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From cacophony to harmony: A case study about the IS implementation process as an opportunity for organizational transformation at Sentara Healthcare

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ABSTRACT

The cacophony of criticisms emanating from an organization facing an information technology-enabled transformation can be deafening and deleterious. This is especially true in healthcare in the US, where information systems investments are typically huge and often perceived by change resistant stakeholders as disruptive or even potentially life threatening. We describe how the IS implementation process itself contributed to organizational transformation in terms of changes in coordination, culture, and learning at a successful organization, Sentara Healthcare, which transformed the discordant cacophony of the change process into a harmonious implementation.

1. Introduction

Organizational transformation in any industry involves fundamentally reshaping behaviors within the organization and, now more than ever, instituting technology-enabled processes – something desperately needed in US healthcare (Bohmer, 2010; Blumenthal, 2009; Moreton, 1995). The aim of this research is to describe how the information systems (IS) implementation process aids in organizational transformation, a business context that is rapidly moving to the center stage of societal importance. We exhibit this transformation via a case study of a healthcare organization, Sentara Healthcare, which has been nationally recognized for its superlative efforts in instituting technology-enabled processes.[2] We use the business process change model (BPCM) (Kettinger and Teng, 2000), one of the most comprehensive frames steeply couched in the organizational transformation literature, as a framework to describe the steps Sentara followed in implementation of eCare, a comprehensive healthcare information system. We also use BPCM as a framework for structuring our analysis and insights that are applicable in resolving the cacophony associated with how to manage the technology-enabled transformation.

The cacophony of critics emanating from organizational transformation efforts enabled by well-intentioned information systems has long been a perplexing topic, especially in healthcare (Devadoss and Pan, 2007; Crowston and Myers, 2004; Kohli and Devaraj, 2004; Brynjolfsson and Hitt, 2000, 1998; Brynjolfsson, 1993). The reengineering of business processes

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[2] The Healthcare Information Management Systems Society (HIMSS) maintains diffusion statistics for healthcare IS and nationally recognizes healthcare organizations for reaching the highest level (i.e., HIMSS level 7) of demonstrated technology embeddedness (HIMSS, 2010). Sentara Healthcare is an HIMSS Level 7 designee and has won the coveted 2010 Davies Award for Excellence recipient for superlative implementation and demonstration of value from health information technology (Sentara Healthcare, 2010).

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is deemed essential for organizational transformation, but further complicated when conducted in conjunction with IS implementations (Igira and Aanestad, 2009; Avgerou and McGrath, 2007). Healthcare is one such industry in which this attempt to transform with IS is considered essential, yet most difficult, due to the lack of prescripts for effective implementation in the company of business process change as well as inhibitors, such as cost factors and institutional and social structures (Bohmer, 2010; Adler-Milstein and Bates, 2010; Angst and Agarwal, 2009).

While the US has made technological strides in many industries, as measured by the performance gauges of the Organization of Economic Cooperation and Development (OECD, 2009), it lags far behind other developed countries in terms of healthcare service quality based on indicators, such as workforce shortages, life expectancy and mortality rates, and medical complication indexes. Organizations, such as the Institute of Medicine (IOM, 2000, 2001), have recognized an association in treatment errors with the lack of patient and medical information at the point of care amidst clinician workflow. IOM and other IS supporter consortiums also prescribe the use of IS to aid in transforming medical institutions into more efficient and effective organizations (IOM, 2010; Blumenthal, 2009).

Today, in healthcare there is a plethora of disparate factions who often lack the needed information at the point of care to adequately treat and avoid life threatening errors, but, nevertheless, regularly perform processes with antiquated methods for information transfer and communication amongst stakeholders across the continuum of care (i.e., from practitioner to practitioner, practitioner to patient, and practitioner to administrator in all care environments) (American Hospital Association, 2009; Chiasson et al., 2007; Davidson and Chismar, 2007; Hillestad et al., 2005). In the US, a national strategy to promote diffusion of IS within organizations to provide necessary information to stakeholders regarding care has emerged as formalized in the "Health Information Technology for Economic and Clinical Health Act of 2009" (HITECH). As of the second quarter of 2010, only 0.8% of the 5217 US healthcare organizations have implemented a comprehensive IS that includes functionalities, such as electronic medical records, computer physician order entry, and decision support (HIMSS, 2010). National healthcare IS strategist and researchers (e.g., Angst et al., 2010; Blumenthal, 2010; Maxson et al., 2010) suggest that diffusion can be accelerated by demonstration of successful implementations in prominent healthcare organizations. This study answers this call in the healthcare context by describing how the IS implementation process has successfully impacted an organizational transformation through changes in coordination, culture, and learning.

2. IS transformation in healthcare

Mostly driven by a political agenda, the healthcare industry has recognized the importance of patient centricity, a concept that puts at center stage the patient and the associated procedural workflow. This idea theoretically moves away from the concept of a fragmented, physician-centric care delivery organization (Porter and Teisberg, 2007). However, implementing IS based on this patient-centric concept and managing the transformation is a formidable challenge organizations (Harrison and Kimani, 2009; Szydlowski and Smith, 2009; Carr et al., 2009; Day and Norris, 2007; Porter and Teisberg, 2007). In fact, IS implementations are a perturbation in any organization, whether it is a change in processes or in organizational communication and learning (Edmondson et al., 2001; Davenport, 1998). In healthcare however there are higher stakes for failure than in traditional businesses as the slightest disruption caused by the IS can have detrimental consequences (Christensen et al., 2009, 2004). The perturbation is felt more closely by the caregivers in operations who have a high degree of autonomy and can resist usage, without ramifications, if they deem the IS to pose unsafe conditions for the patient or their ability to render care (Bohmer et al., 2002). As a result, transformations with enterprise IS require extensive managerial prowess in the transformation effort (Luftman and Kempaiah, 2008; Kohli and Kettinger, 2004), typically with a focus on the social design, inclusive of emphasizing human agency, as opposed to technological determinism (Boudreau and Robey, 2005; Teng et al., 1998).

Prior research has explored some of these issues. One theme is the aligning of social structures and technology capabilities in healthcare organizational change (Reardon and Davidson, 2007; Davidson and Chismar, 2007; Chiasson and Davidson, 2004) and another theme involves changing clinician behaviors (Kohli and Kettinger, 2004; Wilcocks and Smith, 1995). But both types of studies that examine transformational efforts with enterprise IS are rather rare as it is a fairly new concept to the healthcare industry (Rahimi and Vimarlund, 2007), made evident by its laggard state (Houser and Johnson, 2008). Thus, theoretical guidance on transformational efforts via enterprise IS in the healthcare context remains sketchy and recent calls from both academia and practice support this assumption (DHHS, 2010).

Despite the lack of research, some studies have found that hospital executives are particularly interested in viewing business process reengineering as an effective tool in transformation (Christensen et al., 2004; Ho et al., 1999). Seminal IS research in business process reengineering asserts that facilitating change via technology requires the identification of strategic value, assessing the learning capacity of the organization and cultural readiness, and the inclusion of IT and knowledge sharing (Kettinger et al., 1997). IS research also states that change within the organization is influenced by managerial styles, information technology, structures, and people that ultimately impact viability of products, services, and performance (Mohrmann et al., 2009; Chiasson et al., 2007; Kettinger et al., 1997; Guha et al., 1997; Kotter, 1995; Davenport, 1993). Other research reveals that enterprise IS implementations in healthcare organizations or networks are akin to ERP implementations across integrated business units of traditional organizations (MacKinnon and Wasserman, 2009; Yoo et al., 2008). In this context, the BPCM represents a comprehensive framework in the organizational transformation literature, specific for IS implementations. Its steps, that include (1) link with strategy, (2) plan the change, (3) analyze problems in the process, (4) process re-generation, and (5) continue improvement (see Appendix A for a more detailed description), have been