VALUE CREATION AND VALUE CLAIMING IN MAKE-OR-BUY DECISIONS: EVIDENCE FROM THE APPLICATION SERVICE INDUSTRY

ERNST VERWAAL*
Department of Strategic Management
RSM Erasmus University
P.O. Box 1738, NL-3000 DR, Rotterdam, The Netherlands
everwaal@rsm.nl, tel. +31 (0)104081989, fax +31 (0)104089013

WILLEM VERBEKE
Department of Business Economics
Erasmus University Rotterdam
P.O. Box 1738, NL-3000 DR, Rotterdam, The Netherlands
verbeke@few.eur.nl, tel. +31 (0)104081989, fax +31 (0)104089013

HARRY R. COMMANDEUR
Department of Business Economics
Erasmus University Rotterdam
P.O. Box 1738, NL-3000 DR, Rotterdam, The Netherlands
hcommandeur@few.eur.nl, tel. +31 (0)104081989, fax +31 (0)104089013

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ABSTRACT

The present paper integrates the concepts of resource heterogeneity and transaction costs into a single theoretical framework, which emphasizes both resource value maximization and transaction costs efficiency in firms' vertical integration decisions. From this theoretical framework, we develop refutable implications to explain the firm's intent to outsource application services. A sample of 178 firms in the publishing and printing industry in The Netherlands is used to test the hypotheses. The results show that firms take simultaneously resource value and transaction costs motivations into consideration, with resource value having on average a dominating impact. However, we also find that if the transaction costs of contracting are high, the impact of resource value becomes moderated by transaction costs, supporting the view that resource value maximization should take into account the impact of transaction costs.

Short title: Value creation and value claiming in make-or-buy decisions
Key words: vertical integration strategy; make-or-buy decisions; resource value; transaction costs; outsourcing relationships; information technology

INTRODUCTION

Value creation and value claiming are two components of the firm's interorganizational strategy. However, interorganizational strategy models tend to have a one-sided focus on one of the two. For example, transaction cost theory is criticized for having a single-minded focus on the risks of opportunism and bounded rationality of contracting partners and neglecting the role of value creation in governance decisions (e.g., Dyer, 1997; Ghosh and John, 1999; Madhok, 2002; Poppo and Zenger, 1998; Zajac and Olsen, 1993). On the other hand, Porter (1996) warns that the single-minded focus on creating value in practices such as outsourcing and benchmarking is also an insufficient basis for strategic analysis if the firm cannot also claim its share of the value.

Thus, value creation and value claiming deserve both attention in interorganizational strategy models. In this paper we integrate the concepts of resource value and transaction costs in order to provide a balanced strategy model for analysing interorganizational relationships. According to this model, resource attributes and transaction costs interact to determine success in creating and appropriating value. Differently put, strategic outsourcing decisions should take into account the value of unique resources provided by other firms as well as the transaction costs of contracting relationships.

The resource-based view and transaction costs economics are complementary theoretical perspectives (Penrose, 1996: 1717; Williamson, 1999: 1098). Penrose defines the distinguishing nature of the firm in line with Coase (1937) as a 'administrative hierarchy' and 'court of last resort' (Penrose, 1959, p.16) and considered resource value and transaction cost issues not as mutually exclusive. Her view is shared by Williamson (1999: 1098) who states that the transaction costs and resources view 'deal with partly overlapping phenomena, often in complementary ways'. In the last few years, a growing body of literature suggests that transaction costs not only complement the resource view but also interact with resource value creation. (e.g. Mahoney, 2001; Jacobides and Winter, 2005; Foss and Foss, 2005). The goal of the present paper is to contribute to this unified theoretical perspective by developing a strategic decision model that integrates effective resource deployment and transaction costs considerations in strategic outsourcing decisions, a phenomenon that according to various authors will continue to rise substantially during this decade (e.g., Leiblein *et al*., 2002). In our empirical application, the theoretical framework will be used to uncover the decision calculus behind the strategic decision to outsource application services of firms in the publishing and printing industry in The Netherlands.

According to the Application Service Provision Industry Consortium (2002), an application service provider (ASP) "manages and delivers application capabilities to multiple entities from a data centre across a wide area network". Application services include application hosting, network management, and technical support. The development of standard communication protocols has spurred the interest in outsourcing application services (Hagel and Brown, 2001). These standards have created an open network environment in which firms can outsource application services and leverage application services in which they have a distinctive capability (Amit and Zott, 2001; Quinn, 2000). Thus, outsourcing application services seems to provide many opportunities to exchange valuable resources and capabilities between firms, and therefore opportunities for resource value creation.

Yet, the current growth of the ASP market is not meeting the high expectations that were proffered. For example, Dearden (1987) argued that in-house information systems would cease to exist because of the superior efficiency and technology of external providers. However, in general, application services are highly firm specific, and therefore outsourcing these services may put the firm at risk of value claiming by the provider firm. For instance, ASPs may not be able or willing to meet the outsourcing firm's future demands (e.g., Earl, 1996; Barthelemy, 2001). In this paper, we argue that both value creation and value claiming motivations may play a substantial role, and therefore a comprehensive strategic analysis rather than a single focus on resource value creation or transaction costs is the appropriate framework to analyse the firm's decision to outsource application services.

The paper proceeds as follows. First, we explain the theoretical framework, and we develop refutable implications for the application service outsourcing decision. Subsequently, we discuss the method and data collection and present the results. We find that resource value and transaction costs motivations simultaneously play a role in application service outsourcing decisions, with resource value having on average a dominating impact. However, we also find that if the risks of being exploited by a transaction partner in outsourcing contracting are high,

the impact of resource value is significantly reduced by transaction costs and resource value become the less important factor in make-or-buy decisions. The final section of the paper discusses the implications of the findings and provides outlines for future research on interorganizational strategies.

VALUE CREATION AND VALUE CLAIMING

When managers make outsourcing decisions, we presuppose that they implicitly engage in value creation as well as value claiming. Differently put, there will be some aspects of outsourcing decisions that are in accordance with transaction cost considerations because they reflect value claiming, but other aspects that reflect resource value maximization, where the effective deployment of resources will play a role.

The resource-based view of the firm thinks of firms as a bundle of productive resources and different firms have different bundles of these resources (Penrose, 1959; Barney, 1999). Some of these resources are either rare or costly-to-copy and outsourcing provides opportunities to gain access to these valuable resources. Thus, in general we expect that the starting point of any outsourcing decision is the search for value creating resources (Lippman and Rumelt, 2003). However, firms also have a value claiming motivation, a motivation that is emphasized by transaction cost theory. Transaction costs economics (TCE) studies the impact of transaction costs considerations while holding constant the value gains from the relationship. However, firms might be motivated to create resource value and accomplish value claiming at the same time, and both components of interorganizational strategies may be correlated (Zajac and Olson, 1993; Foss and Foss, 2005). In the following subsection, we discuss outsourcing of application services as a source of resource value creation, and then we shift our attention to the transaction costs considerations that may play a role. In a final subsection we explore the impact of transaction costs on the value creation of outsourcing application services.

Outsourcing application services as value creation

According to the resource-based view of the firm (Penrose, 1959), firms seek to attain (and at times control) idiosyncratic or costly-to-copy resources and capabilities, as such resources expand the scope of the value creating activities under consideration. Firms rarely create value in isolation (Brandenburger and Nalebuff, 1997), and therefore, in order to compete successfully, firms may often need the resources of different firms (Barney, 1999). Resource attributes consist of different functionalities and services that assets can supply (Penrose, 1959). What are the resource attributes supplied by ASPs? Based on the literature (e.g., Ang and Straub, 2002; Kern and Willcocks, 2000; Quinn, 2000; Smith, 2002) and in-depth interviews with IT managers, we conceive that production efficiency, application technology, and network technology are possible resource attributes that may create opportunities of value enhancement of outsourcing application services compared with in-house service provision.

Classical economic analysis would justify outsourcing to firms that have a comparative cost advantage in production of goods or services. According to Ricardo (1817), firms can gain a comparative cost advantage by means of specialization and exchange. Specialization leads to scale economies, which may lower production costs; however, as Williamson (1975: 16–19) pointed out, in the absence of transaction costs these economies cannot independently affect make-or-buy decisions since they are similarly available to buyers and suppliers. According to the resource-based view, the source of comparative cost advantage arises from the development of firm specific capabilities rather than from production economies (Argyres, 1996). Outsourcing allows firms to focus their resources on core activities, thereby increasing *firm specific* experience and skills, which in turn may lead to an increase of *production efficiency* that is difficult for competitors to imitate. So, the perceived production efficiency advantage of application service provision might be an important driver of outsourcing application services.

However, according to the Penrosean view of resource value creation, survival of the firm in the long run does not depend on the efficiency of production, but rather on the ability of the firm

to establish a base from which it can adapt and extend its operations in an uncertain, changing world (Penrose, 1959). Penrose (1960) illustrates this with respect to technology in a case study of Hercules Powder Company. Its extensive technology base leveraged a strategy of moving into developing markets that, in turn, led the firm to invest further in the advance of technology. Putting it in terms of the more recent dynamic capabilities literature, unpredictable contingencies require flexible capabilities that permit rapid response, and such capabilities require a broad and deep knowledge base (e.g., technological, market, product) in order to devise appropriate responses (Volberda, 1998: 108). ASPs provide access to a broad range of specialized and advanced *application and network technology*, by making sophisticated application and network technology available to enterprises that could not afford such a broad and deep knowledge base otherwise (Quinn, 2000; Smith, 2002), thereby supporting a dynamic and flexible response capability in information technology for the outsourcing firm.

Summarizing, we expect that the resources and competencies of ASPs may increase production efficiency but besides may provide access to a broad range of application and network technology, which the outsourcing firm may use to develop a dynamic and flexible response capability in information technology. The perception of these advantages by the outsourcing firm will increase the firm's intention to outsource application services. We present the following hypotheses concerning resource value creation:

Hypothesis 1a: The perceived production efficiency advantage of application service outsourcing is positively related to the firm's intent to outsource application services.

Hypothesis 1b: Given the perceived production efficiency advantage, the perceived application technology advantage of application service outsourcing is positively related to the firm's intent to outsource application services.

Hypothesis 1c: Given the perceived production efficiency advantage, the perceived network technology advantage of application service outsourcing is positively related to the firm's intent to outsource application services.

Outsourcing application services as value claiming

Firms, according to TCE, will choose a governance mechanism that will govern their transactions effectively at the lowest possible cost (Coase, 1937). Williamson (1985, 1996) argued that the transaction costs resulting from the risks of opportunism and bounded rationality are the major component of transaction costs and hence the major determinant of governance choice. Such transaction costs have particular importance in situations where firms make asset specific investments, i.e., investments that are to some extent specific to a particular exchange. Specific assets in application outsourcing include dedicated equipment, operating procedures and software, skills, and know how tailored for the use of a specific organization (Ang and Straub, 2002). Because contractual agreements can never be complete, asset specificity causes dependence between the exchange partners, and this contractual uncertainty makes the outsourcing firm vulnerable to the opportunistic behaviour of exchange partners. Safeguarding against such behaviour would result in significant transaction costs. Thus, a higher level of asset specificity of application services will be negatively related to the firm's intent to outsource application services.

Hypothesis 2a: Asset specificity is negatively related to the firm's intent to outsource application services.

The level of market and technological uncertainty facing a firm may also affect the level of transaction cost associated with alternative modes of governance (Williamson, 1996), and this uncertainty is likely to vary depending on the environment in which the firm operates. However, research drawing on transaction cost theory has produced a conflicting set of results with

respect to the relationship between market and technological uncertainty and governance mode (e.g., Sutcliffe and Zaheer, 1998). One explanation of the conflicting results may be that firms face different levels of an exchange that influence the *comparative adaptation efficiency* of a governance mode. For example, market uncertainty is likely to be associated with greater fluctuations in demand, which might lead to recontracting of the exchange with external providers for market governance or renegotiating staffing levels of internal services for hierarchical governance. Renegotiating at both levels may lead to considerable transaction costs, where the first type of transaction costs will reduce the comparative efficiency of market forms of governance and the second type will reduce the comparative efficiency of hierarchical forms of governance. Thus, the final effect of market uncertainty may be the comparative magnitude of these transaction costs.

The question, therefore, is what will determine the outcome. Masten and Crocker (1985) argue that in the case of long-term contracts, efficient adaptation of contractual provisions to changing demand critically depends on the ability of the supplier to deliver the product or service to alternative buyers. The open network environment in which application services are delivered makes it relatively easy for the provider to deliver application services to other buyers. Hence, supply of application services by ASPs can be adjusted to the required levels within a service level agreement without excessively increasing transaction costs, while, on the other hand, transaction costs associated with adjusting internal staffing levels can be substantial (Abraham and Taylor, 1996). Thus, the comparative magnitude of transaction costs is likely to favour a market form of governance, which leads us to hypothesize that market uncertainty reduces the relative transaction costs of ASPs compared with in-house application service provision.

Hypothesis 2b: Market uncertainty is positively related to the firm's intent to outsource application services.

Information technology in general and application technology in particular are characterized by frequent technological changes, which may create a high level of technological uncertainty. Initially, transaction cost theorists argued that technological uncertainty triggers the need to update contracts continually and hence increases the comparative transaction costs of market exchange as a result of frequent contract renegotiations (Williamson, 1985). However, rapid technological change also increases the likelihood that investment in technology, knowledge, and routine will be rendered obsolete, which will increase the adaptation efficiency of market forms of governance (Balakrishnan and Wernerfelt, 1986; Hagedoorn, 1993; Poppo and Zenger, 1998). Furthermore, markets have an advantage in responding flexibly to technological changes, while within firms strong market signals about the value of various IT investments may be less likely to reach critical decision makers (Lacity and Hirschheim, 1993). As was the case for market uncertainty, the final effect of technological uncertainty will be determined by the comparative magnitude of these effects.

Williamson (1991) suggests that the required level of coordination makes the crucial difference here. If extensive coordination is required, then the advantages of hierarchy will prevail; however, if coordination of technological adaptations does not need to be extensive, outsourcing would be preferred. ASPs provide their services from a central location and are thus more likely to avoid complex coordination problems, which may reduce the transaction costs of adaptation to technological changes. Furthermore, rapid changes in application technology, such as updates of software applications, are the rule rather than the exception and can therefore be foreseen, and contractual provisions can be made about how to deal with them, thereby avoiding excessive renegotiating costs. Thus, we propose that technological uncertainty reduces the relative transaction costs of application service outsourcing compared with in-house application services.

Hypothesis 2c: Technological uncertainty is positively related to a firm's intent to outsource application services.

Flexibility of a governance mechanism is an important consideration, according to transaction cost theory, as incomplete long term contracting will fail to anticipate and/or make correct provision for future contingencies (Williamson, 1999: 1100). Transaction costs associated with economic exchange include *ex-ante* and *ex-post* costs, where *ex-post*

transaction costs include the opportunity cost of not shifting to more profitable activities in the light of new information (Rindfleisch and Heide, 1997). For example, Earl (1996) shows how unforeseen changes in business strategy can have a significant impact on the requirements of application services, and consequently it may be difficult to adjust service level agreements with providers accordingly. Furthermore, when a firm seeks to outsource application services, it can never be absolutely sure that the provider's skills will stay current or superior in meeting the firm's future needs (Barthelemy, 2001). If the costs of switching to an alternative supplier are high, firms will incur high transaction costs in changing exchange partners, thus reducing their strategic flexibility. Thus, we hypothesize that the presence of high switching costs will reduce the strategic flexibility of outsourcing firms and will therefore reduce the firm's intent to outsource application services.

Hypothesis 2d: Switching costs are negatively related to the firm's intent to outsource application services.

The impact of value claiming on value creation

Some facets of strategic outsourcing decisions will reflect an interaction of resource value creation and transaction cost. The firm's capability to create value from resources might be constrained by transaction costs (Mahoney, 2001; Foss and Foss, 2005). Although the potential for value creation by resources may be recognised, firms may not fully realize the benefits of the resource attributes provided by the outsourcing relationship. Firms may have capabilities to create conditions for informal control (Jones et al., 1997) and - building on trust and relational norms - create value within relations based on mutual interest (Zajac and Olson, 1993). However, under high risk of exploitation by transaction partners, firms will find it harder to exchange information and transfer knowledge and set-up such processes that facilitate joint value creation. Furthermore, transaction costs may even facilitate resource value creation if the transaction partner is able to economize on transaction costs. For example the ASPs superior competence to deal with the impact of market and technological uncertainty (hypotheses 2b and 2c) may actually reduce the risks of outsourcing application services compared to in-house service provision. The impact on interorganizational exchange will be increased if managers are risk averse and the net present value of expected resource value estimates will be revised downward if they put the firm at higher risk. Thus, the level of transaction costs as indicated by the level of asset specificity, switching costs, and market and technological uncertainty may moderate the impact of resource value creation on the firm's intent to outsource application services. This leads us to formulate the following hypotheses:

Hypothesis 3a: There will be a stronger, positive relationship between perceived production efficiency advantage and the firm's intent to outsource application services when asset specificity is low.

Hypothesis 3b: There will be a stronger, positive relationship between perceived production efficiency advantage and the firm's intent to outsource application services when market uncertainty is high.

Hypothesis 3c: There will be a stronger, positive relationship between perceived production efficiency advantage and the firm's intent to outsource application services when technological uncertainty is high.

Hypothesis 3d: There will be a stronger, positive relationship between perceived production efficiency advantage and the firm's intent to outsource application services when switching costs are low.

In Figure 1, we summarize the relationships hypothesized in this section. We also include in our study a number of control variables. Firms with experience in outsourcing in other business functions are more likely to have the competencies to deal with the complexity of outsourcing and therefore might have a higher intent to outsource application services. Hence, we control for the firm's overall level of outsourcing. Furthermore, we include the strategic importance of IT activities as a control variable, as activities that are considered of strategic importance are less likely to be outsourced. Finally, we include as control variables the scale-related variables firm size and IT department size and the industry sector (publishing or printing).

****** Place Figure 1 about here ******

METHOD

We choose to study the publishing and printing industry in our empirical application because application services do play an important role in the value creation process for these firms. In order to design the questionnaire, we used scales from previous studies (e.g., Klaas *et al.*, 1999; Poppo and Zenger, 1998; Steensma and Corley, 2001) and in-depth interviews with IT managers working in the industry. Subsequently, an initial questionnaire was designed and pre-tested with eight IT managers in the publishing and printing industry.

The data were gathered using a mail survey. A random sample of 917 firms active in the publishing and printing industry were contacted based on a database of all firms registered by the Chambers of Commerce in The Netherlands. We sent out 917 questionnaires, and a reminder was sent five weeks later. In total, 178 questionnaires were returned (19.4% response rate) and used for the study. The response was tested for representativeness with respect to size and industry characteristics and a comparison did not indicate significant differences. Regarding the firm's intent to outsource application services, the procedure suggested by Armstrong and Overton (1977) was used. No significant differences were found on this key variable between early and late respondents.

The scale items were first factor analysed, using principal component procedures and varimax rotation. Next, the psychometric properties of the scales were investigated. By means of an exploratory factor analysis, we analysed the different dimensions of the scales to assess their unidimensionality and factor structure. Items that did not satisfy the following criteria were deleted: (1) items should have communality higher than 0.3; (2) dominant loadings should be greater than 0.5; (3) cross-loadings should be lower than 0.3; and (4) the scree plot criterion should be satisfied (Briggs and Cheek, 1988). These rules are often applied to factor analyses in order to refine scales (DeVellis, 1991). This resulted in a pool of 34 questions, which are listed in Table 1. Next, the reliabilities of the dimensions of each scale were assessed by means of the Cronbach alpha coefficient (as shown in Table 1). Following Nunnally (1978), it is desirable that measures of each dimension achieve an alpha greater than or equal to 0.7. In fact, as shown in Table 1, the alphas vary between 0.69 and 0.91. Furthermore, Table 1 shows that all items have correlations of 0.75 or more with their respective constructs, which suggests a satisfactory item reliability (Hulland, 1999).

****** Place Table 1 about here ******

We used confirmatory factor analysis with EQS version 6 and maximum likelihood estimation to validate the scales resulting from the exploratory factor analysis. A satisfactory fit was achieved ($\chi^2 = 728$, df = 466, $p < .01$), root-mean-square estimated residual [RMSEA] = .05 and comparative fit index [CFI] = .93. The ratio of chi-square to degrees of freedom is 1.56; a value of less than 3.0 for the ratio indicates a good fit (Carmines and McIver, 1981). A CFI value above 0.9 is considered an indication of good fit, and the RMSEA of 0.05 indicates good model fit because it does not exceed the critical value of 0.08 (Bentler and Bonet, 1981). The chi-square statistic was still significant, which is indicative of a poor fit. However, it is well

documented that the chi-square is highly dependent on sample size (e.g., Jöreskog and Sörbom, 1993). Thus, following Anderson and Gerbing (1988), we considered the measurement model acceptable, given the other supportive indices.

Discriminant validity of the scales was further verified by comparing the shared variance between any two constructs and the variance extracted from each of the constructs. In all cases, the shared variance between two constructs was less than the variance extracted from each of the constructs, supporting the validity of the measurement model (Fornell and Larcker, 1981), and none of the confidence intervals of the correlation coefficients between any two constructs contained 1.0 (Anderson and Gerbing, 1988).

RESULTS

All variables (as shown in Table 2) were placed in a multiple regression using SPSS that resulted in an estimated model that is significant, with a *p*-value below 0.001. The coefficient of determination, R^2, suggests that the unrestricted regression model can explain 59% of the variation around the average of the dependent variable. The parameter estimates support the proposed hypotheses at a 5% significance level.

****** Place Table 2 about here ******

Correlations and descriptive statistics of the variables are presented in Table 3. The Goldfeld–Quandt test was used to identify possible heteroscedasticity, and variance inflation factors and matrix decomposition were used to detect multicollinearity. The results ($F = 1.04$; VIF < 2; condition numbers < 20) did not indicate any problem, and plots of the error term of the regression model suggest a normal distribution.

****** Place Table 3 about here ******

First, Table 2 suggests that, consistent with hypothesis 1a, the production efficiency advantage as perceived by IT managers is positively related to their intent to outsource application services. The standardized coefficient is 0.26 ($p < .01$) for production efficiency. Furthermore, the results suggest that, given the production efficiency advantage, the application and network technology advantages are positively related to the firm's intent to outsource application services. The standardized coefficients are 0.26 ($p < .01$) for application technology and 0.20 ($p < .01$) for network technology, thereby substantiating hypotheses 1b and 1c. In confirming hypothesis 1, our results suggest that ASPs may indeed provide substantial distinct resources and capabilities that, according to IT managers, expand the scope of the value creation processes of their firm, where the need to have access to a broad technology base is at least as important as the static comparative production efficiency of outsourcing application services.

Second, Table 2 suggests that, consistent with hypothesis 2 (a, b, c, and d), transaction costs considerations play a significant role in outsourcing decisions. Hypothesis 2a is substantiated, the standardized coefficient being –0.16 ($p < .01$), indicating that the costs of safeguarding against opportunistic behaviour of the ASP may significantly reduce the firm's intent to outsource application services. Furthermore, hypotheses 2b and 2c – that market and technological uncertainty are positively related to the firm's intent to outsource application services – are both substantiated. Both standardized coefficients are 0.16 ($p < .01$). These results suggest that the comparative magnitude of transaction costs resulting from market and technological uncertainty favour the market governance mechanism of application service provision. Differently put, ASPs may have superior capabilities to economize on the transaction costs of market and technological uncertainty compared to in-house service provision. Lastly, hypothesis 2d is substantiated, the standardized coefficient being –0.18 ($p < .01$), suggesting that switching costs reduce the strategic flexibility of the firm and thereby the firm's intent to outsource application services.

Finally, we used hierarchical regression analysis to examine the hypothesized interaction effects. The statistic measuring the change in R-square (ΔR^2) between the restricted and full models is significant at a 1% significance level for the set of interaction terms. The standardized coefficients are –0.15 ($p < .01$), 0.17 ($p < .01$), 0.14 ($p < .01$), and –0.10 ($p < .05$). The results support hypothesis 3 (a, b, c, and d), that the relation between the perceived production efficiency advantage and the firm's outsourcing intent is moderated by transaction cost variables, where asset specificity and switching costs reduce the firm's capability to create value from ASP resources and market and technological uncertainty increase it. Although the size of the standardized coefficients of the main effects in the model indicates that resource value creation has a dominating impact on the firm's outsourcing intent, the coefficients of the interactions suggest that if transaction costs in outsourcing relationships are high, resource value creation becomes a less important factor in strategic outsourcing decisions.

With respect to the control variables, IT department size, industry sector, and general outsourcing do have significant effects on the firm's intent to outsource application services: the standardized coefficients are respectively 0.14 ($p < .05$), 0.12 ($p < .05$), and 0.09 ($p < .10$). However, neither IT strategic importance nor the size of the firm has a significant effect on the firm's intent to outsource application services: the standardized coefficients are respectively 0.04 and –0.03.

The results concerning the scale variables and IT strategic importance may seem surprising. Outsourcing application services has been proposed as the method by which small and medium-sized firms could gain access to applications that, formerly, only large firms could afford (e.g., Smith, 2002). Furthermore, outsourcing of a business function that incorporates resources and capabilities that are of strategic value to the firm is generally considered to be bad practice (Dierickx *et al*., 1989: 1505); thus, one would also expect a negative relationship between strategic importance and outsourcing intent.

However, small firms, and more particularly firms with a small IT department, face the difficult problem that they represent only a small part of an ASP's business and hence have little control in dealing with an ASP, which may explain their relatively low outsourcing intent. With respect to strategic importance, indeed, a firm is likely to use internal competence as long as it generates the same capabilities; however, if deficits in resources and capabilities are diagnosed, as might be the case for application services, outsourcing may become the more attractive option (Grant, 1991; Teece *et al*., 1994; Teng *et al*., 1995). Thus, both the scale effects and the role of strategic importance in outsourcing seem to be interesting topics for further research.

DISCUSSION AND CONCLUSION

In this study, we set out to understand better how resource value maximization and transaction costs efficiency influence the firm's application outsourcing decision. A theoretical framework, which unifies the complementary theories of the resource-based view and transaction costs economics, proved a valuable instrument for analysing facilitating and inhibiting factors in strategic outsourcing relationships. The results presented in this paper support the claim that in strategic governance decisions, resource value creation and transaction cost considerations are simultaneously being considered, and moreover we demonstrated that these variables interact. Furthermore, the results indicate that resource value motivations on average dominate transaction costs considerations in the decision to outsource application services. Resource value creation opportunities are a principal driver of strategic outsourcing decisions and may even require the use of governance structures that are less efficient from a transaction cost perspective; however, the results of this study also suggest that the impact of resource value creation is moderated by transaction cost considerations. If transaction costs in outsourcing relationships are high, resource value opportunities become a less important factor in outsourcing decisions. This supports the notion that created value is not only constrained by knowledge of resource complementarities, but is also significantly influenced by transaction costs (Foss and Foss, 2005). Not addressing transaction cost concerns adequately may preclude the effective deployment of resources, even where the potential for value creation is clearly present.

While more research is needed in order to elaborate and validate the implications of an integrated resource value and transaction costs analysis, the results of our study suggest that management of governance structures can benefit from a good understanding of the interdependence between resource value creation and value claiming in interorganizational strategies. Governance decisions are, in essence, ambidextrous (Tushman and O'Reilly, 1996): that is, managers need to manage the possible tension between resource value maximization and the risks of exchange partner' value claiming in order to increase their probability of success. As we are moving towards a global networked economy in which firms seek to focus on core competencies (e.g., Hagel and Brown, 2001), the search for external resources will become more intense, making resource value creation through outsourcing relationships a key driver of competitive advantage, as well as the capability to manage the risks of exchange partner' value claiming behaviour associated with it.

The results presented in this paper have to be seen in the light of the limitations of this study. First, our sample is relatively small and refers only to the publishing and printing industry in The Netherlands. Future research should validate the results in a variety of institutional settings. Second, subsequent work could investigate the interdependence between resource value creation and value claiming in a larger model, including actual governance behaviour and performance. Third, the results only reflect the views of IT managers, which may be biased since outsourcing application services might reduce the prestige of IT managers within their company. Finally, the ASP industry is relatively new and hence most IT managers do not have extensive experience with a service provider, which may have influenced the results of our study. For example, more experienced buyers are more aware of switching costs and are more confident that these switching costs are relevant (Verhoef *et al*, 2002). Thus, future research could investigate the impact of the firm's learning process during outsourcing relationships.

ACKNOWLEDGEMENTS

The authors wish to thank Shazad Ansari, Bas Donkers, Joy Kearney, Judith Payne, Peter Verhoef, for their valuable comments and we particularly thank Tsz Wan Cheung for the execution of, and support during, the data collection.

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Figure 1. Resource attributes and transaction costs in outsourcing application services

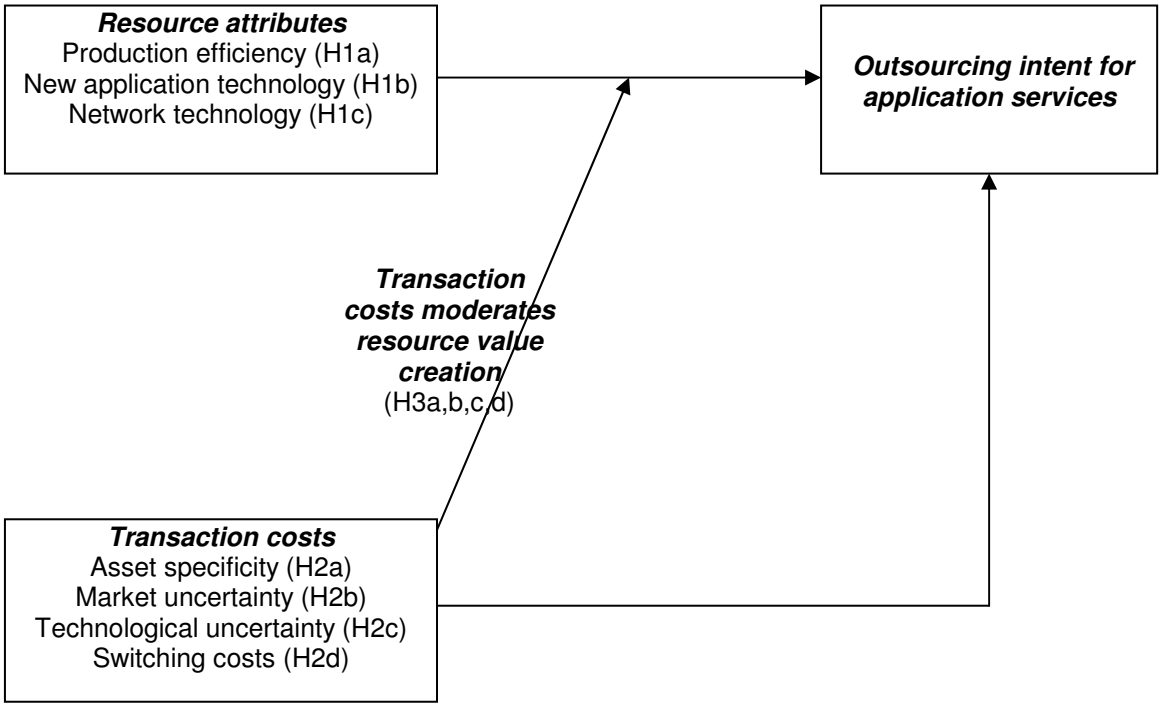

Table 1. Items, Constructs, and Measurement Model

Constructs	Item correlation with total score	Factor loadings
Outsourcing intent (alpha = 0.91)		
We intend to use ASP in our firm	0.89	0.81
We will introduce ASP to our colleagues so that it can be used for the management of our IT infrastructure	0.90	0.78
When we buy new applications, we consider ASP as an alternative	0.90	0.80
We will explicitly pay attention to the possibilities that ASP provides for the management of our IT infrastructure	0.86	0.74
New application technology (alpha = 0.90)		
ASP allows my company to use new applications	0.84	0.80
ASP will stimulate new ideas concerning the applications in my firm	0.84	0.84
ASP allows applications that thus far were not available for my firm	0.75	0.68
ASP allows us to make big leaps forward in using the new application technologies	0.80	0.65
ASP allows my firm to keep track of new applications	0.86	0.73
ASP allows my firm to introduce new applications in my firm	0.85	0.76
Network technology (alpha = 0.79)		
ASP makes it easier to safeguard our information systems	0.82	0.76
ASP will make our servers more applicable	0.88	0.72
ASP allows greater access to our applications	0.82	0.66
Production efficiency (alpha = 0.80)		
ASP allows my firm to focus on core activities	0.80	0.64
ASP lowers the costs of the IT infrastructure	0.77	0.55
ASP provides more certainty concerning costs of application services	0.80	0.70
Switching costs (alpha = 0.78)		
When the contract with an application service provider is terminated, we can easily transfer to another provider	0.85	0.78
When the contract with an application service provider is terminated, we can easily manage the IT infrastructure ourselves	0.84	0.78
Once my firm is using application services, it is difficult to get rid of them (reverse score)	0.80	0.83
Asset specificity (alpha = 0.71)		
My company has modified its applications to the specific needs of its employees	0.78	0.79
My company has an IT infrastructure that is uniquely tailored to the firm	0.85	0.85
My company needs a lot of time before employees are trained so that they can use the new applications	0.75	0.67
Market uncertainty (alpha = 0.69)		
My company is capable of predicting the demands of our products and services	0.88	0.83
My company is capable of predicting its financial performance for the next year	0.87	0.83
Technological uncertainty (alpha = 0.70)		
It is difficult to predict the pace of developments in information technology	0.88	0.86
It is difficult to keep up with the developments in information technology	0.87	0.72

General outsourcing (alpha = 0.85)		
My company engages frequently in outsourcing activities	0.87	0.85
My company easily outsources different activities	0.90	0.88
Top management has a positive attitude towards the outsourcing of activities	0.86	0.82
IT strategic importance (alpha = 0.79)		
My company has an IT infrastructure that is strategically important for the company	0.82	0.78
Top management attaches a lot of value to the well-functioning of the IT infrastructure	0.81	0.84
Our business processes are highly dependent on a well-functioning IT department	0.87	0.89
Top management finds it important that the IT department is involved in our firm's strategic decision making	0.82	0.81
Without a well-functioning IT department, we lose market share	0.76	0.60

$\chi^2 = 728$, df = 466, $p < .01$, $\chi^2/df = 1.56$, RMSEA = 0.05, CFI = 0.93

Table 2. Results of the hierarchical regression analysis

Variables	Restricted model	*p*-value	Full model	*p*-value
Constant	0.476		–0.11	
Control variables				
Log IT department size	0.14	$p < .05$	0.14	$p < .05$
General outsourcing	0.14	$p < .05$	0.09	$p < .10$
IT strategic importance	–0.02	NS	0.04	NS
Log firm size	–0.02	NS	–0.03	NS
Industry sector	0.11	$p < .10$	0.12	$p < .05$
Resource attributes				
Production efficiency	0.26	$p < .01$	0.26	$p < .01$
Application technology	0.25	$p < .01$	0.26	$p < .01$
Network technology	0.22	$p < .01$	0.20	$p < .01$
Transaction costs				
Asset specificity	–0.14	$p < .05$	–0.16	$p < .01$
Market uncertainty	0.13	$p < .05$	0.16	$p < .01$
Technological uncertainty	0.10	$p < .05$	0.16	$p < .01$
Switching costs	–0.13	$p < .05$	–0.18	$p < .01$
Interactions (mean-centred)				
Production efficiency × Asset specificity			–0.15	$p < .01$
Production efficiency × Market uncertainty			0.17	$p < .01$
Production efficiency × Technological uncertainty			0.14	$p < .01$
Production efficiency × Switching costs			–0.10	$p < .05$
R^2	0.54		0.59	
ΔR^2			0.05	$p < .01$
$N = 178$				

Table 3. Descriptive statistics, * = significant at $p < 0.05$

	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12
Application technology (1)	4.41	1.00	1.00	0.56*	0.63*	–0.03	–0.11	–0.04	0.30*	0.02	0.17	0.03	–0.16*	–0.05
Network technology (2)	3.66	1.13	0.56*	1.00	0.56*	0.19*	0.03	0.02	0.22*	0.05	0.14	0.02	–0.05	–0.05
Production efficiency (3)	3.88	1.08	0.63*	0.56*	1.00	0.10	–0.11	–0.04	0.21*	0.06	0.17*	0.07	–0.05	–0.00
Switching costs (4)	5.03	1.08	0.03	–0.19*	–0.10	1.00	0.05	0.07	0.02	0.18*	0.12	0.38*	0.28*	0.20*
Asset specificity (5)	4.04	1.16	–0.11	0.03	–0.11	–0.05	1.00	0.09	0.09	0.39*	0.08	0.20*	0.22*	0.12
Market uncertainty (6)	3.16	1.08	0.04	–0.02	0.04	0.07	–0.09	1.00	0.02	–0.10	–0.05	–0.29*	–0.05	–0.12
Technological uncertainty (7)	4.21	1.18	0.30*	0.22*	0.21*	–0.02	0.09	–0.02	1.00	–0.08	0.16*	–0.14	–0.12	–0.07
Log IT department size (8)	–0.38	2.96	0.02	0.05	0.06	–0.18*	0.39*	0.10	–0.08	1.00	–0.03	0.32*	0.43*	0.07
General outsourcing (9)	3.94	1.30	0.17*	0.14	0.17*	–0.12	0.08	0.05	0.16*	–0.03	1.00	0.07	0.11	0.22*
IT strategic importance (10)	5.35	1.04	0.03	0.02	0.07	–0.38*	0.20*	0.29*	–0.14	0.32*	0.07	1.00	0.25*	0.23*
Log firm size (11)	3.10	1.27	–0.16*	–0.05	–0.05	–0.28*	0.22*	0.05	–0.12	0.43*	0.11	0.25*	1.00	0.31*
Industry (12)	0.42	0.49	–0.05	–0.05	–0.00	–0.20*	0.12	0.12	–0.07	0.07	0.22*	0.23*	0.31*	1.00