

# **E-Competitive Transformations**

## **Detmar Straub**

J. Mack Robinson Distinguished Professor of Information Systems  
Computer Information Systems Department  
Robinson College of Business  
Georgia State University

## **Richard Klein**

Computer Information Systems Department  
Robinson College of Business  
Georgia State University

[dstraub@gsu.edu](mailto:dstraub@gsu.edu)

[rklein@gsu.edu](mailto:rklein@gsu.edu)

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# E-Competitive Transformations

## Abstract

A major challenge for high level corporate managers today is to develop strategies that make the best use of the firm's existing technology base while acquiring appropriate innovations for fulfilling firm goals and maintaining competitive advantage. Electronic Commerce (e-Commerce) comprises a broad range of activities and technologies that a firm can potentially deploy to meet this goal, but firms must have clearly articulated strategies in order to take advantage of these technologies. In many instances, these strategies are not evident, made obvious by the fact that the Internet sites of even very large companies are mere "brochureware," providing little more than basic information about the firm's products and services. At the other extreme, some organizations are placing the World Wide Web at the center of their overall business goals. In these firms, new organizational structures such as virtual designs are being instituted to support sizable e-Commerce efforts and managers of these efforts are being placed high in the hierarchy, often at the VP or executive VP level.

Given that nearly all firms today have a broad range of technologies available to them as a result of advances in recent years, it is extraordinary that a consensus on the appropriate set of strategic objectives for sustainable advantage has eluded both practitioners and academics. Indeed, capable executives are asking, "How should e-Commerce be deployed to strategically transform my organization?"

Answers to such questions were revealed in a recent Georgia State University study in which we interviewed over 130 e-Commerce strategists and technologists in over 80 U.S. firms, half of whom had over \$1 billion in annual revenues. Our research shows that successful integration of e-Commerce occurs when organizations progress through three levels. First order initiatives at the *alpha* effect level are aimed at realizing financial gain via *increasing productivity and/or reducing production costs*. Within this set of activities, e-Commerce technologies are seen solely as a means of improving the bottom line. By contrast, second order effects at the *beta* level involving *pursuit of new markets and increasing the existing revenue streams* often become the main thrust of the firm's e-Commerce activities. Third order effects from *omega* "order of magnitude" activities lead inevitably to firms transforming their core business strategies in the interest of achieving "*omega level e-Competitive Transformation*," which leads to a sustainable competitive advantage. Here the implementation of technologies dramatically changes the competitive environment itself, i.e., how goods and services are produced to demand, targeted to a market-of-one, and distributed. This level finds firms gathering customer data they have never had access to before and using it in unique ways. This proprietary data serves as the basis for sustaining a competitive edge.

## Introduction

The top challenge of high level corporate managers is “to assure that the priorities of their information technology organizations are in line with the business strategies of their corporations,” according to a Computer Science Corporation survey of 600 CIOs (1998). This requires developing strategies that make the best use of the firm's existing technology base while acquiring appropriate innovations for fulfilling firm goals and maintaining competitive advantage.

Electronic Commerce (e-Commerce) comprises a broad range of activities and information technologies (IT) that a firm can potentially deploy to meet this goal. However, before any business implements an e-Commerce strategy, it needs to articulate clear objectives and expectations to proscribe that course of action. Goldberg (1998) notes that “many have entered this medium in a haphazard way because senior management never made a conscious decision to move in this direction.” In many instances, Internet sites of even very large companies are mere “brochureware,” providing little more than basic information about the firm's products and services.

At the other extreme, some organizations are placing the World Wide Web at the center of their overall business strategy. In these firms, new organizational structures such as virtual designs and outsourcing are being instituted to support sizable e-Commerce efforts (Useem and Harder, 2000). Managers of these efforts are being placed high in the hierarchy, often at the VP or executive VP level, and being told to be entrepreneurial (Eisenhardt, 1999). Large-scale firm resources are being mustered to exploit the Web and business-to-business (B2B) informational/transactional exchanges.

For firms positioned at the brochureware stage, the implementation of an organizational Internet site serves as a substitute medium for corporate communications and advertising. In many cases, the technology will result in a cost-effective utilization of advertising funds, assuming that this was indeed the going-in objective. At the other end of the spectrum, firms like Amazon.com and Webvan have implemented a broader range of technologies aimed at fulfilling a far more complex set

of objectives and expectations, from providing a portal for sales to developing a comprehensive database on customers (Li, et al., 1998).

Given that nearly all firms today have a broad range of IT available to them as a result of advances in recent years, it is extraordinary that a consensus on the appropriate set of objectives yielding sustainable advantage has eluded both practitioners and academics. The emergence of the marketspace (Rayport and Sviokla, 1995) is forcing executives to consider how this virtual marketplace impacts their business and what they can expect from the medium, independent of high impact, recent technological changes. It is predicted that revenues from e-Commerce will reach \$1.2 trillion within the next three years with US-based companies generating more than \$507 billion in 1999 alone. This is up 68% from the 1998 figure of \$300 billion (Lawrence, 1999). These figures, coupled with Internet usage figures that are growing exponentially by the month, lead capable executives to ask, “How should e-Commerce be deployed to strategically transform my organization?”

Answers to such questions were revealed in a recent Georgia State University study. We interviewed over 130 e-Commerce strategists in over 80 U.S. firms, half of whom had over \$1 billion in annual revenues. The objectives they articulated for their e-Commerce initiatives can be categorized into an orders of magnitude model with cost reductions and productivity improvement at the first “alpha” level, revenue growth and market expansions at the second “beta” level, and ultimately e-Competitive transformations at the third, or highest “omega” level. Figure 1 entitled “e-Commerce Effects” illustrates the key points.

**[Insert Figure 1 about here]**

Nearly all firms today are strategizing on how to most effectively incorporate e-Commerce into their overall business strategy. Our research shows that successful integration of electronic commerce

occurs when organizations progress through three levels. First order initiatives at the *alpha* effect level are generally electronic commerce endeavors aimed at realizing financial gain. Investments are geared toward *increasing productivity and/or reducing production costs*. Within this set of activities, electronic commerce technologies are seen solely as a means of improving the bottom line. Such initiatives have met with both success and failure, and often lead to additional unexpected and unforeseen impacts.

By contrast, second order effects at the *beta* level involving *pursuit of new markets and increasing the existing revenue streams* often become the main thrust of the firm's e-commerce activities. Through new kinds of branding (Berthon, et al., 1999), firms expand their business reach into new markets providing 24 hour a day 7 day a week worldwide access to products and services through the Internet.

Ultimately, third order effects from *omega* “order of magnitude” activities lead inevitably to firms transforming their core business strategies in the interest of achieving a sustainable competitive advantage, or what we call “*omega level e-Competitive Transformation.*” Here the implementation of technologies is no longer seen as a means of merely reducing costs, increasing productivity, expanding market share and or growing revenue, but as a means of dramatically changing the competitive environment itself, i.e., how goods and services are produced to demand, targeted to a market-of-one, and distributed. This level finds firms gathering customer data they have never had access to before and using it in ways they have never used it before. This proprietary data serves as the basis for sustaining a competitive edge at the omega level.

By way of an example of a firm's migration through this process, consider the early stages of the Internet revolution when firms began to realize a number of unexpected gains as a result of the pursuit of alpha and beta level initiatives. The US automotive industry was an early pioneer of one of today's most basic electronic commerce technologies, EDI or electronic data interchange (Balaguer and

Addonizio, 1992; Mukhopadhyay, et al., 1995). Through their EDI initiatives, they were able to reduce the cost of ordering and tracking parts and supplies; moreover, these firms were also able to develop more sophisticated “just in time” manufacturing strategies. When parts manufacturers and suppliers were required to transact with the automobile makers electronically as a condition of their continued business relationship, the manufacturers began the move toward third order e-Commerce objectives and goals. At the omega level, the firm utilizes electronic commerce strategies and technologies to more efficiently manage their production processes, specifically with regard to creating interactions with business partners.

Full implementation of an “e-Competitive Transformation” comes with the complete integration of electronic commerce into the firm’s overall business strategies. The Internet revolution has given businesses the ability to closely interact with end consumers, in many cases for the first time. Moreover, many organizations are now able to obtain customer information previously unavailable. The changing face of these traditional information asymmetries is giving rise to changes in firm’s core competitive strategies as “just in time” manufacturing did for the automobile industry.

E-Competitive transformations are beginning to be transparent in a number of evolving situations. Historically, many industries have been defined by outside sales representatives and intermediaries. Consider the traditional travel industry model that has restricted direct access to consumers in favor of a channel of established relationships with travel agents. In some respects, consumers have been at the mercy of travel agents, who gain knowledge of their client’s likes and dislikes, financial status, potential travel plans and availability, and so on. Tour group agencies, hotels and airlines have effectively lacked direct access to the end consumer that would have allowed for the accumulation of this same information.

The airlines have seen an erosion of this traditional information asymmetry in situations where intermediaries, like travel agents, had a long-standing informational advantage over carriers (see the

exhibit entitled “Information Asymmetry”). Changes in information asymmetries do not end here. Through the Internet, a consumer who searches an airline web site can now be prompted to disclose information about future travel schedules and travel interests. And current and past interests can be stored for later retrieval and analysis. Promotions that might specifically interest the consumer, automated information systems can generate large scale E-mailing that appraises consumers about sales opportunities. Moreover, this invaluable consumer information base can be used to develop long-term marketing strategies. What has happened is that carriers have developed a new information asymmetry with regard to the customer through the development of “super customer information.” This is but one example of the type of e-Competitive transformation that firms must seek in order to achieve and sustain these highest order e-Commerce objectives.

### **Alpha Level Cost Reduction and Productivity Improvement Initiatives**

What our studies have found is that, at the alpha level, many organizations deploying e-Commerce technologies are inclined to implement technology that reduce costs and or increase productivity in an effort to improve the bottom line, as illustrated in Figure 2. As early as the 1980s, firms have been making use of a broad range of telecommunications technologies in an effort to realize these cost savings and productivity improvements. These initiatives have ranged from the use of e-mail systems to communicate with employees, trading partners and customers on one end to establishing virtual storefronts on the World Wide Web at the other end.

**[Insert Figure 2 about here]**

It is critical to recognize that cost reduction initiatives are generally easier for organizations to measure, particularly at the alpha level, where single initiatives are aimed at reducing or eliminating

specific costs borne by the organization. These initiatives often constitute a firm's earliest forays into electronic commerce. Frequently in these early stages, firm initiatives are uncoordinated with different efforts aimed at accomplishing different objectives. It is common to find multiple Web sites for the same company on the Internet, each developed and maintained by different entities within the same firm.

Whereas the effects of cost reductions through electronic commerce can be realized, the relationship between the implementation of technology and the effect of productivity is often much harder to measure (Brynjolfsson and Hitt, 1998). Productivity is defined, of course, as the degree of output produced per unit of input. Economists have pointed to the "productivity paradox" that started in the 1970s and is marked by an unexplained drop in productivity over the first half of the postwar period. In the late 1980s, Morgan Stanley's chief economist Steven Roach concluded that the dramatic inflection of computer technology in certain sectors had little to no effect on economic performance (Roach, 1991). But, more recently, Brynjolfsson (1998) has contended that past measures have been inadequate, resulting in huge variations across organizations of the returns in information technology investments as a whole. Moreover, there are far too many inputs that can potentially impact productivity. He cites contemporary firm-level studies that consistently support the belief that IT investments, in conjunction with these other inputs like the lagged effects of learning curves and the subsequent organizational changes that emerge, have a significant, positive impact on firm output. Therefore, an important component of the introduction of electronic commerce initiatives — increases in productivity — can be realized and readily measured provided the effects of related inputs to performance are examined.

Additionally, long-term financial commitments or technological expenses, which rapidly become higher than expected, cannot be overlooked. Whereas many of the traditional costs of doing business are lower in an electronic commerce environment, firms are faced with new costs that must be

factored into the equation, and disclose costs associated with opening and maintaining an electronic presence that are not nearly as low as had been anticipated. An Internet storefront may lack the physical overhead, but the growing demands for and commitment to technological advances are an important consideration.

### **Beta Level Market Expansion and Revenue Growth**

As firms enter the beta level of e-Commerce, they begin to realize that the medium can provide a means for accessing new markets. In an approach that is increasingly meeting with success, firms look to expand their reach into new markets by providing 24 hour a day 7 day a week access to products and services, in concert with their cost containment initiatives. Traditional retailers are finding this “clicks and bricks” model to be successful. Eddie Bauer estimates that over half of the customers making purchases on their electronic storefront for the first time are new to the retailer (Machlis, 1998), supporting the view that e-Commerce can lead to access to new customers and markets.

Nevertheless, firms cannot ignore potential cannibalization of sales through existing traditional outlets. They must also determine what will be an acceptable level of cannibalization of existing sales. The first step in this process is closely monitoring sales through online storefronts to accurately assess the extent to which these sales come at the expense of existing outlets. Organizations may choose to avoid cannibalization by adopting the radical strategy of replacing their traditional channels entirely with an Internet channel. Egghead Software eliminated its coast-to-coast physical storefront presence, in pursuit of a Web-only storefront strategy (Elgar and Forman, 1998), betting that by driving down overhead including labor costs, physical properties, and distribution related expenditures; it was opening the door to significant expansion in its market reach. Insurance carrier Progressive has taken a similar approach to expanding its reach through its online initiative Progressive.com. The key to

success, however, is the firm's ability to realize a net increase in revenues. Consider that any firm's effort to expand its reach to new customers can be facilitated through e-commerce's innovative tools for marketing products and services which differ in cost and structure from traditional strategies. Average marketing and advertising costs on the Internet are sizable, accounting for approximately 43% of total revenue, according to The Boston Consulting Group report on a survey of 100 e-Commerce businesses (Machlis, 1998). Yet directing potential customers to online storefronts has been a key element to success on the Web.

Firms approaching customers during what are considered to be the 9-5 operating hours as dictated by traditional brick and mortar operations may hinder reaching customers in new and previously untapped markets via the Internet . In establishing a virtual storefront, though, firms must give thought to the overhead required to support 24 hour a day, 7-day a week worldwide access to products and services. The firm must decide whether or not they will develop their storefront to support communication with consumers in languages other than English. Even in non-electronic US markets, firms have been faced with and successfully pursued bilingual customer service strategies, for example, staffing retail stores with English and Spanish speaking personnel in certain markets. With the Internet, the firm is faced with a far broader range of potential languages. Sales to some 4.7 million people in 160 different countries (1999) have been reported by Amazon.com since its inception in July of 1995. Many firms target markets for their products and services and develop virtual storefronts to meet the language needs of those markets. Consider the German firm that prompts the online user for a German or English version of the Web site targeting UK and US markets, as well as English-speaking consumers worldwide.

It is clear that firms need to be prepared to support settlement and distribution of goods and services on an international level. Even if an Internet site supports English alone, this will not prohibit consumers outside of the US from accessing the site and attempting to purchase. Firms need to be

prepared to complete financial transaction at an international level. Here again the decision will either limit or facilitate the firm's expansion into potential markets. The business can offer the option of payment through major credit cards, i.e., MasterCard, Visa and American Express; however, the business needs to decide whether or not the settlement will breakdown price, shipping, tax and so forth in a currency other than US dollars. Providing breakdowns in other currencies will significantly complicate the development effort required to accurately support up to the minute currency conversions. Shipping and distribution is also easily solved through the use of any one of many international carriers. Here again, the more shipping options that are offered, the more complicated the development effort involved in automating the entire process from keeping rates up to date and maintaining service areas for the respective carriers.

One further issue that arises with 24 hour a day 7-day a week worldwide access is the infrastructure necessary to insure that the technology running the virtual storefront, i.e., servers, are operational continuously 24 hours a day. If the site can direct a user to a customer service or support desk, will that service be available 24 hours a day as well. Competition within the Internet service provider market has forced players like Earthlink and AOL to provide such levels of service, as have retailers like Dell.

These hurdles hint at the difficulties of beta level e-Competitive transformation. The evaluation of Web-based initiatives is particularly tricky in that the WWW is like the Louisiana Purchase. Some firms, like Amazon.com and Yahoo, are staking out claims for huge tracks of land, without a clear picture of how it will ultimately be used. For them, and for everyone else, cyberturf is essentially uncharted territory. Cyberturf on the Web really represents customers, where they go, where they congregate, and where they revisit. These firms are taking the calculated risk that future revenue growth will come to those with the largest land holdings. This prospect is the justification for the significant costs incurred in building Web-equity.

## **Alpha and Beta Level Information Asymmetries**

In any exchange between two or more parties, where one party falls prey to making a decision based on imperfect information, an information asymmetry exists (Nayyar, 1993), as shown in Figure 2. The traditional model of information asymmetry focuses on the advantage gained by a firm from knowing something its customers do not. This knowledge may or may not be available to the firm's competitors; however, as long as the customer faces a prohibitively high cost in discovering this information, an information asymmetry exists. The firm charges the consumer a higher price than the competition, because the consumer is unaware of the competition's products and prices, falling prey to the firm's premium pricing.

This basic model has also been applied widely to B2B interactions. For example, a firm may have to purchase raw materials from a local supplier at a higher interest rate than it could obtain from an international supplier. However, because the firm does not have access to the international markets, it is at an information disadvantage vis-a-vis the local supplier. As a result, the local supplier can charge a higher price than it could get from the international market. A broader view of the concept of information asymmetries is heavily embedded in the phenomena now being seen in the evolving electronic marketplace.

In other cases, firms are seeing a breakdown of their imperfect information on competing suppliers. A firm that traditionally might have purchased from a local supplier at premium rates is now capable of accessing the products and prices of suppliers internationally and obtaining more favorable terms. Businesses are no longer at the mercy of dealing with their traditional suppliers, as the Internet has made the world a much smaller place. Manufacturers are able to access a broader range of potential suppliers in the international market. Moreover, the integration of e-Commerce technologies like traditional and Web-based EDI (open-EDI) makes the process of managing the production line

with numerous suppliers in different countries possible. Following the same model established by automobile manufacturers, firms can electronically connect, day or night, to hundreds of suppliers' systems anywhere in the world to check the availability and cost of supplies. In the same amount of time, a purchasing agent could physically obtain the same information from only a single vendor.

At the alpha level, the firm is effectively using the enabling power of e-commerce tools to turn around their existing information asymmetries. This turnaround allows these organizations to first achieve significant cost reduction and productivity goals. Then, with second order effects or beta level objectives, many firms are increasingly taking advantage of the access they now enjoy to their customer base and stripping off the traditional information asymmetries that sales staffs and outside intermediaries enjoyed. This breakdown is giving rise to the potential disintermediation of many traditional market channels.

### **Beta Level Disintermediation Effects**

Disintermediation is a means by which organizations are realizing significant cost savings through lowering transaction costs with e-Commerce (Benjamin and Wigand, 1995). Historically, decentralized sales forces, outside sales representatives and intermediaries have characterized the market structures of many industries. With the population of Internet users growing by the month at an exponential rate and an increasing number of purchases online, the potential to redirect sales through the World Wide Web exists. In order to take advantage of this opportunity, many firms must make the decision to circumvent or eliminate internal sales forces and or bypass traditional intermediaries, as indicated in Figure 3. This process may not be well suited to certain industries where intermediaries have a strong presence, where the product is not well suited to sales through a virtual medium, or where consumers require some degree of human interaction in the sales process, but it will apply to many other markets.

**[Insert Figure 3 about here]**

With disintermediation occurring in many electronic markets, information asymmetry traditionally exerted by sales staffs and outside intermediaries over the firms they represent (Ramaswami, et al., 1997) is eroding. As we look at the interactions outside of the organization, opportunities to alter the historic information asymmetries arise. In some industries, the elimination of the traditional intermediary firm is already occurring at a rapid pace. With many e-Commerce initiatives, firms realize direct access to suppliers and retailers without the use of traditional intermediaries; moreover, organizations are able to further expand their arm with direct access to consumers. Hagel and Sacconaghi (1996) contend that the World Wide Web and similar proprietary networks, i.e., Extranets, open the door for firms to harvest new information on customers and propose that firms implement strategies aimed at maximizing the potential information that might be obtained.

There are, however, a number of industries where firms are establishing virtual storefronts at the expense of existing sales force and intermediaries. In the brokerage industry, firms like Charles Schwab and American Express are allowing investors to place trades directly over the Internet. In many instances investors are trading securities at a discounted rate as brokerage firms are passing a portion of the cost savings along to the individual investor as an incentive to bypass the traditional brokerage sales force. It could be argued that firms like Schwab and American Express entered the online trading market in response to increasing competition from start-ups like E\*Trade, Datek Online, and Ameritrade; however, by incenting customers to trade online rather than through sales staffs, the firm has acknowledged the financial benefits that some are seeing through direct Internet sales. This is also an example of a product that is not well suited to sales for all clients and in all situations.

However, many new online start-ups have begun to counteract these problems by offering

a “higher” level of service where investors can talk with a licensed individual and have their trades initiated by a human being.

Disintermediation can be seen at some level in virtually every industry. Major airlines like Delta and United permit their flyers to purchase electronic tickets over the Web, eliminating costs incurred in staffing ticket counters and or paying travel agents. Delta has offered customers up to 1,000 additional frequent flyer miles as an incentive to purchase through [www.delta.com](http://www.delta.com). At one point, Delta discounted Internet ticket prices by \$2 on all domestic flights, quickly rescinding the offer when traditional intermediaries, the travel agents, protested. Many competing forces complicate the process of disintermediation. Here we see intermediaries with a strong presence, namely the travel agents and their professional organizations, intervening and sometimes obstructing a firm’s effort to directly contact end consumers.

### **The Firm's Eroding Information Advantage over Consumers**

At least 40 % of American households are connected to the Internet with some 100 million Americans alone online (Scott and Messick, 1999) with the total expected to exceed 63 % by 2003. The Georgia Institute of Technology's Graphics Visualization and Usability (GVU) Center's 10<sup>th</sup> WWW Users Survey reports that personal online purchasing is up 10% and B2B purchasing is up 24% (Kehoe, et al., 1999). The GVU study shows that Internet users are well-educated and experienced computer users at an average age of 41 and one half years (Kehoe, et al., 1999). These consumers are better educated with greater access to information than the traditional shopper.

This emergence of educated and better-informed consumers has directly impacted one of the traditional tenets under which many businesses have flourished for years. Businesses are seeing the breakdown of one of the traditional information advantages that they have been able to exploit, namely, the consumer’s imperfect information with regard to competitors’ products and prices. This

newly found consumer information is growing in many markets. Today, consumers are demanding and obtaining ever-increasing levels of access to information, from up to the minute availability of products to current pricing. This change in the information traditionally unavailable to consumers is perhaps one of the greatest threats to any organization's success in marketspace.

Consider the consumer's access to the automobile MSRP and costs incurred by traditional retail auto dealerships. Automobile purchasers are now able to negotiate their price for a vehicle with the knowledge of the actual cost to the dealer in getting the vehicle to the lot. With access to the World Wide Web and sophisticated search engines, consumers are now able to obtain easier real time access to information on your competitor's product information as well. Today, consumers can even obtain accident history on used vehicles through the emergence of services like Carfax, Inc.

Another examples come by way of directory services and content aggregators like Yahoo, where competing firms are cataloged for consumers under a single category, allow for rapid comparison-shopping. Moreover, market and / or product specific search engines, like DealTime, are emerging. DealTime is a search engine that acts as a product finder and comparison shopper for a broad spectrum of products available online.

### **Toward Achieving the Final E-Competitive Transformation**

In progressing to the omega level of electronic commerce objectives, firms build upon gains at the alpha and beta levels, but, more importantly, they need to dramatically rethink their underlying business models. The objective here is to surpass strategies employed in the earlier alpha and beta levels, which can be regarded as short-term initiatives. In both physically oriented and electronically oriented models, firms focus on containing and cutting costs, continuously improving productivity, expanding market share and growing existing revenue streams. Managers must stress these short-term profit and return-on-investment objectives as a basic part of their performance objectives, and failure

to meet these basic objectives in either physical or electronic markets often carries stiff punishments. In general these objectives, when compared with more complex e-commerce initiatives aimed at reshaping the firm and operations as detailed below, can be viewed as low risk for the firm.

By contrast, third order, omega level effects, enables an e-Competitive transformation that leads to deconstruction of the traditional corporate strategic plans, which inherently carry far greater risks. Evans and Wurster (1997) have noted the complex relationship between the components of the value chain and the enabling power of the Internet, imploring executives to rethink existing strategies. These strategies by their very nature must be highly innovative, following traditional research and development paradigms, where “experiments” are bound to result in failure in a certain number of cases. Here failures should be freed from major repercussions and the most valuable outcomes are lessons learned about customer behaviors, likes and dislikes, and new mechanisms for harvesting information about customers. Whereas early initiatives focused on short-term profit and return-on-investment goals, the focus at the omega level evolves to a focus on the development of long-term strategies for sustaining a strong competitive advantage and ensuring long-term growth.

First and foremost, firms must counter the potential effects of the shifting information asymmetries that consumers are beginning to enjoy as a result of increased access to information via the Internet. Given the consumer’s growing interaction with firms directly through the Internet, businesses are now in a position to shift from enjoying information advantages over their customers to capitalize on new information asymmetries with regard to their competitors.

Omega firms will focus greater efforts on learning more about their customers’ likes and dislikes, potential long and short-term needs, and so forth. In short, these firms will be in a position to exploit new information on consumers and use this information to strengthen their customer relationships. Competitors without access to this rich pool of proprietary customer data will be information asymmetric, with respect to omega firms.

## **Omega Level Information Asymmetries: Strengthening Consumer Relationships**

In 1922, United Services Automobile Association began offering the US military community insurance policies. Today, USAA serves over three million customers with auto, property, life and health insurance in addition to annuities, mutual funds, brokerage services, banking, and merchandise purchasing. In the late 1980's, USAA, depicted how USAA's computer and communications technologies had been successfully integrated into the organization's overall business strategy and competitive advantage (Garvin, 1995). USAA used its information systems to capture information about its customers in support of core insurance businesses (Rayport and Sviokla, 1995). The organization is one of the companies that have integrated core customer information across all of its books of business. USAA's merchandise and buyer services group is capable of accessing a customer's property loss data, when the customer inquires about replacing a stolen watch. This puts the group in a position to suggest replacement of other lost items through their service. USAA has also used the information maintained on its customers to develop new product offerings across the businesses. Its banking division used information obtained through boat insurance policies to develop a financing package for boat purchasers. In short, USAA's successful integration of its customer data maintained through information systems into its overall business has driven the firm through the competitive transformation from an insurance provider to a financial services empire. Figure 4, "Ω Level Information Asymmetries," demonstrates the concepts.

**[Insert Figure 4 about here]**

With the advent of e-Commerce, and, specifically, the Internet, traditional information

asymmetry has been redefined to consider how a firm seizes an advantage over its competition by knowing more about its customers' needs. In moving from strategic necessity to e-Competitive transformation, the key difference is the shift from inexperienced-customers-but-knowledgeable-firms to knowledgeable-customers-but-imperfectly-informed-competitors. As consumers take advantage of their newfound access to information, firms must position themselves to significantly strengthen customer relationships.

How specifically can firms do this? Let's take the case of business to consumer (B2C) e-Commerce in Figure 4, although a similar discussion can take place with regard to suppliers and intermediaries and the firm.

There are three critical elements to this transformation, as listed in Table 1. First, they must capture data about their own customers that they have never captured before. Since all firms have customers and any firm can now gather data online from their customers, it must be kept in mind that this necessary step does not automatically confer a sustainable competitive advantage. The data a firm gathers is proprietary, however, and the more and better data for binding the customer to the firm, the more there can be a downstream competitive advantage from this action in itself.

The key lies in *which* data is captured. Knowing and exploiting customer **preferences** is the beginning point where some firms will achieve a sustainable competitive advantage (Omega Strategic Move I in Table 1). Preferences can be much more than an analysis of a specific customer buying habits. They may be straightforward inquiries into customer criteria for purchasing (where incentives are offered in exchange for customer preference data). Thus, customers can be asked to express their criteria or ratings (Alton-Scheidt, et al., 1997), or the system can measure them unobtrusively such as duration of page visit, placement of a product into a shopping cart, addition of the URL to bookmarks / favorites, or a repeat site visit (Nichols, 1997; Procter and McKinlay, 1997). Preference capturing may also take the form of a melding of database marketing segmentation data, profiles of customer

purchases, and other critical demographics, such as socio-economic status or neighborhood type.

It is appropriate to organize information-about-customers as a knowledge management system that makes accessible and meaningful the complete set of interactions and transactions that the firm has had with the customers as well as inferences and assumptions that can help to drive personalization of response to pull and push actions by the customer.

**[Insert Table 1 about here]**

### **Sustainable Competitive Advantages over Rivals**

Data, even rival-unsurpassed data, has no inherent competitive ability. Rivals can acquire the same data from their customers and readily, since regular scanning of your site will tell them exactly what kind of data you are gathering. When properly exploited, though, data does have the capability to raise switching costs for the customer. In Omega Strategic Move II, for example, customers may return to a Web-site for information about products and services or to purchase. In such a case, they are said to be in “pull” mode (Table 1). When the site server recognizes the customer and can provide information that is highly specific to this individual’s preferences, the concept of personalization comes into play (Resnick and Varian, 1997). Personalization is the programmable flexibility of a computer system to alter the form of the Web interface, the products/services being displayed, the pricing of the products / services, and the terms of delivery and payment (Mobasher, et al., 2000; Mulvenna, et al., 2000). When a computer system is capable of tailoring its response to customer-pull and engage a market-of-one (Gilmore and Pine, 2000), the fulfillment of such orders is known as “mass customization” (Pine, et al., 1993). Customers who receive personalized service (Pontes and Kelly, 2000) even when the service is delivered by a computer system, develop an increased sense of loyalty to the firm.

Reaching customers online while they are “pulling” information from the Web site allows for developing and strengthening the firm's relationship with its customers. Many organizations are utilizing the Internet as a means reaching out to customers providing them with the opportunity to obtain information. Consider the Web site for the Met Life Insurance Company. Patrons of the site have the option of accessing two primary arenas, one for the company's products and services and the firm's Life Advice® Center. The second option allows visitors to access family, health, money, business and insurance information. Individuals interested in obtaining information on families, can choose from becoming a grandparent, becoming a parent, caring for aging loved ones, choosing a summer camp, choosing child care, and so forth. Through the use of cookies, MetLife can track the various types of information that consumer's access. Moreover, the firm is moving closer toward building a “virtual community” between customers and the organization (Hagel and Armstrong, 1997).

Having simple “sense and respond” (Weick, 1995) systems are not sufficient, however, for sustainable competitive advantage over rivals (Thomas, et al., 1993). Over time, rivals will duplicate the best features of your customer-pull personalization system and will match your capabilities, just as banks, one-by-one, deployed ATMs to improve customer services in the 1960's in the US.

There is another arena for action could serve to set your organization apart from rivals, however. Information can be pushed to customers using the Internet services of email and Web push technology (Omega Strategic Move III). Web push technology has not been a major success yet, in that it involves the customer downloading and installing software for creating a personalized browser that automatically downloads information. With its bandwidth problems in the B2C space, Pointcast is perhaps the best example of this experiment (Whiting, 2000). Push technology may see a rebirth, however, with B2B markets (Whiting, 2000).

The greatest current, unexploited opportunity for pushing information and sales to customers is the use of relatively low-tech email. It can be used for order confirmation, shipping confirmation,

cross selling, up selling, dealing with problems, and gauging customers' needs and desires, as it is in the case of for organizations like Webvan Group, Inc. and Barnesandnoble.com. This "clicks and bricks" bookseller also uses it effectively for newsletters and announcements of new products. The key to the successful use of email in this capacity is responding and responding quickly to customer inquiries and complaints.

A worst of breed practice with regard to the email solution to customer service is a large bank we worked with in our study. When asked about their customer service initiatives and email, they announced proudly that they were receiving 50,000 email messages a week. Queried as to how they dealt so many messages, they answered that they would not possibly deal with that volume so they did nothing with them.

Working with customers on a personal basis is part of what many Web sites are attempting to do with their creation of virtual communities. Hagel and Armstrong (1997) and Armstrong and Sacconaghi, (1996) developed the notion that "virtual communities" capitalize on the potential benefits of "owning" a customer segment across a range of interests and needs. Consider the experience of shopping at amazon.com. By recording your email address with a purchase and loading cookies to your PC, the retailer has the ability to track not only your purchases, but the information demands that individual consumers make regarding products. Accumulating a huge amount of data on purchasing behaviors each year, Webvan is able suggest and direct specific advertising for goods purchased by the consumer in the past in addition to products purchased by customers whose buying habits are similar to their own. With each visit Webvan builds an ever-increasing storehouse of information about their customers, bringing an information asymmetry with competitors and an e-Competitive transformation. Against this, the traditional grocer cannot as easily compete. Webvan is able to capitalize on the information it accumulates about each and every customer's habits and potential future needs allowing the firm to better manage its own inventories and access customer's in short order through emails.

Given that the business patterns for Omega Strategic Moves are found throughout “clicks” and “clicks and bricks” organizations, it is obvious that nearly any firm can lock onto these strategic decisions and begin to implement them in short order. In the open systems of the Web world, all actions by competitors are public and can be viewed readily by friend and foe alike. One of the reasons Internet applications have grown so swiftly in popularity is that they are relatively straightforward to design, construct, and implement.<sup>1</sup> Not only do secrecy and technological changes not protect a firm from competitive moves on the part of rivals, but if it reduces its investments in innovation, the firm is likely to be copying rivals rather than leading.

If not these strategic moves in and of themselves, then what does differentiate firms with respect to the omega transformation? In a world of increasing returns on investment, first mover advantages are critical determinants of ultimate market dominance. Firms that move quickly and capitalize on each of these strategic moves — learning and inventing new adaptations as they go — will prosper. The core competency of these firms is going to be rapid assessment of changes in the marketplace, application of new technologies to meet the needs of customer outreach, and quick response to rival moves. Staying on the edge of technological innovation may be the bleeding edge, as there will certainly be some failures in firms that are truly “on the edge,” but it will be the only way that firms can develop the intellectual capital that will catapult them ahead of the competition. In short, the “leading edge” and “bleeding edge” will be identical. Firms that continually wait for others to experiment with the new technologies before themselves leaping into the fray will soon find that their customer base eroded, their electronic linkages deteriorated, and their marketshare vanished. Our study uncovered firm after firm that was counting on the slowness of their competitors to innovate to protect their market share. This is a luxury that will become more and more rare in the Internet era.

Inventive firms are changing the ground rules for competition in the e-Competitive

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<sup>1</sup> Assuming that firms are fairly equal with respect to their basic technological infrastructure, it is difficult to get more than

transformation. Customers are being incited, for example, to visit Web sites through alternate media inducements, sometimes called “spiral branding” (Berst, 1998). Cyber-insurer Progressive Auto Insurance, known through the insurance industry as “Aggressive Insurance” for its intimidating marketing tactics, sponsored part of the half-time show at the 2000 US Superbowl simply to promote its Web site. Innovative firms are challenging the sole use of the telephone for online customer support. Clearly needing the depth of knowledge provided by the same proprietary customer databases that are driving personalization, contact centers are interacting with consumers and business customers through PDAs, workstation chat and instant messaging, and new forms of communication that are just now being improvised (Steul, 2000). Firms that do not learn which of their innovations is working and which are not, and based on this knowledge, continue to rapidly deploy a new host of ways to reach out to their customer base will be doomed. The “learning” firm will be the hallmark of sustainable competitive advantage.

### **Conclusion**

To prosper in marketspace, firms need to plan for an e-Competitive transformation of their strategic business objectives. The emerging business model needs to go beyond necessary alpha and beta changes to an omega “order of magnitude” transformation. Firms that grasp this concept will quickly lock in cost reductions and revenue enhancement efforts and then push on rapidly to sustainable competitive transformation. In doing this, firms will refocus their core competencies on customer relations, which will lead to massive information asymmetries with competitors. It goes without saying that knowing one's customers better than anyone else is a time-honored formula for profitability. In the world of e-Commerce, this strategy is being driven by the unprecedented direct access to the end consumer of products and services. And in this evolving cyberworld, there are strong

reasons to believe that the effective mining of these new online sources of proprietary information will become a technological imperative for firms. Thus, competitive information asymmetries will determine success or failure in the marketplace and firms that are able to push furthest with e-Competitive transformation will eventually triumph in the cyberturf wars.

# e-Commerce Effects

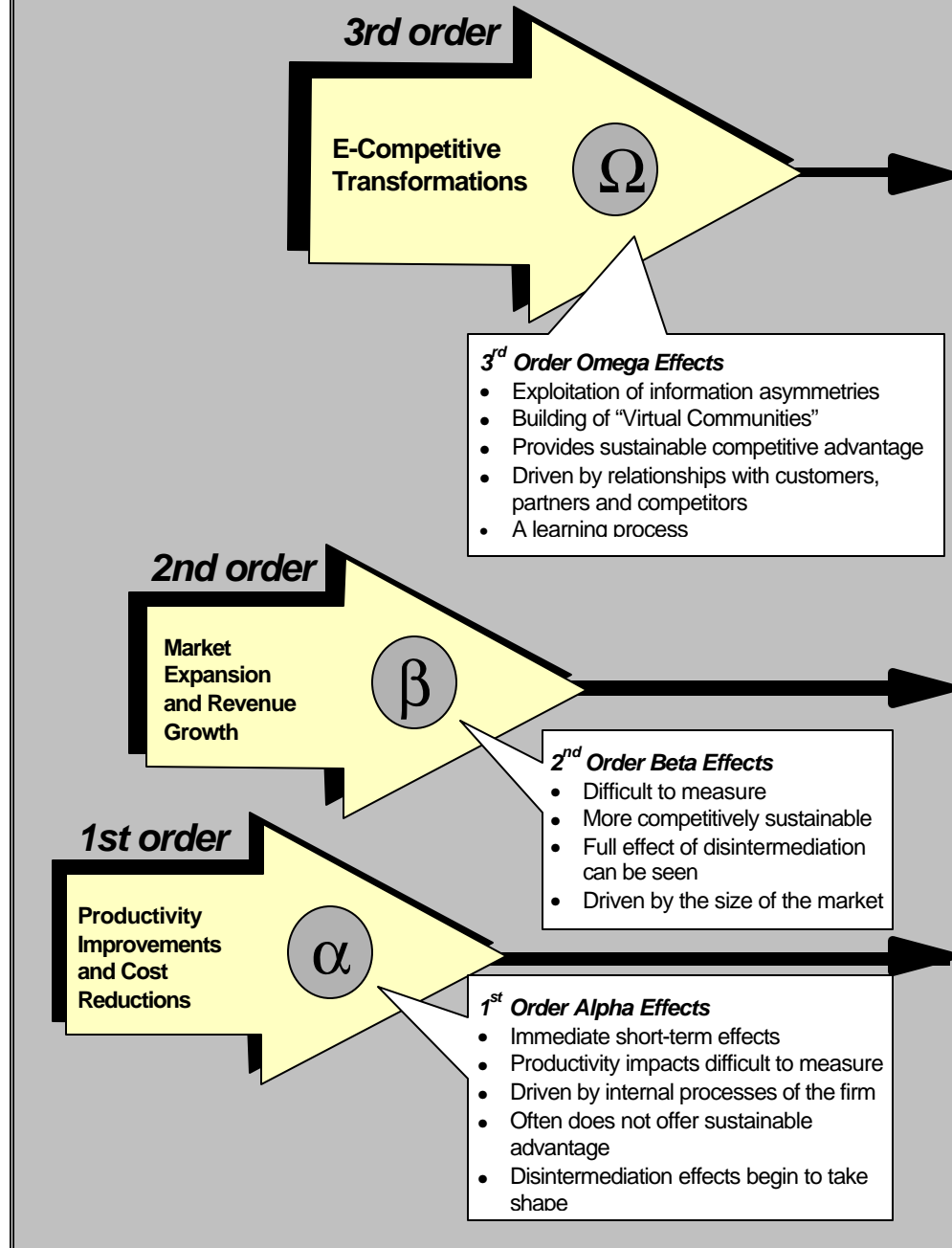
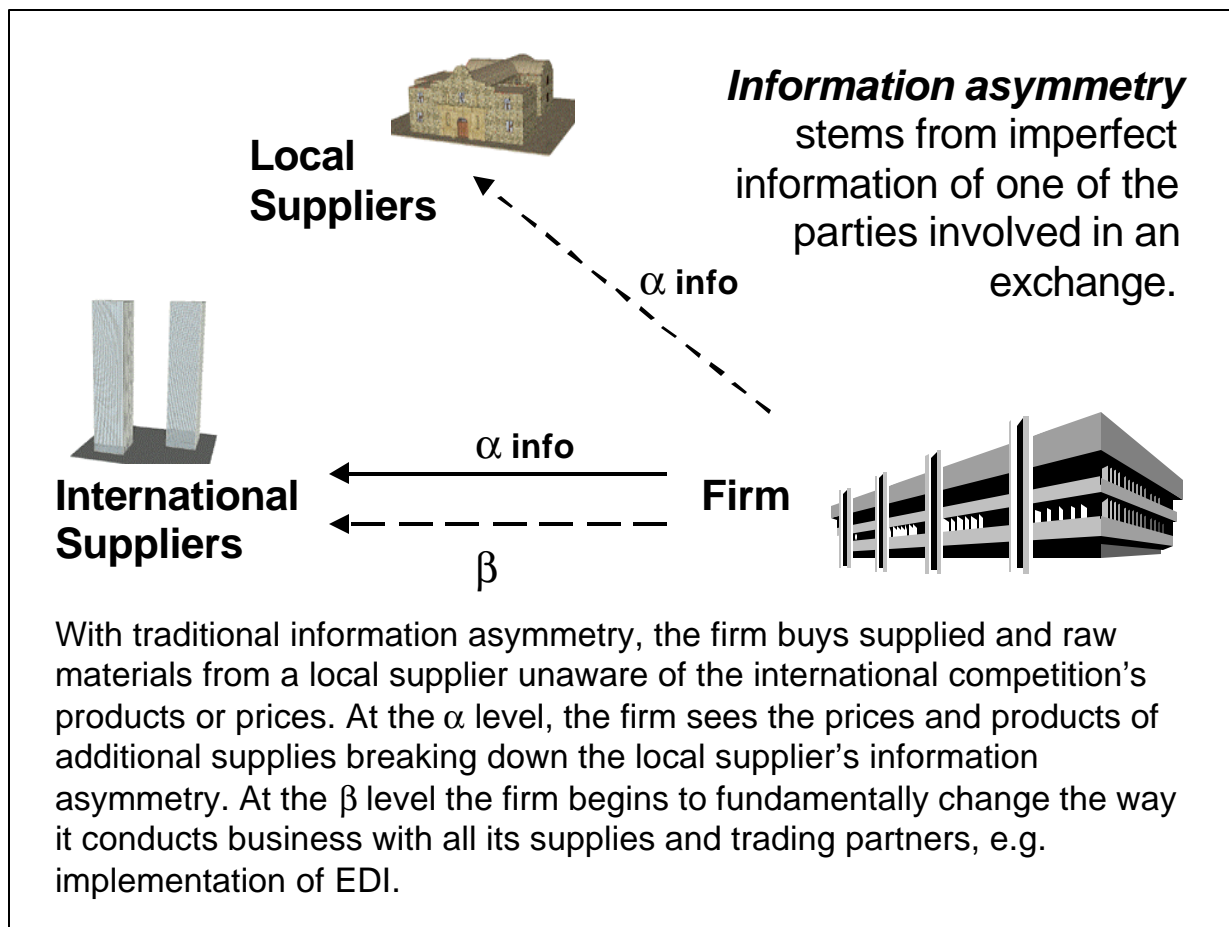
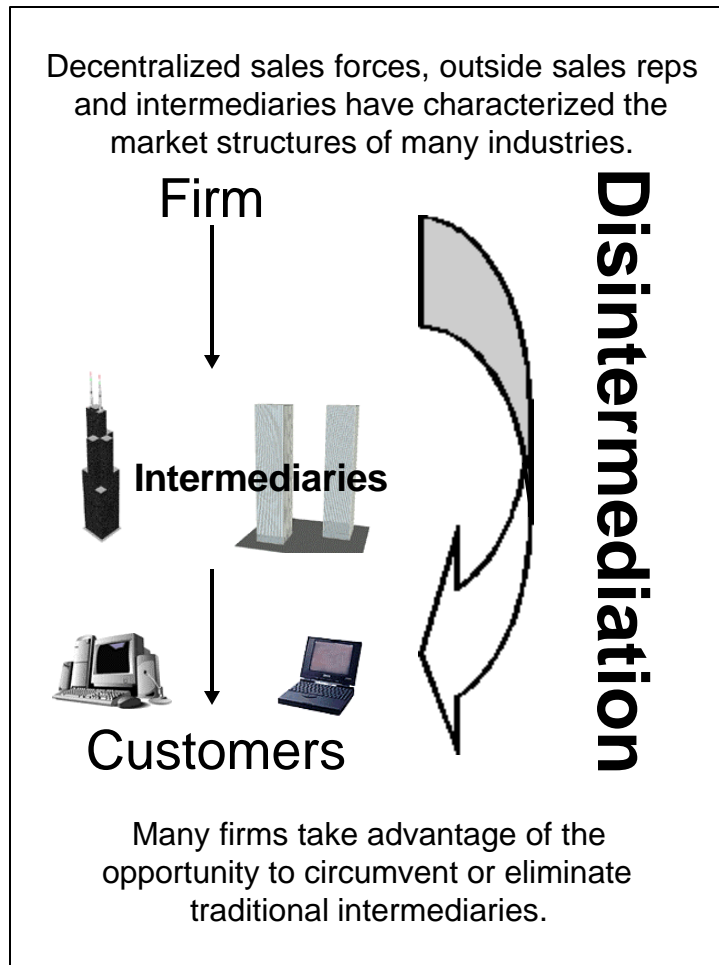


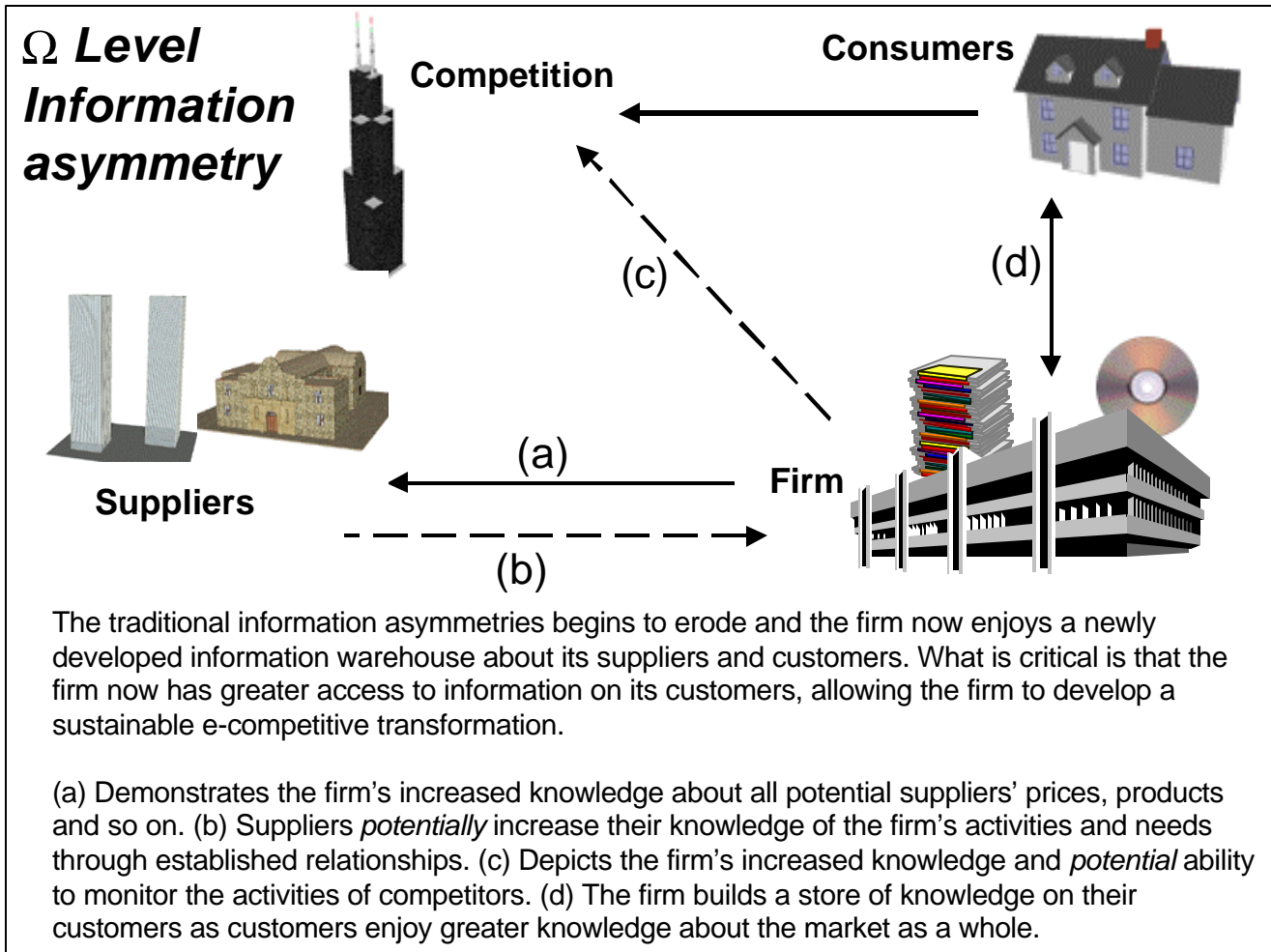
Figure 1. e-Commerce Order of Magnitude Effects



**Figure 2. Alpha and Beta Levels Information Asymmetries**



**Figure 3. Disintermediation Effects at the Beta Level**



**Figure 4. Omega Level Information Asymmetries**

<b>Omega Strategic Move</b>	<b>Description</b>
I	Gathering Data about Customer Preferences
II	Creating Systems to Personalize Web Site Responses to Customer-Pull
III	Creating Systems to Personalize Web Site Responses to Customer-Push

**Table 1. Achieving Omega Effects**

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