

# E-COMMERCE IN DEVELOPING COUNTRIES: ISSUES AND INFLUENCES

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## Abstract

*Differing characteristics of local environments, both infrastructural and socio-economic, have created a significant level of variation in the acceptance and growth of e-commerce in different regions of the world. Our findings show that, in development and diffusion of e-commerce in China, cultural issues such as “socializing effect of commerce”, “transactional and institutional trust”, and “attitudes toward debt” play a very major role. In this paper, we present and discuss these findings, and identify changes that will be required for broader acceptance and diffusion of e-commerce in China and propose approaches that businesses can use to enhance this development.*

## Introduction

The number of Internet users around the world has been steadily growing and this growth has provided the impetus and the opportunities for global and regional e-commerce. However with Internet, different characteristics of the local environment, both infrastructural and socio-economic, have created a significant level of variation in the acceptance and growth of e-commerce in different regions of the world. Over time, various studies have been conducted and models have been developed to identify diffusion of e-commerce in different environments. (Zwass, 1999; Wolcott, et. al. 2001; Travica, 2002) These models have looked at “infrastructure” (e.g. connectivity hardware and software, telecommunications, product delivery and transportations systems) and “services” (e.g. e-payment systems, secure messaging, electronic markets, etc.) as the primary diffusion factors.

In addition to infrastructural issues, trust (in our paper, we call this “transactional trust”) has been identified as one of the critical issues that confront businesses that are new businesses or utilize new business models like e-commerce. Numerous studies have tried to find correlations between trust and experience with a new system, concept, or relationships, including a correlation to frequency of e-commerce activity and other researchers have noted that trust may be significantly influenced by culture of a given society. (McKnight et. al., 1998; McKnight and Chervany, 2001; Lee and Turban, 2001) Grabner-Kraeuter observes and states that trust is “the most significant long-term barrier for realizing the potential of e-commerce to consumers”, (Grabner-Kraeuter, 2002) and others state that trust will be a “key differentiator that will determine the success of failure of many Web companies.” (Urban et. al., 2000)

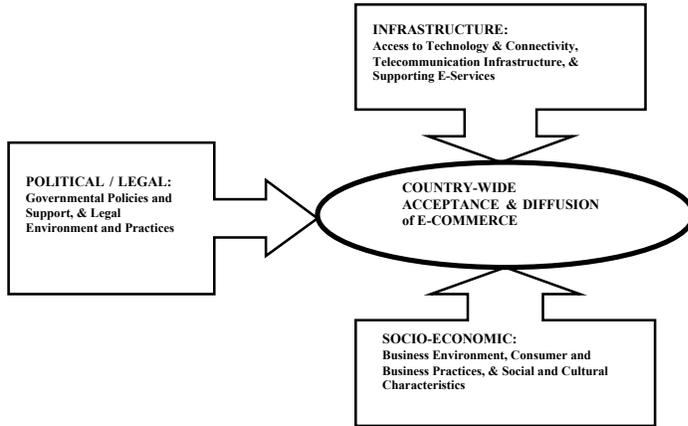
This paper and the associated research focus on the impact of these infrastructural and socio-economic factors on e-commerce development in China, and our findings identify changes that will be required for broader acceptance and diffusion of e-commerce in this country.

## Objectives

Our objective was to explore e-commerce associated concepts, infrastructure and socio-economic, as they relate to China as a developing country with a government that has taken a special interest in technological capabilities of its population. We knew from first hand experience that, in spite of recently increased governmental efforts and investments, the telecommunication and e-commerce infrastructure was not as developed in China as they were in U.S., Europe, or as would be in any developing country, and we expected to find technical and infrastructural limitations to be significant impediments. Therefore, we focused on the societal issues and specifically wanted to identify and explore the influence of culture on acceptance and use e-commerce in this developing country.

**FIGURE 0:**

### Influences on Diffusion of E-Commerce



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## Methodology

To address our research objectives, we developed a 20-question questionnaire, developed in English and translated to and administered in Chinese. It contained questions designed to collect information on demographics, Internet usage, and e-commerce activities (frequency of commerce and type of purchase, means used for purchase, transaction experience, and perceptions of e-commerce in China).

We selected 252 individuals that would be considered to be a close match to e-commerce users in developed countries and we considered to be “early adopters”. Since our primary focus was “impact of culture”, we wanted to get the opinions of actual participants/users of e-commerce and wanted to eliminate the infrastructure problems as much as possible. The study participants resided and worked in different regions and for different types of organizations, and had different educational levels, professions, and gender.

**TABLE 1:**

### Study Demographics

GENDER		EDUCATION		AGE		ORGANIZATION		
Male	Female	BS Degree	Graduate	25-40 years	Over 40 years	MNC	DE*	JV
59.92%	40.08%	75.40%	13.49%	75.40%	7.54%	21.03%	63.49%	15.48%
* DOMESTIC ENTERPRISES including Private Enterprises, State Owned Enterprises (SOE), and University ; MNC = Multi-National Corporation; JV = Joint Venture								

We asked our study participants about their Internet usage to identify their familiarity with

technology and their access to Internet, and their e-commerce participation to determine their ability (access to type of medium used for payment) to pay (possession of credit cards) for e-commerce and whether they purchased any goods/services, using e-commerce, within the previous 12-month period. The respondents (166 out of 252 study participants) that indicated that they had purchased goods/services were further asked about the frequency of their transactions during the previous 12- and 6-month periods, the products/services they purchased, highest total value of their single purchase, and their payment method (credit cards and other commonly used methods of payment in China) for these purchases. They were also asked to list their primary reasons for utilizing e-commerce and rate their overall satisfaction with the activity and to provide unstructured comments on what they consider to be impediments to the development of e-commerce in China and Chinese attitudes towards use technology as a means for commerce.

The unstructured section of the questionnaire and the follow-up unstructured interviews were used to further explore and to identify perceptions on positive and negative aspects of e-commerce in China as it currently exists, future of e-commerce in China, and any other issues that we might have neglected to categorize and include in our questionnaire. These comments, in some cases, provided additional information, and in others, reinforced the previous responses and strengthened the data we collected through other questions.

### Results

Our 252 study participants had complete and fairly easy access to Internet enabling technology (e.g. access to a PC and telecommunication connection to an ISP) and used Internet regularly for multiple purposes/activities (e.g. email, search, etc.), with 65.88% of the study group participating in e-commerce activities.

As we expected, for our research participants, ability to pay (access to credit cards) was not an impediment to e-commerce (86.51% had credit cards, with 69.84% having 2 or more credit cards). However, our findings showed that having increased number of credit cards did not necessarily translate into increased frequency of purchases. Respondents with 4 or more credit cards constituted 21.03% of total respondents and 21.69% of e-commerce participants. Other credit card ownership ranges also had similar distributions between the study participants vs. e-commerce participants.

**TABLE 2:**

**Sample Population (n=252) Vs. E-Commerce Participants (n=166)**

	Male*	Age <36 years*	Education (BS-GRAD)	Have Credit Card	Purchase in 12-mo	Purchase in 6-Mo
<b>Total Population (%)</b>	59.92%	79.37%	88.89%	86.51%	64.29%	65.88%
<b>E-Commerce Participants (%)</b>	55.42%	88.55%	88.55%	86.75%	97.59%	100.00%

\*Differences not statistically significant.

The respondents paid for their purchases in four major ways, cash/check (travel related purchases were paid at the time of use, e.g. hotel stay), COD, credit card, and bank transfer. As can be seen in Table 3, in our study group, contrary to purchases made in developed countries, credit card

was not the most common payment method. This finding is also supported by the latest China Internet Network Information Center (CNNIC) survey, which identifies the top three payment methods as cash and carry (33.1%), online payment (30.7%), and post office transfer (30.0%). (CNNIC, 2002; CNNIC, 2003)

**TABLE 3:**

**Payment Method (n=166)**

<b>Bank Transfer</b>	<b>Cash/Check</b>	<b>COD</b>	<b>Credit Card</b>
8.43%	33.13%	39.16%	19.28%

The overall results of our study clearly show that both the economic and infrastructural issues and culture continue to impede and constrain the development of e-commerce in China.

**Infrastructure and e-support impediments to e-commerce**

Our study participants identified specific infrastructure related impediments that will restrain and be obstacles to full development of e-commerce in China in the near future. Among the most repeatedly mentioned issues were lack of credit cards (wide availability of them for the general public in China) and convenient payment means, poor distribution logistics, lack of specialized, trust-worthy online merchants of reasonable size (too many small players facing many bottlenecks and without necessary resources to set up e-commerce systems), imperfect legal system, and lack of large scale telecommunication transmission capability (broadband). As users of e-commerce, the primary obstacles for our study group, in the order of importance, were “Internet security”, “lack of feel-and-touch associated with online purchases”, “problems in returning products”, and “selection” (product availability and breadth).

**Sociological and cultural impediments to e-commerce**

In spite of the concerns cited above, the respondents were reasonably positive about the availability of hardware/software, government and industry support for IT in China; they were slightly less positive when asked if the Chinese culture “supports” the propagation of IT and e-commerce. The group thought the Chinese consumer society was not quite ready for e-commerce and the conditions were not “ripe” (lack of confidence in technology and off-site transactions, online culture, and overall sophistication of the general public). The study participants were in agreement when it came to the potential for e-commerce, but stated that the industry needs time to realize its potential in China. We were able to identify three distinct cultural impediments: attitudes towards off-site/online transaction systems, trust, and the belief that “debt is not good”, that we consider to be the foundation of this delayed acceptance.

**Off-site/Online Transaction Systems**

The idea of buying goods that one cannot see and touch, and from sellers thousands of kilometers away may take some "getting used to" for an ancient culture such as the Chinese, who are used to face-to-face transactions, familiarity with the other party (“guanxi”, strong individual relationship and long term association between the parties), and getting satisfaction from winning business negotiations (they are willing to employ a variety of tactics to get the best deal). As one person stated “I like buying over the Internet, but it does not beat going to an actual shop where you can see what you are buying and make sure it's what you want." All of these

long standing cultural traits are undermined by and are contrary to the depersonalization associated with e-commerce and business systems designed to sell products online.

### **Transactional Trust**

Our research findings show that transactional trust and related issues are not only major concerns for Chinese consumers conducting online transactions but, are also amplified as a result of Chinese cultural characteristics and prevailing legal system. Our respondents complained about existence of trust-worthy online merchants, and Internet security and credit card security. We also found out that Chinese consumers are as wary of counterfeit products as western consumers are. As one Chinese gentleman put it “History and reality told us not to trust the system or the people’s honor! E-commerce is a radical behavior that goes contrary to experience and culture. There is no “western honor system” in China.”

### **“Debt is not good”**

With estimated RMB410billion (USD50billion) in savings stashed away, China still exhibits the characteristics of a cash society and the value system that preaches “debt is not good”. Our findings support this cultural characteristic. Even though 86.51% of our study group (218 respondents) had credit cards, only 19.28% of the e-commerce participants (32 out of 166 respondents) paid for their purchases using a credit card. Both authors, during their extensive travels in China, rarely encountered credit cards being used for any daily purchases, including some very expensive entertainment events hosted by high level managers at locations where credit card payment systems were in place and hosts that had significant economic means, and, without any doubt, had multiple credit cards.

### **Business Benefits**

As we briefly discussed above, we identified various infrastructure and cultural characteristics as impediments to full-scale consumer participation in e-commerce in China. Among the most pressing infrastructure limitations were access to technology (computers, connectivity, and gateway to Internet), payment systems for enabling transfer of funds, and distribution systems for physical transfer of goods and the primary cultural impediments were attitudes towards off-site transaction systems, level of trust in institutions and commercial activity, and attitudes towards credit based payment systems. Based on our findings, we propose the following business processes that can be employed to overcome some of these impediments on the short-run.

### **Infrastructure Issues**

The infrastructure issues, as important as they may be, are in a constant state of change and improvement, and we project that, in a relatively short time, they will cease to be a very significant impediment to e-commerce development in China.

1. Access to technology: For the past few years, there is significant evidence that show number of Internet users in China increasing at a dramatic rate, especially with access from home. The China Center of Information Industry Development (CCID) estimates that desktop PC sales in China will reach 17.4 million units in 2003 and projects an annual growth rate of 18.8% over the next five years. If these growth rates are realized, China will become the second largest PC market in the world, surpassing Japan by 2007. (Magee, 2002) These projections are supported by April 2002 Nielsen/NetRatings ranking China at second place with 57 million people having web access at home, after

US (166 million), and followed by Japan (51 million), Germany (32 million) and UK (29 million). They further project 5-6% growth rate/month and expect 25% of the population (approximately 250 million people) to have Internet access in just three or four years. (Juliussen, 2002; Rose and Rosin, 2002) Finally, CNNIC (official data collector for the Chinese government) 2003 figures show that 2.1% of China's web users have bought online. (CNNIC, 2002; CNNIC, 2003)

2. E-transaction support (credit cards): A partner in the Beijing offices of accountants PricewaterhouseCoopers, states "..... few Chinese have credit cards, the banking sector lacks a national clearing system and potential customers are suspicious of being cheated." (Hennock, 2002) However, this lack of e-support infrastructure and unavailability of personal credit cards in China has created transaction payment systems that use other methods, such as C.O.D, cash, and postal order (money order), which, for the short term, act as viable substitutes to credit card and function in a way to accommodate limited e-commerce.
3. E-transaction support (physical distribution): On the physical distribution side, there are multiple private courier companies that have been established in major cities and China's postal service has signed contracts with dozens of online merchants for regular or express delivery. These systems, once again may not be as sophisticated as in U.S. or Europe, never the less, substantially minimize the distribution challenge for e-commerce merchants.

### **Socio-cultural Impediments**

In our opinion, the unique social and cultural characteristics of China and the concepts associated with off-site exchange systems pose a much greater challenge and act as the major impediments to diffusion and broad acceptance of e-commerce in China. Even though off-site exchange systems that are pre-cursors to e-commerce, such as catalog and telephone sales, have existed in developed countries and have been used by the public for an extended time period, such systems are new and novel approaches in China and may not be as suitable to its culture and way of doing business. Since the business foundation of e-commerce is based on such a methodology, some of these local cultural characteristics do pose significant challenges for the e-commerce industry in China. There are three distinct characteristics businesses have to deal with:

1. Transaction trust (ordered goods will arrive, payment will be made): Confucianism may have left a strong mark on much of the Chinese social life but it also left a business system more in tune with rule by an unpredictable authority rather than by dependence on a system of laws and obligations. For the Chinese, contracts are expected to change and promises may be broken; a strong individual relationship is often the only indispensable ingredient that is required for the implementation of a contract. Counterfeiting and distribution of below par products is a major problem and further aggravate this lack of transactional trust between parties who do not know each other personally and separated by distance and technology.
2. Socialization effect of on-site commerce (friendly conversations between the vendor and the customer): The success of doing business in China also depends heavily on the quality and sometimes the quantity of personal relationships. For the Chinese, a strong individual relationship and long term association between the parties provide a sense of community and enhances social bonding. Most of the business is conducted through small enterprises and it is local. A typical Chinese company is a socio-economic entity

and not just a pure economic one.

### **Possible Business Approaches**

Businesses, to overcome these infrastructure and cultural impediments, should take a more active role to bring about a broad based consumer society, encourage Chinese government to institute reforms that enhance the economic system (legal changes that support business contracts, discourage counterfeiting, and encourage consumer credit and servicing by the banking industry, built telecommunication and transportation infrastructure, etc.). However, they might not have much choice but to wait for more profound cultural changes to take hold (with the help of governmental actions and increasingly higher living standards) and, as they do, utilize business processes that will enable and encourage e-commerce. Given the current stage of China's socio-economic state and prevailing governmental processes, a combination business model (virtual and physical presence) may be the only way for businesses to participate in e-commerce in China.

A virtual storefront supported by a local distribution center will overcome the "touch-and-feel" concern and the lack of "transactional trust". It will also help develop a physical relationship between the two parties (buyer and the virtual seller) involved in the transaction, addressing and taking advantage of another additional unique characteristic of Chinese business/transaction culture, "guanxi", development of long lasting business relationship. The face-to-face relationship, made possible by utilizing the local distribution center, will enable the economic enterprises to develop new or even deeper relationships between the various parties involved in the exchange. The companies that never have had any local physical presence, new entrants, can employ a "third party certification" or a "guarantee system supported by local government or business" to overcome the major transactional trust issue that is a profound characteristic of this culture.

### **Conclusions**

Even though there have been earlier studies that have tried to understand and address issues related to e-commerce, there have been very few that have focused on the impact of culture and non-infrastructure related issues. We were partially able to address this deficiency by conducting primary research on development and acceptance of e-commerce in a developing country that has very unique cultural characteristics. Our findings show that, even though a developing country government may make the necessary investments in infrastructure (as China has done to a significant degree), unless the e-commerce industry participants understand and address the cultural issues that are unique to that country and relate to off-site transactional process, the large scale diffusion and success of such endeavors will be greatly impeded. Therefore, we would like to encourage other researchers to focus on different cultural environments (countries or regions, if there is homogeneity of culture) and, by understanding and dealing with these characteristics, enable a broader globalization and acceptance of e-commerce.

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