the rational-design perspective associated with the focus on "best practice" in traditional project management (Cicmil et al., 2006; Hällegren and Söderholm, 2011; Jacobsson, 2011; Smits and van Marrewijk, 2012; Sage et al., 2013; Söderlund, 2011; Winter et al., 2006). The criticism relates to the disparity between the maturing body of project management know-how and the effectiveness of its application, as projects keep failing and stakeholders continue to voice their dissatisfaction with project performance (Cicmil and Hodgson, 2006). The critics have proposed a shift in research orientation from functionalistic and instrumental perspectives towards approaches that capture the complex, dynamic, embedded, emergent, and "irrational" aspects of projects (Blomquist et al., 2010; Cicmil and Marshall, 2005; Kokkonen and Alin, 2015; Kreiner, 1992, 1995; Pauget and Wald,

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