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Spinning the Web of Care: Logics of IT in the Healthcare Marketplace

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ABSTRACT

In this study, we analyze the adoption of IT resources within the U.S. healthcare system from the perspective of institutional logics. We focus on the impact of adoption of EHR and other health IT on the interactions between diverse stakeholders and the values and objectives driving EHR adoption. Our findings reveal a wider range of observable institutional logics than discussed in previous research within healthcare. We see evidence of both conflicting and complementary logics in the move to an IT-intensive healthcare system. Our study calls attention to institutional logics that may unite healthcare stakeholders around a common reform vision. We also observe conflicting logics whose relative prevalence is likely to be impacted with growing EHR adoption. This research also highlights the value of framing institutional logics in a more systems-oriented fashion than reflected in previous research.

Keywords: Electronic health records, Health IT, Institutional logics, U.S. healthcare system

INTRODUCTION

The U.S. healthcare market is experiencing substantial growth in IT investment. While administrative and financial systems have been used in healthcare institutions for some time, the current IT investment growth centers on clinical systems such as computerized physician order entry, clinical decision support, and electronic health records (EHR) systems (Berner et al., 2005). For decades, researchers have emphasized the benefits that such clinical IT could foster, including reduced decision-making errors (Dick et al., 1997; Shortliffe, 1999); improved communication between diverse parties (Thompson and Brailer, 2004); improved accuracy, legibility, and completeness of documentation (Shortliffe, 1999; Varon and Marik, 2002); and quality of care improvements (Anderson, 2004; Miller and Sim, 2004).

In addition to perceived benefits, the current wave of adoption is driven by governmental promotion of clinical IT. The past two presidential administrations have emphasized expanded use of IT to address rising healthcare costs. The 2009 American Recovery and Reinvestment Act (ARRA) and the embedded Health Information Technology for Economic and Clinical Health (HITECH) Act focus on improving healthcare delivery through unprecedented investments in IT (Blumenthal and Tavenner, 2010; Steinbrook, 2009). HITECH's goal is for 90% of physicians and 70% of hospitals to use comprehensive EHR systems[1] within the decade. Recognizing that HITECH's objectives cannot be achieved by completely voluntary action, ARRA mandates implementation of EHR platforms as a condition for Medicare/Medicaid reimbursement. The legislation introduces the concept of *meaningful use* with incentives and penalties to foster compliance with this mandate (Classen and Bates, 2011; DesRoches and Miralles, 2011).

Currently, the U.S. healthcare system is a long way from achieving the HITECH goals. DesRosches et al. (2008) found that only 4% of physicians reported having a fully-functional EHR and 13% reported having a basic system. Jha et al. (2009) observed similar patterns amongst U.S. hospitals, with only 1.5% of hospitals having a comprehensive EHR system and an additional 7.6% having a basic system in at least one clinical unit. While EHR systems are considered a necessary element for improvement of the U.S. healthcare system, evidence for the benefits of EHRs is mixed. Several studies highlight perceived advantages of EHR use, such as higher clinical decision quality, improved communications with patients and

[1] The terms electronic medical records (EMR) and electronic health records (EHR) are often used interchangeably. Both include the electronic rendering of patients' medical records. While EMR generally refer to data management systems within a given organization, EHR adds the exchange of records across organizations (Garets and Davis, 2006). In light of its more inclusive framing, we employ the term "EHR" throughout this paper.

providers, avoidance of medication errors, and improved quality of medical coding (e.g., Cebul et al., 2011; DesRoches et al., 2008). However, other research notes that the observable impacts are limited (Chen et al., 2009; Linder et al., 2007) or in some cases detrimental to quality of care, because of challenges in decision-making automation (Lenz and Reichert, 2007), information overload of providers (O'Malley et al., 2010), and undermining of rapport between physicians and patients (Shachak and Reis, 2009).

As the healthcare community adopts advanced IT solutions, many questions remain regarding the impact of these technologies on healthcare delivery. Given the networked structure of the market, we must ask how the introduction of such technologies will impact local actions and systemic interactions of stakeholders. The present study explores these dynamics with our research guided by the following questions:

- What impact does the increased adoption of EHRs have on interactions between healthcare stakeholders?
- What are the values and objectives driving EHR promotion and adoption by these various stakeholders?

To address these questions, we conducted an exploratory field study of healthcare stakeholders with an eye to their IT investments and implementation and to their broader IT governance practices. In analyzing our data, we adopt an institutional logics perspective (Friedland and Alford, 1991; Thornton and Ocasio, 2008) to discern the socially-constructed practices and values that guide healthcare institutions and professionals. An institutional logics framework is employed, because the theory provides a mechanism for evaluating the ways in which values and assumptions influence organizational and institutional change over time (Thornton et al., 2005).

INSTITUTIONAL LOGICS AND HEALTHCARE

In this study, we employ the theoretical perspective of *institutional logics* (Friedland and Alford, 1991; Thornton and Ocasio, 2008). The concept of an institutional logic emerged from the broader study of *institutional theory* or *neoinstitutionalism*, which posits that organizational structures and practices are influenced by institutional forces – socially-constructed rules guiding action within an institutional context (DiMaggio and Powell, 1983; Scott, 2008). *Institutions* are understood as "supraorganizational patterns of activity rooted in material practices and symbolic systems by which individuals and organizations produce and reproduce their material lives and render their experiences meaningful" (Thornton and Ocasio, 2008: p. 101). *Institutional logics* reflect the foundational ways of thinking and acting, or belief systems, that characterize various institutions (Friedland and Alford, 1991). Thornton and Ocasio (2008) highlight several recurring characteristics of the institutional logics perspective, including embedded agency (i.e., agency of individuals embedded within a prevailing logic), the multi-level nature of analysis (i.e., logics may be analyzed at multiple social levels – e.g., individuals, organizations, industries), and historical contingency (i.e., logics change over time).

Several studies apply the concept of institutional logics to healthcare. Ruef and Scott (1998) present a study of hospital survivorship as a function of correspondence between the mission of a given organization (i.e., the prevailing logic within a hospital) and the dominant logic of the broader environment. This study was outlined in greater detail in the authors' book (Scott et al., 2000). Currie and Guah (2007) draw upon Scott et al. (2000) in analyzing conflicting institutional logics in the UK National Health Service's efforts to implement a records management and information sharing platform. In a pair of studies, Reay and Hinings (2005; 2009) analyze the dynamics of competing institutional logics within the Canadian healthcare system. They focus on the emergence of a governmentally-supported logic of *business-like health care*, which challenged the previously dominant logic of *medical professionalism*. Nigam & Ocasio (2010) combine the frameworks of institutional logics and sensemaking (Weick, 1995) to highlight the development of an institutional logic of *managed care* to compete with the dominant logic of *physician authority* (i.e., similar to *medical professionalism*) in Clinton-era healthcare reform efforts. Institutional logics and sensemaking was similarly combined by Jensen et al. (2009), who find conflicting logics of a *private sector ethos* and the typified role of doctors (again, analogous to *medical professionalism*) in a case study of an EMR system.

RESEARCH METHODOLOGY

To explore the current state of IT adoption and its impacts across stakeholder groups, we conducted semi-structured interviews with diverse healthcare professionals. The data collection employed an interview protocol jointly developed by the researchers. The protocol was designed to elicit responses to various aspects of professionals' healthcare IT experiences, including IT investment approaches, drivers for IT adoption, integration objectives, IT-based organizational challenges, and approaches to collaboration. The core protocol remained constant throughout the data collection; however, in line with constant comparison (Glaser and Strauss, 1967), some questions were added based on insights from initial interviews. Finally, respondents were encouraged to express thoughts on any topics they deemed relevant regarding IT use in healthcare.

To foster external validity of findings, we sought participation from individuals and firms in a variety of healthcare environments, including clinicians, healthcare IT managers, and information intermediaries. A total of 12 interviews were conducted. Table 1 provides a summary of professionals interviewed. The interviews were generally 1½ hours in duration. To protect the respondent confidentiality, statements from the interviews are not attributed to specific individuals/firms. We also analyzed a secondary data set of extant government documents highlighting federal health IT initiatives. The sources were deemed relevant, because they embody the objectives and logic for advancement of IT in healthcare.

Respondent Label	Gender
Elder Services IT Director 1	Male
Elder Services IT Director 2	Male
Health Service Provider 1	Male
Health Service Provider 2	Female
Health Service Provider 3	Male
Healthcare BPO Provider VP of Innovation	Female
Hospital System IT Director 1	Female
Hospital System IT Director 2	Female
Hospital System IT Director 3	Male
Rural Hospital IT Director 1	Male
Rural Hospital IT Director 2	Male
RHIO IT Director	Male

Table 1. Interview Respondents Summary

All interviews were transcribed for formal analysis. Transcripts and external sources were coded using NVivo, a qualitative analysis application. For the interview data, the protocol served as the preliminary coding structure. In line with a grounded theory approach, additional codes were created as themes surfaced in the coding process (Glaser and Strauss, 1967; Strauss and Corbin, 1990). Coding centered on a thematic analysis of the data (Boyatzis, 1998). While the analysis was conducted in line with principles of grounded theory methodology (Glaser and Strauss, 1967; Strauss and Corbin, 1990), such as constant comparison and open, axial, and selective coding, it differs from a pure grounded theory approach in that the analysis was informed by the institutional logics framework. The coding structure was iteratively revised until the researchers determined that theoretical saturation was achieved (Eisenhardt, 1989). Several of the data sources were coded repeatedly as the final coding structure emerged. The aim of this analysis was to identify distinct institutional logics and related factors with respect to the use of healthcare IT resources. In the Findings section we explore these observations in detail.

FINDINGS

The present study supports a number of key findings regarding the institutional logics employed within the U.S. healthcare market. In this section, we discuss the observed institutional logics before discussing their application by stakeholder groups.

Institutional Logics

Our analysis reveals several distinct institutional logics at play in the healthcare system. While a number of these observed logics, such as medical professionalism and economic advantage are consistent with extant research (e.g., Jensen et al., 2009;

Reay and Hinings, 2009), other logics that we discerned have not yet been identified in applications of the institutional logics perspective to healthcare environments. The key institutional logics observed are presented in Table 2.

Name	**Description** *An institutional logic…*	**Indications** *The logic is marked by …*	**Illustrations from the Data**
Boundary Spanning	… centered on the desirability of information exchange across professional, disciplinary, and organizational boundaries	…arguments for the benefits to be achieved by bridging traditional information silos	"We have social work – that's a department. We have therapy and rec – that's a department. You've got that hierarchy and that structure. We've been working for years on trying to move away from that. That's a big thing." – Elder Services IT Director 2 "[The patient data is] not stuck in the silos or the physician practice but it crawls across that – across the silos – and that information is being shared with the greater community so that it'll help the patients at the right time with the right information when it's needed." – RHIO IT Director
Community Orientation	…emphasizing shared decision-making and inter-dependence among communities of diverse stakeholders	… a focus on team structures, collaborative work, and shared responsibility for outcomes	"Our model not only transforms the physical organization, we've also redefined everyone's roles into a complete team member role where … all of the roles, social work, therapy, etc., come together in a team environment to work collaboratively." – Elder Services IT Director 2 "[Two years ago] there really wasn't enough community buy-in … Now, we're going back to all those community stakeholders and saying, 'Here's what we think we got, what do you guys think? Is this going to be effective?' and things like that." – RHIO IT Director
Compliance	… focusing on compliance with, or adherence to, regulatory and administrative requirements	… consistency with laws, governing bodies, or prevailing industry practices in evaluating IT investments	"So HIPPA guides a lot of the way things are set up. Also, the JCAHO. That is huge. That governs how we do a lot of things. It trickles down into IT. They're the king because Medicare, Medicaid, and CMS will not pay you if you're not JCAHO-certified." – Rural Hospital IT Director 1 "The [IT investment] logic goes away, because we're being pushed – we don't want to do this! We're happy with our system. But we're being pushed by the government, and the insurance companies. We think it's for them. It's not for us, it's for them." – Health Service Provider 1
Cost Control	… reflecting a consideration in IT management around the desire to reduce costs within an organization or healthcare system	… concerns about the high cost of service delivery, cost reduction through IT investment, and attention to costs of maintenance	"There's all kinds of pressure on reimbursements and lowering costs of health care. And with the government being one of the primary payers, also one of the stingiest, we have to find ways to cut costs. And try to be ahead of that curve, because there will be fallout." – Elder Services IT Director 1 "We really want to try to leverage other resources as much as possible. It's more cost effective that way for the overall environment than it is for each little hospital to run a huge integration or interfacing system." – Hospital System IT Director 2
Economic Advantage	… emphasizing return on investment (ROI) and thorough economic justification of IT investments	… invocations of efficiency, revenue generation, intellectual property, and business process innovation	"The first piece [to initiating an IT investment] would be to formulate a business case. It won't go anywhere here unless it has a business case to say what's the return on investment." – Rural Hospital IT Director 1 "And the other aspect of the sales pitch [for EHR systems] is that you'll be able to make more money. You'll make up the money by billing more." – Health Service Provider 1

Medical Profession-alism	… focusing on the role of physicians in guiding the delivery of services	… assertions of autonomy for physicians in consultation with a patient; physicians' judgment in determining treatments	"Really, this became clinically driven, more than administratively or financially because of the emphasis now on the electronic medical record. So, in the end, that really, the clinical needs and preferences were really the drivers for the decision." – Hospital System IT Director 2 "That was one of the criteria [for vendor selection] obviously, the clinical decision and support and ability to provide the information system for our physicians and clinicians was paramount." – Hospital System IT Director 2
Patient Orientation	… emphasizing the interests of patients in healthcare and health IT decision-making	… focus on patient convenience, privacy and security around patient records, and increasing the quality of care provided	"I view integration as the IT piece of the continuum of care, so the patient goes from their doctor's office to the hospital … We want to make sure that their information follows them the entire way. So that whoever is providing care has the most accurate, up-to-date information." – Rural Hospital IT Director 1 "That information is being shared with the greater community so that it'll help the patients at the right time with the right information when it's needed … You're looking at the patient care and you're looking at doing things for the greater good." – RHIO IT Director
Technical Excellence	… emphasizing the quality of technical solutions and IS designs	… concerns for the IT state-of-the-art, access to functionality, commun-ications infrastructure, and technical quality of vendor platforms	"It's the [challenges] that our internal customers really won't notice. It's not applications, it's not enhancements to their workflow. It's the nuts and bolts. It's the infrastructure. You expect everything to be on all the time working, never down, faster than heck and so, it's keeping up with those things." – Hospital System IT Director 2 "I think that it's [IT's] responsibility to offer up the best possible solutions and the department heads can decide the best way that they see fit. To be honest, I would have preferred that we do [integration] the way that we *did not* do it, just because it makes for a more isolated system." – Rural Hospital IT Director 2

Table 2. Summary of Institutional Logic Observed

Institutional Logics and Stakeholder Groups

To understand the systemic implications of the institutional logics observed, we examined the predominance of logics relative to stakeholder groups. Our respondents' comments suggest that the logics of *boundary spanning* and *community orientation* are employed by nearly every stakeholder group. All parties express interest in transcending information silos through collaboration. This emphasis is most closely associated with the information broker role, for which boundary spanning is the *raison d'etre*. For other institutional logics, their employment varies across distinct stakeholder groups. Table 3 provides a summary of patterns argued by respondents.

Stakeholder Groups	Institutional Logics Employed	Basis of Use
Government Entities	*Compliance**	*Ensuring adherence to the legal framework*
	Cost Control	*Reducing costs in the U.S. healthcare system*
	Boundary Spanning	Promoting a nationwide health exchange
	Patient Advantage	Improving public health outcomes
Healthcare Information Brokers (e.g., RHIOs)	*Boundary Spanning*	*Increasing participation in information exchanges*
	Community Orientation	Fostering collaborative decision making
	Economic Advantage	Obtaining funding streams
Healthcare Providers	*Medical Professionalism*	*Maintaining the autonomy of medical professionals*
	Patient Orientation	*Improving patient outcomes and satisfaction*
	Compliance	Ensuring adherence to the legal framework
	Economic Advantage	Maintaining funding streams
Healthcare IT Professionals	*Patient Orientation*	*Improving patient outcomes and satisfaction*
	Technical Excellence	*Developing optimal IT solutions*
	Medical Professionalism	Ensuring system use and satisfaction of clinicians
	Economic Advantage	Achieving efficiency of systems
IT Vendors	*Economic Advantage*	*Increasing IT platform market share*
	Boundary Spanning	Promoting need for advanced IT solutions
Payers	*Cost Control*	*Reducing costs of care*
	Economic Advantage	*Improving system efficiency*
	Boundary Spanning	Increasing participation in information exchanges
	Patient Orientation	Improving patient outcomes and satisfaction
* Italicizing used to indicate institutional logics primarily employed		

Table 3. Institutional Logics and Stakeholder Groups

Importantly, we observe that various institutional logics are employed in combinatorial ways by different stakeholder groups. Conflicting logics within the field (e.g., *medical professionalism* and *economic advantage*) may reflect common associations with other distinct logics (e.g., *boundary spanning*). Such patterns of combination have significant implications for the ways individuals and organizations make decisions and initiate actions regarding use of IT resources. These observations suggest the need for a systems-oriented perspective on institutional logics in the healthcare system.

DISCUSSION

This research calls attention to some critical considerations for redesigning the healthcare system through IT adoption. Most notably, such efforts should acknowledge the potential for countervailing institutional forces with IT adoption. The logics of *boundary spanning* and *community orientation* appear to have the broadest appeal, with all stakeholders perceiving value in

transcending information silos and embracing collaboration. However, the reasons for which these logics are employed (i.e., other logics *with which* respondents invoke them) vary. Some respondents argue that *boundary spanning* enhances quality of care (*patient orientation*) while others emphasize its impact on *cost control* and efficiency (*economic advantage*).

Regarding efficiency, our analysis raises some critical questions. Governmental initiatives for EHR adoption assume that data integration will engender reduced medical errors, improved access to clinical information, and better public health outcomes. Our analysis suggests that while EHRs promise greater efficiency around records management, billing, and interorganizational exchange, service providers express concern regarding the EHRs' impact on the *efficiency of treating patients*. They assert that such platforms impede the physician-patient relationship through a data-management orientation that overwhelms physicians with information of limited clinical value. These observations reinforce extant research on EHR adoption (e.g., O'Malley et al., 2010; Shachak and Reis, 2009). While EHRs may enhance efficiency of payers and administrators, they may simultaneously undermine that of physicians. The challenge for the architects of a new healthcare environment is the balancing of effective information exchange and value for physicians and patients.

Consistent with earlier research (Nigam and Ocasio, 2010; Reay and Hinings, 2005), we find evidence of conflict between the logics of *medical professionalism* and *economic advantage*. While some research suggests that these conflicting logics can co-exist (Reay and Hinings, 2009), it is reasonable to ask whether and how adoption of EHR platforms will impact the relative position or prevalence of the two logics. Our observations suggest that EHR adoption may inadvertently augment the logic of *economic advantage* and undermine that of *medical professionalism*. The issue for healthcare professionals and public policy makers is that this potential shift should be evaluated explicitly, so that the complete impacts of increased IT adoption on healthcare outcomes are recognized.

Finally, institutional logics research in healthcare has focused on competition or co-existence between two prominent logics (e.g., medical professionalism vs. business-like healthcare; Reay and Hinings, 2009). Our analysis suggests that a dichotomous view of institutional logics obscures the dynamic interplay of assumptions, values, and organizing principles within the healthcare system. Within a single business unit, organization, or industry, multiple logics are intertwined to support the actions of groups. An institutional logic of *boundary spanning* can be variously supported by other logics, such as *economic advantage*, *cost control*, and *patient orientation*. The question then remains: How can we pursue a more nuanced understanding of the interplay of institutional logics in healthcare? Such a pursuit will be a core focus as we extend this research.

Limitations

We believe our analysis provides an insightful exploration of institutional logics in U.S. healthcare, however limitations should be acknowledged. First, the research aims for analytical generalizability (Eisenhart, 2008) rather than probabilistic generalizability. Yet, the degree to which our respondents are representative of the healthcare field is a valid question. We sought to enhance external validity by fostering participation from multiple stakeholder groups in the evolving healthcare system, rather than focusing on one class of respondents. Secondly, as an interpretive analyses, this research reflects a "double hermeneutic" process (Giddens, 1984). As a result, we are two stages removed from the phenomena that we analyze. We have sought to mitigate this limitation by incorporating documentary review of artifacts (i.e., reports) in the study.

CONCLUSION

In this study, we analyzed the adoption of IT resources within the evolving U.S. healthcare system using the perspective of institutional logics. Specifically, we focused on the impact of increased EHR and other health IT adoption on the interactions between diverse healthcare stakeholders and the values and objectives driving EHR adoption. Our findings reveal a wider range of observable institutional logics than discussed in previous research on the healthcare field. We see evidence of both conflicting and complementary logics in the move to a more IT-intensive healthcare system. This research offers a number of significant contributions. In healthcare, our study calls attention to institutional logics (e.g., *boundary spanning* and *community orientation*) that may unite diverse healthcare stakeholders around a common vision of reform. We also observe conflicting logics (e.g., *medical professionalism* and *economic advantage*) whose relative prevalence is likely to be impacted with growing EHR adoption. Beyond the healthcare domain, this research highlights the value of framing institutional logics in a more systems-oriented fashion than reflected in previous research.

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