

The Information Society, Japanese Style:  
Corner Stores as Hubs for E-Commerce Access

by

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## 1. Introduction

The geographical distribution of the internet users as of May 1999 shows that over half of the users reside in the United States and Canada (U.S. Dept. of Commerce, 1999). There were 90 US-based websites for E-Commerce per million people, while there were only around 10 Japan-based E-Commerce websites per million.<sup>1</sup> The figure for Japan is not only far behind that of the United States, but is also lower than that of Singapore, Hong Kong and the European Union. In 1999, almost half of the American households had computers: for Japan, the figure was just reaching 20 percent.

As a technologically advanced nation, it is surprising that Japan has not adopted the Internet as quickly as others, and entered the world of Electronic Commerce with the same vigor as American consumers. Although Japan's industries are known to aggressively adopt information technologies in production process, technological adoption in consumption process has been far behind that of other advanced economies. The nation is characterized as suffering from "keyboard allergy," with one of the lowest household PC ownership and internet connections among industrialized countries.<sup>2</sup> For the second largest economy, Japan had the lowest internet domains per capita among OECD countries in January, 1999, and although the situation improved in July, 2000, it was still behind the OECD as well as EU averages.<sup>3</sup>

The current delay of information technology adoption by the Japanese economy and society has important theoretical as well as policy implications. For one, the dominance of the internet technologies has once again reconfigured the global political economy. The U.S. economy is currently the forerunner of the digital economy, and sets the standards for the process of informatization. The U.S. model, however, has led to a single, technology-deterministic view in which informatization is assumed to be the global dominance of U.S. technologies and business practices. Individual PC ownership and internet connectivity are considered to be prerequisites in participating in the process of global technological revolution. Such a view poses a number of challenges for policy makers in other countries that cannot realistically and efficiently adopt the practices in the United States (see Zysman, 1999). Both in the realm of theory building as well as in policy making, alternative and equally successful models of highly networked economies are being sought for non-US economies.

This chapter examines obstacles and opportunities in Japan's adoption of Electronic Commerce (referred to as E-Commerce). By examining the institutional, social, and cultural factors that affect the consumers' propensity to adopt E-Commerce in their daily consumption activities, my aim is to not only highlight the complexities of technological adoption and societal variance, but also to suggest an alternative to currently widespread technology-deterministic view of informationalism. In Japan, corner shops known as *konbini* (a Japanese abbreviation for convenience stores) are taking the lead in E-Commerce adoption. This particular form of partnership between traditional retailing and E-Commerce provides a possibility for an entirely new way of E-Commerce adoption. Konbini chains serve as access points to E-Commerce for the majority of Japanese consumers who are without home-based internet access. This model

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<sup>1</sup> Data provided by TCA (2000).

<sup>2</sup> Japan is second after the United States in terms of the absolute number of internet users, but low internet-hosts per capita, and only 6.4 percent of the households are internet users (TCA, 2000; InfoCom, 2000).

<sup>3</sup> See Zook (2000) and OECD (2001).

suggests that efficiency derived from technological adoption can vary greatly among societies.

## 2. E-Commerce, Technological Adoption, and Consumer Behavior

Technological adoption is widely assumed to correlate with an economy's share of "knowledge workers" who possess the skills to operate new technologies.<sup>4</sup> In part because of this assumption, Japan's delay in the informatization is particularly surprising, and sits uncomfortably with the conventional theories of technological diffusion. In a country where the number of industrial robots per manufacturing worker is more than five times that of the United States,<sup>5</sup> what explains the delay in technological adoption for an advanced economy with sufficient digital literacy?

Issues and obstacles encountered by the Japanese society in adopting E-Commerce by consumers illuminate structural issues, both formal and informal, influence the choice of technologies by consumers. It shows that the relationship between information economy (economic activities facilitated by information technologies) and information society (social process of transformations facilitated by information technologies) is hardly linear, and it is by no means closely correlated with one another. The confusion between social and economic processes in analyzing technological diffusion is attributed to initial works of post-industrialism (Touraine, 1969; Bell, 1973; Toffler, 1980), which were presented as futuristic views that juxtaposed simultaneous processes of both social and economic nature. However, as stage theories became increasingly insufficient in explaining processes of technological adoption, it became clear that societies differ in social processes even if similar technologies are adopted. In case of Japan, although its economy is highly informational, its society can still be considered as non-informational (Castells and Aoyama, 1993, 1994; Castells, 1996).

As in any technology, E-Commerce adoption varies across society in terms of the degree and speed of adoption. Technologically, E-Commerce can be understood as an application, rather than the platform technology itself (such as the PC or the LAN).<sup>6</sup> As a result, the development of E-Commerce has been considered highly reliant on the performance of the platform technologies. Price drop on the platform technology, or expanded capability (faster modem speed) may greatly affect the use of E-Commerce. These applications (including E-Commerce) are considered "co-innovation," and is characterized by its high degree of dependence on the fate of the platform technologies for its adoption and diffusion. As a result, the rate of growth for co-innovations is typically highly uncertain.

As an economic activity, E-Commerce is a form of long-distance retailing in which the internet serves a medium of exchange.<sup>7</sup> The diffusion of E-Commerce as an economic activity is

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<sup>4</sup> See Gregerman, 1981; Kenney, 1995; Cortada, 1998.

<sup>5</sup> Robots per 10,000 persons employed in the manufacturing industry, 1997. Data provided by the United Nations. Japan ranks the top with 413.0 robots per 10,000 manufacturing workers, followed by the United States (77.1 robots), Germany (66.8 robots), and South Korea (30.2 robots). (The Economist, 1998).

<sup>6</sup> See Jimenez and Greenstein, 1998.

<sup>7</sup> On one hand, E-Commerce has generated a number of retail-innovations, such as mass-customization of services (e.g., Amazon.com's suggestions for next purchase), geographical expansion of customer base (e.g., particularly auctions – which used to be largely geographically constrained), and the expansion of the self-service economy (i.e., individual stock-trading on the internet vs. hiring funds managers, or making flight reservations vs. using travel agents). On the other hand, the major activities under E-Commerce simply represent the digitization of mail-order business, which replaced the use of toll free telephone calls. Thus, the innovativeness of E-Commerce varies greatly

a highly society-specific process because it involves changing consumer behavior. Although there is a general lack of literature on the comparative analysis of technological adoption and specifically its relationship to consumer behavior,<sup>8</sup> we can easily assume that technological adoption by consumers may also be delayed by a discontinuity between the previous and the future technological trajectory. Abundant literature exists on the importance of historical trajectory in technology adoption (Nelson and Winter, 1982; David, 1985; Arthur, 1989). Then, technological adoptions, particularly those that involve consumer behavior, evolve through a certain technological trajectory, which is also determined largely by historically accumulated knowledge.

The difference between business and consumer behavior is in their priority; While businesses alter their behavior from competitive pressures, consumers have individual responses to “convenience.” In order to get the mainstream customers to alter their behavior, changes are best accepted when they are certain logical extension of preexisting practices. In other words, continuous innovation is more likely to be accepted readily by consumers than discontinuous innovation (Moore, 1991; Jimenez and Greenstein, 1998). If an innovation calls for a behavior alteration of a drastic degree, consumers may consider the learning cost too high for the convenience it offers. As I shall explain later, for the majority of Japanese consumers, E-Commerce has not only been a largely foreign concept, but also a technologically cumbersome activity that requires significant additional investment and behavioral adjustments.

In part because E-Commerce has been a predominantly North American phenomenon so far (OECD, 1999), E-Commerce has been understood within the specific context of North American, and largely U.S. based economic and social institutions. As a result, it has been assumed that the diffusion of E-Commerce is dependent on the particular set of institutional and infrastructural requirements observed in North America, namely, the diffusion of PCs, on-line network services, and the pool of knowledge workers with related skills (at minimum, the use of the keyboard, personal computers). For other industrialized economies with low ownership of PCs and low purchase of internet services, instituting E-Commerce would require a significant up-front cost. Strategies adopted by Japan’s corner stores to grow as hubs of information networks and access points for consumers to access E-Commerce, is one unique solution which not only circumvents issues of infrastructural requirements, but also positions E-Commerce under continuous innovation with little behavior changes required for Japan’s average consumers.

The US model of E-Commerce adoption also assumes that access to E-Commerce is considered to be unequally distributed between information ‘haves’ and ‘have nots.’ Such assumption is based on the notion that PC ownership, internet access, and sufficient digital literacy are limited to the more affluent groups of the population. Most agree that internet access is not uniformly distributed across the population in the United States, and those who engage in E-Commerce are likely to be highly educated and from the high income groups (Jimenez and Bernstein, 1998; Wheeler, Aoyama, and Warf, 1999). The Japanese model of E-commerce adoption, however, suggests an alternative model that offers access regardless of PC ownership, or one’s income groups. It suggests that the technology and medium of E-Commerce themselves need not dictate nor promote further inequality, and the diffusion of E-Commerce does not

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by the service being provided.

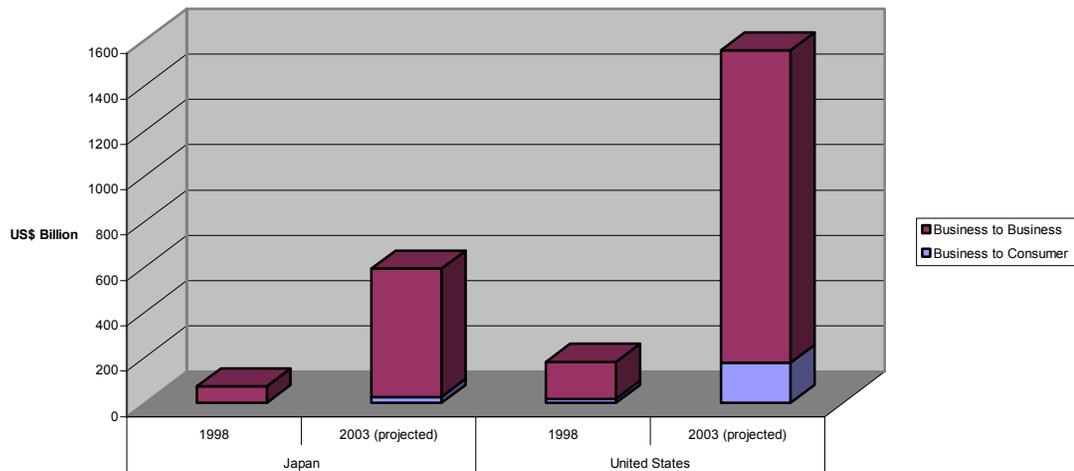
<sup>8</sup>This is in part attributed to the lack of appropriate sociological concepts involved in adoption behavior (Rogers, 1966).

necessitate the consequence of social marginalization. As Castells (1999) noted, technologies are the medium of expression of already existing political forces and social hierarchy, rather than the primary drivers of greater inequality.

### 3. E-Commerce Development and Obstacles in Japan

MITI estimates that Japan’s E-Commerce development will continue to lag far behind that of the United States (see Figure 1). The projected E-commerce figures for year 2003 for both the United States and Japan show that Business-to-Business transactions continue to dominate E-Commerce, and the growth in Business-to-Consumer transactions are also expected to grow dramatically although they will still comprise a fraction each of total commercial transactions. In Japan, Business-to-Consumer E-Commerce is projected to occupy 1 percent of the total commercial transactions by 2003, and even for the U.S., the figure is at 3.2 percent.

**Figure 1**  
**E-Commerce in Japan and the United States**



Note: MITI defined E-Commerce as “the conducting of commercial transactions (the exchange of merchandise, services, information and/or money) through electronic mediation using the Internet.”  
Source: Ministry of International Trade and Industry, 1999a.

In Japan, the privatization of internet access began as recently as 1995, and the commercial internet service providers (ISPs) grew from 58 firms in July, 1995 to 3,659 firms in July, 1999.<sup>9</sup> Japan’s internet population was estimated to be at 14 million in 1998, and is projected to grow to 58 million by year 2003 (DSA Analytics, 1999; MITI, 1999). MITI is optimistic on the positive impact of E-Commerce on the overall economy, as E-Commerce is projected to provide the net job gain (MITI, 1999b). While the estimate includes 2.71 million job-loss in the next five years due to various economic restructuring pressures, it also projects 3.67 million jobs to be created during the same period.<sup>10</sup> The job growth includes the estimated

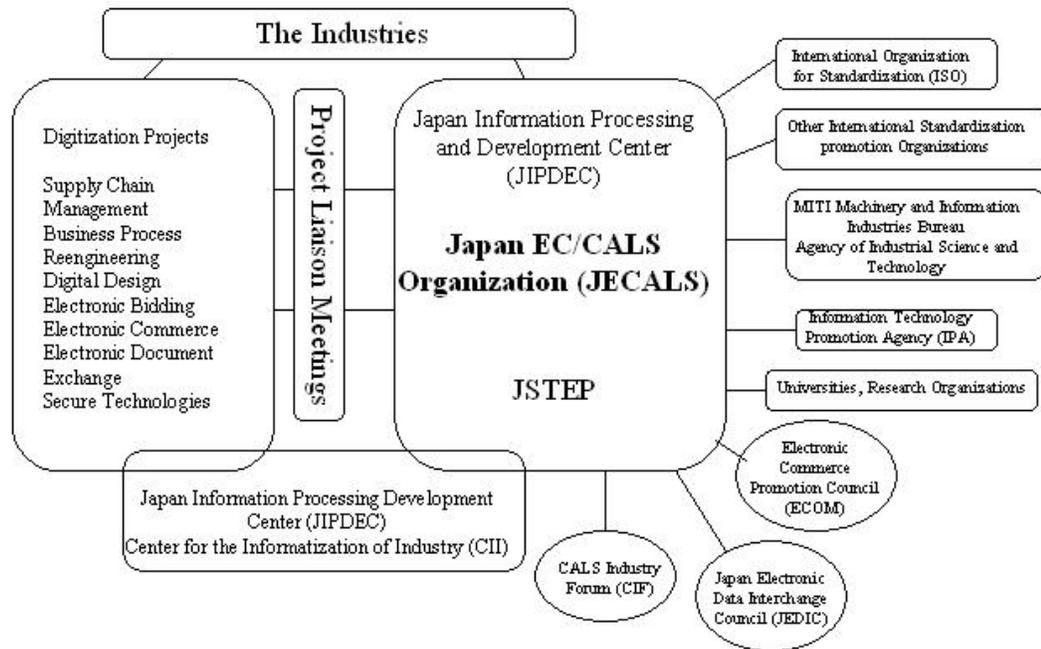
<sup>9</sup> Data provided by TCA (2000).

<sup>10</sup>The job-loss figure includes 530,000 jobs to be lost by the introduction of information technologies in general, and additional 270,000 job losses due to E-Commerce. Furthermore, MITI predicts that additional 830,000 jobs are affected by the development of E-Commerce due to changing skill requirements.

1.05 million jobs to be created by E-Commerce, and additional 1.44 million jobs to be created because of the other types of information technology use. The net gain of 130,000 jobs is expected in the Japanese economy, largely because of the introduction and the use of information technologies and E-Commerce. However, the net gain is not expected to occur until year 2004, and until then the Japanese labor market will undergo significant restructuring and net job loss.

The government's involvement in E-Commerce promotion can be characterized as old institutional framework (a MITI section taking a coordinating role, with multiple agencies and committees duplicating efforts) adopting new neo-liberalistic policies, emphasizing deregulations and public private partnerships. The Electronic Policy Division of the Machinery and Information Industries Bureau under the Ministry of International Trade and Industry (MITI) became the coordinating agency of various initiatives. Japan Information Processing Development Center (JIPDC) conducts surveys and research on information technology adoption, and provides technological assistance, policy recommendations, and training. JIPDC functions jointly with numerous other agencies, such as Center for the Informatization of Industry (CII) for industry use of electronic data exchange, Research Institute for Advanced Information Technology (AITEC) for information dissemination, and Japan E-Commerce and Central Academy of Information Agency (CAIT) for training (see Figure 2).

**Figure 2**  
**Organizational Charts of Informatization Promotion in Japan**



Source : JECAL website (<http://www.jecals.jipdec.or.jp/wwwE/organization.htm>)

The Committee for the Promotion of an Advanced Information and Telecommunications Society was set up in 1995 to deal with various policy-related issues, such as security and privacy issues, and the Y2K problems most recently. The Committee's three basic pillars are: 1) private

sector-led initiatives, 2) deregulation, and 3) participation in global regulatory framework building and setting up technology standards (Government of Japan, 1998a). As part of this Committee, a working group on E-Commerce was established to deal with issues that affect E-Commerce development (Government of Japan, 1998b).

Two primary criticisms on government involvement has so far been 1) deregulations has been unable to keep pace with rapid technological changes, and 2) emphasis on large firm-driven promotion of business-to-business E-Commerce, while neglecting business-to-consumer E-Commerce and small start-ups. In response, the government has launched a campaign to generate digital economy entrepreneurs by providing financial assistance, training, and incubators. These initiatives so far have not fundamentally reconfigured Japan's established postwar business organizations. Indeed, OECD (1999) reports while business-to-business transactions can be promoted as corporate policy and the drive toward efficiency, business-to-consumer transactions require a different set of drivers; ease and cost of access, convenience, and appeal of mass customization. While technologies are used to maximize profits and optimize efficiency on the production side, consumer behavior is historically shaped, socially instituted and geographically determined. Therefore, issues that surround business-to-business E-Commerce are more similar across countries than obstacles in introducing E-Commerce.

The stark contrast on the use of information technologies between production and consumption observed in Japan suggests that technological adoption is not simply based on the skill levels of the society. MITI's survey (1999c) showed that, unlike business-to-business E-Commerce, the growth of Business-to-Consumer E-Commerce use would be best facilitated by the following improvements: the availability of more user-friendly web-based transactions; better product information on the web; better search functions; more availability of product reviews by other customers; improved payment security; and competitive pricing of products/services offered. In case of Japan's Business-to-Consumer E-Commerce, the following obstacles: cost of internet access; security concerns for electronic payments; supporting business practices; urban spatial form; language barrier; and substitute technologies.

### *The cost of access*

A comparison of internet cost conducted by OECD shows that at off-peak times (when individuals are likely to the internet), access cost is estimated to be the highest in Japan (see Figure 3). Cost of access is determined by 1) cost of phone-calls, and 2) access fee to be paid to the Internet Access Provider (ISP). In terms of the cost of telephone calls, flat rate local calling areas did not exist in Japan until November, 1999. Nippon Telecom and Telegraph (NTT), which had a virtual monopoly on Japan's communication industry for a long time, controlled prices particularly until 1986, when NTT was privatized and deregulation followed. This prompted the subsequent dramatic drop in telephone call costs: Before 1981, a 3-minute daytime call between Tokyo and Osaka (approx. 300 miles apart) cost as much as 600 yen (roughly \$1.81 per minute).<sup>11</sup> By 1988, the price went down to 400 yen (\$1.20 per minute), then to 90 yen (27 cents per minute) ten years later. As for the fees to ISPs, the cost structure used in Japan typically adds per-minute surcharges, in addition to the initial setup cost.<sup>12</sup> Combined with no

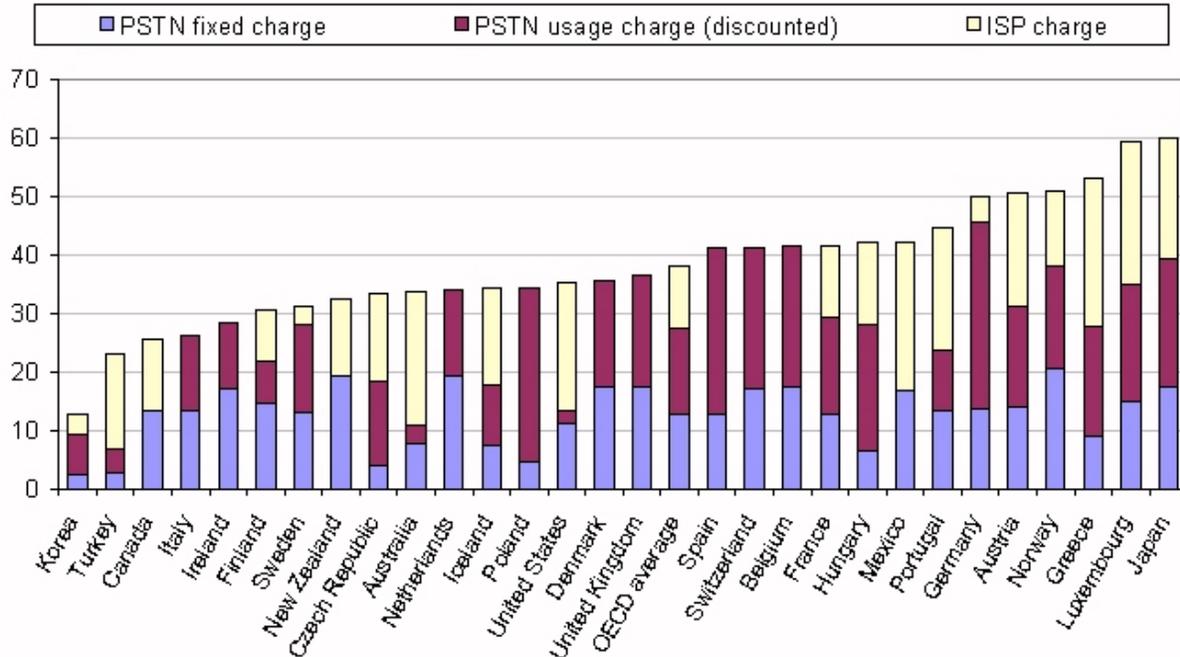
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<sup>11</sup> For comparative purposes, all currency conversions have been conducted with the current exchange rate of 110 yen/U.S. dollar (February, 2000).

<sup>12</sup> For example, Nifty, Japan's largest internet service provider and a subsidiary of Fujitsu, offers a \$11/month unlimited access through LAN or via other service provider, but charges 10 yen (9 cents) per minute for using their

flat-rate calling area, consumers would have to pay per minute fees to both the telephone company and the ISP.

**Figure 3**  
**OECD Internet Access Basket for 20 hours at off-peak times using discounted PSTN rates, 1999**  
 in US\$ , including VAT



Note: PSTN fixed charges include monthly rental fee and additional monthly charges related to discount plans, if applicable.  
 Basket includes 20 one-hour calls. Off-peak is taken at 20h00.  
 Source: OECD, <http://www.oecd.org/dsti/sti/it/cml/>

In 1999, NTT began an experimental flat rate service for those customers 1) who already subscribe to home ISDN service, and 2) who are located in Tokyo's 3 wards (Shinjuku, Shibuya and Ota) or Osaka's urban core (Chuo-ku, Kita-ku and Suita-city). At 8,000 yen (US\$73) per month, this rate does not include the initial installation cost for ISDN lines, nor service charges by ISP. Thus, the cost of home-internet access in Japan can still be as high as 4 times the US average.

However, the current cost structure is most likely altered in the near future. NTT's most recent announcement in early February revealed the plan to further slash the cost of above-mentioned flat-rate service by one-fourth starting May, 2000, and also expand the service to all 23-ward areas of Tokyo and all incorporated cities in Osaka Prefecture (Nippon Keizai Shimbun, 2000a). The current trend toward lower access fee is likely to continue, through heightened competition. Policy makers are eager to ensure that the cost structure will be equivalent to that of the United States in the near future. Thus, while the current rates are far higher than the U.S., it is unlikely that the cost structure continues to be an obstacle to the development of E-Commerce in Japan in the long run.

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local dial-up access, in addition to \$9 initial setup fee. AOL Japan does not charge a set-up fee, but has a higher charge (\$17.30 for 15 hours LAN or 3<sup>rd</sup> party access), and also charges 10 yen for the use of local dial-up access.

### *Security Concerns and Cost of Electronic Payments*

Although credit cards are held widely, credit cards usage is limited in Japan, due to reluctance by both the sellers and buyers. Japan's retail sector is highly fragmented with numerous mom-and-pop stores that operate on tiny margins, and they are particularly reluctant to cope with high percentage fees (5 to 7 percent) and delayed payments. In part because the retail sector has been highly regulated, protected, and mostly localized, Japan's retail sector has not experienced the pressure to induced retail innovation, including the aggressive use of credit cards to lure more customers.

In comparison to American or European consumers, Japanese consumers are far more reluctant to use credit cards out of fear for fraud (The Economist, 2000). Most purchases over the internet still require bank transfers necessitating additional trips during bank hours (9am-3pm, weekdays) and paying for the bank transfer fee.<sup>13</sup> Consequently, E-Commerce neither reduces trips to the commercial district nor is convenient for customers.

Some Japanese scholars suggest that alternatives to credit cards are in development, such as prepaid cards that are now widely offered for pay-phones and for public transit (Kokuryu, 1999). In late 1999, Sony announced the establishment of an e-bank, providing services that allow consumers to settle online transactions, pay public utility bills and even get a small loan (Inoue, 1999). With rapidly emerging new services, and a growing number of entry by traditional giant manufacturers to the internet business, payment systems of some kind are likely to be developed in the near future.

### *Supporting Business Practices*

In the United States, long-distance retailing has a long and established tradition that began in colonial period. Rural populations without direct retail access to nearby stores relied on mail order for tools, farm equipment and household items. In 1872, Montgomery Ward was the first in publishing the mail order catalog, a single sheet listing 150 items, with a money-back guarantee. The Sears catalog in 1895 featured 532-pages of apparel, tools and other merchandise, and quickly became a lifeline for people in remote areas (Gattuso, 1993). In fact, Sears drew the majority of its revenue from mail-order business until 1931, when the emphasis shifted to chain stores serving America's increasing urban population.<sup>14</sup> The U.S. mail-order industries therefore have a century-long accumulation of experience and know-how in factual catalog writing (correspondence between catalog representation and actual products), product quality assurances, accuracy and timeliness in delivery (time-scheduling method), and institutionalized return and exchange policies. Such experience has arguably facilitated the transition to E-Commerce, both on the supply side (retailers accumulated know-how in successful long-distance retailing), and on the demand side (consumer familiarity with long-distance retailing).

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<sup>13</sup> The lack of competition in the banking sector also hinders the promotion of credit cards use. For example, as of January 2000, most Japanese banks charge a fee for ATM use during non-business hours (after 6pm during weekdays and all day during weekends). The ATM surcharge can be as high as US\$7 per transaction, especially when inter-bank transfers are involved.

<sup>14</sup> Sears' switch from rural to urban focus corresponds to the changing characteristics of U.S. population from majority rural (1890s) to majority urban (1920s). Sears opened its first store in 1925 adjacent to mail-order processing plant in Chicago, and by 1927 had 27 stores in operation nationwide. By 1933, Sears operated 400 stores nationwide, and the number grew to over 600 by 1941. Currently, Sears operates 833 stores in the United States (Sears, Roebuck and Co., 1999).

Unlike the U.S. consumers, Japanese consumers have had little experience in long-distance retailing in general. Although mail order business also existed in Japan a century ago, it never took off as a major channel of consumption. In a densely populated country where commercial zones have always been in easy reach, mail-order businesses did not compete well with traditional retailing. There were also a number of other obstacles, including cost of access (high telephone bills which made both sellers and buyers reluctant to bear the cost), inconvenient payment system (even today, only 16 percent of payments are conducted using credit cards, and over half of mail order purchases in Japan are done via postal/bank transfer),<sup>15</sup> lack of price competitiveness, and lack of consumer trust. Retailing without store-fronts were often viewed in the same category as informal, door-to-door salesmen/women, which were viewed as having no community-base to earn customer trust (Kurozumi, 1993).

In part due to the lack of history in distance-retailing, Japanese retail sector never developed the necessary institutional structure to support the development of E-Commerce either. For example, money-back guarantee is almost non-existent, and return and exchange policies are rarely taken at face value. Japan's department stores commonly refuse request for try-ons by customers for certain clothing items, claiming such practice can damage the merchandize. The lack of these policies can easily lead already reluctant customers to become even more unwilling to engage in distance-retailing of any sort. Thus, just as in any distance-retailing, E-Commerce requires a set of business practices that effectively support its development. Without it, consumers are faced with discontinuous innovation, and adoption would either delay or will not take place.

Furthermore, different regional shopping practices may also have an effect on E-Commerce use. In Osaka, where bargaining for the right price is still very much part of shopping experience, E-Commerce is seen as a rigid and therefore not an cost competitive option for consumers. In Tokyo, bargaining is a long-gone practice, and thus consumers are far more willing to purchase goods on-line. The emergence of internet auction sites in Japanese would provide consumers in Osaka an opportunity to bargain on the internet. It is unclear whether internet auctions would actually induce more E-Commerce in Osaka, however, regional-specific shopping practices may eventually be accommodated by various new services.

### *Urban spatial patterns*

Existing consumption patterns are shaped by spatial patterns of cities and retail outlets. In a country such as Japan, where cities are densely populated and real estate costs prohibitively high, decentralized ownership of small real estate lots have been serious obstacles for coordinated city planning. Government's overall priority on industrial policy and rapid industrialization over ensuring quality of life for urban residents since Meiji Restoration in 1868 further undermined infrastructure provision efforts to meet housing needs. The combined result was the inadequate public infrastructure development, private-sector driven housing development along the privately-owned commuter trains, and small and fragmented residential lots.

These factors also led to the development of the mixed landuse pattern, with commercial districts in close proximity to residential areas. This spatial pattern, associated with contemporary dietary preferences for raw fish and fresh vegetables, shaped Japan's dominant consumption patterns today. Japan's typical urban consumers shop small volumes far more

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<sup>15</sup> Dempster (1999).

frequently than American counterparts. Commercial districts typically surround most train stations, thus urban residents, who mostly rely on public transit to get to work, can easily pick up groceries and other daily necessities by dropping by stores near train/bus stations on the way home. Due to limited housing size and high energy cost, most households did not own large-size refrigerators until recently, thus necessitating frequent restocking. Lack of storage space provided no incentives for customers to cater to large-volume, discount stores that are popular in the United States.<sup>16</sup>

### *Language barriers*

Language barriers can affect the development of E-Commerce both from the supply and demand side. While an internet site can be accessed globally, language barriers still prevent an average consumer from accessing and using services in foreign languages. A recent survey conducted by a Japanese newspaper cited that potential disputes as being one of the major barriers in using E-Commerce offered by companies abroad (Asahi Shimbun, 1999). While dispute resolution experiences were rated largely positive (most customers stated that they eventually received product and were satisfied), most described time and efforts in international E-Commerce is not worth repeating. Composing a series of emails describing a problem with an order in detail is not a task that any consumer would prefer to conduct in one's own language, but doing so in a foreign language is well beyond the willingness of most average consumers in any country. The language issues would be resolved in time by the growth of multilingualism in the cyberspace, particularly with multilingual and local customer support, and the emergence of the Japanese E-Commerce sites.

### *Substitute technologies*

Cellular telephones are the major competitor to the PC-based internet access as the mode of communication.<sup>17</sup> The penetration ratio of cellular telephones in Japan is higher than United States, United Kingdom and Germany (see Figure 4). As of end January, 2000, there are 55 million cell phone subscribers in Japan, which means one in two Japanese age over 10 owns cell phones.<sup>18</sup> Rather than purchasing a costly, space-hogging PC, cell phone is a cost effective, space-saving device, by which all daily communication needs are met. Cell phones function not only as a telephone, but also as an address book, a watch, a pager, an answering machine, and an email receiver/transmitter. The keyboard allergy works to the advantage for cell-phone adoption. As Japanese characters using an English keyboard was already a complex task that require some practice, learning the trick of using the 10-number pads to type Japanese characters does not add much to the already complex input operation.

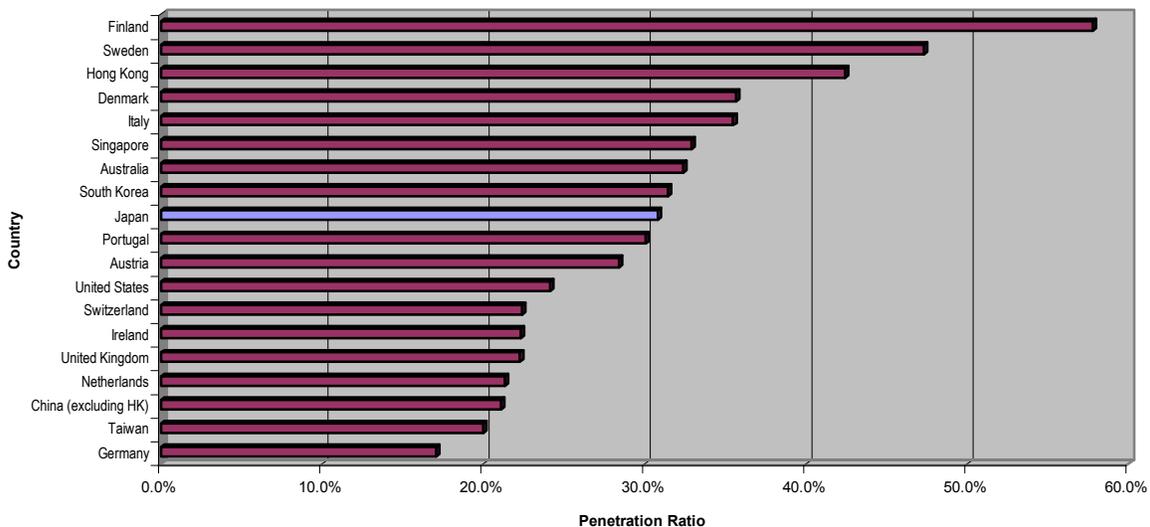
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<sup>16</sup> This is a stark contrast to the U.S. retail sector, in which wholesale membership clubs saw phenomenal growth in the 1990s.

<sup>17</sup> Cultural factors also influence the choice of products in each society. Industry analysts argue that for Japanese consumers to adopt technologies, the equipment needs to be 1) miniaturized so that it is portable, and 2) converted into a consumer electronics equipment, in order to achieve a quick success in the Japanese market (Amaha, 1999).

<sup>18</sup> Data provided by Telecommunications Carriers Association, 2000.

**Figure 4**  
**Penetration Ratio of Cellular Phones**  
**by Number of Contracts, 1999 (as of January 1)**



Source: Telecommunications Carriers Association, 2000.

Cell phones have become a cultural icon of independence among Japan's college students: For Japan's many live-at-home urban college students, cell phones help protect privacy, and are the important medium to stay in touch with friends without interference from parents and other family members. For students living away from home, cell phones have become a cost-effective alternative to traditional telephones, which are useful only when at home, and also come with hefty initial setup cost (currently at approx. US\$700 per new line, excluding the cost of new wiring).<sup>19</sup> In fact, it has been predicted that if current trend continues, cell phones subscriptions will exceed traditional telephone subscription by March, 2000.<sup>20</sup>

With a widespread use of cellular telephones by Japanese consumers, companies are innovating on the new means to easily access the internet via cellular telephone. Japan's previously government-owned NTT's new service called "i-mode," launched in February 1999, is a prime example. Seventeen-month later, the service has attracted over 10 million subscribers. Other companies are entering the market with technologies to display color and graphic images on the tiny window on cell phones. Thus, Japan's consumers may have had a slow start in PC purchase, but they have been fast adopting other means of information technologies. With the integration of cell phone technology and the internet, however, this situation might quickly change in the future.

<sup>19</sup> The number of traditional telephone line subscribers began declining for the first time in Japan starting 1998. The demand is being replaced by cellular telephones and ISDN (InfoCom Research, 2000). Clearly, 'voice-only' telephone is rapidly become the technology of the past in Japan.

<sup>20</sup> Data provided by InfoCom.

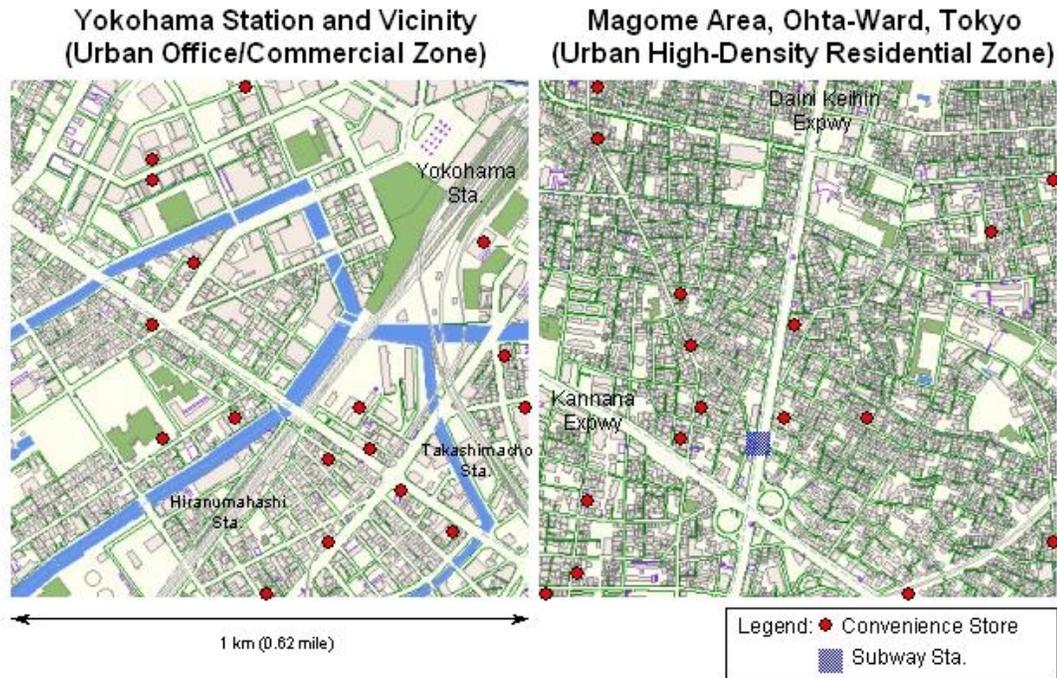
#### **4. Alternative Development of the Digital Economy: Convenience Stores as Nodes of E-Commerce Access**

The recent and unlikely partnership between E-Commerce and convenience stores in Japan has functioned to resolve three major obstacles for E-Commerce diffusion: on-line access, distribution, and payments. With convenience stores almost at every major urban corner, consumers can use E-Commerce without purchasing PCs or using credit cards. This mode of retail innovation suggests a possibility for an alternative model of social informatization. Rather than having to connect every household with high-speed networks, Japan has, perhaps inadvertently, adopted a neighborhood approach where internet access is shared by area residents, using convenience stores as nodal points. E-Commerce is being developed as a strategy to generate additional demand by Japan's convenience store chains.

Convenience stores became part of daily life for many Japanese consumers only in the past few decades. They are typically open 24-hours a day 7 days a week, averages around 100 square meters (1,076 square feet) in size, and most are franchised operations. Convenience stores are not just the trendsetter in Japan's otherwise highly inefficient distribution sector, but also has become a trailblazer in adopting information technologies, thereby deeply affecting consumption patterns by aggressively making use of the information networks. The combination of convenience stores and E-Commerce has eliminated the society-specific disadvantage, and turned it into opportunities by shifting what used to be a 'discontinuous innovation' for Japanese consumers to 'continuous innovation.'

A walk around any major Japanese city today gives one an impression that every major street corner is occupied by a convenience store. Examples shown in Figure 5 support such observation: the convenience stores are ubiquitous, both in office/commercial districts near the terminal train station (JR Yokohama Station), as well as in high-density urban neighborhoods (Ohta-Ward, Tokyo). As these areas indicate, 16 to 17 convenience stores are located within randomly selected, 1 square kilometer blocks (0.3861 square mile). For urban residents, this means that a trip to the nearest convenience store is shorter than a trip to the nearest train/subway station.

**Figure 5**  
**Locations of Convenience Stores, 1999**



Source: Compiled by author based on information provided by NTT Town Page, 1999-2000. Map Copyright by Zenrin Co. Ltd.

Tokyo's 23 Wards, which together form the urban core, are the location of nearly 4,000 convenience stores. Ohta-Ward alone, which is roughly one-third the size of Washington, D.C., is the location of more than 250 convenience stores, while Washington, D.C. has just 83.<sup>21</sup> There are 1,182 convenience stores in the city of Yokohama, which is about three-times the size of Washington, D.C. Yokohama, the nation's second most populous city, also serves as a satellite business district, high-tech manufacturing area, and a residential suburb of Tokyo.

In terms of store density, Yokohama has 7 convenience stores per square mile, while Washington, D.C. has roughly 1.4 stores per square mile (see Table 1). There are 16 convenience stores per square mile for Yokohama's central business district and Tokyo's Ward areas. There are as many as 32 convenience stores per square mile for Tokyo's central business district (Chuo-Ward in this case). Even taking the different population densities into account, (for example, Tokyo's Ward area is on the average 4 times as dense as Washington, D.C.), the convenience stores are far more ubiquitous in Japan. There is one convenience store for over 6,000 people in Washington, D.C., as opposed to one for 2 to 3,000 people in urban Japan.

<sup>21</sup> Including convenience store establishments identified as SIC 44512 (convenience stores) and 44711 (gas station with convenience stores) for District of Columbia, 1997 Economic Census.

Table 1  
Comparisons of Convenience Store Density, 1999  
Tokyo (Wards Area), Ohta-Ward (Tokyo), Yokohama and Washington, D.C.

	Tokyo (23 Wards)	Ohta-Ward	Yokohama	Washington, D.C.
Area (sq. mi.)	237.9	23.0	168.3	61.4
Population	8,052,396	641,523	3,351,612	519,000
Population Density (per sq mi)	33,847.8	27,892.3	19,914.5	8,452.8
Number of Convenience Stores	3,856	258	1,182	83
Convenience store per sq mile				
Area Average	16.21	11.22	7.02	1.35
CBD	31.64	-----	16.00	-----
Population per convenience store	2,088	2,487	2,836	6,253

Note: Population for Washington D.C. is an estimate for July 1st, 1999. 1997 figure is used for the number of convenience stores for Washington D.C.

CBDs used for this table are: Chuo-Ward for Tokyo, and Nishi-Ward was used for Yokohama.

Sources: US Economic Census -- Retail Trade 1997; US Census Population Estimates 1999;

Tokyo Prefecture, 1999; Ministry of Construction Area Survey, 1994; Toyo Keizai, 1999;

NTT Town Page 1999-2000.

#### 4.1 Factors behind Success of Convenience Stores in Japan

Convenience stores begin appearing in Japan in 1969, but it began growing rapidly only after 1973, when Ito-Yokado acquired license from Southland (US) to open 7-Eleven stores in Japan. Other retail chains followed suit and established their own franchise of convenience stores (see Table 2). Subsequently, the number of convenience stores grew dramatically from 500 in 1973 to 36,631 in 1997. Despite depressed consumer demand of most of the 1990s, during which the total number of establishments in the retail sector declined in Japan, the number of convenience store actually grew by 24 percent.<sup>22</sup> Today, roughly one in five supermarkets in Japan are classified as convenience stores.<sup>23</sup> In terms of sales, convenience stores grew by 67.1 percent between 1991 and 1997, an impressive rate of growth when the total growth for the retail sector was at 3.8 percent.

Table 2  
Major Convenience Store Chains in Japan

Name	Owner	Year Established	No. of Stores	Sales (In yen)
Seven Eleven Japan	Ito Yokado	1973	7,924 (1999/8)	1,950,000,000,000 (2000/2 est.)
Lawson	Daiei	1975	7,016 (1999/2)	1,157,200,000,000 (1999/2)
Family Mart	Seibu	1981	6,799 (1999/2)	758,222,000,000 (1999/2)
Circle K	Uni	1984	2,530 (1999/9)	406,769,000,000 (1999/3)
Sunkus	Uni	1980	2,371 (1999/2)	409,700,000,000 (1998/2)
Daily Yamazaki	Yamazaki	1977	2,872 (1998/12)	381,100,000,000 (1998/12)

<sup>22</sup> Figure for period 1991-1997. Retail Censuses.

<sup>23</sup> Supermarkets include general supermarkets, specialty supermarkets, other supermarkets and convenience stores (Retail Census, Japan, 1997). Japan's retail census defines convenience stores as those with 1) the opening hours of 14 hours or longer, 2) the store space between 30 to 250 square meters (323 to 2,691 sq ft), and 3) food items.

Mini Stop	Jusco	1980	1,343 (1999/10)	172,856,000,000 (1999/2)
am/pm	Japan Energy	1990	1,003 (1998/4)	139,000,000,000 (1998/3)

Sources: Compiled with data provided by Official Web Pages of companies, 1999.

While most are franchise operation, the top 3 chains control nearly three-fifth the convenience store establishments in Japan.<sup>24</sup> Japan's largest convenience store chain, Seven-Eleven Japan, franchises nearly 8,000 stores nationwide (almost one out of every five stores), with the estimated annual sales of US\$2 trillion (1999 Fiscal Year) which equals 31 percent of the total net sales of convenience stores in Japan. The firm's market value in 1999 exceeds that of Walgreen and Safeway, both major US retail chains.<sup>25</sup> Seven Eleven Japan has been so successful that, together with its parent firm Ito-Yokado, bailed out the original licensor Southland from bankruptcy in 1991, earning a 70 percent share (Kotabe, 1995; Bernstein, 1997).

The major reason for the success of convenience stores in Japan is in part structural, which was created in part by the regulatory framework, and in part due to their innovative strategies (Bernstein, 1997; Hashimoto, 1999). In 1973, Large Scale Retail Law was enacted to restrict activities of large-scale retailers in order to protect small retailers.<sup>26</sup> Although this law was designed to protect Japan's numerous mom-and-pop stores and preserve innercity commercial districts, they instead provided incentives for large retailers to seek loopholes. Large retailers turned to franchising as an option, which effectively combined large-scale capital with small-size, independently-owned operations that are in reality managed and controlled by large capital.<sup>27</sup>

Convenience stores have been innovative in their focused locational strategies, unique marketing strategies, and the investment in information technology infrastructure that resulted in new service delivery far beyond initially intended. The locational strategies of Japan's convenience stores were decidedly urban: the chains initially focused on opening stores with close proximity to each other in Tokyo and Osaka. This was done in order to maximize distribution efficiency and minimize delivery routes.<sup>28</sup>

Convenience stores' smaller floor-space enabled them to strategically locate stores in high-density urban areas, thus providing advantages over supermarkets in terms of access. This strategy was also better suited to the consumer behavior and shopping patterns in Japan, as described earlier. Since urban residents are more likely to walk or bicycle to a nearby grocery

<sup>24</sup> Data provided by Jutaku Shimpo, 1999.

<sup>25</sup> Based on the figure provided by Seven Eleven Japan, Annual Report 1999, estimated by Morgan Stanley with the exchange rate on March 31, 1999.

<sup>26</sup> These laws restricted hours of operation for most large-scale grocery stores at the national level, and at regional levels, prefectures regulated the entry of large retailers by restricting new entrants by floor-size.

<sup>27</sup> Coincidentally, franchise was promoted by Japan's Small and Medium-size Enterprise Agency (SMEA) at the time, as policy makers considered it as a strategy to maintain small retailers.

<sup>28</sup> Reduction in delivery routes was achieved by bundling product delivery by required storage temperatures. For example, Seven Eleven Japan currently owns 250 distribution centers, which are classified by product's storage temperatures: 55 centers for refrigerated items (at 5 degrees centigrade), 56 centers for rice dishes (at 20 degrees), 47 centers for frozen items (at -20 degrees), and 92 centers for miscellaneous temperature-insensitive items such as beer, other alcoholic beverages, and canned food items. Through restructuring the delivery routes, Seven Eleven Japan reduced the daily restocking trips per store from the average of 70 in 1974 to 9 by the early 1990s, thereby dramatically reducing delivery costs. (Seven Eleven Japan Annual Report, 2000).

store or drop by a store after work en route from a nearby train or subway station, occupying strategic urban locations is the single-most important factor for successful retail performance in Japan. Today, an average Tokyo commuter is estimated to walk by three convenience stores on his/her way to work (Landers, 1999). Although suburban supermarkets are thriving in Japan as well, small stores still dominate the retail sector in Japan, which still occupy 55 percent of the total food and beverage market.<sup>29</sup>

In addition to the deliberate locational strategy, convenience stores employed a strategic marketing focus. Unlike convenience stores in the United States, which relied half of the sales from gasoline, alcohol and tobacco products, Japan's convenience stores draw half of their sales from deli, dairy, bakery and lunch boxes (Bernstein, 1997). For Japan's post-bubble, economy-minded office workers, shopping for a lunch box at a convenience store has become an economical option over having lunch at restaurants. Also, individual-size food items were developed in order to respond to the demand from increasing single-person households in urban areas. The customer profile made available by Seven Eleven Japan (1999) indicates that, in 1984, 69 percent of their clients were under age 30. Customer base has diversified since then, and the share of clients under 30 declined to 52 percent in 1998. Yet, convenience stores today serve as a one-stop shop for single-person households of all ages from the yuppies to the elderly. In the country where retail opening hours has been limited<sup>30</sup>, the sight of a bright-lit convenience store at odd hours and during holiday seasons has become a lifesaver for many urban residents. Also, while picking up one's necessities, customers can use their coin-operated copy machines, and send a parcel or fax.<sup>31</sup>

This type of multi-sectoral retailing was new in Japan, where manufacturers and wholesalers dictated the behavior of retailers and sanctioned retailers who break exclusive distribution rights.<sup>32</sup> Japan's retail sector faced added disincentives from diversifying their distribution network and conduct businesses that cross various traditional retail borders. The wholesalers control the retailers by providing the rights to distribute, and retailers are at the mercy of the wholesalers. Under such structure, small retailers have been largely prevented from innovation.

#### 4.2 Building the Information Networks

Japan's convenience stores are known for the disproportionately large investment on information technologies per floor space than any other forms of retail outlets in Japan. Convenience stores initially invested heavily on information technologies with a sole purpose of improving delivery efficiency (Hashimoto, 1998). To shorten the time required for restocking, the point-of-sale (POS) system was conceived. Introduced by Seven Eleven Japan in 1982, the system allowed just-in-time production and delivery. At this stage, information network was used simply as an instrument for delivery trip rationalization and cost reduction.

Once the information infrastructure was in place, however, convenience stores quickly

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<sup>29</sup> The Retail Census, 1997.

<sup>30</sup> Three quarters of Japan's retail stores are open less than 11 hours a day (1997 Retail Census).

<sup>31</sup> In part due to the success of convenience stores in providing office services, convenience stores effectively eliminated business opportunities for specialized office service outlets, such as Kinko's and Mailboxes, etc. Kinkos does have about a dozen outlets in Tokyo, but they cater almost exclusively to traveling business professionals, by locating in the central business district or near large hotels with international clients.

<sup>32</sup> Retail trade experts argue that Japan's sectoral division of power is characterized by the dominance of manufacturers, and the wholesalers and the retailers are regarded simply as the distribution arm of the manufacturers.

realized that the same network could be used to gather valuable customer information. The second stage of informatization thus involves the use of the network for market research purposes, which is used to determine the variety and the amount of products on the shelf for each store. They developed cash registers that require cashiers to press the button representing gender and the estimated age bracket of the customer in order to open the cash register drawer and provide change and a receipt. The information that includes the item of purchase, the gender/age of the customer, and time of purchase is then relayed back to the headquarters, which is used to order restocking, and to add to the database on consumption patterns for different stores. In part because of this system, convenience stores have also served as experimental grounds for a variety of new products (typically prepared food items), which resulted in their reputation as trend-setters in Japan's consumer market.

It was only during the third stage of informatization in which the convenience stores realized the potential of offering E-Commerce through the network. By using their already present information network, convenience stores began delivery of new services that can be accessed on-line.<sup>33</sup> Today, Seven Eleven Japan not only provides such services as parcel delivery, ATM access, and life insurance packages, but also offers online utility bill payment system (with bills payable to 126 utility companies including telephones, gas, electricity, water, as well as catalog shopping).<sup>34</sup> In a country where personal checks are non-existent and credit cards are rarely used, utility bill payments were done exclusively through bank transfers until convenience store chain began offering this service. In early year 2000, Seven Eleven Japan has been reported the move toward banking, by setting up its own bank.

More recently, new functions are being added so that customers can purchase a variety of electronically transmittable products, such game software, music, and books. Seven Eleven Japan spearheaded the move, by announcing a triangle alliance between Internet firm and book wholesaler in June, 1999. Together they plan to set up a book-delivery service, called e-books (Seven Eleven Japan, 1999). Since the share of convenience stores for books is currently at 0.4 percent, entry into this market offers a potential for growth. Following this move, FamilyMart announced a consortium of five firms to develop its own E-Commerce in January, 2000. Lawson, which already has its own E-Commerce website, also announced an alliance with Mitsubishi trading company to solidify its footings in E-Commerce during the same month.

Multiple alliances between convenience stores and E-Commerce vendors further increase the product variety. Convenience stores have already began performing the functions of travel agency by allowing customers to book a flight, purchase domestic or international package tours, and reserve hotel rooms at the last minute at a discount rate. Seven Eleven Japan has done so by setting up an alliance with Arukikata.Com, Japan's major travel guidebook company. Customers can purchase discount airline tickets via the internet, pay cash at a local convenience store, and the flight coupon is delivered to the store for a pick-up. Seven Eleven Japan also announced the joint venture between Sony Corp., called 7dream.com, that offer travel packages, music, books, and other goods on-line, starting fall, 2000, and it has also forged an alliance with CarPoint, the world's largest internet automobile dealer (Landers, 2000).

Traditional retailers are also seeking alliances with convenience stores. Upon realizing that consumers frequent convenience stores even if they have kept away from more expensive, specialized retailers, department stores began courting convenience stores as an intermediary to

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<sup>33</sup> Based on an interview with Professor K. Hashimoto, Osaka Gakuin University, December 4, 1999.

<sup>34</sup> Data provided by Seven Eleven Japan (<http://info.sej.co.jp/>).

get more customers for annual year-end gift sending practices. Instead of traveling to a department store in urban centers, customers can avoid the lines, the crowd, and traffic congestion by picking out a department store-grade gift package from a catalog and order it at a neighborhood convenience store, pay cash, and the order is relayed via their information network.

With the use of the information networks and their strategic locations, convenience stores became a one-stop neighborhood shop for consumers of all ages. It is a store where you can pick up, not only a variety of household items and prepared food items, but also order and pick-up electronically available products and services, with the convenience store functioning as a financial as well as distribution intermediary, providing easy access, legitimacy to on-line retailers and bypasses all security concerns that surround online transactions. For Japanese consumers who were not accustomed to the practice of long-distance shopping, convenience stores provides face-to-face interactions at each of their local storefronts, thereby reducing consumer anxiety and making the services far more user-friendly.

Convenience stores have therefore become an effective intermediary between traditional retailing and E-Commerce in a manner that has not been observed with the same degree in the U.S.<sup>35</sup> Combining retail storefronts with E-Commerce in this manner provides the option that can overcome existing social and institutional constraints and simultaneously offer new possibilities for further growth in the retail sector. Convenience stores in Japan are therefore well positioned to adopt other businesses available online, and thus represent a truly private-sector initiative toward informatization.

## **5. Conclusion: Alternative Paths to the Information Society?**

The partnership between convenience stores and E-Commerce provides an alternative model of information technology use. The Japanese example suggests the E-Commerce can develop without instituting all elements of support structures necessary to promote home-based E-Commerce use. For Japanese consumers, using E-Commerce means adopting new business practices and consumer behavior that comes with the technology, and having to institute necessary infrastructure and regulations that facilitate this mode of exchange.

The role of convenience stores in E-Commerce has numerous implications and suggests alternatives to the model of E-Commerce use in the United States. Accessing E-Commerce through neighborhood corner stores eliminate the issue of unequal access. By making E-Commerce an activity combined with a neighborhood store, it provides a greater access to consumers regardless of economic status, technological knowledge and home PC ownership.

Furthermore, the combination of convenience stores and E-Commerce not only offer better services to customers across various economic and social backgrounds, but also offers a new way of complementing traditional face-to-face retailing, by offering new magnets for the emerging urban cultural landscape. The partnership between corner stores and E-Commerce can not only benefit overall economic growth by stimulating consumer demand, but also ensures the existing urban life and the sense of community that rise out of frequent, face-to-face retailing, and facilitates the survival of many urban commercial districts whose livelihood has been

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<sup>35</sup> The typical combination of E-Commerce and traditional retailing in the U.S. so far has been to offer products/services available through store-fronts on-line, rather than offer E-Commerce at store fronts.

endangered in recent decades by competition from large suburban retailers.<sup>36</sup> By having convenience stores as magnets of pedestrian traffic, some commercial zones in inner-city areas may have been saved from their near-death. The partnership would not only impact the youth culture, but can also help improve the quality of life for those without access to automobiles, particularly those raising young children, and Japan's elderly population, more of whom are living alone in urban areas.

However, we need to recognize the benefits and issues that surround franchising. On one hand, the partnership provided innovation that Japan's retail sector desperately needed. It can function as a catalyst to further innovation and long-overdue retail revolution, injecting competition in the retail sector. Also, those mom-and-pop stores that can no longer survive on their own (especially those which had exclusive rice or liquor licenses before deregulation) were saved by joining the franchise and as a result were able to retain their businesses. On the other hand, franchising also means less control by individual retailers, as well as increasing standardization of storefronts across the nation. The presence of convenience stores may therefore involve the risk of accelerating the demise of traditional, independently-operated, mom-and-pop stores, which cannot compete with the new and innovative networked chain.

The future of the convenience stores and its partnership with E-Commerce lies in whether they can effectively mediate with other on-going forces and capture the majority share of E-Commerce activities. Aside from convenience stores, there are two major competitors that provide E-Commerce access in Japan: PCs and cell phones. Prompted by newly available low-cost PCs from IBM and others, the PC sales in 1999 were at record high in Japan.<sup>37</sup> With such new technological development as 'i-mode,' cell phones would also be a major competitor in E-Commerce access.

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<sup>36</sup> Decline of traditional commercial zones has become an issue especially after 1988 (1997 Retail Census of Japan, 1999d).

<sup>37</sup> According to Nippon Keizai Shimbun (2000b), Dataquest reported that the 1999 domestic shipment for personal computers were at 10.54 million units, a growth of 36 percent from the previous year. The household purchase grew by 60 percent, comprising 40 percent of new purchases in 1999.

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