



Routine interdependencies as a source of stability and flexibility. A study of agile software development teams



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ABSTRACT

This paper looks at how product development teams balance stability and flexibility. It relies on the analysis of an original, qualitative study of agile software development teams, which operate in an environment characterized by the simultaneous implementation of interdependent organizational routines. We argue that the interdependencies among routines are seized by organizational members who manipulate the level of ‘protection’ that each routine is granted (i.e. the enforcement of adherence to the routine). Less protection permits flexibility, whereas more protection creates stability. We observe that ‘protection’ can be exerted along two different, yet related, dimensions: content of the routine and performance of the routine. The interplay of these two dimensions generates a space within which organizational members can vary the level of the routines’ protection (regarding their content, or their performance, or both) in order to influence the stability and flexibility of work processes and outcomes. We explain how controlling the interplay of different routines via choices regarding their protection enables teams to balance stability and flexibility.

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1. Introduction

At 9:44 a.m. Ralph walks up to the whiteboard that has countless color-coded post-it notes attached to it, which are grouped into columns entitled ‘backlog’, ‘on hold’, ‘in progress’, ‘verified’, and ‘done’. One minute later he is surrounded by the six members of his product development team, none of whom are late for the daily stand-up meeting. The team forms a half circle around Ralph, and then each team member delivers a brief status report on their work, structured by three questions: 1) What did I do since yesterday that helped the team meet its goal, 2) What will I do until tomorrow to help the team meet this goal, and 3) Do I see any impediment that prevents me or my team from meeting this goal. Most speak with the low voice that characterizes conversations in the office space shared with four other teams, where telephones ring rarely, and the clicking sound of typing on computer keyboards is omnipresent. While they speak, Ralph tracks the work progress, shifting post-its up or down a column, or attributing further information such as a red sticker for ‘software bug’. One team member will later copy the information into a spread sheet shared with management and clients. Upon completing the round of status reports, Ralph closes the meeting at exactly 9:58 a.m., thereby triggering the next daily routine two minutes earlier than planned, which is an informal meeting with a varying set of participants; the coffee break.

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Situations like these are experienced every day in many software-developing companies around the globe, where teams follow rigid protocols to pursue creativity and innovation. Product development teams are expected to deliver a steady flow of innovative and novel solutions to complex problems under high levels of uncertainty (e.g. Brown & Eisenhardt, 1997). They operate in increasingly dynamic and complex environments (Boehm & Turner, 2003), and are therefore required to work in ways that are both reliable and adaptive. In other words, teams need to aim at the increase of stability and flexibility at the same time, as both are important for organizational functioning for different reasons and must be kept in balance (Aroles & McLean, 2016; Feldman, 2000; Turner & Rindova, 2012).

The question of how stability and flexibility are created has increasingly been studied through the lens of organizational routines, which are defined as “repetitive, recognizable pattern[s] of interdependent actions, involving multiple actors” (Feldman & Pentland, 2003, p. 95). While the potential of routines to create stability had been the primary interest of behavioral approaches to routine-based accounts of organizational life (Cyert & March, 1963; Nelson & Winter, 1982), later scholarly, process-oriented work investigated the potential of routines to support flexibility as well (Feldman, 2000; Howard-Grenville, 2005). The extent to which routines might facilitate the simultaneous establishment of a balance between stability and flexibility has received increasing attention by empirical investigations in diverse settings (e.g., Cacciatori, 2012; D’Adderio, 2014; Turner & Rindova, 2012), although the relationship between routines and innovation has remained almost completely neglected (Becker & Zirpoli, 2009). This is surprising, as innovation is an important organizational endeavor and provides a promising avenue to advance routine theory (Sele & Grand, 2016). Further, important insight remains to be gained from studying the interrelatedness and functioning of several routines collectively (Salvato & Rerup, 2011), as the dynamics of several routines may be different from the dynamics of individual routines (Kremser & Schreyögg, 2016).

In this paper, we ask the following questions: For the purpose of balancing stability and flexibility in innovation settings, how are multiple organizational routines employed, maintained, changed, and disestablished with regard to different aspects of product development processes? To sharpen our analysis, we draw on a distinction of stability and flexibility regarding processes versus outcomes (Farjoun, 2010) in our empirical study of the mechanisms underlying their balancing. More importantly, we specifically focus on the collective employment and interdependence of several routines. Whereas past research has been mainly interested in the analysis of how routines are established or changed to individually exert influence on organizational outcomes, our findings suggest that important insight can be derived from considering the interplay between several routines that co-exist at a given point in time. Answering calls to investigate routine interactions (Parmigiani & Howard-Grenville, 2011), we contribute to routine theory by empirically investigating the interrelatedness of multiple routines in the simultaneous creation of stability and flexibility in innovation settings.

2. Conceptual background

2.1. Organizational routines

The traditional view of routines emphasizes their potential to increase efficiency through the standardization and stabilization of processes (Cyert & March, 1963; March & Simon, 1958). In this view, routines are employed for the purpose of capturing organizational knowledge, contributing to effective processes, and signaling accountability and reliability to customers (Gilson, Mathieu, Shalley, & Ruddy, 2005; Leana & Barry, 2000). Hence, routines function as important contributors to stability. A different view on routines aims to establish their potential to create flexibility and adaptation. Early routine research has pointed to meta-routines that are used to impact other routines and, thus, induce organizational change (Adler, Goldoftas, & Levine, 1999; Nelson & Winter, 1982).

Interested in how routines are capable of producing such diverse outcomes, researchers have turned away from treating routines as “black boxes” (Parmigiani & Howard-Grenville, 2011) to examine their complexity and investigate their functioning through looking at underlying mechanisms. In their seminal paper, Feldman and Pentland (2003) developed the concepts of “performative” and “ostensive” aspects of routines. The performative aspect refers to how a routine is executed by its participants, whereas the ostensive aspect refers to the general and abstract pattern of the routine. The ostensive aspect is the shared understanding that enables participants to refer to the routine when establishing or changing the routine. This differentiation revived the debate about the potential of routines to bring about change in order to meet the challenges of dynamic organizational environments (Parmigiani & Howard-Grenville, 2011). One major contribution was the insight that flexibility is not only produced by meta-routines (Nelson & Winter, 1982), but also by allowing for differences in the performances of routines (Feldman & Pentland, 2003). It has been suggested that the degree to which routines are embedded in other organizational structures, such as coordination or technological structures, influences their flexible use by individual actors (Howard-Grenville, 2005). Using routines flexibly allows actors to achieve their goals without altering the routines permanently. Similarly, Turner and Rindova (2012) describe how participants in organizational routines rely on flexible performances in order to produce stable, pre-defined outcomes. They identified that organizations use different routines, the ostensive aspects of which are directed at either flexibility or stability, in order to achieve their objectives. By contrast, in a study of product development teams, Dittrich, Guérard, and Seidl (2016) show how routines can be altered permanently and deliberately by collective reflection on the routines.

While our understanding for the creation of stability and flexibility through routines increases, the routines literature also becomes richer with findings from diverse empirical contexts that are governed by different constraints for delivering reliable and stable products and services. Especially, recent studies have pointed to the interactivity of multiple routines (Kremser & Schreyögg, 2016; Spee, Jarzabkowski, & Smets, 2015).

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