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Journal of Business Research xxx (2016) xxx-xxx



Contents lists available at ScienceDirect

### Journal of Business Research



### An explanatory and predictive model for organizational agility\*

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ARTICLE INFO

Article history: Received 1 November 2015 Received in revised form 1 February 2016 Accepted 1 March 2016 Available online xxxx

Keywords:

Organizational agility Information systems capabilities Absorptive capacity Hierarchy culture Partial least squares (PLS) Conditional mediation analysis

#### ABSTRACT

Organizational agility (OA), as a key dynamic capability, is a firm's ability to enable sensing environmental changes and responding efficiently and effectively to them. This study explores this topic further by analyzing the part that the information systems capabilities (ISC) variable plays as an antecedent of OA, and absorptive capacity (AC) as a mediator construct. Furthermore, this study tests the negative moderating role of hierarchy culture (HC) in the AC–OA link. Using partial least squares (PLS) and the PROCESS macro, this work finds evidence of these relations proposed, and the existence of a conditional mediating situation that HC generates. In addition, the main model with direct effects (ISC and AC as predictors) achieves an appropriate level of predictive validity for the key endogenous construct (OA).

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#### 1. Introduction

Organizations are currently facing highly turbulent environments, with strong doses of dynamism, complexity, and uncertainty. These conditions have led to hypercompetitive markets involving major threats to the survival of companies. In such a context, knowing the mechanisms that allow organizations to detect environmental changes and being able to adapt and offer the proper response to them becomes especially relevant, because this knowledge might lead firms to attain a greater success by exploiting emerging opportunities and new sources of competitive advantages. Therefore, the concept of organizational agility (OA) appears as a key issue concerning organizational survival and success.

OA is the firm's capability to sense the changes of the environment and respond efficiently and effectively to them (Ashrafi et al., 2005). Assuming the dynamic capabilities theory as a reference framework (Teece, Pisano & Shuen, 1997), prior literature identifies OA as one of

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http://dx.doi.org/10.1016/j.jbusres.2016.04.014 0148-2963/© 2016 Elsevier Inc. All rights reserved. the key dynamic capabilities for organizations in order to achieve sustainable competitive advantages (Sambamurthy, Bharadwaj, & Grover, 2003) and to survive in highly dynamic environments (Nijssen & Paauwe, 2012).

This topic has been attracting the attention of academic research since the mid-1990s and researchers have approached OA through multiple disciplines, the core of these studies being the role of information systems capabilities (ISC) in achieving a higher level of OA. However, consensus and empirical studies are lacking in prior research about the nature and impact of this relation (Ashrafi, Xu, Kuilboer, & Koehler, 2006; Ashrafi et al., 2005; Bi, Davison, Kam, & Smyrnios, 2012; Overby, Bharadwaj, & Sambamurthy, 2006; Seo, Desouza, & Erickson, 2006; Van Oosterhout, Waarts, & Van Hillegersberg, 2006).

Certain researchers posit that the ISC–OA relation could be more indirect – through other organizational variables – than direct (Sambamurthy et al., 2003; Trinh-Phuong, Molla, and Peszynski (2012). Over the last years, the focus of research on the technological aspect of business has led to forgetting other contextual organizational factors equally or even more relevant than ISC that may directly or indirectly influence the level of OA in firms, such as culture, communication and leadership (Crocitto & Youssef, 2003).

This study hence aims to cover such research gaps that the prior literature has until now failed to cover, shedding light on the "black box" that encloses the relation between ISC and OA. Therefore, this paper proposes a theoretical model that includes forgotten organizational aspects, such as organizational learning (through absorptive capacity) and culture as mediator and moderator factors, respectively,

<sup>☆</sup> The authors acknowledge and are grateful for the cooperation and financial support provided by the Junta de Andalucía (Consejería de Economía, Innovación y Ciencia), Spain (P10-SEJ-6081), through the "Proyecto de investigación de excelencia P10-SEJ-6081." The authors thank Juan G. Cegarra, Universidad Politécnica de Cartagena, and José A. Ariza-Montes, Universidad Loyola Andalucía, for reading and commenting on an earlier draft of this paper.

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exploring how these indirect aspects may affect the relation. This model will also serve not only for explanatory purposes, but also for prediction, testing its validity through a quantitative study.

This work means to answer the following questions: (1) Apart from ISC, are there any other non-technological antecedent variables for OA, regarding relevant social–organizational aspects in firms, such as absorptive capacity? (2) What are the links between such variables? Do ISC affect OA directly or through an indirect relationship? (3) Are ISC and absorptive capacity able to generate accurate predictions of OA levels? (4) What is the role of organizational culture in the way a firm can achieve OA? (5) Could the presence of certain cultural values become a moderator of the relations between the aforementioned variables?

The study proceeds as follows. The next section presents the theoretical background together with the research model and hypotheses. The third section comprises a description of the research methodology. The fourth section presents the results of the different data analyses carried out. Finally, the fifth section brings together the discussion and implications.

#### 2. Literature review and research hypotheses

#### 2.1. Approaching the concept of organizational agility

The concept of organizational agility has its roots in two prior related concepts: organizational adaptability (a reactive aspect) and organizational flexibility (a proactive aspect) (Sherehiy, Karwowski, Layer, 2007). In this vein, OA involves a firm's ability to sense environmental changes (sensing) and to respond readily to them (responding) by reconfiguring its resources, processes, and strategies (Overby et al., 2006). Sambamurthy et al. (2003) state that OA comprises three interrelated dimensions: customer agility (leveraging the voice of customers to gain market intelligence), partnering agility (learning from business partners to enhance the firm's response to the market), and operational agility (rapid process redesign to exploit dynamic marketplace conditions). Therefore, following Charbonnier-Voirin (2011), whose work reflects a remarkable inclusive approach, this study defines OA as the intentional response capability that the organization develops to enable efficient behavior in a highly turbulent environment, not only by reacting rapidly to change, but also through the organization's potential of action in anticipating and seizing opportunities, in particular through innovation and learning.

### 2.2. The relationship between information systems capabilities and organizational agility

The concept of information systems capabilities (ISC) comes from the use of the resource-based theory in the information technologies (IT) research field. This theory enables the establishment of a framework to assess the strategic contribution of information systems (IS) resources to the company (Wade & Hulland, 2004). Under such a perspective, the firm's IS resources (assets and capabilities) that are inimitable and valuable may lead to achieving sustained competitive advantages (Ravichandran & Lertwongsatien, 2005).

Bharadwaj (2000) defines ISC as the firm's abilities to mobilize and deploy IT-based resources in combination or jointly with other resources and capabilities. Wade and Hulland (2004) describe three types of ISC: inside-out (deployed from inside the firm in response to market requirements and opportunities), outside-in (externally oriented, placing an emphasis on anticipating market requirements), and spanning capabilities (necessary to integrate the firm's inside-out and outside-in capabilities).

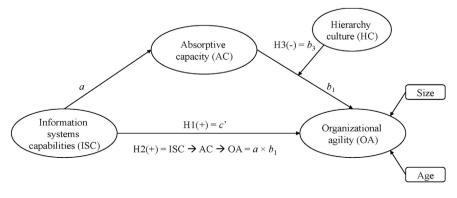
No consensus exists in the scientific literature concerning whether the impact of ISC on OA is positive or negative. On the one hand, some researchers supporting the negative impact argue that limitations of inflexible IT systems may result in a rigidity which hinders or even impedes the adaptation to the environment's requirements (Overby et al., 2006). These aspects are referred to as the "dark side" of the ISC (Seo et al., 2006). On the other hand, a relevant research trend hypothesizes that an optimal deployment of ISC directly or indirectly improves the level of OA in organizations. Huang, Ceroni, and Nof (2000) categorically state that IT agility is necessary at all the levels of a firm as this agility improves critical enterprise functions, such as design, decisions, sensing, recovery, collaboration, partnership and logistics. Sambamurthy et al. (2003), in their seminal work that has inspired numerous researchers in the field, consider that ITs are generators of the digital options which are the instruments that positively affect the OA. Not only do the digital options allow the creation of new informationbased products and services, but they also enable the coordination of internal processes and the building of new interorganizational relationships. Lu and Ramamurthy (2011) argue that ISC have a direct effect on agility, indicating that firms need to continually develop superior IT capabilities in order to successfully manage and exploit their resources, with the aim of building agile organizations.

With the support of this line of the literature, this work posits that properly deployed and managed ISC can provide tools and instruments for organizations to enhance their capabilities to sense and respond to environmental changes, and hence increase their OA level. Therefore, this study postulates the following hypothesis (see Fig. 1):

**H1.** A positive link exists between the firm's information systems capabilities (ISC) and its organizational agility (OA).

## 2.3. The mediating role of absorptive capacity in the relationship between ISC and ${\it OA}$

Organizational learning becomes a key success factor for firms within the current dynamic environment. Lu and Ramamurthy (2011) propose that a better understanding of the way that ISC influence OA





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