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IT OUTSOURCING SUCCESS IN HEALTHCARE INDUSTRY: BUILD YOUR CAPABILITIES ON MULTIPLE FRONTS WITHIN THE INSTITUTIONAL FRAMEWORK

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Abstract

In this manuscript we report the findings from an in-depth case study about the factors that determine IT outsourcing success in the healthcare industry. Healthcare organizations in Taiwan are faced with increasing institutional pressures in the forms of hospital accreditation systems and national insurance program requirements. We found that organizations appeared to have adopted similar outsourcing practices under institutional pressures. However, whether or not an organization could successfully implement an outsourcing decision depends on the organization's IT capabilities, governance capabilities, and capabilities to manage its relationship with the vendor. Research implications of these results are discussed.

Keywords: IT outsourcing, healthcare industry, institutional pressures, capabilities

Introduction

The phenomenon of IT outsourcing has attracted wide research attention in the past two decades [1] [2] [3] [4]. Previous researchers have applied various theories to explain why organizations outsource their IT functions, what IT functions tend to be contracted out, how outsourcing decisions are implemented, and how outsourcing choices affect business processes and outcomes [1]. Despite the abundant literature, the previous research on IT outsourcing has far from been conclusive. This is partly because the phenomenon itself is continually evolving and new issues keep coming up. For example, while outsourcing started as a cost-reduction tool, it now has evolved into an important component of a firm's overall business strategy [5]. Previous research has been limited also because relatively fewer studies have examined what happens after the outsourcing deal is arranged. In their extensive review, Dibbern and colleagues [1] suggested that a major gap in the previous research is the relative lack of attention to the relationship between the client and the vendor. Another gap is the lack of research on the effects of industry- and country-level factors on IT

outsourcing patterns and outcomes.

To address these gaps, this study explores the relationship between the client and the vendor in IT outsourcing implementation. Using in-depth qualitative data collected from two hospitals in Taiwan, we intend to answer two questions:

(1) In the heavily regulated healthcare industry, how do institutional pressures in the forms of laws, government regulations, and professional standards influence companies' IT outsourcing decisions?

(2) What types of capabilities does a healthcare organization need to have in order to ensure successful outsourcing implementation?

We draw upon the discussions about organizational capabilities and client-vendor relationships [4] [6] [7] [8] as well as the case findings to develop a capability-based model of outsourcing success. We argue that three types of organizational capabilities (IT capabilities, governance capabilities, and relationship management capabilities) work together to contribute to outsourcing success. That is, success depends on the organization's abilities to understand the strategic implications of IT functions, select qualified vendors, monitor vendor behavior through well-designed outsourcing contracts, and maintain smooth work relationships with the vendor(s). We also argue that institutional forces in the healthcare industry may lead to increasingly homogenous outsourcing decisions (a result of the legitimacy-seeking and imitation processes), but whether or not those outsourcing decisions can be successfully implemented largely depends on the extent to which organizations possess the above-mentioned key capabilities. While most previous studies have focused on how the characteristics of an IT activity may influence outsourcing mode and degree, we suggest that the capabilities of the organization that carry out those IT activities are equally important for understanding the processes and results of IT outsourcing.

The rest of this paper is organized as follows. The next section provides a brief review of the relevant literature. We then describe the empirical

setting – Taiwan’s healthcare industry, with a focus on hospital information system (HIS) development and outsourcing trends. This is followed by a description of the cases used in the study. Critical findings emerging from our analysis are reported. The last section is devoted to the implications of the findings.

Theoretical Background

Chaudhury, Nam and Roa [9] defined IT outsourcing as “the contracting of various information systems’ sub-functions by user firms to outside information systems vendors.” Dibbern et al. [1] proposed a two-stage model of IS outsourcing in which the decision process (Phase 1) is related to three issues – why, what, and which to outsource, and the implementation stage (Phase 2) is related to the how issues and outcomes of outsourcing. Early studies placed an emphasis on the phase one issues, particularly the determinants of the outsourcing choice (“make or buy”) and the degree of outsourcing (total vs. selective). This stream of research has been greatly influenced by transaction cost economics (TCE) [10] and, to a lesser degree, by institutional theory [11] [12]. Recent studies, in comparison, have paid more attention to the phase two issues, e.g., implementation processes of outsourcing decisions. Rather than focusing on the IT- and institutional-level factors, this stream of research suggests that implementation effectiveness is largely a function of organizational and interorganizational factors, including the organization’s resource base/capabilities and the relationship between the client and the vendor. The predominant theoretical perspectives in this line of research include the resource-based view of the firm (RBV) [2] [13] [14] and various relationship theories emphasizing cooperation, communication, and trust [15] [16]. In the following paragraphs, we will review the main arguments derived from these theories and discuss the gaps that have not yet been addressed in previous outsourcing research.

Transaction cost economics (TCE)

Assuming that the parties to an economic transaction are both boundedly rational and opportunistic, TCE proponents argue that for certain types of transactions, the market mechanism may fail and organizations will choose to “make” certain products rather than “buying” them on the free market. Transaction costs refer to the effort, time, and costs incurred in searching, creating, negotiating, monitoring, and enforcing a contract between buyers and suppliers [17]. Three key features of a transaction, asset specificity, uncertainty, and frequency, are associated with high transaction costs and hence making it impossible

for transaction parties to reach a “complete contract.” Applied to the outsourcing context, TCE predicts that IT functions / activities highly specific to the firm’s business operations will be less likely to be outsourced to external vendors because high asset specificity of these activities leads to high transaction costs, making it difficult to protect the client’s interests with effective contractual terms and conditions [18]. Similarly, organizations are less likely to outsource IT activities characterized by technological, measurement, and demand uncertainty [19] [20]. Finally, TCE suggests that organizations are less likely to outsource IT activities frequently taking place in daily operation in order to avoid contracting risks. Overall, TCE presents a set of IT function-level factors that determine the organization’s choice between outsourcing and in-house IT development.

Institutional theory

Institutional theory focuses on explaining the homogeneity of organizational forms and practices in organizational fields [12]. Different from the theoretical approaches emphasizing organizational-level and IT-function-level determinants of outsourcing, institutional theory suggests that forces originating from the organization’s external business and institutional environments will influence the ongoing patterns of organizational activities. Such external constituents as regulatory agencies, the media, trade associations and other stakeholders place pressures on the organizations to adopt “legitimate” practices. Since organizations care about their image and reputation, they will tend to follow peer organizations’ successful practices or adopt management methods appealing to outside stakeholders. Over time, organizations operated in the same field (e.g., the same industry) may become increasingly similar to each other in their structures and strategies. Relatively few studies have explored the effect of institutional forces on outsourcing, but it has been widely acknowledged that Kodak’s 1989 decision to outsource its IT function “legitimated” outsourcing as an acceptable, even fashionable, practice [1]. In their study on IS outsourcing in the U.S. banking industry, Ang and Cummings [21] found mixed support for institutional theory. Consistent with institutional theory, they found that federal regulators exerted substantial influence on bank practices and operations. Since the regulators conduct periodic examinations to ensure that banks conform to rules, e.g., rules about the bi-annual audit of banks’ electronic data processing practices, banks respond to these institutional pressures by adopting similar IS practices. When institutional pressures came from peer banks, however, banks responded less to

these pressures but more to internal transaction cost concerns. These authors also found that large banks were less subject to institutional pressures than were small banks. These findings indicate the necessity to consider the external/institutional factors and the internal/organizational factors simultaneously, which may be particularly relevant in highly regulated industries.

Resources and capabilities

The RBV considers an organization as a collection of resources or capabilities [2]. Barney [13] suggested that persistent superior performance can be attributed to the possession of valuable and rare resources that are difficult to imitate and for which there are no substitutes. Whereas resources could include both tangible and intangible assets, capabilities are defined as the capacity to deploy resources using organizational processes [22]. In the outsourcing context, researchers have proposed different typologies of organizational capabilities and linked them to outsourcing success. For example, Feeny and Willcocks [23, 24] identified eight core IS capabilities in four areas: business and IT vision (ability to integrate IT with business strategy), IT development skills, delivery of IS services (capabilities to implement information systems and to deal with vendors / customers) and IS leadership and informed buying. Informed buying, essentially, refers to capabilities to design and manage a contract and create a shared knowledge base for managing outsourcing relationships among vendors, users, and IS staff members. In other words, effective outsourcing implementation also depends on governance capabilities, or capabilities to control the contracting process and to monitor vendor behavior [8], and relationship management capabilities that enable the client to see beyond the contractual conditions and to create a positive dynamic cooperative relationship with the vendor in the post-contract process.

Client-vendor relationship studies

Various models regarding the client-vendor relationship dynamics have been proposed. These models share a common argument, that is, legal outsourcing contracts are imperfect and the ultimate success depends on the abilities of the client and the vendor to develop a flexible, trust-based long-term relationship [7]. Many researchers have conceptualized the key elements of the client-vendor relationship from a sociopsychological perspective. For example, Lee and Kim [7] proposed a model based on behavioral-attitudinal theory in which two sets of relationship-specific variables affect outsourcing success. Three behavioral variables (shared

knowledge, mutual dependency, and organizational linkage) are proposed to influence outsourcing success through three psychological variables (perceived mutual benefits, perceived commitment, and perceived predisposition). Essentially, their model suggests that sharing behaviors displayed by the client and the vendor facilitate the formation of positive attitudes towards their relationship, which in turn, determine outsourcing success. Kern and Willcocks [15], by comparison, distinguished between two relationship focuses – contractual and embeddedness. Moreover, they suggested that, over time, the client and the supplier are engaged in cooperative behaviors in their daily interactions.

We argue that these theoretical approaches offer complementary rather than conflicting explanations for successful implementation of outsourcing decisions. They examine the influential factors at different levels of analysis (environmental, organizational, IT functional, and dyadic / relational) and can be integrated into a dynamic model of IT implementation. To explore this theoretical possibility, we conducted an in-depth case study on two Taiwan-based hospitals. The design of the study and the key findings are reported as follows.

Empirical Setting and Research Methods

Advanced information technologies are dramatically changing the way healthcare organizations are operated. In general, hospital information systems (HIS) consist of two primary classes of systems, administrative and clinical [25]. The former stores administrative and financial data related to personnel management, accounting and billing, and other operational matters. The latter stores clinical information used for diagnosing and treating a patient. In Taiwan, hospital information systems (HIS) started in the 1990s with administrative applications such as patient billing and accounting processing and gradually expanded to include clinical applications in the 2000s. Nowadays, HIS have grown into large, comprehensive and complex systems that support both daily hospital operations and critical management decisions.

In recent years, many healthcare organizations have increasingly relied on IT outsourcing to control costs and improve patient service quality. But it is worth noting that IT outsourcing in the healthcare industry has been driven not only by the cost-benefit considerations but also by increasing institutional pressures from government agencies. The laws, rules, and accreditation standards issued by the government directly affect the types of healthcare information

systems that most healthcare organizations maintain to ensure patient confidentiality and legal compliance [25].

Changes in governmental regulations have greatly impacted IT outsourcing in Taiwan's healthcare industry. Several major policy changes have occurred in the past two decades. In 1988, all healthcare organizations went through a comprehensive accreditation process monitored by the Department of Health. The system applied to two types of hospitals: general hospitals and teaching hospitals. Each type of hospitals was further classified into three groups: medical centers, regional hospitals and area hospitals. In 1999, the Taiwan Joint Commission on Hospital Accreditation (TJCHA) set up a reformed joint hospital accreditation system, under which all hospitals are evaluated against a set of predefined quality standards every three to four years.

Besides the hospital accreditation system, hospitals in Taiwan are operated under another important institutional framework: the National Health Insurance (NHI) Program, which was launched in 1995. The NHI program provides the public equal access to medical care. The Bureau of National Health Insurance (BNHI), the government agency in charge of health insurance, reimburses hospitals for services using a cost-based reimbursement methodology. All citizens of Taiwan and foreigners who have lived in Taiwan for more than four months are required to join the NHI. Note that a hospital's accreditation rating is related to the amount of medical insurance payment it can obtain from the BNHI. A higher-ranked hospital will be reimbursed more for its service. Faced with the same accreditation and insurance regulations, hospitals in Taiwan have developed similar management practices, including approaches to IT outsourcing.

Since very few studies have examined the IT outsourcing issues in Taiwan's healthcare industry, we chose a case study method in order to gain an in-depth understanding of the factors affecting outsourcing decisions and implementation. Two hospitals (labeled "Hospital A" and "Hospital B" thereafter) were selected as our research sites. Both hospitals had been actively involved in IT outsourcing for more than 10 years. Data were collected from various sources including historical documents, interviews and direct observations. We interviewed a group of top management team members, IT managers and IT professionals in each hospital. Each interviewee was interviewed at least twice and the interviews lasted from 40 minutes to 2 hours.

Research Findings

Hospital A

Table 1 provides a summary of outsourcing history in Hospital A. This hospital was founded by a Christian missionary in 1954. As described on its website, the hospital's mission is to "actively serve the minority groups and provide necessary care to those in need to fulfill the calling from God." Its 14-member MIS department had 3 sections responsible for software development, infrastructure and maintenance and support respectively. The software section was in charge of development and implementation of HIS. The infrastructure section was responsible for the operation of server, network, telecommunication and associated infrastructure maintenance. The support group was responsible for database management, user support, and PC-based maintenance.

The development of HIS in Hospital A had experienced three phases. In the 1987-1994 period, the hospital installed its first-generation HIS with the focus on accounting and billing applications. The HIS was established in response to the newly launched hospital accreditation system. Its application was limited, only basic patient demographic information and health provider information was collected. The second phase lasted approximately 5 years (1994-1999). The focus of HIS development was to meet the requirements of the BNHI. Since the hospital must file monthly cost reports with the BNHI, the management team realized the need to automate both accounting and clinical information systems. Consequently, a second-generation HIS was introduced in 1996, which was dedicated to patient billing and NHI-related reporting. This HIS was eventually expanded upstream to the patient registration/the medical record departments and downstream to the pharmacy. An automated telephone registration system was added. In 1998, a hospital-wide office automation system was put into use.

In 1999, the 2nd-generation HIS appeared to have reached its maximum capacity. At the time, more and more hospitals started to install the computerized physician order entry (CPOE) system at physician clinics and in hospital wards. Following this trend, Hospital A made the development of the CPOE system its top priority. As a result, the hospital introduced its third-generation HIS in 2000, with a focus on the outpatient CPOE system. Physicians were able to enter the diagnosis and treatment data directly into a computer. The implementation of the 3rd-generation HIS was also driven by two institutional changes. One, the BNHI began to use NHI IC cards in 2004, which enabled hospitals to track a patient's medical history. Two, a new 3-year hospital accreditation system was initiated in 2005.

Given these changes, Hospital A decided to implement a more comprehensive HIS.

Hospital A outsourced the development of its 1st- and 2nd-generation HIS totally to outside vendors. The first outsourcing contract was signed in 1987. The hospital's MIS department "found" the vendor based on informal recommendations by some IT professionals working in other organizations. In 1995, the department decided to outsource the 2nd-generation HIS to the same vendor. Although the two companies had worked well together in their first outsourcing deal, unexpected problems occurred the second time. Hospital A encountered difficulties with the automatic medication dispensing system designed by the vendor. The machine failed to pass the inspection test. Worse, the hospital's engineers suspected that the vendor provided a used rather than a brand-new machine. Unfortunately, the two parties had only signed a very short, simple contract before getting into the outsourcing deal. What actually happened was nowhere specified in the contract and the relationship between Hospital A and the vendor became intense. The case ended up in court and turned out to be "lose-lose" situation for both parties.

After this negative experience, Hospital A became more cautious when deciding to outsource its 3rd-generation HIS. Two changes took place. First, instead of developing a customized system (as it did in the cases of 1st- and 2nd-generation HIS), the hospital decided to purchase the source codes of custom packages that had been implemented by other hospitals. Second, a much more rigorous vendor search procedure was used and the contract terms and conditions were carefully worded with a special section about dispute resolution. Once the second vendor was selected, Hospital A asked the vendor to modify the source codes purchased from a similar hospital according to its own business needs. This outsourcing deal was successfully completed.

Hospital B

This hospital was founded by a Buddhist charity organization in 1986 with a mission to persist the life-respect principles in the spirit of Buddhism, practice medical care of patient-orientation. Table 2 describes the hospital's HIS development and outsourcing history. Its MIS department employed 18 professional, who were in charge of four functions – healthcare systems development, administration application, system control, and auditing & performance. In terms of HIS development, Hospital B had followed a similar path as Hospital A, moving from 1st-generation HIS, 2nd-generation HIS to 3rd-generation HIS.

But there were some noticeable differences

between the two hospitals. First, Hospital B was larger than hospital A with a greater number of hospital beds and more budgets, although its history was shorter than Hospital A. Second, the examination of the educational and career backgrounds of Hospital B's MIS staff members revealed that this hospital employed more experienced IT professionals. Third, different from Hospital A that took little time to do a pre-outsourcing situation analysis (particularly in its first outsourcing deal), Hospital B took effort to evaluate the existing hospital processes from the beginning. For example, before introducing the 2nd-generation HIS in 1998, the MIS Director first implemented a smaller pilot system in the Chinese Medicine Department in 1996. This pilot run enabled IT professionals to get familiar with the new system and to identify potential problems without causing significant trouble.

Implications for Future Research

Several observations emerged from our study. We briefly summarize the common themes as follows.

Effect of institutional pressures

Healthcare organizations in Taiwan are faced with increasing institutional pressures on standardizing and automating their operational procedures. Even some hospitals (e.g., Hospital A) might not feel ready to install advanced IT systems, they were pressured to jump on the IT-bandwagon and outsourcing became a popular practice used for meeting the institutional requirements. Note that institutional pressures may have a direct impact on the organization's decision to outsource, we will discuss in the next paragraphs that institutional factors may not be related to outsourcing success. For future research, we propose the following:

Proposition 1: Institutional pressures imposed by regulatory agencies are positively related to the healthcare organizations' likelihood of adopting IT outsourcing.

Effect of IT capabilities, governance capabilities, and relationship management capabilities

Our case findings indicate that successful outsourcing implementation is primarily a function of the organization's IT capabilities. Hospital B had stronger IT capabilities than Hospital A, other things being equal. Although Hospital B still needed to seek outside vendors' help, it was better prepared than Hospital A before going out to search for a vendor.

Moreover, consistent with Mayer and Salomon's findings [8], this study shows that IT capabilities actually had a positive relationship with governance capabilities, defined as the ability

to identify qualified vendors, evaluate vendor proposals, write contracts, and monitor vendor behaviors. Governance capabilities can be developed through experience and can also take the form of formal processes. In our study, Hospital A had learned from its experience of contract failure.

It was able to develop a more rigorous vendor selection and evaluation procedure, which led to outsourcing success.

Table 1. Summary of IT Outsourcing in Hospital A

Category	Hospital Information Systems		
	1stG-HIS	2ndG-HIS	3rdG-HIS
Outsourcing approach	Developed externally and maintained in-house	Developed externally and maintained in-house	Modified externally and maintained in-house
Type of application system	Customized systems	Customized systems	Custom package solution (purchase of source code)
Type of governance mode	Technical supply	Business service Technical supply	Business service Technology partnering
Decision Phase			
Motivation	<ul style="list-style-type: none"> ■ External - Few vendors available ■ Internal - Lack financial and human resources - Technical capabilities - Risks 	<ul style="list-style-type: none"> ■ External - NHI program - Few vendor available ■ Internal - Lack financial and human resources - Technical capabilities - Risks 	<ul style="list-style-type: none"> ■ External - More vendor available ■ Internal - Lack financial and human resources - Risks
Strategic focus	Cost efficiency	Access to technical skills Cost efficiency	Focus on core IS activities Process improvement
Scope	System development and enhancement (useful commodity)	System development (critical commodity)	System development (critical differentiator)
Outsourcing arrangement	<ul style="list-style-type: none"> - Selective outsourcing - Single vendor - Contract-out 	<ul style="list-style-type: none"> - Selective outsourcing - Single vendor - Contract out 	<ul style="list-style-type: none"> - Selective outsourcing - Multiple vendors - Contract out
Implementation Phase			
Evaluation	<ul style="list-style-type: none"> - Criteria: reputation and experience - Process: word-of-mouth from peer hospitals - Capability: technical capability and Informed buying 	<ul style="list-style-type: none"> - Criteria: established trust based on prior positive experience - Process: no detailed evaluation - Capability: technical capability, contract monitoring 	<ul style="list-style-type: none"> - Criteria: reputation and experience - Process: site visit and detailed evaluation - Capability: technical capability, Informed buying, contract monitoring
Contract	- Standard contract (project-based)	- Loose contract (project-based)	- Detailed contract (project-based)
Conflict resolution	No major conflict	<ul style="list-style-type: none"> - Negotiation - Court arbitration 	Negotiation

Table 2. Summary of IT Outsourcing in Hospital B

Category	Hospital Information Systems		
	1stG-HIS	2ndG-HIS	3rdG-HIS
Outsourcing approach	Developed externally and maintained in-house	Developed externally and maintained in-house	Developed in-house
Type of application system	Customized systems	Customized systems	Customized systems
Type of governance mode	Technical supply	Business Alliance Technology Partnering	Technology Partnering
Decision Phase			
Motivation	<ul style="list-style-type: none"> ■ External - Few vendors available - Peer hospital ■ Internal - Lack financial and human resources - Lack technical capabilities 	<ul style="list-style-type: none"> ■ External - NHI program - Few vendor available ■ Internal - Human resources with moderate technical capabilities - Risks 	<ul style="list-style-type: none"> ■ External - More vendor available ■ Internal - More human resources with strong technological capabilities - Risks
Strategic focus	Cost efficiency	Business restructuring and expansion Technology leadership	Technology leadership
Scope	System development and enhancement (useful commodity)	System development (critical differentiator))	System planning and consulting (critical differentiator)
Outsourcing arrangement	<ul style="list-style-type: none"> - Selective outsourcing - Single vendor - Contract-out 	<ul style="list-style-type: none"> - Selective outsourcing - Single vendor with several subcontractors - Contract out 	<ul style="list-style-type: none"> - Mostly insourcing
Implementation Phase			
Evaluation	<ul style="list-style-type: none"> - Criteria: reputation and experience - Process: word-of-mouth from peer hospitals - Capability: technical capability and Informed buying 	<ul style="list-style-type: none"> - Criteria: global reputation - Process: no detailed evaluation and no open bidding - Capability: technical capability, contract management and vendor development 	<ul style="list-style-type: none"> - Criteria: reputation and experience - Process: site visit and detailed evaluation - Capability: technical capability, Informed buying
Contract	Standard contract	Mixed contract	Standard contract
Conflict resolution	No major conflict	Negotiation Payment delay	Not applicable

Hospital B's case calls for attention to the performance implications of relationship management capabilities. Besides formal contracts, Hospital B also relied on constant interactions with the vendor in the process of implementing

outsourcing. Regular information exchange and knowledge sharing keep both the client and the

vendor on the same page. Problems, if any, can be identified as early as possible. Conflicts and disputes can be resolved in less costly ways. Based on these

observations, we propose the following:

Proposition 2a: IT capabilities, governance capabilities, and relationship management capabilities each will have a positive direct effect on outsourcing success in healthcare organizations.

Proposition 2b: The three types of capabilities may have an interaction effect on outsourcing success in healthcare organizations.

Conclusions

This study reports qualitative findings from two healthcare organizations. Admittedly, the study has some limitations (e.g., limited generalizability of the findings). But by closely examining the historical patterns of IT outsourcing in the case hospitals, we expect to draw a distinction between the determinants of outsourcing choice and the determinants of outsourcing success. Results show that institutional changes significantly influence healthcare organizations' IT outsourcing practices, but it is the organization's capabilities to manage the IT function in question, the contract, and the social relationship with the vendor that ultimately affect outsourcing success. Future research is needed to further examine the direct and interaction effects among the institutional and capabilities factors.

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