Buyer Supplier Perspectives on Supply Chain Relationships

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Biography

Eamonn is on the academic staff of the National Institute of Technology Management (NITM) in University College Dublin (UCD), and is active in teaching, research and the business development activities of the Institute. Prior to joining UCD, he was Engineering Director for Bristol Myers Squibb, and was responsible for the design, installation and maintenance of process plants for developing and manufacturing anti-cancer drugs. He also worked as a consultant advising major multinationals and government agencies in asset management and procurement process improvement.

Eamonn researches in the area of supply chain relationship management and has published in the International Journal of Operations & Production Management. He is on the leadership team of the IBM Integrated Supply Chain Research Consortium, a group of supply chain experts drawn from universities in the US, Europe and Asia, and is currently working with IBM on a global study of supply relationship management. In addition to teaching on a range of operations and supply chain programmes, Eamonn has a particular interest in the development and delivery of Service Supply Chain programmes, both academic for-credit modules and executive education seminars.

Abstract

Purpose - The paper employs transaction cost theory and social exchange theory to compare how buyers and suppliers perceive relationship mechanisms. The paper also explains the antecedents and dynamics of relationship performance by comparing buyer and supplier perceptions of the same relationships. Within the study we specifically focus on the issue of relationship success and test the hypothesis that the antecedents of perceived relationship success for buyers differ from those of suppliers within supply chain relationships.

Design/methodology/approach - The paper is based on a study of the supply chain relationships of a major ICT company where matched pairs of buyers and suppliers were surveyed on the nature of their relationships. The survey instrument drew from previously published constructs on key relationship dimensions such as trust, commitment, power, communication, uncertainty and performance. A series of nested models were then developed and tested for the two groups – buyers and suppliers.

Findings - The study found that buyers and suppliers have significantly different perceptions of their relationships across a range of dimensions. In addition, the antecedents of relationship success for both groups bear little similarity, thus supporting our hypotheses.

Implications - This research has implications both for academics and practitioners. For academics, the contribution of the paper is in establishing how both transaction cost theory and social exchange theory factors are perceived in dyadic relationships. Specifically, the paper has implications for the study of supply chain relationships as it highlights the perceptual gaps between buyers and suppliers and differences in the drivers of relationship performance. For practitioners, there are implications for managing supply chain relationships and the importance of understanding the business partner's perspective. Buyers seeking to develop long-term strategic supplier relationships would gain from the insights into supplier perceptions. Equally, suppliers looking to increase business could benefit from a greater understanding of the buyer's view of their performance.

Research limitations - The limitations of the current study are: the selection of a single buyer firm in the sample; the selection of strategic (i.e. high-value) relationships; the narrow definition of relationship success; the relatively small size of the sample; and the lack of longitudinal data on the relationships.

Originality/value of paper – The paper directly compares transaction cost theory and social exchange theory and finds that both are useful in explaining success in buyer-supplier relationships. Methodologically, the paper is unique due to the combination of over 100 matched buyer-supplier dyads with a comprehensive survey of relationship constructs. Given the use of both transaction cost and social exchange theory, the breadth of the dimensions studied, the unique access to practitioners gained and the nature of the matched-pair data, this paper is an important contribution to the literature on relationship management. Furthermore, the findings indicate a rich seam of potential future research topics.

Keywords: congruence, supply chain, relationship, buyer-supplier, survey, regression
Category: Research Paper

Introduction

Management of buyer-supplier relationships is central to the success of supply chain management in firms (Harland, 1996). In particular, strategic relationships with critical suppliers must be understood in order to maximize the value creation in the supply chain (Chen et al., 2004). Studies have shown that successful management of these relationships contributes to firm performance (Tan et al., 1999). Dimensions such as trust and commitment are shown to play an important role in high value strategic relationships, where specific investments are high, and contractual governance alone is not adequate (Morgan and Hunt, 1994). In such relationships, it is important that both parties perceive that they are gaining value from the relationship if it is to continue and the relationship is to be considered a success (Narayandas and Rangan, 2004).

Researchers have used both transaction cost theory and social exchange theory as separate and complementary theories to explain the antecedents and dynamics of relationship success (Kwon and Suh, 2004; Kingshott, 2006; Hawkins et al., 2008; Zhao et al., 2008; Liu et al., 2009). Researchers have used both single-respondent and dyadic samples in order to understand the differences in perceptions of the relationship between buyers and suppliers. However, the antecedents and dynamics have mainly been tested on separate groups of buyers and suppliers and rarely between buyers and suppliers in the same relationship (O'Toole and Donaldson, 2002; Terpend et al., 2008). Even when matched pairs in a relationship have been studied, the results have been aggregated to the relationship (Liu et al., 2009). We use both transaction cost theory and social exchange theory factors across a matched-pair dyad directly comparing buyer and supplier perceptions of the same relationship.

There are two distinct aspects to the question of differences in perception. One aspect is whether relationship partners perceive the same levels of trust, commitment and performance in a relationship. This issue is dealt with through an examination of perception levels – the values of the constructs. A second aspect is how characteristics of a relationship are valued by each partner, specifically what characteristics lead to a successful relationship. Given that the two partners have different interests and different needs in the relationship, it is reasonable to ask if they respond to different cues within the relationship. This aspect is examined by looking at the interaction of relationship dimensions – specifically the antecedents of relationship success.

Our motivation for this study was to consider a wide range of relationship dimensions drawing on both transaction cost and social exchange theory rather than presupposing certain dimensions would dominate. We examined matched-pair relationships to identify specific differences in perception between the parties within the relationship. Thus, the contribution of the paper is that there are significantly different drivers of relationship success for buyers and suppliers in the same relationship.

This paper is structured as follows, firstly a discussion of the literature on transaction cost and social exchange theories, relationship success and perceptual differences between buyer and supplier; secondly a description of the methodology for the study and data analysis conducted; presentation of the findings of the study; a discussion of the findings and their impact on current theory; and finally the conclusion with implications for theory and practice as well as the limitations of the study and further research.

Theoretical Background

Transaction cost and social exchange theory are useful as foundations for predictions of relationship dynamics and success. Transaction cost theory takes an instrumental approach to the structure and dynamics of relationships, proposing that transactions are better managed internally or with close long-term relationships with other firms when the governance of the transaction is difficult (Williamson, 1985). What the theory does not predict is how, given the different perspective of

buyer and supplier, different factors will influence the success of the relationship for the buying firm and for the supplying firm.

Transaction cost theory states that governance of relationships will be predicted by the asset specificity or the degree of specific investment involved in the transaction and the environmental and behavioural uncertainty surrounding the transaction and thus the scope for opportunism (Williamson, 1985). The theory stipulates adaptation (or relationship-specific investments) and reduction in uncertainty as key to relationship success in order to diminish the hazard of opportunism (Williamson, 1985). For instance, if one party makes relationship-specific investments, this will only be done when the other party attenuates the hazard of opportunism by also making relationship-specific investments or by offering contractual guarantees (Anderson and Weitz, 1992; Rokkan et al., 2003). Factors used from the transaction cost theory for this study are adaptation and uncertainty.

Social exchange theory is posited on the concept of individuals or groups interacting due to the expectation of rewards and the avoidance of penalties or punishment (Emerson, 1976; Bandura, 1986). Reciprocity is an important concept within social exchange theory as actions and behaviour by one party will lead to reciprocal action and behaviour by the other party to the interaction (Griffith et al., 2006). A key theme, and an underlying premise of social exchange theory, is the importance of trust and commitment in ensuring relationship success (Anderson and Narus, 1990; Morgan and Hunt, 1994; Liu et al., 2009). We define commitment to the relationship as "an exchange partner believing that an ongoing relationship with another is so important as to warrant maximum efforts at maintaining it" (Morgan and Hunt, 1994, p. 23). Trust can be defined as the willingness to rely on an exchange partner in whom one has confidence (Moorman et al., 1992). Furthermore, power and dependence have an effect on trust and commitment with a number of studies exploring these factors together (Autry and Golicic, 2010; Lawler and Yoon, 1993; Griffith et al., 2006; Narasimhan et al., 2009). Maloni and Benton (2000) define power as "the ability of one firm (the source) to influence the intentions and actions of another firm (the target)" (Maloni and Benton, 2000, p. 53). As there are different findings within the social exchange theory literature regarding the interplay of these factors, this study uses the factors trust, commitment, dependence and power. Communication is included in the study as it has been identified as an important mechanism in improving interaction in both transaction cost and social exchange theory (Liu et al., 2009).

Several studies have provided explanations of relationship success where the buyer is in a weaker power position to the supplier (Anderson and Narus, 1990), while other studies have considered the buyer as the powerful player (Benton and Maloni, 2005; Shervani et al., 2007; Zhang et al., 2009). Our study looks at the buyer's most important relationships where there is a degree of mutual dependence between the buyer and the supplier.

Models of relationship success

Wilson and Möller (1991) reviewed a number of models of buyer-supplier relationships, including the Industrial Marketing and Purchasing (IMP) work, channel perspectives and buyer and seller perspectives. The authors identified 34 constructs which are commonly included in models, but commented that the sources do not always share common concepts or definitions. This is echoed by Fontenot and Wilson (1997) who found that in a study of four commonly cited models (Anderson and Narus, 1990; Dwyer et al., 1987; Mohr and Spekman, 1994; and Morgan and Hunt, 1994) there was a lack of standardised scales and definitions. While it was possible to extract concepts which had common meaning across the studies, the authors propose that clear definitions and constructs would be of benefit to future work. Olsen and Ellram (1997) also stressed the need for clarification of key constructs, arguing that it is not possible to develop theory in the field without such clarification.

We reviewed literature from the supply chain, marketing and strategy fields to identify predictors of relationship success. There is general agreement that communication between the partners leads to increased trust and commitment (Morgan and Hunt, 1994; Anderson and Narus, 1990; Anderson and Weitz, 1992), that trust influences commitment (Morgan and Hunt, 1994; Ganesan, 1994) and that trust and commitment lead to increased satisfaction and relationship success (Zaheer et al., 1998; Mohr and Spekman, 1994; Benton and Maloni, 2005; Ross et al., 1997; Palmatier et al., 2007), although much of the work does not include dyadic data. It has also been found that increased communication leads directly to increased performance and satisfaction (Mohr et al., 1996; Sriram and Stump, 2004). Resource dependency influences commitment, trust and satisfaction (Ganesan, 1994; Kumar et al., 1995; Jonsson and Zineldin, 2003), and the exercise of and perception of power are related to commitment, trust and relationship success (Benton and Maloni, 2005; Rokkan and Haugland, 2002; Zhang et al., 2009). Where firms make specific investments, this adaptation is related to commitment and satisfaction (Anderson and Weitz, 1992; Mohr and Spekman, 1994; Jonsson and Zineldin, 2003). Finally, uncertainty has been found to negatively impact performance (Dahlstrom et al., 1996; Morris and Carter, 2005).

From the literature on transaction cost and social exchange theory and from the empirical models of relationship success discussed above, we have identified the commonly referenced dimensions of commitment, adaptation, communication, resource dependence, trust, uncertainty and power.

Perceptual differences between buyer and supplier

In our review of the literature, empirical survey-based studies of relationships have tended to concentrate on only one partner in the relationship. In a review of 151 articles on empirical studies of buyer-supplier relationships over twenty years, Terpend et al. (2008) found that only six studies gathered data on both buyers and suppliers. Authors typically quote cost or time constraints as the reason for selecting either the buyer or the supplier as the unit of analysis (Mohr and Spekman, 1994). Many acknowledge that the lack of dyadic responses is a limitation in the research (Monczka et al., 1995; O'Toole and Donaldson, 2002; Nidumolu, 1995; Stump and Sriram, 1997).

Where dyadic data were gathered, significant differences between buyers and suppliers were common (Forker et al., 1999). When asked about satisfaction with the relationship, suppliers typically rate the relationship more highly than buyers (Barnes, et al., 2007). While there has been evidence of congruence between the parties on behavioural dimensions such as communication, it is less evident on attitudinal aspects such as trust (Campbell, 1997). In an electronic data interchange (EDI) implementation study, buyers were found to have greater expectations and less commitment than suppliers in the relationships (Wilson and Vlosky, 1998). Harland (1996) found significant incidences of perceptual difference between buyers and suppliers, regarding both the requirements within a relationship and the performance of the relationship. In addition, these differences were seen to increase in the upstream stages of a supply chain (Harland, 1996).

While much of the research above examines buyer and supplier perceptions independently and finds differences between groups of buyers and suppliers, we hypothesise that even within one relationship those differences will be evident. This leads us to our first hypothesis:

> *H1.* Buyers and suppliers in the same supply chain relationship have significantly different perceptions of commitment, adaptation, communication, resource dependence, trust, uncertainty, power, and relationship success.

Antecedents of relationship success

Following on from this hypothesis, we consider why differences in relationship success might arise. In the literature, there is much evidence to suggest that buyer and supplier perspectives differ on the question of what leads to relationship success. If we consider first the literature on buyer

perspectives, much of the research has tended to concentrate on the centrality of trust and commitment, based on Morgan and Hunt's (1994) model. Relationship success is typically measured either by the buyer's perception of the supplier's performance (Zaheer et al, 1998; Jonsson and Zineldin, 2003) or by the buyer's future intentions with regard to relationship continuity (Morgan and Hunt, 1994; Doney and Cannon, 1997). Other literature identifies additional predictors of success as well as trust and commitment, such as communication quality (Mohr and Spekman, 1994) and uncertainty reduction (Morris and Carter, 2005).

On the other hand, the literature on supplier perspectives of relationship success suggests a different picture. For suppliers, success can be taken to mean continuity in the relationship (Anderson and Weitz, 1989) or perceptions of satisfaction and performance (Fynes and Voss, 2002; Monczka et al., 1995). There is little consistency in the dimensions included in the studies, but there is much support for the inclusion of power/dependence as a significant predictor (Monczka et al., 1995; Benton and Maloni, 2005). While trust and commitment often appear as predictors, they are not as predominant as in the buyer-oriented literature (Anderson and Weitz, 1989; Monczka et al., 1995).

Given the lack of standardised concepts or models (Fontenot and Wilson, 1997) it is difficult to directly compare the separate bodies of work on buyers and suppliers discussed above. However, where dyadic studies have been made, we gain some insight into the perceptual differences between the two groups. Anderson and Narus (1990) found that trust is positively related to satisfaction for suppliers but not for buyers. Ganesan (1994) found that perceptions of partner dependence were positively related to commitment for suppliers, but negatively for buyers. Overall, the evidence suggests that buyers and suppliers tend to exhibit different antecedents of relationship success across a range of studies and contexts (Ganesan, 1994). This leads us to our second hypothesis:

> *H2.* The antecedents of perceived relationship success for buyers differ from those for suppliers within the same supply chain relationship.

Methodology

Sample and questionnaire design

The population identified for analysis was the top-tier relationships as measured by annual contract value between the buyer company and its suppliers. A multinational company in the information and communication technology (ICT) sector was chosen as the focal buying firm in this study as they are a leader in supply chain management practices and researchers were granted extensive access to the company and the suppliers. As perceptions and perceptual differences can vary through the supply chain (Harland, 1996), we have fixed the study at one point in the chain by focusing on one buying organisation. The buying organisation is divided into 25 purchasing councils, each responsible for a family of purchases. Each council was asked to identify their top 15 suppliers by contract value and to provide the name of the relationship manager for that supplier.

Due to operational and confidentiality constraints, only one informant could be nominated for each relationship. Relationship managers were chosen as the key informants on the buyer side as they had overall responsibility for the management and operation of the supplier relationship. At a higher level in the organisation, the executives had responsibility for a category of purchases and did not have direct involvement with specific suppliers on a regular basis. Lower in the organisation, multiple purchasing managers and buyers were involved with a given supplier, each having a unique but limited perspective on the overall relationship. The relationship manager was judged to be the most suitable respondent given that access to only one respondent was possible for each relationship.

The questionnaire containing the constructs outlined previously was based on existing items from published research. It was piloted on buyers, suppliers and academics in the field, to establish face and content validity. Equivalent items were developed for both buyers and suppliers, as

indicated in the survey items presented in Appendix 1. The sources of the constructs are also given in Appendix 1. In all cases, the full set of items for each construct was included in the survey and the appendix lists the items remaining following scale purification. Trust was operationalised in terms of both benevolence and credibility constructs (Ganesan, 1994). In the case of the power construct, while multiple constructs were initially tested, only non-mediated power items remained following scale purification (Maloni and Benton, 2000). Relationship success was initially measured in terms of satisfaction of the parties involved and perception of supplier performance. However, the former items did not prove to be statistically robust so the data analysis only relates to supplier performance (Dahlstrom et al., 1996).

Survey response

The initial list of supply companies and relationship managers was checked for duplication across councils and a final list of 163 unique relationships was identified. The 163 relationship managers were surveyed and reminders were sent to the respondents on two occasions. 157 responses were received, of which 152 were substantially complete, which represents a response rate of 93%. The responses were received over a 3-week period in May 2006 and were submitted electronically through the buyer company's intranet.

Within the survey, each relationship manager identified the supplier contact who was the focus of his or her responses. In the 157 responses, 155 supplier contact details were provided. These supplier contacts were then surveyed through a web-based instrument and over a 9-week period in July/August 2006, 121 responses were received of which 117 were substantially complete, giving a response rate of 75%. Reminders were sent to those who had not completed the survey on two occasions, in line with good practice.

The analysis was carried out on the data provided by 152 buyers and 117 suppliers, across 153 relationships which included 120 matched dyads. Products accounted for 82 relationships (54%), involving purchases such as memory products, power supplies, printed circuit boards, peripherals, silicon wafers, components, equipment spares, card assembly, and test equipment. Services accounted for 71 relationships (46%), with a wide range of purchases covering voice and data services, facilities management, technical services skills, staff sourcing and logistics. Purchase values were high with 75% of the dyads reporting annual contract values in excess of $10,000,000. Selected sample characteristics are given in Table 1 below.

Table 1: Selected sample characteristics

Respondents	Buyers		Suppliers	
Title				
	Buyer	62%	CEO/President/VP	16%
	Supplier Relationship Manager	6%	Director	26%
	Global Commodity Manager	11%	Manager	24%
			Sales Rep	27%
Gender				
	Female	30%		17%
	Male	70%		83%
Average age (years)		44.5		45.6
Education qualifications				
	Bachelors degree	58%		59%
	Advanced degree	27%		36%
Level of experience (years)				
	Time in company	16.7		9.6
	Time in position	5		5.5
	Time in industry	16.7		15.5
Length of relationship (years)				
	Personal	2.3		3.3
	Organisational	10		12.3
Location				
	North America	82%		80%
	Latin America	1%		1%
	Europe	10%		13%
	Asia-Pacific	7%		6%

The buying company is a global organisation specializing in ICT, providing both products and services primarily to business customers. The company has a very strong brand name and prides itself on its technology leadership. As can be seen above, the buyers tend to be specialised, well qualified and have spent much of their working life in the company. They have been in a buying role, on average, for approximately 5 years. Buying within the organisation is very structured and typically the suppliers are given one- or two-year contracts, with ongoing performance measurement and annual price reviews. The supply companies, although not as large as the buying company, are often global companies with supply contracts in excess of $10 million per annum. In general, senior managers within the supply company handle this customer and they are also well qualified. While the two organisations have, on average, had a business relationship for over 10 years, typically the two respondents have been dealing with each other for about two years. This context is clearly one of long-term, well-established, high-value relationships. As a result, these relationships are considered important by both buyers and suppliers and both parties afford them attention and careful management.

Data cleansing and scale purification

Both buyer and supplier data were received in Excel form as a result of the electronic survey administration and were imported into SPSS Version 14.01 and Amos Version 6 for cleansing and analysis. Tests for normality, homoscedasticity and linearity indicated that the data were suitable for multivariate analysis. Comparison of early and late respondents indicated that there was insignificant non-response bias among the suppliers (Armstrong and Overton, 1977). Given the 96% response rate from the buyers, non-response bias among them was not an issue. Respondents with more than 40% missing data were dropped from the analysis. Little's test indicated that the remaining data was Missing Completely at Random (MCAR). Finally, patterns of extreme high and

low values of variables were graphically examined for outliers, but no distinctly different patterns were observed. Given the apparently random occurrence of extreme values, we did not delete any observations as outliers (Hair et al., 2006).

The cleansed data were then used to develop a measurement model using Confirmatory Factor Analysis (CFA). The validation of the measurement model followed the procedure set out by Hair et al., (2006). We proposed a congeneric measurement model, which consists of ten unidimensional constructs, where the cross-loadings of items between constructs were zero.

Scale purification was carried out in three stages. First, convergent validity was established by ensuring all factor loadings were significant, and were greater than 0.50. This resulted in the rejection of the Satisfaction construct as it only had two valid items. Discriminant validity was demonstrated by establishing that the average variance extracted for each factor was greater than the squared inter-construct correlations. Finally, scale reliability was confirmed in that Cronbach alpha values were greater than 0.70. Validity and reliability data for the constructs are shown in Table 2 below. The final scales are presented in Appendix 1.

Table 2: Final construct validity data

Construct	Standardised Item Weight Range	Average Variance Extracted	Number of Items	Reliability
Commitment	0.538 to 0.859	0.578	4	0.837
Adaptation	0.806 to 0.926	0.666	5	0.932
Communication	0.797 to 0.916	0.721	5	0.935
Non-mediated power	0.740 to 0.816	0.587	3	0.862
Resource dependence	0.769 to 0.952	0.721	3	0.879
Trust (credibility)	0.709 to 0.883	0.636	4	0.884
Trust (benevolence)	0.703 to 0.786	0.576	3	0.801
Uncertainty	0.680 to 0.891	0.659	4	0.872
Performance	0.798 to 0.858	0.708	6	0.933

If we are to draw inferences from a comparison of the constructs between buyers and suppliers, it is not sufficient to develop a measurement model for the complete sample; we must establish that the measurement model is consistent between the two groups. To do this, the measurement model was tested for structural invariance and factor invariance between the groups. As Table 3 below shows, there is no significant deterioration in fit when the structure and the factor loadings are constrained. Hence, the model is a valid representation of the constructs for both samples. However, if we fix the covariances between constructs as invariant across the groups, we find that the fit is significantly worse, thus indicating that relationship dimension dynamics differ between the groups.

Table 3: Measurement model fit statistics

Model	CMIN	DF	CMIN/DF	CFI	PNFI	RMSEA	Δ CMIN	P
Group MM unconstrained	1719	1186	1.45	0.923	0.704	0.041		
Group MM with equal factor loadings	1766	1214	1.45	0.920	0.715	0.041	47	0.013
Group MM with equal covariances	1921	1259	1.53	0.904	0.724	0.044	202	0.000

The correlations between constructs within each group are reported in Tables 4 and 5 below. All significant correlations are marked with *.

Table 4: Construct correlations in the measurement model - buyer correlations

Buyer	Ben Trust	Res Dep	Adapt	Commun	Commit	Cred Trust	Uncert	Unmed Power
Res Dep	0.261*							
Adapt	0.478*	0.345*						
Commun	0.318*	0.142	0.256					
Commit	0.260*	0.503*	0.359*	0.270*				
Cred Trust	0.603*	0.257	0.531*	0.364*	0.320*			
Uncert	-0.201	-0.190	-0.341*	-0.421*	-0.366*	-0.394*		
Unmed Power	0.743*	0.357*	0.564*	0.266*	0.303*	0.510*	-0.266*	
Perf	0.458*	0.331*	0.534*	0.426*	0.215	0.654*	-0.502*	0.485*

Table 5: Construct correlations in the measurement model - supplier correlations

Supplier	Ben Trust	Res Dep	Adapt	Commun	Commit	Cred Trust	Uncert	Unmed Power
Res Dep	0.394*							
Adapt	0.463*	0.184						
Commun	0.298	0.091	0.246					
Commit	0.241	0.527*	0.236	0.240				
Cred Trust	0.679*	0.163	0.189	0.322*	0.183			
Uncert	-0.248	-0.195	-0.220	-0.153	-0.201	-0.272		
Unmed Power	0.547*	0.428*	0.527*	0.487*	0.491*	0.438*	-0.128	
Perf	0.242	0.232	0.170	0.636*	0.303*	0.367*	-0.316	0.492*

We expect to see high correlations amongst the constructs as the theory has established that they are predictors of performance and are inter-related (Fynes and Voss, 2002). In general, the constructs are related as expected: all constructs apart from uncertainty are positively related and they exhibit patterns of high correlations for both buyers and suppliers. In both groups, uncertainty is negatively correlated to all other constructs, which is also expected. This pattern provides evidence of an initial level of face validity of the constructs.

Data Analysis

Bivariate analysis

Hypothesis 1 was tested by carrying out a comparison of the mean values of the constructs for buyers and suppliers using a t-test. Table 6 shows that there are differences in the perception of relationship characteristics as held by the two groups. The constructs commitment, adaptation, communication, resource dependence, unmediated power and performance all have a mean difference between the two groups of 0.50 or more. In addition, the t-test indicates that these differences are statistically significant.

Table 6: T-test comparison of constructs

Dimension	Buyer Mean	Supplier Mean	Mean Difference	T value	Degrees of Freedom	Significance
Commitment	5.37	6.59	-1.22	-13.03	270	0.000
Adaptation	5.10	3.69	1.41	9.030	228	0.000
Communication	5.35	5.86	-0.51	-4.294	265	0.000
Resource Dependence	4.87	5.75	-0.88	-5.974	256	0.000
Credibility Trust	5.61	5.73	-0.12	-0.997	236	0.320
Benevolence Trust	4.82	4.89	-0.07	-0.554	249	0.580
Uncertainty	2.74	2.91	-0.17	-1.257	198	0.210
Unmediated Power	4.84	5.67	-0.83	-8.432	254	0.000
Relationship Performance	5.43	5.93	-0.50	-4.224	248	0.000

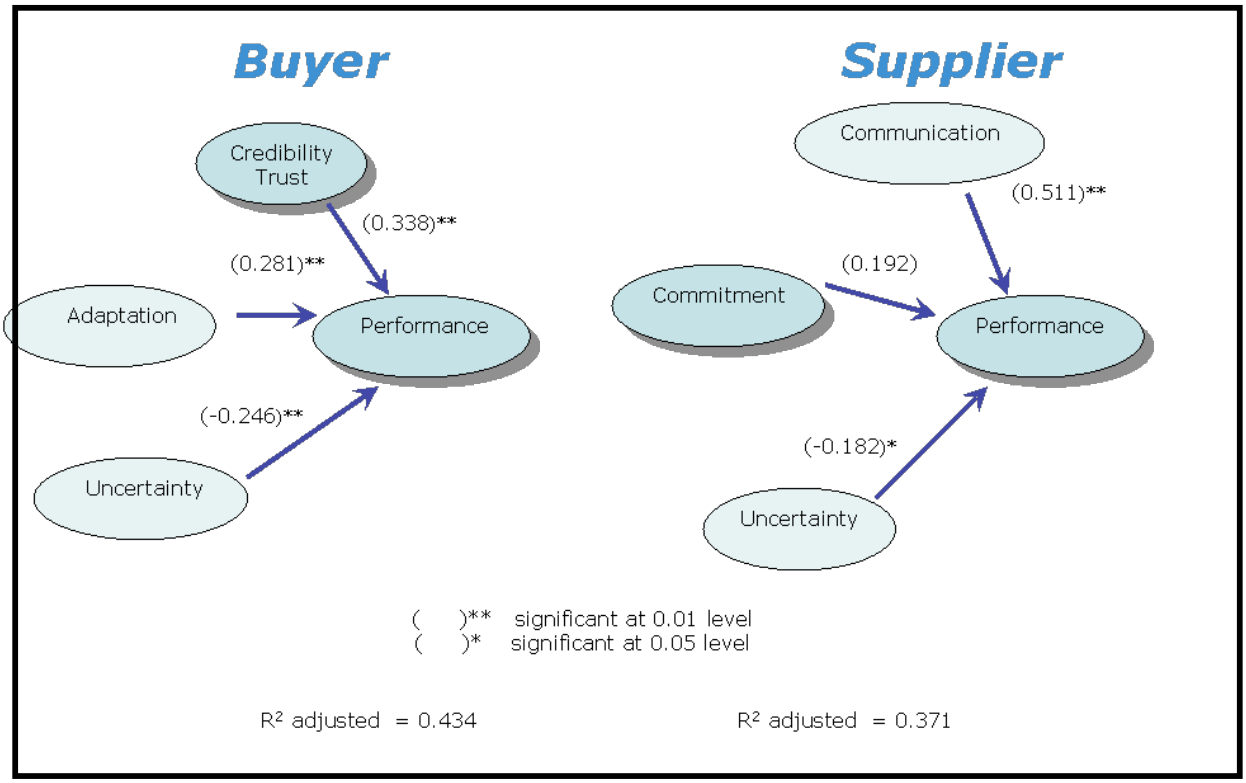
The mean difference shown is the buyer mean value minus the supplier mean value. In the t-tests, equal variances are not assumed. Significant mean differences range from 0.50 (performance) to 1.41 (adaptation) on a 7-point scale. We consider the implications of these differences, and the similarity in trust and uncertainty dimensions, in the discussion section. Overall, the t-test indicates that out of the nine dimensions examined, perceptions of buyers and suppliers differ significantly on six of the dimensions, which substantially supports Hypothesis 1.

Predictors of relationship performance

To test the second hypothesis, we used multivariate regressions with supplier performance as the single dependant variable. In the analysis of the linear regression, two multiple regression analyses were carried out: one for buyers only and one for suppliers only. In each case, a "Stepwise" regression was performed to identify significant relationships. In the process, no items were removed. Following that, an 'Enter' regression was performed to validate the results of the 'Stepwise' regression. The Enter regression confirmed the relationships from the stepwise regression, albeit at slightly lower levels of significance in some cases. No other significant relationships were identified in the Enter regressions apart from those shown. The regression results are shown in Figure 1 below. In general, significance of relationships was established at the 0.01 level, and only the significant relationships are reported.

In both the buyer and supplier groups, the first variable accounted for over 30% of the variance of the independent variable. A comparison of the R-squared statistic for the Stepwise as against the Enter regression indicates that the Stepwise regression models explain a significant amount of the variance of the independent variable with fewer variables. In all regressions, tests were carried out for collinearity, but all tolerance values were in the range 0.620 to 0.996 indicating acceptable levels of multicollinearity.

Figure 1: Stepwise regression analysis for separate groups



The buyer group model has three predictors accounting for 44.6% of the variance. The first predictor, credibility trust, has a bivariate correlation with performance of 0.654 and accounts for 31.3% of the variance. The addition of adaptation and then uncertainty accounts for a further 13.3% of the variance. Addition of the remaining five independent variables would, in theory, account for an additional 3.7% of the variance, but none of the beta coefficients for these variables are significant at the 0.05 level.

The supplier group model also has three predictors, this time accounting for 38.9% of the variance. The first predictor, communication, has a bivariate correlation with performance of 0.636, and accounts for 31.0% of the variance. The addition of commitment and uncertainty accounts for a further 7.9% of the variance. Addition of the remaining five independent variables would, in theory, account for an additional 5.0% of the variance, but none of the beta coefficients for these variables are significant at the 0.05 level.

In summary, the regression results for buyers and suppliers are distinctly different. While uncertainty is a common predictor of performance, the other predictors differ. The dominant predictors for buyers are credibility trust and adaptation, while for the suppliers the dominant predictors are communication and to a lesser extent commitment. These results are consistent across multiple regression methods. Thus Hypothesis 2 is supported.

Discussion

Congruence in the relationship

Comparing the buyers' and suppliers' perceptions of relationship dimensions, we find that for commitment, adaptability, communication, dependence, power and performance, there are significant differences in the perception of these dimensions in the relationship. This conflicts with previous research (Campbell, 1997) which found congruence in behavioural dimensions such as communication but incongruence on attitudinal factors such as trust. We found that one behavioural dimension (uncertainty) and two attitudinal dimensions (benevolence and credibility

trust) are congruent while the other behavioural (communication, adaptability) and attitudinal (commitment) factors, as well as power and dependence, are incongruent.

One of the reasons that perceptions of trust and uncertainty were found to be similar between the buyer and the supplier could be that these are hygiene factors for relationship performance (Herzberg, 1966). A basic requirement for relationship performance is the reduction in uncertainty for both parties (Morris and Carter, 2005). Therefore, each party reciprocates in the reduction of uncertainty. As the respondents are senior managers with typically ten years of experience, they would be expected to have a good understanding of the risks involved in the environment, the transaction and the relationship. The similarity in perceptions of trust is not surprising as both the buyer and the supplier have been in the relationship for an extended length of time and an alignment of perceptions is common in these cases (Rokkan et al., 2003). However, on this basis, we would expect to see more congruence in the other factors also.

Antecedents of relationship performance

We find different dynamics of relationship performance for the buyers and the suppliers. The multiple regression analysis of the data for buyers and suppliers separately, with relationship performance as the single independent variable, shows clear differences in drivers of relationship success. The buyers emphasise credibility trust and adaptation while the suppliers emphasise commitment and communication. Both models share a negative relationship between uncertainty and performance.

Lending support to previous studies, the strongest antecedent for relationship performance for buyers is credibility trust from the supplier (Mohr and Spekman, 1994; Zaheer et al., 1998; Palmatier et al., 2007). Furthermore, buyers want their suppliers to adapt their products, services, procedures and processes and to make relationship-specific investments for the buying company (Anderson and Weitz, 1992; Mohr and Spekman, 1994; Jonsson and Zineldin, 2003; Palmatier et al., 2007). In line with previous studies, our findings show that uncertainty is negatively related to relationship performance for buyers (Dahlstrom et al., 1996; Morris and Carter, 2005). Our finding that communication from the buyer is important for the supplier supports previous studies (Anderson and Narus, 1990; Anderson and Weitz, 1992), while the importance to the supplier of commitment is a new contribution.

In each of the models there are both transaction cost factors (adaptability and uncertainty in the buyer model and uncertainty in the supplier model) and social exchange factors (trust in the buyer model and commitment in the supplier model) leading to relationship performance, similar to the findings of Palmatier et al. (2007). Communication is also present in the supplier model, a factor cited in both transaction cost and social exchange theory (Liu et al., 2009).

Factors not found to drive relationship success directly

Our findings differ from other studies as several of the constructs central to other studies are not found to have a strong direct impact on performance for either the buyer or the supplier. In the buyer model, these are commitment, benevolence trust, communication, dependence, and power. The absent constructs in the supplier model are credibility and benevolence trust, adaptation, dependence and power.

Commitment was not a significant driver of relationship performance for the buyer, in contrast to the work of Noordwier et al. (1990), Angeles and Nath (2001), and Palmatier et al. (2007). This may be due to the relative market position and size of the organizations within our study, which focuses on a dominant buyer with suppliers who were of similar or smaller size. Where a company is smaller or in a relatively less dominant market position, commitment plays a greater role in their perception of relationship success (Lai et al., 2009).

We did not find a direct relationship between benevolence trust and relationship performance for the buyer or either credibility trust or benevolence trust for the supplier. This may reflect a

perception within this group that benevolence does not play a role in relationships. Previous work has found that as long as some trust is in evidence, either credibility or benevolence, then the result for relationship performance would also be positive (Paul and McDaniel, 2004). Furthermore, other studies have found commitment to be an antecedent to trust, therefore in the supplier model commitment may be substituting for trust. Similarly, as communication has been found to be an antecedent to trust, that may explain the absence of communication in the buyers' perception of performance.

Finally, we found no direct effect in either model for dependence or power, lending support to the theory that dependence and power are antecedent to trust, commitment and relationship specific investments (Ganesan, 1994; Kumar et al., 1995; Jonsson and Zineldin, 2003; Benton and Maloni, 2005; Palmatier et al, 2007; Lawler and Yoon, 1993; Maloni and Benton, 2000). Alternatively, as the buyer and supplier are in a mutual dependence position where the power is relatively balanced, the use of power and the level of dependence may not be an issue (Williamson, 1985; Narasimhan et al, 2009).

Complementary theories

Finally, this study lends support to the call for transaction cost and social exchange theory to be viewed as compatible and complementary theories for predicting relationship success (Nooteboom et al., 2000; Poppo and Zenger, 2002; Liu et al., 2009). We found that both theories contributed to the explanation of the dynamics of relationship success for buyers and suppliers. From the economic perspective, we can see that the hazard of opportunism is important to both parties but the means of mitigating opportunism is different for the buyer and the supplier. The buyer wants relationship-specific investments while the supplier only wants communication and information sharing to ensure uncertainty is minimised. Social exchange theory posits that trust and commitment are of vital importance for relationship success and this is borne out by our findings but again in different ways for the buyer and the supplier. Their structural position as input receiver (buyer) and output creator (supplier) seems to indicate that the buyer needs to trust the supplier while the supplier needs to provide credible commitments to the relationship.

Conclusions

Academic contribution

The first contribution of this work for academics comes from the knowledge that buyers and suppliers have significantly different perceptions of both the strength and the dynamics of buyer-supplier relationships. The work provides empirical evidence for the assertion that relationship characteristics are socially constructed and that the differing perspectives of those characteristics by both partners in the dyad reflect real differences rather than measurement error. We conclude that, despite the difficulty of gaining access to dyadic populations, further research on perceptual differences involving matched-pair data is necessary.

We have also established the importance of transaction cost theory and social exchange theory as complementary in the understanding of buyer-supplier relationships and perceptual differences. We found that concepts drawn from both fields contribute to relationship success for both parties in the relationship, which indicates that the theories need to be seen as compatible and necessary for the understanding of relationship dynamics.

In addition, this work makes a methodological contribution to the study of relationships through the rigorous development of a measurement instrument applicable to both buyers and suppliers, facilitating further research in this area. By building on existing research and incorporating previously developed constructs and items, we have provided continuity in the methodology, thus helping to rationalise the basis for further empirical work and theory development.

Implications for practitioners

Both buyers and suppliers can gain from insights into the other's perceptions of what is driving success in their relationship. Relationship management requires significant resource investment on both sides and practitioners are particularly interested in how best to allocate resources to maintain successful relationships. This study provides valuable insights into the expectations and perceptions of relationship partners. Buyers should consider the effectiveness of their communication channels to the supplier, both personally and across the buying firm. Effective communication is desirable for both parties but it is particularly important to the supplier. Relatively little effort by the buyers to improve communications could reap significant benefits in relationship performance. For the supplier, knowing your buyer is a key challenge, and this study provides a rare insight into a range of relationship characteristics. Relationships are increasingly globally dispersed and the opportunities for close interaction, face-to-face meetings and relationship building are reduced. A greater appreciation of how the two parties in a relationship perceive the relationship allows practitioners to develop more effective relationship management systems and to justify investment in the social aspects of relationships which might otherwise be neglected.

Research limitations

This study has limited generalisability, particularly due to the centrality of the buying organisation in the research design. The context of the study was long-term, high-value relationships for a focal buying organisation in the ICT sector. Any attempt to generalise the findings must consider whether they are specific to this sector, these types of relationships, to the buying organisation, or a combination of all three. However, in as far as the work establishes that buyers and suppliers in certain circumstances can have divergent perceptions of the relationship, it does have consequences for relationships generally as it challenges the tendency towards non-dyadic approaches.

Two limitations in the measurement model should be noted: firstly, the satisfaction construct, although included in the initial measurement model, was shown not to be valid for this dataset. As a result relationship success was measured solely through supplier performance. This is a limitation in the model, as satisfaction and performance have been shown to be distinct concepts (Harland, 1996; Dahlstrom et al., 1996). Secondly, the performance construct used was specified in terms of supplier performance only. In discussions with the focal firm in an earlier pilot study, it was clear that no measure of buyer performance by suppliers existed, and that the relationship performance system only considered supplier performance metrics. The inclusion of items relating only to the supplier limits the model as it fails to address the concept of buyer performance.

The use of single respondents in each organisation would often be seen as a limitation, but that depends on how you characterise the relationship concept. We made the judgment that as the two firms involved delegated authority for the management and development of these relationships to the respondents involved, the respondents' personal perceptions would best reflect the 'true' relationship.

Further research

Limitations of the study were outlined above in terms of the sample characteristics, the measurement model and the research methodology. Useful further research would include a more extensive survey involving multiple sectors rather than just ICT and multiple buying organisations, which would allow wider generalisation of the findings; respondents from multiple levels in the organisation, which would provide a greater understanding of how the relationship can be perceived differently at different organisational levels; a sample focussed on different types of relationships, not just high-value long-term relationships; and inclusion in a future conceptual model of a robust construct for relationship satisfaction, along with a measure of buyer performance, which would allow for a fuller understanding of the concept of relationship success.

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Appendix 1 – Final Survey Items

Construct and Items – Buyer Version	*Standardised regression weights*
Credibility Trust (Ganesan, 1994)	
This supplier's representative has been frank in dealing with us.	(0.840)
Promises made by this supplier's representative are reliable	(0.883)
This supplier's representative is knowledgeable regarding his/her products	(0.709)
This supplier's representative does NOT make false claims	(0.791)
Benevolence Trust (Ganesan, 1994)	
This supplier's representative cares for us	(0.786)
This supplier's representative is like a friend	(0.703)
We feel the supplier's representative has been on our side	(0.749)
Communication (Mohr and Spekman, 1994)	
XXX's communication with this supplier is always…	
…timely	(0.797)
…accurate	(0.916)
…complete	(0.891)
…adequate	(0.851)
…credible	(0.858)
Commitment (Morgan and Hunt, 1994)	
The relationship that XXX has with this supplier…	
...is something we are very committed to maintain	(0.833)
...is very important to XXX	(0.859)
...is of very little significance to us	(-0.538)
...is something XXX really cares about	(0.803)
Adaptation (Jonsson and Zineldin, 2003)	
This supplier is willing to…	
…customize products for us	(0.808)
…adjust production processes to meet our needs	(0.878)
…change inventory procedures for us	(0.868)
…adjust distribution/delivery procedures to suit us	(0.926)
…invest in tools/equipment in order to be better able to adjust to our processes	(0.806)
Non-Mediated Power (Maloni and Benton, 2000)	
We really admire the way this supplier runs its business so we try to follow its lead	(0.767)
We often do what this supplier asks because we are proud to be affiliated with them	(0.740)
We talk up this supplier to our colleagues as a great business with which to be associated	(0.816)
Resource Dependence (Monczka et al.,1995)	
This supplier is very important to our business unit's future success	(0.952)
Purchases from this supplier are very important to our present success	(0.769)
Loss of this supplier's orders would affect our business success	(0.788)

Construct and Items – Buyer Version cont'd	*Standardised regression weights*
Uncertainty (Gao, et al., 2005)	
We had limited amount of information about the likely outcomes of buying from this supplier	(0.680)
It was very hard to evaluate the future performance of this supplier's products/services	(0.840)
It was very hard for us to make accurate judgments about the outcomes of buying from this supplier	(0.891)
At the time of the decision, we felt that this purchase decision was hampered by a lot of uncertainty	(0.775)
Performance - Success (Dahlstrom et al., 1996)	
This supplier…	
…meets our order accuracy expectations	(0.858)
…meets our order condition expectations	(0.855)
…meets our productivity standards	(0.854)
…meets on-time delivery standards	(0.798)
…responds to our customers' request	(0.812)
…provides timely order status information	(0.839)

Construct and Items – Supplier Version	*Standardised regression weights*
Credibility Trust (Ganesan, 1994)	
XXX's representative has been frank in dealing with us.	(0.840)
Promises made by XXX's representative are reliable	(0.883)
XXX's representative is knowledgeable regarding his/her products	(0.709)
XXX's representative does NOT make false claims	(0.791)
Benevolence Trust (Ganesan, 1994)	
XXX's representative cares for us	(0.786)
XXX's representative is like a friend	(0.703)
We feel that XXX's representative has been on our side	(0.749)
Communication (Mohr and Spekman, 1994)	
My firm's's communication with XXX is always…	
…timely	(0.797)
…accurate	(0.916)
…complete	(0.891)
…adequate	(0.851)
…credible	(0.858)
Commitment (Morgan and Hunt, 1994)	
The relationship that my firm has with XXX…	
...is something we are very committed to maintain	(0.833)
...is very important to my firm	(0.859)
...is of very little significance to us	(-0.538)
...is something my firm really cares about	(0.803)

Construct and Items – Supplier Version cont'd	*Standardised regression weights*
Adaptation (Jonsson and Zineldin, 2003)	
XXX is willing to…	
…customize requirements/specifications for us	(0.808)
…adjust production processes to meet our needs	(0.878)
…change inventory procedures for us	(0.868)
…adjust distribution/delivery procedures to suit us	(0.926)
…invest in tools/equipment in order to be better able to adjust to our processes	(0.806)
Non-Mediated Power (Maloni and Benton, 2000)	
We really admire the way XXX runs its business so we try to follow its lead	(0.767)
We often do what XXX asks because we are proud to be affiliated with them	(0.740)
We talk up XXX to our colleagues as a great business with which to be associated	(0.816)
Resource Dependence ((Monczka et al.,1995))	
XXX is very important to our business unit's future success	(0.952)
Purchases from XXX are very important to our present success	(0.769)
Loss of XXX's orders would affect our business success	(0.788)
Uncertainty (Gao, et al., 2005)	
We had limited amount of information about the likely outcomes of selling to XXX	(0.680)
It was very hard to evaluate the future performance of XXX's buying group	(0.840)
It was very hard for us to make accurate judgments about the outcomes of selling to XXX	(0.891)
At the time of the decision, we felt that this purchase decision was hampered by a lot of uncertainty	(0.775)
Performance - Success (Dahlstrom et al., 1996)	
We meet XXX's…	
…order accuracy expectations	(0.858)
…order condition expectations	(0.855)
…productivity standards	(0.854)
…on-time delivery standards	(0.798)
…customers' requests	(0.812)
…order status information expectations	(0.839)