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Abstract

E-business is a new type of promising business model in the Internet era. However, there have been not many researches on what are the success factors of e-business. In this paper, it is assumed that building trust is one of the most important success factors. Based on the assumption, among others, the quality of e-business is proposed to be the source of trust in business-to-customer e-markets. In other words, it is assumed that increasing the quality of e-business is one of the most important critical success factors in the competitive business-to-customer e-markets. Based on the assumption, the quality of e-business is analyzed, including the relationships with other factors such as trust and discontinuity. A conceptual framework is introduced to propose that the quality of e-business is a source of trust in e-markets. In addition, discontinuity is proposed to negatively affect the quality of e-business and trust. Recovery is proposed to moderate the impact of discontinuity on quality and trust.

Introduction

E-business is a new type of business in the Internet era. However, there have been not many theoretical researches on what are the success factors of e-business. Practitioners have presented the success factors based on their intuitions and/or hunches. Those guidelines may be useful in a sense that companies may depend on the guidelines in the short run. The problem, however, is that the guidelines are not based on theoretical foundation that may guide e-business to the right direction in the long run because the guidelines may be inconsistent situation by situation. Therefore, it may be reasonable to consider a framework that is rooted on the theoretical foundation that can be applied consistently.

The focus of this paper is on the success factors in business-to-customer e-markets. It is assumed that the quality of e-business is one of the important success factors in business-to-customer e-markets. Discontinuity and recovery are also important factors to be considered because they affect the success of e-business. The final dependent variable in this model is trust that is one of the most important concepts in e-business. The fundamental assumption is that building trust is the ultimate goal of e-businesses and e-business quality is the source of trust. Another assumption is that discontinuity is a major factor that may affect quality and trust, and that recovery is a way of moderating the effect of discontinuity. Figure 1 shows the relationships among the factors that will be discussed in this paper.

Figure 1. The success model of e-business
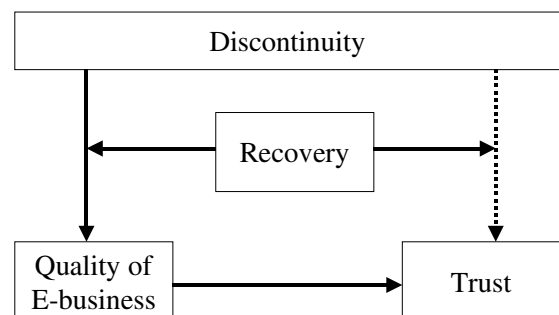
Some terms are defined to help readers understand the presented model more clearly. E-markets, electronic marketplaces, or electronic marketspaces, are virtual spaces where people gather to sell or buy products, or to intermediate between sellers and buyers. E-business is defined as the activity of buying, selling, or exchanging goods in deals with people or companies in e-markets. An e-business is an organization that does business in e-markets. Quality is defined in terms of customer satisfaction because customers are the eventual evaluators of e-business. In other words, the quality of e-business is the characteristics of e-business that affects customer satisfaction. Trust is defined as customers' confidence in the e-business that offers products and/or services in business-to-customer e-markets. Discontinuity is defined as the condition that lessens or obstructs the quality of e-business. Finally, recovery is defined as the process of reducing or removing discontinuity. With these definitions in mind, I will discuss the model: components of success factors and the relationships among them.

Figure 2. Components of e-business quality
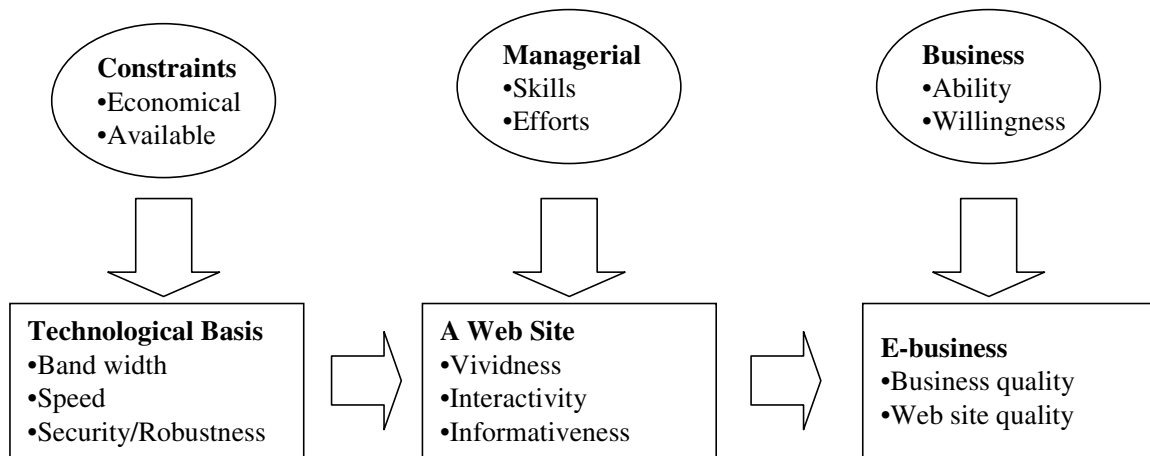
Quality of E-business (EBQUAL)

E-business in business-to-customer e-markets is different from traditional business in that information systems (Web sites) are used more heavily and/or more aggressively to get closer to customers in the former. In other words, in e-business, the role of information technology is more important than in traditional business. This is not to say that business itself is less important in e-business than in traditional business. Rather, it is to say that information systems are as much important as business in e-business. Therefore, the quality of e-business depends on how well information systems are incorporated with business. Figure 2 shows what are the components of e-business quality.

Figure 2 is self-illustrative. Economical constraints and availability of technologies decide infrastructure, or technical basis, of e-business. Technology has been improving to provide more advanced features that have accelerated the dissemination of e-business. However, technology itself is not enough to succeed in e-markets. In other words, it is critical to develop high quality Web sites and managerial skills and efforts are critical factors to build high quality Web sites.

As shown in Figure 2, e-business includes business aspects and information systems (IS) aspects. Business aspects are about how effectively and efficiently a

company delivers products and/or services. These are related to the ability and willingness of a company to provide products and/or services. The other aspects are about tools that are used for a company to do business. In traditional business, companies focus on service encounter where customers and customer contact employees meet in servicescapes. In e-business, a Web site becomes a service encounter, or virtual encounter in terms of Venkatraman and Henderson(1998). Figure 2 implies that a Web site is developed not only with technological resources but also with managerial skills and efforts. In sum, it is necessary to consider e-business quality as a whole, integrating business and tools (IS).

Business quality is high when a company delivers high quality products with high quality services. In other words, if a company delivers high quality products and/or services with fast delivery, lower price, good care, etc., then it is considered to have high level of business quality. Business quality is important in e-business as much as in traditional business. For example, lower level of business quality will end up with negative effects in e-business as well as in traditional business. However, in e-business, business must be integrated with information systems so seamlessly that customers can be satisfied.

The Internet and its related technologies (Web sites) are a new type of information systems that are representative in modern e-business. A Web site plays an important role for e-businesses because it is a face of a company to customers. It is also a virtual service encounter where customers receive services and/or

products. Therefore, the quality of a Web site is also very important in e-business because it may affect customers' satisfaction and/or impression about the service provider. However, even though the quality of a Web site is high, an e-business may not succeed if business quality is not high.

Therefore, what is necessary is a tool to measure e-business quality as a whole. SERVQUAL (Parasuraman, Zeithaml, & Berry, 1988) is a useful starting point from which a new method to measure e-business quality may be developed. SERVQUAL includes five dimensions to measure service quality in traditional business and can be categorized into two parts: Business quality (Reliability, Responsiveness) and Tools quality (Tangibles, Assurance, and Empathy). Reliability and Responsiveness, according to the definition in SERVQUAL, are "ability" and "willingness" of a company, respectively. Therefore, the two dimensions are to measure business quality of a company. On the other hand, Tangibles, Assurance, and Empathy are related to tools quality because they are dimensions to measure tools quality (the quality of employees and service settings) in a service encounter. When applied to e-business, however, the instrument needs to be modified to fit e-business. Based on the SERVQUAL, the following framework is developed as the dimensions of EBQUAL (pronounced as "ee-bee-qual") as shown in Table 1.

Table 1. Dimensions of EBQUAL.

EBQUAL		SERVQUAL
Ability	Capability of an e-business to perform the promised service dependently and reliably	Reliability
Willingness	Eagerness of an e-business to help customers and provide prompt service	Responsiveness
Vividness	Appearance of a Web site that affect customer impression	Tangibles
Informativeness	A Web site's capability to provide useful information	Assurance
Interactivity	The degree of company's response by means of a Web site	Empathy

Two dimensions of EBQUAL (Ability and Willingness) are related to business quality. These dimensions are exactly same as those of SERVQUAL (Reliability and Responsiveness, respectively). As mentioned, the two dimensions are related to the intention of a company to do business.

On the other hand, the other three dimensions (Vividness, Informativeness and Interactivity) are related to tools (Web sites) quality and modified from the remaining dimensions of SERVQUAL (Tangibles, Assurance and Empathy, respectively). These dimensions are about how attractive and informative a Web site is.

The quality of e-business is supposed to affect building trust in the long run. By definition, the quality of e-business affects customer satisfaction and the accumulation of satisfaction will lead to trust. In the following section, the concept of trust is analyzed and the relationship with the quality of e-business is proposed.

Trust in Business-to-Consumer E-markets

Trust is considered to be one of the most important concepts in business-to-consumer e-markets. According to Hoffman, Novak and Peralta (1999), the reason customers hesitate to purchase on-line is that they do not trust on-line transactions through the Internet. Therefore, building trust is the key success factors of e-business. However, trust is one of the many socially constructed concepts so that it may not be easy to understand the concept clearly. In the different fields, trust may be defined differently even though it may have common factors. Table 2 shows the understandings of trust among different settings.

Table 2. Trust in different settings

	Business-to-business	Inra-organization	Business-to-customer
Relationship period	Long	Longest	Short
Dependent variable	Commitment	Commitment	Loyalty
Discipline	Inter-organization theory	Organizational theory	Consumer theory

As shown in Table 2, the concept of trust may be understood differently. In the organizational theory, trust implies long term relationship among participants. Commitment is the most frequently used dependent variable for trust in this field. On the other hand, in the Marketing field, the relationship among the participants is short and loyalty is the most frequently used dependent variable. Since the focus of this paper is on the business-

to-customer e-markets, the concept of trust in the Marketing field will be used.

Relationship marketing literature provides a good starting point from which the concept of trust can be inferred. Morgan and Hunt (1994), based on previous literature, proposed "ten discrete forms of relationship marketing" and "the commitment-trust theory." In the theory, they include trust and commitment as "the key mediating variables." According to the theory, in relationship marketing, trust and commitment mediate the relationship between precursors (relationship termination costs, relationship benefits, shared values, communication, and opportunistic behavior) and outcomes (acquiescence, propensity to leave, cooperation, functional conflict, and uncertainty). Morgan and Hunt (1994) illustrate trust, based on Rotter (1967) and Moorman, Deshpande, and Zaltman (1993), as "existing when one party has confidence in an exchange partner's reliability and integrity (p. 23)." Their definition of trust is useful to be applied for e-markets. However, their framework is difficult to be applied to business-to-consumer e-markets directly because it is too broad. In the ten discrete forms of relationship marketing, they include business-to-business, intra-organization, and business-to-customer relationships. In addition, their empirical test is based on business-to-business situation, which may be different from business-to-customer settings.

Based on Morgan and Hunt (1994), Garbarino and Johnson (1999) constructed models for business-to-customer service settings. They studied the relationship between a repertory theater company and its customers. In their model, trust is defined as "customer confidence in the quality and reliability of the services offered by the organization (p. 73)." Basically, Garbarino and Johnson distinguish between high relational customers and low relational customers and studied the effect of mediating variables (overall satisfaction, commitment, and trust) on the relationship between component attitudes (actor satisfaction, actor familiarity, play attitudes, and theater attitudes) and future intentions. In the empirical study, they found that trust and commitment are the primary mediating variables for high relational customers while overall satisfaction is for low relational customers.

The framework of Garbarino and Johnson can be interpreted in terms of time lapse or development stages. According to Lewicki and Bunker (1997), trust is neither a single nor static concept. They consider trust "a dynamic phenomenon that takes on a different character in the early, developing, and "mature" stages of a relationship (p. 118, Quotation marks are original.)." In the case of the models by Garbarino and Johnson, the model of low relational customers may imply the early stage of trust development. In this stage, overall

satisfaction is mediating variable that develops trust. On the other hand, the model of high relational customers may imply matured stage. In this stage, trust is one of the mediating variables that affect future intentions because trust is already developed in full capacity. In addition, according to the model of Garbarino and Johnson, trust affects commitment (loyalty) in this stage.

Most of the definitions and/or frameworks about trust imply that confidence is central concept in trust and that trust comes from sources. In consumer markets, the sources are the quality of products and services. For instance, the quality of customer contact employees in service encounter is an important source of trust. By the same token, in business-to-customer e-markets, e-business quality is the source of trust. Therefore, the quality of e-business is very important in the market. The quality of e-business introduced in this paper (EBQUAL) provides useful precursors that affect trust.

More specifically, the dimensions of e-business quality can be sources of trust in business-to-customer e-markets. First, according to a research (Hoffman, Novak, and Peralta, 1999), lack of trust in e-markets is due to customers feeling that they don't have control. Interactivity, one of the dimensions of EBQUAL, can help customers have access to control. In fact, Hoffman and Novak (1997) insist that trust can be achieved by interaction between an e-business and its customers. Second, Vividness is similar to physical environment in traditional business. According to Bitner (1990), physical settings in service encounter can affect customer satisfaction. Therefore, Vividness of a Web site can also affect customer satisfaction. In addition, the main role of Vividness is to give "impression" to customers, which may contribute to the development of trust in the early stage. Third, Informativeness, by definition, is to provide customers with useful information that is understandable, reliable, and relevant to customers. The definition of trust in general includes reliability, confidence, etc. Therefore, Informativeness can be a good source of trust in e-markets. Forth, by definition, Ability is supposed to affect trust of customer because it is capability of an e-business to perform the promised service dependently and reliably. Finally, Willingness is also a candidate to invoke trust of customers because it may give customers confidence about the e-business. In sum, the following proposition is proposed.

Proposition 1: The quality of e-business will affect trust in business-to-customer e-markets.

In this paper, trust is defined as customers' confidence in the e-business that offers products and/or services in business-to-customer e-markets. In addition, it is proposed that e-business quality affects trust in e-markets. The concept of trust in e-markets includes belief in an e-

business (organization), a transaction (e-business), and tools (Web sites or virtual service encounters). However, the relationship between the quality of e-business and trust can be affected by discontinuity and recovery from it. Therefore the following sections are presented to discuss the impact of discontinuity and recovery on the relationship between the e-business quality and trust.

Discontinuity

Discontinuity is a critical matter in business-to-customer e-markets because e-business is vulnerable to system failures. For instance, according to Gurley (1999), major companies in e-markets run "Big Fat Web Servers (BFWs)" which may cause "the real technical discontinuity." The real problem of discontinuity in e-markets, however, is not just system failures. A failure of a Web site is not only a system failure but also a service failure. An executive of a company got to the point when he said that "If a Web site goes down, people just leave; they don't tell you (Dalton, 1999)."

The case of eBay illustrates the impact of discontinuity in e-markets. The Web site of eBay, online auction site, was discontinued for twenty-two hours on June 10 and 11, 1999, and its stock plummeted from $182 to $135 with $5.7 billion loss of its market value (Dalton, 1999). The company had repeated outages in early August, which resulted in big drop of its stock price to $80. Therefore, discontinuity is an important matter that e-businesses should consider if they want to do business successfully in e-markets.

Discontinuity is defined as "lack of continuity or cohesion (Merriam, 1993)." This implies a situation where continuity is disrupted. Based on the definition, discontinuity of e-business is defined as a condition in which the quality of e-business is obstructed temporarily or permanently. This definition includes IS failures and business failures. An example of discontinuity of e-business would be a case where a customer cannot access a Web site of an e-business for a while (temporary discontinuity). Another would be a case where a customer cannot access a Web site of a company permanently (permanent discontinuity). In these cases, all the dimensions of e-business quality are blocked temporarily (in the former case) or permanently (in the latter case).

Sometimes, part of dimensions of e-business quality is hindered for a short time. For instance, long download time is an example of discontinuity in which the quality of e-business (Interactivity) is disrupted for a while. Therefore, discontinuity of e-business can be considered in terms of scope or severity. In addition, the level of

discontinuity depends on frequency or quantity of discontinuity as well as scope or severity of discontinuity. In the case of eBay, the repeated discontinuity (on June and on August, 1999) dropped the company's market value dramatically (Dalton, 1999). This is an example of the effect of discontinuity on trust. In sum, discontinuity of e-business is assumed to affect the quality of e-business (as shown in Figure 1) and the following proposition is proposed.

Proposition 2: Discontinuity of e-business will affect the quality of e-business.

Discontinuity is also assumed to affect trust in two ways, indirectly or directly. As Proposition 2 implies, discontinuity affects the quality of e-business, which in turn affects trust (indirect impact of discontinuity on trust). On the other hand, discontinuity also affects trust directly, if not greatly. Trust is a construct that would have been built for a long term. Therefore, one or two incidents of discontinuity may not hurt trust in the short run even though it may if the severity is critical. In the long run, however, discontinuity would affect trust directly (direct impact of discontinuity on trust). Therefore, the following proposition is proposed.

Proposition 3: Discontinuity of e-business will directly affect trust and indirectly through lowering the quality of a Web site.

To deal with discontinuity, companies may prepare recovery programs that may moderate the effects of discontinuity on quality and trust. In the next section, the role of recovery is discussed.

Recovery

Recovery is critical to e-businesses because it provides them with a way to overcome discontinuity, to restore the quality of e-business, and to maintain trust. In the case of eBay, the problem was that the company had not had experiences of or preparation for discontinuity. In addition, the slow recovery (twenty-two hours of discontinuity on June 10 and 11, 1999) affects the company's image. Therefore, recovery from discontinuity is one of the important factors that should be considered in e-markets.

Literature on service failures (Hart, Heskett, & Sasser, 1990; Smith, Bolton, & Wagner, 1999; Tax, Brown, & Chandrashekaran, 1998) provides frameworks from which the concept of recovery from discontinuity of e-business may be inferred. Tax, Brown, and Chandrashekaran (1998) base their model on justice theory to explain the relationship among complaint handling, satisfaction, trust,

and commitment. They explain complaint handling in terms of a process perspective as "a sequence of events in which a procedure, beginning with communicating the complaint, generates a process of interaction through which a decision and outcome occurs (p. 61)." They also tested their model and found that complaint handling with justice (distributive, procedural, and interactional) affects satisfaction with complaint handling which in turn affects trust and commitment.

Smith, Bolton, and Wagner (1999) adopted Gronroos' definition (1988) of service recovery – the actions an organization takes in response to a service failure (p. 356) – and tested their model that is based on exchange framework. According to their empirical study (1999), it is supported that recovery attributes (compensation, response speed, apology, and initiation) affect justice (distributive, procedural, and interactional) that in turn affect satisfaction with service encounter.

In terms of e-business, recovery can be defined as activities or procedure that moderate the effect of discontinuity on quality and trust. The activities or procedure may include two parts: 1) restore the e-business as soon as possible and 2) provide customers with feedback (justice). First, quick restoration of e-business is important because it will take away the cause of quality reduction (discontinuity). Quick restoration, however, requires preparation. Dalton (1999) reported some activities of preparation: 1) Have Web sites with "a redundant, scalable architecture," 2) Use simple and reliable technologies, 3) Have rigorous rules for managing changes to the IT systems, 4) Establish communication lines with other departments, 5) Let each IT person know how to respond to discontinuity, 6) Establish escalation paths that are rules about who in the company gets contacted and when, 7) Start backup system in tandem with discontinuity, and 8) Communicate with customers early and often in plain English. These actions will help a company reduce or avoid the effect of discontinuity.

Second, fast and appropriate feedback will also help lessen or avoid the effect of discontinuity. As service failure literature recommends, providing justice would help maintain quality and/or trust by reestablishing satisfaction. Justice is considered to have three dimensions (Tax, Brown, & Chandrashekaran, 1998): distributive (outcomes such as compensation), procedural (procedures such as response speed), and interactional (interpersonal behavior such as apology). In response to discontinuity of e-business, recovery would include the three types of justice.

In the case of eBay, the company did not respond with right recovery process, let alone preparing itself for discontinuity. The damage would have been smaller if the company would have reacted rightly. In sum, these

recovery activities would moderate the impact of discontinuity on quality and trust. Therefore, the following proposition is proposed.

> Proposition 4: Recovery will moderate the impact of e-business discontinuity on e-business quality and trust.

Implications

The main focus of this paper is on the factors that are important in business-to-customer e-markets. Trust is the main component in the model proposed (Figure 1) because it is the factor that encourages customers shop online in e-markets. Trust is built from a source, and the source of trust in business-to-customer e-markets is proposed to be the quality of e-business. Therefore, in this paper, dimensions of the quality of e-business are discussed and are proposed to affect trust in business-to-customer e-markets. In addition, the effect of discontinuity and recovery on quality and trust is also discussed because they are also important factors to be considered in e-markets. In sum, the goal of e-business in business-to-customer e-markets is to build "trust." The basis of trust is the quality of e-business. The anti-force to the relationship between the quality of e-business and trust is discontinuity of e-business. Finally, recovery is the factor that moderates the effect of discontinuity on quality and trust.

In practice, the framework has implications for e-businesses in business-to-customer e-markets. First, it is important to build high quality e-business. The framework in this paper provides the important dimensions of the quality of e-business. Second, it is also consequential to prepare recovery systems. Discontinuity of e-business is not an exaggeration but a reality that can hurt companies in business-to-customer e-markets. As the model in this paper shows, recovery will moderate the impact of discontinuity and help maintain quality and trust.

The model in this paper provides a ground by which operationalization can be done for empirical tests. EBQUAL is a proposed instrument that is based on the dimensions discussed in this paper. Other constructs such as trust, discontinuity, and recovery also need to be operationalized and empirically tested. The discussion in this paper will help develop the operationalization of the constructs.

In addition, more researches can be developed from the proposed model. One example would be a research that is focused on discontinuity. Figure 3 illustrates the detailed components of discontinuity. As mentioned

before, discontinuity can be categorized into two parts: business discontinuity and system discontinuity. If a system is down, business is to be down. System down also affects e-business quality by blocking components of e-business quality such as interactivity. Business discontinuity also affects e-business quality because customers cannot receive what they want, products and/or services.

Figure 3. Discontinuity Model
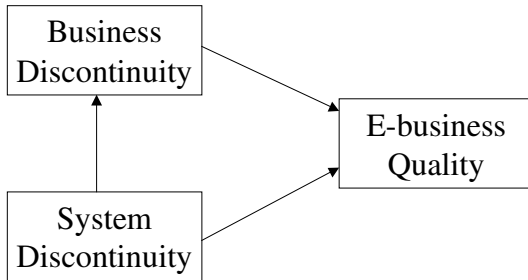
In this paper, a success model in business-to-customer e-markets is presented. The value of this paper would be that some of the important success factors in business-to-customer e-markets are included, if not all factors. More comprehensive study may include business-to-business side as well as business-to-customer side. This paper is one attempt to build one part (business-to-customer) of the whole picture and more researches are in demand.

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