

Korea's e-commerce: Present and Future

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Despite the recent downturn in IT-related markets in some countries, there is no doubt that the "Third Revolution," as the innovation in IT has been dubbed, is here to stay. The growth of the Internet and e-commerce are elements of this IT revolution which are not only changing society in a fundamental way but may be providing an antidote for some ailing economies. In this article, Kim Sang-Bae, chief executive officer (CEO) of Cybertek Holdings, Inc, explains the reasons behind the surge of e-commerce in Korea and the impact it has had on Korean society. Kim argues that the Asian Financial Crisis of 1997 may have hurtled Korea into an economic crisis but this may have been the very impetus that prompted the startling rise of e-commerce in Korea from 1998, which in turn contributed to Korea's rapid economic recovery. He argues that in order for this growth in e-commerce to be sustained it is imperative that the Korean Government pursue economic reforms of its domestic market with more vigor.

Korea has embraced the Internet faster and with more fervor than anywhere else in Asia. Signs of change are everywhere. Internet-related start-ups are luring talented employees from the government and the *chaebols*¹—until now, the traditional employers of choice for Korea's best and brightest. Money is flowing to small companies previously starved for capital by a financial system that once steered funds only to a favored few. Trading volume on the tech-heavy Kosdaq stock market, Korea's equivalent to the United States' Nasdaq, is now on a par with that of the blue-chip Korea Stock Exchange. The signals are clear—from commercial signs and billboards bearing Web addresses to headlines in newspapers, magazines and even a cable channel devoted entirely to computer games—everyone from elementary school children to grandmothers are getting online, making Korea one of the world's fastest growing Internet markets.

According to a Reuters report, the Korean Ministry of Information and Communication announced that more than 16 million people were connected to the Internet at the end of 2000. This represents nearly half of the age-group (10 years old and above) that could make most of the Internet, which is a 60 percent growth from the figure of 10 million with Internet access at the end of 1999. More

than 4 million from this group logged on via high-speed networks such as the asymmetric digital subscriber line (ADSL) or cable modems (CATV).²

Some of the same traits that helped launch Korea's manufacturing miracle of the 1960s and 1970s have sparked this Internet boom. Koreans are rushing to embrace the Web. In Korea, business trends operate like a switch. When the economy takes a new direction the switch is turned-on from the word go: There is no in-between setting. This aggressive "go-for-broke" mentality was a key feature of Korea's earlier manufacturing revolution. It also instills in the average Korean a determination to keep up with their friends and neighbors, stimulating consumption of personal computers (PC) and Internet services.

Also, a series of lucky accidents have helped, including what seemed at the time to be a wasteful over-investment in telecom networks in the early 1990s. This had been prompted, in part, by those *chaebols* lobbying for the construction of more fiber-optic networks after they had built too many optical-cable factories. This turned out, however, to provide Korea with the requisite infrastructure to propel the growth of the Internet.

The popularity of the online computer game Starcraft, which took the country by storm from 1998, also contributed to the increased use of the Internet in Korea. Devotees of Starcraft went to PC *bangs*, or PC rooms, a uniquely Korean cross between an Internet café and video arcade, which mushroomed all over the country. At present, there are more than 20,000 PC *bangs* in Korea, usually equipped with two dozen or more powerful PCs with high-speed access to the Internet. At a minimal cost, users can socialize while playing games over the Internet, trading stocks or chatting online.³

The most important factor that contributed to the Internet fervor in Korea may have been the 1997 economic crisis. This shattered many business and societal taboos, thus enabling many Internet rebels to by-pass a weakened business establishment preoccupied with survival in 1998 and 1999.

In June 2000, *The Korea Herald* reported that John Chambers, the CEO of Cisco systems, had placed Korea ahead of Taiwan, Singapore, Germany, France, and Japan, behind only the United States and United Kingdom as the third strongest Internet country.⁴ In October 2000, the same paper quotes Intel Corp's CEO Craig Barrett as stating: "Korean companies have the opportunity to lead Asia in deploying e-business... I expect to see exponential growth in Korea's Internet economy."⁵

I have been involved with the Internet since 1993 and have witnessed firsthand the birth and evolution of electronic-commerce (e-commerce) in Europe, Asia, and the US; my experiences lead me to agree with both gentlemen. One key factor I would like to emphasize is the level of fervor that Koreans show towards the Internet. An online lifestyle is being adopted not only by techno-savvy teenagers, but also by the average homemaker. Of course, other countries show varying degrees of enthusiasm for the Internet, but not, I believe, to the extent expressed by the typical

Korean citizen. A November 2000 survey conducted by NetValue shows that Korea leads all nations including the US in three usage categories:

- The average number of days spent online;
- The average number of web sites visited during that time; and
- The amount of time spent each time online.⁶

Combined with Korea's high rate of broadband usage, a fertile environment for e-commerce has been created.⁷

E-commerce

Fellenstein and Wood have described e-commerce as “the use of online facilities for doing business. Online facilities include the Internet, intranets, extranets, private networks, and any other facility that enables buyers to communicate with suppliers.”⁸ This clinical definition, however, does not explain a simple dynamic between the supplier and the consumer. For example, although e-commerce focuses on enhancing convenience for the consumer, convenience may not be the only criterion consumers look for when shopping online, and in addition, it may not be feasible to sell certain products on the Internet anyway. Then, what is it that makes e-commerce so compelling and what is the explanation of its explosive growth, not only in Korea but also in the rest of the world?

I believe that the answer to this question goes back to a time even before the term “e-commerce” was coined. The Internet was first used as a means of exchanging information, first by email and later through the Worldwide Web. As a repository of information, the Internet is the first medium that has given the customer an advantage over the vendor. This is completely extraordinary. The customer revolution is exemplified by several factors. Customers are more aware, or at least more informed, because of the Web. Company information, including product and prices, is easily accessible and decisions can be made based on that information. They also benefit from strength in numbers. Online marketplaces, for example, provide small companies the opportunity to win contracts which used to be reserved only for the largest enterprises; individuals, meanwhile, by joining buying groups can obtain larger discounts; online communities and discussion groups help customers share experiences about retailers or suppliers and make comparisons, both positive and negative.

There is a compromise as many companies are also using the Internet to their advantage. More information about a customer can be gathered and a “value” placed on each customer, whereby the more money a customer spends, the quicker businesses will respond to a problem. As a result, a power struggle between consumers and businesses has emerged. Customers are demanding more consistent, higher-quality services across-the-board, and those companies that choose to ignore

that demand do so at their peril for they are confronted with a consumer culture used to immediate gratification and almost unlimited choice.

All the hype and publicity over e-commerce and dot.coms have made it near impossible to discern the current status of e-commerce. In comparison to the abundance of information available, only a few paradigms exist which show the reality of the status of e-commerce. In the “disintermediation model,” for example, the role of the distributor in e-commerce is eliminated, as intermediaries become superfluous when producers are able to connect directly with a vast number of customers in cyberspace. On the other hand, there is the “reintermediation model,” which advocates the addition of middlemen in distribution channels as specialized intermediaries become necessary to efficiently link buyers and sellers in cyberspace.⁹

By empowering the customer with information about the supplier and by creating an almost limitless market unrestricted by geography and the means to reach that market, e-commerce is an irresistible force that will most certainly change the way in which all business is conducted.

E-commerce in Korea

Korea has a reputation, perhaps deservedly so, of being difficult for foreign companies to break into. Another hurdle is that Western languages, including English, are not as widely spoken in Korea as in many other parts of Asia. As the *chaebols* continue to struggle under massive debt and inefficiency, however, Korea’s Internet economy is helping to bring about change. Also, the Internet’s growth has been facilitated by the emergence of the tech-oriented stock exchange, the Kosdaq, which has provided a much-needed mechanism for financing smaller stocks.

The fact that e-commerce has had a major impact on Korea is supported by strong evidence from various sources. *The Korea Herald* recently reported that Korea’s total e-commerce revenue, business-to-business (B2B) and business-to-consumer (B2C), could explode from 41 trillion won in 2001 to as much as 241 trillion won or 11.7 percent of the total commercial transactions by 2005.¹⁰ According to the Boston Consulting Group, at present, Korea’s online retail market is second in Asia only to that of Japan, whilst Koreans spend more online per capita than do the Japanese.¹¹

Digital finance—a subset of e-commerce that can be fairly defined as the overall paradigm shift in the financial market and industry accelerated by the introduction of digital technology—has made considerable progress in Korea. Although competitiveness of the financial industry is still generally low due to the huge amount of bad loans, the digitalization of the financial sector is making rapid progress in keeping with other sector digitalization as a whole.

Perhaps Korea’s greatest e-commerce success as yet has been in Internet brokerages. Online stock trading has been increasing at a startling rate since 1998. Online trading is more popular in Korea than anywhere else in the world with

Salomon Smith Barney estimating a transaction rate of 57 percent rate as of November 2000.¹²

On the other hand, both B2C e-commerce ventures and B2B exchange still have a long way to go before the promise of fast, efficient and cheap business deals can be fulfilled. Growth in every sector has been explosive, but profitability is still a distant prospect for most e-retailers.

A major challenge that Korean online suppliers must address is the simple one of size; the domestic market alone may be too small to attain sufficient economies of scale for profitability. This is in contrast to US suppliers, for example, who already have a sufficiently large domestic market to achieve potential profits. To counter this problem, e-commerce companies have started to target potential markets not just in Korea but further afield too—in Asia and the industrially advanced countries. The success of these projects will depend upon the ability of the various enterprises to overcome the difficulties that face all commercial ventures, not just e-commerce ventures. In addition to the language and cultural barriers, potential obstacles include inefficient distribution mechanisms, multilingual and multi-tribal cultures, lack of efficient online payment systems, and inexperienced third-party logistics providers. On a positive note, the online marketplace itself maybe be the very answer to these challenges. For example, by improving communications in the links of the value chain and by obviating the need for so many links, the supply chain may become more efficient.

Another major hurdle that Korea faces is that it must either adopt common standards used by other nations or be innovative enough to create the standards that all other countries are willing to follow. If it does neither in this era of globalization, it will place a severe handicap on its likelihood for success.

The spectacular growth of the Korean population with Internet access has been a boon to local Web portal and community service providers thus far, as it has expanded their potential market volume, but the economies of scale again becomes important. The domestic market alone may not even be big enough to achieve the type of profitability that are forecast for current market evaluations of Internet companies. Furthermore, portals in Korea, like their counterparts in the rest of the world, are still struggling to find a path to profitability. Portals have traditionally relied on advertisements for the largest portion of their revenues. Despite a steady growth in the online advertisement market, there is widespread skepticism about the effectiveness of online banner ads. Thus, online companies are seeking profitability in the first instance, primarily to calm investor nervousness. A promising option might be to start charging fees for the use of Web-based software. This will not be easy, however, as Korean Internet users have grown accustomed to free Internet content.

In search of profits, Web service providers are also expanding into other businesses. A growing number of Web portal and e-commerce companies are focussing on the sale of e-business solutions and software to build Web sites, and

create e-commerce transaction tools. As mentioned earlier, these ventures will most likely have to concentrate on untapped overseas markets, notably in China and East Asia, where e-commerce infrastructures are less developed.

Key to Korea's e-commerce competitiveness

With an e-commerce market second only to Japan in Asia, Korea has both the momentum and potential to determine its economic future. For Koreans to fully realize the potential and promise of e-commerce, further development of fundamental infrastructures is necessary especially when viewed from a global perspective. We still lack a secure online payment system; neither the mechanisms for managing suppliers' credit risk nor legal sanctions against defaulting debtors are as well developed as they are in the US. Also, information on companies is scarce. In the US, an information provider, such as Dun & Bradstreet, can supply data on the finances of even medium-sized companies. In Korea, such detailed information is often difficult, if not impossible to obtain. Payments may therefore have to go through the secure but complex letter-of-credit route. This adds a level of complexity to e-business transactions that has yet to be resolved.

In order to further Korea's current e-commerce momentum the following infrastructure are essential: telecommunications, finance, logistics, and security. Lagging behind in any one of these four infrastructure will severely impair Korea's future Internet competitiveness: just like the legs of a table, a weakness in any single part, will weaken the whole structure.

Telecommunications

In the information-based global economy, the state of a nation's telecommunication industry can give the edge on competitiveness. The South Korean (SK) Telecoms already has a highly modern communications infrastructure, including in mobile telecommunications, as exemplified by code division multiple access (CDMA) mobile phones, which are able to compete on an international level. Also, as mentioned above, SK Telecoms is now reaping the benefits of the previously criticized large investment in fiber-optics. Nevertheless, Korea's telecommunication industry is still having to catch-up with other nations due to weaknesses in the technology of switching, transmission, and networking.

The importance of information technology (IT) was brought home to most countries by the US "Information Super Highway" strategy of 1993. Korea began to seriously outline an IT strategy in 1994 and the initial focus had been on constructing an IT infrastructure. In 1996, a more comprehensive, nationwide IT strategy was formulated, which later expanded to the ongoing "Cyber Korea 21"¹³ project, which has the vision of building a knowledge-based society. The second stage of building a high-speed optical fiber network is expected to finish in 2002 and this should help to reduce the gap in IT infrastructure between Korea and other Asian countries.

The increasing popularity of Internet Protocol (IP) based telephony (versus regular or “switched” calls), the growth of instant messages (IM), and the advent of various forms of on-demand and streamlined data, (such as video or music clips), makes an advanced telecommunications even more critical as it will play an absolutely crucial role in determining Korea’s competitiveness in the global economy.

Finance

Since the latter half of the 1990s, e-finance has led a paradigm shift in the financial industry as financial transactions in cyberspace have begun to increase. Globalization and the trend toward universal banking and direct financing are examples of this shift. Due to the spread of the Internet, the entire globe is integrating into one network, and boundaries between countries are disappearing in the provision of financial services for universal banking. Therefore, in order to enhance the efficiency of all financial institutions, a joint public and private-sector initiative to systematically support universal banking is necessary. The customer’s need for a tailored, one-stop service makes this imperative.

The move towards universal banking is actively being pursued as the adoption of IT expands. Until now, securities firms and insurance companies had been using the services provided by banks with their wide business networks. Banks can now offer insurance services and insurance companies can offer investment portfolios, previously limited to investment trust companies. A customer’s cash flow can now be easily transferred to-and-fro from a stock trading account of a securities firm to a checking account at a commercial bank. Thus, it has become possible for a customer to open a stock trading account at a cyber securities firm, then deposit and withdraw investment funds from an account at a local bank. The withdrawal of insurance money and dividends after transferring them electronically into a bank account has also become a reality.

Another paradigm change, which has been accelerated by the introduction of digital technology, is in financial services, although it is not as dynamic as the change in financial transactions mentioned above. It is now possible for customers to obtain a wide range of information on the Internet and make comparisons on financial products based on that information. This means that information on financial products, the provision of which had been previously restricted and only available through the media and advertisements, is gradually being provided without restriction through the Internet.

The digital revolution has brought about drastic changes to the Korean financial industry. As the core functions of financial institutions, such as fund intermediation and settlements, become digital and more and more cyber financial institutions and financial portal services appear through the Internet, traditional methods and modes of doing business are being challenged. Before there can be a complete overhaul of this sector, however, confidence in financial institutions needs to be restored as

Korea is still recovering from the aftershocks of the financial crisis of 1997. Furthermore, the development of a settlement system conforming to global standards and the use of electronic money and other forms of cyber currency has been slow in Korea and a foundation has not been built yet.

Security

New Internet viruses are unleashed every month and reports of network break-ins have become routine. The fight against hackers is a never-ending series of battles, and a war with which I am intimately familiar as CEO of an information security company. In many cases, an enterprise has a firewall installed, and this helps to minimize the problem. Nevertheless, it is still disturbing to know that some of the world's most renowned hackers are deliberately trying to breach the firewalls of one's system and other forms of security installed to protect the company's electronic assets.

Korea has fallen behind in the use of public key infrastructure (PKI), aimed at creating an environment in which the public can freely exchange information without concerns about security. A PKI enables users of a basically unsecured public network, such as the Internet, to safely and confidentially exchange confidential data including financial information through the use of a private cryptographic key that has been obtained which is shared through a trusted authority. The PKI authority would provide a digital certificate that would be able to identify an individual or an organization with directory services that can store but, if necessary, revoke, the certificates.

The speed at which e-commerce has grown, and B2B commerce in particular, has increased the demand for PKI solutions. The use of digital certificates remains extremely limited in Korea, as both the private and public sectors still behave as if the combination of hard (paper) documents, signet impressions¹⁴ and personal meetings is the only valid way to handle transactions.

In addition to insisting that Internet shopping malls adopt electronic signatures, the Korean government must encourage those Internet banking services which persist in using their own certificates, to use certificates issued by government authorized organizations instead. The application of digital certificates must also extend to virtual private networks (VPN) and emails, and to use wireless PKI solutions to secure safety of wireless Internet services whose demand has increased at an explosive rate. Finally, a process that allows for the mutual recognition of both parties' electronic signatures will be necessary.

The provision of a secure settlement system is also indispensable to ensure that cyber shoppers feel as comfortable online as they do in "offline" shopping. The settlement and verification systems of e-commerce sites are imperfect at present, and vulnerable to credit card theft and fraud. In cases of deception, the sellers, not the real owners of the credit cards, are generally held liable for the fraud. The resolution of this predicament is fundamental to the very existence of e-commerce sites.

Logistics

The logistics and transparent transactions of the non-IT infrastructure need to be firmly established first in order to facilitate online transactions, as an essential part of the digital economy. Although Korea has a relatively reliable transportation system for a point-to-point delivery of goods, an upgrade is nonetheless necessary to avoid losing momentum. The Boston Consulting Group states that in reality:

The best Asian Web sites are just as functional and sophisticated as their US counterparts, and some business models in Asia are very sophisticated and innovative. The problem in many cases is that the underlying supply and distribution infrastructure needs to improve to meet the needs of these sophisticated new businesses.¹⁵

The present lack of an established “last-mile” delivery channel is a severe detriment as far as the complete adoption of e-commerce in Korea is concerned. A reliable logistics infrastructure is important not only as a means of delivering physical content to the buyer but as way of returning goods to the vendor—a vital customer service.

In addition, a comprehensive plan to develop an infrastructure capable of fulfilling requirements on a pan-Asian scale should be researched and developed in order to better compete with the US and the European Union. This includes a transportation hub, distribution centers and modern warehouse facilities capable of meeting the demands of an Asia-Pacific e-economy. A distribution hub near Korea's new Incheon International airport, conveniently centrally located between the major Asian cities, would be ideal, under the right conditions.

Future tasks

The strategy Korea has adopted to foster IT-related industries is broad and various. It encompasses IT support for small and medium-sized businesses and the establishment of venture funds to promote techno-parks and a multimedia valley. A surge in the number of information and telecommunications related venture businesses, as well as in the information service and software industries in Korea can be attributed to these measures. However, in order to maintain the positive steps it has taken, the Korean government must ensure that the following policies are implemented:

1. Korea needs to quicken the establishment of IT industrial parks to allow IT-related industries to develop. At present, the multimedia valley project (the Korean equivalent of the US' Silicon Valley) is still only at the planning stage. It is critical to bring forward the completion of such industrial parks, and to encourage the participation of private companies at every phase.

2. The Korean government needs to systematically organize and make available all its IT incentives and assistance measures whilst ensuring that the information is effectively publicized. Recently, a number of government ministries devised several different development plans in response to the growing need to foster venture businesses yet it was difficult for companies to obtain clear and simple answers to basic questions about these government programs. The government should create a Website with an easy to follow explanation of all the available strategies.
3. Domestic companies should be encouraged to establish ties with overseas companies. Establishing alliances with foreign companies gives local businesses an opportunity to grasp international trends in the related industry fields as well as to benefit from the latest technology and capital possessed by foreign firms. The investment environment has noticeably improved in Korea since the relaxation of its controls and regulations, and by the provision of incentives to foreign investors. However, investment by foreign companies is not the only way to establish links between local and foreign companies: the supply of any available information on foreign and local companies which may be relevant to their partners is equally important.

The Internet's popularity has been attributed to a fad mentality in Korea, where people wish to match their neighbors in using the latest technology. I believe that the changes we are witnessing are not the result of the whims of a fickle consumer but signify both a more profound and permanent transformation. Certainly, enthusiasm has been tempered somewhat since the 2000 market correction in Internet Stocks. Nevertheless, a belief that we are at the threshold of another economic miracle pervades Korean society. Even the average Korean has come to realize that by using the Internet common tasks are made easier and simpler. The real advantage of the Internet, however, has not yet even been envisaged.

The goal is clear and the future prospect promising. Unfortunately, the fact remains that Korea simply has a long way to go before we can even hope to reach a relative technological parity with the IT-advanced countries. Korea started late in entering the digital economy and investment in IT and telecommunication technologies has not had as long a history as in the other industrially advanced countries. While Korean exports may be world-class, the domestic economy is another story. Nevertheless, we have embraced the Internet as the key that has the potential to unlock the current Korean economy's stagnation. The Internet as well as the other new technologies could also unleash in South Korea the kind of productivity gains that have driven the US economy to new heights in the latter half of the 1990s. Productivity gains will only be possible with a broad restructuring of Korea's inefficient domestic economy but there is a silver lining: however small and slow that process may appear to be, restructuring is under way, courtesy of the Internet.

Notes

1. *Chaebols* are huge conglomerates, usually family-run, which have dominated the Korean economy since the Korean War (1950–1953).
2. <<http://www.cnn.com/2000/TECH/computing/09/04/korea.internet.reut/index.html>>.
3. <<http://www.chinadaily.net/cover/storydb/2000/10/08/it-wdcwarriors.html>>.
4. <http://www.koreaherald.co.kr/SITE/data/html_dir/2000/06/15/200006150039.asp>.
5. <http://www.koreaherald.co.kr/SITE/data/html_dir/2000/10/27/200010270036.asp>.
6.
 - The average number of days per user: Hong Kong & Korea tied for first position (12 days), US third (11 days).
 - The average number of sites visited: Korea came first (84 sites), Hong Kong second (60 sites), and the US fifth (55 sites).
 - The average number of hours spent surfing: Korea first (15 hours), Hong Kong second (12 hours), US third (11 hours) <http://kr.netvalue.com/presse/index_frame.htm?fichier=cp0010.htm>
7. According to the Gartner Group, 75 percent of “big-spending” Internet customers will be those with broadband access. <http://www.nua.ie/surveys/index.cgi?f=VS&art_id=905356120&rel=true>.
8. Craig Fellenstein and Ron Wood, *Exploring e-commerce, global e-business, and e-societies*, (New York: Prentice Hall, 2000), p. 30
9. A.M. Chircu, and R.J. Kauffman, “Reintermediation Strategies in Business to Business E-commerce,” *International Journal of Electronic Commerce*, Summer 2000, Vol. 4, No. 4, pp. 7–42
10. <http://www.koreaherald.co.kr/SITE/data/html_dir/2001/01/11/2001110003.asp>.
11. Boston Consulting Group, “E-tail of the Tiger: Retail E-commerce in Asia-Pacific,” *NetBizAsia Strategy Report, 2000*
12. <http://www.nua.ie/surveys/index.cgi?f=VS&art_id=905356205&rel=true>.
13. Ministry of Information and Communication, *Cyber Korea 21: Information vision for constructing a creative, knowledge-based economy*, March 1999, promotes:
 - The advancement of telecommunications;
 - Facilitating new Internet-based industries for the new millennium;
 - Communications networks;
 - Conforming to global standards;
 - Creating an effective digital organizations;
 - Implementing of deregulating and liberalizing IT policies;
 - E-commerce; and
 - Wireless technologies.
14. Koreans, like Chinese and Japanese, use personal signets called *dojang* instead of signatures to seal official documents.
15. Boston Consulting Group <http://www.bcg.com/new_ideas/myths_and_realities.asp>.