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An upper echelons perspective on information technology business value

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ABSTRACT

This paper argues that information technology (IT) outcomes are more valuable to companies when their top management team (TMT) moves from flirting with IT to marriage. Previous research has demonstrated an association between top management support (TMS) and IT value. We extend the concept of TMS with the imbrication metaphor to define the construct of TMT-IT imbrication, which allows us to account for a tighter and continuous entwining of the TMT and IT to create IT value. Our definition of the TMT-IT imbrication construct embraces four dimensions: involvement, participation, attention, and use. In addition, with the support of upper echelons (UE) theory, we explore certain managerial traits, competences, and team processes that may be antecedents of this imbrication. As a result, our work provides a variance model and various propositions rooted in the logic of UE that contribute to research on IT business value.

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1. Introduction

Although many information technology (IT) systems are tied to core processes and are therefore targeted at operational and control functions that normally do not receive direct top management team (TMT) attention, we consider how valuable it would be to have TMT members closely “wedded” to their IT applications and what manager characteristics would be right for standing so close to IT. Indeed, previous studies have argued that an IT advantage could be obtained through an organization’s dynamic capability to exploit IT functionality on a continuous basis (Henderson & Venkatraman, 1993), with the challenge for managers being to adapt continually organizational and technological capabilities to be in dynamic alignment with the chosen business strategy (Venkatraman, 1994).

The perpetual debate over the value of IT has evolved substantially over the years. We have long moved past the early debate over Solow’s productivity paradox (Solow, 1987) and the point of ubiquity and standardization (Carr, 2003). Rather, we know that it is not the IT itself that brings value but the manner in which it is combined with other organizational resources that enables a

business to gain an advantage through IT (Barua et al., 2010). In this sense, top management support (TMS) has been one of the organizational factors that researchers have emphasized for fully exploiting IT (Dong, Neufeld, & Higgins, 2009; Ifinedo, 2008; Young & Jordan, 2008). However, in our opinion, TMS lacks the continuous basis previously argued as being necessary to create IT value. Therefore, we revisit and extend the concept of TMS grounded in the imbrication metaphor (Leonardi, 2011). The imbrication perspective suggests that coordinated human agencies (i.e., social agency) and the actions that the materiality of a technology allows people to take (i.e., material agency) become interlocked in sequences that create infrastructure in the form of the routines and technologies that people use to perform their work (Leonardi, 2011). Grounded in the imbrication perspective, our first premise is that crucial social agency resides in the TMT as the powerful actors who can obtain the greatest benefits of IT. Our aim is to propose a framework that is useful for studying how and why top managers jump on the bandwagon of IT value. To achieve this objective, we rely on upper echelons (UE) theory (Hambrick & Mason, 1984). This theory maintains that organizational outcomes are a reflection of the characteristics of a firm’s top managers and that these managers make decisions based on their own characteristics (e.g., demographics, beliefs, values, attitudes, professional competencies, functional experiences, and educational background). Although research on

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UE theory has been extensive, its focus has typically been on the relationship among the characteristics, processes and structures of the TMT and the firm's performance or strategic decisions, including but not limited to internationalization, strategic renewal, and mergers and acquisitions (e.g. Kwee, Van Den Bosch, & Volberda, 2011; Mihalache, Jansen, Van Den Bosch, & Volberda, 2012; Nielsen & Nielsen, 2013; Wang, Holmes, Oh, & Zhu, 2016; Wong, Ormiston, & Tetlock, 2011). However, the analysis of IT value from a UE perspective has received little attention (e.g. Awa, Eze, Urieto, & Inyang, 2011; Chuang, Nakatani, & Zhou, 2009).

In summary, we revisit and extend the concept of TMS in view of the fact that IT is an integral part of every organizational activity (Orlikowski, 2010). Moreover, we propose an association between the traits, competences and processes of top managers and IT value but mediated with the TMT-IT imbrication multidimensional construct to propose that obtaining IT value is enhanced by a durable and continuous relationship between top managers and IT, a type of entwining that goes beyond support or commitment. As a result, a framework for IT value and various propositions have been developed, aiming to contribute to the nexus of TMT and IT business value research.

2. Development of the model

Because IT value manifests itself on many levels (e.g., individual, group, firm, or industry), we focus on IT business value as “the organizational performance impacts of information technology at both the intermediate process level and the organization-wide level, and comprising both efficiency impacts and competitive impacts” (Melville, Kraemer, & Gurbaxani, 2004:287). Previous research has highlighted that IT factors and non-IT factors must be integrated to achieve business goals, thus broadly accepting the complementarity argument (Melville et al., 2004; Wade & Hulland, 2004). This view is supported by the sociomaterial perspective (Orlikowski, 2007, 2010; Orlikowski & Scott, 2008). In summary, “IT with its complementary resources can create value manifested at different levels and, while causality is elusive, we can understand how to create differential value by extending our knowledge of complementary and mediating factors in the value creation process” (Kohli & Grover, 2008:27). The complexity and multidimensionality of the process of IT value creation entail a great challenge for researchers. We address this issue by adopting the imbrication perspective (Leonardi, 2011) and by framing it in a more global UE view, thus turning on the role of top managers as the crucial social agency and key complementary resource for the IT value creation process.

2.1. Sociomateriality and the imbrication perspective

Early IT implementation studies assume that IT is an exogenous and relatively autonomous driver that exerts significant and predictable impacts on organizations, thus causing changes in organizational culture, norms, structure, performance, and other business attributes in a deterministic manner (Gallivan & Srite, 2005; Orlikowski, 2010). Later researchers focus on the human aspect of technology, viewing it as the outcome of strategic choice or social action. Demonstrating emergence and unpredictability seems to have become the explicit goal of this generation of researchers, and this constructivist posture suggests that technologies themselves are irrelevant to the manner in which people work but that people's interpretations of the technology matter greatly (Leonardi, 2012). However, these previous conceptualizations have been criticized as too simplistic because they do not allow for user agency or, conversely, because they minimize the role of technology (Markus & Robey, 1988; Orlikowski, 1992, 2010). To solve this problem, some scholars have highlighted the need to renew the focus

on new technology's actual features and which of these features permit or inhibit people from accomplishing their goals (Griffith, 1999; Monteiro & Hanseth, 1995; Poole & Desanctis, 1990). At this point, the term “materiality” comes into play. The materiality of technology is the particular arrangements of physical and/or digital materials, which endure across differences in place and time and are stable, at least for some short period of time; such materials are also available to everyone in the same manner but are important to users in different ways (Leonardi, 2012). Hence, technology has a materiality that makes some actions possible and others difficult or impossible (Faraj & Azad, 2012).

From a sociomaterial perspective (Orlikowski, 2007; Orlikowski & Scott, 2008), ITs are not viewed as objects that impact organizations but instead are relational effects that are continually enacted in practice. Every action performed by an organization is no more or less social than it is material (for a more detailed discussion see, Leonardi, 2013). However, the understanding of sociomateriality may be constructed on either an agential realist (Orlikowski, 2007) or a critical realist foundation (Mutch, 2013). The “inseparability” stance taken by Orlikowski and Scott (2008), in particular, stands in contrast to the “separable-but-intertwined” stance underlying Leonardi's (2011) use of imbrication. Leonardi advocates the metaphor of imbrication as the gradual overlapping and interlocking of distinct elements into a durable infrastructure, which he considers to be a useful way of thinking about the process by which the social and the material become the sociomaterial in a critical realist foundation.

Hence, Leonardi's theory concerns how the social and the material become entangled, suggesting that coordinated human agencies – social agency – and the things that the materiality of a technology allows people to do – material agency – become interlocked in sequences that produce the empirical phenomena called “organizations” and “technologies”, respectively. Human agency is typically defined as the ability to form and realize one's goals (Giddens, 1984), and this perspective suggests that people's work is not determined by the technologies that they employ. Even using the most seemingly constraining technologies, human agents can exercise a great amount of discretion in shaping the effect of technology on their work (Boudreau & Robey, 2005). Material agency is defined as the capacity for nonhuman entities to act without human intervention. IT artifacts exercise agency through their performativity, i.e., through the things that they do that users cannot completely or directly control (Robey, Raymond, & Anderson, 2012). Both coordinated human (social) and material agencies represent capacities for action, but they differ with respect to intentionality. As noted by Leonardi (2012), the term “sociomaterial” is a bold reminder that social practices shape the materiality of a technology and its effects, and people often enact their human agency in response to technology's material agency. Given this important difference with respect to intentionality, social and material agencies may be equally important in shaping practice but in different qualitative ways. Thus, people have intentionality, and technological artifacts have materiality. Consequently, materiality exists separately from people, but affordances and constraints do not. People perceive technology as affording distinct possibilities for action or goal-oriented action (Markus & Silver, 2008). These perceptions of affordance or constraint can change across different contexts, though materiality does not. People's perceptions of what a technology can or cannot do exert an influence over the formulation of their goals, just as their perceptions are also shaped by goals. Depending on whether they perceive a technology as affording or constraining their goals, people make choices about how they will imbricate social and material agencies (Leonardi, 2012).

In this paper, we assign crucial social agency to the TMT. Here, the term TMT refers to an organization's highest management level: the CEO and his or her immediate subordinates responsible for

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