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# Use of Transaction Cost Economics Framework to Study Information Technology Sourcing: Over-Application or Under-Theorizing?

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## Abstract

IS discipline has witnessed significant growth in research on IT in- and out-sourcing. Economic theories inform a large portion of this work. This paper examines the use of Transaction Cost Economics (TCE) as a theoretical lens to study IT sourcing decisions (internal vs. external). It reviews TCE's major assumptions and assesses its key constructs: frequency, asset specificity, opportunism, and uncertainty, with regard to how they have been operationalized and what results have been obtained. This is done through a review of selected body of outsourcing literature. There is evidence of the impacts of production costs on outsourcing decisions, while findings with regard to transaction costs are inconclusive. In order to move the research agenda ahead we suggest examining the co-evolution of drivers for buyers and vendors to outsource, instead of just exploring cost determinants. We recommend that researchers take a longitudinal process perspective to improve our understanding of complex governance phenomena.

**Keywords:** Outsourcing, Sourcing, Transaction cost economics, Meta-analysis, Economics

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# Use of Transaction Cost Economics Framework to Study Information Technology Sourcing: Over-Application or Under-Theorizing?

## Introduction

Information Technology (IT) outsourcing can be defined as “the delegation, through a contractual arrangement, of all or any part of the technical resources, human resources, and the management responsibilities associated with providing IT services to an external vendor” (Clark et al., 1995). Information Systems (IS) researchers have sought an understanding of this phenomenon over the last decade using theories drawn from various reference disciplines. Transaction cost economics (TCE) (Ang and Straub, 1998), agency theory (Logan, 2000), and the resource based view (RBV) (Teng et al., 1995) have been the three most popular theories to explain IT sourcing phenomenon: they account for a majority of research articles in a recent review (Hui and Beath, 2001). These theories differ in their assumptions and ontologies in that they identify a different set of issues within their underlying assumptions to explain outsourcing outcomes. Traditional microeconomic theories of economic decision making assume an underlying economic rationality of “homo economicus” that maximizes expected utility, while more recent decision theories attempt to go beyond the narrow efficiency seeking approach of microeconomics. Among the former set of lenses, Transaction Cost Economics is the most frequently used approach.

This paper introduces basic concepts of TCE by focusing on its implicit assumptions and fundamental constructs (Williamson, 1985). Thereafter, a sample of widely cited research papers applying TCE is selected and we synthesize major findings related to each TCE construct. These are used to put forward research questions concerning each construct and how the research agenda could be furthered with regard to that construct. Discussion section outlines some limitations of TCE, suggests alternative theoretical lenses that could overcome those limitations, and draws some implications for future IS research.

## Transaction Cost Economics (TCE)

This section reviews Transaction cost economics, and assesses the use of its discrete components in the IS literature. The key constructs of TCE: frequency, asset specificity, opportunism, and uncertainty are explored with regard to their use and operationalization. This is done in parallel with critically evaluating and deconstructing the assumptions of the original theory.

### Transaction Cost Economics: Assumptions and Variables

Frequency, asset specificity, and uncertainty form the key components of TCE that are used to explain how firm’s boundaries are drawn, and when a good is transacted in a hierarchy instead of the market. In other words, TCE sets out to predict the boundaries of the firm given the characteristics of a transaction along these key dimensions. Drawing on the work of Commons (1934) and Coase (1937), among others, Williamson’s books and papers have become a leading influence in management and economics to address this issue.

In order to unpack these key dimensions of TCE, it is helpful to compare them with the assumptions that characterize transactions in ‘perfect’ markets in classical economic theory. The following table (Table 1) shows the assumptions that are relaxed in TCE in order

to reconcile economic theory with the organizational reality—in that we have both hierarchies and markets.

	Neoclassical Assumptions	Transaction Cost Economics Relaxations
<b>Information</b>	Perfect information	Asymmetries, leading to uncertainty
<b>Buyers &amp; sellers</b>	Many buyers and sellers	Small number, leading to opportunism
<b>Specificity</b>	Identity of buyer/seller does not matter	Identity of the buyer-seller dyad matters, leading to asset specificity
<b>Rationality</b>	Rational actors	Economic actors are “intendedly rational, but only limitedly so”, or bounded rationality (Williamson, 1985)
<b>Maximization of utility</b>	Maximizing orientation	“Unobjectionable, if all of the relevant costs are recognized.” (Williamson, 1985)

**Table 1.** Transaction Cost Economics assumptions

TCE relaxes the assumption of perfect information conceding that decision trees cannot be drawn even for moderately complex transactions in the real world. In addition, parties involved in the transaction do not reveal all the information they have as a symptom of their opportunistic behavior. A large number of buyers and sellers with nearly identical products (which results in market efficiency) is relaxed to ‘small numbers bargaining’. The good transacted, as a corollary, are somewhat specific to each buyer-seller set, which is not the case in the ‘open’ market. Rationality of actors is limited as they cannot recognize all ‘relevant costs’. This assumes a complex set of utility functions which are not easily subject to optimization.

Transaction cost economics then uses frequency and asset specificity to propose an “optimal” set of governance structure (Williamson, 1985) for each combination (Table 2). As Williamson suggests: “The cost effective choice of organization form is shown to vary systematically with the attributes of transactions.”(Williamson, 1985)

Frequency	Asset Specificity		
	Non-specific	Mixed	Idiosyncratic
<b>Occasional</b>	Outsource with classical contract	Outsource with neo-classical contract	
<b>Recurrent</b>		Relational contract	Insource

**Table 2.** Governance structure under Transaction Cost Economics

In this framework transaction frequency is either occasional or recurrent. Asset specificity is related to alternative uses of the asset involved in the transaction, and it is measured by the lack of standardization. Highly standardized assets imply low asset specificity, and highly customized ones are seen to possess high asset specificity. ‘Mixed’ means an intermediate level of asset specificity. As shown in the framework non-specific assets lead to low transaction costs. In this case, the use of standard, undifferentiated contracts is adequate for occasional or recurrent transactions. As we move towards higher asset specificity, the contract differs by the frequency of transaction. For occasional transactions, e.g., buying capital equipment, ‘neo-classical’ contracts with third-party arbitration clauses are used to minimize transaction costs. For recurrent transactions, high asset specificity leads to high transaction costs, which are minimized by insourcing. Lower levels of specificity are handled by ‘relational’ contracts which try to control transaction costs, while taking the advantage of market efficiencies. The incentive to continue the relationship minimizes transaction costs.

Clearly, this framework suggests an optimal match between characteristics of the transactions and the associated governance structure but its application is limited—by necessity—by the choice of its main constructs and their operationalization, viz., asset specificity and frequency. Moreover, in line with traditional economic thinking efficiency seeking in the long term seems to be the only motivator considered in the sourcing decisions. This efficiency is, however, not absolute, but comparative and relates to the types of transaction characteristics that are measured on ordinal scales.

It also seems that the suggested constructs of TCE are difficult to operationalize. Different authors have used different set of measures for the same construct leading to different confounding results. Notwithstanding arguments for TCE as a basis for theorizing about strategy (Williamson, 1991), difficulties in empirical work have limited the application of TCE theory. Disagreements concerning the empirical validity of TCE have led to mixed record of success in organizational and economics literature (David and Han, 2004). Yet, asset specificity, uncertainty, and transaction costs have been the most commonly used as independent variables, with the highest level of support for asset specificity. In the following section, we review applications of frequency, asset specificity, opportunism, uncertainty, and production costs, in a selected set of IS research papers related to sourcing.

### **Application of Transaction Cost Economics**

This section reviews the application of TCE in a sample of the IT outsourcing literature. A representative set of widely cited research papers on IT outsourcing was created. We analyzed the findings concerning outsourcing decisions and how each TCE construct affected the choice and was operationalized in each paper. These findings suggest a set of research questions concerning each construct that help shape future research agenda, and also clarify potential theoretical contributions of TCE for IT outsourcing research.

#### **Selected Papers**

The main source of research literature on IT outsourcing was the review (Hui and Beath, 2001). They selected these papers as ‘representative work’ in each substantive area of IT outsourcing. In addition, ABI/Inform was used to identify additional research papers in IT Sourcing. Each listed paper was checked separately in terms of theoretical base, research questions and applied research methodology. Only those papers that showed a clear use of Transaction Cost Economics in their theoretical base and research questions were selected for further analysis. As shown in table 3, most papers were selected from top-tier IS journals and conferences, and they mostly covered the period from 1994 to 1998. Most of the research involved empirical work, and details such as sample sizes, significance tests and major results (regressions) are reported when available. It was difficult to check for a representative sample across these studies in any statistical meta-analytical sense, given the narrow criteria deployed and the poor operationalization of many of the constructs. The key areas of interest were the deployment of TCE constructs and how they predicted outsourcing decisions (i.e. firm’s boundaries). We verified through a content and validity checks whether the construct was covered in the study, how it was operationalized and what (significant) results were observed. The significance and sign of results was important in order to compare the findings with TCE predictions.

Article	Year of Publication	Study Type	Sample Size (if empirical)	Transaction Cost Economics Dimensions (selected operationalizations shown in brackets)				
				Frequency	Asset Specificity	Opportunism	Uncertainty	Production Cost
Apte	1990	Conceptual		Y			Y	Y
Ang & Cummings	1997	Survey	221		Y	Y* (supplier presence)	Y*	Y*
Ang & Straub	1998	Survey	225	Y* (perceived measure of transaction cost)				Y*
Aubert et al	1996	Case study	10	Y*	Y*		Y*	
Cheon et al	1995	Conceptual		Y	Y		Y	Y
De Looff	1998	Case study	23			Y* (many suppliers)	Y* (clear requirements)	Y*
Heiskanen et al	1996	Case study	3		Y*		Y*	
Jurison	1995	Conceptual					Y	Y
Lacity & Willcocks	1995	Case study	61	Y	Y			
Loh	1994	Survey	226		Y		Y	
Loh & Venkatraman	1995	Survey	159			Y* (composite measure)		
Nam et al	1994	Case study	10		Y		Y	
Nam et al	1996	Survey	154		Y	Y (number of potential vendors)	Y*	
Poppo	1998	Survey	152		Y*		Y	Y* (scale economies at buyer firm)
Saarinen	1994	Survey	55		Y		Y	
Smith	2003	Conceptual			Y	Y		Y

Y shows dimension(s) covered in the study, with significant or conclusive results shown by asterisk\*

**Table 3.** Application of Transaction Cost Economics in sourcing

### Main findings on Transaction Cost Economics

In our sample uncertainty and asset specificity constructs were used most frequently in the selected articles (table 3). As expected, there are several different operationalizations for these key constructs. The results are somewhat mixed, and generally weak. In what follows, each construct is defined with reference to Williamson (Williamson, 1985) and we survey how studies have conformed or digressed from this reference.

#### Uncertainty

TCE (Williamson, 1985) refers to uncertainty of a strategic kind “attributable to opportunism... bounded rationality limits are quickly reached—since the entire decision tree cannot be generated for even moderately complex problems” (p. 59). Strong self-interest seeking leads the participants to provide selective information. Given the bounded rationality,

it is not possible to make optimal choices. In combination these behavioral assumptions lead to uncertainty.

Most empirical papers included some measure of uncertainty (Table 4). The conclusions on how uncertainty affects governance of IT are mixed, even somewhat conflicting. Support for TCE predictions was seen in case study work (Aubert et al., 1996, DeLooff, 1998, Heiskanen et al., 1996), and in one survey (Nam et al., 1996). The other surveys (Loh, 1994, Poppo and Zenger, 1998, Saarinen and Vepsalainen, 1994) did not find significant relation between uncertainty (as operationalized) and outsourcing. One survey-based study (Ang and Cummings, 1997) reported higher uncertainty leading to more (not less) outsourcing. They observe “as technological uncertainties escalated, large banks adhered more closely to sourcing arrangements advocated and legitimized by regulators.”

Among the studies we observed a variety of operationalizations. Uncertainty was framed as a measurement problem (Aubert et al., 1996), in which the buyer’s ability to measure IS services is important. Observability and verifiability were suggested as conditions for effective measurement. Measurable services could be outsourced easily. In contrast, software development was difficult to measure, and hence, more difficult to outsource. Concluding that outsourcing is advisable (only) when requirements are specified in advance, and measured later, seemed to arise from controllability ratings (DeLooff, 1998). Heiskanen *et al* (Heiskanen et al., 1996) combined uncertainty with asset specificity to divide systems into routine, standard, and speculative, with recommendations as market, hybrid, and hierarchy, respectively. Uncertainty of IS function (Nam et al., 1996) was negatively related to substitution by vendor.

Article	Study Type	Uncertainty	
		Operationalization	Significance
Ang & Cummings	Survey	Technological uncertainty	Y*
Aubert et al	Case study	Observability, Verifiability	Y*
De Looff	Case study	Requirements for services can be specified in advance, and measured afterwards (clear requirements)	Y*
Heiskanen et al	Case study	(lack of) well-specified requirements	Y*
Loh	Survey	Obsolescence of current h/software, Cost-performance trends, Quality of final outputs	Y
Nam et al	Survey	NA	Y*
Poppo	Survey	Technological uncertainty	Y
Saarinen	Survey	Requirement specification	Y

significant or conclusive results shown by asterisk\*

**Table 4.** Application of Transaction Cost Economics dimension ‘uncertainty’ in sourcing

Broader measures of uncertainty were also used (Loh, 1994) which related it to ‘dyadic costs’ showed an insignificant path coefficient. Technological uncertainty had no effect (Poppo and Zenger, 1998) on sourcing choices. In contrast to Heiskanen, requirement uncertainty (Saarinen and Vepsalainen, 1994) (similarly combined with specificity) seems to have no effect on sourcing choice. These results lead to the following research questions:

- RQ1:** Under which conditions (of asset specificity) is uncertainty a significant factor?
- RQ2:** Among business, environmental, or technological uncertainty, which factor is more relevant- as TCE only recognizes business (actor related) uncertainty?

- RQ3:** How are regulatory governance perceptions formed in the first place? Is it ‘received wisdom’ in the industry? What are its dynamic characteristics?
- RQ4:** How do buyers interact with vendors and technologies at different stages of technology deployment, so as to form varying perceptions of uncertainty?
- RQ5:** How is uncertainty related to trust, and what are its antecedents in the context of sourcing?

**Asset Specificity**

TCE (Williamson, 1985) classifies assets on their degree of specificity, as wholly specific and non-specific (p. 54-55). These are explained further as “durable investments that are undertaken in support of particular transactions, the opportunity cost of which is much lower in best alternative uses or by alternative users...”. In other words, it refers to the lack of alternative use of underlying assets.

This can be regarded easily to be the most important construct of TCE- which differentiates it from neoclassical economics. It is claimed that “the importance of asset specificity to Transaction Cost Economics is difficult to exaggerate...” (p. 56) although additional conditions are added later in this stream. Yet, the papers shows weak support for this key construct (table 5). Two case study papers (Aubert et al., 1996, Heiskanen et al., 1996) and one survey-based article (Poppo and Zenger, 1998) show evidence that supports transaction cost theory, while others show insignificant results.

Type of activity (Aubert et al., 1996), with software development and operations at the opposite ends of spectrum, seemed to explain outsourcing. When firm specificity was combined with requirement uncertainty, sourcing decisions (Heiskanen et al., 1996) could be explained. Lower satisfaction was observed with outsourced activities as these became (Poppo and Zenger, 1998) more firm-specific.

Article	Study Type	Asset Specificity	
		Operationalization	Significance
Ang & Cummings	Survey	Investment in specialized equipment, Specialized technical skills specific to (buyer) firm, Specific business skills & knowledge to buyer	Y
Aubert et al	Case study	Software development activity (type)	Y*
Heiskanen et al	Case study	Specificity to buyer company	Y*
Lacity & Willcocks	Case study	Seen as support/commodity or specialized	Y
Loh	Survey	Overall architecture, Operating procedures, IT knowledge/experience base, IT staff training	Y
Nam et al	Survey	NA	Y
Poppo	Survey	Firm-specific assets	Y*
Saarinen	Survey	Managers’ estimates, Level of using existing system as a basis for requirements	Y

significant or conclusive results shown by asterisk\*

**Table 5.** Application of Transaction Cost Economics dimension ‘asset specificity’ in sourcing

At an overall level (Ang and Cummings, 1997) specificity shows weak correlation with outsourcing. However, analogous to the effect of regulatory influence, interaction with firm size and peer influence showed expected effects. Broader measures of asset specificity (Loh, 1994) and relating it to ‘dyadic costs’ showed an insignificant path coefficient. In trying to explain the extent of substitution by vendors, asset specificity (Nam et al., 1996) was not significant. Specificity (Saarinen and Vepsalainen, 1994) of the system, when

combined with uncertainty, seemed to have no effect on sourcing choice. The research questions raised by these results are:

- RQ1.** Which assets are relevant (operating procedures, knowledge of business rules, architectural), to measure specificity?
- RQ2.** With respect to which actor (buyer, vendor, technology, or their combinations) should the asset specificity be measured?
- RQ3.** What is the nexus with (types of) uncertainty?

It would seem that IT sourcing practices have evolved to make intangible assets more relevant. In this respect, technologies which affect coordination and agility, rather than simple automation of tasks, need more attention and theorizing. Research on interorganizational systems, where ownership of assets is distributed, could be an interesting area for research.

**Frequency**

TCE (Williamson, 1985) defines governance structures (p. 60) as “more sensitively attuned to the governance needs of non-standard transactions than are unspecialized structures, ceteris paribus”. Frequency of transaction is involved, ranging from occasional to recurrent.

This dimension was used in four papers, as shown in table 6. Some of these (Apte, 1990, Cheon et al., 1995) are conceptual papers, which hypothesize that low frequency could lead to high transaction costs. The logics are similar, in that infrequency of contracting (Cheon et al., 1995) will increase ‘relationship building costs’, or alternatively, buyer should use the same vendor (Apte, 1990) in multiple contracts.

Article	Study Type	Frequency	
		Operationalization	Significance
Apte	Conceptual	# sourcing contracts with same vendor	Y
Aubert et al	Case study	Use of different skills	Y*
Cheon et al	Conceptual	Infrequency of contracting	Y
Lacity & Willcocks	Case study	Ongoing activities or occasional	Y

significant or conclusive results shown by asterisk\*

**Table 6.** Application of Transaction Cost Economics dimension ‘frequency’ in sourcing

The results differ when looking at empirical work (Aubert et al., 1996, Lacity and Willcocks, 1995). It is interesting to see how the authors look for alternative explanations and units of analysis to reconcile their results with TCE. Aubert et al (1996) conclude that “frequency refers to the use of skills...rather than software development projects”. In their case study sample, most firms were sourcing externally for skills that were required intermittently. The emphasis, therefore, is more on a load leveling function, rather than transaction cost. However, these results do not strictly conflict with TCE, which would expect external contracting for occasional transactions. Another study (Lacity and Willcocks, 1995) attempted to classify its observations into different contract types (according to governance structures shown in table 2), using the information on asset-specificity and frequency from their interviews. Even when a limited set of sourcing decisions was considered (those which were believed to be successful by the sampled firms), anomalies were detected. Activities’ recurrent nature along with high asset specificity was expected to result in a relational contract (table 2), but the actual sourcing arrangements were structured

as neo-classical contracts, i.e., in the top half of the table (instead of lower half). An alternative explanation within TCE framework is that decision making was necessarily occasional, motivating IS managers to perceive it as akin to buying capital equipment. This leads us to the following research questions:

- RQ1:** Is ‘transaction’ as a unit of analysis applicable to IS sourcing context?
- RQ2:** What does frequency refer to (buying, use, decision making)?
- RQ3:** Does decision making dictate the ‘frequency’ that should be used?

As sourcing arrangements tend to emphasize more relational elements, with multi-year contracts, the timeframe is redefined. This would suggest scope for “longitudinal” application (David and Han, 2004) of TCE. Given that decision making is occasional, and dominated by relational factors, cultural fit and other social antecedents might become important. At which point these factors become important, is a key question for research.

**Opportunism**

TCE (Williamson, 1985) refers to three levels of self-interest (p. 47), from obedience, simple self-interest seeking, to opportunism. Among these, opportunism is “the strongest form” that refers to “incomplete or distorted disclosure of information, especially to calculated efforts to mislead, distort, disguise, obfuscate, or otherwise confuse”. Strictly speaking, opportunism is a behavioral assumption of TCE, along with bounded rationality.

This dimension of Transaction Cost Economics is included in four empirical papers (Table 7). While there are no conflicting results, the levels of significance are not high. It seems that the context has a role, and the limited explanation that opportunism provides is a concern.

When the construct is operationalized (Ang and Cummings, 1997) as the availability of large number of suppliers, the variable was significantly correlated to higher outsourcing. When the results were analyzed by influencer and size of firm, the effect was significant for peer conformity in large buyers.

Article	Study Type	Opportunism	
		Operationalization	Significance
Ang & Cummings	Survey	Adequate supplier presence	Y*
De Looff	Case study	many suppliers	Y*
Loh & Venkatraman	Survey	Breach of contract by vendors Dependence on specific vendors Biased portrayal of benefits by vendors	Y*
Nam et al	Survey	potential number of vendors	Y

significant or conclusive results shown by asterisk\*

**Table 7.** Application of Transaction Cost Economics dimension in sourcing

Two papers show somewhat weaker results. Using case study approach (DeLooff, 1998) availability of sufficient suppliers is seen as an ‘advisable’ condition for outsourcing, as it reduces small number bargaining problem. However, the controllability criterion is judged to be ‘medium’ in importance by general managers as well as IS managers. In contrast, cost is seen as highly important, more so by general managers. The other study (Loh and Venkatraman, 1995) concludes that average degree of outsourcing is negatively related to potential opportunism, though it shows the lowest levels of significance among the independent variables used.

In contrast, Nam et al (Nam et al., 1996) use the extent of substitution by vendors as a dependent variable while the potential number of vendors is seen to be insignificant. These results lead to the following research questions:

- RQ1:** What are possible measures of opportunism, e.g., relative size of buyer/seller firm, length of contract?
- RQ2:** How are peer perceptions on ‘adequacy’ (Ang and Cummings, 1997) formed in the first place?
- RQ3:** Is the presence of opportunism a ‘received wisdom’ in the industry? What are its dynamic characteristics?

Assumptions of self-interest seeking behavior need to be revisited, diluting the basis of TCE. The conditions under which IT enables cooperation have also been theorized (Kumar and van Dissel, 1996). Raising questions on behavioral assumptions, and setting the phenomenon under institutional context holds promise. Behaviors of vendors, and the antecedents of fairness, are also interesting new research avenues.

**Production Cost**

Although TCE sets to go beyond “neoclassical production cost” some empirical studies included production cost factor in addition to the dimensions of transaction costs in their analysis (Table 8). These results seem to be more conclusive, with each of the papers showing high explanatory power of the construct.

Article	Study Type	Production Cost	
		Operationalization	Significance
Ang & Cummings	Survey	External production cost advantage	Y*
Ang & Straub	Survey	Perceived production cost advantage	Y*
De Looff	Case study	Advantages of scale	Y*
Poppo	Survey	scale economies at buyer firm	Y*

significant or conclusive results shown by asterisk\*

**Table 8.** Application of product cost in outsourcing decisions

Comparative production cost advantage through IT outsourcing (Ang and Straub, 1998) was related to higher degree of IS outsourcing. While transaction costs were also significantly related to outsourcing, the effect was much smaller. Similar results were seen (Ang and Cummings, 1997) where (external) production cost advantages significantly correlated with outsourcing. Advantages of scale (DeLooff, 1998), leading to low cost, were seen as an important criteria by managers- more so among general managers. Scale economies were seen as important when related to insourcing (Poppo and Zenger, 1998).

The results do not contradict TCE, as “the object is not to economize on transaction costs but to economize in both transaction and neoclassical production cost respects.” (Williamson, 1985) (p. 61) However, it raises the hypothetical question: would the effects that were seen to support TCE prevail, if this measure had been incorporated? It is possible that the relatively unclear effects of transaction costs would be even weaker, in an extended and comprehensive operationalization of theory.

## Discussion and Conclusions

There is probably an over-application of TCE in outsourcing research in the sense that transaction costs so far have not added substantially to our understanding of IT sourcing- in particular why these decisions are made. It seems that production costs are adequate to explain the decision outcomes under TCE assumptions of efficiency-seeking. Limited empirical support for other constructs has been observed in more comprehensive reviews of TCE, however (David and Han, 2004). Alternatively, a better explanation of the phenomenon is required, than what current operationalizations of TCE offer in IT sourcing. A related issue is the sole use of TCE and economics as a reference discipline to explain decision outcomes.

Based on the selected set of articles we might conclude that production cost advantages are so high that transaction costs are only a minor factor in IT sourcing decisions. TCE leaves the door open to this possibility (Williamson, 1985) “Whether transaction cost economies are realized at the expense of scale economies or scope economies thus needs to be assessed. A trade-off framework is needed to examine the production cost and governance cost ramifications of alternative modes of organization simultaneously.” Accordingly, cost pressures (Apte, 1990, Ang and Straub, 1998) and cost predictability were seen as key factors by some authors.

An overlay of institutional factors on efficiency-seeking behavior might hold some potential in explaining the confusing results. It has been suggested (Roberts and Greenwood, 1997) that institutional constraints can be ‘grafted’ on the TCE framework. In this integrated framework, cognitive constraints are hypothesized to limit the evaluation of extant sourcing arrangement, and the subsequent search for alternatives. The institutional environment further limits the consideration set into a smaller set of legitimated designs. As there are limited ways of inferring (rather than observing) cost efficiencies, only highly legitimate designs are ultimately selected.

Grounded theory (Glaser and Strauss, 1967) is yet another approach, given its success in study of phenomena less tractable by existing theories. Given the unique nature of IT (Lacity and Willcocks, 1995), it is possible that resulting theory could be different from the dynamic capabilities framework, and possibly resemble the relational view (Dyer and Singh, 1998).

One promising and more specific way to theorize around the phenomenon is to move the discussion to co-evolutionary drivers of outsourcing in contrast to studying only cost-led determinants. There are some starting points into this direction in the articles, e.g., vendor availability has dramatically increased (Apte, 1990). This could be explained by expansion of large IT firms (e.g., HP) into services, and increased global sourcing (Greenemeier, 2002). Anecdotal evidence of growth in variety and size of outsourcing contracts would suggest a co-evolution of vendor capability, industry practice, and buyer behaviors. Buyer requirements could lead to vendors’ capability augmentation in an IT activity, which then leads to new outsourcing arrangements and successes. Alternatively, vendors could stretch their capabilities to identify and serve new needs thereby increasing pressures on buyers to outsource. These innovations then diffuse among less innovative peers, gaining acceptance as an “established practice”. Highly publicized contracts, such as Kodak (1989) and British Petroleum (early 90’s) could serve as catalysts in this process. As institutional acceptability increases, it leads to more firms using outsourcing.

This dynamic view of organizations and environment involves “the joint outcome of managerial intentionality, environment, and institutional effects” (Lewin and Volberda, 1999) with cycles of innovation and imitation. Markus and Robey (1988) discussed early on of the types of process theories that are available to IS researchers to explain such processes. While imperative theories are generally variance theories, and organizational/emergent ones are

process theories, trying to develop an imperative process model has great appeal. It helps overcome the static nature of variance models, because “while recognizing and accepting the complexity of causal relationships... (maintain) the goals of generalizability and prediction” (Markus and Robey, 1988). However, an imperative process model will require longitudinal data.

In conclusion, the paper ‘unpacks’ TCE research into outsourcing by looking at its hidden assumptions and different operationalizations. It complements more wide ranging reviews of TCE (David and Han, 2004) by discussing its application to specific phenomenon—IT outsourcing. It also looked for new explanations of sourcing decisions by recommending a co-evolutionary driver approach. In many ways, the paper adds a new voice to the call for research (Hui and Beath, 2001) that draws upon an evolutionary perspective of IT service evolution, including all key stakeholders—buyers as well as sellers, and the IT artifact. The limitations of the paper include a limited sample of the literature that does not offer possibilities for meta-analytic procedures, along with the coarse operationalizations of constructs considered for analysis. A similar analysis on a larger sample (if possible) would add to the generalizability of conclusions.

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