
Value Strategy Rather Than Quality Strategy: A Case of Business-to-Business Professional Services

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How do organizational customers assess professional services? The present study aims at evaluating the respective effects of three strategic variables, which are often confused—namely, quality, value, and satisfaction, on organizational customers' behavioral intention to buy professional services from engineering consultants. Hypotheses derived from the existing literature are tested through a causal model (EQS procedure). Results show that competence, reliability, and communication are good indicators of quality, and that quality does not influence satisfaction; however, value, which is determined by both quality and total price, affects satisfaction; finally intent to buy (or rebuy) services is a function of satisfaction. These results lead to a reconsideration of the service evaluation models, both in theoretical and practical terms. J BUSN RES 1999. 45.235–246. © 1999 Elsevier Science Inc. All rights reserved.

Professional service providers have joined the list of major industries operating in intensely competitive environments. In the past, they remained in an unchallenged position, not having to develop and implement marketing strategies. Now, however, as an increase in competition and a greater sophistication among customers are becoming the primary impetus of strategic thinking, professional providers must act in such a way as to better comprehend customers' evaluation mindset. Mayo (1990) has noted that as business organizations themselves make considerable use of professional services such as consulting engineering, a vast opportunity for research exists in the industrial or business-to-business context of services.

Even though service quality attributes are major decision variables used by professionals to influence evaluations of their

services, these evaluations remain partial. The whole evaluation process is more complex and, to effectively plan and implement decisions, professional service providers must seek knowledge about how customers integrate other decision variables in their evaluations and other variables influencing their post-purchase behavior. They have to know how these variables act and interact. For example, professional service providers are concerned with questions such as these: What are the relative roles of the various costs associated with the services rendered and of the perceived quality evaluation in the determination of perceived value? Do customers regard monetary costs as the primary indicator of perceived value? Do customers include their own participation as a value indicator? Which variable(s) influence customer satisfaction? How do often confused concepts such as quality, value, and satisfaction interact to affect behavioral intentions? And finally, what is the role of perceived value in the evaluation of customer satisfaction?

The answers to these questions are important, both from a theoretical and a practical viewpoint. The present study is aimed at clarifying the concepts of quality, value, and satisfaction and their interactive roles; it is also aimed at helping professional service providers understand which variables impact their customers' behavior and loyalty.

Interest in the measurement of these concepts is therefore high as well, and specifically the delivery of value, which is the strategy that is increasingly being offered as a key to service providers' efforts to position themselves more effectively in the marketplace (Kotler, Filiatrault, and Turner, 1994). For all that, the implementation of such an orientation is not easy: service quality and service value are higher-level attributes; they are elusive and abstract concepts that are difficult to define and measure (Zeithaml, 1988). Moreover, as is evident from the recommendations for additional research (Bolton and Drew, 1991; Zeithaml, 1988), very little is known about the relation-

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ships among quality, costs, value, satisfaction, and behavioral intentions.

The objective of this research is to examine an exhaustive set of relationships among important evaluation and post-purchase concepts. Even though some of the hypothesized relationships have been discussed and/or tested in the product literature (Chang and Wildt, 1994; Dodds, Monroe, and Grewal, 1991; Zeithaml, 1988; Dodds and Monroe, 1985) and in the service literature (Taylor and Cronin, 1994; Oliver, 1993; Cronin and Taylor, 1992; Bitner, 1990; Bolton and Drew, 1991), they have not been subjected to a thorough empirical test in the specific domain of organizational professional services. The empirical literature reviewed reveals that the professional services rendered to organizations are highly neglected (Dart and Freeman, 1994). Furthermore, there is no general agreement on a specific causal order, i.e., on how customers proceed when they evaluate services and how their satisfaction level and behavioral intentions are shaped. It is of primary interest to consider the mediating role of perceived value between customer satisfaction and behavioral intentions. An understanding of these variables and their interrelations will provide useful managerial insights for professional services providers to organizational customers. The results should provide rich inputs to consulting engineers in terms of the substantive meaning of quality, costs, value, satisfaction, and behavioral intentions.

In the first section, we discuss the literature on perceived value and related concepts. Using previous literature, the second section proposes research hypotheses and a model of the relationships between perceived value's antecedent and consequent constructs. Next, we describe the research method used to test the hypotheses. Then, the results are presented. Finally, we discuss the managerial implications and limitations of our study and provide directions for future research.

Theoretical Background

Despite the extensive literature on the evaluation of service quality published over the past 10 years (e.g., Parasuraman, Zeithaml, and Berry, 1985, 1986, 1988, 1994), one crucial variable has been conspicuously neglected—namely, perceived value. A review of previous research is therefore mandatory.

Perceived Value

In the view of Heskett, Sasser, and Hart (1990), what a customer gets for what he pays forms the basis for measuring the value of a service just as it does for the value of a product. Value in a service results in part from quality. The components of quality are important elements of value, which should be adjustable to each individual customer's idea of value. Improving quality is the best way to give the customer better value and the variety of dimensions that comprise quality makes it possible to differentiate products or services in a number of ways so as to enhance their value to customers (Day, 1990).

Most of the empirical literature focuses on explaining what service quality is by replicating Parasuraman, Zeithaml, and Berry's (1985, 1986, 1988, 1994) SERVQUAL dimensions. However, the acceptance of the PZB model as a standardized instrument has been criticized. In the opinion of many researchers, the service quality dimensions identified by PZB can not necessarily be generalized across usage contexts (Cronin and Taylor, 1992; Oliver, 1993; Brown, Churchill, and Peter, 1993; Babakus and Boller, 1992; Bolton and Drew, 1991; Carman, 1990). Many researchers have failed to replicate the original PZB dimensions, and the instrument had to be modified so as to adapt it to the specific context under study. Several researchers argue that service quality is industry specific (Babakus and Boller, 1992; Teas, 1988; Cravens, Dielman, and Harrington, 1985) and context specific (Cronbach, 1986). An exploratory investigation by Lapierre (1993) has shown that organizational customers of consulting engineers mostly used three dimensions when assessing the quality of these services, i.e., competence, reliability, and communication. This is also reflected in the body of research on professional service quality (e.g., Cravens, Dielman, and Harrington, 1985).

Even though the components of quality are important elements of value, the value of a service also includes another component, total price, which includes both the price paid for the service and the costs encountered in acquiring the service, which is much harder to measure (Heskett, Sasser, and Hart, 1990). In a very well-documented article, Zeithaml (1988) observed that from the customer's point of view, price is what is given or sacrificed in order to obtain a product. However, it is this perceived sacrifice, i.e., the monetary price plus the nonmonetary price, that influences the perceived value of the product, whereas the monetary price may also influence perceived quality. Results from Zeithaml's (1988) pilot study show that for some customers whatever can reduce the monetary price contributes to increasing the perceived value of a product. However other customers, who are less price conscious, perceive value in terms of other factors, such as store proximity, delivery, etc., even at the expense of higher price, because the time and effort involved are perceived as more costly. In research conducted on the telecommunications services provided to individual customers, Bolton and Drew (1991) describe the sacrifice (monetary cost and nonmonetary cost) using the global notion of income, which includes the budgetary constraints of customers. The impact of income as a cue of the perceived sacrifice (monetary cost and nonmonetary cost) was found to be weak, but significant. Further, Chang and Wildt (1994), Dodds, Monroe, and Grewal (1991), and Dodds and Monroe (1985) found that monetary price can even have a negative influence on perceived value.

Although a large body of literature addresses the price/product perceived quality (Chang and Wildt, 1994; Dodds, Monroe, and Grewal, 1991; Zeithaml, 1988; Dodds and Monroe, 1985), the same is not true of the research pertaining to

perceived service quality. While it is shown to be important (Edvardsson and Gustavsson, 1991), investigation into the influence of perceived monetary price on perceived quality has been much less systematic, even though it was encouraged.

Specifically, in the literature pertaining to the marketing of industrial products, the importance of the value concept, although noteworthy, is not a function of price alone (Reddy, 1991; Haas, 1989; Monroe, 1982; Jackson, 1985). Value is the result of a ratio between perceived benefits and price, which includes the purchase price as well as the costs of acquiring, transporting, installing, and ordering the product, plus the risks of failure (Jackson, 1985). Value is not only a function of price; it is not true that buyers are trying only to minimize price (Monroe, 1982). Monetary price is not the only sacrifice component customers must make in order to obtain a product; the expenditure of time in searching for the product, plus psychological costs, also figures explicitly or implicitly in the perception of what the customer must give up in the process. In this context, everything that can be done to reduce the costs associated with the time, effort, and search involved in getting a product or service can reduce the perceived sacrifice and, consequently, improve perceived value.

In the services area, Heskett, Sasser, and Hart (1990) are of the opinion that services which have made a breakthrough have been conceived on the assumption that the perceptions customers have of the costs of acquiring a service are not all negative. Also, in the economics literature, Giarini (1991) argues that in a service economy, users become an integral part of the production system which permits delivery of the service and even creation of value. Indeed, customer participation (time and effort) can have a positive effect on efficiency, productivity, and service quality (Kelley, Donnelly, and Skinner, 1990) and on value (Houston, 1986). In other words, improvement to professional services may depend to a large extent on the input supplied by the client.

The fact that American customers may increasingly attribute greater value to time than to the price of goods was recognized as early as 1963, and was brought up again by Kotler (1972) and Schary (1971). In this regard, Day (1990) says that time can become as important a strategic element as quality in enhancing a service's value to the customer. The ownership and use of things require a variety of time expenditures, and the literature on retailing shows that time is important to the customer. Downs' (1961) theory of customer efficiency is interesting in this connection. The central hypothesis of this theory is that customers try to minimize three types of costs associated with consumption: money, time, and effort. These three types of costs do not all have the same importance for all customers and for all purchases. Almost all customers see time as more important than money for more standard, low-cost purchases, whereas money is more important than time for high-cost purchases. Between these two poles, the relative importance of each cost type varies

with the customer's budget, the specific price, the degree of standardization (because a standard product requires less time for study and comparison), and the time pressures under which each customer is operating. Bender (1964) takes a more general approach, proposing only two cost categories (cost of goods) and secondary costs [all the other costs described by Downs (1961)]. Thus, both these approaches hold that customers go beyond the direct price of goods in evaluating costs. Customers look for the most economical combination of money and time, i.e., the smallest sacrifice (Nichols, Smolensky, and Tideman, 1973).

What is noteworthy from the previous literature is that no matter what the academic discipline involved, a strong consensus emerges: Perceived value is a combination of what customers get in terms of benefits such as quality and what they give away in terms of money, time, and effort. In other words, the evaluation of perceived value includes input from the producer as well as the customer. This is in line with the service production/consumption process involving personal interactions between the customer and the provider (Lovelock, 1983).

Satisfaction and Behavioral Intentions

Customer satisfaction has been recognized as the key outcome of the marketing process (Bateson, 1992, p. 86). Bolton and Drew (1991) conceptualize customer satisfaction as antecedent to a customer's on evaluation of service quality, service value, purchase intentions and behavior. Bitner (1990) suggests that service encounter satisfaction is an input to the more general construct of perceived quality (an attitude) which in turn leads to later behaviors towards service firms. The Bitner (1990) and Bolton and Drew (1991) studies share a common feature. Service quality is positioned as subsequent to satisfaction under the implicit assumption that quality judgments result from satisfying or dissatisfying service encounters. Both studies defined quality as a superordinate concept and satisfaction is viewed as an antecedent of quality. Evidence for this assumption exists only at a theoretical level, however, because the concepts were not tested as hypothesized (Oliver, 1993). Satisfaction and quality as shown by Filiatrault and Chebat (1988), building on the model, are conceptually distinct, they stem from two basic different constructs that constitute the conceptual foundation of consumer behavior models. Quality is a perceptual construct, whereas satisfaction is a learning construct: quality assessment is derived from cues (such as employees physical appearance and behavior); satisfaction is essentially based on the attribution of the quality to a specific cause. Consumers cannot be satisfied with a service the quality of which is not attributable to a specific cause, that is the service company. The quality-satisfaction relationship is mediated by attributional factors.

However, most research, especially in the service area, positions quality as antecedent to customer satisfaction, which in turn affects behavioral intentions. Woodside, Frey, and Daly's (1989) findings support the view that within the health

care area, customer judgments of specific service events within service acts influence their overall satisfaction with the service acts and that satisfaction with service acts influences overall satisfaction with the service encounter. They contend that overall satisfaction with the service encounter appears to be a moderating variable between service quality and behavioral intentions. Van der Walt and Woodside (1994) and Woodside and Wilson (1994) pointed out some of the characteristics for efficient marketing strategies for business-to-business professional service providers. First, they show the necessity for a supplier to be distinctive in some element of marketing. Second, the characteristics of the supplier are perceived and assessed differently by involved and noninvolved client companies.

Furthermore, in a study conducted in four different service types (bank, pest control, dry cleaning, and fast food), Cronin and Taylor's (1992) results reveal that service quality is antecedent to customer satisfaction and that customer satisfaction only has a significant effect on purchase intentions. However, in another research study carried out in professional services, Taylor and Cronin's (1994) findings reveal that satisfaction is positively related to service quality (i.e., satisfaction precedes service quality in a causal order) and also that service quality is positively related to satisfaction. This is an identification of a nonrecursive relationship between service quality and satisfaction. Such a result suggests that customers of a professional service such as health care may not distinguish service quality from satisfaction in their minds when they respond to patient satisfaction or service quality surveys. Moreover, Olive (1993) proposed a quality-satisfaction interactive relationship in which quality may influence actual satisfaction and satisfaction may influence future quality. Finally, Parasuraman, Zeithaml, and Berry (1994) posit satisfaction as a function of a customer's assessment of service quality, product quality and price, and Bateson (1992, p. 87) concurs, stating that satisfaction is an end in itself and it is also the source of word-of-mouth recommendations and can thus stimulate further purchases.

The whole body of research on satisfaction and behavioral intentions in service marketing does not lead to a strong consensus. Several contradictory hypotheses may be formulated. Much empirical work is therefore necessary in order to gain a deeper understanding of these relationships.

Some conclusions can be drawn from this review of prior research. First, most of research has been conducted with individual customers, as opposed to industrial customers. Second, the above findings demonstrate an increasing need for additional research to assist professional service marketers in reaching agreement on the nature of the relationships between the important concepts associated with the evaluation of professional services rendered to organizational customers. These two conclusions suggest a need for a more comprehensive model customized to the evaluation process for professional services rendered to organizations.

Overview and Hypotheses of the Study

Can the rationale of Zeithaml (1988), whose model was inspired by Dodds and Monroe (1985) and tested in a product context, be transferred to a professional services context? In this model, it is hypothesized that perceived service quality and perceived sacrifice, i.e., monetary and nonmonetary costs, shape perceptions of the value of a product. It is thus plausible to hypothesize that perceived value more than perceived quality is antecedent to customer satisfaction, and that customer satisfaction plays a mediating role in the relationship between perceived value and behavioral intentions. Furthermore, most operationalization in perceived value research has defined perceived value as the trade-off between quality and sacrifice without measuring the nonmonetary cost of the sacrifice independently (Chang and Wildt, 1994; Dodds, Monroe, and Grewal, 1991) nor in the service area (Bolton and Drew, 1991) with the exception of Zeithaml (1988). Evidence for this assumption exists only at a theoretical level; these components (monetary and nonmonetary costs) were not tested individually as conceptualized/hypothesized.

Before stating specific hypotheses, we have to position our research. We are not interested in the possible effects of different levels of quality and costs on perceived value, that is to say, we are not manipulating these variables as has been done previously in product evaluation research (e.g., Chang and Wildt, 1994; Dodds, Monroe, and Grewal, 1991) and recently in the area of services marketing (Ostrom and Iacobucci, 1995).

A specific interest of this research is first to understand if and how perceived quality and perceived sacrifice relate to perceived value. Three service quality and three perceived sacrifice components are measured. It is expected that perceived quality is positively influenced by competence, reliability, and communications, and that perceived sacrifice is positively influenced by perceived fairness of the cost, perceived acceptability of the time spent, and perceived effort devoted to the service, and that the influence of fairness of cost is the strongest. It is expected that perceived quality has a stronger influence than perceived sacrifice on perceived value, and that perceived quality also has a direct influence on customer satisfaction. Perceived value is hypothesized to have a direct and positive influence on customer satisfaction as well as on behavioral intentions. It is also anticipated that customer satisfaction influences behavioral intentions. Finally, it is expected that the influence of perceived value on behavioral intentions is not direct, but works through the mediating effect of customer satisfaction.

Method

In order to test the proposed evaluation model, a mail survey was carried out with organizational customers of Quebec consulting engineers.

Research Context

Because the goal of this research was to test the model in a business-to-business professional service, it was important to select a research context where the input of the customer is manifest, the amount of money involved is relatively significant, and the other components of the model are representative of the whole evaluation process and postpurchase behaviors. Accordingly, this study was conducted in the context of consulting engineering services' organizational customers.

Pretest

Prior to conducting the survey, a pretest was carried out to determine the appropriateness and answerability of the questions. The cooperation of 40 individuals was obtained. Of these, 20 were chief operating officers (COOs) of organizations using consulting engineering services, two were representatives of engineering associations, and 18 were undergraduate students in their final year of an engineering program.

Respondents Solicitation and Response Rate

In an attempt to include only those organizations that were more likely to have hired consulting engineers, organizations with fewer than 200 employees were eliminated. This assignment resulted in a sample, drawn from the Dun and Bradstreet database, of 1,230 organizations from the manufacturing, services, and public sectors.

Approximately 32% of the sample are manufacturing organizations, 67% are service organizations, and 5% are public organizations. The unit of analysis chosen was the COO, because he/she appears to be the most knowledgeable about the relationship with engineering consultants or in a position to route the questionnaire to the most appropriate individual.

Each COO was sent a letter of solicitation that included a brief description of the study, its purpose, and a sample copy of the questionnaire to be completed. The confidentiality of responses was ensured. The survey sent to the COO focused on the evaluation of consulting engineering services provided during the last contract. A follow-up was conducted 2 weeks after the first mailing. A total of 342 questionnaires was received, yielding a 28% response rate. Table 1 lists the demographic characteristics of respondents.

Measures

The five basic variables of the structural equation model are perceived value, perceived quality, perceived sacrifice, satisfaction, and behavioral intentions (Table 2 presents the correlations matrix and descriptive statistics).

PERCEIVED VALUE. Perceived value was measured by means of two measures taken from Lichtenstein and Bearden (1989) and Burton and Lichtenstein (1988) and adapted to the consulting engineering context. Contrary to the method of the above authors, a 9-point bipolar scale was used to determine overall perceived value, as Brown, Churchill, and Peter (1993)

Table 1. Demographic Characteristics of Respondents

	Mean	Median
• Number of years of professional experience	20.35	20
• Number of years of education	17.89	18
• Number of engineers	33.4	4.0
	Number	Percent
• Profession		
—Engineer	184	54.3
—Not engineer	155	45.7
• Number of employees in the firm		
—0–49	7	2.2
—50–199	21	6.6
—200–499	125	39.3
—500 et +	165	51.9
• Activity sector		
—Private	115	37.5
—Public	80	26.1
—Parapublic	112	36.5
• Industrial sector		
—Manufacturing	84	35.9
—Services	53	22.6
—Government	97	41.5
• Engineering department		
—Yes	180	53.7
—No	155	46.3

had done in using a 10-point scale to assess overall service quality. Respondents were asked to evaluate the consulting engineering services provided by the firm on two 10-point scales ranging from (1) a “very bad value” to (10) an “excellent value” and from (1) a “very bad buy” to (10) an “excellent buy.” The means of the scales were respectively 6.543 and 6.647 and were associated with a relatively high degree of variance ($SD = 1.848; 1.792$).

PERCEIVED QUALITY. Respondents were asked to evaluate the quality of consulting engineering services on the basis of the three following attributes: competence, reliability, and communication. These dimensions have proven to be the most important evaluation criteria in consulting engineering services (Lapierre, 1993). There were six questions related to competence and four related to reliability and communication. The items were drawn from three different scales (Lapierre, 1993; Parasuraman, Zeithaml, and Berry, 1986; Cravens, Dielman, and Harrington, 1985). Subjects were asked to respond through a 7-point scale with verbal descriptors attached to each scale position, ranging from “much worse than expected” to “much better than expected.” This alternative to SERVQUAL's difference score was used by Brown, Churchill, and Peter (1993). Subjects were asked to make a direct comparison of their perceptions of their expectations. Cronbach's alpha for the three service quality measures were 0.907, 0.845, and 0.858, respectively. The means of the three scales fell near

Table 2. Correlations Matrix and Descriptive Statistics

Indicators	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	Y ₁	Y ₂	Y ₃	Y ₄	Y ₅
X ₁ : Competence	1.000										
X ₂ : Reliability	0.761	1.000									
X ₃ : Communications	0.707	0.753	1.000								
X ₄ : Cost fairness	0.611	0.633	0.506	1.000							
X ₅ : Time acceptability	0.534	0.596	0.506	0.736	1.000						
X ₆ : Effort acceptability	0.535	0.595	0.509	0.737	0.926	1.000					
Y ₁ : Overall value	0.724	0.718	0.640	0.821	0.763	0.759	1.000				
Y ₂ : Overall buy	0.724	0.733	0.648	0.821	0.732	0.727	0.939	1.000			
Y ₃ : Satisfaction	0.704	0.723	0.655	0.752	0.738	0.736	0.922	0.902	1.000		
Y ₄ : Repeat business	0.658	0.688	0.637	0.726	0.656	0.644	0.842	0.841	0.882	1.000	
Y ₅ : Recommendation	0.664	0.702	0.620	0.739	0.721	0.706	0.861	0.857	0.894	0.912	1.000
Means	3.952	3.695	3.771	6.353	6.787	6.841	6.543	6.647	6.484	6.601	6.798
SD	0.900	0.946	0.841	1.781	1.862	1.778	1.848	1.792	1.987	2.614	2.409
n	258	258	258	258	258	258	258	258	258	258	258

the midpoint: 3.952, 3.695, and 3.771. The standard deviations were 0.900, 0.946, and 0.841, respectively.

PERCEIVED SACRIFICE. First, perceived monetary cost was measured by a 10-item scale adapted from Lichtenstein and Bearden (1989) and Burton and Lichtenstein (1988), as previously mentioned. Respondents were asked to indicate the degree of fairness of the price paid for the services provided by the consulting engineering firm (anchored by (1) an “extremely unfair price” to (10) an “extremely fair price”). The mean of the scale was beyond the midpoint (6.353) and had a relatively high degree of variance (SD: 1.781). Second, perceived nonmonetary costs were measured by two 10-item scales adapted from Petroschius and Monroe (1987) who used a 7-point Likert scale to measure the price acceptability of products. Respondents were asked to indicate respectively the degree of acceptability of the time they spent and the effort they devoted to the project (anchored by (1) “very unacceptable” to (10) “very acceptable”). The means of both scales were above the midpoint (6.787, 6.841) and also had relatively high degrees of variance (SD: 1.862, 1.778).

SATISFACTION. Satisfaction with services provided was measured globally. Similar global measures have been used in previous research (e.g., Brown and Peterson, 1994). The measure assessed overall satisfaction by means of a 10-point scale. Respondents were asked to indicate their overall satisfaction (anchored by (1) “entirely dissatisfied” to (10) “entirely satisfied”). The mean was also above the midpoint (6.484) with a relatively high degree of variation (SD: 1.987).

BEHAVIORAL INTENTIONS. Behavioral intentions were measured by two 10-item scales taken from Brown, Churchill, and Peter (1993). First, subjects were asked if they would consider the same consulting engineering firm if they had to do the project again or were seeking additional services. Brown, Churchill, and Peter (1993) used a 6-point scale whereas we

used a 10-point scale asking for the degree of agreement of the respondents (“strongly disagree” (1) to “strongly agree” (10)). The second measure, recommendation, was measured by means of a scale also taken from Brown, Churchill, and Peter (1993). The item asked if the customer would recommend this firm to a friend (“never” (1) to “absolutely” (10)). The means were above the midpoint (6.601 and 6.798) with high degrees of variance (SD: 2.614 and 2.409), respectively.

Results

The aforementioned data and model were analyzed with the EQS program (Jöreskog and Sörbom, 1989). The measurement model and the causal equation model were estimated simultaneously, that is, the full model evaluated: (1) the extent to which the observed variables were indicators of the hypothesized underlying constructs, and (2) the strength of the relationships among the latent variables as specified by the paths. Maximum likelihood was used as the estimation method.

Measurement Model

The measurement model was assessed through confirmatory factor analysis, using SAS maximum likelihood estimation on the covariance matrix (Jöreskog and Sörbom, 1989). The model which tested specified two exogenous factors. The first factor was perceived quality, and it was hypothesized that this factor would be indicated by competence, reliability, and communication, as empirically found in a study by Lapierre (1993). Each service quality dimension was operationalized by a summated scale, i.e., on respondents having answered, on average, at least 75% of the items of each dimension. The other exogenous variable was perceived sacrifice, which included both monetary and nonmonetary components of the sacrifice (Zeithaml, 1988), i.e., perceived fairness of the cost, perceived acceptability of the time spent, and perceived acceptability of the effort devoted to the project by the customer.

Table 3. Completely Standardized Solution

Constructs and Indicators	Lambda	<i>t</i> -Value	Squared Multiple Correlation	<i>pc</i> ^a
• Quality				
—Competence	0.862	16.902 ^b	0.74	
—Reliability	0.896	17.998 ^b	0.80	
—Communications	0.824	15.773 ^b	0.68	0.916
• Sacrifice				
—Cost fairness	0.897	18.018 ^b	0.80	
—Time acceptability	0.823	15.816 ^b	0.68	
—Effort acceptability	0.822	15.784 ^b	0.68	0.701
• Value				
—Overall value	0.974	44.155 ^b	0.95	
—Overall buy	0.963	42.155 ^b	0.95	0.902
• Satisfaction (Single item)	1.000	—	1.00	—
• Behavioral intentions				
—Repeat business	0.949	28.992 ^b	0.90	
—Recommendation	0.962	29.281 ^b	0.93	0.765

^a Represents the ratio of the variance to the sum of trait and error variances (Werts, Linn, and Joreskog, 1974).

^b $p < 0.001$.

The model tested included three endogenous variables: perceived value, customer satisfaction, and behavioral intentions. The perceived value construct was measured by an overall perceived value indicator and an overall perceived buy indicator. The customer satisfaction variable was measured by a global indicator. The behavioral intentions construct was measured by a repeat business and recommendation indicators. Table 2 presents the standardized factor loadings (lambda) and *t*-values for the measurement portion of the EQS analysis. As is apparent from the table, all the variables loaded significantly on the factors on which they were hypothesized to load.

Three reliability measures were computed. First, the typical approach for reliability assessment of service quality measures, Cronbach alpha coefficients, were calculated for each construct and indicate very good levels of internal consistency, ranging from 0.895 to 0.969. However, as Cronbach's alpha is based on restricted assumptions of the equal importance of all indicators, a second approach for reliability assessment was used, which represents the proportion of measured variance attributable to an underlying trait. A *p* value greater than 50% implies that the variance captured by the trait is more than that captured by error components (Bagozzi, 1981). As shown in Table 3, all the *p* indices are greater than 0.50.

Finally, the squared multiple correlations of the individual items give an indication of the lower bound of the reliability of the measures. These range from 0.68 to 0.95, indicating a good level of reliability.

Structural Model

Figure 1 presents the full model that was tested, and Table 4 provides the standardized path coefficients and the *t*-values of the model. The paths between latent constructs that are

significant are indicated by solid lines in the figure, and the dotted lines represent nonsignificant paths.

As shown in Figure 1 and Table 4, perceived quality and perceived sacrifice are both significantly related to perceived value; however, contrary to hypotheses, the relationship between perceived sacrifice and perceived value is more important than the relationship between perceived quality and perceived value, and no significant relationship exists between perceived quality and customer satisfaction.

It is apparent from the endogenous path coefficients that, as hypothesized, perceived value has a direct relationship with customer satisfaction. However, contrary to what was hypothesized, value has no significant relationship with behavioral intentions. As hypothesized, customer satisfaction plays a mediating role between perceived value and behavioral intentions. Finally, as expected, customer satisfaction is positively related to behavioral intentions. A nonrecursive model was also tested in which the path from customer satisfaction to perceived value was estimated. This path was not significant, however. As Table 4 shows, 91.4% of the variance in perceived value, 89.3% of the variance in satisfaction, and 86.1% of the variance in behavioral intentions were accounted for in the model.

The measures of overall goodness-of-fit for the entire model are very good. Despite of the relatively large size of the sample, the chi-square value (46.03) is not significant, at 0.05 ($p = 0.08$). The model's ability to recreate the sample covariance matrix is also evidenced by the small root mean square residual and average off-diagonal absolute standardized residuals, the large fit indexes and the Bentler Bonett index, Δ .

Because the chi-square test is very sensitive to sample size, Carmines and McIver (1981) provide another way to check for the overall goodness-of-fit structural model. The calculation is

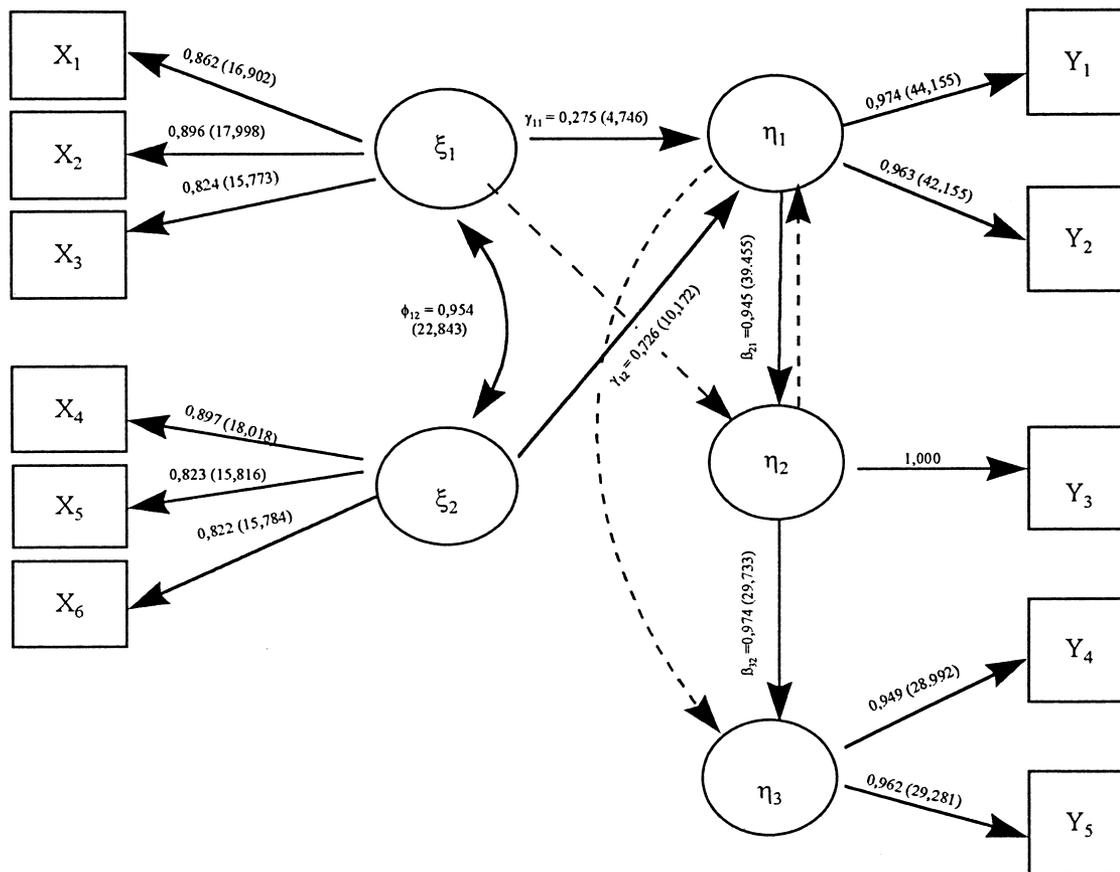


Figure 1. Structural equation model: ξ_1 = perceived quality; ξ_2 = perceived sacrifice; η_1 = perceived value; η_2 = satisfaction; η_3 = behavioral intentions; X_1 = competence; X_2 = reliability; X_3 = communications; X_4 = perceived cost; X_5 = time spent; X_6 = perceived effort devoted; Y_1 = overall perceived value; Y_2 = overall perceived buy; Y_3 = overall satisfaction; Y_4 = repeat business; Y_5 = recommendation; γ_{11} = relationship between perceived quality and perceived value; γ_{12} = relationship between perceived sacrifice and perceived value; γ_{21} = relationship between perceived value and customer satisfaction; γ_{32} = relationship between perceived value and behavioral intentions; ϕ_{12} = covariance between perceived quality and perceived sacrifice. For clarity notations for the loadings of the observed variables (γ_i), the errors of measurement (δ_i, ϵ_i), and the errors in the equations (ζ_i) are not shown in the figure. Paths that are in dotted lines were not significant.

as follows: chi-square/degrees of freedom. If the value is smaller than 3, the fit is very good, whereas if the value is between 3 and 5, the fit is acceptable. Then, for a chi-square of 46.029 and 34 *df*, we obtain a value of 1.35, which demonstrates a very good fit. These suggest a very good fit of the data.

Discussion

Results reported here provide both a theoretical and a practical contribution to the understanding of the antecedents and consequences of perceived value in a business-to-business professional service context.

Perceived Quality

According to the consulting engineers' organizational customers and as expected from previous research (Lapierre, 1993,

1997), competence, reliability, and communication are clearly important service quality indicators. As expected from previous research, reliability has the strongest loading on the service quality construct (Boulding, Kalra, Staelin, and Ziehl, 1993): For the industrial sample under study, engineers' capacity to do things right the first time, a quality control program, and a respect for schedules and budgets are very important determinants of the quality of services rendered.

Perceived Sacrifice

Zeithaml (1988) had already observed that perceived monetary and nonmonetary costs are indicators of perceived sacrifice. As expected in this research context, monetary cost is a somewhat stronger indicator of the sacrifice than nonmonetary cost. However, as the contribution of monetary and nonmonetary costs are both high, customers assess time and effort

Table 4. Causal Model Paths

Paths	Standardized Paths	
	Coefficients	t-Value
Exogenous		
γ_{11}	0.275	4.746*
γ_{12}	0.726	10.142*
ϕ_{12}	0.954	22.843*
$\theta_{\delta} (X_5, X_6)$	0.828	7.982*
Endogenous		
β_{21}	0.945	39.455*
β_{32}	0.974	29.733*

$R_1\eta_1 = 0.914$; $R_2\eta_2 = 0.893$; $R_3\eta_3 = 0.861$; $\chi^2 = 46.029$; $df = 34$; $p = .082$; $GFI = 0.968$; $AGFI = 0.938$; $RMR = 0.042$; $CFI = 0.997$; $\Delta = 0.988$.

Average off-diagonal absolute standardized residuals = 0.032.

* $p < 0.001$

much like they do assess money, i.e., they evaluate the three sacrifice components in a very similar manner.

Perceived Value

An important finding of this study is that the relationship between perceived sacrifice and perceived value is stronger than the relationship between perceived quality and perceived value. In other words, customers of consulting engineers weight what they give as more important than what they get, i.e., the quality of services. In a period of economic recession, resources are scarce and make customers more conscious of both the monetary and nonmonetary costs. This result is consistent with Heskett, Sasser, and Hart (1990) who state that the impact of the costs of acquiring a service are not necessarily negative. It also confirms the importance of the user's participation as expressed in the economics literature (Giarini, 1991) and in the retailing literature (Bender, 1964; Downs, 1961).

Satisfaction and Behavioral Intentions

The relationship between perceived value and satisfaction lies in the expected direction; however, it is considerably weaker than between satisfaction and behavioral intentions. A major result is that the expected relationship between perceived quality and satisfaction is not significant as had been found or hypothesized in previous research (Taylor and Cronin, 1994; Oliver, 1993; Cronin and Taylor, 1992). It thus appears that consulting engineers' customers do not directly associate their level of satisfaction with the quality of the services rendered, but rather with the value of the services rendered. Equally importantly, customer satisfaction is shown to play a mediating role between perceived value and behavioral intentions, and perceived value has no direct influence on customers' behavioral intentions.

Conclusion and Strategic Implications

These results have important implications for improving the planning and implementation of professional services strate-

gies. Results show how consulting engineers' customers integrate evaluation and postpurchase concepts. The model presented here suggests that when the sacrifice components are perceived as fair (money) and acceptable (time and effort) by customers, then the perceived value is positive, and perceived quality is not the main element taken into account by industrial customers in their evaluation of perceived value. These results are somewhat provocative in terms of strategic implications.

A plausible explanation of the above results is that customers may believe that quality has become a minimal norm when they hire engineers, and when they make an a posteriori evaluation, they do rely on other aspects. In other words, customers view service quality as a normal expected standard and that the "get" component has little effect on the assessment of value. In addition, because some professional services such as consulting engineering are characterized by a high level of customer participation, customers may perceive that they contribute largely to the value they get. Customers would then seem to be more interested in value than in quality.

This implies that the selection of a strategy for a particular professional service or market segment depends on its customers' definition of value. Customer evaluation of consulting engineers is mainly driven by a positive perception of the sacrifice, i.e., by a positive perception of the "give" components. A quality orientation by consulting engineers would thus be a suboptimal strategy; consulting engineers should instead have a value orientation because the money spent as well as the time spent and effort devoted to the service are perceived highly positively. This could produce more favorable perceptions of consulting engineering services, and, by the same token, increase the level of satisfaction of customers and induce positive behaviors.

Furthermore, marketers of professional services to organizational customers should note that commercial success depends on investing in good relationships with customers to encourage their participation (Lapierre, 1997). If this is indeed the case, then one strategy consists in making the link more salient. Value given to the customer transcends the quality of the service and can hence be improved by a number of factors, including the participation of the customer, an active player. This is in line with Bateson's (1985) work in which he suggests that consumers can be segmented on the basis of control needs, resulting in services that are designed to capitalize profitably on the consumer's own desire for participation. It thus appears that if consulting engineering firms can communicate to the customers that perceptions of the money, time, and effort spent on the projects are not necessarily negative, then customers may perceive better value and may feel more satisfied with the service provided, and finally more induced to hire the engineers again and to formulate positive recommendations.

Present findings also show few differences between monetary and nonmonetary costs. In other words, both monetary and nonmonetary aspects are important indicators of the sacrifice, and none of them make a negative contribution to the

sacrifice. This result is in line with the economic theory of time allocation of Becker (1965) who equates the worth of time to its opportunity cost, which is typically assumed to be the wage rate. Becker's theory of time allocation fits well in the context of organizational customers whose participation in the engineering project implies monetary opportunity costs: the time and effort devoted to their participation are diverted from their own customers, which brings about fewer sales or/and less customer satisfaction. Consequently, like money, time and effort are perceived as having worth. To the question "Are time and effort like money," the answer is "yes and no." The statistical contribution of perceived monetary cost is higher than the contribution of nonmonetary cost in explaining perceived sacrifice. However, the difference is not great enough to claims to the superiority of one over the other (respective t 's are 18.02, 15.82, and 15.78, all p 's < 0.001).

This research suggests that variables other than quality explain value, and that satisfaction plays a mediating role in the relationship between value and behavioral intentions. An absence of consideration of all variables implied in our model implies that studies of the evaluation process will remain partial. Finally, we might argue that this pattern of evaluation may be explained within the context under study, and specifically by the customers' profile and their organization's characteristics (see Table 1). First, the customers surveyed are highly experienced people and highly educated. Second, more than half of them are engineers working in large firms with an engineering department with several engineers. From these data, we can conclude that the individuals under study are very knowledgeable and perceive themselves as contributing a great deal to the value of the services provided.

Limitations and Future Research

Even though this study adds important information to the process of evaluating professional services to organizations, it points up a real need for further research to consider the antecedents and consequences of perceived value.

Researchers in the future should manipulate monetary and nonmonetary costs to assess their relative importance in the evaluation of quality, value, satisfaction, and behavioral intentions. In this research, these variables have not been manipulated as has been done in many studies pertaining to the concepts investigated here. In further replications, such information would permit stronger tests of the various proposed hypotheses.

The generalizability of the results presented here must be tempered by the fact that the analysis is based on a single professional service. Hence, replications of the study using other professional services might provide supporting evidence of the findings and offer additional insights (Ostrom and Iacobucci, 1995). The overriding importance of perceived sacrifice on perceived value may not necessarily be the same in other organizational populations. Also more testing is certainly

needed on the mediating role that customer satisfaction plays between perceived value and behavioral intentions.

This could be highly context dependent. Consulting engineering services incur a high level of customer participation and high monetary costs. It would be interesting to replicate this study in a professional services context involving less money and then see how industrial customers do these evaluations.

The sacrifice of money is almost equal to the sacrifice of time and effort. However, it would be interesting to replicate this for a much less expensive service. Also of interest would be a replication of this research using a sample of professional service providers. This could temper the results associated with customer participation and could change those associated with the providers as well.

The links among value, satisfaction, and behavioral intentions appear important, which suggests that value may be more meaningful than quality in understanding the process of evaluation of professional services rendered to organizations. Most of the earlier work only addressed the quality-satisfaction-behavioral intentions links, and the results tend to demonstrate inconsistent effects. Additional research is needed to examine all the relationships proposed in the framework shown in Figure 1. This is a domain that offers much opportunity for research.

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