The impacts of social capital on information technology outsourcing decisions: A case study of a Taiwanese high-tech firm

IranArze.ir

Abstract : This case study examines how social ties which are embedded in industrial networks and which have evolved over time may impact information technology (IT) outsourcing decisions. Our findings show that prior relationships do affect ongoing IT outsourcing decisions in the various dimensions. The results also show that social capital may be a double- edged sword that is both a resource in facilitating IT outsourcing and a burden that undermines the rationality of decision makers.
Keywords: Social capital; Outsourcing; Case study

1. Introduction

Information technology (IT) outsourcing is the practice of turning over part or all of an organization's IT functions to external service providers (Grover, Cheon, & Teng, 1996). Outsourcing became very popular in the 1990s, encouraged by success such as Eastman Kodak's externalization of information systems. IT outsourcing is often presented as an attractive business proposition to improve productivity, reduce costs and increase competitiveness. Previous research on IT outsourcing adopted economic perspectives, with the methods used including the transaction cost approach and risk analysis (Aubert, Rivard, & Patry, 1996; Lacity, Willcocks, & Feeny, 1996). More recently, the focus of-study has shifted to IT outsourcing relationships (e.g., Kern & Willcocks, 2000; Lee & Kim, 1999). However, it remains the least explored among IT issues, and more research is necessary to better understand the subject empirically. As outsourcing behavior is pluralistic and dynamic by nature, outsourcing relationships form the context in which interactions or transactions take place (Kumar, van Dissel, & Bielli, 1998). This perspective is especially crucial as the embeddedness concept, which emphasizes the contextualization of economic activities in on-going patterns of social relations (Granovetter, 1985), has gained popularity and is now well recognized. The concept of embeddedness consists of arguments against the primacy of both individual attributes and aggregate outcomes; it is also antithetical to self-interest being the sole guide for action (Granovetter, 1985). In contrast, most prior research has treated each sourcing decision as an independent event and thereby disregarded any prior relationships that might affect the sourcing decision at hand (Nam, Rajagopalan, Rao, & Chaudhury, 1996). In this study, we argue that outsourcing research should consider the concept of social capital in order to understand the diverse informal forms of economic activities encompassed in the outsourcing decision process. More specifically, we posit that outsourcing decisions should be examined in the context of how an industrial network has evolved and explored the pattern of relational ties which evolved over time.

2. Theoretical background

IT outsourcing is broadly understood as an organization's decision to contract out or sell its IT assets, people and/or activities to a third party supplier. In exchange, the vendor provides and manages IT assets and services for the organization. The arrangement holds for an agreed period of time, and the vendor receives monetary returns for its services (Kern & Willcocks, 2000). Conventional theories commonly used to explain IT outsourcing generally take an economic perspective (e.g. the transaction cost theory). This research stream incorporates the theory of institutions into economics, and it generally focuses on efficiency (Williamson, 1981). We argue that in addressing the management of outsourcing relationships and partnerships, economic approaches have failed to address the fact that economies of scale and scope achieved by IT outsourcing may vary significantly, depending on the environment, structure and strategy factors (Grover et al., 1996). It is now widely recognized that trust and partnership are critical in the outsourcing process (Lee & K m, 1999). In a way, the management of partnerships in outsourcing processes has become a main locus for researchers. To this end, several scholars (e.g., Burt, 1992) have conceptualized social capital as a set of social resources embedded in relationships. For example, Coleman (1990) defined social capital as any aspect of a social structure that creates value and facilitates the actions of individuals within the structure. Nahapiet and Ghoshal (1998) refers to social capital as the actual and potential resources individuals obtain from knowing others, being part of the social network among them, or merely from being known to them and having a good reputation. Previous studies of outsourcing relations have mainly focused on either post-contract relationships

(e.g., Kern & Willcocks, 2000) or partnership quality (Lee & Kim, 1999). In addressing IT outsourcing issues, we adopt the social capital perspective for the following reasons: First, good relationships may act as substitutes for formal institutional support (Xin & Pearce, 1996). This is so given the imprecise nature of the services being rendered, the difficulty in assuring consistent quality and the often incomplete contracts existing in IT outsourcing projects. Second, to develop an inter-organizational relationship, an organization needs to invest its scarce resources and energy to start and sustain the relationship even when the possible returns on the investment may be unpredictable or intangible (Leung, Wong, & Tam, 1995). Social capital encompasses many aspects of social context, including social ties, trusting relationships and value systems, all of which facilitate the actions of individuals located within the context (Tsai & Ghoshal, 1998). Nahapiet and Ghoshal (1998) identify three dimensions of social capital: structural, relational and cognitive. They provide justification on how the attributes of each of these dimensions facilitate the combination and exchange of resources between firms. The structural dimension of social capital refers to the overall pattern of connections between actors. The focal point of this dimension includes: presence of network ties; network configuration, which describes the pattern of linkages in terms of measures such as density, connectivity and hierarchy; and appropriable organization, which describes the existence of networks created for one purpose that may be used for another. The relational dimension describes the personal relationships that individuals have developed with each other through a history of interactions. Assets created through relationships such as trust and trustworthiness, norms and sanctions, obligations and expectations, and identity and identification are key facts in this dimension. Finally, the cognitive dimension refers to those resources providing shared representation, interpretations and system of meaning among parties. Table 1 summarizes the major issues, their definitions and some observation needs in terms of the major issues of social capital.

Dimension	Critical issue	Description	Observation needs
Structural dimension	Network ties	Network ties provide access to resources such as information benefits.	Are there different forms of relational ties which may influence outsourcing decisions?
	Network configuration	Overall configuration of relational ties constituting the network.	How are connective relations interwoven with the development of an industrial network?
	Appropriable organization	Social capital developed in one context can often be transferred to another social setting.	In what way can relational ties be transferred?
Relational dimension	Trust	Trust indicates a willingness to be vulnerable to another party.	What is the nature of trust in terms of social capital?
	Norms	Norms represent a degree of consensus in the social system.	What consensus has emerged and how does it impact the outsourcing process?
	Obligation	Obligations represent a commitment or duty to undertake some activity in the future.	What expectations have been developed within the various personal relationships?
	Identification	Identification is the process whereby individuals see themselves as one with another person or group of people.	Are there any formal and informal common grounds formed in the outsourcing process?
Cognitive dimension	Shared codes and language	To the extent that people share a common language, the common language facilitates their ability to gain access to people and their information.	What are the effects of a shared language?
	Shared narratives	The development of a shared context by means of myths, stories and metaphors.	What are the effects of a shared narrative?

3. Methodology

The study is based on a case studx of TOC (a pseudonym), a fast-growing Taiwanese manufacturer of large-size thin film transistor liquid crystal display (TFT-LCD). Founded by three large Taiwanese corporations with an initial capital outlay of US$634 million (and worth USS922 million at the time of writing), TOC was established in late 1999. Qualitative data were gathered from document archives, face-to-face unstructured taped-recorded interviews, on-site observations and field-notes. In-depth interviews were conducted with the staff in charge of computer integrated manufacturing (CIM) outsourcing at TOC, the managers of information services providers and industry experts. All informants were selected carefully to ensure the quality of the

collected data. Notes were taken during the sessions as well. Additional observations were noted immediately after each interview was completed.

4. Case

In 1999, TOC initiated a US$50 million IT outsourcing project to set up a CIM system in the company. The CIM system that was to be built would incorporate the delivery system as well as the control and monitoring functions in the manufacturing process. It was adopted to systematically integrate the manufacturing stream and the information stream in the company. In the industry, CIM systems are known to bring manufacturing To start off the complicated outsourcing project, TOC assigned a group of experienced engineers to take charge of project evaluation. Although TOC was nascent, it had in place a set of existing relationships that affected ongoing sourcing decisions. The relationships are depicted in Fig. 1 in terms of relationship type. In its early days, the majority of TOC's technical expertise came from the Industrial Technology Research Institute (ITRI) in Taiwan. Founded in 1973, ITRI is a non-profit R&D organization. In general, ITRI recruits research teams, opens laboratories, sets up joint cooperation projects, and forms local and international cooperative partnerships. When the mutually developed technology is market-ready, ITRI ensures its timely dissemination to industry and seeks out potential capital funding to form a new high-tech company. Most of Taiwan's large high-tech companies are spin-offs of ITRI; they include TSMC and UMC, the top two IC contract manufacturers in the world. Similarly, TOC, its direct competitor OOC and its parent company PCA are also ITRI spin-offs.

4. 1. Effects of asset specificity and the transmittance of human capital

CIM promulgates a fundamental strategy of integrating manufacturing facilities and systems in an enterprise through computers and their peripherals. A typical CIM environment consists of the following modules: CAD/CAM, process planning, machine level programming, production planning, scheduling, inventory and databases. In the case of TOC, IT outsourcing may also be considered co-sourcing, where external CIM vendors need to incorporate the expertise of in-house IT staff to develop a specific CIM system for the company. When it was formed in 1999, TOC recruited its staff mainly from ITRI, OOC and PCA. At that time, there were two CIM system providers, which we shall refer to as Vendor I and Vendor C. In the early stage of evaluation, most of the technical evaluations tended to favor Vendor I rather than Vendor C for various reasons. First, Vendor I had a good reputation in the industry. Second, Vendor I had its own system solutions which had been implemented in many Taiwanese high-tech companies. In contrast, Vendor C did not have its own systems; the company was more of a system integrator which put together several automation systems or products to provide a solution. Although Vendor C emphasized incorporating the product strengths of different vendors to offer high-availability solutions, the compatibility of the systems being integrated and the cross-organizational communication that integration would entail were concerns that the TOC technical staff were uncomfortable with. Moreover, Vendor C's experience so far was confined to offering CIM solutions to the semiconductor manufacturing industry. The TOC technical staffs were therefore worried about the risk in adopting a system not popular in their industry. Third, time pressure was a key issue. An informant noted: "Within the time constraint, we need to make a very complicated evaluation. We need to study all the possible alternatives. It's very difficult to understand all the functions of a system in the limited time given, let alone the implications of implementing a system which you are not familiar with. In this circumstance, one of the best policies is to work with what we already know."

4.2 Engagement of business relationships

At the managerial level, however, the considerations were different. First, there were concerns over the market dominance of Vendor I. An informant explained: "Vendor I has almost no competitors in the market. Our top management feels that Vendor I's monopolistic power over the outsourcing process could result in lesser negotiation power for the buyers." Moreover, Vendor I's system had been developed for more than lOyr. Over time, the product had come to lag behind others in terms of system architecture. Additionally, due to its dominance in automation systems, the company had no incentive to change its product. In contrast, Vendor C's system was built on an object- oriented, three-tier client-server architecture. Clients and servers,

though tightly integrated, functioned independently of each other, making modifications to any of the component systems much easier and faster. The system also maintained data integrity in a distributed environment, and had a better user interface than Vendor I's product. Also, in terms of industry network influence, Vendor C was not only a CIM automation system provider, but also a large personal computer (PC) buyer. Every year, Vendor C purchased PC products and components from one of TOC's parent companies, TCB.

4.3 Interaction of diverse actors

TOC now faced a dilemma concerning the outsourcing decision. On the one hand, Vendor I's track record in its lOyr experience in CIM system development won the trust of TOC's MIS staff. Besides, Vendor C did not have any experience in the LCD industry and also lacked the technical personnel to support TOC's CIM project. Therefore, for technical considerations, the MIS staff preferred Vendor I's CIM system even if it embodied &n architecture that was gradually being eclipsed by technological developments. On the other hand, TOC was dependent on resources controlled by another firm, and its top management had to take future economic opportunities into consideration. The possibility of linking up with the PC market through Vendor C provided a strong incentive to TOC in deciding on its CIM outsourcing partner.

4.4 Balancing and compromising

As Vendor C continued to keep pressure on TOC's parent company, the management had no choice but to conduct another feasibility study on the outsourcing project. The result of the reevaluation was no different from the first study. An informant reported: "Essentially, the management respects our professional evaluation. But we also know it needs some concrete reasons to deal with our parent company and Vendor C. Some of the things we have done include asking Vendor I to cut its price so as to shape a best-buy case for our project, and to improve its current system architecture. Also, we have promised to keep our future sourcing strategy more flexible. It is our hope that Vendor C would understand the challenges we face." Under the circumstance, Vendor I agreed to reduce its price and improve its system. At the end, the outsourcing contract went to Vendor I.

5. Discussions

Drawing on an in-depth case study of the outsourcing decision at TOC, we have seen the social economic relations of indigenous groups which are rooted in a larger industrial network, which is in turn intertwined with social relationships. The three dimensions—structural, relational and cognitive—of social capital serve as a theoretical lens for our data analysis.

5.1 Effects of the structural dimension of social capital

The structural dimension of social capital focuses on the overall pattern of connections between actors. Here, the critical issues to be studied are network ties, network configuration and appropriable organization. In the case of TOC, we have first modeled the company's relationships in terms of developments in the industry. Several distinct ties exist in the model, including technical source tie (ITIR vs. TOC), capital funding tie (e.g., PCB vs. TOC), human capital tie (ITRI, OOC vs. TOC) and business interdependencies tie (VOC vs. TOC). The importance of ITIR in industrial development is significant, and as Fig. 1 shows, industrial development interweaves with relational ties. Moreover, relational ties such as capital funding tie and interdependency tie can transfer from their original social setting and impact the current decision context. Obviously, the integration of such ties reflects the location of TOC in a social structure of interactions and provides certain advantages or constraints for and from the other actors, which in turn influences the CIM outsourcing decision. On the one hand, relational ties can facilitate access to information, resources and opportunities, and that in turn serves to coordinate critical task interdependencies and overcome the dilemmas of cooperation and collective action. On the other hand, relational ties may exert pressure that undermines decision rationality. Our empirical evidence points toward supporting the notion that prior relationships do affect ongoing sourcing decisions (Nam et al., 1996), and relationships may exist with or without any prior IT contracts and should be examined carefully. The major implication of the structural dimension of social

capital is that in studying the outsourcing decision process, the path of the industry's development, the context of the current decision and future economic opportunities should all be taken into account of in the IT outsourcing decision at hand. Managers must clearly depict these relational ties and understand their effects on IT outsourcing decisions.

5.2 Effects of the relational dimension of social capital

The relational dimension of social capital infers to assets that are rooted in relationships such as trust, norms, obligation and identification. In our case, the nature of trust can be observed from two different dimensions. First, the vendor's reputation and experiences, and the social skills of its sales representatives provided the fundamental elements of trust. Second, the pre-existing relationship derived from the co-sourcing type of outsourcing experience in' the industrial network led to a higher degree of trust. Under this circumstance, the norms of cooperation as a consensus are essential for the outsourcing project. We also find that the capital funding ties of parent companies and indirect business partners' interdependency ties may lead to pressure on outsourcing decisions. We observe that because of the complexity of a CIM system and the time pressure on arriving at a decision on the outsourcing partnership, an incomplete contract is likely to result. From this perspective, the more unexpected the contingency of IT outsourcing being experienced is, the greater the impact of trust derived from relational ties on the outsourcing decision will be. Thus, it is important to shape the norms of cooperation in the outsourcing process within a social context. Relational ties established by good cooperation are therefore valuable. However, managers should also realize that although being trustworthy may facilitate cooperation in the partnership, too much trust may be as bad as too little: from an obligation perspective, the expectations that develop within particular personal relationships will exert pressure and negative effects on the rationality of decisions.

5.3. Effects of the cognitive dimension of social capital

The cognitive dimension of social capital is embodied in attributes such as a shared code or a shared paradigm that facilitate a common understanding of the collective goals and the proper ways of acting in a social system. Based on our analysis, we learn that the vendor's prior knowledge and experience in IT outsourcing are of critical importance to the outsourcing decision at hand. For example, we see that TOC technical staff enjoyed good relationships with Vendor I through past collaborative experience, and expected the existing good relationships to act as a substitute for formal institutional support in the project at hand. In contrast, Vendor C was not able to produce any referral, which resulted in a negative perception of their technical ability. We can therefore infer that co-sourcing experience does facilitate the extent that people share a common language, which leads to more sensible outsourcing decisions in the future. Moreover, shared narratives are created by any prior co-sourcing process that may exist, and that should enable individuals to make sense of their current work environment and their relative roles within it.

6. Conclusion

Our study contributes to the study of IT outsourcing relationships. First, we have identified how various pre-contractual relational ties are embedded in an industrial network, and how social capital impacts an IT outsourcing decision. We have derived four distinct types of relational ties, including technical source ties, capital funding ties, human capital ties and business inter dependencies ties. Our study clearly depicts that the dynamic aspect of an industrial network influences IT outsourcing processes implicitly and should be taken into account in outsourcing decisions. Second, our findings suggest that social capital may be a double-edged sword, which can be both a resource in facilitating IT outsourcing and a burden that undermines the rationality of decision makers. The negative impact of social capital is clearly reflected in the fact that IT outsourcing decisions are not only based on current IT needs and capabilities, but also involve past industrial ties and future economic opportunities. Third, industrial networks can be regarded as living structures where the way that actors, activities and resources relate to each other is continuously changing. This is not only due to the dynamics of the economic process, but also on account of the movements of actors attempting to increase their control over activities, resources, and/or other actors (Brito, 2001).