Abstract

Although anecdotal evidence suggests that healthcare organizations are relatively slow to innovate, several healthcare organizations are engaging in innovative practices to improve patient care. Facing significant operational challenges, regional healthcare organizations often provide unique and focused services benefiting the entire community. We adapt the dynamic capabilities theory and process innovation approach as our theoretical lenses, and will utilize a positivist case study approach to explore the underlying capabilities and IT-enabled innovative practices that impact healthcare outcomes in regional healthcare organizations. Findings from this study will have important implications for academic and practitioner literature alike.

Keywords

Healthcare IT, capabilities, innovation, regional healthcare organizations.

Introduction

Although anecdotal evidence suggests that healthcare organizations are relatively slow to innovate, several healthcare organizations are engaging in IT-enabled innovative practices to improve patient care. Practitioner studies illustrate that healthcare organizations are at the forefront of innovative practices (Gartner 2014), ranging from IT-enabled business initiatives to new technological innovations. However, healthcare organizations need to contend with major organizational challenges for these initiatives to be successful.

In the context of innovative practices in healthcare organizations, two primary facets attain significance: extent of adoption of IT-enabled innovative practices and capabilities needed to innovate in this context. Prior research shows that healthcare domain has different organizational imperatives in adopting innovations. Often labeled as IT laggards (Leidner et al. 2010), the extent to which IT-enabled innovations are adopted might vary greatly across different healthcare organizations. In addition, the extent to which organizational resources and capabilities are developed can also vary greatly across these organizations (Teece et al. 1997).

Although prior literature illustrates innovative approaches in healthcare organizations (Tarafdar and Gordon 2007), innovation in regional healthcare organizations has not received significant attention. Facing significant operational challenges, these healthcare organizations often provide unique focused services, benefitting the entire community. Therefore, we adapt the dynamic capabilities theory (Eisenhardt and Martin 2000; Teece et al. 1997) and process innovation approach (Daft and Becker 1978; Davenport 1992) as our theoretical lenses to study how innovative practices and IT capabilities affect outcomes in small and medium-sized regional healthcare organizations. Our research questions are as follows:
1. How do regional healthcare organizations develop and implement IT-enabled innovative practices to improve healthcare outcomes?

2. What role do healthcare IT capabilities play in affecting the development of IT-enabled innovative practices in regional healthcare organizations?

The rest of the paper is organized as follows. First, we explain the theoretical model for our study. Next, we expand on healthcare IT capabilities and IT-enabled innovative practices. We then provide a brief description of our methodology, followed by the conclusion.

**Theoretical Development**

We draw upon two theoretical frameworks - Dynamic Capabilities Theory and Process Innovation Approach – to build the exploratory theoretical model for our study (Figure 1). We theorize that Healthcare IT capabilities form the basis for the implementation and execution of IT-enabled innovative practices, which in turn can enhance the realization of healthcare outcomes. Healthcare outcomes refer to the realization of clinical (e.g., readmission rate), strategic (e.g., cost reduction) and patient outcomes (e.g., patient satisfaction). We also acknowledge that contextual characteristics will play an important role in the development of capabilities and innovative practices in our study.

Dynamic Capabilities Theory posits that an organization can be viewed as a collection of capabilities, and organizational resources and capabilities form the fundamental building blocks of superior competitive advantage (Eisenhardt and Martin 2000; Teece et al. 1997). The theory states that through these capabilities, organizations can dynamically reconfigure their resources, resulting in higher returns. Capabilities approach has been applied in several organizational contexts including the IT domain: IT governance (Ross et al. 1996), e-commerce (Zhu and Kramer, 2002), and sourcing (Lacity and Willcocks, 1998; Ranganathan and Balaji, 2007).

![Figure 1 Healthcare IT Capabilities and Innovative Practices in Healthcare Organizations](image-url)
Healthcare IT Capabilities and IT-enabled Innovative Practices

Process Innovation has been studied by several researchers in a variety of contexts (Daft and Becker 1978; Davenport 1992). Synthesizing these studies, Tarafdar et al. (2007) define business innovation in the healthcare context as “any idea, practice, behavior or artifact that is perceived as being new by the adopting unit.” (p. 356). Innovative practices can help an organization to improve its organizational outcomes. Notably, competitive pressures faced by non-profits such as healthcare organizations are distinct from the ones faced by for-profit companies. Non-profits are less constrained by motivations such as profit generation or shareholder wealth, but need to address budget constraints, and manage insurance companies and Medicare, while pursuing growth. Consequently, the need to develop underlying capabilities becomes salient for healthcare organizations.

**Healthcare IT Capabilities**

We define healthcare IT capabilities as consisting of three dimensions as explained below: Leadership and HR capability, Technological capability and Healthcare-IT relationship capability.

**Leadership and HR Capability**

In this study, leadership and HR capability is defined as the ability to lead through the formulation and execution of effective strategic decisions, and the skills needed to perform various clinical and administrative activities. Leadership and HR capabilities are fundamental to the success of an organization, specifically those relying on IT-enabled structures (Ross et al. 1996) such as healthcare organizations. Effective leadership fosters strategic thinking – the ability to view an organization's strategic fit with the execution of any future projects, rather than taking a piecemeal approach (Lacity and Willcocks, 1998). Engaging in effective recruitment and retention strategies and increasing specialty treatment modalities are important facets of effective leadership. In addition, effective leadership also includes a proactive engagement with technological developments in the industry (Ravichandran and Lertwongsatien, 2005), which can form the basis for several IT-enabled innovative practices in the organization.

**Technological Capability**

In this study, technological capability is defined as the ability of a healthcare organization to effectively incorporate different tools and technologies in the execution of the various operational imperatives. Prior research exemplifies the role of technological capability in enabling the performance of a firm (Bharadwaj 2000; Bhatt and Grover 2005; Ravichandran and Lertwongsatien 2005). These include software, hardware and communication systems capabilities that provide firm agility and performance (Byrd and Turner 2000; Sambamurthly et al. 2003). In healthcare setting, technological capability is needed in diverse activities from planning and development of projects (Bokhari 2009) to tracking patient-related metrics. This includes investments in electronic health record systems (Venkatesh et al. 2011) and engaging in social media and mobile platforms for tracking patient’s progress towards health goals (Greaves et al. 2013), which can form the basis for several IT-enabled innovative practices.

**Healthcare-IT Relationship Capability**

In this study, Healthcare-IT relationship capability is defined as the ability of a healthcare organization to build effective partnerships among the various stakeholders such as administrators, IT personnel, and clinicians. Prior research contends that business-IT relationship provides for shared risk and responsibility in an organization, thereby improving organizational performance (Bhatt and Grover 2005; Feeny and Willcocks 1998; Ross et al. 1996). However, in hospitals, overcoming power-politics between different stakeholder groups can become a difficult proposition (Chiasson and Davidson 2004; Yajiong et al. 2008). Through relationship capability - improved communication and coordination, shared responsibility, and increased levels of trust and commitment among the various stakeholders – these issues can be addressed. Fostering greater partnership among the various stakeholders can provide the basis for engaging in IT-enabled innovative activities.
Proposition P1: In regional hospitals, the development of healthcare IT capabilities in terms of leadership and HR capability, technological capability and healthcare-IT relationship capability will influence the implementation of IT-enabled innovative practices.

**IT-Enabled Innovative Practices**

We posit that IT-enabled innovative practices can be categorized into three dimensions: Green IT and sustainability, Electronic Health Records, and Patient-centric Processes.

**Green-IT and Sustainability**

Engaging in Green IT initiatives through the use of software, hardware and communication systems can have a direct or indirect impact on environmentally friendly initiatives (Melville 2010; Mithas et al. 2010). Managing renewable energy sources such as geo-thermal units, solar panels, wind energy¹ through cutting-edge technologies, software and hardware systems (Dao et al. 2011; Murugesan 2008) are increasingly popular in new hospitals. For example, through Building Information Modeling (BIM)² systems, a team of various mechanical contractors will work together to identify solutions immediately upon encountering conflicts in a systematic and systemic manner. Such integration of IT systems and sustainability initiatives can drive long-term cost benefits and strategic goals for the organization.

**Electronic Health Records**

Electronic Health Record (EHR) systems manage a multitude of clinical and patient information including medical history, medications, treatment plans, and clinician information, enabling hospitals to be compliant with HIPAA standards. This leads to improved quality of care (Tarafdar et al. 2007) increased interpersonal interactions and patient satisfaction (Venkatesh et al. 2011). Healthcare organizations can become innovative by moving up the three-stage meaningful use compliance model³, integrating clinical information with other systems such as billing, to evolve a loosely-coupled “enterprise system.” In addition, while bring your own device (BYOD) has become a necessary requirement in hospitals (Marshall 2014), they can also raise security concerns. Therefore, healthcare organizations need to innovate on their technology infrastructure to provide better outcomes.

**Patient-Centric Processes**

Patient-centric processes revolve around managing the patient life-cycle within and outside the hospital setting. Satisfied patients can be expected to recover quickly from their illness, thereby bringing down inpatient hospital costs (Venkatesh et al. 2011) and possibly improving quality of patient care (Menon and Kohli 2013). Similarly, clinicians can offer better service to patients, if they have accurate and timely information about the disease conditions through mobile apps, while patients are at-home (Greaves et al. 2013). Therefore, process innovations that target the experience of the patients in hospitals and at-home can improve clinical, strategic, and patient outcomes.

Proposition P2: In regional hospitals, IT-enabled innovative practices in terms of green IT and sustainability initiatives, electronic health records, and patient-centric processes will influence clinical, strategic and patient outcomes.

**Methodology**

A case study approach is deemed appropriate for this study since our study focusses primarily on answering the “how” question (Yin, 2003). We plan to conduct our study in regional hospitals in the US, primarily through semi-structured interviews with key stakeholders such as administrators, HIM personnel, and clinical staff. Our interview questions will be partly based on prior literature, and will focus on IT-enabled innovative practices that affect healthcare outcomes and the role of IT capabilities in

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¹ [http://www.advocatehealth.com/sherman/geothermal-lake](http://www.advocatehealth.com/sherman/geothermal-lake)
³ [http://www.healthit.gov/providers-professionals/meaningful-use-definition-objectives](http://www.healthit.gov/providers-professionals/meaningful-use-definition-objectives)
the development of such innovative practices. We also plan to collect secondary data for example through documents, white papers and power point slides. Data collection is currently underway in one of the regional hospitals in Midwestern US, which has been successful in accomplishing several key innovative practices. We plan to present the details of this case study at the conference.

Conclusion

Prior research in healthcare context has documented the resources and capabilities needed in specific contexts such as electronic health records, and primarily in large healthcare organizations. Specifically, by focusing on regional hospitals which are typically small or medium-sized hospitals, we seek to identify unique healthcare IT capabilities in this context. By studying the IT-enabled innovative practices from multiple perspectives, we intend to contribute to the academic and practitioner literature on innovation in the healthcare context.

REFERENCES


