NORTH-HOLLAND

Expected Relationship Value

A Construct, a Methodology for Measurement, and a Modeling Technique

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Managing collaborative business-to-business relationships demands an understanding of how relationships create value for the firm and a method to accurately assess that value. The purpose of this research is to propose a new construct, expected relationship value, and an innovative method for its measurement. The proposed methodology relies on qualitative research techniques to gather dispersed organizational knowledge about the relationship. The results of the interviews then serve as input to a quantitative model using a Monte-Carlo simulation to operationalize expected relationship value as a probability distribution of the net present value of current and future relationship outcomes. © 2001 Elsevier Science Inc. All rights reserved.

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INTRODUCTION

In recent years, a growing number of firms in business markets have sought competitive advantage by forming close, collaborative relationships with select suppliers and customers. In forming these relationships management has been forced to wrestle with difficult questions about which partner to select and how to manage the relationship once the partner has been chosen [1, 2]. Answering these questions demands understanding of the way collaborative relationships generate value for the firm and a method to assess that value accurately [3].

Marketing scholars have made some progress toward a better understanding of how business relationships create value for the firm. Such efforts have provided insights into issues such as relationship development [4], cost reduction [5, 6], and relationship management [2]. In contrast, considerably less effort has been devoted to measuring value despite numerous calls for such research [3, 7, 8]. Consequently, firms must rely on relatively crude

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Value in business relationships has been defined in many ways.

techniques such as focus groups, surveys and importance ratings to assess value [9]. Perhaps one reason for the slow progress in the area of measurement is the lack of consensus about what constitutes value. Scholars have defined value in wide variety of ways by focusing on beliefs [10], competitive advantage [4] goal attainment [7], cash benefits [11], and financial and social benefits [2]. The diversity of views suggests that value may be a multi-dimensional construct that merits multiple measurement approaches.

The purpose of this research is to focus on one dimension of value to define a new construct, expected relationship value (ERV), and an innovative means for its measurement. The construct focuses on the future benefits to be derived over the life of the relationship. The proposed methodology relies on qualitative research techniques to gather dispersed organizational knowledge about the relationship. The results of the interviews then serve as input to a quantitative model using a Monte-Carlo simulation to operationalize expected relationship value. The outcome of the method is a measure in which value is operationalized as a probability distribution of the net present value (NPV) of current and future relationship outcomes.

The remainder of the article is organized as follows. First, the literature on value in business relationships is briefly reviewed and a working definition of a new construct, expected relationship value, is presented. This is followed by a description of a four-stage method for assessing the construct. The methodology is illustrated by applying it to a hypothetical buying firm attempting to value an anticipated relationship with a supplier. The article concludes with a discussion of the implications for scholarly research and management practice.

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VALUE IN BUSINESS RELATIONSHIPS

In recent years, increasingly competitive global markets have motivated firms to reduce costs and increase the benefits derived from their business relationships [12–15]. Typically, these cost savings and increased benefits are obtained by establishing a collaborative working relationship characterized by trust and the sharing of information [15, 16]. As a result of this trend, scholars have devoted increasing attention toward conceptualizing and measuring value in business-to-business relationships.

Not surprisingly, the development of techniques for measuring value has been driven by the way value has been conceptualized in the context of business relationships. A review of the relevant literature suggests that researchers have generally conceptualized value in business relationships in two distinct, yet complementary, ways. The first perspective focuses on the worth of a seller's bundle of physical goods and services that is exchanged for some price with the buyer. Newman [17] adopts this perspective when he observes that value received by a customer is generally defined as the quality of the product offering divided by price. However, this definition is conceptually broad and suggests that business customers use specific mental accounting formulations when there is little empirical support for such a view. Nevertheless, this conceptualization underpins measurement approaches such as value maps that are commonly used by managers.

More recently, Anderson and Narus [2] define value as " . . . the worth in monetary terms of the economic, technical, service, and social benefits a customer firm receives in exchange for the price it pays for a product offering" (p. 5). One benefit of this transaction-focused definition of value is that it can be measured using conventional techniques such as surveys, focus groups, or importance ratings. Once measured, it provides managers with a basis for making decisions concerning issues such as pricing, product design, marketing communications, and positioning [9].

> **Expected relationship value focuses on future benefits and costs.**

The second perspective on value focuses more explicitly on the long-term costs and benefits associated with a customer firm's relationship with a supplier. Grounded in resource-based theory [18–20], it views the relationship as a core asset of the firm whose value is best assessed holistically. Under this perspective, the value of a relationship can be viewed as the aggregate worth of all exchanges that will occur between two firms.

Jackson [11] established a foundation for this perspective when she defined value in business relationships as the net present value of the cash benefits that accrue from current and future transactions. The appeal of this definition is that it explicitly acknowledges that much of the worth of a business relationship lies in the ability of the partners to identify opportunities to reduce costs or increase benefits over time. Jackson's approach is useful because it explicitly suggests that value can be measured using traditional cash flow analysis techniques. However, this definition carves out a limited conceptual domain because it does not account for non-cash benefits such as technology transfer or quality improvements that can be derived from the ongoing interaction of the firms. Furthermore, it relies on a single discount rate to adjust for risk. However, the use of a single discount rate often fails to adequately account for the individual risk inherent in a risky business endeavor such as a business relationship [21].

Wilson [4] partially overcomes the conceptual limitation by adopting a strategic perspective when he defines value as outcomes of a collaborative relationship that enhance the competitive abilities of the partners. He views value creation as a process requiring time for the partners to develop the trust and communication needed to find mutually beneficial outcomes from their interaction. The focus on process is appealing because it is consistent with the inherently dynamic nature of business relationships. However, the approach to value creates measurement difficulties because it does not specify the time period in which the outcomes of the process should be evaluated. As these two examples illustrate, there is a need for a clear conceptualization of the holistic value of a business relationship and a method for its measurement.

EXPECTED RELATIONSHIP VALUE

This research addresses this need by proposing a new construct, expected relationship value (ERV), which is defined as the perceived net worth of the tangible benefits to be derived over the life of the relationship. Several points of this definition are worth highlighting. First, ERV is an organizational construct that is not specific to the customer firm only. Both buyers and sellers derive worth from a relationship and effective relationship management requires that both be considered when making decisions. This is a critical distinction because the value derived by each member of the dyad is dependent on the actions of the other dyad member [23]. Moreover, the assessments of value for the buyer and seller will tend to be assessed differently even when the actual financial rewards are similar [24]. The inherent tradeoffs between the value derived by the buyer and seller are an important driver of the exchange [23] and should be recognized by any measures of relational value.

A second point is that value is a "net worth" of current and future benefits, which implies that it includes the costs of obtaining those benefits. These costs might include capital investments as well as other costs such as managerial time, transaction costs, direct product costs, and operating costs. A third point is that ERV captures the time element of relationships by focusing on future net benefits. This future orientation recognizes the fact that firm behavior is properly driven by future outcomes [25] and that managers do, in fact, weigh expected outcomes heavily in their decision making [26]. Jackson's approach to value as the NPV of future cash benefits of a relationship is especially useful in this regard. However, instead of a cash flow, relationship value is determined by the "benefit flow" which includes cash as well as other tangible benefits such as improved product quality, technology transfer, and increased process efficiency.

> ERV accounts for the inherent uncertainty of a relationship.

Finally, ERV represents a perception about future outcomes of the interaction between the buyer and seller. Because these outcomes lie in the future, they cannot be known with certainty. This explicit acknowledgment of the link between value and uncertainty is important because business relationships are inherently risky endeavors. Future outcomes may differ from expectations for many reasons such as chance (e.g., unexpected change in the cost of raw materials), opportunism (e.g., supplier cheating on quality), or insufficient information at the time of the value assessment (e.g., uncertain volume estimates). Scholars have long recognized this relationship between expected value and uncertainty [14, 27, 28], noting that mangers consider both when making important decisions affecting the firm [26, 29].

The inherent uncertainty of ERV creates a challenge when attempting to measure the construct, however. Approaches such as traditional cash flow analysis yield a point estimate of future outcomes that fail to capture adequately the degree of uncertainty about future outcomes of the relationship. To overcome this shortcoming, this research operationalizes ERV as a probability distribution of the NPV of possible relationship outcomes. This probabilistic approach is beneficial because it recognizes that actual outcomes may be far above or below expectations due to uncontrollable or unanticipated factors. For example, a customer's relationship with a supplier may yield greater than anticipated benefits when the members of its early supplier involvement program find an unexpected way to greatly improve production efficiency through better product design. In contrast, that same relationship might yield less than anticipated benefits when the engineering hours needed to implement the process improvements are much greater than anticipated due to technical problems.

METHODOLOGY FOR MEASURING EXPECTED RELATIONSHIP VALUE

Business-to-business relationships are complex phenomena involving the interaction of individuals at many levels within the partner firms [27, 30, 31]. The complexity of this interaction means that the information needed to assess expected relationship value is dispersed throughout the organization and may be difficult to aggregate in a meaningful way.

The methodology proposed in this research is intended to address the issues of data collection and aggregation. Data is collected by means of a series of structured interviews designed to systematically capture the embedded organizational knowledge of the relationship. The data derived from the interviews are then used to identify the range of values that each variable might assume depending on future events. This information then serves as input to a relationship-specific model of ERV that uses a Monte-Carlo simulation to estimate the probability distribution of relationship value. The output of the simulation not only provides the expected value of the relationship but quantifies the uncertainty surrounding the measure by providing the variance of the distribution as well.

The methodology has four stages: identification of value centers, assessment of uncertainties, modeling the relationship, and analyzing key variables (see Figure 1). For the remainder of this article, these stages will be illustrated using the hypothetical buyer–seller relationship between Alpha (the buyer) and Beta (the seller).

Alpha Manufacturing, Inc. is considering a move from multiple suppliers for a key assembly harness to a sole-source supply arrangement with Beta Supply, Inc. The managers at Alpha envision that the relationship with Beta will initially involve the two firms working closely together to improve efficiency and reduce costs. If those efforts are successful, later projects would include implementing a Just-In-Time (JIT) arrangement and an Early Supplier Involvement (ESI) program designed to improve quality and reduce production costs. The key question for Alpha's management team is to determine the value of its potential relationship with Beta compared to its current practice. The assessment is difficult because many factors are highly uncertain. For example, it is unclear how well Alpha and Beta's engineers will be able to

Influence diagrams provide a "value map" of the relationship.

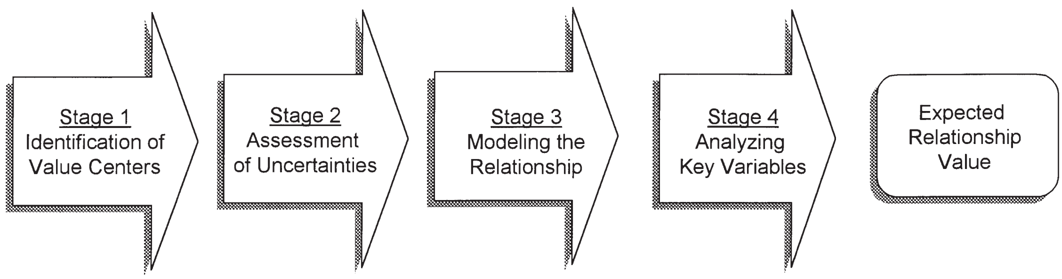

FIGURE 1. **A Methodology for Assessing ERV.**

work together in all three programs. Also, the amount of managerial time needed to manage the relationship is also highly uncertain. If the relationship develops smoothly, then the cost of managerial time and effort will be low. However, if problems develop, then the amount of management time required could increase considerably.

Stage 1: Identification of Value Centers

The objective of the first stage is to identify the types of future costs, benefits, and investments required to support the desired relationship. It is important to note that in this stage, the researcher is not trying to determine the amount of these variables, only the type. Even so, this may appear to be a daunting task. However, the researcher can be guided by the knowledge that relationships typically evolve through a series of endeavors designed to provide incremental net benefits to the partners [3].

These endeavors represent value centers that can be identified by the researcher through initial exploratory interviews. Each value center may include incremental costs, benefits, and investments. In the Alpha/Beta example, there are three value centers: the cost reduction program, the ESI program, and the JIT program. These value centers are distinct in that they provide unique benefits to the firm and incur different costs and investments.

An efficient method of identifying the value centers is to facilitate a focus group comprised of the most knowledgeable managers from multiple levels of the company. These managers should be familiar with the relationship and be able to comment on the types of costs, benefits, and investments associated with each. The goal of the focus group is to produce an influence diagram illustrating the types of costs and benefits derived from each value center. The influence diagram serves as a schematic of the relationship that later becomes the basis of the quantitative model. The influence diagram for the Alpha/Beta relationship is provided in Figure 2.

The influence diagram illustrates the effect that each value center's costs, benefits, and investments have on the focal construct, expected relationship value. For example, the JIT project is expected to provide benefits to Alpha by reducing inventory carrying costs and inventory slack. However, the project will also incur costs in the form of engineering time, administrative time, and the costs of potential out-of-stocks if the supplier fails to deliver on time. In addition, the project will require some investment in information technology. Similar effects are noted for the other two value centers.

Once the sources of costs, benefits, and investments have been recorded in the influence diagram, the final step is to have the group identify the most qualified individuals in the firm to report on each variable. For example, the manager responsible for overseeing other JIT programs may be the most qualified individual to report on the probability of an out-of-stocks situation occurring. In contrast, an engineering manager may be the best person to report on the amount of time required to implement the JIT system. In the second stage, structured interviews are conducted with each expert to obtain their

Monte-Carlo analysis provides a picture of risk and return.

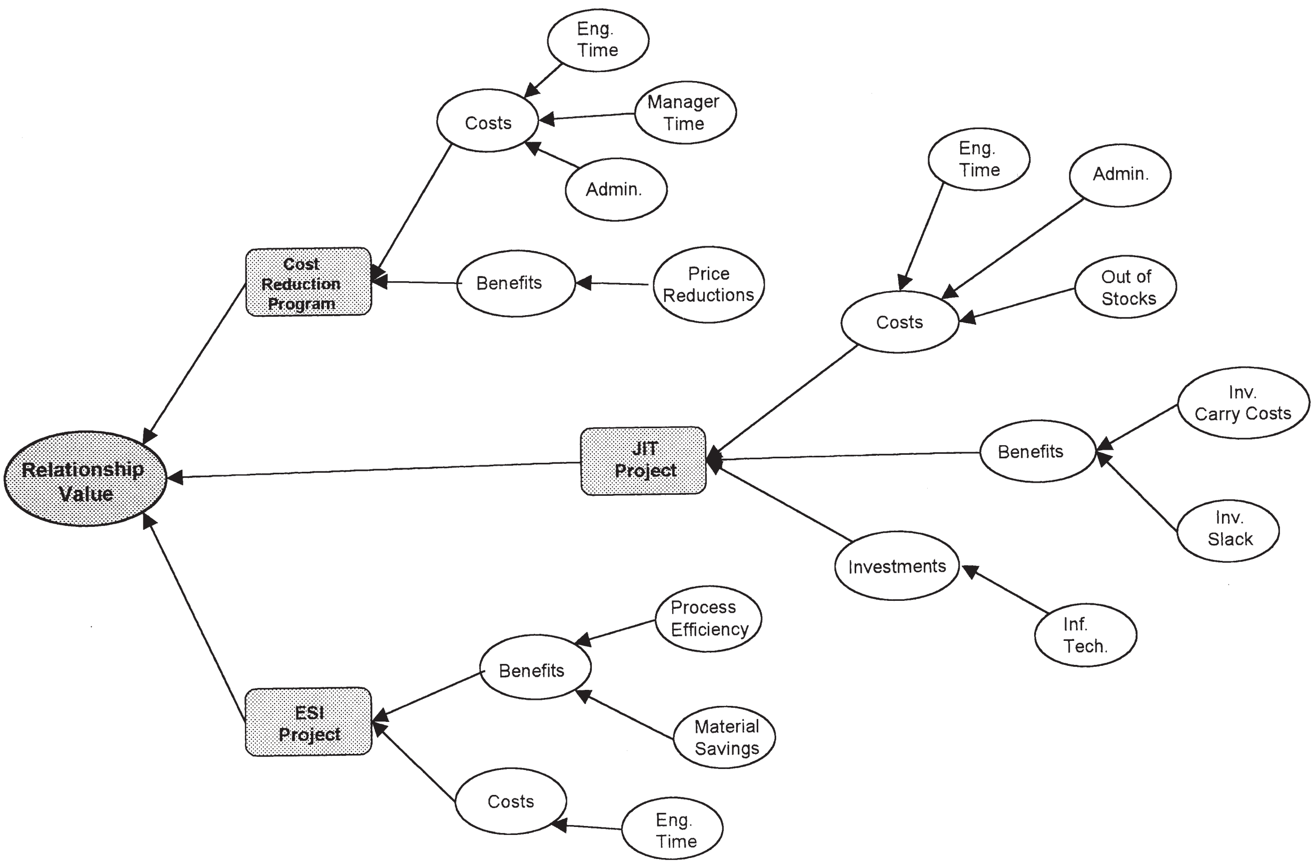

FIGURE 2. **Influence Diagram of alpha's Relationship with Beta.**

best estimate of the range of potential values for each variable.

Stage 2: Assessment of Uncertainties

The objective of the second stage is to identify the distribution of possible values for each variable in the value map by interviewing each of the experts identified in stage 1. It is important to note that the variables are not viewed as single-point estimates that can be known with certainty. Instead, the inherent uncertainty about the variables is expressly modeled using a probability distribution. This approach is consistent with the fact that a firm often does not know the true costs [32] or benefits [2] of its interaction with another firm. This is especially true for future costs and benefits. To emphasize this point, the variables are referred to as uncertainties.

The methodology diverges from a traditional cash flow approach in this stage. A conventional approach might have the expert provide his/her best single-point estimate of the expected value of each cost or revenue that had been identified. These point estimates would then be used to develop a model to determine the NPV of the relationship (an example of a traditional model as applied to the

The methodology can be completed in days.

TABLE 1
Modeling Critical Uncertainties

Variable	Units	Distribution function	Assumptions
Costs			
Management time	Hours	Log-Normal	5%-tile placed at 10% below expected value 95%-tile placed at 50% above expected value
Engineering time	Hours	Log-Normal	5%-tile placed at 10% below expected value 95%-tile placed at 50% above expected value
Administrative time	Hours	Log-Normal	5% placed at 10% below expected value 95%-tile placed at 10% above expected value
Out of stock (JIT)	Dollars	Custom	95% prob. of 0-12 hours of out of stock per year 5% prob. of 24–96 hours of out of stock per year
Revenues			
Price reductions	% of sales	Triangular	Min. value = 0%; Max value of 1.2%; Most likely value = .7%
Process efficiencies	% of sales	Normal	5%-tile placed at 0% improvement 95%-tile placed at 1.8% Correlation with material savings = .60
Materials savings	% of sales	Normal	5%-tile placed at 0% improvement 95%-tile placed at 1.8% Correlation with material savings = .60
Reduced Inventory costs	Dollars	Triangular	Min. value = 2%; Max value of 5.0%; Most likely value = 4.0%
Reduced inventory slack	% of Sales	Log-Normal	Mean = .8%, 95%-tile = 1.2%
Investments			
IT for JIT	Dollars	Normal	5%-tile = $120,000; 95%-tile = 80,000

Alpha/Beta relationship is provided in the Appendix). The traditional model estimates that Alpha's relationship with Beta will generate approximately $80,000 in savings in the first year when the cost reduction program is implemented. This is followed by an estimated $250,000 in savings in the second year, and nearly $430,000 in the third year as the ESI and JIT programs are fully implemented. The estimated three-year NPV of the relationship is approximately $650,000 in savings over current practice. In many instances, this NPV would likely become a metric against which the relationship is judged by the organization. If performance were to fall short of the expected value, the relationship would be considered a poor performer even though there are many uncontrollable factors that might make such an outcome occur.

The advantage of the methodology proposed in this research is easily illustrated. Suppose that the appropriate expert's best estimate of the annual engineering hours required for the ESI program was approximately 2000 (2 engineers @ 50% time). However, if the researcher were to probe a little further, the expert might reveal that the probability of the actual hours equaling 2000 is quite low. The actual hours are likely to differ significantly due to unexpected problems or successes. It is incumbent on the researcher to continue questioning the expert until the nature the probability distribution for each uncertainty can be determined.

Identifying the probability distribution need not be difficult. For example, the distribution of engineering hours required for the ESI program can be determined by asking three questions.

What is the most likely value for the required engineering hours?

What is a highest value of engineering hours such that there is only a 5% chance that the actual value will be higher?

What is the lowest value such that there is only a 5% chance that the actual value will be lower?

The answers to these three questions are sufficient to define a log-normal distribution (log-normal is chosen because the outcome cannot fall below 0) for the estimated engineering hours. Not all variables need to be modeled using a normal or log-normal distribution, however. For example, in the Alpha/Beta case the effect of potential out-of-stocks due to lapses in the JIT program might be best modeled as a combination of uniform distributions. With Alpha/Beta, the expert might observe that there is an estimated 95% chance that an out-of-stock ranging from 0 to 12 hours might occur in a given year. Such an event might correspond to an unexpected occurrence such as a delivery truck crashing en route to the plant. In addition, there is a 5% chance that a major disruption ranging from 24 to 96 hours might occur. Such a disruption might result from events such as a strike or fire at the supplier's plant. Table 1 provides a description of the distributions for each of the key uncertainties in the Alpha/Beta model that were selected for expository purposes.

An important issue for the researcher is how to ensure that the probabilities and expected values provided by the expert represent the most accurate estimate of future outcomes possible. For many of the variables, the expert will be able to estimate the future values by referring to historical data. For example, the engineering manager might refer to actual performance data from past projects to inform his/her estimates of future engineering costs. If this data is readily available or if the firm has considerable experience with cost reduction programs from previous relationships, the variance of the distribution may be quite low.

However, if the firm has little experience with cost reduction programs or if historical data is not available, then the engineering manager would be forced to rely on personal expertise to estimate future outcomes. In this case, the variance of the distribution is likely to be much larger reflecting the higher uncertainty. At this point, the researcher must resist the temptation to encourage the expert to "take a best guess" in an attempt to artificially reduce the uncertainty of the estimate. If the expert, who has been identified as the most knowledgeable person in the firm regarding a variable, is unsure of the future outcome, then that uncertainty should be reflected in the final ERV distribution. This acceptance of uncertainty can run counter to the training and culture of the researcher and expert alike. However, it is important for the firm to recognize how much it does not know about future outcomes when making decisions about how to manage the relationship.

Allowing the expert to describe a range of values has several ancillary benefits to the researcher as well. First, the experts may be less reluctant to share their knowledge because they are not being asked to commit to a point-estimate of specific variables that they know is unlikely to be attained. Second, the approach enables the researcher to explore the factors driving the expert's assessment of uncertainty. This knowledge can provide valuable insights into ways that the sources of downside risk can be minimized once the relationship has been modeled. Finally, the approach is efficient and can be completed relatively quickly.

Stage 3: Modeling the Relationship

Once the probability distributions of the uncertainties have been determined, the final step is to estimate the probability distribution of expected relationship value. Like the uncertainties, ERV is modeled as a distribution of outcomes rather than a single-point estimate. This perspective is more useful than a point estimate because it explicitly shows the mean value of the relationship as well as the amount of uncertainty surrounding that mean value. The modeling approach can use any one of the commercially available Monte-Carlo simulation programs. The simulation samples each of the distributions for the uncertainties identified in stage 2 in order to calculate a value of the NPV of the relationship. This process is repeated over multiple trials in order to estimate the ERV probability distribution.

Figure 3 shows the estimated probability distribution of ERV for the Alpha/Beta relationship after 10,000 trials. The value ranges from a low of $488,000 to a high of $652,000. The mean value of the relationship is approximately $310,000, far below the estimate of $650,000 derived by the conventional valuation approach calculated in Figure 3. In fact, based on the probability distribution of relationship value, the probability of the Alpha/Beta relationship actually achieving a $650,000 NPV is effectively zero. This finding would have profound effects on the Alpha/Beta relationship. Alpha's management would be guaranteed to be disappointed if its performance metric were the $650,000 NPV calculated with conventional means.

Stage 4: Analysis of Critical Variables

An important advantage of the approach advocated here is that it enables a manager to perform additional analyses by answering questions such as what is the probability that

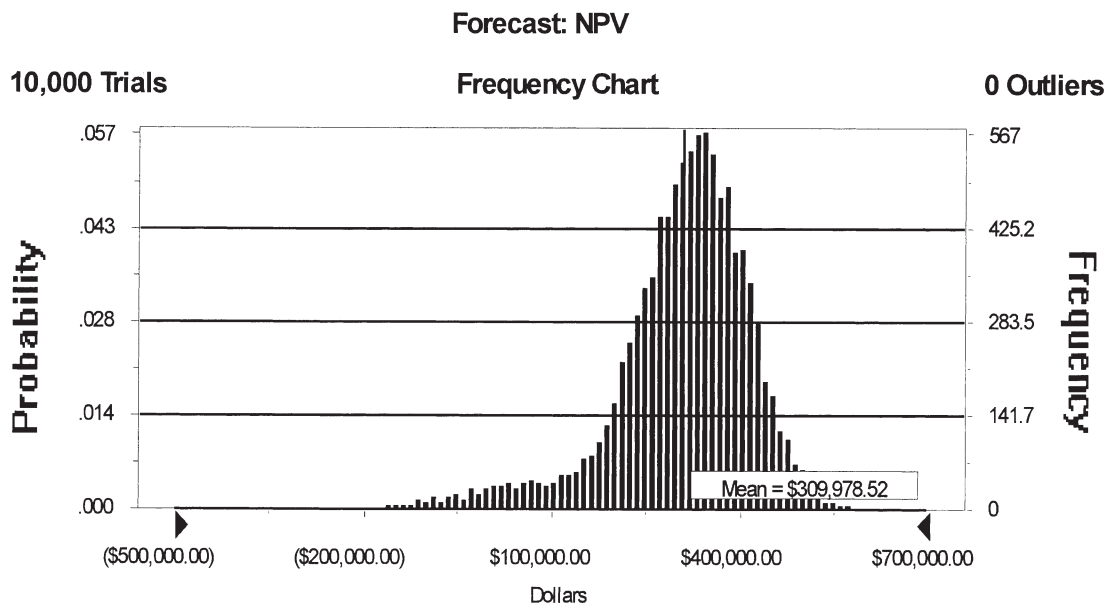

FIGURE 3. Probability Distribution of Expected Relationship Value.

the relationship will lead to a negative outcome? In the Alpha/Beta case, there is approximately a 3% chance that the relationship will yield a negative outcome. In addition, the simulation approach allows a manager to gain a richer understanding of the sources of risk in the relationship by performing more sophisticated sensitivity analyses. One such analysis involves calculating the correlation of uncertainties in the model with the outcome variable (in this case the NPV of the relationship). Those uncertainties that have a high correlation with ERV would merit further scrutiny to see if the downside risk could be reduced or the upside potential could be enhanced. Fortunately, the structured interviews used to assess the distributions of the uncertainties are a rich source of information into how to reduce the downside risk and increase the upside potential. Table 2 provides correlation of selected variables with ERV for Alpha relationship with Beta.

TABLE 2
Correlation of Select Variables with ERV

Variable	ERV
Price reductions, year 1	.44
Price reductions, year 2	.26
Out of stock, year 1	−.29
Out of stock, year 2	−.26
Engineering hours, JIT	−.13
Sr. management time	−.01
Administrative time	−.01

Table 2 shows that price reductions obtained through the cost reduction program in the first year have the highest correlation with ERV of any of the variables. These price reductions represent a key source of uncertainty for the relationship. Therefore, Alpha should seek to limit the potential for an unfavorable outcome by locking in the price reductions through a contractual arrangement or other means. Of course, Alpha should realize that it is simply shifting this uncertainty to the supplier and therefore should not be surprised if the supplier seeks some other form of compensation in return for the additional uncertainty it is asked to carry.

Potential out-of-stock situations associated with the JIT program represent another key source of uncertainty for the relationship. Closer examination of the model shows that this uncertainty is driven largely by the potential for a catastrophic event such as a fire at the supplier's plant. Although the probability of such an event is relatively low, the cost would be exceedingly high. This uncertainty illustrates a potential risk of Alpha's decision to work in a sole source arrangement with a single supplier. Once again, Alpha would be well served to try to manage this uncertainty by forcing Beta to carry offsite inventory or by reconsidering its sole source arrangement. In contrast to price reductions and out-of-stock situations, the correlation of engineering hours, senior management time, and administrative time is considerably lower. This result indicates that these are not important sources of uncertainty and need not be investigated further.

IMPLICATIONS FOR RESEARCH AND MANAGEMENT PRACTICE

This research makes several contributions to the emerging body of literature on value creation in business-to-business relationships. Previous research has leaned toward a deterministic view of value in business relationships. However, if we define value in terms of the NPV of future benefits, costs, and investments then a deterministic view of the construct is inappropriate because future worth cannot be known with certainty. Indeed, even current costs and benefits are highly uncertain in many cases [5]. This future orientation is important to research because it is consistent with the way that managers actually think about important business decisions [26, 29]. The approach is also appealing because it is consistent with a financial theory of the firm in which managers seek to maximize future cash flows [25]. This future orientation is captured by expected relationship value, the focal construct of the research.

ERV provides a conceptual foundation to address important questions concerning the tangible value of social elements of a relationship such as trust. Few would argue that trust is an essential element to a successful business relationship. Indeed, numerous studies have clearly demonstrated the centrality of the construct [33–35]. However, scholars have not yet addressed the question of how trust increases the tangible worth of the relationship. This research suggests that trust might affect ERV in two ways. First, it can foster a firm’s long-term orientation [35] thereby allowing the firm to extend its assessed benefit flow further into the future than it might otherwise. Second, trust might affect ERV by reducing the uncertainty created by the threat of opportunism or other performance failure of the partner. Thus, trust would be expected to increase the mean value of the ERV distribution while simultaneously reducing the variance.

Another contribution of this research is that it provides a new tool for investigating theories dealing with issues of value and uncertainty such as transaction cost analysis [8, 15]. The methodology could provide valuable insights into the differential effects of expected value and uncertainty on firm behavior. This is an important issue for business-to-business research. Although the focus of transaction cost analysis is on the effects of uncertainty on governance structures [36], the theory also recognizes the role of value in determining firm behavior [15]. Yet few empirical studies measure both value and uncertainty when testing transaction cost analysis.

From a managerial perspective, this research provides a useful foundation for making decisions such as a buying firm’s evaluation and selection of a supplier. Oftentimes the selection of a new supplier involves a comparison of an existing supplier about which much is known versus a new supplier about which less is known. ERV provides a useful lens to better understand this decision. The customer’s knowledge about its current supplier means that the variance of the ERV distribution will be relatively small compared to the new supplier. The question then becomes whether the mean value of the new supplier’s ERV is great enough to offset the additional uncertainty it brings to the relationship. The answer will depend on the risk tolerance of the customer firm and the ability of the new supplier to communicate its capabilities to the customer and thereby reduce uncertainty.

The methodology can also be used as a useful tool to foster the development of the relationship. Rather than one partner evaluating its relationship in isolation, it would be highly instructive for the buyer and seller to estimate their ERV distributions as a joint project. The process of collecting the data and assessing the uncertainties for each partner would provide valuable insights about the underlying financial motivations of each partner. Moreover, it would undoubtedly uncover new opportunities for reducing the uncertainty of each distribution or increasing the expected value. It would also provide a mechanism for clearly identifying how the actions of one firm affect the ERV distribution of the other. By developing a model to make this linkage explicit, the firms would have an objective basis for resolving conflicts.

An appealing aspect of this methodology is that it is efficient and can be completed in a few days depending on the accessibility of the participants. This suggests that it could be adopted as a standard part of the customer/supplier evaluation process. That way changes in the mean and variance of the ERV distribution could be tracked over time providing important insights into the course of relationship development.

LIMITATIONS AND FUTURE RESEARCH

A limitation of this research is that the model is illustrated using a hypothetical relationship between a buying and selling firm. Although underlying assumptions about the probability distributions of each individual variable were considered to be typical of a real relationship, they were not based on real data. A logical next step in the research is to identify actual firms and apply the methodology to assess ERV with a buying and selling firm.

Another limitation of the methodology is that it is not well suited to studies requiring large sample sizes. As currently articulated, the methodology could be used most effectively for case studies or as a managerial tool. However, it is not well suited for use in cross-sectional surveys involving multiple firms that are characteristic of business-to-business research. Future research should focus on adapting the methodology so that it can be used in the large-scale data collection efforts that would support positivistic theory testing.

This research raises other interesting issues that should be addressed in future research. For example, future research is needed to understand the tangible benefits that are derived from social elements of business relationships such as trust, cooperation, and information sharing. Previous research has tended to focus on the link between these variables and intangible outcomes such as satisfaction and commitment [33–35, 37]. While these performance outcomes are important, it is essential that scholars gain a better understanding of how social factors contribute to quantifiable assessments of value. The construct proposed in this research, expected relationship value, suggests that these social factors may affect both the mean and variance the ERV distribution. However, empirical research is needed to establish these relationships firmly.

Finally, as value becomes ever more central to scholarly research in relationships, it is essential that scholars develop a value-driven theory of business-to-business relationships. Such a theory should provide a framework for understanding how the complex actions of partner firms lead to value creation and competitive advantage. ERV might occupy a prominent role in such a theory because firm action is ultimately motivated by the desire to maximize future outcomes.

CONCLUSION

The past decade has witnessed a continuing trend toward more collaborative business relationships. The trend has been predicated on the assumption that closer relationships can reduce overall system costs and generate additional benefits that are unavailable in a more confrontational approach. For this trend to continue, it is essential that firms understand how relationships generate value and have the necessary tools to assess that value. This research makes a contribution to that end. It proposes a future oriented value construct, ERV, and suggests an innovative method for its measurement. Combined with other perspectives and methods, it is hoped that this research will improve management practice and inspire additional research.

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Appendix
Traditional Assessment of Expected Relationship Value

Year 1		Revenue Impact	Year 2		Revenue Impact	Year 3		Revenue Impact
Administration			Administration			Administration		
Management Time	120	$(7,800.00)	Management Time	120	$(7,800.00)	Management Time	120	$(7,800.00)
(Approx. 2 hours/week)			(Approx. 2 hours/week)			(Approx. 2 hours/week)		
Administrative	200	$(4,000.00)	Administrative	200	$(4,000.00)	Administrative	200	$(4,000.00)
		$(11,800.00)			$(11,800.00)			$(11,800.00)
Cost Reduction Program			Cost Reduction Program			Cost Reduction Program		
Price Reductions	0.010	$100,000.00	Price Reductions	0.010	$100,000.00	Price Reductions	0.010	$100,000.00
(% of sales volume)			(% of sales volume)			(% of sales volume)		
Engineering Hours	150	$(5,625.00)	Engineering Hours	150	$(5,625.00)	Engineering Hours	150	$(5,625.00)
		$94,375.00			$82,575.00			$82,575.00
			Early Supplier Involvement Program			Early Supplier Involvement Program		
			Engineering Hours	2000	$(75,000)	Engineering Hours	2000	$(75,000)
			(2 engineers @ 50%)			(2 engineers @ 50%)		
			Process Efficiency	0.010	$100,000	Process Efficiency	0.010	$100,000
			Materials Reductions	0.010	$100,000	Materials Reductions	0.010	$100,000
			(% of purchases)		$125,000			$125,000
			Just in Time			Just in Time		
			Engineering Hours	1000	($37,500.00)	Engineering Hours	500	$(18,750.00)
			(1 engineer @ 50%)			(1 engineer @ 25%)		
			Administrative Hours	150	$(3,000.00)	Administrative Hours	150	$(3,000.00)
			IT investments		$(75,000.00)	IT investments		$—
			Reduced Inventory Levels	5.0%	$60,000.00	Reduced Inventory Levels	5.0%	$60,000.00
			(Interest on % purchase vol.)			(Interest on % purchase vol.)		
			Out of Stock	0	0	Out of Stock	0	0
			(Hours OOS)			(Hours OOS)		
			Reduced Inventory Slack	0.010	$100,000.00	Reduced Inventory Slack	0.010	$100,000.00
			(% of sales volume)		$44,500.00	(% of sales volume)		$138,250.00
Net Revenue Impact—Year 1		$82,575.00	Net Revenue Impact —Year 2		$ 252,075.00	Net Revenue Impact—Year 3		$428,400.00
NPV of Relationship		$649,159.82						

Inputs: Engineering Costs—$37.50, per hour; Administrative Costs—$20.00, per hour; Management Costs—$65.00, per hour; Purchase Volume—$10.00, million; Discount Rate—12%.