

**Developing a Standard Scale of Relationship Value
in Business Markets**

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Abstract:

Value creation is considered as key to collaborative customer-supplier relationships.

Despite the growing body of research, more knowledge is needed about the construct of relationship value and its operationalization. The present paper provides a definition of relationship value and develops a scale for measuring the concept in business-to-business markets. Findings from a cross-sectional survey among purchasing managers in industrial companies in France are presented. Four relationship value components emerge from the present study: product-related benefits, strategic benefits, personal benefits, and relationship sacrifices. Finally, a method of aggregating the four components to the higher-order construct of relationship value is proposed.

Developing a Standard Scale of Relationship Value in Business Markets

1 Introduction

In recent years, there has been a resurgence of interest in the value construct among marketing researchers and practitioners (Ulaga 2001). This holds especially true in business markets where customers rely on the products and services they buy from their suppliers to improve their own market offering and to increase the overall profitability of their firm. The mission statement of Exxon Chemical illustrates how business marketers place customer value at the core of their marketing strategies: "Our mission is to provide quality petrochemical products and services in the most efficient and responsible manner to generate outstanding shareholder and customer value" (Exxon Chemicals Annual Report, 1999).

Marketing academics have also placed customer value on top of their research agendas. Over the past years, the Marketing Science Institute has consistently included customer value in the list of its research priorities. In the area of business marketing, both the Institute for the Study of Business Markets (ISBM) at the Pennsylvania State University and the Center for Business and Industrial Marketing (CBIM) at Georgia State University have integrated research on customer value as a key issue of their research programs. Customer value is considered a fundamental constituent of relationship marketing. In fact, delivering superior value to customers is key to creating and sustaining long-term industrial relationships: "Value creation and value sharing can be regarded as the *raison d'être* of collaborative customer-supplier relationships" (Anderson, 1995, p. 349). This is particularly important in a "Markets-as-Networks" perspective as it has been developed by researchers of the IMP group.

Though the body of literature in the area of relationship value is growing fast, most research is of conceptual nature. As long as attempts to measure relationship value remain scarce, however, the construct will be criticized for its operational ambiguity

(Parasuraman 1997, p. 155). To foster the development of an empirically grounded value theory of relationship marketing, researchers have called for the development of psychometrically sound measures of relationship value. The present paper aims at making a contribution to the emerging relationship value literature by developing a standard scale of relationship value. Two research questions are addressed:

1. How can relationship value be conceptualized in business-to-business markets?
2. How can psychometrically sound measures of relationship value be developed?

In order to answer these questions, this study is structured as follows: the construct of perceived customer value is first assessed and its potential components are identified in a literature review. This is followed by a description of the empirical study and a discussion of its results. Limitations of the present study and suggestions for future research conclude the paper.

2 Customer-Perceived Value in Business Relationships

Though it did not attract much explicit attention until it became a watchword in the nineties, perceived value has always been "the fundamental basis for all marketing activity" (Holbrook 1994, p. 22). The value concept is closely linked to the exchange theory of marketing. According to this view, voluntary market exchange is a key constituent of the discipline (Alderson 1957, Kotler 1972, Houston 1987). As a voluntary market exchange only takes place when all parties involved expect to be better off after the exchange, perceived value is at the core of marketing.

While the literature contains a variety of definitions of customer-perceived value, three common elements have been identified (Eggert and Ulaga, 2001): the multiple components of value, the subjectivity of value perceptions, and the importance of competition.

First, most definitions present customer-perceived value as a trade-off between benefits and sacrifices perceived by the customer in a supplier's offering (Zeithaml 1988, p.14; Monroe 1990, p. 46). According to Monroe, benefits are a combination of physical attributes, service attributes and technical support available in relation to a particular use situation. Perceived sacrifices are sometimes described in monetary terms (Anderson et al., 1993). Other definitions describe sacrifices more broadly.

Second, value is a subjectively perceived construct (Kortge et al., 1993). Different customer segments perceive different values within the same product. In addition, the various members in the customer organization involved in the purchasing process can have different perceptions of a supplier's value delivery (Perkins, 1993).

Finally, value is relative to competition. Delivering a better trade-off between benefits and sacrifices in a product or service, i.e. offering better value than competition, will help a company to create sustainable competitive advantage.

Against this background, Eggert and Ulaga (2001) define relationship value in business markets as the trade-off between the multiple benefits and sacrifices of a supplier's offering, as perceived by key decision-makers in the customer's organization, and taking into consideration the available alternative suppliers' offerings in a specific use situation.

3 Identifying the Components of Relationships Value

Value is as a multi-faceted construct. Most definitions present customer-perceived value as a trade-off between multiple benefits and sacrifices perceived by the customer in a supplier offering. This rational approach to customer value is especially justified in business markets where companies rely on professional purchasing managers to evaluate suppliers' products and services to improve their own operations. Consequently, the questions arise of (1) how to identify the multiple benefits and sacrifices and (2) how to group them into meaningful value components.

Marketing academics have suggested several ways of breaking down the different value components perceived by customers in products or services. For example, Monroe (1991) distinguishes three benefit categories: physical, service, and technical support attributes. Anderson et al. (1993) identify four categories of benefits: economic, technical, service, and social benefits. These benefit components are opposed to one sacrifice component of value, i.e. the price paid for the product offering. Ravald and Grönroos (1996) recommend that the trade-off between benefits and sacrifices should not be restricted to the single episode level. Instead, measurement of customer-perceived value should take into account both episode and relationship benefits and sacrifices.

Managers tend to refer to specific categories when assessing value perceived in products and services instead of overall value descriptions. In a qualitative study with customers in the food-processing industry, Ulaga and Chacour (2001) found that managers group benefits received from a supplier's offering into three categories: product-related components, service-related components, and promotion-related components. Customers assign weights to each of these components depending on their specific use situation. These benefits are then compared to the price paid for the supplier offering.

Grounded on both previous research and managerial practice, the present conceptualizes relationship value as a higher-order construct composed of three benefit components and one sacrifice component (see Figure 1).

Product-related benefits will always be part of the overall evaluation of value created in a buyer-seller relationship. Examples of product-related benefits are superior product quality, improved product performance, better maintenance and repair services etc. of a given supplier in comparison to alternative suppliers.

Companies invest into relationships with their suppliers to gain access to benefits beyond the exchange of products and services. These long-term oriented relationship benefits are best described as *strategic relationship benefits*. Examples of strategic

benefits are know-how transfer between the supplier and the customer, new product development, improved time-to-market, or increased overall competitiveness.

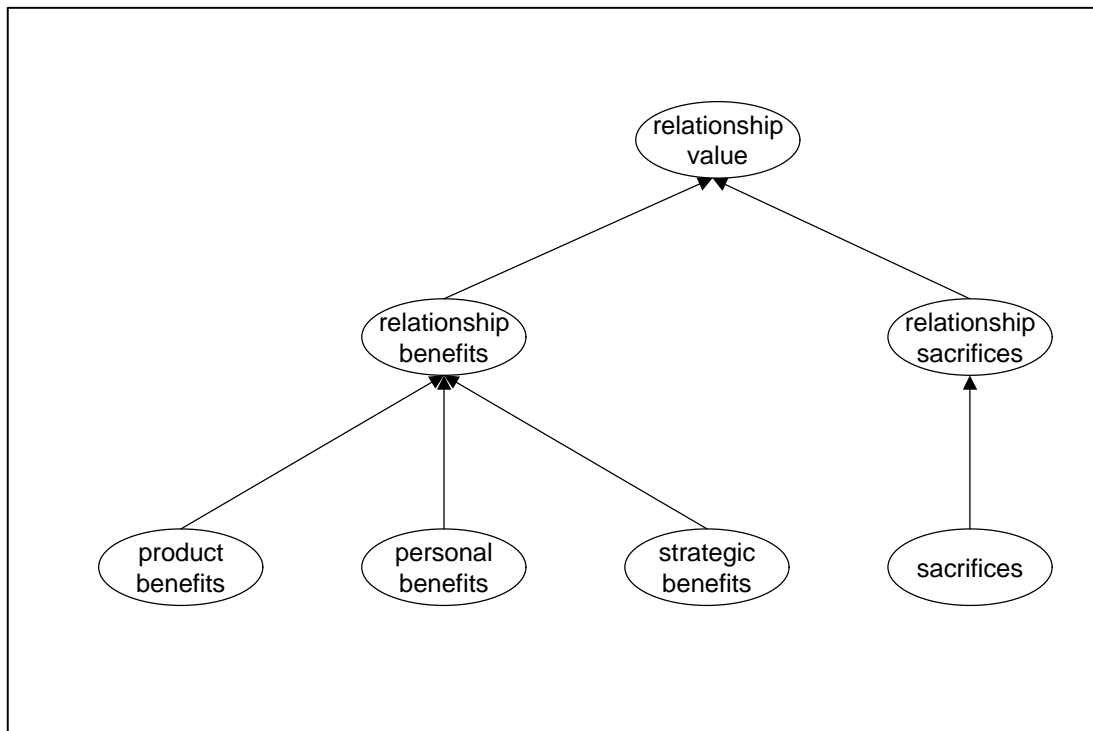


Figure 1: The Components of Relationship Value

Finally, although business relationships are established between organizations, they are actually managed by individuals within these organizations. Hence, *personal benefits* can be added as a third dimension of relationship benefits. Examples of personal benefits are better knowledge of counterpart or ease of doing business within the relationship.

In turn for the multiple benefits received in a buyer-seller relationship, customers endure a number of *relationship sacrifices* to maintain the relationship with their supplier. The most prominent examples of relationships sacrifices are cost of products and services purchased or cost of internal and external coordination.

4 Empirical Study

4.1 Data Collection

Empirical data was gathered in a cross-sectional survey among purchasing managers in industrial companies in France. The study was conducted in cooperation with the French professional association of purchasing managers CDAF. Based on the association's directory of 3.000 adherents, a population of 1,269 purchasing managers working in manufacturing industries were identified. All 1,269 purchasing managers were contacted by telephone and invited to participate in the study. According to their preference, respondents received a standardized questionnaire by mail, by email or by telefax respectively.

Participants were asked to select a specific product or service they purchased from at least two suppliers. They were then invited to rate a specific, freely chosen supplier relationship on a number of 5-point rating-scales (anchor: "strongly agree" vs. "strongly disagree"). Subsequently, respondents were asked to compare the selected supplier relationship to an alternative supplier of the same product or service category. Finally, participants were invited to respond to a set of questions describing their own company and the supplier relationship.

When completing the present paper, data collection was still in progress. All 1,269 respondents were contacted, questionnaires were send out and 97 questionnaires were returned. 8 questionnaires contained missing data, leading to a temporary net-sample-size of 89 business relationships. Currently, a follow-up stage by phone and fax is under way and a total of 300 responses is expected by the end of the data collection phases.

The present sample consists of manufacturers in multiple industries, such as construction equipment (11.4 %), transportation (8,9 %), food processing (7.6 %), packaging (5.1 %), office equipment (5.1%), pharmaceuticals (3.8 %), mechanical equipment (3.8 %), electronic components (3.8 %) etc.

On average, the purchasing managers work with 5 suppliers in the selected product-service categories ($\bar{x} = 4.91$). The majority of respondents (82.9 %) maintain relationships with 2-5 suppliers.

4.2 Questionnaire Development

Based on a literature review, a set of possible items was generated. These items were submitted to 14 marketing academics identified as experts in the areas of research methodology, industrial marketing, and relationship marketing. Participants in this item-sorting task were asked to assign the individual items to what they believed to be the "correct" value component.

Two indices proposed by Anderson and Gerbing (1991, p. 734) were computed for each item to find out which items were difficult to assign correctly. The "*Proportion of Substantive Agreement*" index (p_{sa}) measures the proportion of respondents who correctly assign an item to its intended value component (see Figure 2).

$p_{sa} = \frac{n_c}{N}$ <p>n_c <i>Number of "correct" assignments</i></p> <p>N <i>Total number of respondents</i></p>
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Figure 2: Proportion of Substantive Agreement Index

The "*Substantive Validity*" coefficient (c_{sv}) reflects the extent to which respondents assign an item to its posited value component more than to any other component (see Figure 3). The c_{sv} coefficient provides a more accurate estimate of substantive validity than the p_{sa} index.

$c_{sv} = \frac{n_c - n_o}{N}$ <p>n_c <i>Number of "correct" assignments</i></p> <p>n_o <i>Highest number of assignments of the item to any other component</i></p> <p>N <i>Total number of respondents</i></p>

Figure 3: Substantive Validity Coefficient

Based on these two indices, items for the questionnaire were selected. The questionnaire was then pre-tested with 15 purchasing managers. After some minor adjustments, the resulting items were included in the final survey.

5 Results

5.1 Scale Development and Purification

Following standard procedures for developing psychometrically sound measures (Churchill 1982; Nunnally 1978; Gerbing and Anderson 1988), several steps were taken to ensure reliability and validity of the multi-item value scale .

Firstly, Cronbachs Alpha was calculated for the three benefit components and the sacrifice component of relationship value (see table 1). Cronbach’s Alpha indicates the internal consistency of the items and should be larger than 0.7. Five items measuring product benefits had an Alpha value of 0.82. Six personal benefits items also had an initial Alpha value of 0.82. Item-to-total correlation indicated, however, that Cronbachs Alpha could be increased to 0.84 if the second item was dropped. Ten items measuring strategic benefits had an initial Alpha value of 0.75 which was increased to 0.82 by dropping the fourth item. The sacrifice items had an initial and final Alpha score of 0.90.

<i>Relationship Value Component</i>	<i>Initial Alpha Value</i>	<i>Dropped Items</i>	<i>Final Alpha Value</i>
Product benefits	0.82	---	0.82
Personal benefits	0.82	Benper2	0.84
Strategic benefits	0.75	Benst4	0.82
Sacrifices	0.90	---	0.90

Table 1: Consistency of Value-Component Scales According to Cronbach’s Alpha

Subsequently, individual item reliability and factor loadings were assed by means of a confirmatory factor analysis. Items were dropped if they did not fulfill one or more of the following requirements:

- Factor loading > 0.5
- Factor loading significant (t-value > 1.65, one-tailed test at a 5% level)
- Individual item reliability > 0.3

<i>Relationship Value Component</i>	<i>Item number</i>	<i>Factor loading</i>	<i>t-value</i>	<i>Individual item reliability</i>
Product benefits	Benp1	Standardized	Standardized	0.87
	Benp2	0.84	8.63	0.71
	Benp4	0.61	6.09	0.38
Personal benefits	Benper1	0.58	5.74	0.34
	Benper3	0.71	7.44	0.50
	Benper4	Standardized	Standardized	0.80
	Benper6	0.84	9.21	0.70
Strategic benefits	Benst1	0.61	4.30	0.38
	Benst2	0.64	4.42	0.41
	Benst3	0.76	4.86	0.57
	Benst5	0.68	4.58	0.46
	Benst6	Standardized	Standardized	0.33
Sacrifices	Sacr1	0.61	3.50	0.69
	Sacr2	Standardized	Standardized	0.90

Table 2: Scale Properties

This step led to the deletion of two product benefit items (benp3 and benp5), one personal benefit item (benper5) and four strategic benefit items (benst7-10). Table 2 and Figure 4 present the parameter estimates of the confirmatory factor analysis.

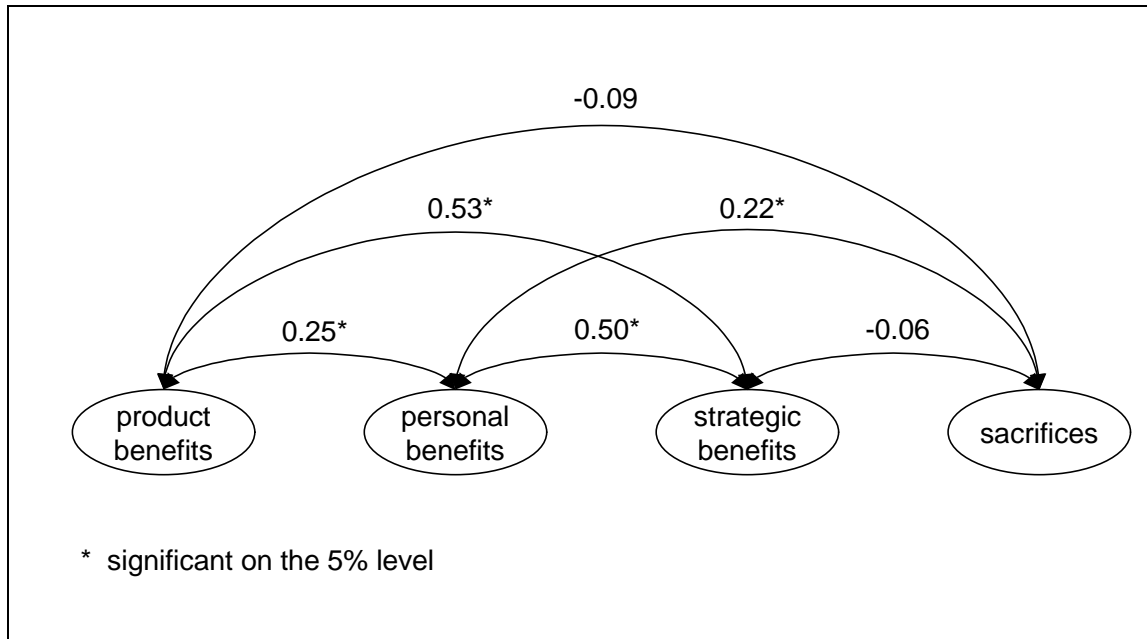


Figure 4: Relationship Value Components

Finally, the four hypothesized value components were tested for convergent and discriminant validity. For each value component, exploratory factor analysis identified one factor indicating convergent validity of the component scales. Discriminant validity was tested by means of a chi-square difference test and the Fornell/Larcker criterion:

- If the correlation between two value component was fixed to 1, the chi-square statistics increased significantly ($\Delta\chi^2 > 3.84$, $\Delta df = 1$) (see table 3).
- The average variance extracted exceeded the squared correlation between every possible combination of two value components (see table 4).

	<i>Product benefits</i>	<i>Personal benefits</i>	<i>Strategic benefits</i>	<i>Sacrifices</i>
<i>Product benefits</i>				
<i>Personal benefits</i>	34.49			
<i>Strategic benefits</i>	28.22	29.78		
<i>Sacrifices</i>	53.32	34.79	59.8	

Table 3: Chi-square difference test

		<i>Product benefits</i>	<i>Personal benefits</i>	<i>Strategic benefits</i>	<i>Sacrifices</i>
	<i>Average variance extracted</i>	0.74	0.68	0.54	0.89
<i>Product benefits</i>	0.74				
<i>Personal benefits</i>	0.68	0.06			
<i>Strategic benefits</i>	0.54	0.28	0.25		
<i>Sacrifices</i>	0.89	0.01	0.05	0.00	

Table 3: Fornell/Larcker criterion

5.2 Relationship Value: A Higher Order Construct

In the previous sections, the components of relationship value have been developed grounded on conceptual definitions of the construct. In addition, psychometrically sound measures have been developed. Yet, the question of how to measure relationship value as a higher order construct needs to be addressed.

The definition of relationship value provided in section 2 suggests a formative operationalization of the value construct. Product benefits, personal benefits, strategic benefits and sacrifices represent unique sources of relationship value. Although each component contributes to the higher order construct, they need not to be correlated – a necessary requirement for the use of reflective operationalizations (see Cannon and Homburg 2001, p. 35). For example, some purchasing relationships may score high on the product component but low on the personal component, while others may excel on the strategic component. Therefore, relationship benefits are best calculated as the weighted sum of the benefit components with weights derived from exploratory factor analysis.

All benefit components loaded on one factor with factor loadings of 0.54 for the product benefits, 0.58 for the personal benefits and 0.73 for the strategic benefits, indicating convergent validity. When the sacrifice component was included, it

strongly loaded on a second factor, indicating discriminant validity. As empirical data supports the hypothesized structure of the relationship value construct, it can now be calculated as the ratio of relationship benefits versus relationship sacrifices (see Figure 5).

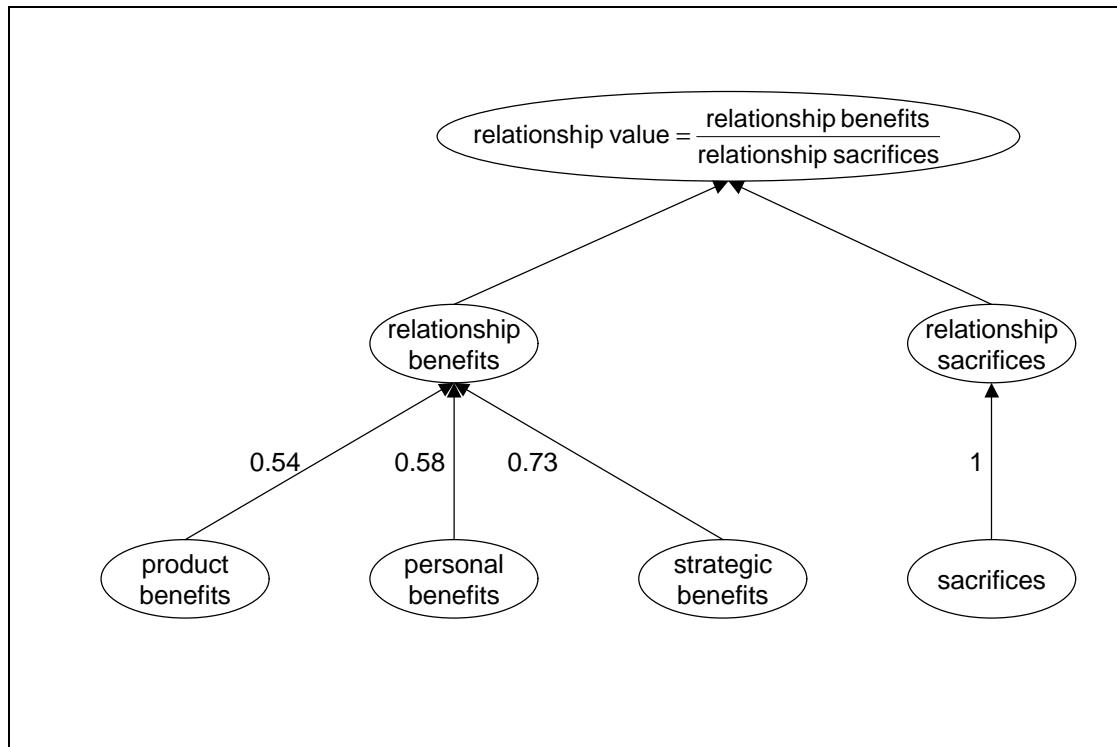


Figure 5: Relationship Value As A Higher-Order Construct

6 Discussion

The growing body of knowledge on value creation in business-to-business relationships has been dominated in the past by conceptual research. More recently, empirical studies have investigated ways of operationalizing the construct. A significant portion of these emerging studies (cf. Eggert and Ulaga 2001; Patterson and Spreng 1997; Walter et al. 2000) measure customer-perceived value in business markets on abstract levels using broad item formulations (e.g. “All in all this supplier relationship has a high value for our firm”). Although such measurements may capture multiple value perceptions in a business relationship, both reliability and validity represent major challenges to such approaches.

The present study aimed at contributing to a better knowledge of (1) how to conceptualize relationship value in business-to-business markets, and (2) how to develop psychometrically sound measures of relationship value. Hence, this research specifically investigated the components that form relationship value. Three relationship benefits components were identified: product-related benefits, strategic relationship benefits, and personal relationship benefits. In addition, relationship-specific sacrifices were investigated. For each of these components multiple facets were assessed. Finally, a method of aggregating the four components to the higher-order construct of relationship value was proposed.

7 Limitations and Directions for Future Research

As in any empirical research, the results of the present study cannot be interpreted without taking into account the study's limitations. Furthermore, this research generates a set of researchable questions that need to be addressed in future research projects.

First, the data collection procedure should be continued to increase the current sample size of 89 business-to-business relationships. Overall, a sample size of 300 responses is expected upon completion of the follow-up stage in the data collection process.

Second, the sample of 1,269 purchasing managers of manufacturing companies selected from the directory of the French Association of Purchasing Managers CDAF is not representative of the French population of manufacturing companies. A randomized sample using other sources such as Dun & Bradstreet or Kompass could be used.

Third, no distinction was made between different types of relationships considered by respondents. For example, it would be interesting to distinguish between relationships based on mere transactions (highly standardized, main focus on products and terms of delivery), relationships based on close cooperation (partnerships, mutual investments), and intermediary relationships.

Finally, the present study predominantly focused on the construct of relationship value and its underlying dimensions. It would be interesting to investigate relationship concepts closely related to the construct such as commitment, satisfaction, and trust. In general, relationship value should be investigated in conjunction with major antecedents, mediating variables, and consequences.

Appendix: Scaled Items

Compared to your next best alternative supplier, ...

Product-Related Benefits

BENP1	...supplier A provides us with better product performance.
BENP2	...supplier A provides us with better product quality.
**BENP3	...supplier A provides us with superior service quality.
BENP4	...supplier A provides us with better product reliability.
**BENP5	...supplier A provides us with superior service reliability.

Strategic Relationship Benefits

BENST1:	...supplier A provides us with more transfer of his know-how.
BENST2:	...supplier A assists us more in developing our core competencies.
BENST3:	...supplier A helps us more to improve our strategic position in the market.
BENST 4:	...supplier A assists us more in increasing our competitive advantages.
BENST 5:	...supplier A helps us to launch more rapidly new products on the market.
**BENST 6:	...supplier A shares more of his R&D results with us.
**BENST 7:	...supplier A assists us more in increasing our speed to market.
**BENST 8:	...supplier A treats us more as a preferential customer.
**BENST 9:	...supplier A is more innovative.

Personal Benefits

BENPER1:	...the working relationship with supplier A is more pleasant.
*BENPER2:	...supplier A facilitates more personal contacts with my counterpart in his organization.
BENPER3:	...working with supplier A provides me with more personal satisfaction.
BENPER4:	...working with supplier A is of more personal value to me.
**BENPER5:	...working with supplier A reassures me that our company deals with the right partner.
BENPER6:	...working with supplier A provides me with more personal recognition.

Relationship Sacrifices

SACR1:	...supplier A costs us more in terms of time.
SACR2:	...supplier A costs us more coordination efforts.
SACR3:	...supplier A imposes us higher prices.

* Items deleted to increase Cronbach's alpha.

** Items deleted after confirmatory factor analysis.

References

- Alderson, W. (1957), *Marketing Behavior and Executive Action*, Irwin, Homewood, IL.
- Anderson (1995), "Relationships in Business Markets: Exchange Episodes, Value Creation, and Their Empirical Assessment", *Journal of the Academy of Marketing Science*, 23 (4), 346-350.
- Anderson, J.C. and Gerbing, D.W. (1991), "Predicting the Performance of Measures in a Confirmatory Factor Analysis With a Pretest Assessment of Their Substantive Validities", *Journal of Applied Psychology*, Vol. 76, pp. 732-740.
- Anderson, J.C., Jain, C. and Chintagunta, P.K. (1993), "Customer Value Assessment in Business Markets", *Journal of Business-to-Business Marketing*, Vol. 1, No. 1, pp. 3-29.
- Cannon, J. and Homburg, C. (2001), "Buyer-Supplier Relationships and Customer Firm Costs", *Journal of Marketing*, Vol. 65, pp. 29-43.
- Churchill, G.A. (1982), "A Paradigm for Developing Better Measures of Marketing Constructs", *Journal of Marketing Research*, Vol. 16, pp. 64-73.
- Eggert, A. and W. Ulaga (2001) "Customer-Perceived Value: A Substitute for Satisfaction in Business Markets?", *Journal of Business and Industrial Marketing*, forthcoming.
- Gerbing, D. and Anderson, J. (1988), "An Updated Paradigm for Scale Development Incorporating Unidimensionality and its Assessment", *Journal of Marketing Research*, Vol. 25, pp. 186-192.
- Holbrook, M.B. (1994), "The Nature of Customer Value", In: Rust, R.T. and Oliver, R.L., *Service Quality: New Directions in Theory and Practice*, Thousand Oaks: Sage Publications. Thousand Oaks, Ca.
- Houston, F.S. (1987), "Marketing and Exchange" *Journal of Marketing*, Vol. 51, October, pp. 3-18.
- Kortge, G.D. and Okonkwo, P.A. (1993), "Perceived Value Approach to Pricing", *Industrial Marketing Management*, Vol. 22, pp. 133-140.

- Kotler, P. (1972), "A Generic Concept of Marketing", *Journal of Marketing*, Vol. 36, April, pp. 46-54.
- Perkins, W.S. (1993), "Measuring Customer Satisfaction", *Industrial Marketing Management*, Vol. 22, pp. 247-254.
- Monroe, K.B. (1991), *Pricing – Making Profitable Decisions*, McGraw Hill, New York.
- Nunnally, J. (1978), *Psychometric Theory*, 2nd ed., New York.
- Parasuraman, A. (1997) "Reflections on Gaining Competitive Advantage Through Customer Value", *Journal of the Academy of Marketing Science*, Vol. 25, No. 2, pp.154-161.
- Patterson, P. and Spreng, R. (1997), "Modelling the Relationship Between Perceived Value, Satisfaction and Repurchase Intentions in a Business-to-Business Service Context: An Empirical Examination", *International Journal of Service Industry Management*, Vol. 8, No. 5, pp. 414-434.
- Ravald A. and C. Grönroos (1996), "The Value Concept and Relationship Marketing", *European Journal of Marketing*, Vol. 30, 19-30.
- Ulag, W. (2001), "Customer Value in Business Markets: An Agenda for Inquiry", *Industrial Marketing Management*, Vol. 30 (4), May, 1-7.
- Ulag, W. and S. Chacour (2001), "Measuring Customer-Perceived Value in Business Markets: A Prerequisite for Marketing Strategy Development and Implementation", *Industrial Marketing Management*, forthcoming.
- Walter, A.; T. Mueller and G. Helfert (2000), "The Impact of Satisfaction, Trust, and Relationship Value on Commitment: theoretical Considerations and Empirical Results", *IMP Conference Proceedings*, Bath.
- Zeithaml, V.A. (1988), "Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence", *Journal of Marketing*, Vol. 52, July, pp. 2-22.