Strategic IT-outsourcing: What do we know and need to know?

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Abstract

This paper presents a review of existing theoretical perspectives and empirical work on strategic IT outsourcing. By presenting the main findings of various recent studies and elaborating on current research gaps it conveys a picture of the past research, the present findings and the future applications of IT outsourcing. Prior research has generated theoretical insights and largely qualitative evidence on IT outsourcing. While quantitative studies remain sparse, limited to decision-making and performance, there is a lack of quantitative empirical research examining outsourcing processes more comprehensively. This paper outlines a simple, yet integrative process model and develops propositions, which serve to integrate and compare theoretical strands, to evaluate existing empirical research and to stimulate new avenues of empirical research.

Keywords: IT outsourcing process; outsourcing decision; outsourcing performance; transaction cost theory; competence-based perspective; relational view.

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1. Corporate dis-aggregation and IT-outsourcing

In his seminal works *The Visible Hand* (1977) and *Scale and Scope* (1990), Alfred Chandler focused on the large, vertically integrated corporation. Such corporations rose as population and per-capita income increased, while transportation and communication cost decreased. Today, we are witnessing a new division of labor among corporate clients and IT-service providers that lead to corporate dis-aggregation. IT outsourcing is one of the fastest growing businesses in the world. The IT outsourcing market, which was worth $76 billion in 1995, has reached an estimated market size of approximately $140 billion in 2002 (IDC, 2002). This development has been made possible through technological advances such as the Internet and mobile services, which change markets by decreasing communication costs and increasing specialization of service production. As noted by Langlois (2001: p. 2): "In this epoch, Smithian forces may be outpacing Chandlerian ones". Such developments may also be expected to have an impact on theory building:[1] Theories of corporate dis-aggregation highlight recent developments in IT-based service provision (see Zenger and Hesterly, 1997). Disciplines useful for theory development include a broad range of economic strands, but they also go beyond economics to social and relational theories and technology management.

Empirical research to date has mainly relied on the transaction cost and capability tradition, and accordingly, has framed IT-outsourcing decisions as an issue of make-or-buy commodity activities. By contrast, we suggest that simply framing IT outsourcing as a binary decision might be oversimplified at best and misleading at worst (Mahnke, 2001). For example, to outsource IT-services requires informed buyers, codification processes, and contractual design that allow co-development and tailoring of services in well-governed inter-firm relations. Thus, we suggest that IT-outsourcing research benefits from a process conceptualisation rather than focusing simply on outsourcing decisions, which constitute only the first phase of a successful outsourcing arrangement as indicated in figure one.

[1] Albeit, the market for theory building may not be efficient illustrated by the focus of theories on explaining vertical integration, which seems at least somewhat misplaced given the apparent trends toward disintegration, downsizing, and refocusing (Zenger and Hesterly, 1997; Poppo and Zenger, 1998).

Figure 1: The IT outsourcing process

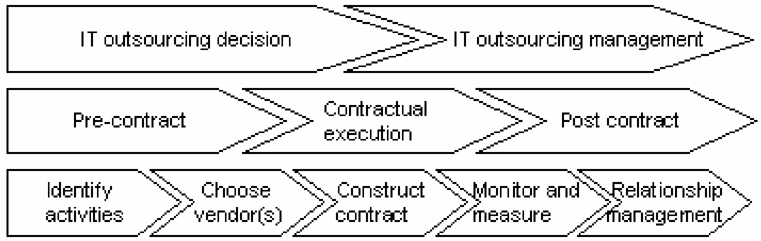

Figure 1 serves as an illustration of the typical IT outsourcing process ranging from decisions to continuous management, and performance evaluation. While such a conceptual process framework carries the risk of simplifying and unvarying overlaps in the process, the model is intended to convey a picture of the research issues in need of empirical attention. The utility of the model will become evident, as it subsequently is used to organize the theoretical perspectives and predictions.

In particular, two issues need to be addressed more comprehensively: First, there remains disagreement in the empirical literature regarding the factors that drive firms to engage in different types of outsourcing arrangements in alternative industry settings; and second, key determinants affecting the overall performance of the outsourcing process remain to be addressed empirically in greater depth. The current evidence of the increased interest in and relevance of IT outsourcing is materialized in a large number of recent works on the subject. Yet, the evidence in the literature is largely qualitative, while quantitative evidence is largely limited to determinants of the outsourcing decision.

What is lacking in the empirical IT outsourcing literature is a thorough review that organizes and summarizes the empirical evidence, not just in terms of these two issues, but in general regarding all aspects of the IT outsourcing process. The article proceeds as follows: First, it provides a brief overview of types of IT outsourcing, the trends, and the underlying driving forces. Second, it examines the key theoretical frameworks deployed in empirical IT outsourcing studies and presents the respective main propositions of each theory in relation to IT outsourcing arrangements. Third, the current empirical studies are discussed in terms of their merits and flaws. Finally, the article discusses unresolved theoretical issues and empirical challenges of IT-outsourcing and offers directions for further research.

2. IT-Outsourcing: Types and motives

IT outsourcing is broadly defined as a process undertaken by an organization to contract-out or to sell the organization's IT assets, staff and/or activities to a third party supplier who in exchange provides and manages IT assets and services for monetary return over an agreed period of time (Kern, Willcocks and Heck, 2002). In this contractual relationship the outside vendor assumes responsibility of one or more IT functions, but alternative functions may require alternative processes. Scholars have used different ways of categorizing IT-outsourcing services. For example, Aubert, Rivard and Patry (1996) classify information system (IS) functions into system operations and software development, whereas Arnett and Jones (1994) deploy a more detailed categorisation embodying system integration, facility management, contract programming, software support, network maintenance, minicomputer maintenance, mainframe maintenance, and workstation/PC maintenance. Grover, Cheon and Teng (1996) divide IT outsourcing into application development and maintenance, system operation, networks/telecommunication management, end-user computing support, system planning and management, and purchase of application software. Here we suggest using a simpler categorization scheme based on established industry offerings, which includes infrastructure, applications, and business processes. A crucial issue for future research, which remains largely un-addressed, is how alternative types of outsourcing impact the outsourcing process in its entirety.

One can also ask why firms are outsourcing the activities of their IT department at such an unprecedented rate when IT has never been more critical to business success. The primary reason, as indicated in the current literature, for why IT outsourcing has gained so widespread acceptance can be summed up as follows. Firms must constantly seek to lower their cost structures (Quinn, 1992) and respond with greater flexibility (D'Aveni and Ravenscraft, 1994) to changing market conditions and market uncertainty in general. Moreover, all the elements of running a firm are becoming more competitive and complex. There is a growing pressure on management to remain efficient and effective by accomplishing more with fewer resources at a faster pace. Competitive advantage also increasingly rests on value chain linkages not just from a single firm perspective but also from an industry-wide and even cross-industry perspective. In particular, the most common drivers for outsourcing IT are financial (reducing costs, obtain immediate cash, replacing capital outlays with periodic payments), technical (improving the quality of IT, gaining access to new and/or proprietary technology), strategic (focus on core activities, facilitate M&A, time to market, specialized firms can more easily attract highly skilled professionals that are in short supply) and political motives (dissatisfaction with internal IT department, regarding IT as support function, pressure from vendors, desire to follow trends or imitate)[2] and firms usually outsource for achieving a combination of these benefits (Kern, Willcocks and Heck, 2002). While all these reasons are well known, little evidence regarding the relative importance of these reasons across industries and outsourcing types exists as many empirical studies remain focused on particular sectors.

Acknowledging all the potential benefits of outsourcing, the risks involved require attention in empirical research as well. These risks include loss of control, declining rate of innovation, low performance, high transaction costs, other hidden costs including loss of key IT employees and dissipation of competitively relevant knowledge (Earl, 1996). Other risk factors include loss of absorptive capacity to monitor technological advance as well as motivation loss of remaining employees (Mahnke, 2001). Again, despite the fact that these risks are well established in the literature, little is known on how input and output market conditions impact risk types and degrees across sectors and companies.

3. Determinants of firm boundaries and the process of IT-outsourcing

Using external sources for providing IT-services supporting production represents a change in the boundaries of the firm. In general, three theoretical perspectives have been invoked and tested to shed light on IT-outsourcing decisions: Transaction cost theory, the competence-based view and more recently the relational view. These theories respectively represent an economic, strategic and a social view on IT outsourcing.[3] This section briefly presents the main constructs and theoretical implications of each of the perspectives for the IT outsourcing process.

3.1 Transaction cost economics

For transaction cost scholars firms and markets are alternative governance structures that differ in their transaction costs (Coase, 1937). Building on Coase's insights, Williamson has come to be seen as synonymous with transaction cost economics. Williamson's cardinal question is reduction of hold up. His theory of economic organization rests on assumptions about agents' cognition and identification of a transaction's critical dimensions. Agents are regarded as bounded rational and opportunistic. Bounded rationality implies that agents are "intendedly rational but only limited

[2] For a good example, see Loh and Venkatraman (1992).

[3] Other theorists point at additional theories such as an options perspective (Steensma and Corley, 2002), agency theory (Poppo and Zenger, 1998) and game theory (Kern, Willcocks and Heck, 2002).

so" (Simon, 1947), which results in incomplete contracts that make sequential decisions processes necessary. Opportunistic agents are "self-interest seeking with guile" (Williamson, 1979) and consequently, contracts based on promises are considered naïve and appropriate safeguards are necessary.[4] Firms can deal with these conditions more effectively than markets because they use relational contracts that are based on low powered incentives and are easier to audit. The theory works out of the discriminating alignment hypothesis, according to which transactions, which differ in their attributes, are aligned with governance structures that differ in their cost and competence (Williamson, 1991). Transactions have three critical dimensions: frequency of transactions, uncertainty (behavioural and environmental), and the degree of asset specificity. If these assume high values internal governance is implicated. According to transaction cost theory, activities will be internalised or outsourced depending on the relative transaction and production costs associated with IT-services.[5] Thus, by measuring transaction costs, it should be possible to provide significant guidance as to whether activities should be in- or outsourced. In sum, the theory contends that as uncertainty, frequency in combination with asset specificity increase so does the tendency to internalise the relevant IT-activity. Put another way: IT functions are only outsourced if they do not rely on specific asset, are not subject to a high degree of uncertainty, and are activities, which the firm relies on infrequently.[6] Thus, many empirically oriented outsourcing scholars use the transaction cost paradigm to frame their research design.

In addition it should be noted that some implications regarding single vs. multiple sourcing strategies remain to be addressed empirically. Transaction cost theory suggests that the outsourcer avoids small number bargaining situations, where the likelihood of vendor opportunism is increased (Klein, Crawford and Alchian, 1978). For example, if contractual costs are high in IT outsourcing arrangement multiple vendors may be used to control for hold up. On the other hand, transaction costs relevant for single vs. multiple IT-sourcing also include costs associated with searching and contacting a partner firm, negotiating and contracting with a partner firm, and monitoring and con-

[4] Transaction cost theory is concerned with ex ante ante well as ex post opportunism. Whereas ex ante opportunism most commonly derives from information asymmetries ex post opportunism or moral hazards are often connected to the fact that the relative bargaining situations have changed.

[5] Transaction cost theory assumes that market contracting is the default option for the sourcing of activities. Thus, it is assumed that independent sub-contractors have production cost advantages that may but need not to be offset by transaction costs.

[6] Empirical research in this view includes: Ang and Straub (1998); Aubert et al. (1996); Lacity and Willcocks (1995); Robertson and Gatignon (1998); Roodhooft and Warlop (1999); Wildener and Selto (1999); Steensma and Corley (2002).

trolling a partner firm over the entire outsourcing process. Indeed, such search, negotiation and monitoring costs play an important role in IT-outsourcing, particularly, when information asymmetry and knowledge gaps between outsourcer and vendor are large. Thus, firms will tend to trade-off the increased risk of hold-up when relying on few vendors and the additional costs incurred by searching, contracting, and monitoring with multiple vendors (Ang and Straub 1998; Ngwenyama and Brynson, 1999). Indeed, an interesting issue for future empirical research is thus, how, IT-sourcing strategies vary across market conditions in markets for alternative outsourcing types where knowledge gaps between IT outsourcing parties differ in degree.

Furthermore, transaction cost theory opens possibilities for future empirical research by acknowledging that any contract will inherently be incomplete. This opens the door for vendor opportunism in case of unforeseen events that occur after contract specification. Thus, contracts should either be formulated at a high level of detail, or when specifications are not feasible, the contract should be made self-enforcing as far as possible. For example, Williamson (1983) argues that credible commitments must be build into the contract as protection against opportunism through court-enforcement is costly if possible at all. Thus, a failure to recognise the purpose served by the economic equivalent of hostages may be responsible for repeated errors in IT outsourcing relations. One way of making contracts self-enforcing is to form relational contracts i.e. informal agreements that are sustained by repeated reputation games (Parkhe, 1993). In this view, relational contracts between firms circumvent difficulties in formal contracting, but do they substitute for possible contractual detail? In the transaction cost perspective, contracts may be tailored in great detail and to limit room for market hazards caused by opportunism and performance measuring problems (Lacity and Willcocks, 1998; Poppo and Zenger, 2002).[7] A disadvantage of this view, however, is that contractual over-specification reduces flexibility when new technological solutions become available and a vendor sticks to the letter rather than the spirit of a contract. Formal and highly specified contracts (as prescribed by transaction cost theory) may also signal distrust and hence encourage rather than discourage opportunism (Ghoshal and Moran, 1996). In contrast, relational contracts based on mutual trust may positively affect exchange performance. Moreover, they provide flexibility, which refers to the speed and cost of an adjustment to change in demand and supply conditions (Domberger, 1998), by allowing room for dealing with future contingencies. In accordance, Sambamurthy and Zmud (2001) argue for flexibility as the essential element for firms' inter-organizational IT ar-

[7] Note, however, that highly specified contracts do also open the door for opportunism if vendors stick to the word of the contract rather than the relational spirit.

rangements. Highly specified contracts may have severe limitations and relationships between outsourcers and vendors may be better based on mutual trust (Lee and Kim, 1999).

Instead of regarding detailed formal contracts and relational exchanges as substitutes, they can also be complements (Poppo and Zenger, 2002). In this view, the outsourcing process should be constructed so that it allows room for dealing with contingencies in order to prevent contractual haggling that damages the relationship. In sum, there is a need for more empirical studies investigating the issue whether relational and specific contract act as substitute or complement? [8]

3.2. Competence-Perspective

The competence-based view did not originally focus on explaining firm boundaries but on the question of performance difference between firms (Barney, 1986; Peteraf, 1993). The perspective applies a firm's resources and capabilities as the unit of analysis (Rumelt, 1984; Wernerfelt, 1984). It argues that firms possess numerous capabilities, but it is the capabilities, that are unique, inimitable, non-substitutable and rare, which are the bases for competitive advantage (Barney, 1991). Prahalad and Hamel (1990) use the notion of core competencies to denote combinations of central strategic resources and capabilities. They define core competencies as the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technologies. Three identifying elements characterize core competencies. First, they provide access to a variety of markets. Second, they make a significant contribution to the perceived customers' benefits of the end products. Third, they are difficult for competitors to imitate. Overall, the capability-based view purports that competitive advantage arises from developing and deploying unique, valuable and non-imitable resources.

What are the implications of the capability-based view for outsourcing decisions? According to the theory, firms may only internalise sources of competitive advantage if they have more accurate expectations of their future value than competitors have (Barney, 1986). Dierickx and Cool (1989) add that only non-tradeable assets such as a firm's reputation, customers' loyalty, trust and firm-specific labour, which need to be accumulated internally in the firm can lead to sustainable

[8] Several empirical studies have shown a clear connection between the transaction cost theory's constructs, specifically asset specificity, and the choice of governance structure. However, transaction cost scholars cannot be fully content with the empirical findings. It is obvious that organizations increasingly engage in small number bargaining and outsource IT activities with high degrees of specificity in industries that TAC-studies do not cover. Thus, rather than predicting or advising internalisation, transaction cost scholars must consider how firms should deal with such problems given that they need to outsource due to reasons of technological developments. The approach needs to consider resource capabilities and internal production constrains.

competitive advantages. Accordingly, DiRomualdo and Gurbaxani (1998) argue that firms must align their IT contracts with their strategic intent and strive to strike the right balance between risks and rewards for both the vendor and the client. Quinn and Hilmer (1994) argue that a firm should concentrate its resources on a set of core competencies and strategically outsource other activities, including IT, when these are neither strategic critical nor rest on special capabilities. Thus, IT-activities may be outsourced if they are not considered to be core competencies of the firm (Gilley and Rasheed, 2000; Steensma and Corley, 2002). Form a different angle; Steensma and Corley (2002) propose that if IT offers opportunity for sustained competitive advantage the firm should pursue an internalisation strategy.

It should be noted, however, that a firm cannot derive competitive advantage from IT activities accessed through markets, if these are freely available to competitors.[9] In this case the best a company may expect is to avoid competitive dis-advantage. For example, Allen and Chandrashekar (2000) suggest that the decision to outsource is usually based on the premise that the contractor has some inherent advantage over the host firm in producing and delivering a service. Nonetheless, even if firms use IT outsourcing to avoid competitive dis-advantage with regard to a particular IT activity, the firm might benefit additionally, when managerial capacity is freed and attention can be focussed on other value creating activities. In addition, if focusing on particular sets of activities increases the capacity to learn, efficiency improvements and innovation can be focussed on strategically most relevant activities to which IT-management may or may not belong. However, because learning leads also to absorptive capacity (Cohen and Levinthal, 1990), focussing activities too narrowly may lead to learning traps (March, 1991). This, in turn, can compromise future possibilities of searching for and selecting capable IT suppliers as the absorptive capacity of the outsourcer diminishes (Mahnke, 2001).

Recently, scholars argue that firms' motivations for outsourcing are evolving from a primary focus on cost reductions to an emerging emphasis on improving business performance (e.g. DiRomualdo and Gurbaxani, 1998; Sambamurthy and Zmud, 2001). For example, DiRomualdo and Gurbaxani (1998) argue that as firms confront a wide disparity of knowledge, skills and technology they need and the corresponding knowledge, skills and technology they have, IT outsourcing is increasingly becoming a strategic tool to assist closing capability gaps. In this regard, Baden-Fuller, Targett and Hunt (2000) propose that outsourcing of what seems to be core does make sense when the firm is threatened under four circumstances: (a) Catch-up where despite a slow moving envi-

[9] The argument disregards the opportunity of making exclusive agreements with partners.

ronment the firm has fallen behind its competitors; (b) changing value chains where the firm must respond to changing customer needs; (c) technology shifts under which the firm's core is outdated because of new technology; and (d) in emerging markets where new markets are available to the firm because of rapid changes in technology and customer demand.

In sum, from a competence-based view the most important factors affecting outsourcing decisions is securing access to critical IT resources that the firm does not have or fails to maintain on competitive levels – be they core or peripheral. The different arguments can be reconciled by stating that firms use outsourcing for establishing optimal resource/capability configurations in which the value of their resources is maximised relative to other possible combinations. Indeed, IT outsourcing as an empirical context can also be used to assess theoretical predictions of transaction cost theory and capability perspective comparatively (e.g. Poppo and Zenger, 1998, 2002).

Simply framing the outsourcing process as a make-or buy decision as envisioned by transaction cost economics and the capability perspective might be incomplete, however. Outsourcers can not only make and buy, they can also partner with other firms in long-term relations (Gulati, Nohria and Zaheer, 2000). Hence, in their search for access to various IT-resources, firms carefully select partners with needed resource profiles and learn by intensifying their relationship with them (Jones, Hesterly, Fladmoe-Lindquist and Borgatti, 1998).[10] By implication, the choice of specific vendors and the determinant of number of vendors are based on achieving access to relevant skills, knowledge and technology. The more, access and co-development of capabilities are at stake, the more interesting it becomes to address long term relational issues between IT outsourcer and vendor.

3.3. Relational view

The relational view suggests that a firm's critical capabilities may span firm boundaries and may be embedded in inter-firm routines and processes (Dyer and Singh, 1998). This perspective is relatively new and integrates the evolving literature on strategic alliances, networks, and relationship management in international marketing. It adopts the networks between firms as the unit of analysis and focuses on rent creation through different forms of partnerships. The relational view

[10] It is also possible to generally argue for and against using large and small vendors. Advantages of small vendors include less staff turnover, more responsive, experts in niche areas, better communication, attach higher importance to individual projects. The disadvantages are that they tend to be less financially secure, lack proven track records, lack breath in services and international network, lack understanding of the broader picture outside the expertise are. The reverse arguments apply for larger vendors.

draws partially on the competence-based theories and partially on transaction cost reasoning without being fully comprised by both. Relational rents are possible when partners combine, exchange, or invest in idiosyncratic assets, knowledge, and resources/capabilities and/or they employ effective governance mechanisms that lower transaction costs or permit the realization of rents through the synergistic combination of assets, knowledge, or capabilities (Dyer and Singh, 1998).

Accordingly, activities will only be outsourced if the relationship offers rents generated from inter-firm knowledge sharing, complementary resource endowments or effective governance (Dyer and Singh, 1998). Such rent creation requires relation-specific investments and activities are only outsourced if these investments are likely to yield a satisfactory return for all firms involved. Hence, the theory does not presume that combinations of different firms' resources will in it self create economic rents. Instead, only the continuous successful evolvement of the IT vendor – outsourcer relationship will create rents. This view conflicts somewhat with the capability perspective. As Takeshi (2001: p. 403) argues, "however close relations a corporation builds with its partners and however capable the partners are, the firm still has to compete with other firms who are seeking similar close relations with their capable partners. Competing firms may even share some partners. *How could a company outperform competitors who also have cooperative relations with their partners?* Without addressing this question, a firm cannot gain a sustainable competitive advantage from outsourcing". This statement nicely illustrates the differences between the two perspectives. The capability-based views sees competitive advantage arising from the remaining activities within the firm whereas relational scholars argue that competitive advantage is associated with the activities placed outside the firm. Perhaps, a possibility for empirical research is to ask whether alternative theoretical frameworks apply to the three alternative forms of outsourcing (infrastructure, application, business process) to different degrees. For example, an effective strategy from a relational view requires a firm to systematically share valuable knowledge with vendors in return for access to its partners' knowledge bases. The necessity of knowledge sharing implies a mutual interdependence between outsourcers and vendors in order to achieve an arrangement's potential. This might be more relevant for business process outsourcing as compared to infrastructure outsourcing arrangements, where interfaces between components might be specified more fully (Mahnke, 2001).

Even in this case, several factors may inhibit such strategies, however. Culture clashes are one of the main reasons why relationships fail to create value in IT-outsourcing. Thus, an empirical cultural assessment between partners in a business process outsourcing relationship can include elements such as examination of corporate values, organizational structure, reward and incentive systems, leadership styles, decision-making processes, work practices, corporate history, etc. (Dyer, Kale and Singh, 2001). Because these variables impact knowledge sharing and transfer mechanism, the performance of an IT outsourcing process may depend on them. Few studies investigate such issues empirically (see Lee and Kim, 1999, Lee, 2001 for an exception).

Due to the resources required for effective relationship management and the continuous focus on knowledge sharing, the relational view argues that firms can increase profits by increasing their dependence on a smaller number of suppliers. An increased incentive of suppliers to share knowledge and make performance-enhancing investments in relation-specific assets becomes a requirement (Bakos and Brynjolfsson, 1993; Dyer and Singh, 1998). Firms, in this view, may need to continuously ensure that they and the vendor share objectives and have a mutual understanding of their work processes and decisions. The requirements of a partnership management style include risk and benefit sharing and a view of the relationship as a win-win situation (Lee and Kim, 1999). In a similar vein Hitt, Dacin, Levitas, Arregle and Borza (2000) argue that successful inter-firm collaborations is a product of both partners achieving their goals. Bakos and Brynjolfsson (1993) similarly suggest, by focusing on vendor incentives, outsourcers will often maximise profits by limiting its options and reducing their own bargaining power. Thus, in this view, the performance of an outsourcing relationship is contingent on building social capital with the aim of establishing mutual interests and achieving mutual gains.

To summarize: First, the capability based view and the transaction cost perspective apply best to identifying whether of not IT-activities are candidates for outsourcing but have little to say about how to move beyond the decision and the deal to the address empirical issues relevant to making relationship work for value creation. Second, all three perspectives offer theoretical predictions and contradictions that remain to be empirically addressed. Finally, a fruitful avenue of future research is to address existing theory comparatively across industry settings and under alternative market conditions.

4. The empirical literature on IT-outsourcing: Merits and flaws

Many appealing arguments have been offered concerning outsourcing decisions and management – as argued above. But because the majority of papers discussed so far have been primarily theoretical in nature and have relied on mostly anecdotal evidence, it may be fair to say that scholars pretend to know more theoretically, than empirical studies are able to corroborate through sound testing. The aim of this section is to examine empirical tests of theoretical assertions. Here, we review 19 empirical IT outsourcing studies conducted in the period 1995-2002, published in a variety of academic journals. Based on this review, we conclude the following:

- Empirical studies follow slowly theoretical developments
- Focus of empirical studies remain limited to outsourcing decision making and outcome
- Future research is needed, including a) studies addressing comparative testing of theories, b) studies of contractual design, and c) studies of the outsourcing process in its entirety.

4.1 Empirical studies follow slowly theoretical developments

Originally the empirical IT outsourcing literature concentrated on the IT outsourcing decision. Debate arose as to relative merits of economic, namely transaction cost, and strategic, the competence-based arguments, reasons for outsourcing decisions and outcomes. Later, scholars claimed that even though most IT outsourcing decisions were made based on economic and/or strategic analysis, they at times failed due relational factors. The reason for this may be that while outsourcing appears attractive at the strategic level, serious problem are often encountered in the outsourcing process. The emphasis on relational governance structures represents a more recent departure from the traditional organizing principles of internal production or external procurement (Sambamurthy and Zmud, 2000). However, empirical research within IT outsourcing is confined largely to the make-or-buy decision and deals scarcely with the process determinants of IT outsourcing performance. Only recently empirical studies appeared that involve managerial issues including the social governance of relationships and the potential for rent generation arising from knowledge sharing and learning (Lee and Kim, 1999; Lee, 2001). Still, they remain few in number.

Table 1: Empirical Outsourcing studies

Concepts	Author(s)	Data	Main hypotheses or questions	Results
Transaction cost economics: Production cost, transaction costs, financial slack.	Ang & Straub (1998)	243 US bank CIO or high-ranking employees.	A: The higher the comparative production cost advantage offered through IT outsourcing, the greater is the degree of IT outsourcing. B: The less the transaction costs involved in hiring outsourcers, the greater is the degree outsourcing, C: The less the financial slack, the greater the degree of outsourcing.	A: Supported B: Supported C: Not supported

Transaction cost econom-ics: Contracts, adjustment costs, knowl-edge- and data-production, governance spillovers.	Azoulay (2000)	Data from DataEdge: 5209 clinical studies, sponsored by 53 firms, for the development of 925 experimental com-pounds	A: Outsourcing intensity responds positively to shocks in the level of activity for the firm as a whole. B: The probability that a given project is out-sourced decreases with the relative importance of knowledge-production activities compared to data-production activities. C: At least over some range, the performance of internal transactions is increasing in the level of outsourcing intensity for the firm as a whole.	A: Supported B: Supported C: Supported
Transaction cost econom-ics: Internal labour markets, HRM.	Azoulay (2002)	Qualitative: 6 pharma-ceutical and biotechno-logical firms, contract research organisations, and clinical trial sites. Quantitative: 5209 clinical studies spon-sored by 53 firms. Re-spondents: 100 employ-ees.	A: The size of the external labour pool adjusts less to shocks than does the size of the internal labour pool, all other things equal. B: The higher the average degree of complex-ity in a firm's portfolio of projects, the lower its reliance on outsourcing, all other things equal. C: The productivity of internal teams is in-creasing in the level of outsourcing intensity for the firm as a whole, all other things equal.	A: Support but not always sig-nificant B: Strong support C: Supported General: firms overcome em-ployee commitment problems by contracting out (thus they fire contractors rather than employ-ees).
Transaction cost econom-ics: Outsourcing decision.	Fixler & Siegel (1999)	45 service and 450 manufacturing indus-tries	A: Manufacturing industries with high growth in wages should be most active in outsourcing because the attending profit (assumed to be a function of the wage differential) is likely to be quite high. B: There should be a positive correlation be-tween manufacturing productivity and out-sourcing (in industries with a higher labour share). C: There should be an observable increase in the output of service industries that experience the increased demand implied by the outsourc-ing hypotheses.	A: Supported B: Supported C: Supported General: Outsourcing has played a major role in the growth of the service sector and the productiv-ity growth differential between manufacturing and services can only be assessed by acknowledg-ing this fact.
Transaction cost econom-ics: Contracts, bounded ra-tionality, un-certainty, safeguards, arm's length relations, embedded relations, and reputation.	Kim & Miranda (2001)	Questionnaire re-sponded by 142 city government IS manag-ers	A: When a high level of bounded rationality exists, organizations will be less likely to rely on an arm's length relationship and tend to rely on embedded relationships and rely on a provider's reputation. B: An arm's length contract will be negatively related to outsourcing expenditure, whereas an embedded relationship will be positively re-lated to outsourcing expenditure. C: An arm's length relationship will lead to an embedded relationship. D: An arm's length and an embedded relation-ship will relate positively to the provider's reputation.	A: Supported B: Supported C: Supported D: it was supported that an arm's length relationship relates posi-tively to the provider's reputa-tion but not that an embedded relationship does.
Transaction cost econom-ics: Production and transac-tion costs, asset specific-ity, uncer-tainty, small number bar-gaining.	Lacity & Willcocks (1995)	61 IT outsourcing deci-sions made by 19 US and 21 UK organiza-tions between 1991-1995 by 145 business executives, CIOs, out-sourcing consultants, vendor account manag-ers.	A: When production and transaction costs are considered, outsourcing is more efficient than insourcing for all transactions except: a) Recurrent idiosyncratic transac-tions; b) Asset-specific transactions with a high degree of uncertainty; or c) Transactions with a small number of suppliers.	A: Although transaction cost theory provides a logical and ubiquitous framework, two issues make it difficult to opera-tionalise: language ambiguity and using the transaction as the unit of analysis

<u>Transaction cost economics:</u> Discriminating alignment, contractual hazards, performance of alternative modes of governance	Leiblein, Reuer & Dalsace (2002)	Report of 176 global integrated circuit manufactures. 714 decisions involving production of semiconductor devises	A: Do unobserved attributes underlying firms' vertical integration decisions influence the governance-technological performance relationship? B: Does the fit between firms' vertical governance decisions and relevant transactional attributes highlighted by TCE influence technological performance?	Main finding 1: Governance decisions per se do not significantly influence technological performance. Main finding 2: Deviation from the optimal discriminating alignment may have detrimental effect on performance.
<u>Transaction cost economics:</u> Technology alliances, innovation, asset specificity, uncertainty, measurement	Robertson & Gatignon (1998)	Mail survey of 1320 randomly selected R&D directors over a broad spectrum of US industries. 264 questionnaires were returned.	A: The greater the specificity of existing assets, the more likely that the firm will develop technology internally rather than establish a technology alliance. B: The greater the demand uncertainty, the more likely that the firm will develop technology internally rather than establish a technology alliance. C: The greater the technological uncertainty, the more likely that the firm will establish a technology alliance rather than develop the technology internally. D: The greater the difficulty in measuring an innovation's performance, the more likely that the firm will develop technology internally rather than establish a technology alliance. E: The greater the firm's level of experience with successful alliances, the more likely that the firm will establish a technology alliance rather than develop the technology internally.	A: Supported B: Support, but not significant C: Supported D: Supported E: Supported
<u>Transaction cost economics:</u> Asset specificity, sunk costs, psychological bias, managerial decision making	Roodhooft & Warlop (1999)	165 managers of Belgian hospitals. Half of test population was told that the decision followed in-house production (i.e. sunk costs) the other was told it concerned a new activity.	A: To which extent do sophisticated decision makers consider sunk costs and asset specificity while choosing between internal production and outsourcing of a component of the firm's value chain?	The anticipation of asset specific investment and the presence of sunk costs reduced the likelihood of outsourcing.
<u>Transaction cost economics:</u> Asset specificity, frequency, uncertainty	Wildener & Selto (1999)	Studying factors influencing in or outsourcing internal auditing (IA). Quantitative and qualitative data from a random sample of 600 publicly traded firms with more than 500 employees (198 responses)	A: Firms internalise IA resources and attributes that require firm-specific investments (e.g. expertise, training, and knowledge) and support the firm's strategy. Conversely, firms outsource IA resources and attributes that are more generally applicable. B: Firms that experience high levels of environmental uncertainty will internalise IA. Conversely, firms that experience low levels of environmental uncertainty will outsource IA. C: Firms that experience high levels of behavioural uncertainty will internalise IA. Conversely, firms that experience low levels of behavioural uncertainty will outsource IA. D: Firms that use IA services frequently will internalise IA. Conversely, firms that use IA services infrequently will outsource IA.	A: Strongly supported B: Not supported C: Not supported D: Supported General: interaction between environmental and behavioural uncertainty and asset specificity to affect performance was not fund.

<u>Resource-based view:</u> Core competence, valuable, rare, inimitable, non-substitutable resources	Gilley & Rasheed (2000)	94 independent, non-diversified manufacturing firms with more than 50 employees. Respondents: Top executive plus one executive selected by the top executive.	A: Peripheral outsourcing intensity has a positive effect on firm performance and core outsourcing intensity has a negative effect on firm performance. B: A firm's business level strategy moderates the relationship between outsourcing intensity and performance, such that for a cost leader, any positive effect of outsourcing on performance is strengthened and any negative effect is weakened; and for a differentiator, any positive effect is weakened and any negative is strengthened. C: Environmental dynamism moderates the relationship between outsourcing intensity and performance such that any positive effect of outsourcing on firm performance is strengthened and any negative effect of outsourcing on performance is weakened as dynamism increases.	A: Not supported B: Partial support (findings for cost leaders support, finding for innovative differentiators is opposite of hypothesis C: Not supported, opposite finding
<u>Relational view:</u> Partnerships	Grover, Cheon & Teng (1996)	Randomly selected industries. Respondents: 188 (of 1000) IS top executives	A: The degree of outsourcing will be positively related to outsourcing success. B: The association between the degree of outsourcing and outsourcing success is moderated (stronger) by the level of service quality. C: The association between the degree of outsourcing and outsourcing success is mediated by the quality of partnership between the service provider and the firm.	A: Supported B: Supported C: Generally supported General: By examining specific IT functions, the article find that transaction costs economics and its notion of asset specificity are important explanatory factors for IT outsourcing decisions
<u>Relational view:</u> Partnership quality, outsourcing success	Kim & Lee (1999)	Initial interviews with 7 IS professionals, then questionnaires to 36 organizations	A: Participation, communication, information sharing, and top management support contribute positively to partnership quality. B: Joint action, coordination, and cultural similarity contribute positively to partnership quality. C: Age of relationship and mutual dependency contribute positively to partnership quality. D: There is a positive relationship between partnership quality and outsourcing success.	A: Support for all four elements B: No support for the three elements C: Contradicted for both elements D: Supported!
<u>Relational view:</u> Knowledge-sharing partnership quality, outsourcing success	Lee (2001)	195 Korean public sector organisations. Respondents: IS managers.	A: The degree of implicit and explicit knowledge sharing will have a positive effect on outsourcing success. B: The association between the degree of implicit and explicit knowledge sharing and outsourcing success is moderated by the level of organisational capability. C: The association between the degree of implicit and explicit knowledge sharing and outsourcing success is mediated by the quality of the partnership.	A: Supported B: Supported C: Supported

Relational view and transaction cost economics	Poppo & Zenger (2002)	Data from IS executives either the senior corporate information services manager, or the manager controlling major data-processing facilities in operating departments, divisions, or subsidiaries. List of key informants was obtained from Directory of Top Computer Executives. Survey mailed to 3000 randomly picked names. 181 responses, 152 usable. Subsequent telephone survey led to a core sample for data of 285.	A: Increases in exchange hazards encourage more complex contracts B: Increases in exchange hazards will lead to more relational governance C: Contractual complexity and relational governance will function as substitutes in explaining exchange performance. D: Contractual complexity and relational governance will function as complements in explaining exchange performance.	A: Supported B: Weak support C: Not supported D: Supported
Selective outsourcing contracts	Lacity & Willcocks (1998)	61 IT outsourcing decisions made by 19 US and 21 UK organizations between 1991-1995. Respondents: 145 (business executives, CIOs, outsourcing consultants, vendor account managers)	What are the practices that differentiate success from failure in IT outsourcing?	Selective outsourcing decisions achieved expected cost savings with a higher relative frequency than total outsourcing or insourcing decisions. Senior executives and IT managers who made decisions together achieved expected cost savings with a higher relative frequency than when either group acted alone. Organizations that invited internal and external bids achieved expected cost savings with a higher relative frequency than those that only compared external bids with current IT costs. Short-term, recently signed, and detailed fee-for-service contracts achieved expected cost savings with a higher relative frequency than long-term, older, other types of fee-for-service contracts.
Outsourcing decision	Smith, Mitra & Narasimhan (1998)	Key word (contract, facilities management, outsourcing) search on *Business Index* and *ABI Inform*. 29 large-scale companies comprised the sample.	A: Firms that enter into large-scale IS outsourcing arrangements are more cost-conscious (have a greater need to reduce costs) than other firms in their industries. B: Firms enter into large-scale IS outsourcing arrangements as part of an organization-wide effort to focus on their core competency. C: Firms that enter into large-scale IS outsourcing arrangements have a greater need to generate cash than other firms in their industries. D: Firms that outsource IS have lower profitability than other firms in their industries.	A: Supported B: Not supported C: Supported D: No significant support

Transaction cost economics, knowledge-based view, agency theory: Asset specificity, language, routines, technological change	Poppo & Zenger (1998)	Data concerning the performance, governance, and exchange characteristics of internally and externally sourced information services. Respondents: The senior corporate information services manager or the manager controlling major data-processing facilities in operating departments, divisions, or subsidiaries. List of key informants was obtained from Directory of Top Computer Executives. Survey mailed to 3000 randomly picked names. 181 responses, 152 usable.	A: Does increases in the specificity of an activity negatively affect the performance of governance through the market, positively affect the performance of governance through firm organization, or will they have similar effects on firm and market governance so that such increases are unrelated to the choice of boundary? B: Does increased difficulty in measuring the performance of an activity negatively affect the performance of exchanges governed through the market, negatively affect the performance of exchanges governed through firm organization or will it have similar effects on market and firm performance so that changes in measurement are unrelated to the choice of boundary? C: Does increased technological uncertainty will negatively affect market performance or negatively affect firm performance.	The decision to vertically integrate when information services are firm specific hinges on performance losses that arise or would arise from using market governance, rather than internal governance efficiency increasing with firm specific investments! Overall, the results provide strong support for TCE arguments: increasing asset specificity leads to the diminishing effectiveness of market governance. The results fail to support KBV arguments. The reason is that when underlying technological change is rapid, routines, language and other forms of knowledge become rigidities. In addition, the results clearly show that boundary choices do matter!
Transaction cost economics, resource-based view, and an options perspective. Testing not which theory is correct, but when each theory applies.	Steensma & Corley (2002)	280 questionnaires of which 123 was usable. Respondents: Two executives: usually CEO/president and director of R&D/technology	A: There is a positive relationship between the perceived threat of opportunism and the probability that a firm will source technology through acquisition as opposed to licensing. B: There is a negative relationship between the perceived threat of commercial failure and the probability that a firm will source technology through acquisition as opposed to licensing. C: There is a positive relationship between the perceived opportunity for sustainable advantage and the probability that a firm will source technology with an acquisition as opposed to licensing. D: Low management stockholdings will make the positive relationship in proposition A and the negative relationship in proposition B stronger, whereas high management stockholdings will make the positive relationship in proposition C stronger. E: Risk averseness makes the positive relationship in proposition A and the negative relationship in proposition B stronger, whereas risk-seeking behaviour will make the positive relationship in proposition C stronger.	Transaction cost rational, based on the threat of opportunism, better explains firm boundaries when management stockholdings are low than when they are high. Transaction cost rational, based on the threat of opportunism, better explains firm boundaries when slack resources are high than when they are low. Resource-based rationale, based on the opportunity to develop sustainable competitive advantage, plays a larger role in explaining firm boundaries when a firm has lower levels of recoverable slack and a risk seeking orientation than when a firm has higher slack and risk averseness.

4.2 Focus of the empirical studies remains limited to decision making and outcomes

As argued before, two issues have been investigated in the empirical literature. First, the issue of how certain variables affect the propensity to outsource and the firm-level degree of outsourcing. Second, the issue of how certain variables affect the performance of outsourcing arrangements.[11] Some scholars do not differ between the decision to outsource and the performance of the established arrangement. For instance, Smith, Mitra and Narasimhan (1998) investigate what makes

[11] Some literature is also concerned with national differences in IT outsourcing practices; see Barthelemy and Geyer (2001), where the secondary focus is also on the IT outsourcing decision and the management of IT outsourcing operations, and Kakabadse and Kakabadse (2002) who focus on outsourcing practice differences between Europe and the US.

a firm decide to outsource by investigating the outcome of outsourcing arrangements. Although there are likely to be instances where the goals on which the decision to outsource is based, are achieved this cannot be considered the general case. The following assessment is shaped around the abovementioned two issues even though it is acknowledged that some studies do not fit into these categories. Despite overlaps in determinants of outsourcing decisions and investigated outcomes, each stream of studies centres on particular aspects of the determinants. While the theoretical foundation for the two streams of empirical research under investigation is similar, outcome measures deployed vary substantially.

Table 2: Independent Variables

Independent Variable	Definition / Measures	Representative Authors
(Comparative) production cost	a) Internalizing IT versus the price that has to be paid to vendor for the same IT services b) the cost of capital, labour and materials	a) Ang & Straub (1998); b) Lacity and Willcocks (1995)
Transaction costs	a) refers to the effort, time, and costs incurred in searching creating, negotiating, monitoring, and enforcing contracts b) the costs of monitoring, controlling and managing transactions c) encompass the costs of negotiating, monitoring, and enforcing contracts that arise directly from opportunistic behavior or from difficulties in measuring the goods or services being exchanged	a) Ang & Straub (1998) b) Lacity and Willcocks (1995) c) Poppo & Zenger
Measurement problems	Accuracy in measuring asset values defines the effectiveness of markets. When contributions from an outside supplier cannot be accurately assessed, adequate contracts will be costly to craft	Poppo & Zenger, 1998
Perceived threat of opportunism	The bounded rationality of management impedes their ability to distinguish firms that may behave opportunistically from those that may adopt a more cooperative stance. It is the threat of opportunism as perceived by management that lead to ex ante TC (contractual safeguards) and the recognition of possible ex post TC (contract enforcement)	Steensma & Corley (2002)
Perceived threat of commercial failure	The threat arises from uncertainty about the technology, about its design efficacy, and market acceptance	Steensma & Corley (2002)
Perceived opportunity for sustainable advantage	A firm has an advantage if it is able to create value in a way that other firms cannot. The advantage is sustainable if it continues to exist despite competitors' efforts of duplicating it	Steensma & Corley (2002)
Bounded rationality	A condition of human "frailty" associated with the computational limits of humans. Although decision makers intend to act rationally, due to limitations in their information processing and communication abilities, they demonstrate bounded rationality	Kim & Miranda (2001)
Transaction idiosyncrasy	a) Investments in human and physical capital that cannot be redeployed without losing productive value. b) the degree to which the assets needed to perform the activity are not transferable to other activities c) enables firms to reduce production costs, innovate, and	a) Robertson & Gatignon (1998) b) Wildener & Selto (1999) c) Poppo & Zenger

	meet product specifications. However, it also damages the performance of simple market governance by creating hold-up hazards as the assets are of lesser value in alternative uses	
Behavioural uncertainty	Reflects difficulties of monitoring contract performance and controlling the human tendency toward opportunism	Wildener & Selto (1999)
Technological uncertainty	a) Refers to the probability of improvements in technology b) technological advances that dramatically changes the ways firms operation in ways completely unanticipated	a) Robertson & Gatignon (1998) b) Poppo & Zenger (1998)
Demand uncertainty	Concerns the fluctuations and the unpredictability of demand	Robertson & Gatignon (1998)
Sunk costs	Any historical investment in a current "make" activity	Roodhooft & Warlop (1999)
Frequency	The volume or rate at which activities are conducted	Wildener & Selto (1999)
Complexity of activity portfolio	Degree of interpersonal complexity and requirements for firm-specific human capital	Azoulay (2002)
Knowledge intensity	Knowledge production requires that information and problem-solving capabilities be brought together at a single locus	Azoulay (2000)
Peripheral activities	Less strategically relevant activities. Identification relies on a firm's individual judgement based on what it considers its core competence	Gilley & Rasheed (2000)
Business Strategy	Cost leadership or differentiation strategy	Gilley & Rasheed (2000)
Joint decision making of managers and IT	Sponsorship of the decision. Sponsor defined as the person who initiated or championed the sourcing decision and who made or authorised the final decision. Results from open ended question about sponsors.	Lacity & Willcocks (1998)
Competitive internal and external bidding	The firm made the sourcing decision by creating a request-for-proposal and inviting external bids as well as bids from internal IT department	Lacity & Willcocks (1998)

4.2.1 Making outsourcing decisions

The majority of studies on IT outsourcing concentrates on the outsourcing decision. Although the make-or-buy decision is taken in two dimensions namely "breath", meaning the amount of activities outsourced, and "depth", denoting the relative value of the outsourced part of an activity compared with the part of the activity kept in-house, most empirical studies only examine the decision as binary decision. Traditionally, the literature has dealt much with transaction costs and the notions of "core" and "commodity" activities as the main constructs for making the outsourcing decision. Yet, the review of empirical studies reveals that other independent variables (see table 2) may affect the propensity to outsource IT. This is in accordance with recent research that emphasises that the traditional determinants of outsourcing decisions derived from both transaction cost theory and capability based view may be too narrow (Yang and Huang, 2000).

From a transaction cost perspective several theoretical determinants of firm boundaries have been tested. Ang and Straub's (1998) study of IS outsourcing in the US banking industry reports a negative relation between the transaction cost involved with hiring vendors (particularly *searching* *costs*) and the degree of IT outsourcing.[12] In terms of a transaction's critical dimensions Wildener and Selto (1999) report that *frequency* of resource use is positively related to internalisation and Robertson and Gatignon (1998) find that the greater the technological *uncertainty*, the more likely that a firm uses alliances rather than internal governance for developing technology. They also contend that *asset specificity* is likely to make a firm pursue technology development internally. Roodhooft and Warlop (1999) and Poppo and Zenger (1998) find that the anticipation of asset specific investment reduces the likelihood of outsourcing. Wildener and Selto (1999) likewise find strong support for the hypothesis that a firm internalise resources and attributes that require firm-specific investments. In addition, Steensma and Corley (2002) find a positive relationship between the perceived threat of opportunism and the probability of internalisation. They do however, report that the transaction cost rationale based on the threat of opportunism better explains firm boundaries when management stockholdings are low than when they are high. A general support of transaction cost reasoning for making the outsourcing decision is evident from the abovementioned studies.

Steensma and Corley (2002) conduct a test of capability-based arguments. They find that the opportunity to develop sustainable competitive advantage is more closely related to internalisation when a firm has lower levels of recoverable slack and a risk seeking orientation. Ang and Straub (1998) test the resource-based theory in a reverse fashion by examining the extent of outsourcing when an external firm has a comparative production advantage. They find a positive relation between the sizes of the comparative production cost advantage offered through IT outsourcing and the degree of IT outsourcing. Moreover, production costs play a much stronger role in the outsourcing decision than transaction costs do. While the findings can be interpreted as a strong support for the emphasis on strategic perspectives in outsourcing decisions, they can also be regarded as evidence of the weight of financial criteria.

Other independent variables and their correlation with positive outsourcing decisions include the risk of failure, which was found to be negatively related to the probability of internalisation (Steensma and Corley, 2002), measurement costs, where increases in the difficulty of measuring an innovation's performance is positively related to internal governance (Robertson and Gatignon, 1998), previous outsourcing success, which is positively related to outsourcing (Grover et al., 1996), and sunk costs, which Roodhooft and Warlop (1999) find reduce the likelihood of outsourcing although such past investments should be irrelevant. By using firm size as control variable Ang and Straub (1998) show that there is a strong relationship between firm size and outsourcing.

[12] Interestingly, they also found that a firm's sensitivity to fluctuations in financial slack could not explain sourcing decisions.

Smaller firms have difficulties in generating economies of scale in their IT operations and are thus more likely to outsource these activities. In sum, it is possible to extract three broad conclusions from this stream of empirical studies:

- Most studies have examined outsourcing decisions form a transaction cost perspective. Transaction cost rationales focusing on asset specificity as the explaining variable for making outsourcing decisions receive general support in mainly stable and mature industries
- Few studies have investigated the explanatory power of the capability-based view in terms of outsourcing decision-making. There is little consensus in the existing studies of the merits of capability-based rationales.
- Several other variables than asset specificity and core competences affect the propensity to outsource, so that main theoretical explanations might be too limited to generate propositions that capture the drivers in outsourcing decisions.

4.2.2 Outsourcing Outcomes

The firm-level performance effects of IT outsourcing have been discussed widely in previous theoretical work. However, the current level of understanding of these outcomes is based primarily on anecdotal evidence such as that provided by the competence-based view which suggests that a firm should continuously invest in those activities that constitute its core competence while outsourcing the rest (Prahalad and Hamel, 1990; Quinn, 1992). Little empirical research has examined the performance and competitive implications of firms' governance decisions in general and sourcing strategies in particular (Leiblein et al., 2002). Nonetheless, developing sound sourcing strategies is seen as critical to improve performance in the recent literature. Yet, empirical tests remain ambiguous and show detrimental impact on performance. One should also notice that performance is not an unambiguously defined measure in current outsourcing research (see table 3). Some studies focus on technology performance (Leiblien et al., 2002), some focus on financial and non-financial performance (Gilley and Rasheed, 2000), and others concentrate on different performance measures.

Table 3: Dependent Variables

Dependent Variable	Definition / Measures	Representative Authors
Degree of IT outsourcing	Three perspectives: 1) operations: an omnibus measure of whether the firm is operating primarily through insourced or outsourced arrangements, 2) functional: respondents gauge the extent of outsourcing across 8 different IT functions, 3) applications: standard banking applications were presented to the respondents and they were asked to assess the extent to which these applications were outsourced	Ang & Straub (1998)
Outsourcing intensity	Measured as a lower bound to the firms "true" level of adjustment through market-mediated employment arrangements, which include (but are not restricted to) outsourcing.	Azoulay (2000)
Outsourcing expenditure	No definition	Kim & Miranda (2001)
Technological performance	The performance effects of firms' production sourcing strategies. More specifically, the technological performance implications of production internalization versus outsourcing by firms in the global semiconductor industry.	Leiblein, Reuer & Dalsace (2002)
Outsourcing success	Consists of 3 categories of benefits: 1) strategic: the ability of a firm to focus on its core business, outsource routine activities, 2) economic: the ability of a firm to utilize expertise and economies of scale in human and technological resources of the vendor and manage its cost structure, 3) technological: the ability of a firm to gain access to leading-edge IT and avoid technological obsolescence that result from changes	Grover, Cheon & Teng (1996)
Partnership quality	2 dimensions: 1) fitness of use: how well does the outcome of a relationship match with expectations, 2) reliability: partnership free from deficiencies. Five factors make up partnership quality: trust, business, understanding, benefit/risk sharing, conflict and commitment	Kim & Lee (1999)
Exchange Performance	Not only governance efficiency, but overall satisfaction with exchange performance (measured on 1-7 scale)	Poppo & Zenger (2002)
Cost savings	"expected cost savings achieved" was adopted as the measure of success	Lacity & Willcocks (1998)

The focus of the studies concerned with the performance of IT outsourcing deals has been on discovering, which of the many independent variables are correlated with outsourcing success defined in various ways. However, other studies have focused on the content of the make-or-buy decision and its effect on performance. For example, Leiblein et al. (2002) examine whether *governance decisions*, in particular outsourcing decisions, have any effect on technological performance. They observe that governance decisions per se do not significantly influence technology performance. Instead they find that the relationship between governance choice and performance is dependent on the distribution of relevant capabilities and the degree to which performance is driven by autonomous or systemic innovation as defined by Chesbrough and Teece (1996). Their second main finding is that deviations from the optimal discriminating alignment might have detrimental affects on performance. This can be the case when contractual safeguards are inadequate for the specific situation. Lacity and Willcocks (1998) focuses on the *degree of outsourcing* and find that selective outsourcing decisions are more likely than total outsourcing decisions to achieve expected cost savings.

The *kind of activities* outsourced may also affects outsourcing performance. Gilley and Rasheed (2000) proposed that outsourcing peripheral activities would have a positive effect on firm performance while outsourcing core activities would have negative effect. However, they found that there was no direct firm-level performance effect of outsourcing intensity. They also hypothesized that a firm's business level strategy would moderate the relationship between outsourcing intensity and firm performance to find that cost leader and differentiation strategy change this picture. Their test showed that for both cost leaders and differentiators there was a positive correlation between peripheral and core outsourcing and performance (respectively financial and innovative performance). Finally, they proposed that environmental dynamism moderates the relationship between decision and performance by enhancing the positive effects and neutralising the negative effects of outsourcing. The findings showed the contrary. Hence, firms operating in relatively stable environments have more to gain from outsourcing. They explain this by submitting that first, the potential transaction costs associated with negotiating, monitoring, and enforcing outsourcing arrangement may increase more in dynamic environments, and second, that the bargaining power of adequate suppliers may also be greater in these environments. In general, they conclude that firm-level benefits of outsourcing may have been overstated in the past.

From a relational perspective Kim and Lee (1999) find a positive relation between *partnership quality* and outsourcing success. They propose a variety of variables to compose the notion of partnership quality including participation, joint action, communication quality, coordination, information sharing, age of relationship, mutual dependence, culture similarity and top management support. Their results however show that age of relationship and mutual dependence is detrimental to partnership quality and they do not find a positive relation between joint action, coordination, cultural similarity and partnership quality. Following this study Lee (2001) reports a positive relation between the *degree of knowledge sharing* and outsourcing success. In a similar vein Lacity and Willcocks (1998) report that senior executives and IT managers who made decisions together achieved expected cost savings with a higher frequency than when either stakeholder group acted alone.

Lacity and Willcocks (1998) examined contractual factors affecting the outcome of outsourcing arrangements. They found that the organization of the *bidding process* affect performance in away such that firms that invite internal and external bids achieved expected cost savings with higher frequency than those that only invited external bids. Moreover, their study revealed that *contract duration* is negatively correlated with achieving cost savings and that detailed *fee*-for-service contracts achieved expected cost savings with a higher relative frequency than other types of fee-for-service contracts. Poppo and Zenger (1998) report partial support for the view that increased *difficulty in measuring* the performance of an activity will negatively affect the performance of exchanges governed through the market, whereas they find clear support that increased difficulty in measuring the performance of an activity will negatively affect the performance of exchanges governed through firm organization. Yet, they do not find significant support for the view that increases in measuring difficulty increase the likelihood of vertical integration.

The results of the empirical studies regarding the performance of IT outsourcing arrangements indicate a divergence between the current theoretical rationales and the observed outcomes. Again, several broad conclusions can be drawn:

- Performance measures used vary substantially; objective performance measures fail to support that outsourcing increases performance.
- There are no studies supporting the competence-based argument that outsourcing peripheral activities and retaining core activities in-house improves performance.[13]
- Studies also fail to support knowledge-based arguments concerned with hierarchical benefits and associated performance effects.
- Newer studies, which remain sparse, portray general support for the relational view: knowledge sharing and partnership quality contributes positively to outsourcing performance.

4.3. Future empirical research on IT outsourcing: What do need to know?

Whereas the previous section has assessed the current state of empirical outsourcing research, the following sections offer avenues for future empirical research.

4.3.1 Comparative empirical studies are needed

[13] Azoulay (2002) shows that the productivity of internal teams increases with outsourcing, but he attributes the increase to employee commitment.

Empirical studies of IT outsourcing have been particularly informative regarding the outsourcing decision. In general, transaction cost theory has received support for its core argument, that asset specificity is the main determinant in internal production versus external procurement decisions. Yet, firms in similar business environments and situations adopt different outsourcing strategies. Madhok (2002) notes: ”Clearly, the reason why there are variations in organizational form under similar transaction characteristics or, alternatively, why different firms organize similar transactions in different ways is that it is not just transaction particulars that matter, but also firm particulars”. Whereas the resource-based view concentrates on these “firm particulars” it has neglected that firms can also exploit resources through market arrangements (Silverman, 1999). Still, the extent to which outsourcing arrangements generate value depends on the efficiency of both production and exchange (Ricardo, 1962). Thus, more satisfying empirical studies are called for to address not just the decision with respect to hierarchical governance or market governance, but also take into account how a firm’s IT-resources and capabilities can best be developed and deployed in the search for competitive advantage (Madhok, 2002; Combs and Ketchen, 1999). Since transaction cost scholars mainly focus on the role of efficient governance in explaining firms as an institution for organizing economic activity (Williamson, 1975; Klein et al. 1978) and competence-based scholars tends to emphasize the role of competitive advantage (Barney, 1991; Conner, 1991; Peteraf, 1993), is appears logical that the outsourcing decision should have been investigated comparatively from a transaction cost and from a competence-based researchers.

Although some studies show that a specific theory has more effect in explaining certain observations than another, it is difficult to imagine one of the three theories not having some degree of explanatory power. Each perspective appears to provide complementary implications for the different phases of the IT outsourcing process. Quinn and Hilmer (1994) utilize insights from both resource-based and transaction cost theory when they argue that the outcome of outsourcing decision depends on two dimensions: strategic importance and strategic vulnerability. However, even though the perspectives complement each other nicely their joint utilization in clarifying outsourcing arrangements has been unsatisfactory in empirical studies. While the perspectives share important similarities, the focus on exchange dimensions and productive performance is different, and the relative importance of each needs to be addressed across outsourcing types and industry setting in cross-sectional studies. [14]

[14] To our knowledge there are only two studies addressing comparative testing of theories are Poppo and Zenger (1998, 2002) and Steensma and Corley (2002).

4.3.2 Empirical research requires attention to contractual design

Combining transaction cost arguments with resource-based and relational reasoning suggest that vendors need to balance the advantages of developing strong relationships with the costs of providing the vendor with bargaining power through relation-specific investments (as suggested by Hurst and Hanessian, 1995). The challenge lies in writing a contract that is specific enough to protect a firm from opportunism yet flexible enough to adjust to contingencies (Allen and Chandrasheklar, 2000). Even with the assumption that firms can both efficiently and effectively make IT outsourcing decisions and manage their IT outsourcing relationship, there are still severe contractual problems that must be addressed to ensure optimal outcomes from IT outsourcing arrangements. The implication is that research needs to direct attention toward the contractual practices for supporting outsourcing decisions and relationships. There often exists a mismatch between the activity attributes and the contract features, which leads to costly outsourcing failure (Aubert et al., 1996). Although current empirical studies offer a variety of determinants of outsourcing decisions and success to practitioners, current research on contractual support remains mainly a conceptual discussion. The results of the studies highlight the importance of evaluating a range of variables but give little guidance to which contractual factors might effect outsourcing outcome, how these contractual factors influence performance, or how firms can use contract alignment to ensure the desired outcome of a relationship? What we do know is that contracting appears to yield highest value when it combines the market advantages such as specialization, discipline and flexibility with hierarchy features such as routines and common language ensuring effective utilization and sharing of knowledge (Conner and Prahalad, 1996; Kogut and Zander, 1992) to form longer-term, cooperative relationships.

In terms of contractual elements, it is obvious that a contradiction exists between the transaction cost argument favoring detailed contracts specifying the obligation of each party and the allocation of costs and benefits in every conceivable state of nature and alternatively the relational view's argument, that the parties should rely on social and sequential contracts and approach problems as they go along. The problems with each solution are respectively bounded rationality and opportunism (Aubert et al., 1996). Although the arguments from both perspectives are clear and appreciable, they also contribute to growing confusion. It is apparent that neither fully specified nor completely socially based contracts are efficient. An empirical question is how to strike a balance? This is a very important issue to be addressed in empirical research since contractual decisions have widespread impact. A complication emerges, however, because of increased complexity of IT outsourcing deals results in new implications for contract terms. Traditionally firms outsourced non-core activities and accordingly used transaction-based approaches in contracting. Today, outsourcing contracts are less defined ex ante (Yost and Harmon, 2002) and tend to be more relationship based. A second complication of such empirical research is that firms make contractual commitments that affect the portfolio of future options available and thus contractual governance decisions evolve in a path dependent manner (Argyres and Liebeskind, 1999). For example, prior contractual decisions potentially influence both the future outsourcing decisions. While many scholars have brought forth normative statements such as "a company's overarching objective should be to maximise flexibility and control" (Lacity, Willcocks and Feeny, 1995: p. 84), few have sought to outline the contractual implications of such statements, and supported them through empirical corroboration.

4.3.3. The outsourcing process needs to be addressed in its entirety

The model presented in figure 1 portrays the IT outsourcing process illustrates the various phases that can be investigated. Although some of the phases have been studied, shortcomings in addressing the entirety of the outsourcing process across all phases present future research opportunities. The *first* pathway for future research should aim at developing a better understanding of the complementarities of the current theories used in empirical outsourcing studies. Various interrelations between the theories and their individual contributions to understanding the different phases in the IT outsourcing process provide for interesting research opportunities. While there is vast research that investigates boundary choices from each the three perspectives, there is little literature that offers an integrated approach. To develop an appropriate framework for business managers considering IT outsourcing processes, the strands in the literature must be integrated in a process model. *Second*, current research has focused on the IT outsourcing decision and the IT outsourcing management as illustrated by the choice of dependent variable in the two categories of empirical studies. By simplifying the IT outsourcing process to merely include a decision and a management phase it can be tempting to conclude that this focus is comprehensive. However, by acknowledging that this is an unsatisfactory simplification one notices that the contractual phase has been largely neglected. Questions such as how do we best support the desired relation, what are the effects of different contractual governance structures and the relationship and its performance, and which contractual factors affect the transformation process and performance and how are short of answers.

Answers to such questions may assist as a remedy for the continuation of a vast amount of reported IT outsourcing failures and mistakes as well as lacking understanding in the empirical literature. In addition, an understanding of how the different choices in an IT outsourcing process are interrelated is clearly lacking.

Obviously, firms outsourcing activities with low strategic impact for achieving cost-savings do not have to manage the relationship as rigorously as firms outsourcing high strategic impact activities for ensuring continuous innovation. What is less obvious and lacks empirical investigation is how the decision motive and the relationship management is connected to contractual elements such as performance metrics, performance monitoring, contract duration, risk allocation, allocation of managerial control, payment systems and fee structures, incentive alignment, asset ownership, etc. *Third*, combining the two suggested research areas above allows for a promising multi-theoretical examination of contractual support mechanisms as well as their impact on different phases in the outsourcing process. Further research within the proposed areas will be beneficial to both researchers and practitioners who face IT outsourcing queries.

5. Discussion: Advancing empirical research on IT-outsourcing

Disagreement and confusion about the definition of outsourcing are still widespread. Loh and Venkatraman defined outsourcing as "the significant contribution by external vendors in the physical and/or human resources associated with the entire or specific components of the IT infrastructure in the user organization" (1992: 9). Alternatively, outsourcing has been defined as "products supplied to the multinational firm by independent suppliers from around the world" and "the extent of components and finished products supplied to the firm by independent suppliers" (Kotabe, 1992: 103). Roodhoft and Warlop (1999) argue that in practice outsourcing is not a make-or-buy decision, but involves a switch from internal production to external procurement. In addition, outsourcing has been defined as "the reliance on external sources for manufacturing components and other value-adding activities" (Lei and Hitt, 1995: 836). Gilley and Rasheed (2000) propose a definition that acknowledging the different definitions as complements rather than substitutes. They suggest that outsourcing may arise first, through the *substitution* of external purchases for internal activities, i.e. a discontinuation of internal production and an initiation of procurement from outside suppliers, and second through *abstention*, i.e. when a firm purchases goods or services from outside organizations even when those goods or services have not been completed in-house in the past. Current theoretical strands of literature focus empirical research on some process phase while blindspotting others. The following table summarizes what we regard as promising questions to be addressed in future empirical research on IT outsourcing processes:

Table 4: Avenues for future research

	The IT outsourcing process			
Phases **Theories**	***Outsourcing decision:***	***Vendor selection:***	***Contract design:***	***Relationship management and performance evaluation:***
(A) Transaction Cost Theory	Are external transaction costs higher than internal transaction costs? How do outsourcing strategies vary across market conditions in markets for alternative outsourcing types where knowledge gaps between the parties differ in degree?	Does working with several suppliers decrease or increase transaction costs? Do multiple vendor strategies help hedging outsourcing risk? If yes, to what degree?	Do highly specified contracts reduce or increase vendor opportunism? Should risks and reward be allocated differently in different types of outsourcing arrangements?	Do transaction costs of search; bargaining; monitoring and control decrease as relationship proceeds over time? Can credible commitments enable firms to balance conflicts between the desire to learn from vendors and attempts to mitigate hazards associated with opportunistic behavior by the same parties?
(B) Capability-Based View	Compare production cost advantage among suppliers and internal procurement? Does IT outsourcing a) free resources in the firm, and b) are these resources capable of being redeployed in more productive uses?	Does a multiple source strategy prevent lock in to inferior technological capabilities? Do high degrees of IT outsourcing decrease capabilities to an extent so as to compromise IT purchase?	Should the contract include cost-plus or fixed service fees? In each case, what is the impact on supplier's incentive for production cost reduction? What is the impact of alternative contractual design on performance?	Does relational absorptive capacity increase to ease interface specification and interaction efficiency? How are performance measures of outsourcing relations affected by breath and degree of outsourcing? Do alternative types of outsourcing require alternative relational capabilities?
(C) Relational Perspective	Evaluate whether vendors are willing (partnership risk) and capable (performance risk) of delivering what you want? To what extent are outsourcing benefits dependent on network embededness of the vendor?	Is there a trade-off between the number of relationships and the relationship depths/value? How to construct the optimal portfolio of relationships?	Does high specification of contracts increase or decrease strategic risks? Is it possible to design a contract offering the incentive of the market and the control of the hierarchy?	Does repeated outsourcer-vendor interaction increase the vendor's ability and willingness to deliver the desired? Does repeated outsourcer-vendor interaction increase the firm's ability to adapt to technological advance?
(D) Multi theoretical perspective	What are the implications of the explicit purpose of outsourcing - be it cost reduction, additional revenue, learning- and development options – for the different phases in the outsourcing process? Across industry settings and outsourcing types, to what degree do comparative production cost advantages or transaction cost consideration impact outsourcing decisions?	What are the economic and strategic effects of having multiple vendors responsible for one activity, having multiple vendors each responsible for different activities or having a single vendor responsible for all activities?	How does the specification degree of contracts affect the cost and benefits of different IT outsourcing arrangements? What are the most important determinants of outsourcing performance; e.g. contract length – flexibility versus commitment?	Do alternative theoretical frameworks apply to alternative forms of IT outsourcing? Is there a trade-off between efficiency and learning in managing IT outsourcing relationships?

6. Conclusions

The empirical outsourcing literature is largely confined to qualitative evidence. Our review revealed three theoretical perspectives that have been most widely tested empirically: (a) transaction cost economics; (b) capability based view; (c) and most recently the relational view. They delineate distinct yet complementary aspects of the implications surrounding outsourcing arrangements. Yet, each theoretical perspective provides ample scope for further empirical examination. To this end we outline most pressing research needs and research opportunities. In addition, the arguments presented here convey the message that more empirical studies are needed addressing the outsourcing process in its entirety from multiple theoretical perspectives. While the path provided for future research may be suggestive rather than definitive it serves to cast light on several issues of interaction, contradiction, and complementarities between theoretical perspectives that serve to stimulate empirical research on IT-outsourcing. The article attempted to take the first step for more comprehensive empirical research agenda on the entirety of the outsourcing process. Research strategies identified will aid to fill the gap between what we claim to know (theoretically) and what we know (empirically).

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