

Striking the Right Balance

Designing Service to Enhance Business-to-Business Relationships

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This article explores how the exchange of social resources delivered by service employees and economic resources provided through service operations creates social and structural bonds that enhance business-to-business relationships. It describes an empirical study of experienced business customers of a large telecommunications company. The study shows that social bonds created by employee-delivered service have a greater influence on customers' satisfaction with company representatives and perceived value, whereas structural bonds created through the exchange of economic resources (financial or operational) have a stronger effect on their overall satisfaction with the organization. Business customers' responses to service design are moderated by the length, nature, and quality of customers' prior experiences with the service organization. Moreover, value mediates the effects of both service and satisfaction on behavioral intentions. The findings provide guidance for managers on how to "strike the right balance" in deploying service personnel and structuring service operations.

Keywords: *Business-to-business relationships; employee-delivered service; interpersonal and interorganizational satisfaction; value perceptions; behavioral intentions*

In business to business markets, service . . . can differentiate (a firm) from the pack, combat margin squeeze, and provide competitively superior value that cost-cutting rivals can't hope to match.

(Donath 2001, p. 8)

Both researchers and practitioners are keenly interested in understanding how service can be used to differentiate and enhance business-to-business relationships (e.g., Dwyer, Schurr, and Oh 1987; Iacobucci and Ostrom 1996; Jap, Manolis, and Weitz 1999). Kumar (1999) provided empirical evidence of the connection between service and the long-term financial performance of business service firms. He inferred that the added value that business cus-

The authors gratefully acknowledge the financial support of the Marketing Science Institute. Authors are listed in alphabetical order and contributed equally to the article.

Journal of Service Research, Volume X, No. X, Month 2003 1-
DOI: 10.1177/1094670502250732
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tomers receive by entering into long-term relationships with service organizations comes from superior service, not from price reductions. In other words, as Berry (1995) argued, service is a key defensive marketing strategy designed to encourage customer loyalty. Surprisingly, the marketing literature provides little guidance concerning how services can be designed to create, maintain, and build relationships that satisfy and provide value to business customers. Despite important studies on the role of communication strategies (Boyle et al. 1992) and pledges (Anderson and Weitz 1992) in maintaining channel relationships, little is known about the influence of service on the satisfaction judgments, value perceptions, and loyalty behaviors of business customers. A few scholars have investigated service design in consumer settings (e.g., Verma, Thompson, and Louviere 1999; Mittal, Kumar, and Tsiros 1999; Ryan, Rayner and Morrison 1999). However, there is little research on service design in business-to-business relationships.

According to Granovetter (1985), interorganizational exchange is embedded in social relationships, so the effect of marketing variables—including service—should be moderated by relationship properties such as the length, nature, and quality of customers' prior experiences with the service organization. Yet Wathne, Biong, and Heide (2001) have observed that there is very little empirical evidence showing how relationship properties influence business-to-business exchanges. Furthermore, in their review article, Weitz and Jap (1995) noted that there is little empirical research about how businesses balance marketing activities designed to affect interpersonal (between company representatives and customer contacts) relationships versus activities designed to influence interorganizational (between firms) relationships. Finally, there is little information in the literature about how the various types of service delivered in business-to-business relationships operate in a nomological net that includes both interpersonal and interorganizational satisfaction, as well as value and behavioral intentions.

In this study, we investigate how service creates social and structural bonds that enhance business-to-business relationships. We address the following questions:

1. How do the social (e.g., mode of contact with representative, type of representative) and structural (e.g., financial or operational) bonds created by service influence the satisfaction levels and value perceptions of business customers?
2. How do business customers make trade-offs between the resources created by these two aspects of service design?
3. How do relationship properties affect the strength and relative impact of social and eco-

nomical investments on the evaluations of business customers?

4. Do the aspects of service that influence business customers' satisfaction judgments and value perceptions of an organization differ from those that affect their interpersonal satisfaction with its representatives?
5. Can increased investment in service employees create social bonds that "buffer" the effect of decreased investment in financial and operational aspects of service?
6. Do interorganizational satisfaction, interpersonal satisfaction, and value perceptions mediate the effects of employee-delivered service (EDS) and service operations on the behavioral intentions of business customers?

We study how service design influences social and structural bonds in business-to-business relationships by developing a model that integrates principles from relationship marketing, social psychology, and economic sociology. Our premise is that in business relationships, customers categorize the resources exchanged as either economic or social, depending on how personalized they perceive them to be (see E. B. Foa and U. G. Foa 1976, 1980; U. G. Foa and E. B. Foa 1974). The multiequation model incorporates hypotheses concerning the effects of social resources provided by EDS (e.g., mode of contact with representative, type of representative) and economic resources provided by service operations (e.g., monetary contract terms, response time guarantees) on business-to-business relationships. The model is estimated with survey data from experienced business customers of a large telecommunications company. We test hypotheses about the moderating effects of social resources and relationship properties. Of particular interest are if and how social resources moderate the effect of service design on outcomes such as satisfaction, perceived value, and behavioral intentions. We also examine the mediating effects of interpersonal and interorganizational satisfaction on perceived value, as well as the mediating effects of perceived value on behavioral intentions.

The unique contribution of this study is that it provides business-to-business service firms with information on how to (a) design services to enhance customer evaluations by deploying social and economic resources, (b) customize service and relationship management activities based on "segmentable" properties of the existing customer-company relationship, and (c) manage initiatives that focus on improving interpersonal relationships with customers and strengthening the overall relationship between the two firms. The results provide guidance to managers regarding how to strike the right balance in designing service strategies that contribute to relationship continuity.

CONCEPTUAL FRAMEWORK

In this section, we discuss how service creates social and structural bonds in business-to-business relationships. We describe how social resources, delivered by EDS, and economic resources, provided via service operations, affect business-to-business relationships. Then, we define and draw distinctions among four key outcomes of business service relationships: interpersonal satisfaction, interorganizational satisfaction, perceived value, and behavioral intentions (see Figure 1 for a depiction of the relationships between these constructs).

Social and Economic Resources Exchanged in Business-to-Business Relationships

Business-to-business relationships involve the ongoing exchange of resources between parties, including individuals and organizations. Such exchanges are “mixed,” in that they involve both economic and social resources (Bagozzi 1975, 1979). Individuals categorize resources by level of particularism—the extent to which they are personalized. Although social resources, such as status, friendship, and help, are high in particularism, economic resources, such as money and products, are low in particularism (E. B. Foa and U. G. Foa 1976, 1980; U. G. Foa and E. B. Foa 1974). Most prior research on business-to-business relationships has focused on the role of economic resources (“pledges”), such as idiosyncratic and transaction-specific investments, in creating commitment and trust (e.g., Anderson and Weitz 1992; Moorman, Deshpande, and Zaltman 1993; Ganesan 1994).

In this study, we focus on two social and economic resources provided by service organizations in business-to-business relationships. We selected resources delivered by service organizations that (a) have conceptual and empirical support in the marketing literature (Bolton and Drew 1994; Iacobucci and Hibbard 1999; Mohr, Fisher, and Nevin 1999; Mohr and Nevin 1990; Weitz and Bradford 1999); (b) have been cited in the business press (e.g., Bell 2001; Ettore 1994; Sakurai 2002; Spencer 2002); (c) are particularly salient to customers, as indicated by our extensive presurvey interviewing of marketing managers and business customers; (d) are easily acted on by managers; and (e) can be manipulated in written scenarios. Hence, we study two social resources: type of service agent (designated account representative or customer service representative) and service contact mode (on-site visit or phone call). We also study two economic resources: monetary contract terms, which in this study are represented by commission rate (increase or decrease from previous contract), and service response time guarantee (faster or slower than previous contract).

Prior research shows that business relationships are strengthened by interorganizational investments in economic resources—for example, financial resources such as pledges (Anderson and Weitz 1992) and operational resources such as service guarantees (Bolton and Drew 1994). They are also strengthened by interpersonal investments in social resources—for example, respect, concern, and advice, which are exchanged between individuals (Crosby, Evans, and Cowles 1990; Suprenant and Solomon 1987). These investments are designed to create social and structural (financial or operational) bonds, in which the strength of the interpersonal relationship is positively related to intention to continue the interorganizational relationship (Wathne, Biong, and Heide 2001). Relationships continue as long as partners are satisfied and perceive value (Bagozzi 1975, 1979). These constructs are discussed in the following paragraphs.

Interpersonal and Interorganizational Satisfaction

Satisfaction is an individual’s judgment of the extent to which an object provides a pleasurable level of fulfillment (Oliver 1999a). Satisfaction can be experienced with respect to any object—a product, a person, an organization, or an event (Oliver 1997). In business-to-business exchanges, there are two relevant relationships: the interpersonal relationship between boundary-spanning agents and the interorganizational relationship between firms (Doney and Cannon 1997). In representing their organizations, customers have both interpersonal and interorganizational goals (Ring and Van de Ven 1989). As individuals, their interpersonal goals include interpersonal satisfaction, which is pleasure gained primarily from the exchange of social resources when they interact with the service representative. As role occupants, their interorganizational goals include interorganizational satisfaction, which is pleasure experienced chiefly from the exchange of economic resources on behalf of their organizations. In a meta-analysis of satisfaction in channel relationships, Geyskens, Steenkamp, and Kumar (1999) drew a similar distinction between noneconomic satisfaction, which is pleasure experienced from the exchange of social resources by boundary-spanning agents, and economic satisfaction, which is pleasure derived from the exchange of economic resources at the organizational level.

Perceived Value and Behavioral Intentions

Following Holbrook (1999), we define *value* as “an interactive, relativistic, preference experience.” That is, the individual interacts with an object, perceives its benefits, compares these benefits to the benefits of similar objects,

FIGURE 1
Relationships Between Interpersonal Satisfaction, Interorganizational Satisfaction, Perceived Value, and Behavioral Intentions

FIGURE 1 ABOUT HERE

NOTE: Other satisfaction antecedents (e.g., disconfirmation, expectations, affect, etc.) and covariates are not shown. The "X" denotes expected interaction effects between social and economic resources. The large arrow indicates that relationship characteristics are expected to moderate the effects of social and economic resources on relationship outcomes. Potential simultaneity among the satisfaction and value constructs has been tested for but not diagrammed.

and arrives at a preference judgment. We focus on the value business customers perceive in their relationships with a service organization. The results of previous research on business-to-business service show that perceived value affects customers' behavioral intentions (Grisaffe and Kumar 1998). We define *business customers' behavioral intentions* to include intentions to renew the contract, make recommendations, and increase patronage (Zeithaml, Berry, and Parasuraman 1996).

Summary of Conceptual Framework and Preface to Hypotheses

In summary, this study investigates how social and economic categories of service resources influence customers' evaluations of business relationships. We investigate the relative importance of these resources, plus possible interaction (i.e., moderating) effects between social and economic resources. We are particularly interested in how social resources—either delivered by employees or embedded in the company-customer relationship—moderate the effects of economic resources that are delivered

through service operations. We also explore how social resources delivered by employees affect satisfaction and value and, in turn, how these overall evaluations operate together to determine business customers' intentions to continue the relationship, build the relationship, and recommend the service provider. The relationships between the constructs depicted in Figure 1 are discussed in the following section.

HYPOTHESES

Resource exchange theory suggests that social resources are more likely than economic resources to be exchanged in a personal relationship, such as that of a service agent and a customer. The corollary is that economic resources are more likely than social resources to be exchanged in an impersonal relationship, such as that between two organizations. A similar argument is implied in the relationship marketing literature but has not been tested empirically (Dwyer, Schurr, and Oh 1987; Geyskens, Steenkamp, and Kumar 1999; Weitz and Jap

1995). Specifically, investments in social capital drive interpersonal relationships (e.g., Coleman 1990), whereas economic investments create switching costs that influence organizational-level evaluations (Williamson 1985). Hence, principles of resource exchange theory and conceptual work in relationship marketing both imply that economic resources, which are integral to service operations, and social resources, which are at the heart of EDS, may have different effects on interpersonal and interorganizational satisfaction. However, no empirical research has either supported or refuted this proposition. Thus, we make the following predictions.

Hypothesis 1: Social resources will have more effect than economic resources on interpersonal satisfaction.

Hypothesis 2: Economic resources will have more effect than social resources on interorganizational satisfaction.

Similarly, economic resources should also have more effect than social resources on perceived value. In business markets, perceived value has been defined as the perceived worth in monetary units of the set of economic, technical, service, and social benefits received by a customer firm in exchange for the price paid for a product offering, considering the offerings and prices available from alternative suppliers (Anderson, Jain, and Chintagunta 1993). This definition implies that business customers frame their value judgments in monetary terms. In interacting with the service agent and the organization, the primary goal of the business customer should be maximizing financial returns to his or her organization (see Sheth and Parvatiyar 2000, p. 9). This goal is best met by higher commission rates and uninterrupted service, which are categorized as economic resources delivered through service operations. Despite the notion that “social benefits” weigh into business customers’ value perceptions, we expect that their evaluations will be more heavily influenced by economic resources exchanged in the relationship with the service provider.

Hypothesis 3: Economic resources will have more influence than social resources on perceived value.

An established precept of behavioral science theories is that context moderates the behavior of individuals. In sociology and economic sociology, this notion is represented by the work of both Granovetter (1985, 1992), who suggests that economic exchange is “embedded” in interpersonal relationships, and Macneil (1980), who proposes that economic transactions occur within a social matrix. Recently, the term *situated action* was coined to describe decisions made in a social context (Vaughn 1998). In social psychology, resource exchange theory suggests that the closeness of a relationship can change the meaning of a

resource (E. B. Foa and U. G. Foa 1976, 1980; U. G. Foa and E. B. Foa 1974). For example, when economic resources, which are low in particularism, are exchanged in close relationships, individuals may categorize them as high in particularism (Brinberg and Castell 1982).

The marketing literature also suggests that relationship properties have moderating effects on customer-company exchanges (Mittal and Kamakura 2001). For example, Oliver (1997) argued that when the circumstances of a service exchange are altered, attributes that consumers view as “satisfiers” may become “dissatisfiers.” A recent study by Wathne, Biong, and Heide (2001) suggests that marketing and service activities involve different kinds of investments and represent different sources of utility, such that the effect of one variable may moderate another. For example, the positive effect of a superior price offering by a new competitor on a business customer’s switching intentions might be reduced when the incumbent supplier has made substantial “social” investments in building an interpersonal relationship with that customer. In other words, social investments in interpersonal relationships may have a “buffering” effect on interorganizational relationships.

Although moderating effects have support in theories of social psychology and economic sociology and are suggested in the marketing channels and service marketing literatures (e.g., Bolton and Drew 1994; Geyskens, Steenkamp, and Kumar 1999; Murry and Heide 1998), the empirical evidence for such effects is meager. Employee-delivered service involves the social and professional behavior of a service agent toward a customer, including gestures of friendliness and respect and advice on building the customer’s business. Higher levels of EDS are believed to augment a firm’s core offering, engendering the development of social bonds and strengthening personal relationships between company agents (Berry 1995). Strong social bonds, in turn, fortify interorganizational relationships, reducing the likelihood of customer defections, *ceteris paribus* (Wathne, Biong, and Heide 2001). Therefore, we propose that social resources provided during contact between boundary-spanning agents may “buffer” the influence of economic investments on interorganizational outcomes. Specifically, we expect that social resources provided by interpersonal interactions with service employees may create a context that moderates the effects of economic resources delivered via service operations.

Hypothesis 4: Social resources will moderate the effects of economic resources on customer evaluations of the business-to-business service relationship.

Properties of the business-to-business relationship, such as its nature and strength over time, should also moderate the effects of social and economic resources on customers’ evaluations and behavioral intentions (Bendapudi

and Berry 1997; Dwyer, Schurr, and Oh 1987; Lusch and Brown 1996; Wilson 1995). Researchers have devoted considerable attention to exploring the main effects of relationship properties on both economic and noneconomic satisfaction; however, they have neglected the possibility that relationship properties have moderating effects (Geyskens, Steenkamp, and Kumar 1999). Although there is little direct evidence of such effects, the results of previous research suggest they are likely to occur. For example, Boulding, Kalra, and Staelin (1999) show that over time, as customers become more experienced and confident in evaluating service, they change their evaluation strategies, weighing prior opinions more heavily than new information. Thus, customers who have longstanding relationships with service providers may need fewer social and economic resources to maintain their levels of satisfaction and value. Some studies show that longer relationships are prone to negative influences that dampen the positive effects of relationship marketing activities (Grayson and Ambler 1999; Moorman, Zaltman, and Deshpande 1992). Hence, as relationships become longer, investments in certain social and economic resources may have diminishing marginal returns.

Mohr and Nevin (1990) suggested that customer satisfaction is contingent on employee-delivered service "matching" the type of relationship in which it is executed. In their recent study of switching intentions in business-to-business markets, Wathne, Biong, and Heide (2001) found interaction effects between relationship dimensions and elements of the marketing mix. Similarly, we predict that the effect of different service "bundles" (i.e., resource exchanges) on business customers' evaluations may depend on certain characteristics of the existing relationship with their service provider.

Hypothesis 5: The effects of social and economic resources on business-to-business relationships will be moderated by relationship properties (e.g., the length, nature, and quality of customers' prior experiences with the service organization).

Previous research shows that the behavioral intentions of consumers depend on prior attitudes and satisfaction levels (Oliver 1980; Bearden and Teel 1983). In a similar vein, we expect the behavioral intentions of business customers to depend on their satisfaction and value judgments. Specifically, we predict that interpersonal satisfaction, interorganizational satisfaction, and perceived value will partially or completely mediate the effects of social and economic resources on behavioral intentions.

Hypothesis 6: Interpersonal satisfaction, interorganizational satisfaction, and perceived value will

partially or completely mediate the effects of social and economic resources on customers' behavioral intentions (regarding repatronage and recommendations).

According to marketing exchange theory, relationships are based on the ongoing exchange of social and economic resources. Relationships continue as long as parties perceive that they have value (Bagozzi 1975, 1979). At the same time, a well-established body of literature shows that customer satisfaction affects the continuity of business relationships (Geyskens, Steenkamp, and Kumar 1999). Conceptual work by Oliver (1997, 1999a) suggests that both satisfaction and value are part of the customer's experience and that satisfaction precedes value in the nomological net. However, little previous research has explored the position of satisfaction, relative to value, in customers' perceptions of business-to-business relationships.

Current conceptualizations of satisfaction and value suggest that they are distinct constructs (Oliver 1999a). However, few studies have explored the complementary influences of satisfaction and value on behavioral intentions in a business-to-business service context. It is also important to note that unlike other models of business-to-business relationships, our model includes both interpersonal and interorganizational satisfaction, as well as value. Prior research has established that customer satisfaction positively affects behavioral intentions (e.g., Anderson and Sullivan 1993; Crosby and Stephens 1987; Tsiros and Mittal 2000). As a benefit of a relationship, satisfaction should also positively affect perceived value (Oliver 1997, 1999a). Thus, the effect of satisfaction on behavioral intentions should be mediated by perceived value. Therefore, we predict that perceived value should have a significant positive effect on behavioral intentions, after controlling for the effects of interpersonal and interorganizational satisfaction.

Hypothesis 7: Customer perceptions of value in the business-to-business relationship will affect behavioral intentions, after controlling for interpersonal and interorganizational satisfaction.

Algebraic Summary

Satisfaction equations. Customer satisfaction with the interpersonal relationship with the service agent (*IPSat*) and customer satisfaction with the interorganizational relationship (*IOSat*) are influenced by the exchange of economic (*Economic*) and social (*Social*) resources. Hypotheses 1 and 2 predict that social resources will exert a stronger influence than economic resources on *IPSat* and that economic resources will exert a stronger influence than social resources on *IOSat*. Furthermore, Hypotheses

4 and 5 predict the existence of certain interaction effects. Specifically, Hypothesis 4 predicts that social resources will moderate the influence of economic resources in determining both *IPSat* and *IOSat*. Hypothesis 5 predicts that relationship properties (*ReIn*) will moderate both social and economic resources in determining both *IPSat* and *IOSat*.

We can test these predictions by incorporating social and economic resources in the classic customer dissatisfaction-satisfaction paradigm in the following way (e.g., Oliva, Oliver, and MacMillan 1992). According to the expectancy disconfirmation paradigm, satisfaction depends on expectations, perceptions of performance, disconfirmation, emotions, and other antecedents (cf. Oliver 1997). Economic and social resources correspond to performance attributes in the customer dissatisfaction-satisfaction literature. Thus, Hypotheses 1, 2, 4, and 5 yield the following algebraic expressions for *IPSat* and *IOSat*.

$$IPSat = f(X_R, Economic, Social, Economic \times Social, Economic \times ReIn, Social \times ReIn, Z), \quad (1)$$

$$IOSat = f(X_O, Economic, Social, Economic \times Social, Economic \times ReIn, Social \times ReIn, Z). \quad (2)$$

Equations (1) and (2) each include a vector (X_R , X_O , respectively) to represent antecedents of customer satisfaction such as expectations, disconfirmation, and emotions. However, our study focuses on the effects of economic and social resources after controlling for these other antecedents. Also, Equations (1) and (2) include a vector (Z) to represent possible covariates such as demographic variables and prior experience.

Value equation. Hypothesis 3 predicts that perceived value (*Value*) will depend on economic and social resources, whereby the magnitude of the influence of economic resources will be greater than that of social resources. Hypotheses 4 and 5 predict that *Value* determination will exhibit the same moderating effects as satisfaction judgments. Hypotheses 1, 4, and 5 can be summarized algebraically in the following equation describing *Value*:

$$Value = f(Economic, Social, Economic \times Social, Economic \times ReIn, Social \times ReIn, Z). \quad (3)$$

Intentions equation. Last, we model business customers' behavioral intentions as a function of economic and social resources, the relationship properties, and their interactions. We include satisfaction judgments and perceived value as mediators (Hypothesis 6) and consider the

complementary influences of satisfaction and value (Hypothesis 7). Algebraically,

$$Intent = f(Value, IPSat, IOSat, Economic, Social, Economic \times Social, Economic \times ReIn, Social \times ReIn). \quad (4)$$

Equations (1) through (4) describe an integrative model of interpersonal satisfaction with company representatives, interorganizational satisfaction, perceptions of value, and behavioral intentions in business-to-business service relationships. The remainder of this article tests our seven hypotheses by operationalizing and estimating the above four equations.

RESEARCH DESIGN

Study Context

The study's target population was experienced business customers of the pay telephone operations of a large telecommunications company.¹ Customers included large and small (profit and not-for-profit) organizations in a wide variety of industries, including restaurants, hotels, motels, office buildings, retail stores, hospitals, colleges, service stations, and recreational facilities. These organizations have contractual relationships with the telecommunications company; they act as its agents and accrue revenue (i.e., commission) based on end users' pay telephone usage. Survey respondents were decision makers who managed the organization's pay telephone operations.² Respondents were involved (to varying degrees) in decisions about the initial selection of a pay telephone provider, contracts and their renewal, and the number of pay telephones on the premises—as well as interactions with the telecommunications company's representatives and technicians regarding repair and maintenance service, contracts, and the processing of commission checks.

The company's pay telephone operations used two different service delivery systems across different geographic regions due to a past merger. The key difference

1. In our study, the core service is provision of payphone service to organizations. One way to customize this service is to designate service representatives to work with specific organizational accounts. Payphone service is not priced in the conventional sense. Rather, the "cost" to the organization is space; installation, maintenance, and repair are free. By providing payphone service for their customers, organizations stand to "gain" directly and indirectly—directly from the commission earned on payphone revenue and indirectly from the goodwill of customers of the primary business, who appreciate the convenience.

2. The telecommunications company identified the decision maker based on internal records, and this identification was verified in the mail survey using a few brief qualifying questions concerning pay telephone decisions.

between the two service delivery systems was that one system was designed to include customer service representatives (CSRs), who handled inbound calls to a service center, whereas the other system was designed to use designated account representatives (DARs), who visited specific customers and handled their inbound calls. Due to the existence of two service delivery systems, there was considerable variety of experience across survey respondents with the service, yet there was relative homogeneity of experience with other marketing activities. This feature is desirable because it enhances internal validity (service delivery activities are not confounded with other marketing activities) and external validity (we can generalize across two different service delivery systems).

Design Overview

A mail survey was the mechanism for administering experimentally generated scenarios (i.e., conjoint profiles) describing mixed exchanges in the service delivery system. The scenarios presented information about service encounters involving economic and social resource exchanges, set in the context of an actual ongoing relationship with the service provider. Thus, in reading the scenarios, customers “experienced” the service described. They then provided evaluations of the company’s representative, the company as a whole, and the value derived from their relationship with the company.

The primary advantage of using experimentally generated scenarios is that they create variability within the service delivery system (while holding other factors constant) and allow for systematic investigation of the effects of service on customers’ perceptions of the value derived from a relationship. The use of scenarios also reduces biases from memory lapses, rationalization tendencies, and consistency factors, which are common in results based on retrospective self-reports. Note that satisfaction research requires postconsumption evaluation of a customer’s experience, whereas conjoint analysis studies typically involve scenarios that are unrelated to experience. Hence, we carefully constructed our scenarios around consumption experiences familiar to pay phone managers and administered them in the context of an ongoing relationship. There is ample precedent for this approach (Green and Krieger 2002; Verma, Thompson, and Louviere 1999).

The format of the questionnaire was as follows. Respondents began by answering a series of questions about their experiences with the telecommunications company, such as the number of pay telephones, the duration of the relationship, and other relationship properties. We then elicited cumulative measures of interpersonal and interorganizational satisfaction and value.³ Next, after reading some detailed task instructions, respondents were

exposed to a scenario. While viewing the scenario, respondents completed two tasks: (a) a concurrent verbal protocol, elicited with instructions to “briefly write any thoughts or feelings you have about [this] experience,” and (b) new ratings of satisfaction, perceived value, and behavioral intentions, elicited using fixed-format scales as shown in Table 1. Last, they provided demographic and classification information (e.g., company size in revenues, respondent characteristics).

Experimental Design

We manipulated two social resources (i.e., EDS) and two economic resources (i.e., the structure of service operations). The specific resources used in the experimental manipulations were generated, selected, and confirmed after extensive on-site visits and interviews with customers (pay telephone administrators and managers) as well as service agents and marketing managers of the telecommunications company. Interviews with service agents were conducted both in the field during “ride-alongs” prior to and after customer visits and in customer call centers. Interviews with marketing managers were held on-site in three major cities. The social resources were service encounter mode (company-initiated on-site visit/customer-initiated telephone call) and type of representative (DAR/CSR). The economic resources were commission (% increase/% decrease) and service level (repair guarantee 24/72 hours).

Our categorization of resources as social and economic was confirmed in a survey of an independent sample of 68 MBA students, the majority of whom had managerial experience. We presented them with a list of resources, accompanied by definitions of *economic* and *social* (Geyskens, Steenkamp, and Kumar 1999). Respondents then positioned each of the resources on a 7-point bipolar adjective scale, with endpoints of *economic* (1) and *social* (7). A *t* test of the difference in means between the two categories of resources indicated that the social and economic resources were perceived differently ($t = 13.2, p < .005$). A full factorial design was used, which yielded 16 (2^4) scenarios. Scenarios were completely randomized among respondents. A sample scenario is shown in Table 1.

Measurement of the Four Dependent Variables

Measures of the four dependent variables—interpersonal satisfaction with the representative, interorganizational satisfaction, perceived value, and behavioral

3. These measures are similar to the items shown in Table 1, except that they are prefaced by the phrase “Based on all your experiences” rather than “Assuming you had this experience.”

TABLE 1
Experimental Manipulations and Measures

Sample Scenario

You *receive a visit* from (make a call to) a representative of your pay phone company to discuss your contract.

The representative is your *designated account representative* who visits and calls you regularly and is knowledgeable about your particular account (a service representative whom you have never met).

You are told that the company is *increasing* (decreasing) your commission rate by 5%.

You are also told that repair service will be guaranteed within *24 hours* (72 hours).

Measures of Dependent Variables

Interpersonal satisfaction

Assuming you had this experience, how would you feel about the company's representative?
Very dissatisfied (1) . . . *Very satisfied* (7)

Interorganizational satisfaction

Assuming you had this experience, how would you feel about the company?
Very dissatisfied (1) . . . *Very satisfied* (7)

Perceived value

Based on this experience, XXX provides very good value.
Strongly disagree (1) . . . *Strongly agree* (7)

Behavioral intentions

Assuming this experience happened to you, how likely would you be to:

Renew your XXX pay phone contract?
Not at all likely (1) . . . *Very likely* (7)

Recommend XXX pay phone service to another organization?
Not at all likely (1) . . . *Very likely* (7)

Consider installing additional XXX pay phones (if you had the need)?
Not at all likely (1) . . . *Very likely* (7)

TABLE 2
Descriptive Statistics

Variable	Mean or %	Standard Deviation
Length of relationship between organizations (years)	13.64	11.01
Number of pay telephones managed	10.98	41.40
Customers with an active role in the relationship (%)	56	NA
Customers who have experience with a DAR (%)	34	NA
Customers with service delivery System A (versus B) (%) ^a	36	NA
Overall value	4.07	1.93
Interpersonal satisfaction with representative	4.11	1.85
Interorganizational satisfaction	3.83	1.99
Behavioral intentions	4.04	2.05
Customers reporting normative expectations (%)	15	NA
Customers reporting unfavorable disconfirmation (%)	12	NA
Customers reporting negative emotions (%)	6	NA
Customers reporting positive emotions (%)	27	NA

NOTE: NA = not applicable.

a. Recall that the company used two different service delivery systems across different geographic regions due to a past merger. The key difference between the two service delivery systems is that one system used customer service representatives (CSRs), whereas the other system used designated account representatives (DARs).

intentions—are shown in Table 1. These self-report measures are frequently used in telecommunications industry

surveys. *IPSat* and *IOSat* are each measured by a single overall item adapted from Oliver and Swan (1989). *Value* is measured by a single overall item adapted from Bolton and Drew (1991). Behavioral *Intent* is adapted from a scale developed by Zeithaml, Berry, and Parasuraman (1996). It is an index composed of three items: contract renewal, positive word of mouth, and increased patronage.

Prior to the main study, two pretests were conducted to develop and evaluate the measures used in the study, as well as to test the experimental manipulations describing resource exchange in the business-to-business service relationship. The draft questionnaire was pretested using face-to-face concurrent think-aloud interviews with customer agents to identify comprehension, retrieval, evaluation, and response problems (Bolton and Bronkhorst 1995). In the second pretest, a revised draft of the questionnaire was completed by a group of 161 customers of the focal organization.

Survey Administration

For the main study, customer contacts were identified from internal company records, and surveys were mailed to all organizations with two or more pay telephones. To encourage cooperation, the method of survey administration included a telephone prealert, a cover letter from the researchers on university letterhead, and a cash incentive (\$15, with the option to donate to charity) for completing and returning the survey. In addition, respondents were

given the opportunity to enter a drawing for a \$500 cash prize. This method yielded responses from 387 pay telephone managers—a response rate of 10%. Descriptive statistics concerning the respondents are shown in Table 2. The characteristics of the responding organizations did not differ from nonrespondents on key comparable dimensions (e.g., distribution across states, organization size). Statistical analyses indicated that the data could be pooled across the two service delivery systems, after accounting for relationship properties. (F tests rejected the null hypothesis that the vectors of coefficients from two regression equations estimated with unpooled data were equal, $p > .50$.) Hence, we report results from the analysis of pooled data.

PRELIMINARY ANALYSES AND ESTIMATION PROCEDURE

This section describes how we tested our seven hypotheses by operationalizing Equations (1) through (4) and estimating them with a simultaneous equations estimation procedure.

Operationalization of Equations (1) Through (4)

The predictor variables in Equations (1) through (4) were operationalized in the following way. Indicator variables (i.e., zero/one variable) represent the experimental manipulations of social and economic resources in all three equations. Interaction terms statistically different from zero at $p < .10$ were retained in each equation. Because many researchers have suggested that customer evaluations of services may be influenced by prior experience with the organization and demographic characteristics (e.g., Zeithaml, Berry, and Parasuraman 1993), we tested for the inclusion of covariates in each of the equations. Covariates that were statistically different from zero at $p < .10$ were retained in each equation. In both instances, a conservative selection criterion was used to avoid potential problems of omitted variable bias.

Unfavorable disconfirmation, normative expectations, negative emotions, and positive emotions in the *IPSat* and *IOSat* equations (i.e., Equations (2) and (3)) were represented by indicator variables coded from the verbal protocols. The (objective) coding scheme is described in the appendix. Predictive expectations were represented by a lagged dependent variable elicited prior to the experimental manipulation (i.e., prior satisfaction). Customers' prior perceptions of value (*Prior Value*) were controlled for in the *Value* equation by including the value rating elicited prior to the experimental manipulation as a covariate.

It is important to note that unlike other models of business-to-business service relationships, our integrative model is comprehensive in its inclusion of interpersonal satisfaction, interorganizational satisfaction, and value. Furthermore, any significant main or interaction effects on customer evaluations relating to social and economic resources we observe in our model are realized *after* controlling for the influences of expectations, disconfirmation, emotions, prior evaluations, and other covariates (e.g., individual characteristics). Therefore, our results should be unusually robust compared to other business-to-business service relationship models.

Estimation Procedure

Two features of the model influenced the selection of the estimation procedure. First, we noted that *IPSat*, *IOSat*, and *Value* may act as partial or complete mediators of economic and social resources in Equation (4) and possibly in Equations (1) through (3). In other words, these three variables may appear as both dependent variables and predictor variables in our model. Second, the measurement errors in these equations may be positively correlated. (A positive correlation is likely because the four dependent variables are measured on similar 7-point scales and are located at the same point in the survey—that is, directly after the experimental manipulation.) In other words, the model specification errors in Equations (1) through (4) are correlated. Hence, a two-stage least squares (2SLS) estimation procedure was used (Johnston 1972).

Mediation Tests

Value and satisfaction are influenced by many of the same antecedents, and Oliver (1999a, 1999b) has suggested that satisfaction can be a precursor to value. Although we did not state a formal hypothesis concerning this possibility, we tested whether either *IPSat* or *IOSat* acts as partial or full mediators in the *Value* equation. Furthermore, recall that Hypotheses 6 and 7 predict that *Value*, *IPSat*, and *IOSat* may act as partial or full mediators of economic and social resources in the behavioral intentions equation. We tested for the presence of these mediator variables in Equations (3) and (4) using a procedure described by Baron and Kenny (1986).⁴ The results of these

4. The procedure can be illustrated as follows. The criteria that must be met to demonstrate the existence of mediator variables in Equation (4) are as follows. First, economic and social resources must affect the mediators (*Value*, *IPSat*, and *IOSat*) in Equations (1) through (3). Second, economic and social resources must directly affect *Intent* (i.e., in a reduced-form version of Equation (4)). Finally, when the effect of each mediator variable is controlled in Equation (4), the previously significant effect of economic and social resources on *Intent* must be eliminated (complete mediation) or at least significantly reduced (partial mediation).

TABLE 3
Summary of Results of Mediator Tests

Description of Test Significance of Mediator in Step 3 of Test Elimination or Substantial Reduction in Significant Effects of Independent Variable(s) in Step 3 of Test Conclusion

<i>IPSat</i> as a mediator of the relationship between economic/social resources and <i>Value</i> in Equation (3)	<i>IPSat</i> , $p = .270$	No	Not a mediator
<i>IOSat</i> as a mediator of the relationship between economic/social resources and <i>Value</i> in Equation (3)	<i>IOSat</i> , $p = .001$	Yes, substantial reduction in significant effects of economic/social resources	Partial mediator
<i>IPSat</i> , <i>IOSat</i> , and <i>Value</i> as mediators of the relationship between economic/social resources and <i>Intent</i> in Equation (4)	<i>IPSat</i> , $p = .970$; <i>IOSat</i> , $p = .149$; <i>Value</i> , $p = .007$	Yes, complete elimination of significant main effects and substantial reduction of significant interaction effects of economic/social resources	<i>Value</i> completely mediates the main effects and partially mediates the interaction effects of economic/social resources. Note: <i>Value</i> also completely mediates the effects of <i>IPSat</i> and <i>IOSat</i> on <i>Intent</i> and accounts for most of the explained variance.

NOTE: Mediation tests were conducted following the procedure of Baron and Kenny (1986).

tests indicate that *IOSat* is a partial mediator of the effects of economic and social resources on *Value*, and *Value* is a mediator in the *Intent* equation. *IPSat* is not a mediator in either equation. The mediation tests are summarized in Table 3. The results and implications of these mediation tests are discussed more fully in the next two sections.

RESULTS

The results of the estimation procedure for Equations (1) through (3) are displayed in Table 4, and the results for Equation (4) are displayed in Table 5. The signs and magnitudes of the coefficients of the manipulated service attributes are consistent with managerial intuition. Specifically, all four of the manipulated attributes are significant in the *IOSat* equation, and three of the four manipulated attributes are significant in the *IPSat* equation. In the *Value* equation, two of the four manipulated attributes (commission and a visit) describing the service delivery system are statistically significant. However, *IOSat* mediates the effects of social and economic resources on *Value*, so that all four manipulated variables have indirect effects on *Value*. Thus, as we might expect, customers' satisfaction judgments and perceptions of value are positively related to higher levels of social resources (e.g., on-site visit) and economic resources (e.g., higher commissions). Unexpectedly, business customers perceive a company-initiated visit as less valuable than a customer-initiated telephone call. Although both a visit and a phone call are social resources, a company-initiated visit may be viewed as a disruption. Telephone access to

service representatives, on the other hand, may be considered a convenience (i.e., customization). The vector of coefficients in each of the four equations is statistically different from zero ($p < 0.001$). The predictor variables explain a substantial portion of the variance, with *R*-squared values ranging from 0.42 to 0.53. Statistical tests identified the presence of interaction effects in all four equations. The remaining paragraphs describe our tests of Hypotheses 1 through 7. Table 6 summarizes our findings concerning the seven hypotheses.

The Relative Importance of Social and Economic Resources (Hypotheses 1-3)

We assessed the relative importance of social and economic resources by examining the standardized coefficients of the regression equations. (In Tables 4 and 5, the standardized coefficients have been converted to show the percentage of the explained variance in the dependent variable.) Hypotheses 1 and 2 are supported. Social resources exert more influence than economic resources on interpersonal satisfaction (*IPSat*) (27% vs. 24%), whereas economic resources exert more influence than social resources on interorganizational satisfaction (*IOSat*) (30% vs. 22%).⁵ Hypothesis 3 is not supported; social resources exert a stronger influence than economic resources on customer perceptions of value (31% vs. 22%).⁶ Of the social

5. As pointed out by Wathne, Biang, and Heide (2001), in conjoint studies, importance weights must be interpreted with some caution because they depend on the specific attribute levels included in the study.

6. These numbers include the indirect effects of economic and social resources via *IOSat*, as well as the direct effects. The indirect effects of

TABLE 4
Two-Stage Least Squares Results for Equations (1), (2), and (3)

Predictor Variables	Interpersonal Satisfaction		Interorganizational Satisfaction		Perceived Value	
	Coefficient	Explained Variance	Coefficient	Explained Variance	Coefficient	Explained Variance
Intercept	3.29		2.64		0.58	
Endogenous variables					b	
Interpersonal satisfaction ^a						
Interorganizational satisfaction ^a					0.69***	0.52
Perceived value ^a						
Social resources						
DAR (vs. CSR)	0.92***	0.20	1.08***	0.18	-0.08	0.00
Visit (vs. call)	-0.53**	0.07	-0.48**	0.04	-1.24*	0.20
Economic resources						
Commission increase (vs. decrease)	0.06***	0.24	0.08***	0.22	0.04*	0.05
Service guarantee 24 hour (vs. 72 hour)	-0.02	0.00	0.75***	0.08	0.22	0.01
Resource interactions						
DAR × Guarantee			-0.59*	0.04		
Relationship properties						
Prior Value × Visit					0.22*	0.20
Active role	-0.47**	0.05	-0.53**	0.04		
Active Role × Visit	0.54*	0.06	0.78**	0.08		
Active Role × Commission	0.04*	0.05	0.04**	0.03		
Experience With DAR × Guarantee			-0.67***	0.04		
Years × Commission			0.22**	0.05		
Satisfaction antecedents						
Predictive expectations	0.13**	0.03	0.17***	0.03		
Normative expectations	-0.63***	0.05	-0.79***	0.05		
Disconfirmation	-0.64***	0.04	-0.74***	0.03		
Negative emotions	-0.89***	0.04	-0.95***	0.03		
Positive emotions	0.93***	0.16	0.70***	0.06		
Covariates						
Prior value					0.12	0.01
Gender: female					0.37**	0.02
F statistic	18.17***		22.91***		36.52***	
R ²	0.42		0.53		0.49	

NOTE: Explained variance is expressed as a percentage of total explained variance. It is calculated as the square of the standardized coefficient, standardized to sum to 1. Values may not sum exactly to 1 because of rounding. CSR = customer service representative; DAR = designated account representative.

a. Denotes the predicted value of the variable.

b. The predicted endogenous variable was tested and found to be completely mediated. Therefore, it was omitted from the final system of equations.

* $p \leq .01$. ** $p \leq .05$. *** $p \leq .001$.

resources, the DAR positively affected both interpersonal and interorganizational satisfaction. However, on-site visits actually detracted from satisfaction and value, with most customers preferring telephone contact. However, further analysis shows that both the type of service agent and the mode of contact were subject to moderating effects.

Interaction Effects Between Social and Economic Resources (Hypothesis 4)

We observe an interaction between a social resource (DAR) and an economic resource (24-hour repair service

economic resources are 16% (0.52×0.30), and social resources are 11% (0.52×0.22).

guarantee) in the *IOSat* equation. This result indicates that when a DAR communicates a faster repair service guarantee, customers are less satisfied than when it is communicated by a CSR. Although social resources do not *directly* moderate the effects of economic resources on either *IPSat* or *Value*, they have an *indirect* moderating effect—via *IOSat*—on *Value*. These findings provide support for Hypothesis 4.

Moderating Effects of Relationship Properties (Hypothesis 5)

In this study, relationship properties include the nature of the respondent's interactions with the supplier's employees (*Active Role*), prior beliefs about value (*Prior Value*), prior experience with a designated account repre-

TABLE 5
Two-Stage Least Squares Results for
Equation (4): Relational Intentions

Predictor Variables	Full Model		Reduced Model ^a	
	Coefficient	Explained Variance	Coefficient	Explained Variance
Intercept	0.16		0.21	
Endogenous variables				
Interpersonal satisfaction ^b	0.01	0.00	c	
Interorganizational satisfaction ^b	0.41	0.34	c	
Value ^b	0.59***	0.59	0.95***	0.93
Economic resources				
Commission increase	0.00	0.00	0.01	0.01
Service guarantee—24 hour	-0.02	0.00	-0.02	0.00
Social resources				
DAR	-0.32	0.02	-0.12	0.00
Visit	0.03	0.04	0.05	0.04
Resource interactions				
Visit × Commission	0.04**	0.03	0.04**	0.03
F statistic	44.93***		58.74***	
R ²	0.54		0.53	

NOTE: Explained variance is expressed as a percentage of total explained variance. It is calculated as the square of the standardized coefficient, standardized to sum to 1. Values may not sum exactly to 1 due to rounding. DAR = designated account representative.

a. Indicates that because the effects of *IPSat* and *IOSat* were found to be completely mediated by *Value*, a reduced form of the *Intent* equation that omits these variables is also presented.

b. Denotes the predicted value of the variable.

c. Indicates that the predicted endogenous variable was found to be completely mediated and was therefore omitted in the final system of equations.

** $p \leq .05$. *** $p \leq .001$.

representative (*Experience With DAR*), and length of the interorganizational relationship (*Years*). Statistically significant interaction effects occur not only in the *IPSat* and *IOSat* equations but also in the *Value* equation. These results highlight the effect of relationship properties on how customers evaluate the business-to-business relationship.

Effects on interpersonal and interorganizational satisfaction. Overall, respondents who interact actively with the supplier's service representatives and repair technicians show lower levels of interpersonal and interorganizational satisfaction than other customers. However, they have higher utility for on-site visits and increased commission rates (in terms of enhanced satisfaction).

Customers who have prior experience working with a DAR are less satisfied than other customers by a guarantee of faster service. (Note: This finding is consistent with the Guarantee × DAR interaction effect described previously.) Customers who have a DAR may consider that a service guarantee (an economic resource) "cheapens" the relationship. Conversely, customers who have no experience

working with a DAR are more satisfied by such a guarantee. Duration of the relationship (*Years*) moderates the effect of higher commission on satisfaction with the organization. Customers in longer relationships experienced more interorganizational satisfaction than other customers when they received higher commission.

Effects on perceived value. Relationship properties also moderate the effects of social/economic resources on perceived *Value*. Customers perceive more value from an on-site visit if they have higher levels of perceived prior value (Prior Value × Visit). Perceived *Value* is also affected by relationship properties through *IOSat* because *IOSat* mediates the effects of social and economic resources. Hence, our results indicate that relationship properties moderate (directly and indirectly through *IOSat*) the effect of social and economic resources on business customers' perceptions of value. These results provide strong support for Hypothesis 5.

Mediation Tests and the Effect of Value on Behavioral Intentions

In Hypothesis 6, we predict that *Value*, *IPSat*, and *IOSat* partially or fully mediate the effects of social and economic resources on *Intent* (see Equation (4)). In Hypothesis 7, we predicted that *Value* would be statistically significant after controlling for the effects (if any) of *IOSat*. Our results are consistent with Hypotheses 6 and 7 because we find that *Value* mediates the effects of economic and social resources on *Intent*. Interestingly, *IPSat* and *IOSat* do not function as partial mediators of economic and social resources on *Intent*. This result can be explained by the fact that *IOSat* influences *Value*, thereby indirectly affecting *Intent*. In other words, *Value* completely mediates the effects of *IPSat* and *IOSat* on *Intent*, providing strong support for Hypothesis 7. *Value* accounts for the majority (59%) of the explained variance in customers' behavioral intentions.

DISCUSSION AND IMPLICATIONS

Unlike prior research on business-to-business service relationships, this study (a) treats service as a "bundle of resources" that an organization can employ to build relationships with business customers; (b) introduces an integrated model of business-to-business relationships that considers both interpersonal and interorganizational satisfaction, as well as value (while accounting for the effects of expectations, disconfirmation, emotion, and prior evaluations); (c) examines how relationship properties can affect the influence of service design on business customers' evaluations of a service organization; and (d) uses a con-

TABLE 6
Summary of Hypothesis Tests and Results

	<i>Proposition</i>	<i>Statistical Test</i>	<i>Result</i>
Hypothesis 1	Social resources will exert more influence than economic resources on customers' interpersonal satisfaction with the service representative.	Comparison of explanatory power of social resources versus economic resources in IPSat equation, using standardized coefficients	Supported
Hypothesis 2	Economic resources will exert more influence than social resources on customers' satisfaction with the interorganizational relationship.	Comparison of explanatory power of economic resources versus social resources in IOSat equation, using standardized coefficients	Supported
Hypothesis 3	Economic resources will exert more influence than social resources on customers' perceived value.	Comparison of explanatory power of economic resources versus social resources in Value equation, using standardized coefficients	Not supported
Hypothesis 4	The effect of economic resources will be moderated by the influence of social resources.	Test for interactions between economic and social resources in Equations (1), (2), and (3)	Supported (via IOSat)
Hypothesis 5	The effect of economic and social resources on perceived value will be moderated by relationship properties, such as duration.	Test for interactions between economic/social resources and relationship covariates in Equations (1), (2), and (3)	Supported
Hypothesis 6	Value, IPSat, and IOSat will partially or completely mediate the effects of economic and social resources on behavioral intentions.	Statistical test for partial or complete mediation	Value is a complete mediator of main effects and a partial mediator of interaction effects.
Hypothesis 7	Perceived value will affect behavioral intention, after accounting for the effects of satisfaction.	Statistically different from zero main effect in the Intent equation	Supported

joint task to examine service design in the context of an ongoing business-to-business relationship. Our results show that in building interorganizational relationships, social bonds created through EDS can be stronger than structural bonds developed through financial and operational aspects of service. At the same time, EDS can moderate how customers respond to other elements of service. Properties of the relationship, including customers' perceptions of prior value, their prior interactions with the supplier's employees, and previous experience working with a designated account representative, as well as length of the interorganizational relationship, may also have moderating effects. Finally, in business-to-business relationships, service should be designed not only to satisfy customers but also to enhance perceptions of value.

Social and Economic Resources Have Different Effects on Business Customers' Perceptions of a Relationship

Both social and structural bonds affect customer satisfaction and value. However, there are differences in the relative importance of their effects. Social resources have more influence than economic resources on both interper-

sonal satisfaction (*IPSat*) and perceived value. In contrast, economic resources have more effect than social resources on interorganizational satisfaction (*IOSat*). Our results suggest that business customers discriminate between aspects of service attributable to the service agent and to the organization. Therefore, the service agent can create goodwill for the organization—but other aspects of service delivery, such as repair service guarantees or changes in commission rates, will be attributed to the organization. Our results lend support to marketing theory, which posits that social and economic resources have different effects on relationships (Dwyer, Schurr, and Oh 1987).

Social Bonds Can Be Stronger Than Structural Bonds in Interorganizational Relationships

Social and economic resources affect perceived value both directly and indirectly through interorganizational satisfaction. Managers may be surprised, however, that social resources can have more effect than economic resources on perceived value. In presurvey interviews, marketing managers of our focal company expressed the belief that economic resources, particularly revenue, are

the primary drivers of satisfaction and value. Indeed, research on business-to-business relationships shows (not surprisingly) that economic resources are significant drivers of relationships (see Ganesan 1994; Moorman, Deshpande, and Zaltman 1993). In fact, Wathne, Biong, and Heide (2001) found that price dominated the effects of relationship factors and other marketing activities on business customers' intentions to switch to an alternative supplier of financial services. Nevertheless, our findings suggest that in some business-to-business service relationships, customers derive more value from EDS than from service operations with more explicit "monetary" benefits. This lends empirical evidence to the notion that social and emotional bonding can transcend economic exchange, even in business-to-business relationships (Sheth and Parvatiyar 2000).

Managers Should Monitor the Effects of Reductions in Employee-Delivered Service

EDS is viewed as the "essence" of business-to-business relationships (Cannon and Narayandas 2000). Despite its apparent strategic importance, EDS is being reduced in many markets as technology-enhanced customer service systems are introduced (Bell 2001; Cannon and Narayandas 2000; Spencer 2002). Reductions in EDS are most obvious in retail operations; however, they are also occurring in business-to-business markets (Lorge 1997; Sheth and Parvatiyar 1995; Parvatiyar and Sheth 2000; Sakurai 2002). Proponents of reducing "the personal touch" argue that customers are "just as satisfied" by less personal contact with service employees and appreciate the convenience of 24-hour, 7-day service (Bell 2001). Despite substantial expenditures on technology-enhanced service systems, little is known about the effect of reducing employee-delivered service on relationship outcomes (Krauss 2002).

Despite the importance of these issues, prior research has given us little understanding of the mechanisms by which social bonds influence (via main effects or moderating effects) interorganizational relationships. This study demonstrates how service attributes common to many organizations—company initiated on-site visits, customer-initiated telephone calls, deployment of DARs and CSRs—influence interpersonal and interorganizational satisfaction and also business customers' perceived value. From a managerial perspective, our findings offer insights into how firms can deliver service in ways that build interpersonal and interorganizational relationships. This issue is critical for service organizations in which managers are increasingly "trading off" resources in the deployment of EDS and technology-driven service. Specifically, our re-

sults show that EDS has a substantial influence on both interpersonal and interorganizational satisfaction, indicating that customers care about a "familiar face" and a "personal touch" (Sakurai 2002). This observation is reinforced by the effect of emotions, which we elicited via verbal protocols. This finding should give pause to managers considering reductions in employee-delivered service. Thus, our results suggest that reductions in EDS should be carefully monitored to ensure that they are not detracting from customer satisfaction and perceived value (see Krauss 2002; Sheth and Parvatiyar 2000).

Business Customers' Trade-Offs Reflect Complex Reactions to Service Design

Our results suggest that in their relationships with service providers, business customers jointly assess service bundles and make trade-offs between social and economic resources. In particular, elements of EDS interact with economic resources to affect interorganizational satisfaction and behavioral intentions. For example, in this study, customers accepted enhancements in EDS as compensation for some reductions in operational levels of service (e.g., slower repair). This result is consistent with the results of research in consumer markets showing that social resources, such as an apology, are more effective than economic incentives, such as a discount, in restoring customer satisfaction after a service failure (Smith, Bolton, and Wagner 1999).

Service marketing managers should be aware that EDS creates an exchange context that can alter how customers respond to elements of service operations, sometimes in unexpected ways. Innocuous encounters can become defining events that affect prospects for continuing the relationship. To illustrate, customers evaluated both the provision of a DAR and an improved service guarantee positively. However, the interaction of the two strategic elements had a negative effect on interorganizational satisfaction. In the context of a DAR, the service guarantee may have been viewed as tactically inappropriate (see Mohr and Nevin 1990; Ostrom and Hart 2000). Thus, although an improved service guarantee should be a "satisfier" for most customers, the direction and strength of its effect on satisfaction depend on the type of service agent who delivers the message.

Our results show that neither an on-site visit nor an increase in commission significantly affects behavioral intentions. However, when a visit is combined with higher commission, the effect on behavioral intentions is both positive and significant. Although customers might normally consider commission to be an impersonal, economic incentive to continue the relationship, the exchange

context of a visit appears to alter its meaning to that of a relationship builder. Brinberg and Castell (1982) observed a similar effect among individuals, in which a resource initially categorized as economic was interpreted as social because of relationship properties.

Our results suggest that for service managers and agents, “forewarned is forearmed.” They need to be aware that business-to-business relationships can be complicated by interactions between social resources provided by EDS and economic resources delivered via service operations. In the spirit of one-to-one marketing, service agents should have access to databases with complete information on the “bundle” of employee-delivered and operational service attributes available to each customer. They should also be aware that customers’ reactions to changes in service operations may depend on how these changes are communicated.

Business Customers’ Responses to Service Depend on Relationship Properties

Our results show that relationship properties moderate the effects of social and economic resource exchange on business customers’ satisfaction and value. This finding is consistent with theories of organizational behavior and economic sociology (e.g., Granovetter 1985, 1992; Gutek 1997; Macneil 1980; Vaughn 1998), which suggest that resource exchange is context specific. This finding is also supported by resource exchange theory, which suggests that the meaning of a resource to an individual is contingent on the type of relationship in which it is exchanged (E. B. Foa and U. G. Foa 1976, 1980; U. G. Foa and E. B. Foa 1974). Our results define specific circumstances under which moderating effects may occur. For example, the duration of the interorganizational relationship interacts with commission to enhance interorganizational satisfaction. Prior conceptual work in both the service marketing (Bendapudi and Berry 1997; Wilson 1995) and channels (Dwyer, Schurr, and Oh 1987; Ganesan 1993, 1994; Lusch and Brown 1996) literatures suggests that the length of a relationship may moderate the effects of marketing activities on satisfaction and value, but the effect has been difficult to detect. Our results provide empirical support for this moderating effect.

Business Customers’ Responses Are Relative to Prior Perceived Value and the Nature of Interactions With Service Employees

Customers’ perceived prior value and the nature of their interactions with the supplier’s employees moderated the

effects of on-site visits. In addition, the nature of customers’ interactions with the supplier’s employees and duration of the relationship interacted with commission. Finally, customers’ prior experience working with a DAR moderated the effects of a service guarantee. It is particularly interesting that the effect of on-site visits was moderated by relationship properties (*Prior Value* and *Active Role*) because personal interaction is a key component of employee-delivered service. On-site visits have more effect on perceived value when customers have high prior evaluations of the service organization. Among such customers, value is a perceptual asset an organization can leverage to generate “value added” from its EDS. An established reputation for providing good value to the customer creates a “halo” effect; by positioning itself as providing value, an organization creates a context that enhances customers’ perceptions of value in succeeding encounters. The *caveat* is that customers who do not have strong perceptions of prior value may view on-site visits as token gestures, or worse—strong-arm tactics or rude interruptions that detract from value. To create value and enhance the behavioral intentions of “low prior value” customers, organizations have to work harder and expend more resources to achieve the same benefit. Thus, to enhance the efficiency and effectiveness of on-site visits, organizations need to be knowledgeable about the perceptual context in which their service agents are operating.

Prior Interactions With Service Employees Influence Subsequent Customer Reactions

The respondent’s role within the customer organization moderated the effect of both on-site visits and commission on interpersonal and interorganizational satisfaction. The main effect of on-site visits indicates that, in general, visits were viewed negatively by customers. However, respondents who played an active role in the relationship—that is, interacting with service employees—evaluated on-site visits positively. From a managerial perspective, this is encouraging because on-site visits (though more expensive than phone contact) provide opportunities for service agents to learn about their customers’ businesses, make add-on sales, and gain competitive intelligence. Although the main effect of commission was positive, indicating that customers experienced higher levels of satisfaction from an increase in commission, customers who interacted with service employees were even more likely than other customers to be satisfied by higher commission.

Our findings suggest that service providers get more “mileage” (enhanced customer satisfaction and greater perceived value) out of EDS and service operations when

customer contacts interact actively with service agents. These “boundary-spanning” employees occupy a critical position in the interorganizational relationship. As managers, they contribute to the profitable operation of the business unit by “partnering” with service agents and technicians to develop the business. They may also serve as decision makers or as internal liaisons to decision makers.

Service providers may generate more value added from their service initiatives if they allocate resources according to the context of the relationship they have with their business customers. For example, the organization in this study currently requires two visits and two “check-in” calls per year to all customers, regardless of the size of the account or the nature of the relationship. The organization may be able to enhance its relationships with customers by tailoring its mode of communication based on the nature of the role of administrators and managers within the customer organization.

Similarly, service organizations get more “added satisfaction” from a service guarantee when dealing with customers who have had no prior experience with a DAR. In the absence of a “familiar face” (i.e., service agents who know their business and is familiar with their particular account), customers who rely on less personal service may find a service guarantee reassuring. On the other hand, customers who have worked with a DAR may view the relationship as an implicit pledge of service that serves as a substitute for an explicit contractual guarantee.

Social Resources Can Create Bonds That “Buffer” Decreases in Economic Resources

Our results show that there are circumstances under which social and economic resources may be substitutable. Specifically, customers who interact with service employees experience higher satisfaction than other customers from either an on-site visit or higher commission. Moreover, customers can be equally satisfied by a DAR or by receiving a better service guarantee. These findings suggest that, in designing service, business-to-business organizations can compensate for lower levels of economic resources (i.e., reductions in operational aspects of service) by providing higher levels of social resources via EDS. In other words, increasing social investments in interpersonal relationships may “buffer” the negative effect of reductions in structural aspects of service operations.

Consequently, our findings imply that service managers and service agents need to be equipped with detailed information on the properties of relationships with individual customers. In particular, agents should be alert to circumstances under which customers will (or will not) be receptive to visits and respond to economic incentives. As

discussed previously, service agents should also be sensitive to situations in which social resources and economic resources are substitutable. This information is particularly important for agents who serve many customers, either in the field or in call centers. Our results underscore the importance of service agents’ and managers’ having access to databases with complete customer profiles. Such profiles should include information not only on current service offerings but also on customers’ perceptions of prior experiences. Databases should be used to help service agents manage customer relationships most effectively. For example, computer algorithms can help agents design service encounters that personalize the approach to individual customers and enable business-to-business service firms to effectively employ micro-segmentation strategies. Note that such customization may require organizations to leverage their human resources with tools and technology (e.g., call planning software).

Satisfying Business Customers Is Necessary but Not Sufficient: Value Drives Relationships

Customers’ perceptions of value in the business-to-business relationship mediate the effects of social and economic resources on behavioral intentions. Perceived value also completely mediates the effects of interpersonal and interorganizational satisfaction on behavioral intentions. Although interpersonal satisfaction does not directly affect behavioral intentions, the overall pattern of indirect effects suggests that customers really do value employee-delivered service. In fact, in our study, social bonds created by service employees are more important than structural bonds created by financial and operational aspects of service in creating value. Interorganizational satisfaction is also an important driver of value; however, as is the case with interpersonal satisfaction, its effects on behavioral intentions are completely mediated by value.

The strong mediating effect of value is consistent with marketing exchange theory, which posits that value is the primary driver of marketing relationships (Bagozzi 1975, 1979; see also Holbrook 1999). This finding also supports Oliver’s (1999a) argument that satisfaction, as a benefit of a relationship, precedes value in the nomological net of the customer’s experience. Satisfaction is a “necessary step” in forming a relationship, which becomes less important as the relationship develops through “social bonding” at the personal and organizational levels. Our results show that value is a key influence on the behavioral intentions of business customers. Finally, the finding that value mediates the effects of satisfaction on behavioral intentions is consistent with the results of recent empirical work by Garbarino and Johnson (1999), albeit in the consumer

market, which shows that satisfaction does not mediate the effect of attitude on behavioral intentions among customers with strong relationships to an organization.

The fact that value is a key predictor of behavioral intentions has implications for marketing researchers who often rely on satisfaction to monitor business-to-business relationships. Our results suggest that managing an ongoing business-to-business relationship is not merely a matter of nurturing customer satisfaction. Rather, it is a complex process of creating value and encouraging behavioral intentions. Our results suggest that industry surveys should not be limited to measures of satisfaction but should also include perceived value and behavioral intentions.

CONCLUDING REMARKS

Our research shows that the maintenance of business-to-business service relationships is a complex process. We present a theory-driven model that shows how customers trade off social resources with economic resources and clarifies the role of employee-delivered service and service operations in the process of managing ongoing business-to-business service relationships. For marketing managers, our results offer guidance on how to “strike the right balance” in the design of service, the allocation of resources to service employees relative to service operations, and the monitoring of customers’ reactions to relationship-building activities.

Although our study context was the telecommunications industry, our target population was experienced business customers who had existing and ongoing contractual relationships with the service provider. Customers included large and small (profit and not-for-profit) organizations in a wide variety of industries, including restaurants, hotels, motels, office buildings, retail stores, hospitals, colleges, service stations, and recreational facilities. Although such heterogeneity must be accounted and controlled for in the empirical testing of our model, it adds to the overall generalizability of our results. Nevertheless, in their meta-analysis, Szymanski and Henard (2001) found that measurement and method factors moderate the relationship strength between satisfaction and its antecedents. Hence, this study should be replicated in other study contexts. For example, Drew and Bolton (1991) have shown that the order of questions within a survey can influence the measurement of customer satisfaction. Hence, to eliminate the possibility that the mediating effects reported herein are an artifact of questionnaire design, it would be useful to conduct a study in which the order of the satisfaction, value, and intentions questions is randomized (e.g., using a computer-administered interviewing method).

Future research should (a) include the effects of other types of social and economic resources (e.g., frequency of communications, idiosyncratic investments, etc.), (b) consider business-to-business contexts that have different structural and relationship properties (e.g., industries that offer price breaks/incentives rather than commission revenues, industries that use teams of service representatives, etc.), and (c) examine how business customers’ perceptions of value change over a *sequence* of encounters in a service relationship. Future research is also required to understand how the strength of relationships among interpersonal satisfaction with the service representative, interorganizational satisfaction, and perceived value varies across different industry contexts. It would be particularly useful to conduct a field study in which cumulative measures of satisfaction, value, and intentions—as well as their antecedents—are tracked over time.

APPENDIX

Coding Procedure for Verbal Protocols

Recall that normative expectations, disconfirmation, negative emotions, and positive emotions were objectively coded as indicator variables based on the verbal protocols. The procedure that was followed is described below. The coding categories are described in Table A1.

TABLE A1
Coding Categories for Verbal Protocols

<i>Normative Expectations</i>	<i>Unfavorable Disconfirmation</i>	<i>Negative Emotions</i>	<i>Positive Emotions</i>
Expect	Disappointed	Concerned	Pleased
Expected goal	Unacceptable	Confused	Ecstatic
Hope	Surprised	Used	Nice
Want	Below industry standards	Bothered	Good
		Ignored	Great
Should	Inadequate	Inconvenienced	Happy
Would like	Strongly disagree	Unappreciated	Excited
Would prefer	Disconcerted	Unimportant	Wonderful
	Too . . . [Long/ much/slow]	Not valued	Perfect
			Ideal
			Pleasant
			Enjoy
			Welcome
			Delight
			Thrilled
			Glad

NOTE: The most frequently used word/phrase is shown first in the column. For example, the vast majority of respondents used the word *expect* when describing their normative expectations. The remaining words/phrases are not shown in rank order due to the prevalence of ties. To simplify this table, we show only words/phrases that were used by more than one respondent.

Normative expectations were coded if the respondent made any reference to having “should” expectations about the contract

or service delivery—for example, “The company should not change the commission” or “Most telephone companies offer a 24-hour guarantee.”

Customers’ verbal protocols did not contain any instances of favorable disconfirmation, so we created a measure of unfavorable disconfirmation only. The most common word/phrases indicating disconfirmation were *disappointed* and *unacceptable*. Note that this category does not include word/phrases that indicate dissatisfaction.

Customers’ verbal protocols frequently contained emotional responses, such as, “I feel inconvenienced” or “I feel good.” Based on Oliver’s (1997, p. 312) categorization of emotion labels, we developed a coding scheme for negative and positive emotions.

Negative emotions were coded if the respondent wrote about anger, self-pity, and anxiety. (Because there were no protocols corresponding to anger, they do not appear below.)

Positive emotions were coded if the respondent wrote about pleasurable feelings.

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