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Organizational Capabilities in E-Commerce: An Empirical Investigation of E-Brokerage Service Providers

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E-commerce not only has tremendous potential for growth but also poses unique challenges for both incumbents and new entrants. By examining drivers of firm performance in e-commerce from a capabilities perspective, the authors conceptualize three firm capabilities that are critical for superior firm performance in e-commerce: information technology capability, strategic flexibility, and trust-building capability. The extent and nature of market orientation is conceptualized as a platform for leveraging e-commerce capabilities. The authors test the effects of e-commerce capabilities on performance (e.g., relative profits, sales, return on investment) using data from 122 e-brokerage service providers. The results indicate that information technology capability and strategic flexibility affect performance given the right market orientation.

Keywords: *capabilities; E-commerce; market orientation; Web performance*

The Internet is emerging as an invaluable tool for global commerce. Business observers agree that despite the dot-com debacle at the turn of the twenty-first century, e-commerce is here to stay (Mahajan, Srinivasan, and Wind 2002;

Parasuraman and Zinkhan 2002). The Internet has emerged as a powerful medium for conducting transactions because it offers significant potential as a low-cost communication and retail distribution channel (Clemons and Bradley 2001). The e-commerce domain, however, is fraught with uncertainty that stems from an evolving, technology-driven, electronic customer interaction that leaves firms grappling with how best to leverage their strategies (Porter 2001). Thus, a key question is, What are the key drivers of firm performance in e-commerce? In this article, we offer a capabilities framework to explore this question.

Capabilities are stable patterns of collective activities that enable firms to transform inputs effectively into superior value propositions (e.g., Zollo and Winter 2002). Heterogeneity of capabilities provides both a foundation of resource-based theory and an understanding of how firms create competitive advantage (Helfat and Peteraf 2003). The theoretical appeal of a capabilities framework lies in its potential to identify and develop testable relationships with firm performance. On the basis of an extensive literature review and multiple in-depth interviews with e-commerce managers, we conceptualize the notion of e-commerce capabilities. We argue that the impact of e-commerce capabilities on performance (e.g., Web site performance and e-commerce profitability, sales, and return on investment [ROI]) is contingent on the nature of a firm's market orientation (i.e., proactive vs. responsive market orientation). We explore the conditions under which e-commerce capabilities affect firm performance and the nature of that effect.

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We make theoretical contributions to the literature on e-commerce in marketing by introducing a set of firm capabilities for e-commerce and developing a testable model of their impact on performance. In the following sections, we discuss prior research on capabilities and conceptualize a set of capabilities that is needed for e-commerce. We also discuss two complementary perspectives on market orientation. Subsequently, we develop our conceptual model and test it on a sample of online brokerage service providers in North America.

ORGANIZATIONAL CAPABILITIES AND E-COMMERCE

Capabilities combine with other resources in the firm to create competitive advantage (e.g., Eisenhardt and Martin 2000). However, to deliver on the promise of competitive advantage, capabilities must have two critical properties: (1) *imperfect mobility*, or firm-specific capabilities that cannot be traded, and (2) *imperfect imitability*, or the inability of competition to imitate firm capabilities (e.g., Barney 2001). Although the sets of routines that constitute capabilities are deeply embedded in the firm (Eisenhardt and Martin 2000), the firm nonetheless can deliberately build, cultivate, and store them in collective memory. Essentially, capabilities involve learning and acquiring the how-to knowledge that is needed to perform complex and multifaceted tasks, such as those required in business processes for e-commerce. Having developed capabilities, the firm can then leverage them frequently in the execution of strategies (e.g., Winter 2000).

The capabilities perspective provides a fruitful venue for investigating performance in e-commerce for several reasons. First, although integral to business operations, social routines and activities are difficult to observe and codify. To our knowledge, means for directly measuring or observing the complex and widespread array of business activities and processes involved in e-commerce have not been developed. Although we are not suggesting that capabilities constitute direct observation, we believe that capabilities can provide a powerful lens for viewing high-level routines (Winter 2000). In addition, heterogeneity in capabilities helps explain why some firms gain competitive advantage and others do not.

Scholars have emphasized the importance of investigating the portfolio of capabilities required for superior performance in e-commerce, because capabilities strongly influence a firm's choice of competitive strategy (Varadarajan and Yadav 2002). We construe e-commerce capabilities as the skills and subroutines that underpin the process of conducting trade over the Internet. Simply stated, e-commerce capabilities enable the firm to execute strategies for the Internet. Several reasons point to the merit of this perspective. First, e-commerce processes are closely entangled

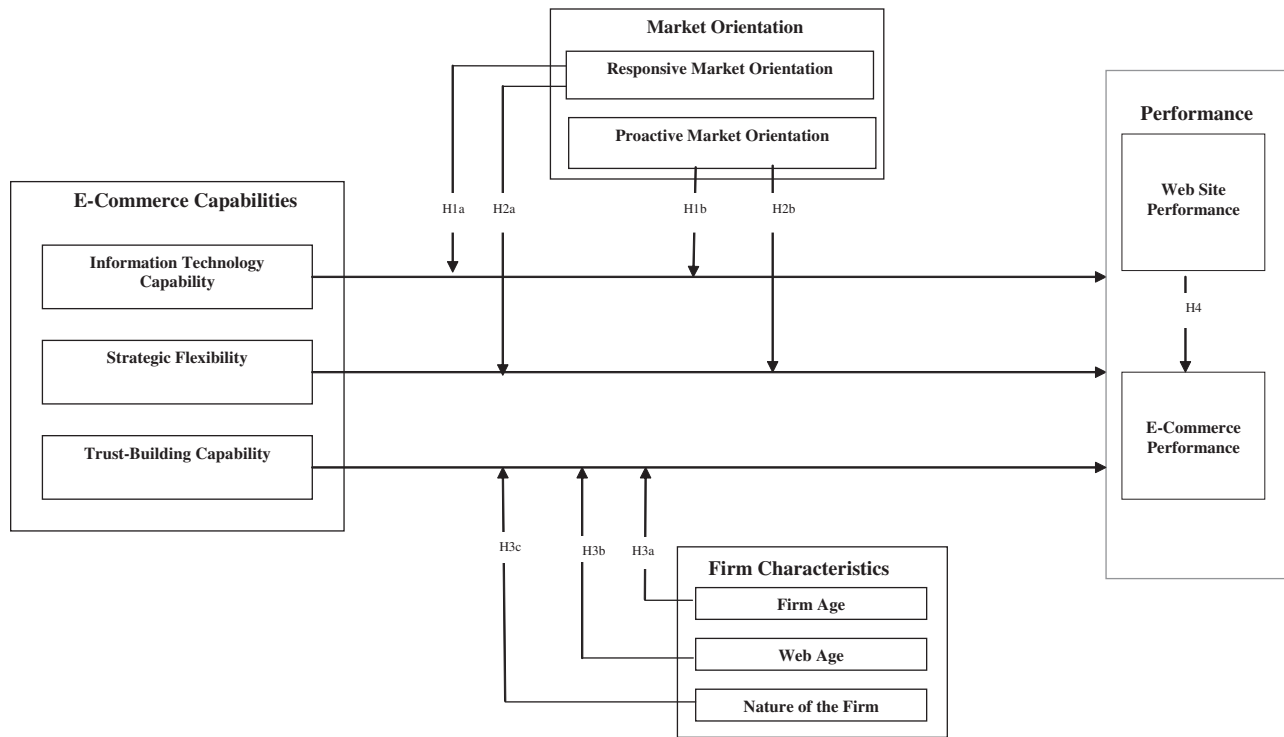
with capabilities, because it is capabilities that enable the execution of employee knowledge and skills and technical and managerial systems to facilitate Internet-based commercial activities (Amit and Zott 2001; Day 1994). Second, because capabilities are deeply embedded, inimitable, and immobile, they are specific (or distinctive) to a firm and are likely to contribute substantially to competitive advantage (Helfat and Peteraf 2003). Finally, the inimitability and immobility nature of capabilities give them durability, so that the firm can tap into them frequently to carry out strategic executions for e-commerce (Day 1994).

We conceptualize a set of e-commerce capabilities on the basis of our assessment of key processes and skills that a firm needs to conduct commercial transactions over the Internet. These capabilities are information technology (IT) capability, strategic flexibility, and trust-building capability. Extensive field interviews with senior officials at online brokerage services firms and our review of the literature supported our specification of these capabilities. Information technology capability is indispensable to e-commerce because a firm's ability to process information and move it around securely within and outside the firm drives commercial transactions on the Internet. Strategic flexibility plays an important role in e-commerce because the ability to adapt and redeploy resources easily in the face of a constantly changing marketplace becomes critical. Finally, the ability to engender trust on the part of trading partners (customers and service providers) for online exchange in real time is particularly critical. The model shown in Figure 1 illustrates the capabilities and the relationships we expect. Next, we discuss each capability that affects firm performance in e-commerce.

IT Capability

By IT capability, we mean the firm's ability to mobilize and deploy IT-based resources (Bharadwaj 2000; Grewal, Comer, and Mehta 2001). It entails a firm's intangible IT-enabled resources, such as knowledge assets and synergy, and physical IT infrastructure (Bharadwaj 2000). With regard to e-commerce, the Internet has evolved from an information network to a network that enables transactions of all kinds, such as between buyers and sellers, governments and citizens, and students and educators. In addition, IT capability is instrumental in enhancing the effectiveness of technology-based means of exchange transactions (e.g., online trading). It is particularly important in exploiting demand, because it facilitates the mass customization of products and services (Varadarajan and Yadav 2002). Likewise, IT capability is instrumental in decreasing customer service costs and other coordination and transaction costs and in changing the speed and nature of business processes. In other words, IT capability is inte-

FIGURE 1
Conceptual Model



gral for transforming an enterprise to suit the exigencies of the electronic economy.

Strategic Flexibility

In the extant literature, strategic flexibility is viewed as a capability (Grewal and Tansuhaj 2001; Sanchez 1995) that enables a firm to respond to and generate environmental change (Johnson, Lee, Saini, and Grohmann 2003). Strategic flexibility derives from resource and coordination flexibility (Sanchez 1995). Strategic flexibility assumes great importance in markets with high levels of technological changes, which are often characterized by chronic uncertainty. This uncertainty is rooted primarily in the notion that high-technology-driven products, markets, channels, and competitive boundaries are constantly evolving as a result of continuous innovation and intense competition (Evans 1991). In a similar vein, e-commerce is also plagued with market uncertainty, which is largely rooted in changing customer preferences, innovation in Internet-related technology, and frequent reconfiguration of the competitive landscape. Such an environment demands strategic flexibility for a firm to recalibrate its activities frequently.

Trust-Building Capability

Trust plays a significant role in commercial exchange across a wide array of situations (Ganesan 1994; Swan and Nolan 1985). Nowhere is the issue of trust between customers and providers more important than in the area of financial services (e.g., Ricard and Perrien 1999). Likewise, trust has emerged as a major issue in the use of the Internet and e-commerce exchanges (e.g., Reichheld and Schefter 2000; Urban, Sultan, and Qualls 2000). Firms' engendering a perception of trustworthiness is critical because online transactions are laden with issues of security and privacy. Building and maintaining customer trust in the product or service provider is the capstone of strategy implementation on the Internet. A firm builds and develops a sense of trustworthiness through the signals it sends to its customers. For a firm to garner a strong customer base, leveraging trustworthiness through mechanisms such as symbols that have significant meaning and indication of trust is critical. Some of these symbols include the development of recourse and voice mechanisms, information sharing, openness and receptivity in communication patterns, and acts or behaviors that demonstrate honesty and integrity (Johnson and Cullen 2002).

MARKET ORIENTATION: THE PLATFORM FOR LEVERAGING E-COMMERCE CAPABILITIES

As we illustrate in Figure 1, we expect that e-commerce capabilities affect firm performance. A major venue for understanding the impact of firm capabilities has been the conditions or situations in the firm. Investigation of the alignment of firm structures, strategies, and capabilities for superior performance outcomes has provided important theoretical and managerial insights (Vorhies and Morgan 2003). Because firm conditions provide a platform for the utilization of capabilities, we suggest that the firm's market orientation provides a critical backdrop for capabilities to come into play. Defined as a culture focused on being responsive to customer needs and competitor activities, market orientation contributes to the creation of customer value and superior firm performance (Narver and Slater 1990).

Recently, two perspectives on market orientation—namely, the market-driven and the market-driving perspectives—have surfaced (Jaworski, Kohli, and Sahay 2000). According to the market-driven perspective, firms are responsive to the needs and changes of the marketplace, and thus they exhibit responsive market orientation. In contrast, the market-driving perspective posits that firms act to induce changes in the market and thus exhibit *proactive* market orientation (Narver, Slater, and MacLachlan 2000). To provide a comprehensive view of market orientation, we delineate these complementary components, that is, responsive and proactive market orientation.

Responsive Market Orientation

Responsive market orientation underscores the importance of placing the customer at the core of strategic planning and of being receptive and highly sensitive to understanding and serving customer needs (Slater and Narver 1998, 1999). A responsive market orientation involves accepting the structures and constraints of the market as they are. The firm operates on the premise that customers know and can articulate their wants and needs. If such expressed wants and needs are understood, the firm simply responds appropriately to gain competitive advantage and superior performance (Day 1999).

We are not suggesting that responding to markets is not strategically sound but that, in many environments and situations, responding may not be sufficient. For example, the business-to-consumer e-commerce environment is idiosyncratic in at least two ways. First, it is characterized by the constant innovation of services and the interface that enables firms to remain competitive. Second, the technology-savvy and nonsavvy (customers) divide characterizes the e-commerce marketplace. Given such a backdrop, there

are compelling reasons to consider the limitations of a responsive market orientation for e-commerce firms. Indeed, there is reason to believe that a responsive market orientation may detract from innovativeness (Christensen and Bower 1996; Cooper 2000) and that an overload of customer orientation can actually be detrimental to the firm. Thus, although a responsive market orientation provides a platform for leveraging certain capabilities, we argue that responsiveness to expressed customer needs is not enough for an e-commerce firm and that it can be as important to focus on anticipating *latent* (unexpressed) customer needs and on shaping and defining how they can be met.

Proactive Market Orientation

A majority of successful e-commerce products and services, such as online stock trading (E*Trade), online auctions (eBay), interactive customer health care information (WebMD), and name-your-own-price products (Priceline.com), are a result of an astute understanding of latent needs. It is difficult to envision a scenario in which any of these services could have been developed on the basis of an existing set of expressed customer needs. Thus, proactive market orientation (Narver et al. 2000) is an important platform for the implementation of Internet-based strategic plans. Proactive market orientation focuses on understanding, anticipating, and satisfying customers' latent needs (as opposed to expressed needs). Whereas expressed needs are needs that are known and understood by customers, by definition, latent needs are outside the consciousness of customers (Jaworski et al. 2000). Firms often meet latent needs by offering technological advances that enable them to "lead" the customer to new and better value propositions and satisfaction, rather than by responding to customer needs in the expected, previously defined product forms (Narver et al. 2000).

Given that a large number of products and services in the e-commerce arena are technological innovations, it is not likely that customers could articulate most needs and preferences for the products. It is incumbent on the e-commerce firm to anticipate new opportunities and to deliver new benefits that may as of yet be unarticulated and unexpressed in the e-commerce marketplace. In other words, beyond satisfying the expressed needs of their target customers, firms define and shape the markets through proactive market orientation and market-making activities.

MODEL AND HYPOTHESES

Our central premise is that strong, effective e-commerce capabilities generate positive performance outcomes for the firm and that the influence of e-commerce capabilities may vary according to firm-level characteristics or conditions. Specifically, in accordance with the lit-

erature and our extensive interviews of executives, the extent of proactive and responsive market orientation and the various firm-level characteristics (i.e., firm age, experience with the Internet, and whether the firm is pure e-commerce or a “bricks-and-clicks” hybrid) moderate the impact of certain capabilities on performance outcomes. The model shown in Figure 1 illustrates the relationships we expect. In the following sections, and after we explicate performance in the context of e-commerce, we develop the specific hypotheses.

Viewing firm performance at a disaggregated level can be insightful because the subcomponents of performance, which are the complex building blocks of the overarching firm-level outcomes such as market share and profitability, are revealed (March and Sutton 1997). Firm performance in digital environments is complex because it involves the effectiveness of the interface that enables interaction between buyers and sellers (see Häubl and Trifts 2000). Specifically, in our context of online brokerage firms, Internet operations translate into activities such as creating and maintaining a corporate Web site, allowing client account access, and providing real-time trading over the Internet. However, because research on Web site effectiveness shows that factors that initially attract customers to a Web site are not the same as those that are critical for long-term customer retention (Reibstein 2002), we conceptualize Internet operations performance at two levels: (1) Web site performance, or the effectiveness of a firm's Web site, and (2) e-commerce performance, or the overall business performance of a firm's Internet operations. Note that although a firm's Web site effectiveness is determined by indicators such as the site's visitor base, usage rate, and the rate of converting visitors to users (e.g., Agrawal, Arjona, and Lemmens 2001; Watson, Berthon, Pitt, and Zinkhan 2000), a firm's e-commerce performance depends on the sales, growth, and profitability of its Internet venture.

We expect that a firm's responsive and proactive market orientations interact with IT capability in influencing e-commerce performance. Firms that have IT capability possess the skills and the expertise to assess and access the value of technology. They are deft at using technology to attain strategic objectives (Bharadwaj 2000; Grewal et al. 2001). The greater a firm's knowledge and skill base in IT, the more readily it can link with markets and accumulate and process market information, thus increasing e-commerce effectiveness and performance.

Firms with a responsive market orientation listen to their customers, monitor their competitors, and devise strategies to meet customer needs better than competitors do (Narver et al. 2000; Slater and Narver 1995). Highly responsive market-oriented firms heavily access and extensively rely on their IT capabilities. Because strong IT capabilities provide the tools and technique to hone in on

customers and to collect timely information that can be used to implement strategies effectively, the role of IT capabilities and their influence on performance are greater in firms that have a responsive market orientation than in those that do not. For example, British Airways uses IT to monitor continually customer satisfaction after each travel experience. The company logs customer complaints into well-designed databases, and customer service agents use the database to satisfy complaining customers (for details, see Sasser and Klein 1994). Thus,

Hypothesis 1a: The greater the firm's responsive market orientation, the greater is the influence of IT capability on Web site and e-commerce performance.

Often customers are unable either to articulate their needs or even to identify their needs. Such situations arise in the case of innovative offerings in which customers have not experienced their benefits or value and thus might be unable to understand or to anticipate how the innovation could meet their needs. For example, during initial stages of commercialization of the Internet, consumer surveys showed that a large proportion of consumers did not see themselves shopping online. However, with the passage of time, consumers have realized the benefits of online shopping (e.g., easy price comparisons, time saving) and have made online shopping a part of their regular shopping behavior. This example illustrates a proactive market orientation in which firms emphasize uncovering and satisfying latent needs that customers can neither identify nor articulate.

We argue that IT-capable firms with proactive market orientations tend to draw heavily on their IT capabilities to implement strategies that are focused on anticipating and meeting latent needs. Typically, clues pertaining to latent needs are hidden in the information that consumers provide in qualitative research and in observational studies of customer behavioral patterns (Narver et al. 2000). In e-commerce processes, strong IT capabilities play a central role in tracking and unearthing behavioral patterns that are at the core of strategy execution based on latent consumer needs. The more proactively market oriented the firm, the more it will access IT skills to accumulate observation data (e.g., store click-stream data) with optimized data-mining techniques. Mining of these petabytes of data can yield hidden predictive insights that can be gainfully used to execute strategies that are likely favored in proactive market-oriented firms (e.g., Burke, Rangaswamy, and Gupta 2001).

Hypothesis 1b: The greater the firm's proactive market orientation, the greater is the influence of IT capability on Web site and e-commerce performance.

In the e-commerce context, business processes often require adjustment and improvisation (e.g., Moorman and Miner 1998), and thus strategic flexibility should enhance performance in e-commerce. However, resources devoted to strategic flexibility have associated opportunity costs, in which ex post underused resources could have been used more productively (Evans 1991; Grewal and Tansuhaj 2001). Here, we argue that a firm's market orientation defines the utility of strategic flexibility as a performance-enhancing e-commerce capability. In other words, we believe that the effect of strategic flexibility on performance is contingent on the responsiveness rather than the proactiveness of a firm's market orientation.

Firms with responsive market orientations emphasize expressed customer needs, which often remain relatively stable in the short run, changing little from day to day. Major changes in expressed needs most often result from competitor introductions of radically new products that are rapidly accepted by customers (e.g., Cooper 2000). Even if this occurs, responsive market orientations involve knowing and understanding both competitors and customers, suggesting that firms should have a good understanding of competitors' activities. Essentially, this indicates that with a responsive market orientation, firms commit specialized assets to market linking in responsive ways, thereby limiting the possibilities of surprise management. In the absence of surprises, the likelihood of firms productively using flexible resources is minimal, suggesting that the opportunity costs involved in developing flexible skills outweigh the gains for firms with responsive market-oriented cultures. Thus,

Hypothesis 2a: The greater the level of responsive market orientation, the lower is the influence of strategic flexibility on Web site and e-commerce performance.

In the case of firms with proactive market orientations, we expect that strategic flexibility has a positive influence on performance. Firms with proactive market orientations emphasize uncovering and meeting latent customer needs that can be difficult to unearth and that involve an element of surprise (Jaworski et al. 2000; Narver et al. 2000). Because of the characteristics of the resources underpinning it, strategic flexibility enables the firm to develop a range of options to anticipate latent needs (Johnson et al. 2003). As firms uncover unexpressed latent needs, they are able to use flexible resources to alter their Web site design and offering. Proactive market orientation means that firms can leverage strategic flexibility to implement strategies that arise from anticipating and satisfying latent needs, thus outrunning competitors and enhancing revenue of their online operations. Thus,

Hypothesis 2b: The greater the level of proactive market orientation, the greater is the influence of strategic flexibility on Web site and e-commerce performance.

Trust plays an integral role in a variety of commercial exchange relationships across a vast array of situations (Axelrod 1997; Johnson and Cullen 2002). It would not be an overstatement for us to note that without the lubrication of trust, much commercial exchange would simply not happen (Johnson and Cullen 2002). In the context of the online brokerage industry, the importance of trust cannot be overemphasized given the sensitivity and magnitude of the financial exchange involved (e.g., Knights, Noble, Vurdubakis, and Willmott 2001; Ricard and Perrien 1999). Likewise, because online transactions are burdened with security and privacy issues and are characterized by interactions that often occur outside the secure boundaries of traditional institutional controls, community, and interpersonal connection, customer trust may be the most important strategic issue in e-commerce (e.g., Reichheld and Schefter 2000; Urban et al. 2000). Thus, the notion of firms producing and managing trust is compelling, and it is made even more so because even after trust is in place, it does not remain without firms' attending to it. That is, trust must continually be reproduced, reinforced, and reaffirmed (Johnson and Cullen 2002). In the e-commerce context, the greater the firm's knowledge and understanding of how trust is signaled and built and the more skilled the firm is in conveying its trustworthiness to customers, the more effective the firm will be.

Certain firm-level characteristics, such as firm age and Web age (i.e., experience with the Web), are likely to ameliorate a firm's ability to signal trustworthiness. In the tumultuous world of e-commerce, in which organizational longevity is rare, age lends to firm's credibility. Unethical firms are unlikely to survive, and firms that have survived must be more worthy of trust by virtue of their continued survival. Thus, age should serve to buttress and validate a firm's trust-building capability, making its efforts to build trust more credible and effective. The buttressing role of age is particularly important in the financial industry (e.g., Hensmans, van den Bosch, and Volberda 2001; Park and Campbell 2001). In addition to signaling reputation, age also implies that the firm possesses greater knowledge stocks gained from learning and experience. The longer a firm has been in business, the more skilled it is in all aspects of strategy and the more effective it is in leveraging trust-building capabilities. The experience over time should provide a firm with knowledge bases that can couple with trust-building skills to generate positive outcomes. The logic of reputation and learning applies for both age variables (i.e., firm age and Web age). Thus,

Hypothesis 3a: The greater the firm age, the greater is the influence of trust-building capabilities on Web site and on e-commerce performance.

Hypothesis 3b: The greater the Web age, the greater is the influence of trust-building capabilities on Web site and e-commerce performance.

We also expect that the nature of the e-commerce firm framed in terms of whether it is pure e-commerce (clicks-only) or a hybrid form (bricks-and-clicks) moderates the effects of trust-building capabilities on performance. To some extent, this assertion is based on both reputation and experience, as well as on the likelihood of a greater resource base in a hybrid firm. Hybrid firms, which have the advantage of experience with a bricks-and-mortar business format, have knowledge stocks that can be leveraged in the e-commerce arm to facilitate the effectiveness of trust-building efforts. Organizational presence in traditional business formats also provides such firms with strong, positive reputations to complement trust-building efforts. Finally, hybrid firms are likely to have a rich resource base in place from which to draw. The availability of such a resource base can work in tandem with trust-building efforts to enhance performance. Therefore,

Hypothesis 3c: The impact of trust-building capability on Web site and e-commerce performance is greater for bricks-and-clicks hybrid firms than for clicks-only e-commerce firms.

We noted previously the importance of disaggregating the study of performance on the Internet in terms of Web site and e-commerce performance. Note that Web site performance is an important intermediate goal that merits independent attention from e-commerce managers. The literature indicates that "stickiness," or a Web site's ability to draw and retain users, should be the goal for Internet operations (Rosen 2001). Stickiness, which involves notions of loyalty and retention, is a function of both Web offerings and Web site design characteristics, such as interactivity and personalization. Firms can use customers' profiles and prior online behaviors to develop offerings that match personal preferences and enable personalized online responses (Agrawal et al. 2001). Examples of other ways to create stickiness include rewarding customer loyalty and building virtual communities.

Practitioners agree that stickiness, and thus customer retention, is key for e-commerce profitability (Rosen 2001). Garnering customer loyalty is crucial for the generation of high e-commerce performance, given that a customer's lifetime value is critical for long-term profitability (Agrawal et al. 2001). Because Web sites represent a form of nonintrusive customer linking, in which the choice of visiting and interacting is left solely to the customer,

strong e-commerce performance is improbable with an ineffective Web site. Thus,

Hypothesis 4: The greater a firm's Web site performance, the higher is its e-commerce performance.

METHOD

Context and Sample

We selected the online brokerage industry in North America as the context for our research because (1) online brokerage represents a reasonably successful sector of Internet business, making it viable for the study of e-commerce performance, and (2) online brokerage firms provide a universal interface for individual investors to participate in financial markets, which suggests that the industry is a productive context in which to examine Web site performance. This context was also interesting to us because the industry consists of two types of firms. The first type is clicks-only, electronic trading firms (e.g., E*Trade, Ameritrade, etc.) that from inception have dedicated themselves exclusively to online trading and, for the most part, have generated their revenue from Internet operations. The second type includes traditional full-service brokerage firms (e.g., Merrill Lynch, Charles Schwab) that have introduced versions of online trading operations in addition to their existing business.

Given the nature of the industry (several dot-coms offering brokerage services have since folded operations, and others have been acquired by more traditional firms), we constructed our sampling frame using multiple sources. We obtained a list of online brokers from *The Online Broker and Trading Directory* (Chambers 2000). We validated this list further using two different search engines on the Internet, Yahoo and Excite. Because the focus of our study was e-commerce performance, to be included in the sample, a firm needed to use the Internet as a channel of commerce. Consequently, we did not include firms that had only a corporate Web site but no online trading or client account access. This process resulted in a sampling frame of 330 firms.

Data Collection

We combined qualitative and cross-sectional quantitative research approaches. The qualitative part was intended to provide foundation for the quantitative study. First, we designed and conducted it to verify and validate the nomological net, which served as a check to ensure that the model was appropriately bounded. Second, the qualitative component aided in questionnaire development, verifying basic approaches to operationalizations and pro-

viding the basis for item refinement. The third objective of the qualitative component involved pretesting the questionnaire. For the qualitative component, we interviewed senior managers from 10 online brokerage firms located in a large metropolitan area in the northeastern United States; each interview lasted between 45 minutes and 1 hour. The results indicate that the conceptual model adequately represented the determinants of performance in e-commerce, and basic operationalizations were appropriate. For pretesting, we administered the questionnaire to 7 participants and observed firsthand the completion time, obstacles in the questionnaire flow, and comprehension problems in items or instructions. On completion of the questionnaire, we debriefed the respondents to refine the questionnaire further.

The main data collection proceeded in several steps. Our field interviews in the online brokerage industry revealed that the job title of the executive who was most knowledgeable about online strategy implementation varied widely from one firm to another. Thus, we identified the key informant for each firm by individual telephone contact. In some firms, the key informants were marketing managers; in others, they were part of the technology or trading group; and in still others, the chief executive officers were the key informants. However, most key informants held the title of vice president. The telephone-screening phase yielded 315 potential respondents.

The next phase of data collection consisted of a prenotification letter that reminded respondents of their agreement to participate and notified them of the coming survey package. One week later, the mail survey commenced: the survey package included a cover letter that described the project and guaranteed confidentiality with a one-dollar bill attached as a response incentive, a copy of the questionnaire, and a postage-paid self-addressed return envelope. Follow-up involved sending an identical survey package, which we mailed 3 weeks later to managers who had not responded.

The data collection yielded 130 responses of the possible 310, excluding five packages that were undeliverable. Of the 130 responses, 122 were usable, for a response rate of 39 percent. In terms of sample composition, 18 percent of the responses were Internet-based start-up firms, and the remainder were bricks-and-clicks hybrid firms. This composition mirrors the industry split and indicates that our sample represents the online brokerage industry reasonably well.

Development of Question Items

As we mentioned previously, IT capability is conceptualized as a combination of physical IT infrastructure and human IT resources (Bharadwaj 2000). We assessed *IT*

capability with four items that captured the presence of IT infrastructure, IT support staff, and IT skills in the firm. The measurement of *strategic flexibility* focused on resource flexibility and coordination flexibility (Sanchez 1995). Accordingly, six items gauged the firm's ability both to apply or redeploy resources to a range of applications and to be agile and adjust to changes.

Although trust has been the focus of considerable literature (e.g., Ganesan 1994; Morgan and Hunt 1994), *trust-building capability*, or a firm's deliberate intent, ability, and effort to signal its trustworthiness, involves a new perspective and therefore a new measure. Theory suggests that symbolism embedded in actions provides an important mechanism for signaling trustworthiness (Johnson and Cullen 2002); thus, our operationalization consisted of seven items that assessed the firm's intent and effort to develop and use signals that convey trustworthiness to customers.

For *responsive market orientation*, we used Deshpandé and Farley's (1998) synthesis of previously existing scales. Items focused on the extent to which customer satisfaction and understanding customers was emphasized in the firm. The scale also included several items that addressed competitor-related activities. We adapted the measure of *proactive market orientation* from Narver et al.'s (2000) study. It included items involving anticipation of unarticulated customer needs, market redefinition, influence of customer preferences, and the focus on market shaping and market making.

Consistent with our conceptualization, we measured Web site performance and overall e-commerce performance. Managers' perceptions of Web site effectiveness (relative to their expectations) on items such as number of Web site visitors, attraction rate, conversion rate, and frequency of account access assessed *Web site performance* (Agrawal et al. 2001; Watson et al. 2000). We measured *e-commerce performance* in terms of the profitability, sales volume, sales growth, market share, and ROI of the firm's Internet-based operations. Both *firm age* and *Web age* were self-reported. We assessed *nature of the firm* with the following categories: an original bricks-and-mortar firm with newly founded online operations, an original Internet start-up firm with new offline operations, and a pure Internet-based firm with no offline operations.

For the control variables, first we included *firm size*, which was self-reported as the number of employees in the firm. Second, because the literature suggests that the success of programs is influenced by the platform a firm provides for implementation, we included *interfunctional coordination* (e.g., Gatignon and Xuereb 1997) and *administrative function* (Bonoma and Crittenden 1988) as controls. Four items assessed the passing and sharing of information and resources, and functional integration

TABLE 1
Results From CFA Models

Measurement Model	Range of	Construct	Average	NNFI	CFI	SRMR	GFI	χ^2 (df, p value)
	Standardized		Variance					
	Factor Loadings	Reliability	Extracted					
Responsive market orientation	.49-.89	.92	.55	.81	.86	.09	.82	104.5 (27, $p < .01$)
Proactive market orientation	.56-.86	.96	.70	.88	.91	.06	.84	130.5 (44, $p < .01$)
Strategic flexibility—	.62-.79	.92	.57	.93	.95	.07	.90	65.71 (34, $p < .01$)
IT capability	.59-.94	.93	.77					
Web performance—	.69-.96	.93	.74	.89	.91	.06	.80	137.6 (43, $p < .01$)
E-commerce performance	.76-.90	.96	.81					
Interfunctional coordination—	.83-.90	.95	.83	.93	.95	.05	.86	94.71 (43, $p < .01$)
Trust-building capability	.42-.86	.93	.60					

NOTE: NNFI = Nonnormed Fit Index; CFI = Comparative Fit Index; SRMR = standardized root mean square residual; GFI = Goodness-of-Fit Index; df = degrees of freedom.

TABLE 2
Descriptive Statistics

	1	2	3	4	5	6	7	8	9	10	11	12
1. IT capability		.38*	.45*	.40*	.14	-.002	-.22*	.13	.09	.06	.57*	.44*
2. Trust-building capability			.65*	.47*	.29*	-.06	-.08	.18*	.24*	-.19*	.55*	.60*
3. Responsive market orientation				.62*	.19*	-.18	-.04	.19*	.11	-.04	.56*	.71*
4. Proactive market orientation					.27*	-.08	-.12	.26*	.19*	-.08	.46*	.54*
5. Strategic flexibility						.07	.01	.12	-.002	-.05	.36*	.25*
6. Firm age							.07	-.14	-.06	.54*	-.21*	-.16
7. Web age								.01	.14	.17	-.22*	-.11
8. Web site performance									.61*	.05	.19*	.20*
9. E-commerce performance										.02	.03	.14
10. Firm size											-.21*	-.05
11. Interfunctional coordination												.60*
12. Administrative function												
<i>M</i>	4.97	5.90	4.85	4.23	4.42	23.14	4.07	4.11	3.84	3.15	4.87	4.74
<i>SD</i>	1.36	1.05	1.17	1.32	1.41	31.94	2.52	1.2	1.36	2.46	1.27	1.08

* $p < .05$.

comprised the measure of interfunctional coordination. For administrative functions, we included items on interaction functions, such as persuasion, negotiation, and conflict management; items on allocation, such as budgeting, time, and cost controls; and items on monitoring with regard to performance and market changes. All our multi-item measures are detailed in the appendix.

Data Analysis

We conducted confirmatory factor analyses (CFA) to assess the validity of our reflective measures. We grouped similar constructs into measurement models, as we show in Table 1. The CFA models show adequate levels of fit, and all the factor loadings were greater than .4. All the composite reliabilities were greater than .7 (Nunnally and Bernstein 1994), and in all cases, the average variances extracted were greater than .5. In addition, all observed variables had significant factor loadings linked with the

latent constructs, which provided evidence of convergent validity (Anderson and Gerbing 1988).

We assessed discriminant validity with CFA models of paired constructs (Bagozzi, Yi, and Philips 1991). For each pair, we estimated two models—an unconstrained model (ϕ estimated) and a constrained model (ϕ constrained to 1.0)—and compared the two model fits. In all cases, we obtained a significantly lower chi-square value for the unconstrained model ($p < .01$), demonstrating discriminant validity.

Measures of the administrative function construct were developed as formative. We chose a formative approach (rather than a reflective approach) because we conceptualized administrative function as a combination of indicators of interaction skills, allocation skills, and monitoring skills, not as a latent construct that gives rise to observed indicators (Diamantopoulos and Winklhofer 2001). Given a formative approach, the major concern in validation is the precision and thoroughness with which the construct

TABLE 3
Three-Stage Least Squares Results^a

Variable Category	Independent Variable	Web Site Performance		E-Commerce Performance	
		B	SE	B	SE
Controls	Constant	3.365	.550	1.338	.591
	Firm size ^b	.098*	.053	-.006	.050
	Firm age (FA)	-.174	.113	-.020	.106
	Interfunctional coordination (IF)	-.074	.124	.207*	.115
	Administrative function (AF)	-.035	.144	-.014	.134
Moderators	Web age (WA)	.045	.042	.084*	.039
	Nature of firm (NAT)	.275*	.160	-.104	.150
	Responsive market orientation (RMO)	-.002	.146	.110	.136
	Proactive market orientation (PMO)	-.179*	.098	-.123	.093
Capabilities	IT capability (IT)	.076	.094	-.067	.087
	Strategic flexibility (FX)	-.031	.042	.076*	.039
	Trust-building capability (TR)	.202	.609	-1.05*	.566
Interactions	IT × RMO	.043	.076	-.054	.070
	IT × PMO	.060	.064	.180*	.060
	FX × RMO	-.108*	.042	.014	.040
	FX × PMO	.071*	.038	-.061*	.036
	TR × FA	-.061	.098	.118	.091
	TR × WA	-.030	.028	-.015	.026
Performance	Web site performance	—	—	.585*	.088
	Overall model fit	Model R^2	.26	.49	

a. We report standard errors and one-tailed tests for hypothesized effects.

b. Consistent with prior research (e.g., Geyskens, Gielens, and Dekimpe 2002), for firm size, we took log transform of the number of employees.

* $p < .05$.

domains are established and tapped (Edwards and Bagozzi 2000). Our procedures of in-depth interviews and extensive debriefing of pretest participants, along with a visual inspection of the items, provide evidence of validity. Table 2 shows the correlations and descriptive statistics of composite scales for hypotheses testing.

RESULTS

In terms of the two related dependent variables, we estimated a three-stage least squares model with Web site performance and e-commerce performance as the dependent variables to test our hypotheses (see Table 3). We created indicators for all latent constructs by averaging the item scores for the respective measures. For the interaction hypotheses, we created product terms for the concerned explanatory variables. However, because this approach is prone to multicollinearity, we mean-centered the variables before multiplying them to create interaction terms (Aiken and West 1996). The variance inflation factors and condition indices did not indicate any multicollinearity concerns.

We specified the statistical model as follows:

$$WP_i = \alpha_0 + \alpha_1 IF_i + \alpha_2 AF_i + \alpha_3 FS_i + \alpha_4 RMO_i + \alpha_5 PMO_i + \alpha_6 IT_i + \alpha_7 (IT_i \times RMO_i) + \alpha_8 (IT_i \times PMO_i) + \alpha_9 FX_i + \alpha_{10} (FX_i \times$$

$$RMO_i) + \alpha_{11} (FX_i \times PMO_i) + \alpha_{12} TR_i + \alpha_{13} FA_i + \alpha_{14} WA_i + \alpha_{15} NAT_i + \alpha_{16} (TR_i \times FA_i) + \alpha_{17} (TR_i \times WA_i) + \alpha_{18} (TR_i \times NAT_i) + \epsilon_i$$

$$EPI_i = \beta_0 + \beta_1 IF_i + \beta_2 AF_i + \beta_3 FS_i + \beta_4 RMO_i + \beta_5 PMO_i + \beta_6 IT_i + \beta_7 (IT_i \times RMO_i) + \beta_8 (IT_i \times PMO_i) + \beta_9 FX_i + \beta_{10} (FX_i \times RMO_i) + \beta_{11} (FX_i \times PMO_i) + \beta_{12} TR_i + \beta_{13} FA_i + \beta_{14} WA_i + \beta_{15} NAT_i + \beta_{16} (TR_i \times FA_i) + \beta_{17} (TR_i \times WA_i) + \beta_{18} (TR_i \times NAT_i) + \beta_{19} WP_i + \epsilon_2,$$

where

- WP_i = the first dependent variable, Web site performance for Firm i
- α_0 = the constant in the first equation
- α_1 to α_{18} = the coefficients of influence for the explanatory variables in the first equation
- EPI_i = the second dependent variable, e-commerce performance for Firm i
- β_0 to β_{19} = the coefficients of influence for the explanatory variables in the second equation
- IF_i = interfunctional coordination for Firm i
- AF_i = administrative function for Firm i
- FS_i = firm size for Firm i
- RMO_i = responsive market orientation for Firm i
- PMO_i = proactive market orientation for Firm i
- IT_i = IT capability for Firm i
- FX_i = strategic flexibility for Firm i
- TR_i = trust-building capability for Firm i
- FA_i = firm age for Firm i

WA_i	=	Web age for Firm i
NAT_i	=	nature of the firm for Firm i
ϵ_1	=	the error term in the first equation
ϵ_2	=	the error term in the second equation

We hypothesized that the effects of IT capability and strategic flexibility interact with market orientation to influence firm performance variables. Consistent with the hypotheses, our results show that proactive market orientation moderates the influence of IT capability, such that proactive market orientation increases the effect of IT capability on e-commerce performance (Hypothesis 1b: $b = .18, p < .05$). However, proactive market orientation does not moderate the effect of IT capability on Web site performance (Hypothesis 1b), nor does responsive market orientation on Web site and e-commerce performance (Hypothesis 1a).

We find partial support for the interaction between strategic flexibility and responsive market orientation such that flexible resources are not useful for responsive market-oriented firms in terms of Web site performance (Hypothesis 2a: $b = -.108, p < .05$); this interaction is not significant for e-commerce performance. For the interaction between strategic flexibility and proactive market orientation, we find support for Web site performance such that flexible resources enhance the Web site performance of proactive market-oriented firms (Hypothesis 2b: $b = .071, p < .05$). However, for e-commerce performance, the results are opposite to that hypothesized, suggesting that flexible resources decrease the e-commerce performance of proactive market-oriented firms (Hypothesis 2b: $b = -.061, p < .05$). We discuss this anomalous finding in the next section.

We hypothesized that firm-level characteristics (i.e., firm age, Web age, and nature of the firm) moderate the impact of trust-building capability on the performance variables. Our results show no significant moderating effects for firm age (Hypothesis 3a), Web age (Hypothesis 3b), or nature of the firm (Hypothesis 3c). The final hypothesis pertaining to the positive impact of Web site performance on e-commerce performance is supported. Higher levels of Web site performance lead to better e-commerce performance (Hypothesis 4: $b = .585, p < .05$).

Regarding effect size, 26 percent of the variability in our first dependent variable, Web site performance, was accounted for by the independent variables ($r^2 = .26$), and 49 percent of the variability in our second dependent variable, e-commerce performance, was explained by our independent variables ($r^2 = .49$). To gauge the relative effects of particular independent variables, we relied on standardized regression coefficients (standardized betas) for all predictor variables. The standardized regression coefficients for statistically significant effects ranged from -2.56 to 1.86 for Web site performance and from -1.86 to 6.64 for e-commerce performance. The regression coeffi-

cients and standard errors (in parentheses) are reported in Table 3.

DISCUSSION AND IMPLICATIONS

In this article, we attempted to offer some understanding of drivers of e-commerce performance through a capabilities perspective. We advanced the notion of e-commerce capabilities, identified a set of capabilities that are relevant to the technology-driven context of e-commerce, and tested their influence on performance outcomes specific to e-commerce. We conceived firms' market orientation and other firm-level characteristics as providing a platform for leveraging e-commerce capabilities. Thus, we took a disaggregated view of firm performance on the Internet (Web site performance and e-commerce performance), and we posited that managers should focus on both Web-based and business-related metrics to assess their firm's performance on the Internet. Our results indicate notable findings with respect to managing e-commerce capabilities.

Our results show that IT capability in conjunction with proactive market orientation is critical for superior performance on the Internet. In this technology-driven and dynamic market environment, there is a payoff in anticipating and shaping customer needs and wants (as indicated by proactive market orientation). Proactively market-oriented firms are more likely to leverage IT skills for the collection, storage, and analysis of customer data in order to predict future customer behavior. Here, IT capability provides the requisite synergy to enhance e-commerce performance. IT skills are also likely to be firm specific, thereby contributing to the firm's competitive advantage in e-commerce performance. Note that we do not find a significant effect of the interaction between IT capability and proactive market orientation on Web site performance. This indicates that the moderating impact of market orientation (responsive or proactive) for IT capability is really only discernible on performance variables such as growth, profitability, and market share.

We argued that strategic flexibility provides the firm with the ability to take advantage of market opportunities. Our results show that, as we hypothesized, the interplay between strategic flexibility and market orientation is quite complex. First, from the standpoint of Web site performance, for firms with responsive market orientations, flexible resources are unlikely to be used, and the opportunity costs associated with building and maintaining flexible resources are likely to outweigh the gains. However, for firms with proactive market orientations, flexible resources help in managing highly probable surprises, and the benefits outweigh any costs. Second, although the interaction between responsive market orientation and strategic flexibility does not affect e-commerce perfor-

mance, contrary to our hypothesis, the interaction between proactive market orientation and strategic flexibility adversely influences e-commerce performance. More important, however, the net interaction effect, $-.061 + .585 \times .071 = .019$, is statistically equal to zero. Nevertheless, the positive effect of proactive market orientation on Web site performance juxtaposed with the negative effect of proactive market orientation on e-commerce hints at the possibility of different antecedents for the two performance measures. In addition to underscoring the importance of disaggregated performance measures, these differential effects suggest that firms in our sample were able to use flexible resources to meet latent needs directed at Web site performance, such as attracting potential customers to the Web site. However, these firms were unable to use the flexible resources to meet latent needs that affect e-commerce performance. We conjecture that although the proactive firm attracts customers to its Web site, the costs of maintaining flexibility overwhelm any potential profits. More research is needed to understand the interplay between market orientation and strategic flexibility.

While we do not find statistical support for the interaction between trust-building capability and age of the firm, the results indicate marginal evidence ($p < .10$) that the more established or older the firm, the more likely that its trust-building capabilities have a positive impact on e-commerce performance. This reiterates the common notion that established firms likely have credibility already in place with customers and suppliers, and newly found e-commerce firms must start from scratch.

Finally, our study also documents the impact of Web site performance on the firm's overall e-commerce performance. In general, Web sites are part of a nonintrusive medium; therefore, unless they are effective in attracting, converting, and retaining a sizable customer base, e-commerce performance will remain elusive for firms. The power of a Web site to convert customer visits into purchases in large numbers is critical. Doing so within a framework that delivers profits and thus enhances the firm's bottom line is even more critical.

Theoretical Contributions and Implications

Operating in an evolving Internet economy demands resource allocation and capability development for appended structures and processes. That e-commerce-based firms face unique challenges was nowhere more evident than in the steep decline of the dot-coms at the end of the past century. Our research responds to the need, pointed out by both scholars and practitioners, for a more systematic study of performance drivers in e-commerce, given the enormous potential of the Internet.

We believe that our study makes the following contributions to the growing literature on both capabilities and

e-commerce: (1) We identify, conceptualize, and measure three capabilities for e-commerce and use firm-level data to contribute new empirical insights. (2) Our notion of examining performance in e-commerce from a capabilities perspective brings forth the theoretical insights of the resource-based view of the firm, in that firm capabilities, due to their heterogeneity as intangible resources, explain the presence of sustainable competitive advantage. Our framework, thus, explicitly links e-commerce capabilities to firm performance. (3) Finally, we also extend the literature on market orientation by developing and testing a valid and reliable measure of proactive market orientation.

Managerial Contributions and Implications

Our research provides several insights for managers who want to implement Internet-related strategies. First, a focus on proactive market orientation would provide the requisite impetus required for effectively using e-commerce capabilities. We recommend that managers use IT-related tools and creative market research techniques to uncover latent needs. Managers could use need-uncovering approaches, such as the probing of unconscious needs and participatory observation. However, e-commerce firms will need to make both structural and behavioral adjustments to institutionalize these techniques.

Second, our results re-iterate the popular view that creating and maintaining an effective Web site is critical to superior financial performance in e-commerce. Hence, Web site design and maintenance deserves priority status for resource allocation purposes. Third, and more important, we advance a framework for managers to understand the drivers of e-commerce performance in terms of firm-level capabilities. Managers can derive the appropriate capabilities by examining both their industry context and the firm's core processes in tandem. When these e-commerce capabilities are identified, they can be built, measured, monitored, and improved so that managers can tap into them frequently to execute strategies.

Limitations and Future Research

The context for this study serves as both a strength and a limitation. The online brokerage industry provided a worthwhile setting because the capabilities involved (e.g., IT capability, trust-building capability) are particularly relevant. However, the setting is relatively unique, and thus to ensure generalizability, the effects of capabilities should be examined in other e-commerce contexts. Not only is the context of online brokerage fairly unique, but also during the past several years, all brokerage service firms have undergone difficult times with regard to credibility. Negative press has been frequent, and Wall Street has been under scrutiny, with trustworthiness or, specifi-

cally, the lack of trustworthiness a weekly topic in the business press. Thus, the pattern of findings exhibited in this study needs to be replicated in other e-commerce contexts, such as in online retailing. It would be interesting to determine whether the core e-commerce capabilities vary from context to context. Although we focused only on one aspect of a firm's culture (i.e., its market orientation), there are other firm-level factors that might influence how firm capabilities unfold in an e-commerce setting. Some worthwhile and relevant firm-level factors that could be considered in future research include the degree of formalization and centralization in a firm, the degree of conflict, and the extent of procedural justice.

With respect to the measurement of performance variables, our study is limited to retrospective and subjective measures of performance based on key informant data; therefore, the results are constrained by issues related to common method variance. Retrospective subjective measures based on key informant data could also suffer from hindsight bias. Given that new and improved objective measures of Web site and e-commerce performance are now available, future research using objective data could add substantive value to our findings. Future scales developed to capture Web site performance should also build in measures to capture the nature and extent of interaction with the Web site. Finally, future work should consider a longitudinal design to delineate more clearly the causal attributions hypothesized in our framework.

APPENDIX Measures

IT Capability (Bharadwaj 2000; Grewal, Comer, and Mehta 2001; scale anchors 1 = *strongly disagree*, 7 = *strongly agree*)

My firm currently . . .

- Has strong technical support staff.
- Has adequate information technology (IT) infrastructure capabilities.
- Has the skills to integrate the various IT components.
- Has a reliable and state-of-the-art order processing system.

Strategic Flexibility (new measure; scale anchors 1 = *not at all*, 7 = *very easy*)

On the scale provided, please indicate the extent to which it is easy for your firm to . . .

- Make changes in the services offered.
- Switch focus to different targets/markets.
- Apply resources to a wide range of uses.
- Switch the uses and applications of resources.
- Modify services to offer different benefits.
- Make fast changes in how resources are used.

Trust-Building Capability (new measure; scale anchors 1 = *very easy*, 7 = *very difficult*)

In my firm . . .

- The ability to convey a reputable image to the market is important.
- We have the ability to signal that we are reliable.
- We spend a lot of time and effort to build trust in the marketplace.
- We are good at letting our customers know they can count on us.
- We have worked hard to establish a brand name that our customers can trust.
- We know how to send the message to our customers that we can be trusted.
- We work hard to let our customers know that we are a reliable and credible firm.

Responsive Market Orientation (Deshpandé and Farley 1998; scale anchors 1 = *strongly disagree*, 7 = *strongly agree*; * indicates items deleted in purification)

- Our strategy for competitive advantage is based on our understanding of customer needs.*
- Our business objectives are driven primarily by customer satisfaction.*
- We constantly monitor our level of commitment to serving customer needs.
- We measure customer satisfaction systematically and frequently.
- We are more customer focused than our competitors.
- Our employees regularly share information concerning competitor's strategies.
- We rapidly respond to competitors' actions.
- Top management regularly discusses competitors' strengths and strategies.
- Data on customer satisfaction are disseminated regularly at all levels in our firm.

Proactive Market Orientation (Narver et al. 2000; scale anchors 1 = *not at all*, 7 = *to a very large extent*)

With respect to the practices of your firm, please indicate your opinion on the following:

- We help our customers anticipate developments in their use of our products and services.
- We believe that we can greatly influence customers' preferences in what they want from new products and services.
- We often act as market makers with our new product and service introductions.
- We try to discover additional needs of our customers for which they are unaware.
- We innovate even at the risk of making our own offerings obsolete.
- We search for opportunities where customers have a difficult time expressing their needs.

We extrapolate key trends to gain insight into what current users will need in the future.

Our new offerings incorporate solutions to needs not yet articulated by the customer.

With our new offerings, we try to redefine how customers and competitors think of the category.

We work with lead users of our offerings to recognize customer needs months in advance of the majority of users.

We try to develop new offerings that actually change the form and shape of market demand.

Web Site Performance (Agrawal, Arjona, and Lemmens 2001; Watson et al. 2000; scale anchors 1 = *very low*, 7 = *very high*)

Please rate the performance of your firm's *Web site*.

Number of Web site visitors relative to expectations.

Rate of attracting Web site visitors relative to expectations.

Number of Web site account users relative to expectations.

Rate of converting Web site visitors to account users relative to expectations.

Frequency of account access per client relative to expectations.

E-Commerce Performance (scale anchors 1 = *very low*, 7 = *very high*)

Please rate each aspect of your firm's *online performance* on the scale provided.

Online profitability relative to expectations.

Online sales volume relative to expectations.

Online return on investment (ROI) relative to expectations.

Online profits relative to competitors.

Market share of online offerings relative to expectations.

Online sales growth relative to expectations.

Nature of the Firm

Please check one of the following that most closely describes your firm.

Originally a bricks-and-mortar firm with newly founded online operations.

Originally an Internet start-up firm, now entering into offline operations.

Purely an Internet-based firm with no offline operations.

Interfunctional Coordination Capability (Gatignon and Xuereb 1997; Narver and Slater 1990; scale anchors 1 = *strongly disagree*, 7 = *strongly agree*)

For the most part, in my firm . . .

We are skilled at passing and sharing information between functions (e.g., between marketing and IT).

We work hard to make functional integration a part of our firm's strategy.

The various functional areas are highly capable in resource sharing and integration.

We are highly skilled at coordinating all the firm's functions so they work well together.

Administrative Function (new measure; scale anchors 1 = *strongly disagree*, 7 = *strongly agree*)

In dealing with both internal and external matters, managers in my firm can be described as having strong (a) persuasion skills, (b) negotiation skills, (c) conflict management skills.

In my firm, we put a heavy emphasis on (a) developing budgeting skills of our managers, (b) time management skills of our managers, (c) cost control skills of our managers.

Please state your level of agreement with the following: (a)

We devote resources to develop our managers' monitoring skills and mechanisms, (b) we encourage our managers to review and track strategy and program performance, (c) we evaluate our managers on their ability to monitor changes in the marketplace.

Firm Size

Number of employees in your firm (please check one)

Less than 50

50-99

100-199

200-499

500-699

700-999

1,000-5,000

More than 5,000

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REFERENCES

- Agrawal, Vikas, Luis D. Arjona, and Ron Lemmens. 2001. "E-Performance: The Path to Rational Exuberance." *The McKinsey Quarterly* 2001 (1): 31-43.
- Aiken, Leona S. and Stephen G. West. 1996. *Multiple Regression: Testing and Interpreting Interactions*. Thousand Oaks, CA: Sage.
- Amit, Raphael and Christoph Zott. 2001. "Value Creation in E-Business." *Strategic Management Journal* 22 (June/July): 493-520.
- Anderson, James C. and David W. Gerbing. 1988. "Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach." *Psychological Bulletin* 103 (May): 411-423.
- Axelrod, Robert M. 1997. *The Complexity of Co-Operation*. Princeton, NJ: Princeton University Press.

- Bagozzi, Richard P., Youjae Yi, and Lynn W. Philips. 1991. "Assessing Construct Validity in Organizational Research." *Administrative Science Quarterly* 36 (September): 421-458.
- Barney, J. 2001. "Resource-Based Theories of Competitive Advantage: A Ten-Year Retrospective on the Resource-Based View." *Journal of Management* 27 (6): 643-650.
- Bharadwaj, Anandhi S. 2000. "A Resource-Based Perspective on Information Technology Capability and Firm Performance: An Empirical Investigation." *MIS Quarterly* 24 (March): 169-196.
- Bonoma, Thomas V. and Victoria L. Crittenden. 1988. "Managing Marketing Implementation." *Sloan Management Review* 29 (Winter): 7-14.
- Burke, Raymond R., Arvind Rangaswamy, and Sunil Gupta. 2001. "Re-thinking Market Research in the Digital World." In *Digital Marketing*. Eds. Jerry Wind and Vijay Mahajan. New York: John Wiley, 226-255.
- Chambers, Larry. 2000. *The Online Broker and Trading Directory*. New York: McGraw-Hill.
- Christensen, Clayton M. and Joseph L. Bower. 1996. "Customer Power, Strategic Investment, and the Failure of Leading Firm." *Strategic Management Journal* 17 (March): 197-218.
- Clemons, Eric K. and Stephen P. Bradley. 2001. "Strategic Uncertainty and the Future of Electronic Consumer Interaction: Developing Scenarios, Adapting Strategies." In *Digital Marketing*. Eds. Jerry Wind and Vijay Mahajan. New York: John Wiley, 78-101.
- Cooper, Lee G. 2000. "Strategic Marketing Planning for Radically New Products." *Journal of Marketing* 64 (January): 1-16.
- Day, George S. 1994. "The Capabilities of Market-Driven Organizations." *Journal of Marketing* 58 (October): 37-52.
- . 1999. *The Market Driven Organization: Understanding, Attracting, and Keeping Valuable Customers*. New York: Free Press.
- Deshpandé, Rohit and John U. Farley. 1998. "Measuring Market Orientation: Generalization and Synthesis." *Journal of Market Focused Management* 2 (3): 213-232.
- Diamantopoulos, Adamantios and Heidi M. Winklhofer. 2001. "Index Construction With Formative Indicators: An Alternative to Scale Development." *Journal of Marketing Research* 38 (May): 269-278.
- Edwards, Jeffrey R. and Richard P. Bagozzi. 2000. "On the Nature and Direction of Relationships Between Constructs and Measures." *Psychological Methods* 5 (2): 155-174.
- Eisenhardt, Kathleen M. and Jeffrey A. Martin. 2000. "Dynamic Capabilities: What Are They?" *Strategic Management Journal* 21 (October/November): 1105-1121.
- Evans, J. Stuart. 1991. "Strategic Flexibility for High Technology Maneuvers: A Conceptual Framework." *Journal of Management Studies* 28 (January): 69-89.
- Ganesan, Shankar. 1994. "Determinants of Long-Term Orientation in Buyer-Seller Relationships." *Journal of Marketing* 58 (April): 1-19.
- Gatignon, Hubert and Jean-Marc Xuereb. 1997. "Strategic Orientation of the Firm and New Product Performance." *Journal of Marketing Research* 34 (February): 77-90.
- Geyskens, Inge, Katrijn Gielens, and Marnik G. Dekimpe. 2002. "The Market Valuation of Internet Channel Additions." *Journal of Marketing* 66 (April): 102-119.
- Grewal, Rajdeep, James M. Comer, and Raj Mehta. 2001. "An Investigation Into the Antecedents of Organizational Participation in Business-to-Business Electronic Markets." *Journal of Marketing* 65 (July): 17-33.
- and Patriya Tansuhaj. 2001. "Building Organizational Capabilities for Managing Economic Crisis: The Role of Market Orientation and Strategic Flexibility." *Journal of Marketing* 65 (April): 67-80.
- Häubl, Gerald and Valerie Trifts. 2000. "Consumer Decision Making in Online Shopping Environments: The Effects of Interactive Decision Aids." *Marketing Science* 19 (Winter): 4-21.
- Helfat, Constance E. and Margaret A. Peteraf. 2003. "The Dynamic Resource-Based View: Capability Lifecycles." *Strategic Management Journal* 24 (10): 997-1010.
- Hensmans, Manuel, Frans A. J. van den Bosch, and Henk W. Volberda. 2001. "Clicks vs. Bricks in the Emerging Online Financial Industry." *Long Range Planning* 34 (April): 231-247.
- Jaworski, Bernard J., Ajay K. Kohli, and Arvind Sahay. 2000. "Market-Driven Versus Driving Markets." *Journal of the Academy of Marketing Science* 28 (Winter): 45-54.
- Johnson, Jean L. and John B. Cullen. 2002. "Trust in Cross-Culture Relationships." In *Handbook of Cross-Cultural Management*. Eds. M. J. Gannon and K. L. Newman. London: Blackwell, 335-360.
- , Ruby Pui-Wan Lee, Amit Saini, and Bianca Grohmann. 2003. "Market-Focused Strategic Flexibility: Conceptual Advances and an Integrative Model." *Journal of the Academy of Marketing Science* 31 (Winter): 74-89.
- Knights, David, Faith Noble, Theo Vurdubakis, and Hugh Willmott. 2001. "Chasing Shadows: Control, Virtuality and the Production of Trust." *Organization Studies* 22 (2): 311-336.
- Mahajan, Vijay, Raji Srinivasan, and Jerry Wind. 2002. "The Dot.com Retail Failures of 2000: Were There Any Winners?" *Journal of the Academy of Marketing Science* 30 (4): 474-486.
- March, James G. and Robert I. Sutton. 1997. "Organizational Performance as a Dependent Variable." *Organization Science* 8 (November/December): 698-706.
- Moorman, Christine and Anne S. Miner. 1998. "The Convergence of Planning and Execution: Improvisation in New Product Development." *Journal of Marketing* 62 (July): 1-20.
- Morgan, Robert M. and Shelby D. Hunt. 1994. "The Commitment-Trust Theory of Relationship Marketing." *Journal of Marketing* 58 (July): 20-38.
- Narver, John C. and Stanley F. Slater. 1990. "The Effect of a Market Orientation on Business Profitability." *Journal of Marketing* 54 (October): 20-35.
- , ———, and Douglas L. MacLachlan. 2000. "Total Market Orientation, Business Performance, and Innovation." Report No. 00-116. Marketing Science Institute, Cambridge, MA.
- Nunnally, Jum C. and Ira H. Bernstein. 1994. *Psychometric Theory*. New York: McGraw-Hill.
- Parasuraman, A. and George M. Zinkhan. 2002. "Marketing to and Serving Customers Through the Internet: An Overview and Research Agenda." *Journal of the Academy of Marketing Science* 30 (4): 286-295.
- Park, Robert and Andrew Campbell. 2001. "E-Commerce in Financial Services: An E-Agenda for the Corporate Parent." *European Management Journal* 19 (August): 417-423.
- Porter, Michael E. 2001. "Strategy and the Internet." *Harvard Business Review* 79 (March): 63-78.
- Reibstein, David J. 2002. "What Attracts Customers to Online Stores, and What Keeps Them Coming Back?" *Journal of the Academy of Marketing Science* 30 (4): 465-473.
- Reichheld, Frederick F. and Phil Scheffer. 2000. "E-Loyalty: Your Secret Weapon on the Web." *Harvard Business Review* 78 (July/August): 105-113.
- Ricard, Line and Jean Perrien. 1999. "Explaining and Evaluating the Implementation of Organizational Relationship Marketing in the Banking Industry: Client's Perception." *Journal of Business Research* 45 (June): 199-209.
- Rosen, Sheri. 2001. "Sticky Web Site Is Key to Success." *Communication World* 18 (April/May): 36.
- Sanchez, Ron. 1995. "Strategic Flexibility in Product Competition." *Strategic Management Journal* 16 (Special Issue): 135-159.
- Sasser, W. Earl, Jr. and Norman Klein. 1994. *British Airways: Using Information Systems to Better Serve Customers*. Case No. 9-395-065. Cambridge, MA: Harvard Business School Press.
- Slater, Stanley F. and John C. Narver. 1995. "Market Orientation and the Learning Organization." *Journal of Marketing* 59 (July): 63-74.
- and ———. 1998. "Customer-Led and Market-Oriented: Let's Not Confuse the Two." *Strategic Management Journal* 19 (October): 1001-1006.
- and ———. 1999. "Market-Oriented Is More Than Being Customer-Led." *Strategic Management Journal* 20 (December): 1165-1168.
- Swan, John E. and Johannah Jones Nolan. 1985. "Gaining Customer Trust: A Conceptual Guide for the Salesperson." *Journal of Personal Selling & Sales Management* 5 (November): 39-48.
- Urban, Glen L., Fareena Sultan, and William Qualls. 2000. "Placing Trust at the Center of Your Internet Strategy." *Sloan Management Review* 42 (Fall): 39-48.

- Varadarajan, P. Rajan and Manjit S. Yadav. 2002. "Marketing Strategy and the Internet: An Organizing Framework." *Journal of the Academy of Marketing Science* 30 (4): 296-312.
- Vorhies, Douglas W. and Neil A. Morgan. 2003. "A Configuration Theory Assessment of Marketing Organization Fit With Business Strategy and Its Relationship With Marketing Performance." *Journal of Marketing* 67 (1): 100-115.
- Watson, Richard T., Pierre Berthon, Leyland F. Pitt, and George M. Zinkhan. 2000. *Electronic Commerce: A Strategic Perspective*. Fort Worth, TX: Dryden.
- Winter, Sidney G. 2000. "The Satisficing Principle in Capability Learning." *Strategic Management Journal* 21 (October/November): 981-996.
- Zollo, Maurizio and Sidney G. Winter. 2002. "Deliberate Learning and the Evolution of Dynamic Capabilities." *Organization Science* 13 (May/June): 339-351.

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