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# **How do relationship characteristics create relationship value? Evidence from high-tech SMEs**

## **Abstract**

This study examines how different types of relationship characteristics affect different dimensions of relationship value creation of small and medium-sized enterprises (SMEs) context in the high-tech industries. In doing so, the study firstly classifies the relationship characteristics among alliance partners and the dimensions of relationship value that are created through their relational characteristics. This study develops the measurement items of each dimension of relationship value through the pilot test. The causal relationship among variables are examined with structural equation modelling in a sample of 394 SMEs in the high-tech industry such as factory automation and robotics. The most important contributions of this study are to classify relationship value as multi-dimensions and to provide empirical evidence of the interplay among relationship characteristics, relationship value and firm performance which leads to important theoretical and practical implications in SMEs.

**Keywords:** *Relationship characteristics, the dimensions of relationship value, SMEs in the high-tech industry*

**Track:** *Marketing for SMEs*

## 1. Introduction

Relationship value in the business market and its positive impacts on firm performance have discussed in industrial marketing (Tzokas & Saren, 1999; Ulaga & Eggert, 2006; Wilson & Jantrania, 1994). Furthermore, many scholars such as Wilson & Jantrania (1994) have urged for more research to elucidate the characteristics of relationship value, by extension, the sub-dimensional relationship value. However, there is still lack of empirical studies about different dimensions of relationship value and discussion of their mediator roles between relationship characteristics and firm relationship performance. We can assume that firms can have insights into a variety of dimensions of relationship value created through the different dimensions of relationship characteristics with partners and each dimension of relationship value can have associated with the overall performance of the firm. In particular, since SMEs in the high tech industries face on a shorter span of product life cycle, higher uncertainties or limited resources, SMEs need to build alliance partnerships with their suppliers or buyers to reduce risks and to have competitive advantages. Therefore, understanding of how high-tech SMEs have built interactional relationships with alliance partners and how different relational characteristics create different types of relationship value is critical in SMEs context.

In addressing the above mentioned assumption, the study contributes to the literature in three ways. First, by investigating the influences of different types of relationship characteristics on the creation of different dimensions of relationship value among high-tech SMEs, this study stresses the importance of dimensions of relationship value which prior theoretical literature has indicated but they were not spelt out with good size of empirical evidence yet. The results of the analysis provide high-tech SMEs with practical implications by suggesting how they can create each dimension of relationship value by choosing and developing each dimension of relationship characteristics with alliance partners. Second, with theoretical implications, the study contributes to a knowledge body of literature on relationship value based on a resource-based theory by developing the measurement items for four types of relationship value and adding empirical evidence from technology-intensive SMEs. Finally, this study fills an important gap in relationship marketing literature by providing an in-depth investigation of how SMEs can achieve overall performance.

What follows is a review of the relevant literature leading to specific hypotheses, alongside an explanation of the research methods used to address these hypotheses and the discussion of the results emanating from this study.

## 2. Relevant Literature and Hypotheses

### 2.1 *The dimensions of relationship value*

Relationship value in industrial marketing has taken an important position in the literature (Ravald & Grönroos, 1996; Tzokas & Saren, 1999; Wilson & Jantrania, 1994). For examples, Wilson & Jantrania (1994) conceptualise economic value, strategic value and behavioural value and Biggemann & Buttle (2005) conceptualise relationship value as financial value, strategic value, knowledge value, and personal value. Although there are studies about relationship value, there are still remarkably limited empirical studies about the dimensions of relationship value in B2B relationships. Drawing upon relationship marketing, economics and value theories, this study defines the key dimensions of relationship value as four dimensions including economic, operational, strategic and behaviour value.

According to relationship value literature, growing capabilities and competencies through not only profit generation but also risk reduction, economic value can be created (Songailiene et al., 2011). Operational value has not paid great attention. Operational value can be created through well organised operational routines and efficient communication between firms in the whole relationship process. Fast decision making or on time, or effective solutions to difficult problems through operational routines can affect the creation of operational value. Strategic

value can be created when the development of new core competencies or exploration of strategic opportunities are generated, when the relationship enhances firm's competitive advantages or when the firm can adapt effectively and efficiently in changing market condition. Behavioural value can be defined as a mutual value achieved by assessing relational benefits, by mutual respect and confidence to each other, by enjoying communications with each other or by following a win-win approach.

## *2.2 The causal relationships among relationship characteristics and relationship value*

Drawing upon relationship marketing, this study defines three dimensions of relationship characteristics as structural characteristic (2<sup>nd</sup> order factor of centralisation and formalisation) for decision making between firms, functional characteristic (2<sup>nd</sup> order factor of information exchange and joint action) which are similar to operational integration in literature, and climate characteristic (2<sup>nd</sup> order factor of trust and commitment) that have been discussed as critical characteristics in relationship marketing. Structural and functional characteristics have been considered as key factors in building relationships. For example, Robicheaux & Coleman (1994), which is a seminal work of the integrated framework in a relationship structure, view channel relationship structure as decision-making structure and operational integration.

### *2.2.1 Structural characteristic and economic value*

Structural characteristic is defined as 2<sup>nd</sup> order factor of centralisation and formalisation. Centralisation pertains to the locus of decision-making authority, reflecting the degree to which authority is concentrated within a particular member of the relationship and the degree to which power to make and implement decisions within the dyadic relationship (Dwyer & Oh, 1988). It is a matter of whether one party of buyer and supplier relationships have decision-making authority exclusively or both of them take part in the decision making. One of the merits of the centralised structure is that implementation tends to be straightforward after any decision is made within a centralised structure. Formalisation is defined as the degree to which decision making is regulated by formal rules and procedures (Dwyer & Welsh, 1985; Kabadayi et al., 2007; Workman, Homburg, & Gruner, 1998). Because relationships among channel members are governed by rules, procedures and contracts (John & Martin, 1984; Ruekert, Walker, & Roering, 1985), this contract is considered as key structural characteristics. For SMEs in the high-tech industry, to respond to fast changing markets, formal rules and procedures are critical factors in survival and can lead to decreased resonance capability in dynamic economic environments. Therefore, the structural characteristic can affect positively the creation of economic value.

**Hypothesis 1:** Structural characteristic has a positive effect on economic value

### *2.2.2 Functional characteristic and relationship value*

Functional characteristic is defined as 2<sup>nd</sup> order factor of joint action and information exchange. Functional characteristics of the firms are related to value created in the operational process. SMEs intend to share critical information with partners in the operational process. In particular, firms in the high-tech industry should be involved deeply in alliance partners' product development process from the beginning stage to the final stage of product development. For example, product design, cost information, and product development plans can improve not only quality of the product, marketing orientation but also relationship quality and reduces operational cost. "The formal as well as informal sharing of meaningful and timely information between firms." (Anderson & Narus, 1990, p.44) contains the extent of cross-functional intelligence dissemination and knowledge sharing (Homburg, Jensen, & Krohmer, 2008) and is emphasised by studies on market orientation, organisational learning, and new product development (Marinova, 2004). Sharing pivotal information about customers, competitors or the market with alliance partners can have a positive effect on operational and

strategic value. Joint action is defined as the extent to which distributors and suppliers work together toward their respective or common goals (Stern & Reve 1980). SMEs conduct a value analysis in which they may jointly establish and implement cost reduction targets. To establish joint action, firms consider sustainable business, implementation costs and time, finances, and personnel for both parties (Frazier, Spekman, & O'Neal, 1988). Through joint action, SMEs can strategically enhance their competitive advantage. The supplier and the buyer have worked together in the ways that they can achieve their respective or common strategic goals through relationship value. Strategic value is created when relational exchange contributes towards the development of new core competencies, the exploration of strategic opportunities, offering strategic advantages or adaptation effectively and efficiently of changing market condition. Therefore, the functional characteristic can have a positive effect on operational and strategic value.

**Hypothesis 2:** Functional characteristic has a positive effect on operational value

**Hypothesis 3:** Functional characteristic has a positive effect on strategic value

### *2.2.3 Climate characteristics and behaviour value*

Climate has important implications for organisational behaviour because of this bonds to motivation and performance. Numerous studies in marketing literature have discussed the relationships among trust, commitment and relationship value. Trust is “the cornerstone of the strategic partnership” between the seller and the buyer (Spekman, 1988, p.79). Based on a partner’s expertise and reliability, trust builds on the objective credibility of an exchange partner. Commitment is the degree of the memberships’ psychological attachment to the association (Gruen, Summers, & Acito, 2000). Mutual commitment reduces the uncertainties associated with opportunistic behaviour and it leads to a higher level of relationship orientation and successful performance. Behavioural value, a salient value in relationship marketing, is defined as a mutual value achieved by assessing relational benefits between partners built through mutual trust and commitment.

**Hypothesis 4:** Behavioural characteristic has a positive effect on behavioural value

### *2.3 The dimensions of relationship value and firm performance*

There has been extensive discussion about the effects of relationship value on firm performance in literature. For example, Nohria & Ghoshal (1994) support the effect of shared relationship value on financial performance such as return on assets, average annual growth in return on assets and sales growth. Baxter & Matear (2004) examine that intangible relationship value, which consists of a human intangible value and structural intangible value, leads to future financial performance. Drawing upon literature, this study assumes the positive effect of each dimension of relationship value on firm performance. In particular, economic value and operational value have contributed to the financial performance of the firm by reducing time and operational cost. Strategic value has led to exploring strategic opportunities and the enhancement of competitive advantage, while behaviour value has contributed to a win-win approach to mutual respect and it has led to the strategic performance of the firm. This supports the premise that various dimensions of relationship value can lead to better financial and strategic performance of the firm.

**Hypothesis 5:** Economic value has a positive effect on financial performance

**Hypothesis 6:** Operational value has a positive effect on financial performance

**Hypothesis 7:** Strategic value has a positive effect on strategic performance

**Hypothesis 8:** Behavioural value has a positive effect on strategic performance

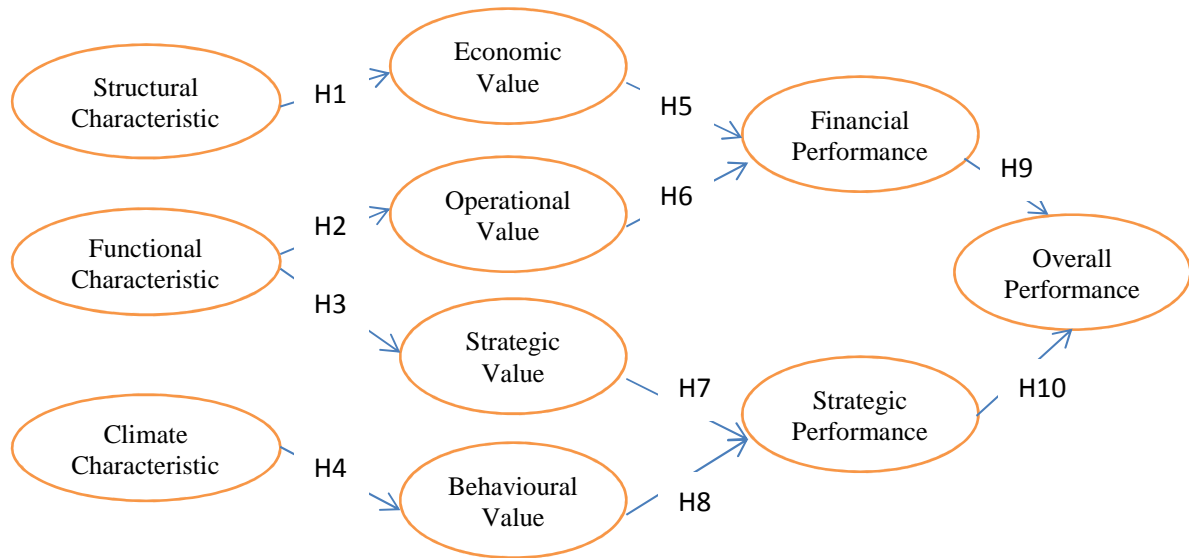
In addition, the financial performance of the firm and strategic performance of the firm can result in the overall performance of the firm.

**Hypothesis 9:** Financial performance of the firm has a positive effect on overall performance of the firm

**Hypothesis 10:** Strategic performance of the firm has a positive effect on overall performance of the firm

Figure 1 illustrates the hypothesised model.

**Figure 1. The hypothesised model**



### 3. Method and Measures

Data were collected by means of a questionnaire based on a survey of SMEs (Firms with less than 250 employees: European SME definition) in the high-tech industry such as factory automation & robotics industry in South Korea. The main reasons why we focused on South Korean high-tech SMEs are as follows: First, SMEs in the high-tech industry have strong alliance relationships with partners in the whole range from product design to product manufacturing. Therefore, we can examine the relationship characteristics between alliance partners from high-tech SMEs. Second, South Korea is well known as one of the world leading countries in the high-tech industry. All variables of the hypothesised model in this study are measured by five-point Likert scales (ranging from 1=strongly disagree to 5=strongly agree). The sample size is 394 SMEs and the response rate was effectively 43.2%.

Reliability and validity were tested prior to main analysis of the hypothesised model. All scales of constructs have good internal consistency (reliability) with Cronbach's alpha coefficient reported of greater than .733 and discriminants validity with excellent fit properties of CFA (confirmatory factor analysis). To prevent common method bias, EFA (exploratory factor analysis) was applied to all of the measurements and the un-rotated solution extracted 13 factors (1<sup>st</sup> order factors of relationship characteristics were used for EFA) with eigenvalues greater than 1.0, which accounts for 72.007 % of the total variance of the data.

### 4. Analysis and Results

We used Structural Equation Modelling in MPlus to test for the hypothesised relationships. For the measurement model, we employed Exploratory Structural Equation Modelling (ESEM) which combines exploratory and confirmatory factor analysis in one procedure. The technique was employed for a ten-structure, which were clearly identified and with a good fit to the overall data. Fit statistics for this model are  $\chi^2 = 2823$ ;  $df=1293$  RMSEA=0.05; CFI=.90; TLI=0.90; and probability RMSEA=0.002. All hypotheses are accepted and the results of estimation are as follows (See Table 1):

**Table 1. The results of the hypotheses**

| Hypothesis  | Estimate (p-value) | Results  |
|---|--------------------|----------|
| 1: Structural characteristic → Economic value     | 8.42 (0.00)        | Accepted |
| 2: Functional characteristics → Operational value | 8.05 (0.00)        | Accepted |
| 3: Functional characteristics → Strategic value   | 8.19 (0.00)        | Accepted |
| 4: Climate characteristics → Behavioural value    | 13.74 (0.00)       | Accepted |
| 5: Economic value → Financial performance         | 4.92 (0.00)        | Accepted |
| 6: Operational value → Financial performance      | 2.46 (0.01)        | Accepted |
| 7: Strategic value → Strategic performance        | 5.09 (0.00)        | Accepted |
| 8: Behavioural value → Strategic performance      | 3.78 (0.00)        | Accepted |
| 9: Financial performance → Overall performance    | 7.56 (0.00)        | Accepted |
| 10: Strategic performance → Overall performance   | 10.01(0.00)        | Accepted |

The resulting model provides confirmation for the influence of relationship characteristics on the dimension of relationship value as well as the direct relationship between the dimensions of relationship value and financial or strategic performance. Climate characteristic affects significantly the creation of behavioural value. Strategic performance has a highly significant effect on the overall performance of the firm. As we discussed in section 2, this result seems to be related to the characteristics of the technology-intensive industry that strategic cooperation is very important through the whole product development/ manufacturing process. The structural characteristic including centralised and formalised relational structures has a positive effect on economic value; The functional characteristic that means sharing information and strategic joint action has a positive effect on operational and strategic value.

## 5. Conclusions and Implications

This study examined the good fit of the framework including the causal relationships that the dimensions of relationship value are determined by different dimensions of relationship characteristics such as structural, functional and climate characteristics and how these relationship values result in financial and strategic performance that results in the overall performance of the firm by using structural equation modelling in a sample of 394 SMEs from South Korea's technology-intensive industry. This study has implications as follows.

First, this study introduces three dimensions of relationship characteristics such as structural, functional and climate characteristics as important drivers of relationship value in the technology-intensive industry. This also helps firm's understanding of decision making, the development of functional strategic linkage and climate building with partners. Second, the study contributes to a knowledge body of literature on the multi-dimensions of relationship value by adding empirical evidence from technology-intensive SMEs. Finally, this study has a managerial implication, particularly for SMEs in the high-tech industry by providing an in-depth investigation of how they can achieve overall performance through several dimensions of relationship value.

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