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3F. A Dynamic Model of Decision-making in the IS/IT Outsourcing Process: A Case Study from a Government-supported Project

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Abstract

The IS/IT outsourcing process is complex and the outcome is unpredictable, especially in the varied participants, complicated social and political environments. Prior research on IS/IT outsourcing decisions simply assumed the rational, comprehensive, independent decision-making activity is not descriptively accurate and perhaps thus cannot be prescriptively useful in this complex environment. To get deeper understandings of the decision-making in the IS/IT outsourcing process, this research creates a dynamic model to illustrate the complex phenomenon. In-depth case study methodology and process-oriented analysis strategy were used to interpret a government-supported, outsourced IS project. This study indicates that decision makers should regard the IS/IT outsourcing process as a continuous, integral process in context and consider the structural influence, antecedent conditions, and future impact in every decision episode. This paper provides an initial insight by studying IS/IT outsourcing decision-making through dynamic and process perspective.

Keywords

IS/IT Outsourcing Decisions, Decision-making Process, and Dynamic Perspective.

1. Introduction

Since 1990, IS/IT outsourcing has become a key approach for managing IT. The Gartner Group has estimated that the market for outsourced IT services reached \$280 billion in 2005 and will expand to \$410 billion by 2007. However, there are considerable intractable and unforeseen risks in outsourced IT projects (Taylor 2006), and making decisions therein is complex and unpredictable.

Much of the research on IS/IT outsourcing decision-making uses economic theories (i.e., transaction cost, resource dependence, agency cost theories) or critical success factors to solve outsourcing motivation, scope, performance or insourcing/outsourcing “problems” (Lacity and Willocks 1995; Watjatrakul 2005). These studies have derived largely from economists’ view of “rational” decision-making. They assume the decision maker is a rational economic man (Simon 1947) who can plan comprehensively, decide independently, and make the value-maximizing choice. Most of all, they illustrate a single perspective from outsourcing clients, while excluding the vendors’ views. Ironically, more and more research shows that outsourcing activities are influenced by institutional, social-political environment or organizational structure constraints (Allen et al. 2002; Ang and Cummings 1997; Loh and Venkatraman 1992). Thus, the concepts which portray IS/IT outsourcing as a rational, comprehensive, independent decision-making activity are not descriptively accurate and perhaps not even prescriptively useful in this complex environment. A more dynamic view of decision-making is needed to illustrate real situations (Pettigrew 1990). To get a deeper understanding of IS/IT outsourcing decision-making, this paper explores the concepts of dynamic views from strategic choice literature, then creates a dynamic model of IS/IT

outsourcing decision-making. Next, the authors discuss the research approach and methodology. Then, the case data is illustrated and analyzed using the dynamic model. Finally, conclusions and discussions are drawn in the last section.

2. The dynamic model of decision-making in IS/IT Outsourcing

Although most strategic choice literature still focuses on rational choice modes, it has been the target of sustained criticism for over four decades. Neo-classical economic assumptions lie at the heart of rational choice models. They are predicated on the supposition that individuals normally act as maximizing enterprises; decisions are thought to be arrived at by a step-by-step process, which is both logical and linear. These models also assume that if individual managers make rational decisions, the decisions made by groups within organizations will be equally rational and if they behave in accordance with rationality, then little or no interference is required. Simon (1945) was one of the earliest authors to provide a comprehensive critique of the limitations of rational choice models. Simon asserts decision makers' own limited cognitive capacities rendered them unable to make rational decisions. Simon's work focused on 'limited rationality', but since then, more studies have moved from 'rationality' to more practical and dynamic views. In response, we summarize to three dynamic perspectives from strategic choice literature, then create a dynamic model that can help us to enhance our understandings of decision-making in the IS/IT outsourcing process.

First, many researchers have pointed out that decision-making may be seen more accurately as a game of power in which the decisions are negotiated outcome (Murray 1978; Wilson 1982). Murray (1978) argued that decision makers rarely have the power to make major decisions totally independent of others and that organizations experience a variety of pressures stemming from coalitions of interest groups with different goals. The study showed that the management teams of government-regulated electric utility companies, though intending to be rational, were subject to resistance and revision through a protracted process of negotiation and bargaining with numerous external parties. Wilson (1982) described a chemical organization's generation of electricity, in which the focus shifts from economic criteria to the decisions makers' career aspirations. The author portrays decision making as a result of power exertion which serves localized interests, often at the expense of other conflicting interests. These studies indicate that decisions are negotiated by internal or external interest groups.

Few studies on IS/IT outsourcing activities or decision-making discuss the negotiated outcome of decisions, but some implicate the possibilities. Lacity and Willcocks (1995) analyzed 61 sourcing decisions and found that participants in part based decisions on personal political agendas rather than on economic efficiency, but the authors did not describe how the political concerns influenced the outcomes. Recently, more and more literature is focused on social reciprocity, trust, long-term relationships and interactions between outsourcing clients and vendors (Kern and Willcocks 2002; Sabherwal 1999; Willcocks and Choi 1995), but neglects the impact of conflicting interests. According to the aforementioned strategic choice literature and implications of IS/IT literature, we believe that negotiated outcome is a relevant theme for interpreting the IS/IT outsourcing decision-making process.

Next, some literature argues that decision-making is context-dependent. Decision makers operate in organizational contexts where deeply rooted shared cultures, ideologies convictions or social-political environments influence their decisions (Langley et al. 1995; Pettigrew 1990). Mintzberg et al. (1976) noted environmental events that strongly influenced

the pace or direction of decisions. For example, a decision on a retirement policy was influenced by a recession, and the acceptance of a new form of medical treatment was influenced by an accusation of malpractice. Miller et al. (1996) further points out that decision-making model are influenced by societal culture or ideologies. For example, decision making in Asia tends to be more centralized because of higher regard for status-based authority or family position. In summary, the contextual dependence perspective places the decision-making process in a context that includes not only internal context, but also the external context of the organization (Pettigrew 1990).

Past literature on IS/IT outsourcing also shows that institutional environments (i.e., 'Kodak Effect', sector IT intensity), social-political environments, peers and federal regulators or internal structures influence outsourcing adaptations or successful implementation (Ang and Cummings 1997; Barthelemy and Geyer 2005; Loh and Venkatraman 1992). Linking the strategic choice and the IS/IT outsourcing literature, we conclude that making decisions in IS/IT outsourcing is dependent on its specific internal and external context.

Third, Langley et al. (1995) argues that decisions in real organizations are not seen in isolation, but interlinked with other decisions into "issue streams" that evolve dynamically over time. That means previous decisions may become the 'rules of game' that impact subsequent decisions, and these decisions are intertwined. Butler (1990:14) described similar ideas, "*Decisions are made within a context and help to influence the context for future decisions. The output from decision 1 forms part of the input for decision 2*". We name this concept "interwoven decisions" to describe how different decisions are interlinked and impact each other in the IS/IT outsourcing process.

Following the above illustrations, we create a dynamic model of IS/IT outsourcing decision-making (see Figure 1 & key concepts in Table 1). Through this model, we can interpret and understand the complex and dynamic outsourcing process.

3. Research Methodology

To understand the complex decision-making process in IS/IT outsourcing, our research strategy was to seek in-depth case study data that could give further insights. For this, we contacted an organization that had struggled to close a government-subsidized outsourced project in three months. We chose this outsourcing project for two reasons. First, it was subsidized by the government, which meant it was exposed to influences from policies, interest groups, participants and other social-political factors. Second, it was a strategic transformation project that involved every department's future business model and aroused their concern. The objective of a single in-depth case study is not to generalize but rather to get deeper understandings of specific phenomenon (Yin 1994). We expect this methodology can result in more insights into IS/IT outsourcing decision-making processes.

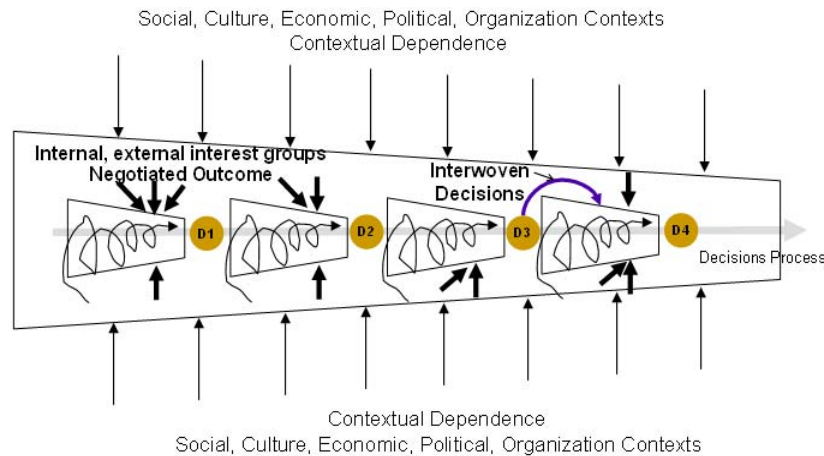


Figure 1: The dynamic model of the IS/IT outsourcing decision-making

Concepts	Key Points	Literature
Negotiated Outcome	<ol style="list-style-type: none"> 1. Decision makers do not make decisions independently or achieve the value-maximizing objective. 2. Decisions are negotiated via internal or external interest groups. 	Miller et al. 1996 Murray 1978 Wilson 1982
Contextual Dependence	<ol style="list-style-type: none"> 1. 1. Decision makers are influenced by environmental factors or organizational structures. 2. 2. Decisions are situated in specific internal or external context. 	Langley et al. 1995 Mintzberg et al. 1976 Miller et al. 1996 Pettigrew 1990
Interwoven Decisions	<ol style="list-style-type: none"> 1. Decisions are not isolated but interlinked with earlier decisions. 2. Previous decisions may become the 'rules of game' that impact subsequent decisions. 	Butler 1990 Langley et al. 1995 Pettigrew 1990

Table 1: Three concepts in the dynamic model of the IS/IT outsourcing decision-making

To collect data, semi-structured questions were addressed to the participants, including project managers, programmers, and vendors' representatives to ask questions that allowed them to provide their own interpretations of their decisions, decision considerations and their interactions with other participants. Moreover, we gathered the request for proposal (RFP), the proposal, function specifications, meeting minutes, tape records and emails as the triangulation data (Yin 1994).

For analysis, we adopted interpretive and process-oriented analysis approaches. Using the interpretive approach, we could interpret the decision makers' meanings and decisions in a specific context (Klein and Myers 1999). Adopting the process-oriented approach, we could examine how one decision leads to changes in the context that will affect decisions in subsequent periods (Langley 1999). Thus, we conducted the following steps: 1. Built a dynamic model and key concepts as the themes using strategic choice literature (see Figure 1 & Table 1). 2. Analyzed interview transcripts and identified the decision episodes and phases. 3. Triangulated across sources. 4. Interpreted and mapped the themes and decision episodes. 5. Discussed, challenged, and modified the categories (see Table 2) until the two authors achieved consensus.

Following Langley's "Temporal Bracketing Strategy" (Langley 1999), we separated seven decisions into different project phase and then illustrated the decisions, decision makers'

interpretations, interactions and contexts in the next section. Next, we used three themes from the dynamic model to analyze the decision-making process.

4. Decision making in the outsourced project

4.1 Case Background

This case was a Taiwan government-supported project that subsidized Company A to implement an e-commerce platform. Company A further outsourced the development work to Vendor B as the main contract vendor and also to four other subcontractors. Company A also hired a consultant, Company C as a quality assurance unit to ensure the project's success. There were two subsystems in the project; Company A assigned three project managers from its IT department, two in charge of the two subsystems separately, and the other as integration project manager to coordinate the two subsystems' development.

After ten months of implementation, from November 2005 to August 2006, the project was closed on schedule. With on-time schedule and high quality documents, this project is a good pattern among government-supported projects. But for Company A, it was a failure because the e-commerce platform still could not operate in six months after closing the project.

Following we will illustrate the seven decisions in the outsourcing process. Then, in the next section, we will analyze these decisions from the dynamic points of view.

4.2 Decisions in the Outsourcing Process

Decision 1: Decision to outsource

“The decision to make or buy” is the first decision episode in the outsourcing process. In the case studied, the decision to initialize the project was specified in a historical and social relations context. Company A was separated from a government unit four years before, but most of its business still depended on government projects. Due to the budget limitations of government, Company A wanted to earn more profits from other sources. One member of the Company A board of directors was a government officer; he suggested that transforming to an e-commerce business model would be an innovative way to earn new profits and also could promote design industry development. He asked Company C to prepare a proposal and convinced the government to subsidize the project.

Decision 2: Deciding on the scope of project

After deciding to outsource, the next important decision is to decide the project scope. In general, an outsourcing project uses a Request For Proposal (RFP) to define the outsourcing scope. Past research has showed that detailed RFP and contract can reduce coordinate costs and prevent vendors' opportunism (Beulen and Ribbers 2003; Byson and Sullivan 2003), but these studies have neglected the impact of political conflicts within companies and pressures coming from other stakeholders on determining the RFP scope.

In this case, over one year was spent in discussing the project scope but company-wide consensus was still not achieved because the e-commerce business model impacted their existing operation models and their profit distribution. However, allocated government budget must be executed within a specific time frame. Finally, Company A chose the

government version that Company C proposed as the RFP scope because there was no time to create a version based on consensus and meet the budget execution deadline.

Decision 3: Deciding on the main contractors

After deciding the RFP content, the outsourcing company opened bids for candidate vendors. Vendors' proposals detailed how they would manage technology details, human resources, budgets, and schedules, etc. Finally, Company A decided on Vendor B as the main outsourcing vendor because their integration capability and detail functions illustrated in their proposal.

However, given government project time pressures and the policy of requiring three or more vendors for open bids, economic efficiency was not achieved. This was because under these conditions, bidding vendors amplify the functions and scopes that they can provide. Winning is the first priority, even if the proposals they provide are beyond the RFP scope or their capability. The director of Vendor B, who wrote their proposal, said:

It is the conventional practice in the industry that we must win the bid first, and then we think about how to negotiate the scope and schedule issues in the project with the outsourcing company. This is because government projects must be executed and completed in specific timeframes.

Decision 4: Deciding on the quality assurance company

In this case, a quality assurance company was another important partner that needed to be selected. From a financial perspective, a quality assurance company can help the outsourcing company to manage the outsourced project. Moreover, government project policy recommends engaging a quality assurance company to ensure project success. However, the decision to engage one emerged not only from the above two factors, but, as the integration project manager of outsourcing Company A noted:

Why did we select Company C as a quality assurance unit? Because I hope Company C can share our responsibility to the government. That is, if the project fails, our responsibility is diminished.

In addition, one of the Company A's project managers also indicated that some decisions on the specific subcontract vendors came about from pressure and canvassing by some special interest groups.

Decision 5: Deciding on the requirements

There are many decisions to be made in the implementation phase; in this section and the next we describe two decisions that influenced this project significantly.

First, the RFP decision impacted the system requirements. Due to government project policy, the early decision to use the government version as the RFP content required the RFP to be the acceptance criteria for closing the project. Since an e-commerce platform profit model is inconsistent with the outsourcing Company A's non-profit culture, it was hard for users to "imagine" the requirements of the system. In addition, the Company A project managers were not authorized to select the users from different departments; usually the users assigned to discuss the requirements were not the persons most familiar with their business because department managers wanted their senior members to focus on their own regular operation, rather than on this innovative project. Finally, the user requirements that emerged differed greatly from the original RFP version.

In this context, Company A project managers and Vendor B project managers found a solution, which was to create two different versions: “RFP requirements” and “real requirements”. Vendor B developed the system according to the “RFP requirements” to meet the government acceptance criteria for closing the project. After closing the project, Vendor B was to modify the system to fulfill the “real requirements” in the maintenance phase. However, in the maintenance phase, the gaps were found to be too big, and the system could not be modified to meet the “real requirements”.

Decision 6: Deciding on the project’s acceptance criteria

The second important decision in the implementation phase was to decide on a rigorous standard for quality system documents as the acceptance criteria. Although good quality documents assist in managing a project, this does not sufficiently explain why Company A, the outsourcing company, was so insistent on quality documents that it eventually impacted the project schedule. The situation context explains this decision.

Company C, as the quality assurance unit, needed to show their contribution to the project. But due to the difficulty of evaluating the quality of information systems, Company A’s project managers and Company C’s consultants decided on the quality of system documents as Company C’s performance measurement. Thus, Company C gave Vendor B rigorous document standards that seriously impacted Vendor B’s development schedule. The Company A integration project manager described the situation:

Originally, I wanted to control the project quality through the documents, but now it has severely impacted the project schedule. Even when I became aware of this situation, I could not request Company C’s consultants to abate their quality evaluation standards because I had to respect their professional judgment.

Decision 7: Decision to close the project

Although the development work was not yet complete, the project deadline loomed. To close the project on time, the project managers of outsourcing Company A decided to accept the acceptance tests and closed the project before the project deadline even though the systems could not be operated smoothly. The integration manager said:

Although the users attended the final acceptance testing meeting, Vendor B’s programming leader demonstrated the system’s functions, but not through the users’ daily operation process. It confused the users, but based on my intuition, I knew that the process was not very smooth, and some systems issues still existed. However, my first priority was to close the project on time; so we accepted the testing, and closed it.

5. Case Analysis and Findings

5.1 Negotiated Outcome

Murray (1978) argued that decision makers rarely have the power to make major decisions totally independent of others; the decisions are negotiated from the participants’ own “local rationalities”. In this case, at least three decisions (decision 2, 5, and 6) are shown to have emerged from negotiation. The decisions of project scope or RFP (decision 2) and requirements (decision 5) were derived from the conflicting interests among different departments. Although the project managers wished to achieve consensus on a rational objective, in the end, they could not. They adopted the government’s rough version as the RFP to resolve the conflicts but this made the project difficult to implement. The final

decision on requirements was the “two versions of requirements” that also severely impacted the project schedule.

Coalitions of interests not only existed within organizations but among partners in the outsourcing process. Even when there is a trusting, long-term relationship between the outsourcing company and vendors, participants still need to seek their own interests. With regard to rigor for quality documents (decision 6) for example; the integration project manager of Company A wanted to control the project risks, and the consultants of Company C wanted to show their contributions. They decided on this acceptance criteria without conflict but in turn influenced the whole project schedule. The decisions on IS outsourcing were not always as value-maximizing to the outsourcing company as the rational choice assumed but rather catered to the coalitions of participants’ interests.

5.2 Contextual Dependence

The contextual dependence view argues that decisions are impacted by socio-political and organizational contexts. Table 2 shows that six of the seven decisions were influenced by context, including the external context and internal context.

The decision to initialize the project (Decision 1) was triggered by government budget cuts that impacted Company A’s profits. Then, because of social relations with the government, Company A was awarded a government-supported project. This project provided the opportunity for to transform Company A to an e-commerce business model and served the industry that the government wanted to support. Herein, historical, economic, and social relations contexts influenced Decision 1.

Meanwhile, the regulations of government-supported projects formed the institutionalized environment that constrained the decisions. In this case, the decisions on project scope (Decision 2), requirements (Decision 5) or closing (Decision 7) were deeply circumscribed by institutional regulations (project start time, deadline and unalterable RFP as acceptance criteria). These institutional regulations were originally designed to prevent opportunism and ensure project success, but they became institutionalized ceremonies or myths that led to inefficiency. Moreover, the decision makers employed conformity or decoupling strategies to respond to the institutional pressures. For example, the decision makers in this case came up with “real requirements” and “RFP requirements” to decouple the “RFP as unchanged acceptance criteria” ceremonial rule (Decision 5). On Decision 7, the project managers conformed to the project deadline rule but neglected whether the systems could actually be operated smoothly.

Additionally, the contexts within organizations also circumscribe outsourcing decisions. This case shows how authorization structure (Decision 5) or “share responsibility” ideology (Decision 4) impacted the decision-making in outsourcing.

5.3 Interwoven Decisions

Pettigrew (1990) suggested that past decisions will become the antecedent conditions that shape present or emerging decisions. Butler (1990) also mentioned that decisions made within a context influence the context for future decisions. In our case data, we find how the antecedent decisions become the ‘rules of the game’ for subsequent decisions (See Table 2).

For example, decisions makers in Company A decided on the government’s rough proposal as the RFP (Decision 2). The rough RFP could not fulfill users’ requirements because an

unchangeable institutional rule limited their decisions on requirements. Finally, they decided on two versions of requirements necessary to manage the situation (Decision 5). Moreover, the decision to engage a quality assurance company (Decision 4) also generated a situational context wherein that company (Company C) needed to show its contributions to the project. In this context, the integration project manager and the consultants of Company C decided on the quality of documents as Company C's performance measurement (Decision 6).

Moreover, decisions will cause competition for the same resources (Langley et al. 1995). In this case, the decisions of two versions of requirements and rigorous document acceptance criteria (Decisions 5 and 6) competed for development team energy and the project time.

In summary, some decisions in our case are intertwined, the antecedent decisions limit the subsequent decisions, and they compete for the same resources.

Concepts	Analyzed Decisions	Findings
Negotiated Outcome	D2: negotiated with different departments within organization D5: negotiated with different departments, Company B D6: negotiated with Company C	1. The IS outsourcing decisions are negotiated with participants. 2. Every participant seeks their local rationalities, but sometimes negotiated outcomes are unexpected. 3. The negotiated decisions are also context dependent.
Contextual Dependence	D1: historical context, economic context, social relations context D2: institutional regulation (project start time) D3: institutionalization myth D4: 'share responsibility' ideology D5: culture, authorization, institutional regulation (RFP as acceptance criteria) D7: institutional regulation (project deadline)	1. The IS outsourcing decisions are influenced by internal and external context. 2. The contexts could enable or constraint the decisions. 3. The contexts could become institutionalization myths or ceremonies. 4. The decision makers could make the conformity or decoupling decisions to respond to ceremonial rules.
Interwoven Decisions	1. Rules of game: D2 → D5; D4→D6 2. Compete for same resources: D5 and D6	1. The decisions are intertwined; they limited subsequent ones, or competed for same resources.

* D stands for Decisions

Table 2: Illustrations of the case using the dynamic model

6. Discussion and Conclusions

In this paper, we create a dynamic model to portray the decisions in the whole outsourcing process, these being negotiated outcome, contextual dependence and intertwined decisions. Most research on decision-making in IS/IT outsourcing has focused on decision makers' rational choice in specific decisions cannot explain complex phenomenon. This model seeks to lead to an understanding of the complexity and the political environments of decision-making (Pettigrew 1990). Moreover, we gain more insights into decision-making in IS/IT outsourcing as illustrated below.

First, decisions are negotiated from coalitions of interest groups with different goals. The participants seek their local interests; the results are not value maximizing as rational choice assumes, and rather cannot even satisfy all of the participants. For example, the two-version requirement decision (Decision 5) influenced the vendors' development resources and costs. On the other hand, sometimes the results are unexpected, such as the rigorous documents' evaluation decision (Decision 6) impacting the project schedule unintentionally. Thus, the unexpected outcomes phenomenon in outsourcing decisions requires further investigation.

Second, in this case, we found that past decisions became the ‘rules of game’ for subsequent decisions and that different decisions competed for the same resources (see Table 2). Further study should collect richer data to investigate the phenomenon of intertwined outsourcing decisions as Langley (1995) mentioned.

Third, the case data shows that though the IS/IT outsourcing project policies or regulations (i.e. RFP, acceptance criteria) absorb some unexpected risks, they also constrain the decisions. Even more, some regulations become institutionalized myths, or ceremonies, and the decision makers decide the conformity or decoupling strategies to response, but the results are inefficient (i.e. Decision 5 or 7). Thorough consideration is required when creating government-supported project policies or regulations.

Moreover, decision makers in an organization should take outsourcing decisions as an integral, continuous process, not as a fragmented, front-end choice. Hence, while making decisions they could consider how to negotiate and how to account for contextual dependence and antecedent conditions and their subsequent impact.

Although the objective of this paper is to understand the complex phenomenon in the IS/IT outsourcing decision process, as a case study its general application is limited. Our future work will involve the analysis of more cases to refine the theoretical ideas and identify patterns in different kinds of IS/IT outsourcing projects (i.e., IT operations or IT department outsourcing).

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