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GOVERNANCE FORM AND VALUE CREATION IN IT OUTSOURCING

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ABSTRACT

This research-in-progress considers the make/buy dichotomy common in research on IT outsourcing (ITO) transaction arrangements. Recent strategic management research finds that several kinds of transaction arrangements exist and categorizes them on three independent dimensions of control. Using a sample of 100+ ITO transactions from a small consulting firm, I plan to empirically test the relationship between use of these arrangements in ITO transactions and value created and captured by the transaction partners. Expected findings of the completed research will contribute to the outsourcing literature by validating a more nuanced means of analyzing outsourcing transactions. In addition, this research aids scholars' understanding of how transaction arrangements contribute to the creation of value for transaction partners. Finally, this research contributes an additional IS perspective on a prominent theory of the firm, transaction cost economics (TCE), and contributes to ongoing debate in the IS literature regarding the applicability of TCE to ITO transactions.

Keywords

Outsourcing, software development, transaction cost economics, transaction governance, value creation, value capture

INTRODUCTION

Information technology outsourcing (ITO) literature studies the decision to outsource IT functions along with the resulting effectiveness of that decision on the final outcome of the transaction (e.g. success, failure, project performance) (Lacity et al., 2010). Such studies often use Transaction Cost Economics (TCE) (Williamson, 1979, 1998, 2010) as a theoretical lens because TCE explains the make vs. buy decision and the transaction properties under which managing the transaction within the firm (making) is more effective than managing the transaction in a market (buying) (Alaghehband et al., 2011). ITO studies often consider insourcing to be a decision to manage within the firm while outsourcing is considered to be a decision to manage in a market (Wang, 2002). I argue that this is an oversimplification for two reasons: 1) some IT resources, such as custom software, are so complex (in a TCE sense) that TCE predicts managing their exchange in a market will not be efficient; and 2) transaction management arrangements vary too widely to be compressed into two categories. I speak to these two issues in this study by applying a recently developed taxonomy of multiple transaction management arrangements or 'governance forms' (in TCE terms) to a central research question: how does transaction governance form relate to the value of the product of ITO transactions?

To address this question, I am gathering historical data from a small consulting firm that provides ITO services. In this paper, I show how I will use this data to examine how partners create value in ITO transactions and the effect of governance form on that value creation. A more detailed understanding of the relationship between transaction characteristics, governance form, and value will help scholars overcome concerns with the applicability of TCE to ITO (Alaghehband et al., 2011; Lacity et al., 2011), contribute to the development of ITO theory, and provide prescriptive guidance on selection of governance forms to firms engaging in outsourcing.

BACKGROUND

Making or buying has been a strategic decision for firms long before the information age (Klein et al., 1978) and represents two possible outcomes of a sourcing decision. Scholars from various disciplines frame sourcing decisions in 'theories of the firm' such as transaction cost economics (TCE) (Williamson, 1979, 1998) due to the impact of the sourcing decision on the scope and size of the firm. Regarding sourcing decisions on the firm's information systems, many organizations now decide to 'buy' systems via outsourcing, as compared to 'make' systems in-house. However, for some IT functions a *pure* 'buy' decision is simply not possible - given the complexities of the desired product, there is no prepackaged system to be 'bought'. As an example, a decision to 'buy' desktop computers is better supported by a ready market (specifiable products and published, comparable prices) than is a decision to 'buy' support for a complex, possibly unique, internal business process (which more likely requires a custom or tailored system with estimated, vendor-specific prices that are costly to develop). In this latter case, from the TCE perspective, the decision to 'buy' a system creates the need for the exchange partners to create an arrangement to manage their transaction since they cannot rely on a previously established market to manage it. I argue that these arrangements or 'transaction governance forms' vary more widely than has been previously considered in IT

sourcing research (see Lacity et al., (2011) and Alaghehband et al., (2011) for thorough reviews), that the different governance forms are more or less effective in managing transactions that have different properties, and that grouping the various arrangements under dichotomous 'make' and 'buy' constructs confounds empirical results.

Recent research (Makadok and Coff, 2009) offers a taxonomy of governance forms which extends the 'make' vs. 'buy' dichotomy into eight distinct forms that vary across three independent control dimensions: asset ownership, behavior- or outcome-based rewards, and the level of authority exercised by the purchaser. These dimensions have been studied individually (independently) in the IT literature (Kirsch et al., 2002). I utilize this taxonomy to analyze 1) the result of the sourcing decision regarding the transaction governance form, and 2) the result of the transaction regarding the level of satisfaction of the transaction partners.

A major issue in software acquisition transactions is that often one or both of the participants are dissatisfied with the results of the transaction. Such 'project failure' is the subject of a significant body of research in MIS literature and has been studied through various lenses, such as control (Kirsch, 1996; Kirsch et al., 2002; Tiwana and Keil, 2009), escalation (Keil et al., 2003; Montealegre and Keil, 2000), and risk (Keil et al., 2008). I argue that this dissatisfaction is rooted in the value received for the costs paid, either by the seller, the buyer, or both. However, from the TCE perspective, a primary reason for selecting a specific governance form is to assure that the transaction effectively creates and apportions value between the transaction partners, minimizing transaction costs and avoiding improper value capture or 'opportunism' by either party. Therefore, dissatisfaction with value received, and, thus, with the transaction, may indicate a failure in matching the governance form to the properties of the transaction. For this reason, I analyze the value produced and captured by each transaction partner, utilizing the 'value-price-cost' paradigm (VPC) from strategic management literature and leveraging TCE and the venturing literature in positing that value created and captured is a function of the governance form of the transaction.

Through this research, I provide four contributions to understanding how the governance form of a sourcing transaction influences value creation and capture, and therefore transaction success. First, I explore the nuances of governance form for software development transactions, clarifying theoretically the variety of identifiable mechanisms used in governing system acquisition transactions beyond the 'make'/'buy' dichotomy. Second, these findings demonstrate the results of a more nuanced analysis of successful and challenged software development projects to aid in understanding the selection of an effective governance form. Third, this research adds to our understanding of how software development projects create value for the transaction partners. Finally, the extended theory opens the door for the most recent TCE research to be applied in technology sourcing research.

THEORY

TCE

TCE is one of the most highly studied 'theories of the firm' in strategic management (Macher and Richman, 2008). Primarily formulated by Williamson, (1979, 1985, 1998), but based on the earlier work of Coase, (1937), TCE shows that exchange transactions have non-price costs, called 'transaction costs'. Transaction costs involve, for example, shopping costs, contracting costs, and quality assurance costs and are normally assumed to be paid to entities other than the transaction partners, and thus reducing the value to be shared between them. TCE finds that transaction partners will work to minimize the total cost of the transaction, which includes transaction costs, in order to create the most value in the transaction. Efficient markets tend toward arms-length transactions in which many buyers pay the same price for commodity-like goods produced by nearly anonymous sellers. However, some exchanges require transaction partners to make investments in the transaction that lose significant value if the transaction fails. These investments are considered 'transaction specific' and are exemplified by the cost of customizing a product or production facility to the particular needs of the specific buyer, such as placing a factory near the purchaser of the product in order to save on transportation costs. TCE explains that such investments present opportunities for the non-investing transaction partner to appropriate value. Continuing with the factory example, once the seller has made the investment in building the factory, the buyer can attempt to renegotiate a lower price for the product, ignoring the sunk costs of the seller in reducing transportation costs. In this way, the non-investing partner can act opportunistically and capture the value of a unilateral investment by the investing partner. TCE's predictive logic suggests that the investing partner is 'far sighted' enough to foresee that the value of the transaction specific investment can be appropriated by the non-investing partner, and will be less motivated to make the investment. This lack of investment reduces the total value available in the transaction by, for example, increasing the cost of the product to the buyer.

TCE explains the mechanisms by which transaction specific investment influence the governance form of the transaction, moving it away from a market toward so called 'hybrid' forms. Hybrid forms are neither pure market nor completely executed within the firm (a so called 'hierarchical' governance form which would represent a pure 'make' form), but have mixed characteristics. Such forms are adopted by the transaction partners in order to protect against the kind of

'opportunistic' value capture noted above and, thus, encourage value-creating investments in the transaction. Previous formulations of TCE appeared to indicate that there was a single spectrum of governance forms with pure market at one end and pure 'hierarchy' at the other, with hybrid forms occupying the space between (Makadok and Coff, 2009).

The Governance Form Taxonomy

The nature of hybrid governance forms in TCE was further explained by Makadok and Coff, (2009). Their research posits the three dimensions of governance forms mentioned above: asset ownership, behavior- or outcome-based rewards, and the level of authority exercised by the purchaser. These three dimensions provide an opportunity to analyze governance arrangements more precisely than a single make/buy dichotomy. For example, the combination of dimensions would support distinguishing between two different governance forms that otherwise would likely both be considered an insourcing or 'make' decision because the developers are employees of the firm: agile development and waterfall development. Such a system categorizes an agile development project as employees of the firm (productive 'assets', 'owned' by the purchaser) with behavior-based rewards, but with significant authority over how the system is developed. In contrast, the system categorizes a waterfall development project differently: as employees of the firm (productive 'assets' 'owned' by the purchaser) with behavior-based rewards and little authority over how the system is developed. In this way, governance form categorization supports existing research that suggests that the properties of the transaction (e.g. the nature of the system being developed (Kirsch and Beath, 1996), the state of user requirements (Maruping et al., 2009), system criticality (Cockburn and Williams, 2003), etc.) should help determine whether more or less agile development methods should be employed to maximize the value of the development effort and the final software product.

Further, Makadok and Coff, (2009) note that governance form incents effort by the transaction partners. As an example, consider the relationship between ownership of an asset and effort on maintaining that asset. Due to the owner's claim on the value of the asset, he or she is more likely to invest in asset maintenance than is the transaction partner, who may be using the asset. Such investment may increase the final value of the asset and represents a means for the asset owner to capture value from the transaction. In this way, since the governance form controls (e.g.) the ownership of the asset, it encourages investment and assigns the value of that investment to a transaction partner. Similar incentives and tasks exist for the remaining two dimensions: outcome-based rewards incent productive tasks and allocate value from the transaction through commissions, and authority expressed by the principal is a disincentive for personal activities which are valuable to the agent.

RESEARCH MODEL

In order to analyze value received from the transaction by both transaction partners, I utilize the Value-Price-Cost (VPC) framework (Brandenburger and Stuart, 1996; Hoopes et al., 2003). In this framework, the purchaser is assumed to have a 'willingness to pay' modeled as 'value' (V) that represents the value expected from the transaction, while the seller has a cost (C) of producing the artifact for exchange. The difference between these two quantities (V-C) is the total value created by the transaction. Price is set through some mechanism (e.g. the market, bargaining), leaving the purchaser with a 'captured' value of the difference between value and price (V-P) while the seller has a captured value of the difference between cost and price (P-C).

In this view, value created can be changed in two ways: increasing V (e.g. higher quality) or decreasing C (e.g. cost saving innovation), or both, while the value division to each party is controlled primarily by P. This framework will allow me to detect instances of opportunism by either party. As an example, in many cases, the quality of the delivered system is difficult to define in advance, but has a significant influence on ex post actual value vs. ex ante expected value (Hong et al., 2013). Once price has been set, it is possible for the seller to attempt to improperly capture additional value through efforts to lower C, which may decrease quality and thereby lower V. Since P is set, P-C increases while V-P decreases. The buyer has a similar mechanism to affect the value share by demanding higher quality, raising C and V while P remains constant, thus V-P increases while P-C decreases.

Research has produced significant evidence that the properties of the transaction, the system requested, implementation details , and the characteristics of the buying firm all affect the final value of the system. However, the addition of the VPC framework produces a more detailed understanding of how value is created and captured in outsourcing transactions. In this study I will consider the following transaction properties: risk, buyer management competence, and previous transaction experience. Therefore, I offer, as a baseline, hypothesis 1.

Hypothesis 1: Properties of the software acquisition transaction are related to value created (V-C) from the transaction and captured by the buyer (V-P) and the seller (P-C).

My primary hypothesis is that differences in selected governance form for the transaction influence the value created and the value shares of the buyer and the seller. As I argue in the asset ownership example above, changes in the intensity of

governance dimensions incent and assign value of tasks performed in the transaction. In this way, I expect different governance forms to incent and assign value in different ways. Therefore, I offer hypothesis 2.

Hypothesis 2: *Governance form moderates the relationship between properties of the transaction and value created (V-C) from the transaction and captured by the buyer (V-P) and the seller (P-C).*

As indicated above, some IT functions are expected to have more well-defined and established markets than others, in the sense that products are more specifiable and prices more readily available and comparable. For this reason, I expect that the IT function to be outsourced, through the availability of a market for the desired product, will influence the governance form utilized for the transaction. However, other than the generalized notion above, there is no reason to expect that the IT functions represented in the available data (see below) can be rank ordered by 'availability of a market'. Therefore, I hypothesize that there will be differences in governance form between the IT function outsourced, but cannot predict a specific direction of difference. Therefore, I offer hypothesis 3.

Hypothesis 3: *Governance form of the transaction is significantly related to the IT function outsourced.*
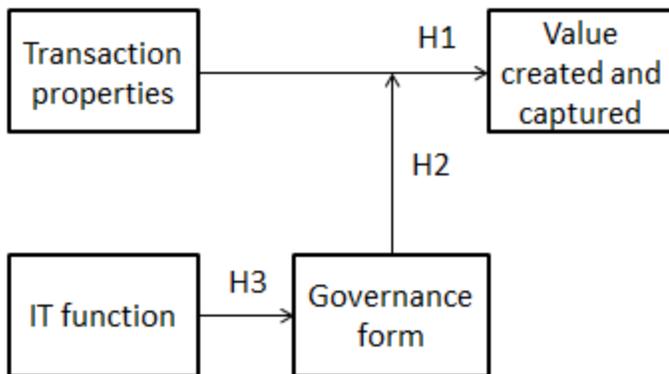

Figure 1: Research model

METHODOLOGY

My data consist of the complete project management and governance documents of small consulting firm in the US. The documents comprise over 100 software development and strategic decision support projects from the 2007 - 2013. These cases offer rich data on projects with over 40 different clients ranging from Fortune 100 companies to small consulting concerns. I will create variables by applying validated survey instruments

The consulting firm does not engage in end-user support, systems operations, or telecommunications and networking. Therefore, the available cases consist of two ('applications development and maintenance', 'planning and management') of the five IT functions in a recent outsourcing meta-analysis (Lacity et al., 2010), so IT function is coded as a dummy variable.

Value variables consist of the following measures from validated survey instruments:
- the level of perceived value and satisfaction of both the buyer and seller (Patterson and Spreng, 1997) as a scale variable
- total value created as the sum of the value for the buyer and seller (Hoopes et al., 2003) as a scale variable
- additional supporting data from a non-validated survey of customer satisfaction by the consulting firm

Governance form is modeled as combinations of high and low values on the dimensions and will result in a four-value categorical variable (i.e. high/low authority in combination with high/low outcome-based controls)[1]. Governance form variables consist of the following measures from validated survey instruments:

- structure of service level agreement as an indicator of authority by the buyer (Goo, 2010) as a scale variable
- a single spectrum of behavior- vs. outcome-based controls (Gopal and Gosain, 2010) as a scale variable.

Project properties consist of:

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[1] In all cases in the sample, the staff members were employed by the seller, so this finding will be limited to the four governance forms for which this is true, out of the eight possible in the taxonomy.

- risk (Nakatsu and Iacovou, 2009) as a scale variable,
- buyer management competence (Shi et al., 2005) as a scale variable,
- buyer engagement in a previous transaction with the consulting firm (Dekker, 2008) as a dummy variable
- size (number of employees) of the purchasing division as a (control) scale variable,
- size (cost) of the project as a (control) scale variable,
- length (months) of the project as a (control) scale variable,

Initial coding of 21 cases by a single researcher indicates that a high (~70%) percentage of the cases are likely to contain 'codeable' data. For the full study, another researcher will code a sample of both the 'codeable' cases and the 'non-codeable' cases to assess coding reliability.

I plan to analyze the resulting coded data using linear regression to estimate which hypothesized independent variables have a significant effect on one or more of the dependent variables of interest (Hypothesis 1). I will assess total value created, value to seller, and value to buyer for multicollinearity, as that is a risk due to summing the component variables to arrive at a total. I plan to test the moderating effect of governance form (Hypothesis 2) on the relationship between project properties and value created in separate regressions, one for each of the four governance forms represented, and assess the estimated coefficients for significant change between the resulting estimates. The availability of governance forms for transactions involving different IT functions (Hypothesis 3) can be assessed in a separate f-test.

EXPECTED PRESENTATION AT CONFERENCE

At conference, I expect to present results from preliminary single-researcher coding of the complete dataset. In addition, I expect to present preliminary statistical support, or lack thereof, for the hypotheses.

CONCLUSION AND EXPECTED CONTRIBUTION

If, as expected, this research produces evidence that governance form, as described by the three dimensional taxonomy described above (M&C, 2009), influences value captured by the transaction partners, it will make several contributions to scholars' understanding of transaction governance, outsourcing, and relevant TCE-based theory. First, I theoretically clarify the variety of governance forms used in system acquisition transactions beyond the 'make'/'buy' dichotomy. Second, the expected findings demonstrate the results of a more detailed analysis of successful and challenged software development projects to aid in understanding the selection of an effective governance form from a broader array. Third, this research aids researchers' understanding of how software development projects create value. Fourth, the extended theory opens the door for the most recent TCE research to be applied in technology sourcing research. Further, this research will have established the separate effect of IT function as a specific influence on the available governance forms, which will inform practice and theory on outsourcing software development.

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