Identifying capabilities in innovation projects: Evidences from eHealth☆

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ABSTRACT

Many eHealth innovation projects have emerged in the last few years, but most of them remain in a permanent pilot state, which is a growing concern in the management literature. The purpose of this study is to improve the understanding of the organizational capabilities that eHealth innovation projects require after the pilot state. The analysis follows an inductive theory-building process comprising two qualitative studies. The first study derives propositions relating organizational capabilities to the implementation of eHealth projects from interviews with five experts in the area. Four capabilities emerge from the interviews: evaluation, collaborative leadership, stakeholder networking, and organizational flexibility. A second study validates the propositions analyzing seven eHealth projects that have reached implementation. This research also provides insight for managers of eHealth projects on how to define strategies to take their projects from pilot to real implementations, avoiding the so-called "plague of pilots."

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1. Introduction

Healthcare systems in the Western world are confronting a significant pressure to reduce costs while improving last decades' quality of health service delivery. Several factors, such as an aging population, increasing mobility of patients, or lack of qualified health works, complicate the fulfillment of this purpose (Hedberg & Morosi, 2015). In addition, society expects solving today's problems through the extensive use of information and communication technologies (ICT) in healthcare; thus, Eysenbach (2001) introduced the term eHealth, which emerges as a silver bullet for achieving cost-savings, efficiency, and quality in healthcare (Car, Black, Anandan, Cresswell, & Pagliari, 2008).

Many eHealth innovation projects have emerged in the last few years, but most of them remain in a permanent pilot state, which is a growing concern among researchers and policymakers. Scholars have identified the need to uncover mechanisms that help in achieving successful eHealth implementation (Andreassen, Kjekshus, & Tjora, 2015). Previous work identifies capabilities that organizations need to innovate and, more specifically, to co-create value and knowledge with other stakeholders in innovation projects (Den Hertog, Van der Aa, & de Jong, 2010; Kazadi, Lievens, & Mahr, 2016; Sharma, Conduit, & Hill, 2014). However, the scientific literature on the required capabilities to implement innovation projects after the pilot stage is scarce.

The purpose of this study is to improve the understanding of the organizational capabilities necessary in innovation projects after the pilot state, focusing on eHealth projects. Organizational capabilities are bundles of skills and accumulated knowledge that enable companies to coordinate activities and use their assets (Day, 1994). These capabilities allow companies to respond quickly to changing customer preferences and creating a competitive advantage. Therefore, understanding the organizational capabilities that a company needs to lead the successful implementation of innovation projects in general, and eHealth projects in particular, is of great theoretical and practical importance.

This study aims to respond to the following research question: How do organizational capabilities contribute to take eHealth innovation projects from a pilot stage to a real implementation?

In answering the above research question, the study examines Kurt Lewin's (1945) contribution to science and follows an inductive theory-building process comprising two qualitative studies. The first study derives propositions about organizational capabilities in eHealth from five interviews with eHealth experts. A second study validates the propositions by analyzing seven implemented eHealth projects.

The primary contribution of this study is explaining the organizational capabilities required for taking eHealth innovation projects from pilot to the implementation stage. The study also provides relevant insight for managers of eHealth projects and policy makers to define strategies to take their projects from pilot to real implementations, avoiding the so-called "plague of pilots" (Andreassen et al., 2015).

The remainder of this research has the following structure. Section 2 describes antecedents of organizational capabilities through a review of the literature and the problem of the plague of pilots in eHealth projects. Section 3 describes the research method and the data collection.

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Section 4 presents the main findings, and Section 5 discusses conclusions and research limitations.

2. Literature review

The resource-based view of the firm (RBV) posits that the combination of heterogeneous resources with the firm's inner knowledge is a key driver of competitive advantage (Barney, 1991). This combination allows companies to generate knowledge that translates into innovation, which is difficult to diagnose and to replicate by competitors (Teece, 2014). This approach emphasizes that resources are easily transferable between organizations (Wu, Chen, & Jiao, 2015); thus, companies need to transform their resources into capabilities that allow them to achieve superior performance by weaving employees' tacit knowledge of the organization, which is more difficult to imitate and transfer (Makadok, 2001).

Companies require organizational, static, and dynamic capabilities to efficiently respond to changes in their environment; these capabilities should be part of the strategic plan of the company (O'Connor, 2008). Developing organizational capacities requires changes in the structures of power (Francis & Bessant, 2005) and in the activities related to knowledge and learning (Madhavan & Grover, 1998). Christensen (1997) described the organizational capabilities as a multidimensional construct that includes factors such as human, technologic, and material resources, and processes and criteria for decision-making.

For companies, the innovative capability in changing environments is vital (Calantone, Cavusgil, & Zhao, 2002; Romijn & Albaladejo, 2002). The capability to innovate is the capability to generate and create new knowledge in the collective creation of value (Le Masson, Weil, & Hatchuel, 2010), which stems from the organizational capabilities of the firm (Grant, 1996). Previous work identifies organizational capabilities related to innovation in knowledge co-creation (Kazadi et al., 2016), radical innovation (Forés & Camisón, 2016), value co-creation (Galvagno & Dalli, 2014), and customer value (Martelo, Barroso, & Cepeda, 2013), among others.

A systematic review of the literature on the implementation of eHealth projects shows that methodological quality in this area is poor and provides little information on the ways in which managers and other users understand of eHealth systems (Mair et al., 2012). The so-called "plague of pilots" exacerbates the situation; "plague of pilots" is a term that Wyatt and Sullivan (2005) introduced to refer to the fact that many eHealth projects run as non-permanent test projects rather than as normal practice. The literature on the topic points out that eHealth projects seem to meet the criteria for technical success, "yet fail to become part of every-day clinical routine" (de Bont & Bal, 2008, p. 1). In previous work, scholars determine as potential reason for such a problem, among others, the failure of adapting the individual organization to new eHealth-required management structures (Broens, Vollenbroek-Hutten, Hermens, van Halteren, & Nieuwenhuis, 2007).

Table 1 shows the main organizational capabilities related to innovation that the literature identifies; the analysis uses them as the starting point to study capabilities in eHealth innovation projects.

3. Methods

This study employs an analytic induction method (Patton, 2002) to design a theory through a case study (Gomm, Hammersley, & Foster, 2000), using data from two qualitative studies. The method is appropriate to analyze the research questions, allowing integrating various sources of information inductively (Eisenhardt, 1989; Woodside & Wilson, 2003). The case method has also proved its suitability for process analysis, useful in information systems research (Miles, Huberman, & Saldana, 2013). Although the results of this method are difficult to generalize, the method allows examining certain propositions (Yin, 1994). Drawing from organizational capabilities, the study applies a theory-development approach consistent with what Gregor

Table 1
Organizational capabilities related to innovation obtained from the literature review.

Capability	Sources	Sector
Absorptive capability	Forés and Camisón (2016)	Industrial
	Kazadi et al. (2016)	Health
Stakeholder networking	Kazadi et al. (2016)	Health
Stakeholder competence mapping		
Stakeholder relational		
Stakeholder knowledge management		
Leadership	Sharma et al. (2014)	Health
Collaborative integration of resources		
Customer mobilization		
Customer identification		
Customer agility		
Responding to customer needs		
Organizational flexibility		
Evaluation		
Interaction capabilities		
Market sensing capability	Day (2011)	Marketing
Market learning		
Market experimentation		
Market orientation	Martelo et al. (2013)	Marketing
Knowledge management		
Customer relation management		
Opportunity-recognizing capability	Wu et al. (2015)	Industrial
Opportunity-capitalizing capability		
Internal knowledge creation capability	Forés and Camisón (2016)	Industrial
Radical innovation performance		
Incremental innovation performance		

(2006) referred to as "theory for explaining." Using this process-oriented narrative (Van de Ven & Poole, 2005), the study explains how organizational capabilities contribute in transitioning eHealth innovation projects from pilot to real implementation.

3.1. Data collection and analysis

The study collects all data in Spain; this country offers an interesting opportunity because of its progress in eHealth, according to international records, during the time of a financial crisis. Since the eighties of last century, the Spanish national health system offers virtually universal coverage, including a variety of services through a wide network of hospitals and health centers, following a decentralized relatively low-cost model compared to other European countries (Borkan, Eaton, Novillo-Ortiz, Corte, & Jadad, 2010).

Spain is among the leading countries in Europe in relation to making appointments with doctors through Internet. In 2014, 27.5% of Spanish citizens have concluded appointments in this way, placing Spain in the third position according to Digital Agenda Scoreboard of the European Commission. In addition, Spain obtained the fourth position across the European Union in the compound of electronic records of information in primary care (Codagnone & Lupiañez-Villanueva, 2013), and the country ranked second in Europe in access to health information using mobile phones (Lupiañez, Maghiros, & Abadie, 2013).

The first study included interviews with five experts in eHealth from the government and the private sectors, previously involved in the implementation of eHealth innovation projects with different rates of success (Table 2). The interviews are face to face or by phone, with a duration of 60 min on average. The study uses the recordings and transcriptions of all interviews. The interviews consist of a semi-structured questionnaire that, after a brief introduction to the study, asks about the participants' opinions and knowledge on the "plague of pilots," and about the key capabilities for transitioning eHealth pilots into projects, using as starting point the capabilities appearing in the literature review. The study also obtains additional data from reports from the United Nation, European Commission, and the Spanish Health Informatics Society, among other sources. The analysis applied inductive theory building to the data from the first stage, which results in