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**MATCHING CUSTOMER EXPECTATIONS AND  
PERCEPTIONS IN E-COMMERCE**

By

**Norm Archer, Milena Head, and Yufei Yuan**

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**Working Paper #451**

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# **Matching Customer Expectations and Perceptions in e-Commerce<sup>1</sup>**

Norm Archer, Milena Head, and Yufei Yuan

## **Abstract**

In addition to lack of physical infrastructure, there are other unrelated barriers to the growth of e-commerce. These result from the unwillingness of customers to engage in online transactions even if the infrastructure is in place. In this paper we discuss a number of these issues, including particularly lack of trust, and propose a model that links the components of the customer-vendor relationship logically. The model provides a structure to analyze and potentially mitigate the causes of the gap between customer expectations from online commerce and their perceptions of what the vendor offers.

**Key Words:** trust, electronic commerce, model, customer expectations, customer perceptions

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## INTRODUCTION

It is becoming increasingly evident that barriers to the expansion and use of e-commerce extend beyond the availability of infrastructure (lack of access, bandwidth, reliable electrical power, etc.). These barriers result from the unwillingness of customers to engage in online transactions even if the infrastructure is in place. The purpose of this paper is to discuss some of the reasons why potential customers are unwilling to participate, and to describe a logical model that examines these issues.

The elements on which customers evaluate services (form their perceptions of the total service experience) include: tangibles, responsiveness, empathy, assurance, and reliability [1]. Tangibles are the physical evidence that customers experience in the fulfillment process. Responsiveness refers to customer perceptions of the willingness and ability of the service provider to respond to the customer's own needs and desires. Empathy is the level of commitment to satisfying customers, related to perceptions of vendor flexibility. Assurance refers to the customer's level of trust and lack of perceived risk that the service will be executed satisfactorily. This is reflected by the tangible information presented during an encounter, and the courtesy and competence of the vendor. These elements have been applied successfully to the evaluation of online e-commerce sites [2]. They are also readily adapted to online customer-vendor encounters involving both products and services. One difference is that services are typically regarded as being consumed immediately, while products are consumed over a period of time. This lengthens the time duration of the customer's evaluation of the product and any related vendor services such as physical fulfillment and product support.

A prominent question that has arisen with e-commerce is the issue of customer trust and related vendor assurances. One published study [3] examined a number of trust factors through an e-mail survey, including the influence of vendor characteristics, security and privacy and customer characteristics. Their results indicate that customer perceptions of vendors should include reliability, competitive prices, provision of useful information, and that services should be easy to conduct. They suggest that perceived vendor characteristics, particularly price competitiveness and

ease of canceling orders, affect the frequency of online purchases. This highlights the role of trustworthiness of an exchange partner in an online transaction.

Because trust is such an important issue, we will discuss this separately in the following section, and then develop a model that integrates the interacting components of the vendor-customer relationship logically in a way that allows a comparison of consumer expectations with perceptions gained by interacting with the online vendor. We examine each aspect of this model and make some suggestions that can help vendors improve their online operations.

## **TRUST AND E-COMMERCE**

A number of authors [4] [5] [6] suggest that trust is a critical factor in the development of e-Commerce. This has been supported by surveys of online users, many with findings that trust-related issues are an ongoing issue that affects online purchases [7] [8] [3]. Building online customer trust is an important component of managing customer relationships, and is a critical issue for firms that have an e-commerce presence in the marketplace [5].

We will use as our definition of customer trust [9], the belief or expectation that the vendor's word or promise can be relied upon and the vendor will not take advantage of the customer's vulnerability. In traditional marketing contexts, customer trust is most readily developed when the customer has a positive trusting stance in general, has had prior interactions with the vendor, interacts with a knowledgeable salesperson with similar or familiar background to the customer, is protected by strong social and legal structures, and expects to be patronizing the vendor for a prolonged period [9]. For online customers, these sources of trust are generally absent.

Perceived reputation, perceived vendor size, and trust are beliefs that the customer has formed on the basis of information about the vendor. Higher trust will not only directly improve attitudes toward a vendor, but might also reduce the perceived level of risk associated with buying from the vendor, thus influencing the willingness to buy. A customer may be willing to buy from an online site that is perceived as low risk, even if the customer's attitude towards the vendor is not positive. Conversely, a customer may not be willing to buy from a vendor perceived as being high risk, even in the presence of positive attitudes towards that vendor.

An action is said to be risky when it may produce social and economic consequences that cannot be estimated with certainty. The risk of an online transaction depends upon the situation as perceived by the customer, in terms of the individual's risk-taking propensity. Perceived risk is inversely related to the degree of trust the customer has in the vendor and the customer's belief in the vendor's reliability, based on a number of conditions. These include the perceived security of the online payment procedure, perceptions of the vendor's fulfillment process, perceptions of the quality and other characteristics of the product or service being acquired, perceptions of the vendor's responsiveness to problems that might be experienced with the product or service, and so on.

Customers are motivated to reduce the potential risk that they will be dissatisfied with their purchases, so they search among alternatives before making a purchase decision. Most customers do not extend this search beyond a few relevant alternatives, since the utility of further search may be less than the cost of continuing. When shopping in traditional brick-and-mortar channels, most shoppers will limit their search to one or two outlets, even when buying expensive customer durables [10]. Alternatively, the customer may rely on remembered experiences with a known product or upon a well-known brand and search and evaluation entirely in making a purchase decision. Customers bypass the search and evaluation phase when the perceived risk of making a repeat purchase is small or the consequences of failure are minimal relative to the cost of a renewed search [11].

The role of trust casts some doubt on online customer merchandising. Customers are unlikely to patronize online vendors that fail to create a sense of trust. Trust can only exist if the customer believes that the seller has both the ability and the motivation to deliver goods or services of the quality expected by the customer. This belief is more difficult for an online vendor to engender than it is for a conventional vendor. In e-commerce, vendors depend on an impersonal electronic storefront to act on their behalf. Additionally, the Internet lowers the resources required to enter and exit the marketplace. Online vendors can increase the trust of potential customers if they can convince them that they have an established track record and reputation, through assurances such as brand name recognition, company size, privacy commitments, secure third party payments procedures, and third party testimonials. In traditional contexts, customer trust has been found to be affected by vendor investments in physical buildings, facilities, and personnel (e.g. banking

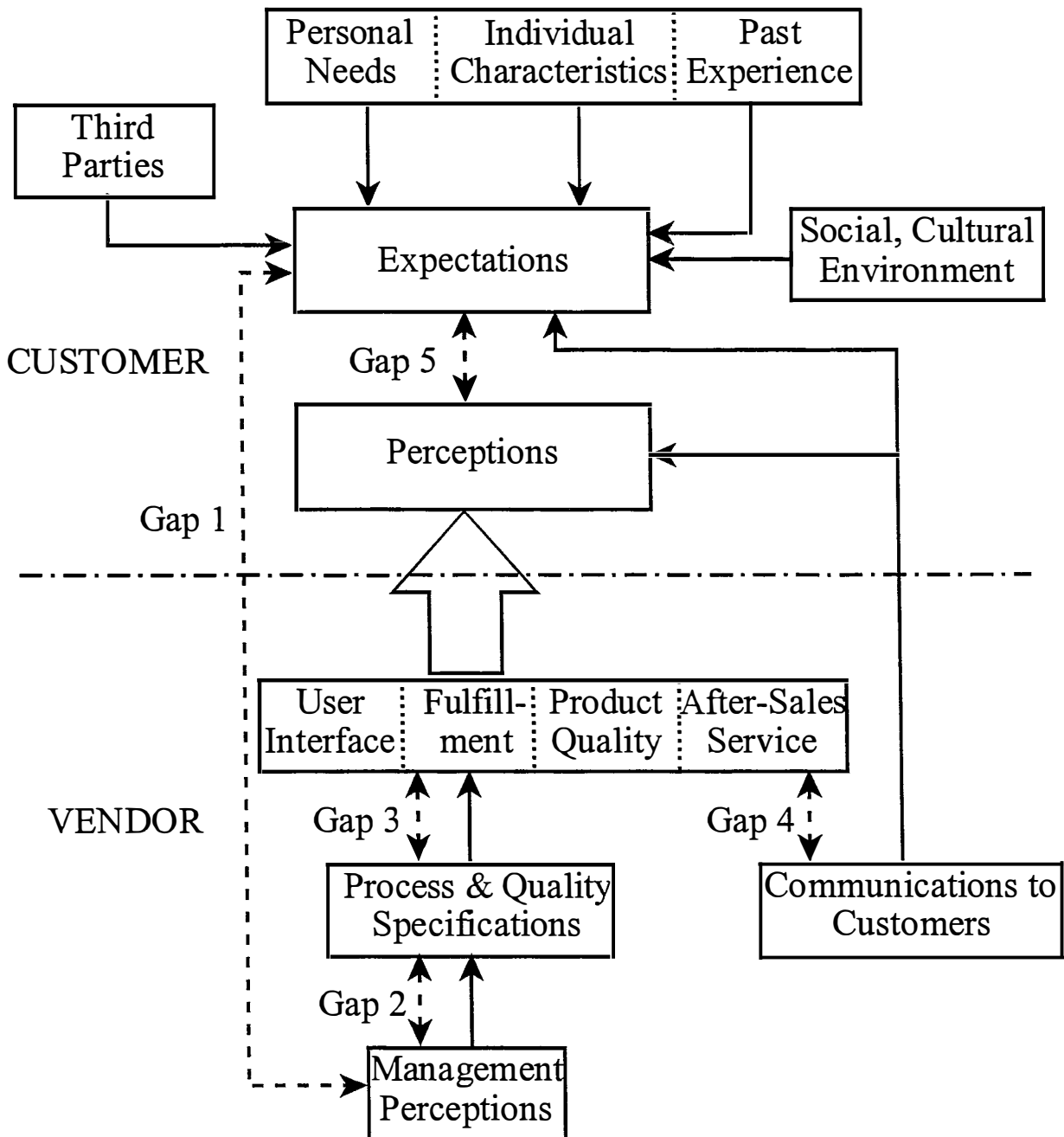
institutions) [12]. Online vendors thus face a situation in which customer trust might be expected to be inherently low.

### **MODEL OF ONLINE CUSTOMER-VENDOR INTERACTIONS**

If a vendor is to surmount the problems associated with customer trust in its online operations, it must specifically identify the sources of these problems and address them in a unified manner. For this reason, we have developed a model with a logical process to identify and correct associated problems that have been identified, based on findings in the literature and in practice.

Our model of online customer-vendor interactions is based on the service quality model of Zeithaml and co-workers [1], used extensively to investigate and recommend improvements in service operations. Figure 1 displays a logical set of relationships that can be used by a business to plan online operations or to investigate and remedy problems in its relationships with customers. The state of vendor - customer relationships is reflected in gap 5, which measures differences between customer expectations and their perceptions of the vendor's actual performance. It is in the interests of the vendor to reduce or eliminate gap 5. The vendor can address this issue by reducing or eliminating the other four gaps shown: Gap 1, differences between management perceptions of what customers want and what customer expectations really are; Gap 2, differences between management perceptions and internal vendor process and quality specifications relating to vendor-customer relationships; Gap 3, differences between internal vendor specifications of process and quality, and how the relationship is actually implemented; and Gap 4, differences between communications to customers and how the relationship is implemented.

Figure 1  
Online Vendor-Customer Model





Trust in a vendor mitigates the customer's perception of the risks involved in a purchase situation. The higher the initial perceptions of risk, the higher the trust needed to facilitate a transaction. Unless a vendor reduces the perception of risk, the gap between customer expectations and perceptions may be unbridgeable for many potential customers.

## **CUSTOMER**

### Customer Expectations

As Figure 1 shows, customer expectations are affected by a number of considerations, including personal needs, individual characteristics, past experience, third party inputs, the social and cultural environment, and communications from vendors. Each is addressed below.

#### *Personal Needs*

Personal needs relate to such factors as the price, quality, functionality, appearance and convenience of a desired product or service. Customers tend to be heterogeneous with respect to their needs – some shop for quality, others for price, still others for convenience, and some to satisfy various value needs. As a result, the inference rules that individuals apply to the search and evaluation phases are often not price centric. Since most vendors support a range of products or services, personal needs are situation dependent and tend to vary from one encounter to the next with the same or different customers. For a successful outcome from an encounter, (the actual acquisition of a product or service) there must be a good fit between expectations and perceptions of the product or service.

#### *Individual Characteristics*

Relevant individual characteristics include curiosity and interest in learning, risk taking propensity, variety seeking, and exploratory behaviour. All can affect the outcome of an online customer-vendor encounter, but it is important to emphasize that the vendor must allow for variation in these characteristics in the design of the online process. One component of human behavior is the need for control, and the customer's perceptions of control relate to the customer's opinion of the encounter experience. A high level of perceived control results in a greater level of

satisfaction with a service [13]. A customer is conditioned by the fact that the computer interface is under his/her control [14]. This makes it important for the vendor to demonstrate both responsiveness and flexibility and, for example, to provide on-demand live backup service.

### *Past Experience*

Customers evaluate encounters on their perceptions of the overall experience, so this should be both positive and memorable to be successful. A memorable experience will encourage the customer to bypass the search and evaluation phases of the purchase process on the next encounter, reducing the likelihood that the customer will look for another vendor. Distractions that entertain and involve customers can provide a positive and memorable experience that influences customer satisfaction [15].

### *Third Parties*

Word of mouth is one common way in which information about a vendor's site and/or products and services diffuses through the community, although this is more likely to take the form of e-mails, newsgroups, or Web sites. On the Internet, negative word of mouth may take the form of extreme actions such as setting up an opposing Web site with negative comments about the vendor. It is well known that negative viewpoints are more widely communicated than positive experiences. Other forms of both positive and negative word of mouth tend to appear in news groups, listservers, and informal e-mail messages among friends and acquaintances.

Trust depends on cooperation between an online business and its customers. One way to help achieve this is by preserving customer information privacy (e.g. credit card information) during online transactions. Traceable anonymity or pseudoanonymity, for example, leaves identification in the hands of trusted third parties, but out of the reach of vendors. At the same time, all the necessary characteristics of a successful online transaction must be preserved, including authentication, certification, confirmation, payment, and non-repudiation [5]. An example of such an approach is SET (Secure Electronic Transaction). The SET protocol has the advantage that it hides customer credit card information from the vendor, and hides order information from the credit card authority, thus simultaneously reducing the likelihood of credit card information theft

and protecting user privacy. However, SET has not been widely used because of its complexity and cost. Other approaches implemented or currently being considered [16], include: electronic cheques, revised SET protocols, interactive credit card authorization, biometrics, assignment of unique identification numbers for individual transactions, etc. While vendors are interested in minimizing fraud, they must also improve the trust of online credit users if their online business is to succeed.

Trust can be branded. For example there is an online application called TRUSTe, a non-profit, privacy seal program for Web sites. By displaying the TRUSTe trustmark, Web sites send a clear signal to users that they agree to protect customer privacy and the security of the transaction, and that their disclosure is backed by credible third-party assurance [17]. A 2000 survey, of 102 firms with predominantly online businesses, found that only 17% utilized trusted third parties and 44% had privacy statements [18].

### *Social and Cultural Environment*

Cultural differences and measures that relate to e-Commerce have been discussed in detail in several contexts [19], [20]. One way for an international operation to engender trust is to have a physical presence in the locale (e.g. nation), including at least sales and service operations. Local presence helps to alleviate potential problems with international shipments, currency conversion, credit, bank representation, etc., and encourages the perception that the vendor is seriously engaging in business on the customer's home turf. This must be communicated to potential customers, so the online site must cater to multiple nationalities and multiple languages. Cultural issues related to trust can be partially overcome by backup physical presence of staff who speak the language and know the culture of the area where business is being done. Language translation for the Web site is typically very important, depending upon the population segment being addressed. Software can assist in this either on the fly (e.g. UniVerse) or by translation directly on the Web site (e.g. BaBel Technologies).

The number of cross-cultural interactions between vendors and customers continues to increase over time, so it is important to understand the impact and nature of cultural differences on online commercial encounters. One study [19] across three different cultures did not find strong cultural

differences in the levels of trust. However, the fundamental basis of trust is likely to vary across nationalities. For example, those customers coming from individualistic countries might have a higher trusting stance in general and be more willing to base their trust in the vendor on factors that are inferred from an impersonal web site than customers from collectivistic countries. Dawar et al (1996) found that personal and impersonal sources of information had different impacts on individuals across cultures.

### Customer Perceptions

Customer perceptions are formed as a result of interactions with the vendor. A gap between perceptions and expectations causes customers to feel that transactions will be risky, and lessens trust in the vendor, lowering the likelihood that transactions will actually occur. If the customer actually makes an initial purchase, customer perceptions will evolve over the long term, depending on their ongoing experience with the vendor. This evolution will depend on the quality of the transaction itself (including the payment process), the fulfillment process, the quality of the product or service purchased, and after-sales service support.

The following vendor characteristics have been suggested as important in the context of electronic transactions: (1) reliability, (2) convenience in terms of services offered, and (3) the perceived price competitiveness and easy access to information offered by Web vendors in comparison to alternative shopping modes [3]. To ensure that customers will perceive these characteristics fully, vendors need to support transaction fulfillment by reliably and securely supporting the full spectrum of electronic commerce, from the user interface to promotional pricing to secure payment handling and the physical component (if any) of the fulfillment process. This in turn leads to the development of customer trust and the potential of long term relationships.

The customer's perception of vendor reliability arises from an evaluation of the total experience and whether the vendor's promises have been realized in their delivery. The importance of the "human touch" in providing service is well known. The relationship established between the vendor (either through the online user interface or through a contact person) and the customer will most influence the customer's perception of the overall service experience.

## **VENDOR**

### *Communications to Customers*

Marketing communications prior to initial customer encounters will develop customer expectations. Communication with the vendor during and after the encounter also develops customer perceptions. It is important that the vendor develops a consistent match between the development of expectations and perceptions from the implementation (interface, transaction, fulfillment, and after-sales) process. This can be managed by eliminating the gap (Gap 4 in Figure 1) between implementation process performance and communications to customers.

Online vendor-customer encounters are really about relationships. The importance of individual relationships is due to the fact that online selling is a one-to-one activity as compared to traditional one-to-many customer marketing. The relationship behind a transaction has been demonstrated to influence customer loyalty and trust in the vendor more than any other aspect, including price [21]. Online interactions through Web sites are less personal than other retail channels, so surrogates for personal interaction should be provided, such as user-friendly and interactive human-computer interfaces. Establishing relationships that customers value may become easier as customer views of online relationships evolve. For example, the increased use of e-mail response, live telephone response, and chat rooms, may help online relationships to become as readily valued as those from more direct personal interactions [14].

Individual characteristics are certain to be heterogeneous, so the vendor must orient the initial customer interaction towards the general characteristics of the population that is likely to encounter the site. However, additional information a potential customer may seek out should have the requisite variety to satisfy the variety of customers. For example, a product or service for which there will be a demand from technical professionals should emphasize the characteristics they are likely to need and to understand.

Relational marketing is the main tool for communicating to prospective and current online customers. Developing trust is at the heart of relational marketing. Loyalty and affinity programs based on permission marketing are often successful, when the attendant relationships continue to satisfy needs beyond the basic product or service needs of the customer by building a community

of interest (e.g. information that relates to the customer's general interests, not necessarily about the vendor's product or service). This encourages membership in the community, builds trust, and enhances the likelihood of return visits. All of this provides selling opportunities for the vendor.

During customer encounters the vendor site should automatically request information on customer demographics and other interests so future marketing can more closely match individual needs, but to maintain trust the customer must be asked for permission for this information to be gathered. The customer must also be assured that any such information (including financial data such as credit card information) will be secured and kept private, used only to the customer's advantage, and not transmitted to third parties. A well-designed sales function also encompasses product and information requests, surveys, complaints, and complaint resolution. Customer data gathered during this process and during order fulfillment can be used for supply chain decision-making.

### Implementation

Implementation characteristics include all the components of the vendor's operations that interact with the customer in some way during the life cycle of the vendor-customer relationship. These include the user interface and its design, the fulfillment process, transaction management, the product or service itself, and after-sales service. All must match the promises communicated to customers through marketing (see Gap 4 in Figure 1). These, along with other sources of information, create expectations that must be matched as closely as possible.

#### *User Interface*

Factors other than vendor size and reputation are likely to affect trust within heterogeneous customer pools [19]. The design, ease of use, aesthetics, and the native language of the site is likely to have an impact. For example, usability might signal the web site's concern for customers, being seen as having required greater resources and investments from the vendor. Also, aesthetics, usability, and language affect interaction aspects immediately, and might color later perceptions and inferences about other site characteristics, such as trust. These may have some explanatory power for a customer's attitudes toward the vendor and the willingness to buy.

On the Web, the user interface replaces the salesperson [22] as the intermediary between the customer and the vendor. Sales organizations that practice relational marketing can create customer trust by demonstrating through the Web site a consideration of their interests as individuals. Web page and site usability [23] features include personalization of the site, and making information available about the vendor so the customer can feel more comfortable about the vendor relationship. To build trust, the customer must be able to gather needed information about the product or service and general information about the vendor.

Sites that fail to satisfy a customer's specific search and evaluation preferences risk being abandoned for sites that do satisfy them. Several factors determine the predictive value of information, and no one type of information may be uniformly valued by all shoppers. Even if a shopper makes a purchase decision, 25-30% of shoppers begin and then abandon a transaction before it is completed [24]. This is at least partly due to poor interface design, but there is no detailed breakdown yet available on the reasons for abandonment.

#### *Fulfillment, Product or Service Quality, and After-Sales Service*

Fulfillment characteristics include order response (e.g. providing order status at each event in the delivery process), full advance disclosure of the financial transaction (e.g. currency conversion, delivery and handling costs, etc.), the financial transaction itself, and the speed and convenience to the customer of the delivery process. The product or service acquired can often only be judged after the transaction unless there is a trial available as there is for software. Because of this, a returns guarantee and process is often important to the shopper who cannot adequately judge the item on offer before it can be examined and used physically. The ready availability of after-sales service is important to customers, associated with more general information relating to the product or service acquired. All of these characteristics can add or detract from the customer's level of trust, with implications for future transactions.

#### Process and Quality Specifications

Process specifications are a critical component of online site design, and receive input from management perceptions of customer expectations. These perceptions must be checked carefully

and translated into a site design that enables proper implementation and matching with customer expectations, thus reducing Gap 2 (see Figure 1). Product or service quality must also match the requirements of the target market. Fulfillment and other intermediary operations are often outsourced, so the vendor must select outsourcing partners that can provide the quality of service the target market requires. Differences between specifications and implementation (Gap 3 in Figure 1) will reduce the likelihood of marketplace success.

### Management Perceptions

Gap 1 denotes the differences between what management believes are customer expectations and what they actually are. This gap may exist from the outset due to uncertainty in information gathered through market research. This information is typically validated through such tools as focus groups and test marketing, to ensure that the product or service really has a market. In addition, careful design and testing of the online site is essential to minimize the gap between customer expectations and perceptions they gain through online interactions. What management perceives as customer expectations must be re-evaluated through data collection during transactions, or from follow-up customer surveys as the implementation proceeds, to maximize the match between customer perceptions and expectations.

## **DISCUSSION**

We have described a model of the various components and characteristics of the customer-vendor interaction, which can be used for conceptual support in designing and managing an online commerce system. It is very clear that there are many actions that vendors can take to improve their success rate in attracting customers, and the model can help vendors in analyzing and improving their opportunities.

It is worthwhile to consider the fact that the trust environment evolves over time, reflected in a life cycle with four phases (Chaos, Establish, Enhance, and Maintain) [25] and extended to include interactions among the three interaction parties (Customer, Vendor, and Referee or Third Party) by Head et al [6]. During this life cycle, a trusted third party or referee is a key partner that assists in



the establishment of a stable environment in which trust is high and transactions can occur routinely.

Evolution begins in the chaos phase, where the shopper is unaware and untrusting of the vendor, and focuses on negative information about the vendor, while the vendor slowly becomes aware of negative information. Careful planning on the basis of the model we have proposed will assist in moving the shopper more rapidly towards the Establish phase. In this phase the vendor seeks positive third party recommendations, and the shopper begins to consider these recommendations. In the Enhance phase, the third party grants a positive recommendation to the vendor, and the potential customer evaluates third party recommendations based on personal experience, with the result that initial transactions are completed to the customer's satisfaction. In the Maintain or stable phase, the vendor consistently fulfills third party standards in subsequent audits, transactions continue successfully, and the customer is less affected by positive information since reliance on third party recommendations have improved customer experience.

We expect to continue with the research that is needed to clarify the outstanding issues that inhibit customers from making online purchases. Research to date has focused more on Internet users who have already made purchases online, and less on the much larger group who either do not use the Internet or use it infrequently, and then only for e-mail. Research is also needed to develop appropriate instruments to collect, analyze, and interpret data collected on the five gaps described in the model, and especially to suggest appropriate actions vendors can take to reduce the gap between customer expectations and perceptions.

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