

Current Progress of E-Commerce Adoption: Small and Medium Enterprises in Hong Kong

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Despite the recent cooling of technology hype and the subsequent plummet in global stock markets, e-commerce has been the most popular, yet controversial, topic both in the business environment and in the academic arena. Enterprises must be involved in e-business to some extent to stay competitive. In Hong Kong, most large enterprises have adopted e-commerce applications to support their daily business activities. However, the e-commerce adoption status for Hong Kong small and medium-sized enterprises (SMEs) is still not fully known.

This research aims to examine the current status of e-commerce adoption in Hong Kong's SMEs, and will focus on opportunities and benefits, as well as practical and perceived barriers to adopting e-commerce. By analyzing our findings and comparing the results with similar studies from other Asia-Pacific countries [2, 4, 5, 7, 8], this article presents the current situation of SME e-commerce deployment in Hong Kong. Our examination of current views and expectations of e-commerce can assist companies in identifying major concerns, and exploring e-commerce opportunities in this globalized marketplace.

Survey questionnaires were distributed to members of the Hong Kong Executives Club and the Hong Kong Women Professionals and Entrepreneurs Association. The survey consisted of scaled multiple choice and open-ended questions for textual comments. In addition, senior management representatives of the companies surveyed were invited to participate in one-on-one interviews. Of the approximately 70 surveys collected from the two organizations, a total of 44 fit our SME criteria. Thirty two percent of these companies were categorized as service companies, and the remaining 68% as manufacturing companies. Following are highlights of the computer usage and e-commerce capabilities of our SME respondents:

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Computer terminals. All of our SME respondents use computers to support daily business operations. For companies with fewer than 50 employees, the ratio of computers to employees is close to 1:1. However, as the number of employees in a company increases, the ratio drops because larger companies tend to employ more non-clerical staff.

MIS/IT departments. Sixty percent of the companies in our study with fewer than 10 employees have their own MIS/IT team, compared with 71% of companies with 10–50 staff members, and 89% of companies with over 50 employees.

Outsourced IT functions. Thirty-nine percent of respondents indicated that they are not currently outsourcing any IT functions. For companies that do outsource their IT functions, hardware and software maintenance are the highest priority. Another high priority is the design and maintenance of the company Web site. Sixty-nine percent of companies with Web sites rely on outside services in this area. However, only a small percentage of respondents outsourced data storage and administration.

Internet and email. Ninety-one percent of respondents have Internet access to corporate computers and computer networks. Of these companies, 62% use dial-up modems, while the remaining 38% use leased lines. Fifty-four percent of respondents with leased lines have remote offices or manufacturing plants in either the People's Republic of China or overseas. While most respondents have Internet access, only 37% allow every user to access the Internet. In our interviews, many managers mentioned concerns about staff browsing the Internet for non-job related information.

Electronic business functions. Table 1 outlines the electronic business functions implementation plan of our respondents, illustrating the timeframe of respondents' plans to implement different IT and e-commerce strategies to automate and enhance their business operations in the Internet world. There are no significant differences between respondents from the manufacturing and service sectors.

Top electronic business functions already implemented by SMEs. The top six functions already implemented by most companies are listed in Table 1. Researching or collecting information on the Internet ranked number one, illustrated that the Internet is a useful and popular means of accessing information. However, our interviews revealed that some SMEs in specialized industries have difficulty obtaining industry-related information, or trade secrets, due to limited information on the Internet. Thirty-six percent of the SMEs report having set up Web sites, which is the sixth-ranked business function implemented. This reason for this relatively low ranking is that most SMEs do not wish to disclose too much information to their competitors.

Top five electronic business functions most reluctantly implemented by SMEs. Functions that SME respondents do not intend to implement are also listed in Table 1. The top five functions include making payments to business counterparts over the Internet, outsourcing functional work to service providers over the Internet, outsourcing administrative work to service providers over the Internet, supply chain management, and online retailing. According to our interviews, many companies have developed their own proprietary systems with a high degree of customized business process logic, which cannot be replaced by generic applications offered by application service providers.

Function Plan	Already Implemented	<6 months	<12 months	>12 months	Consider but no time schedule	Do not consider to implement
<ul style="list-style-type: none"> • Customer payment over Internet 	0%	7%	0%	0%	41%	52%
<ul style="list-style-type: none"> • On-line retailing on the Internet 	5%	9%	2%	0%	25%	59%
<ul style="list-style-type: none"> • Technical support/on-line enquiry service to customer via Internet 	0%	18%	9%	0%	25%	48%
<ul style="list-style-type: none"> • Computerized customer database 	64%	2%	2%	0%	14%	18%
<ul style="list-style-type: none"> • Customer order received over Internet 	23%	2%	5%	2%	20%	48%
<ul style="list-style-type: none"> • Computerized supplier database 	39%	7%	2%	2%	14%	36%
<ul style="list-style-type: none"> • External computer network linking business partners 	16%	0%	5%	0%	30%	49%
<ul style="list-style-type: none"> • Material sourcing on the Internet 	9%	2%	7%	0%	32%	50%
<ul style="list-style-type: none"> • Order placement with business counterparts over the Internet 	18%	2%	5%	2%	25%	28%
<ul style="list-style-type: none"> • Making payment to business counterparts over the Internet 	0%	0%	0%	0%	43%	57%
<ul style="list-style-type: none"> • Supply Chain management 	2%	2%	2%	2%	30%	62%
<ul style="list-style-type: none"> • Computerized inventory record 	43%	5%	5%	0%	16%	31%
<ul style="list-style-type: none"> • Internal computer network 	55%	5%	0%	2%	16%	22%
<ul style="list-style-type: none"> • External computer network linking overseas' office/plant 	23%	5%	5%	0%	25%	42%
<ul style="list-style-type: none"> • Establish a corporate website 	36%	14%	7%	7%	16%	16%
<ul style="list-style-type: none"> • Research or collect information on Internet 	66%	5%	0%	0%	5%	24%
<ul style="list-style-type: none"> • Recruitment via the Internet 	20%	5%	2%	0%	25%	48%
<ul style="list-style-type: none"> • Outsource administrative work to service provider over the Internet 	0%	7%	0%	0%	34%	59%
<ul style="list-style-type: none"> • Outsource functional work to service provider over the Internet 	0%	2%	2%	0%	32%	64%

Table I. E-business functions implementation plan.

Perceived Benefits of E-commerce

Here, we summarize our respondents' views of expectations and perceived barriers for e-commerce deployment, including comments extracted from interviews. Table 2 shows the potential benefits of e-commerce as perceived by the manufacturing sector, service sector, and both sectors combined [1]. All potential benefits scored above three on a 5-point scale with the exception of reducing costs through Web-based purchasing and procurement, which suggests most SMEs do not have a good understanding of how the Internet can help manage procurement activities. Our respondents expect e-commerce deployment leads to improvements in the following areas:

	Average score Manufacturing & Service	Average Score Manufacturing	Average Score Service	Potential Benefits
Customer-related	4.05(1)	4.17(2)	3.79(1)	Improve Information exchange with customers
	3.67(4)	3.75(4)	3.50(3)	Improve customer service
	3.49(5)	3.55(5)	3.35(4)	Enhance customer loyalty and retention
Supplier-related	3.41(6)	3.46(6)	3.30(6)	Improve information exchange with suppliers
	2.69(7)	2.77(7)	2.52(7)	Reduce costs through web based purchasing and procurement
Corporate-related	3.91(3)	4.18(1)	3.35(4)	International market exposure
	3.96(2)	3.85(3)	3.57(2)	Reduce cost of maintaining company information

() denotes ranking

Table 2. Potential benefits of e-commerce perceived by manufacturing and service sectors.

Information exchange with customers. Our SME respondents believe that e-commerce allows their companies to offer accurate, up-to-date information over the Internet. The transactions can take place without human interaction, thereby minimizing errors.

International market exposure. The average score for this benefit differed significantly between the manufacturing and service sector respondents. While manufacturers ranked it first among all potential benefits, service sector respondents ranked it in fourth place. These findings can be explained by examining the portfolio of our respondents. The majority of the manufacturing sector respondents are involved in the export of finished goods to overseas markets, while respondents from the service sector tend to conduct business locally.

Customer service, and customer loyalty and retention. The scores on these two benefits are similar for the two industry sectors. As discussed previously, e-commerce enables firms to be more responsive to customer needs, and more efficient in providing interactive services to business counterparts. The lower ranking of this benefit (see Table 2) is due to the fact that customer service and customer retention require additional and ongoing human interaction to achieve the best results. One respondent received significant customer feedback via email after his company established a business-to-consumer (B2C) Web site. He concluded that the B2C Web sites are an efficient and effective communication channel between the merchant and the end consumer.

Information exchange with suppliers. The two industry sectors were also in general agreement regarding this potential benefit of e-commerce. While most SME respon-

dents acknowledged that e-commerce can improve information exchange with suppliers, a few managers noted the varying platforms and systems used by suppliers as a barrier to this exchange. Most major suppliers use proprietary database systems for inventory, most of which are not compatible with Web-based standards. As a result, integration of information between the systems of suppliers and buyers is either too costly or impossible to achieve. One of our respondents, who currently subscribes to several proprietary online systems, had no alternative but to use these systems due to the dominant position of his overseas business counterparts.

Cost reduction through Web-based purchasing and procurement. The potential benefit of this item is ranked last, and is the only benefit with an average score below three. This low ranking is understandable given that information exchange between systems is usually costly. Further, purchasing and procurement involve online transactions and payments, quality assurance, and pricing confidentiality issues—all major obstacles for our SME respondents in applying e-commerce.

Perceived Barriers of E-commerce

After analyzing the results from our respondents, we identified and categorized perceived barriers of e-commerce into four fundamental types: e-payments and data confidentiality; quality assurance and proprietary requirements; human and capital resources; and lack of drivers and initiatives, in concert with reluctance to change.

Electronic payment and data confidentiality. Our survey indicates that immature electronic payment methods, Internet security, and limitations of the legal framework regulating electronic transactions are the top three barriers preventing SME respondents from deploying e-commerce. Clearly, online payment security and data privacy are the major barriers for any business deploying e-commerce. Some SME owners expressed diversified views on payment and security issues. Most SME owners find online payments unacceptable but have started to accept online orders with additional phone confirmation by company staff. Many respondents express concerns about computer breakdowns resulting in loss of business, but are very reluctant to outsource business functions to ASPs, mainly due to their lack of trust in third parties hosting confidential data.

Quality assurance and proprietary requirements. Our SME respondents assessed quality assurance as their fourth-ranked concern. In interviews, SME owners expressed discomfort with trading in electronic marketplaces, where quality of goods is not guaranteed. One of the competitive edges for SMEs is their established reputation, and they are unwilling to risk their well-established image by producing goods with quality unassured materials.

Human and capital resources. Typical SMEs have limited scales of operation. They are generally family businesses with just enough manpower and capital to conduct day-to-day business, and usually cannot spare additional resources to train employees for the new e-commerce business. In the interviews, we noted that SME owners would allocate most of their company resources on existing business opportunities. These owners are mostly conservative, and will only adjust their business model based on the requirements of their major customers. Also, they are concerned about the possibility of their competitors deploying e-commerce, which would require that they, too, deploy e-commerce in order to keep up.

Lack of drivers and initiatives, and reluctance to change. Most SMEs in Hong Kong are established locally by relatively conservative Chinese family businesses with limited resources to develop new business channels. It is important to point out that most of our SME respondents realized the need for e-commerce and its potential. However, the general mindset of the SME owners is that of a “follower,” which is a major hurdle for deploying e-commerce.

Conclusion

Based on these survey findings, Hong Kong SMEs lag far behind in adopting e-commerce to support business activities. In Singapore, 49 of 253 SMEs had adopted e-commerce solutions through ASPs by late 2000 [6]. Forty-six percent of small enterprises have their own Web sites, and 5% are able to complete trade transactions. In our study, none of the Hong Kong SMEs have a Web and back office integrated system, are thus unable to complete trade transactions over the Web. But in Australia, 28% and 25% of 1,200 SMEs surveyed use the Internet to place and take orders, respectively [8]. In Taiwan, e-commerce adoption status is similar to that in Hong Kong. Ninety percent of Taiwan SMEs have Internet access, whereas in Hong Kong 91% have access. Twenty-three percent of Taiwanese SMEs take and place orders over the Internet [7], while in Hong Kong, 23% and 18% of SMEs take and place orders, respectively. It appears that Hong Kong is behind Singapore and Australia in adopting e-commerce, and on equal footing with Taiwan.

We found that most SMEs are aware the market will become more dynamic, competitive, and global, and that there is an increased need to use the Internet for communication and business transactions. However, the progress in adopting e-commerce is slow, and is dependent on major corporations, as most SMEs will wait to follow. The major concerns for the SMEs are data confidentiality, quality assurance issues, and human and capital investment. The results of this study show that Hong Kong SMEs lag considerably behind in adopting e-commerce. We also observed similarities among SMEs in the Asia-Pacific region with regards to perceived benefits of e-commerce, such as increasing international market exposure and enhancing customer service quality and responsiveness. SMEs in the region are facing similar obstacles, such as lack of technical consultation support, inadequate knowledge, lack of government initiative, and reluctance to change from their current business models to e-commerce. High startup costs and slow return on investment are also major concerns [3].

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