

A Framework for Studying How Vendors Utilize Information and Communication Technologies across Outsourcing Processes

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Abstract

The paper builds a research framework for studying how vendors utilize information and communication technologies (ICT) across the outsourcing process. In this quest we explore the themes such as outsourcing process, vendor's perspective in outsourcing, information and communication technology, technology per se, and resource based theory. We propose that given the different contexts of perceptions towards ICT the vendor can take different roads to create new, and apply and extend existing hardware, software, networks and telecommunications, in order to win, successfully run and renew the outsourcing contracts.

Keywords: outsourcing, vendor's perspective, ICT

Introduction

Efforts to investigate whether Information and Communication Technologies (ICT) are a business opportunity creator or just a contemporary necessity enabling faster and cheaper collaboration still leave us without any clear or unique answers. The debate around the actual utilization of ICT in business has not, so far, yielded any clearly defined majority opinions. This divide is probably rooted in a clash between the instrumental and substantive theories of technology (Feenberg, 2000). For example, if we take the role of ICT in achieving competitive advantage and embracing new market opportunities, we come across contradictory opinions. Oz (2004) exemplifies how a company can achieve competitive advantage by utilizing ICT to reduce costs, raise barriers to market entrants, establish high switching costs, create new products and services, differentiate and enhance products or

services, establish alliances, and lock in suppliers and buyers. Davis and colleagues (2003) recognize that it is hard to distinguish whether competitive advantage achieved by a superb IT strategy is a temporary or permanent competitive advantage. Davis et al's research revealed that competitive advantage, due to an IT-enabled strategy, is discernable by market participants, and is apparent as a competitive advantage obtained through other means. Both supporting and opposing the previous opinions, Porter (2001) develops a model of ICT's utilization across a company's value chain. However, he argues that the internet has to be seen as a complement to strategy, and not a strategy in itself.

Put in an outsourcing context, the debate about ICT's utilization becomes even more complex. It is a common perception that outsourcing has been developed on the back of ICT (Castells, 2000; Hendry, 1995; McIvor, 2005; Click and Duening, 2005). Click and Duening (2005) argue that there are six driving factors in business process outsourcing. They are: broadband internet availability, inexpensive data storage, online analytic processing, internet security, educational attainment and business specialization. Four of the drivers are associated with ICT development. Furthermore, there have been many optimistic assertions that ICT should help to overcome barriers of time and space, reduce costs and create business opportunities. The prime role of ICT is to serve as a facilitator in diminishing geographical, cultural, economical and technological distances through enhanced flow of information, transaction and distribution, and quality of decision making (Hultman and Axelsson, 2005). These statements, and findings from the academic research and general perceptions are very optimistic in crediting ICT as a catalyst for doing business in new ways by outsourcing. Truth of these assertions aside, one question still remains unanswered: how can companies involved in outsourcing (outsourcers and vendors) *actually* utilize ICT in order to satisfy their objectives?

The success of an outsourcing arrangement is determined by a number of factors. Among the most important factors are a vendor's capabilities and competences (Levina and Ross, 2003; Feeney et al., 2005). Ironically, in comparison to the existing research on any given outsourcer's outsourcing process, there is very little research available on the vendor outsourcing process. Therefore, the object of our research is a vendor company: how it utilizes ICT throughout the outsourcing process in order to win contract, successfully run, and finally renew their outsourcing contracts.

Our aim is to develop a framework capable of handling complex issues arising from the vendor's utilization of ICT throughout the outsourcing process. We carry out our quest by researching information and communication technology, technology *per se*, the outsourcing process, the vendor's perspective and resource-based theory. The assertions from these themes will serve our building blocks for the framework that can handle these complex issues.

The Outsourcing Process

Outsourcing is the process of establishing and managing a contractual relationship with an external supplier for the provision of capacity that has previously been provided in-house (Momme, 2001). The outsourcing involves engagement and interaction of minimum two organisations, an outsourcer and a supplier. Literature on outsourcing mentions several names for the supplier, like outsourcee, vendors and service providers. In the ICT outsourcing industry suppliers are predominantly called vendors (Levina and Ross, 2003) and we will be using this term when addressing the company that provides service to the outsourcer.

Several outsourcing process frameworks have been developed to describe the outsourcing-related activities of an organization (Greaver, 1999; Momme, 2002; Cullen and Willcocks, 2003; Franceschini et al., 2003; Corbett, 2004; Click and Duening, 2005; McIvor, 2005). Although the frameworks differ somewhat, it is possible to draw some commonalities. Hence we propose that the outsourcing process follows the following phases: preparation, vendor(s) selection, transition, managing relationship and reconsideration (See Figure 1). Each of the phases must provide an answer to various questions which emphasize the complexity of the outsourcing process and the need for careful management throughout the process' entire life cycle.

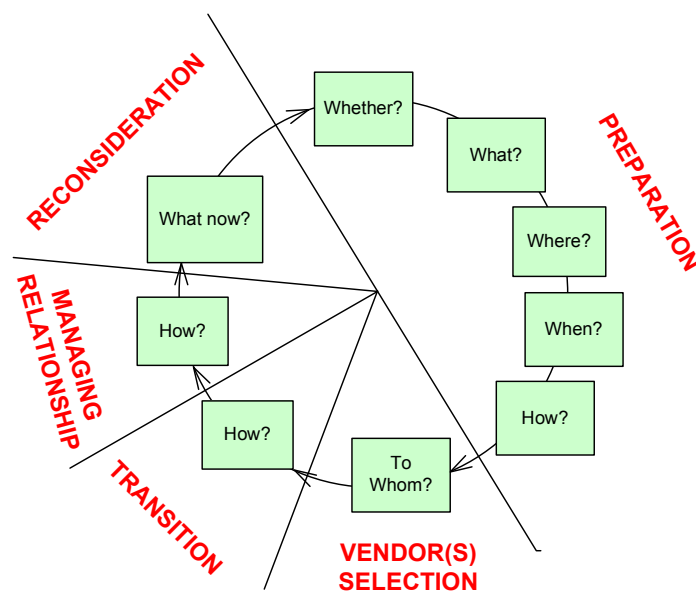


Figure 1: The Outsourcing Circle

In the preparation phase, an organization must explore whether to outsource or to use some other strategy for achieving its strategic goals. However, if it decides to outsource, the organization must define an outsourcing approach and method for screening potential vendors, defining the preferred relationship and length of the contract. In the vendor(s)

selection phase, the outsourcer must announce that it is outsourcing, choose the vendor and negotiate and sign a contract. The transition phase is characterized by the transfer of assets, people, information, knowledge, hardware and software. The managing relationship phase should determine the type of the relationship and secure that the outsourcing arrangement runs smoothly. This is usually done through meetings and good communication, performance monitoring and evaluations, application of incentives and penalties, problem solving, renegotiations and managing variations. Finally, in the reconsideration phase the outsourcer decides whether to continue the arrangement, to change the vendor, or to backsource.

Seeing the outsourcing process from the perspective of the outsourcer can give us a biased picture of the outsourcing phenomenon. The vendor is as critical to the success of outsourcing as the outsourcing company is. The body of knowledge on vendor's perspective in outsourcing contains discussion of the advantages and disadvantages of a company's engagement in an outsourcing arrangement, (Rochester and Rochester, 1995), approaches to customers, contracts and relationships (Mohr and Spekman, 1994; Willcocks and Choi, 1995; Pinnington and Woolcock, 1997; Zviran et al., 2001; Kern et al., 2002; Cullen and Willcocks, 2003; Liang and Xue , 2004; Blois, 2004; Stjernström and Bengtsson, 2004; Click and Duening, 2005; Oza et al., 2006), vendor's value proposition (Levina and Ross, 2003), vendor's capabilities necessary to win and run outsourcing contracts (Feeny et al., 2005), and in some scattered fragments, structure of the vendor's outsourcing process (Jenster et al., 2005; Vollman and Condor, 2000). Seen from the vendor's perspective, the most important three stages of an outsourcing process are to win, run and renew outsourcing contracts (Figure 2).

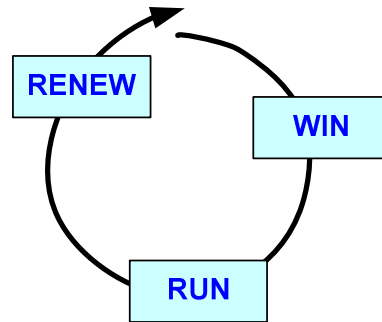


Figure 2: Vendor's Outsourcing Circle

Vendor's Outsourcing Capabilities

Success of an outsourcing arrangement is determined by numerous factors, where vendor's capabilities and competences seem to be some of the most important. For instance, Levina and Ross (2003) showed that vendors' capabilities have been recognised as the most important factors for the success of outsourcing. According to them, vendor's capabilities comprise its technical competence, understanding the customer's business, and relationship management. These capabilities and competences can be perceived as generic and applicable across industries. However, one has to be careful because for different industries one may expect to find different capabilities and competences that count for winning and renewing the outsourcing contract. For instance, in the case of information technology (IT) outsourcing, Feeny et al. (2005) proposed that there are 12 capabilities that are very important for winning the outsourcing contract. Those capabilities are: domain expertise, business management, behaviour management, sourcing, technology exploitation, process re-engineering, customer development, planning and contracting, organizational design, governance, programme management and leadership.

Capabilities and competences have been developed from the resource-based theory of a firm (Rumelt, 1984; Wernerfelt, 1984; Barney, 1986, 1991, 2002). The resource-based theory argues that the source of organization's competitive advantage is based in the company, in its resources. Resources are tangible and intangible assets that can be drawn upon the firm in order to achieve or sustain competitive advantage. The resources will provide the firm with the competitive advantage only if they are valuable for customers, rare, hard to imitate and if the firm is organized to exploit those resources. Processes that enable the exploitation of the "competitive" resources lead towards the creation of firms competences. Prahalad and Hamel (1990) observed that portfolio of intangible competences is more important than the portfolio of tangible products or businesses, where competences are the skills, knowledge and technology. Competences are measures of the organisation's potential to conduct business at the state-of-the-art in both the firm's input market (labour, capital, information and technology) and the output markets with its customers (Hatten and Rosenthal, 1990). The highest order concept within the resource-based theory is capability. The capabilities are complex combination of appropriate set of competences, glued together by various relevant organisational processes, routines, and bonding mechanisms, towards achieving specific organisational objectives (Ray and Ramakrishnan, 2005). Capabilities are measures of the performance of business processes along dimensions defined by customers' needs and expectations, like for example, time, cost, and quality (Hatten and Rosenthal, 1990).

Vendors build competences and capabilities throughout outsourcing arrangements in order to achieve their strategic goals. Strategic goals of vendors may be embedded within outsourcing business, meaning that vendors would like to win and renew the outsourcing contracts. On the other hand, a strategic goal of the vendor may be to build competences through outsourcing and thus put itself in a leading market position. In order to reflect the cyclic and evolutionary

characteristic of the vendor's outsourcing process it is necessary to include the time into the analysis. This shall help us understand how capabilities and competences enable competitive advantage in the regimes of rapid change. This is exactly the question asked by Teece et al. (1997) when they proposed the concept of dynamic capabilities. The authors argue that the essence of competences and capabilities is embedded in organizational processes. The content of these processes and the opportunities evolving from them are influenced by positions and paths. Company's positions are internal and external technological, financial, market, institutional and reputational assets, and the path is an evolutionary path the company has adopted or inherited. The evolutionary characteristic of company's paths is embedded in the assertion that organisation's history determines its future behaviour.

The graphical interpretation of the relations between the resources, competences, capabilities, objectives, and processes under the condition of the dynamic movement of an organizational system is given in Figure 3.

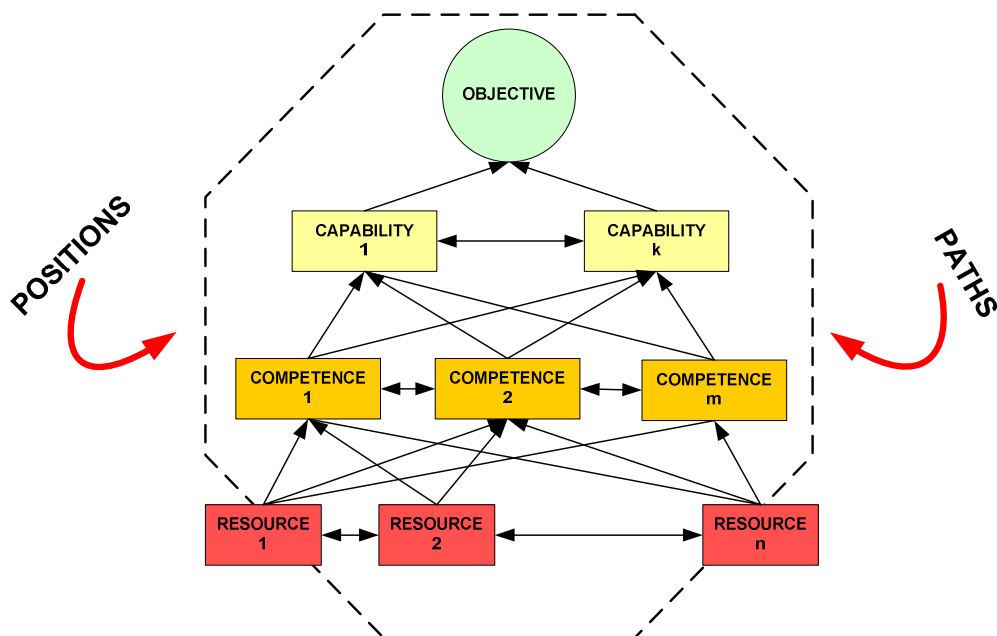


Figure 3: Relationships between resources, competences and capabilities

Information and Communication Technologies

Contemporary business activities are functioning with a tremendous support of information technology (Castells, 2000). The ICT are, without any doubt, one of the key assets and resources that are being utilized by business organizations all over the world. The ICT are influencing performance of many business processes and organizational functions, and creation of organizations' competences and capabilities. Nevertheless, ICT themselves could be one of the core competences and key capabilities of an organization.

By building on the perceptions of Steele (1989), Post and Anderson (2003), Oz (2004), Frenzel and Frenzel (2004), Bocij et al. (2006) and Haag et al. (2007) we come to perceive ICT as a synonym for informatics, information technology, management information systems, business information systems, information systems, etc, all of which consist of three distinctive elements:

- Hardware
- Software
- Telecommunications and Networks

Defining the three elements of ICT could seem to be trivial, but it is nonetheless necessary in order to understand the context in which ICT can be utilised among organizations participating in outsourcing.

Hardware is a common name for the physical components of a computer. A computer's typical standard components are input devices, the central processing unit, internal and external memory, and output devices.

Software is perceived as an intellectual man-machine interface designed to automate processing tasks. Software is a set of programmes, procedures and documentation associated with a computer system. Software can roughly be divided into two categories, the systems software and the application software (Haag et al., 2007). The systems software can be further divided into two types. The first is an operating system that controls applications and manages how hardware components work together; the second is utility software, which adds functionality to operating system software. The application software is the software we use to meet our specific information-processing tasks.

A computer *network* can be defined as a communication system that links two or more computers and peripheral devices and enables transfer of data between the components (Bocij et al., 2006). There are three general ways to organize networks: as intranet, extranet and internet (Bocij et al., 2006). Intranet is a computer network within an organization that uses internet technologies to communicate. An extranet is a closed network between an organization and its business partners. The internet is a network of networks connecting a vast number of computers and people all over the world. From a hardware perspective, this involves both wired and wireless communication pathways, carriers of messages, and protocols that govern how information can be sent through the network (Fuller, 2005). From a functional perspective, the internet is recognized through its ability to send and receive information via internet applications such as e-mails, file transfer protocols, and web browsers (Fuller, 2005).

Telecommunication is the method by which data is transmitted between different locations. Telecommunications systems consist of both the hardware and software necessary to link between those locations. Components of networks are (Bocij et al., 2006):

- The client/server architecture
- Data communication equipment (modems, hubs, bridges and routers, repeaters, data service units and channel service units)
- Telecommunication channels (guided and unguided media)
- Transmission methods (signal type, transmission modes, speed)
- Network operating systems
- Middleware (specialised software which allows different software applications to communicate)

ICT tools are invaluable tools for organizations operating in today's networked and global markets. Bowman et al (2005) developed a matrix showing how organizations use ICT for information sharing and communication in order to support various exchange processes. They distinguish between structured and unstructured business-related processes that could be performed both internally and externally (Table 1, below).

Porter (2001) gives another prominent example of potential utilization of ICT across internal and external value chains of an organization. He identifies applications of ICT in managing a firm's infrastructure, human resources, technology development, procurement, inbound and outbound logistics, operations, marketing and sales, and after-sales services.

	Information	Communication	Transaction and registration	Integrated application
	Structured process			
Internal	Databases, document management systems, ERP systems, human resource management systems	Electronic boardroom, group decision support systems	Monitoring systems (production control systems, planning systems, sales and stock systems), electronic agenda	Information sharing, application sharing, computer supported collaborative work, workflow management
External	Online-databases, Internet, call centres (inbound)	Call centres (outbound), e-mail, EDI	CRM, EDI, electronic fund transfer, ordering systems, supply chain management systems, reservation systems	Multimedia call centres
	Unstructured processes			
Internal	Management information systems, intranet, knowledge management	Electronic boardroom, (mobile) telephone, e-mail, voice mail, computer-conferencing, videoconference, shared whiteboard		Computer-supported collaborative work (CSCW), communities of practice
External	Internet, online databases	E-mail, voice mail, videoconference		Communities of practice

Table 1: Applications of ICT in an organisation (Adapted from Bowman et al., 2005)

We have seen that ICT offers many possibilities for business application within and among myriad organizations. In order to understand whether or how organizations explore ICT, we need to understand the ontology of technology *per se*.

Technology is associated with capability, i.e. the ability to do things. Therefore, technology is “knowledge of how to do things” (Steele, 1989). There are three theories of technology (Feenberg, 2002):

- *Instrumental theory* of technology sees technology as a neutral tool standing ready to serve the purposes of its users. Consequently, one may argue that utilization of technology depends on how strongly potential users are interested in utilizing and developing certain technology.
- *Substantive theory* argues that technology constitutes a new cultural system that restructures the entire social world. For example, contemporary outsourcing has been enabled, or at the very least improved, by the development of information and communication technology. Together with networking and globalization, information and communication technology has created a distinctive economic system: the network economy (Castells, 2000). In that respect, organizations must use technology because it is a part of their being.
- An alternative view of technology is given in the *critical theory* of technology. Contemporary technology is neither simply a tool, nor is it the framework of our society. We are supposed to have a freedom of choice of technology. Feenberg (2002) argues that the degradation of labour, education and environment is rooted not in technology *per se* but in the antidemocratic values that govern technological development.

One of the implications of these technology theories is the existence of various perceptions of technology among companies i.e. the context in which they utilize ICT. We are interested in the perception that stems from the instrumental theory and refers to the unlimited availability of technology where organizations **choose** to use certain technology.

According to Steele (1989), technology has two dimensions, regardless of which theory is applied:

- *The creation-application dimension* – this dimension embraces two aspects of a capability. The first is the knowledge of **creation** of a new capability. The second is the **application** and **extension** of a new and conventional capability. This dimension is the axis on which elements of another dimension are arranged.
- *Substantive dimension* – this dimension reflects that on which people actually work. For instance, creation of new software, application of an existing hardware or extension (adaptation) of telecommunication solutions.

Consequently, the application of ICT in a business context can be understood as the ability to create new, and apply and extend existing hardware, software, networks and telecommunications, all for the purpose of satisfying business objectives. This ability is influenced by the organization's perception of technology.

The Framework

Before developing our research framework, let us revisit the research question, or rather: let us deduce it from the assertions embedded within the themes of outsourcing and the use of ICT, taking a vendor's perspective, as well as a resource-based theory perspective

How do vendors utilize information and communication technologies across the outsourcing processes?

The generality of the question implies that it is possible to develop a variety of approaches for answering it. We continue with our reasoning by utilizing the aforementioned themes. A graphical interpretation of this is given in Figure 4.

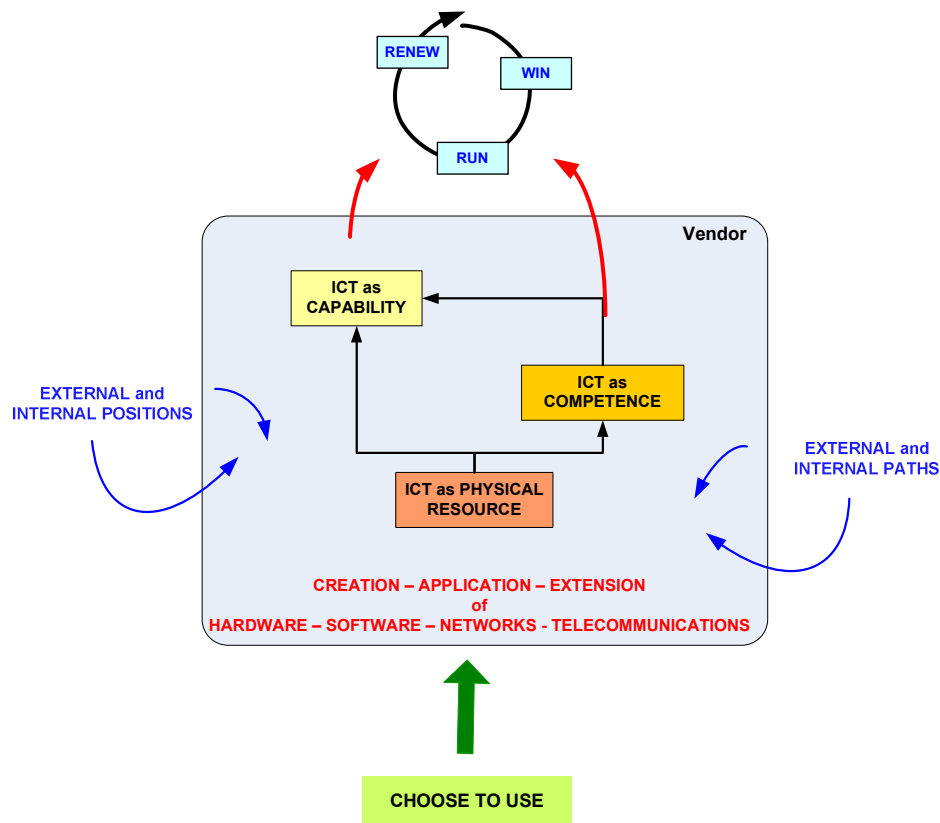


Figure 4: A Framework for Studying How Vendors Utilize Information and Communication Technologies across the Outsourcing Process

The object of our investigation is the vendor company. The vendor has some strategic goals for which it enters into an outsourcing arrangement. These goals could be to grow as a vendor in an outsourcing industry or to develop competences and capabilities that would help achieving strategic goals beyond the outsourcing business. We may also argue that in both cases, some of the most important vendor objectives are to win an outsourcing contract, and to successfully run it in order to retain the client and to build competences and capabilities that would further enable the vendor to gain new outsourcing clients (or new projects with existing clients).

Since the vendor's competences and capabilities are proven to be important in winning, running and renewing outsourcing contracts, we call upon resource-based theory. According to this theory, the vendor would have to possess resources that are valuable, rare, inimitable and exploitable in order to achieve a competitive advantage. The resources could be physical resources, knowledge and skills, competencies and capabilities. Due to the dynamic, cyclic and evolutionary nature of the vendor's outsourcing process, the utilization of these resources will be influenced by internal and external positions and path dependencies.

Let us suppose that ICT is one of the resources that, together with other vendor's resources, lead towards winning, running and renewing outsourcing contracts. ICT as a resource can be perceived as:

- A physical resource - hardware, software, networks and telecommunications
- A competence – the vendor's deep knowledge and understanding of the ICT's elements and their utilization in a company's business model
- A capability – the vendor's ability to mobilize ICT related competencies and physical resources in order to win, run and renew outsourcing contracts

Furthermore, we may suppose that ICT as a physical resource may be accessible to the vendor with or without limits. If the vendor is achieving its objectives because it creates new hardware, software, networks or telecommunications, we perceive this creation as a capability. If the vendor is applying already existing ICT elements, we perceive this application as a competence. In this case the vendor may need some additional skills to win the outsourcing contract. Finally, extending already existing ICT elements can be seen as a competence, and to some extent, as a capability. We assume that the vendor can take different

roads to create new, and apply and extend existing hardware, software, networks and telecommunications, in order to win, successfully run, and renew outsourcing contracts.

Discussion and Further Work

In order to understand how vendors can utilize ICT throughout the outsourcing process we have developed a research framework by drawing on the resource-based view and understanding of ICT stemmed from the instrumental theory of technology.

The research framework presented here has several limitations which must be considered. The model allows us to look only at ICT as a sole contributor to the success of outsourcing. There are many other physical resources, competences and capabilities that are essential to this success. The complexity of an organizational system would require a network of relationships among a firm's resources. However, the leanness of the framework can be justified by our wish to develop a framework that will suggest a way for investigating how vendors utilize ICT in the outsourcing process.

The ontological and epistemological issues explored in this paper suggest that qualitative research has to be chosen as adequate method of inquiry. The content of the themes of the qualitative inquiry, together with the characteristics of the case study as a research strategy suggest that the problem posed in the research question and captured in the research framework could be tackled in a most efficient way by deploying an exploratory case study (Voss et al., 2002). The research framework positions the research within the areas of operations management, outsourcing and ICT. Although these fields have been traditionally

studied by taking a positivist, quantitative approach, number of case studies has been increasingly used in the past 10 years for studying the same phenomena. Even more encouraging for qualitative researchers has been the appearance of methodological papers by leading scholars calling and suggesting for more qualitative research in operations management (Eisenhardt, 1989; Voss et al., 2002) and ICT and management information systems (Lee, 1989).

The theoretical complexity of the research framework implies that the sampling of cases should be based on the need to fill theoretical categories. The creation-application dimension of the technology is implying that the study should analyze minimum three vendors. Each of the vendors should have won and/or renewed outsourcing contract because of utilizing ICT in one of the following ways: creation, application, and extension (Table 2). Due to having more than one potentially interesting types of vendor the most suitable type of the case study would be multiple-case study.

	Creation	Application	Extension
ICT	VENDOR C	VENDOR A	VENDOR E

Table 2: Case Selection Criteria

The cross-case analysis is expected to map the patterns of winning and renewing the outsourcing contracts as a result of creation, application and extension of ICT. This will lead to better understanding of the actual and potential role of ICT as a catalyst of successful outsourcing. The findings should be, however, compared with conflicting and similar literature (Eisenhardt, 1989) in purpose of finding contradictory and complementary

explanations. Thereafter we shall be able to identify the most important constructs and expected relationships among them that could be further tested by quantitative methods.

We expect that this approach towards analyzing how companies utilize ICT throughout the outsourcing process will reveal some paths to success that are helpful to the vendors. They should be encouraged to increase the level of utilization of ICT in outsourcing.

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