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A PRELIMINARY INVESTIGATION INTO E-COMMERCE ADOPTION BY THE GROCERY INDUSTRY IN CHINA

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ABSTRACT

Electronic Commerce as a way of conducting business transactions electronically has shown great operational and strategic benefits. Developed countries have actively embraced the concept of e-Commerce and have made it an integral part of business activities. Despite its ability to bridge economic and digital gap between developing and developed countries, developing countries are still slow in e-Commerce adoption. Currently, there is still a lack of e-Commerce adoption research in developing countries to fully assess the relevance of e-Commerce in these unique environments. This study aims to shed light into the e-Commerce adoption process in China, by assessing the e-Commerce use by the grocery industry. The uniqueness of China in various aspects including cultural, economic and political, poses different challenges and requires different strategies to encourage widespread adoption of e-Commerce.

Keywords: electronic commerce, technology adoption, developing countries, grocery industry, China.

INTRODUCTION

Electronic Commerce (e-Commerce) is concerned with conducting business transactions including exchanging business information electronically using information and communication technologies [14]. E-commerce is not only limited to buying and selling over the Internet, but it is also concerned with transferring or exchanging products/services and/or information via computer networks, including the Internet, Extranet and Intranet [23]. It includes activities such as servicing customer online, collaborating with business partners and exchanging business documents within an organization over the Internet or other private networks. Because of its broad coverage, e-commerce is often referred to as e-business[10].

Electronic Commerce offers many potential benefits particularly in productivity gains and transaction cost reductions. The rapid dissemination of information, the substitution of digital for paper record keeping, and the networking capability of the Internet has improved flexibility and responsiveness, encouraged new and more efficient intermediaries, increased the use of outsourcing, expanded market access, reduced time to market by linking orders to production, and improved internal coordination [24].

Because of the potential of e-Commerce, it has been rapidly adopted in many countries, particularly developed countries, in this globalization era [2]. In US, for example, the e-Commerce sales consisting of both Business-to-Business (B2B) and Business-to-Consumer (B2C) were 1.679 trillion dollars in 2003 [26]. Overall, worldwide B2B e-Commerce was estimated to be around 7.29 trillion dollars in 2004. Future forecasts also look very promising as Forrester Research predicts that US B2C sales will grow to \$329 billion in 2010 [12].

However, all this proliferation is unilateral, mainly concentrated in developed countries. According to United Nations Conference on Trade and Development (UNCTAD), 95% of e-Commerce takes place in developed countries, with Africa and Latin America combined accounting for less than 1% of the total [28]. In 2004, only 3% of Africans had access to the Internet, in sharp contrast to 67% of North Americans. In 2003, United States and Canada combined had more computers than all of Asia. All these statistics demystify the divide which exists between these bipolar world of developed and developing nations.

E-Commerce has been considered as a way to bridge this economic and digital gap existing between the developed and developing countries. United Nations, World Trade Organization and other development agencies have championed the e-Commerce adoption to the extent that e-Commerce applications are being promoted as tools that will enable firms in developing countries to reduce their costs substantially and to access global markets. Moreover, e-Commerce use enables development in many aspects for organizations, industry and the nation, because it has the potential to improve competitiveness, productivity, and efficiency, leading to the improvement in the economy [27].

However, some observers are skeptical over the positive optimism surrounding the expectations from e-Commerce for developing countries [20]. Although referred to as a catalyst to bridge the economic disparities and digital gap between developed and developing countries, e-Commerce, in reality, has widened the gap as it has further marginalized the developing countries because they cannot implement and capitalize on e-Commerce technologies due to the different conditions between developed and developing countries [2].

At this stage, more research on the adoption of e-Commerce by developing countries is still required in order to better understand the relevance of e-Commerce for developing countries and to identify appropriate adoption strategies [4]. Such research is also important for developed countries to enable them to trade with developing countries more efficiently. Therefore, this study is designed to address the gap in the technology adoption literature by assessing the relevance of e-Commerce for People's Republic of China, or simply China, as an example of a developing country. This study aims to shed light into the e-Commerce adoption in China, by examining e-Commerce's use within the Chinese grocery industry, the driving forces and barriers to e-

Commerce adoption. A multiple case study involving various organizations within the Chinese grocery industry is used as the research method.

The study indicates that China, as the largest communist state and the most populous nation in the world, has proved itself to be an exceptional investment market and formidable competitor to the international investors with its exponential economic growth and development since the first economic reform in the early 1970s [29]. Its unique blend of open-market policy and state intervention in the nation's economic activities has perplexed many experienced foreign investors and caused some proven business practices ineffective. E-Commerce as one of the business phenomenon introduced with the opening of Chinese market is expected to have a diffusion pattern which is unique to China's business environment.

Serving a population of 1.3 billion's insatiable grocery demand and positioned at the forefront of international competition in the face of the most recent total liberalization of retail market, the Chinese grocery industry, especially the supermarket sector has many to reap from e-Commerce technologies. The Confucianism cultural heritage and collective nature of the society forged Chinese consumers' unique value system and behavior, which consequently given rise to an equally complex and distinctive grocery industry [1]. With its intensive labor requirement, high turnover, low margin and heavy competition, e-Commerce technologies stand to deliver the grocery industry significant benefits in terms of improved efficiency, effectiveness and profitability.

In the next section a literature review on the Chinese grocery industry is provided outlining its historical development, characteristics and major players, followed by an overview of the current e-Commerce technologies used in the industry. Then a discussion of the research method and preliminary findings are presented to provide an overview of e-Commerce adoption situation within the Chinese grocery industry. Finally, a number of implications of the findings are discussed to conclude the paper.

Chinese Grocery Industry

The Chinese grocery industry has evolved through time, developing numerous retail formats from wet markets, retail-cooperatives to the current dominating supermarkets in order to address the respective political, social and economic environments.

Table 1: The Evolution of Chinese Grocery Industry

Year	Format	Description
Before 1949	Wet markets, street markets, small shops	These were private retail sectors. Distribution system was virtually nonexistent. Grocery needs were fulfilled locally.
1953-1958	Retail co-operatives, State-owned enterprises (SOE)	China Communist Party (CCP) dictated a state controlled economy. Private retailers were either formed into retail co-operatives or bought out to establish SOEs to sell basic food at low prices.
1959-1980	State-owned enterprises (SOE)	CCP expanded the control on China's economic activities and extended SOE retail sector to urban areas
1981-1990	Wet markets, provisional shops, staple food stores, supermarkets (marginal-player)	Economic liberalization began. Wet markets and small shops which sell grocery items in the urban areas started to flourish again. In March 1981, the first supermarket in China was established in Guangzhou catering for foreign tourists.
1990s	Supermarkets, wet markets street markets, staple food stores	Supermarket format experienced an exponential growth in the large cities and special economic zones due to their consumers' high purchasing power.
Late 1990s – now	Supermarkets, wet markets, street markets	Supermarket started to move into other cities in the eastern region and extended into large cities in the central region.

Before the Chinese Communist Party (CCP) came to power (1949), China's retail sector was dominated by small shops and wet markets, which offered opportunities for retail-cooperatives and state-owned enterprises to dominate the market when the CCP became the ruling party. The distribution of groceries remained under the strict state control until the early 1980s' economic liberalization which allowed private ownership of retailing and wholesaling operations. The supermarket format was first introduced during this period, but its growth was hampered by a lack of appropriate suppliers and its high price [13]. However, the supermarket experienced an exponential growth during the 1990s to the 2000s. The arrival of western culture and growing consumer purchasing power has propelled supermarkets' popularity among the Chinese consumers. By 2004, the supermarket has grown into a US\$55 billion industry, consisting of estimated 53,000 units and occupying a share of 30% of urban food market [11] [13]. Table 1 summarizes the evolution of Chinese grocery industry.

Chinese Consumer Behavior

While the grocery industry is being shaped by cultural, political and economical forces through time, the Chinese consumers has also developed a set of unique behaviors which have fundamental impacts on the characteristics of China's supermarkets. Being raised in a collective society and inherited Confucius philosophy through history, current generation of Chinese consumers are extremely price conscious and tend to be very informed and disloyal shoppers. They are willing to search extensively for a better deal and consider it to be a leisure-activity [1]. Meanwhile, the vast geographical coverage and sophisticated local cultures also caused Chinese consumers to have significantly different sets of taste and value system across cities [21].

Table 2: Consumer behavior and its impact on China's supermarkets

Consumer Characteristics	Consumer Behavior	Supermarket Challenges	Supermarket Strategy
Price con-scious	Extensive product search	Under constant pressure to offer low price	Frequent sales and price wars among supermarkets
Disloyal	Shop from a number of supermarkets, based on price and product offerings.	Hard to maintain a stable customer base, under constant pressure to attract and retain customers.	Offer huge range of products from white goods to cosmetics.
View grocery shopping as leisure activity	Frequent, small shopping trips	Sales generating strategy fail to have spill-over effect on normally priced products	Extensive sales range, heavy advertising and frequent promotional activities
Local pre-ferences	Distinct product preferences in different regions.	Different inventory requirements in different regions, which makes it difficult to manage inventory centrally.	Inventory is managed on a store basis. Direct-store delivery and local sourcing are common practices.

In order to address the consumer behavior, China's supermarkets are under constant pressure to offer low prices as well as a wide range of products which support Chinese consumers' product search and comparison behavior. Sale generation strategies such as loss-leaders strategy, which is a common strategy adopted by the retailers, usually are unable to generate expected results due to Chinese consumers' preference for small frequent grocery shopping [8] [9]. In addition, the widely varying local taste made it impossible to centralize inventory management among chain stores and, as a result, local sourcing and direct-store delivery distribution strategy are common among China's supermarket chains. These Chinese consumer characteristics and behavior pose unique challenges to the supermarkets which require different strategies compared to supermarkets in developed countries, which are summarized in Table 2.

These unique market characteristics have caused unexpected problems among the first wave of foreign investors. After rushing into the Chinese market, foreign chains frequently fail to replicate their successes in the home countries [8] [9] [15].

Furthermore, Chinese consumers' obsession over price has made the competition within the supermarket sector especially furious. New entrants can easily attract a large number of customers from established chains by offering lower prices and it is a constant struggle to retain market share among the existing players. Continuous price and promotion wars are happening among the major chains, thinning their profits. The intrusion of foreign supermarket chains armed with modern management concepts and technologies further increased the intensity of the competition. To stay competitive, China has seen frequent consolidations of Chinese chains to form retail giants such as the Bailian group. Consequently, as Mousteraski (2001) estimates, an average of 350,000 small shops has to go out of business [19].

Major players and their operations

Over the past decades' development and competition, China's grocery industry has seen a significant shift of power in favor of the retailers [14]. The demolition of state controlled grocery distribution system has catalyzed the development in the retail sector with powerful players such as Lianhua, Suguo and Carrefour dominating the market, wielding enormous buying power.

Meanwhile, the former state-owned distribution system was left behind, exhibiting no significant growth over the past years. Coupled with the Chinese economy's transformation from sellers' market to buyers' market, retailers gained dominant position in the marketing channel [2, 14]. There are currently no major players in the distribution sector that can rival the power of retailer giants such as Carrefour or Bailian and the distribution sector of China's grocery industry remains extremely fragmented. These distributors remain small in size and usually specialize in a specific area and product category [2]. As a result, products that go through the conventional distribution channels typically have to be handled by various parties before reaching their destination.

The under development of the distribution sectors has imposed significant difficulty in inventory management for the supermarkets. Smaller supermarkets usually procure supplies directly from the wholesale market with limited direct-supply relationships for certain products [11]. Large chains, on the other hand, may use pick-and-pack (Suguo), direct-store delivery (Carrefour) or third-party logistic (Wal-Mart) system depending on their focus and size. Limited e-Commerce technologies such as B2B portals are used among these major chains to enable information exchange between the supply chain partners while the smaller chains still deploy manual procurement procedures.

Current Use of Information Technology

China is a late adopter of information technologies (IT) as most of the IT infrastructure was not deployed by the majority of Chinese firms until the late 1990s. Firms in the grocery industry have been introducing stand-alone computers to their stores and offices in the 1990s but the build-up of hardware and software for Enterprise Resource Planning (ERP) and other decision supporting functions only began two to three years ago [23]. Since the liberalization of Chinese economy, recently developed information technologies such as the Internet were quickly adopted by the grocery industry. Enterprise applications and other applications such as Electronic Data Interchange (EDI) were, however, left behind, leaving a large gap in firm's IT infrastructure, which result in low capability of many firms in facilitating electronic transactions [30].

The most commonly used technologies are Point-of-Sales (POS) system and bar-coding, which can be found in almost any supermarket. However, given the limited EDI and data analysis capabilities, the POS system is mainly used for checkout purposes only. The data collected through the system are rarely utilized for sale analysis or inventory management purposes [22]. With plenty of low cost labor working in the supermarket stores, it is apparent that computerized systems are not typically required for labor saving purposes. Sinclair et al. (1998) argue that many supermarkets in China installed computerized applications systems with an assumption that these applications' full potential benefits will eventually be realized.

Major supermarket players have taken the first step towards adopting e-Commerce technologies. In order to effectively coordinate a large number of suppliers, Business-to-Business (B2B) portals were established as a means to communicate with the suppliers electronically without worrying about the system compatibility as well as hardware and software investment at the suppliers' end. By logging into the retailers' B2B portals through the Internet, suppliers are able to obtain information about their products and hence make replenishment decisions accordingly. This approach has allowed the supermarkets to bypass the inadequate information technology infrastructure and realize some degree of VMI without significant investments.

Warehouse Management System (WMS) is another application that has been adopted by major chains to improve their operational efficiency. It is usually a standalone system that tracks and coordinates the inventory movement within the distribution centre by assisting warehouse staff to accurately store incoming inventory and prepare outgoing orders. All incoming stock is first entered into the WMS manually upon arrival to update the inventory record and generate a storage slip. It is then placed onto the inventory transportation terminal which automatically stores the inventory into the appropriate place in the warehouse. Upon receiving store orders, WMS generates an outgoing inventory slip to list stocks required and their locations in the warehouse to assist the manual pick-and-pack process. Although this system seems to be primitive based on the western standard, it is one major step forward for the Chinese supermarket chains to achieve automatic inventory control.

RESEARCH METHOD

To better understand the e-Commerce adoption by the Chinese grocery industry, this study involves a multiple case study of various organizations within the industry including manufacturers, distributors and retailers. Semi-structured interviews are used as the data collection technique to investigate the e-Commerce readiness, use and impact in the participating organizations. By interviewing all sectors of the grocery industry instead of the conventional retailer-focused approach adopted by most of e-Commerce surveys and studies conducted in China, the development of unbiased picture of grocery industry e-Commerce adoption is ensured.

At the time of writing, interviews have been conducted with three organizations of different size and type, each with different e-Commerce experiences and adoption level. Future interviews will be conducted during the next twelve months to complement the current study findings. Completed interviews were conducted with the senior managers of the organization with an estimated duration of thirty minutes to one hour depending on the organization's experience with e-Commerce technologies. The semi-structured nature of the interview allowed the interviewer to actively adapt the interview questions according to the interviewee's specific situation and responses while maintaining firm grip on the topics covered.

At the end of each interview, the information obtained was checked against the prepared questions to ensure that all questions had been answered. Interview data were tape-recorded and later transcribed as a written-up field note. Qualitative data analysis technique was used in data analysis to identify and categorize themes/concepts of interest through close examination of data in the written-up field notes. Cross case analyses were also conducted to compare the findings from different interviews. Through the cross case comparison, various emerging concepts were then refined.

The Participants

Table 3 summarizes the profile of the participating organizations in this study. Company A is a major manufacturer of instant noodles in China, with supermarkets as its major retail outlets. Employing around three hundred and fifty full-time employees, it is a typical well-established traditional grocery manufacturer in China. Despite its mix ownership, Company A is a major manufacturer of instant noodles in China, with supermarkets as its major retail outlets. Employing around three hundred and fifty full-time employees, it is a typical well-established traditional grocery manufacturer in China. Despite its mixed ownership, Company A's operation largely remains unchanged with limited addition of stand-alone computers and the Internet used by the management level. With virtually no dedicated IT investment, businesses are carried out through the conventional medium: face-to-face interaction and telephone conversations. The interviewee (Regional Manager) demonstrated little understanding of e-Commerce and was not enthusiastic about the prospects of future adoption within the organization, since the traditional way had been working well.

Table 3: Organization Profile of three interviewed companies

Company	Type	Full-time employees	Ownership
A	Manufacturer	350	Local with foreign ownership
B	Broker	25	Local
C	Retailer	80	Local with foreign ownership

Company B is a small broker of grocery items with twenty-five full-time employees. As most of other similar sized grocery distributors in China, it is independent and locally-owned. Given its recent establishment, its operation is unsurprisingly supported by IT, which gives all employees direct access to computers, Internet and E-mail. Since most of company B's employees have a tertiary degree, the interviewee (Chief Executive Officer) showed a comprehensive understanding of e-Commerce and indicated willingness in its future investment because of the organization's positive experience with IT.

Company C is a medium sized grocery retailer with foreign ownership. As other grocery retailers in China, it is equipped with the standard information technologies such as Scanner/Bar-coding, Internet and Website to attract customers and facilitate its day-to-day operation. The majority of the staff at the management level holds a tertiary degree. The interviewee (Marketing Manager) also demonstrated adequate e-Commerce knowledge and expressed commitment in maintaining the current level of IT investment, but with limited willingness to further increase e-Commerce adoption in the near future.

Study Findings

Interview with the participants reveal some important observations related to e-Commerce adoption in China, particularly within the grocery industry, which are discussed below:

Strong Telecommunication and Transport Infra-Structure in The East Coast region.

Since all interviewed organizations are located in the economically advanced east coast region of China, all interviewees gave high ratings regarding the telecommunication and transport infrastructure in the region. Neither of Company B or C suffered infrastructure related difficulties during or after its e-Commerce adoption and is very confident that these infrastructures are mature enough to fully support e-Commerce activities in the region. However, Company C expressed her doubt regarding the condition of these basic infrastructures in the less developed regions of China. It confirms the findings of other similar studies (see for example [5] [13] [23] [24] [25]) that there is significant infrastructure development disparity in China between the economically developed regions and the rural areas.

Weak Legal Framework and Privacy Protection Impedes E-Commerce Adoption

All the interviewees were asked about the state legal framework for online transactions and they expressed their discontentment. All of them believed there is a significant lack of sound laws and regulations that can effectively monitor e-Commerce activities, and, hence, China is considered not to be ready for e-Commerce in this respect. With the "lack of e-Commerce legal framework" identified as major barriers to e-Commerce adoption in previous studies [18] [21] [23] [25] [30], this finding further confirmed the presence of the barrier related to legal framework within the Chinese grocery industry specifically.

Organization's Position in The Supply Chain Affects E-Commerce Adoption

The interviews suggest that the closer the organization is to the consumer, the more information technologies are used as part of daily business procedures. With all interviewees confirming their IT and basic e-Commerce adoption situation as the industry standard practice, we can conclude that this phenomenon is relatively wide-spread within the grocery industry. Company A, the manufacturer, located further away from the consumer than other companies, repeatedly questioned the necessity of e-Commerce technologies in the manufacturing sector and expressed contentment regarding their traditional way of operation under the current situation as revealed below:

"...at the moment, our business is operating with the traditional approach and performing well, we are not really looking into any e-Commerce initiatives" (Company A).

Other participating companies, on the other hand, demonstrated a much more advanced e-Commerce understanding and IT usage. Being able to meet consumer demand is considered by the majority of the participants to be one of the major reasons for adopting IT and introducing e-Commerce. Meanwhile, Companies C, D and E (retailers), use information technology to a much greater extent than Companies B and F (distributors). This finding is consistent with the other e-Commerce survey carried out in China that identified "consumer demand" as the number one driver for e-Commerce adoption [23].

E-Commerce Usage Concentrates on Low-Level Administration Activities

Despite the active use of e-Commerce technologies in daily businesses by Companies B and C, none of them demonstrated sophisticated e-Commerce capability beyond the basic internal-external email communication and administration tasks. Internet and email are the most commonly used e-Commerce technologies in the organization enabling them to place and receive orders through email. Other applications such as Website, EFT and Barcode/Scanner are purely used for its most basic operational purposes and serve no strategic or analytical functions. None of the interviewed companies possess compatible or inter-connected systems with its trading partners. Table 4 depicts the current usage of e-Commerce technologies by the participating companies.

Table 4: e-Commerce Usage by the Participating Organizations

Company	e-Commerce technologies	Sales (%)	Business operation (%)
A	Internet, Email	0	0
B	Internet, Email, EFT, Intranet	5%	6%
C	Internet, Email, EFT, Barcode/Scanner	6-7%	10%

Low Level of Trust Among The Trading partners

After a decade of e-Commerce development and diffusion in China, it appears that organizations finally started to develop a sense of trust as a part of their business relationships. All respondents of our interviews confirmed the existence of a trustful relationship with their trading partners which enables the possibility of conducting business transactions without face-to-face interaction. However, the level of trust is still considered low. When asked about the sharing of information with their partners, both e-Commerce capable organizations B and C indicated reluctance in sharing anything vital. It appears that although businesses have made improvements in the issue of trust for the past decade, they are still largely cautious in cooperating with their partners, as revealed by the interview excerpt:

“We trust our trading partners as much as they can be trusted” (Company C).

This observation confirms the widely quoted “lack-of-trust” syndrome which is believed to be prevalent in Chinese business environment [2] [3] [6] [7] [16] [17] [18].

E-Commerce Delivers Cost Reduction, but Also Involves Negative Effects on Employees Behavior

Cost reduction is revealed to be the most prominent benefit delivered by e-Commerce technologies, as both Companies B and C quickly pointed out the labor and administration cost have been reduced by simply computerize and digitize some of the very basic operations. Even Company A believes in the cost saving potential of e-Commerce technologies when enquired about the perceived e-Commerce benefits. The other benefits are less obvious because the participants seem to have a limited understanding of the potential benefits of e-Commerce, particularly related to tactical and strategic benefits. Companies B and C expressed the likelihood of improved customer, supplier relationship and company image as a result of using e-Commerce, but there is no solid evidence that such benefits have been reaped.

On the other hand, employees’ misuse of the Internet for personal use during working hours is the major concern among the interviewed companies. All Companies A, B and C has experienced such problem and believe it threatens the operational efficiency of the company and is a major drawback of having e-Commerce technologies directly accessible to the employees.

DISCUSSION AND CONCLUSIONS

This preliminary study provides an overview of the e-Commerce adoption within the Chinese grocery industry. Some efforts have been put into e-Commerce adoption, but due to the barriers of poor national legal framework and e-Commerce infrastructure support, the overall e-Commerce adoption in the grocery industry remains at its first stage of development comprising fragmented networks and standalone applications. Despite retailers’ enormous power to impose standards and operations upon their suppliers, the amount of investments required for e-Commerce adoption is simply too large for the majority of distributors and manufacturers. The lack of trust between the two parties also significantly dampens the motivation for such advancements. As a result, the retailers simply choose to impose numerous expenses upon the suppliers to increase their profit margin instead.

In order to encourage e-Commerce adoption and diffusion within the industry and fully realize its benefits, different strategies will be required because of the uniqueness of the industry. Given Chinese government’s extraordinary influence on every single aspect of the country and the notoriously inconsistent policy implementation, businesses have to pay special attention to liaise with the local government to avoid unexpected ramifications stemmed from e-Commerce activities. Increase in government lobbying for sound e-Commerce and supporting legislations can reduce the uncertainty in e-Commerce adoption to some degree. At the moment, the lack of rule and law significantly hampers the effectiveness of the existing regulations.

The study findings also suggest that awareness and understanding of the potential of e-Commerce need to be improved within the industry to further encourage adoption. This may require the involvement of the industry body that can improve the visibility of e-Commerce practices among the industry players and to demonstrate the benefits obtained. Through progressively increasing the

awareness and understanding of e-Commerce business practices and procedures, more and more organizations will be willing to consider e-Commerce as means of organizational improvement.

In addition, since inefficiencies in managing the flow of products are prevalent within the Chinese grocery industry, streamlining the supply chain management within the industry will be beneficial for the industry. Advanced supply chain management initiative such as Efficient Consumer Response (ECR) which is originated in the United States and has been applied in other regions including European countries and Australia, can also offer many potential benefits to China. However, before achieving advanced supply chain management, improvement and the wider adoption of some basic e-Commerce technologies are still required. Thus, developing countries such as China will most probably follow the trajectory of e-Commerce adoption progression as experienced in Western / developed countries, but currently developing countries are still at the early stage of e-Commerce adoption.

The results of this study has both confirmed and complemented various existing studies on the e-Commerce adoption in China. The interviewed organizations demonstrated different degrees of e-Commerce understanding and adoption, with the retailers at the high end of the e-Commerce adoption spectrum and the manufacture at the other end. Major drivers and barriers frequently identified by previous studies are also confirmed through these interviews. During the next twelve months, more extensive interviews will be carried out to complement the finding of this current study.

REFERENCES

- [1] Ackerman, D. and Tellis, G. (2001) "Can culture affect prices? A cross-cultural study of shopping and retail prices", *Journal of Retailing*, Vol. 77, pp. 57-82.
- [2] Bean, R. (2006), "China, Peoples Republic of Retail Food sector All China retail Annual Report", *USDA Foreign Agricultural Service GAIN Report*, pp. 1-34.
- [3] Chae, B., Yen, H.R. and Sheu, C. (2005) "Information Technology and Supply Chain Collaboration: Moderating Effects of Existing Relationships between Partners", *IEEE transactions on Engineering Management*, Vol. 52, No. 4, pp. 440-449.
- [4] Chowdury, A. (2003) "Information Technology and Productivity Payoff in the Banking Industry: Evidence from the Emerging Markets", *Journal of International Development*, Vol. 15, No. 6.
- [5] Chvaja, A., Mokudai, I. and Efendic, N. (2001) *E-Commerce in China Challenge of the 21st Century*, University of Hong Kong, Hong Kong.
- [6] Dedrick, J. and Kraemer, K.L. (2001) "China IT Report", *The Electronic Journal on Information Systems in Developing Countries*, Vol. 6, No. 2, pp. 1-10.
- [7] Efendioglu, A.M. and Yip, V.F. (2004) "Chinese culture and e-commerce: an exploratory study", *Interacting with Computers*, Vol. 16, pp. 45-62.
- [8] Goldman, A. (1996) "Supermarkets in China: Entry limitations and strategic dilemmas", *MKTG 96.080*, China Europe International Business School, pp. 1-34.
- [9] Goldman, A. (2001) "Supermarkets in China: the case of Shanghai", *International Review of Retail, Distribution and Consumer Research*, Vol. 10, No. 1, pp. 1-21.
- [10] Guan, S. and Wang, L. (2005) *Analysis of restrictive factors of E-Commerce implemented in Traditional retail trade in China*, ACM, ICEC.. Xi'an.
- [11] Hu, D. (2004) "The Emergence of Supermarkets with Chinese Characteristics: Challenges and Opportunities for China's Agricultural Development", *Development Policy Review*, Vol. 22, No. 5, pp. 557-586.
- [12] Johnson, C.A. (2005) *US e-Commerce: 2005 To 2010*, Forrester.
- [13] Lo, T.W.-C., Lau, H.-F. and Lin, G.-S. (2001) "Problems and prospects of supermarket development in China", *International Journal of Retail and Distribution Management*, Vol. 29, No. 2, pp. 66-76.
- [14] Luk, S.T.K. (1997) "Structural changes in China's distribution system", *International Journal of Physical Distribution & Logistics Management*, Vol. 28, No. 1, pp. 44-67.
- [15] Mai, L.-W. and Zhao, H. (2004) "The characteristics of supermarket shoppers in Beijing", *International Journal of Retail and Distribution Management*, Vol. 32, No. 1, pp. 56-62.
- [16] Martinsons, M.G. (2001) "Electronic commerce in China: emerging success stories", *Information & Management*, Vol. 39, pp. 571-579.
- [17] Meng, B. (2004) "Infrastructure, Service and Trust: Assessing the Environment of E-commerce in China", *Proceedings of the PTC's 26th annual conference*, Pennsylvania State University, Honolulu.
- [18] Millington, A., Eberhardt, M. and Wilkinson, B. (2005) "Gift giving, Guanxi and Illicit payments in Buyer-Supplier relations in China: Analysing the Experience of UK Companies", *Journal of Business Ethics*, Vol. 57, pp. 255-268.
- [19] Mousterasaki, P. (2001) "People's Republic of China: Retail Food Sector Report 2001", *Global Agricultural Information Network Report CH1810*, USDA Foreign Agricultural Service, Washington DC.
- [20] Odera-Straub, M. (2003) "E-commerce and Development: Whose Development?", *The Electronic Journal on Information Systems in Developing Countries*, Vol. 11, No. 2, pp. 1-5.
- [21] PricewaterhouseCoopers (2005) "2004/2005 Global retail & consumer study from Beijing to Budapest", pp. 19-31.
- [22] Sinclair, G., Lyer, A. and Anderson, J. (1998) "The supermarket supply chain in Shanghai", *International Food and Agribusiness Management Review*, Vol. 1, No. 4, pp. 443-450.

- [23] Tan, Z. and Wu, O. (2004) "Diffusion and Impacts of the Internet and E-commerce in China", *Globalization and Electronic Commerce*, Vol. 14, No. 1, pp. 25-35.
- [24] TheWorldBank (2001) "Electronic Commerce and Developing Countries", *Global Economic Prospects and the Developing Countries*, The World Bank, Washington, DC USA.
- [25] Trappey, C.V. and Trappey, A.J.C. (2001) "Electronic commerce in Greater China", *Industrial Management & Data Systems*, Vol. 101, No. 5, pp. 201-209.
- [26] U.S. CensusBureau (2005) *United States Department of Commerce E-Stats*, Economic and Statistics Administration - U.S. Census Bureau.
- [27] UNCTAD (2002) "E-Commerce and Development Report 2002", *Proceedings of the United Nations Conference on Trade and Development*, New York and Geneva.
- [28] UNCTAD (2005) "Information Economy Report 2005", *Proceedings of the United Nations Conference on Trade and Development*, New York and Geneva.
- [29] Unit, T.E.I. (2007) "Country Profile 2007- China", *Country Profile*, The Economist Intelligence Unit, London.
- [30] Xu, S., Zhu, K. and Gibbs, J. (2004) "Global Technology, Local Adoption: A cross-country investigation of Internet adoption by companies in the United States and China", *Globalization and Electronic Commerce*, Vol. 14, No. 1, pp. 13-24.