

# Internet grocery business in Japan: current business models and future trends

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## Abstract

The launch of a wave of Internet grocery retailers over the last six years presents a serious challenge to the traditional supermarket business model. The Internet grocery landscape changed radically in July 2001 when the top Internet grocer, Webvan, filed for bankruptcy. With the bankruptcy of Webvan, almost all the major stand-alone online grocers in the USA have disappeared. Indeed, traditional supermarkets such as Albertsons and Safeway have recently been expanding into the online arena. In Japan, major traditional supermarkets have been seriously working on establishing online services in the metropolitan area with a "brick-and-click" model. Examines strategic reasons for today's Japanese supermarkets to try establishing online grocery businesses. Also addresses critical success factors and current limitations based on socioeconomic conditions, Japanese culture, and expected future trends.

## Introduction

Since 1996, traditional supermarkets have been challenged by a wave of Internet grocery retailers. However, the Internet grocery model lost its shine in July 2001 as the top Internet grocer, Webvan, filed for bankruptcy. Webvan was established in 1996 and began the business in San Francisco in 1999. It acquired the second largest online grocery company, HomeGrocer, in 2000.

Although Webvan expanded aggressively into the Seattle, Chicago, and Los Angeles markets, it never became profitable. Webvan established distribution centers in those areas and delivered groceries to customers directly from these distribution centers. This business model was doomed from the start with a high cost structure in a historically low-margin grocery retail industry. In general, Internet retailers benefit from reducing the inventory cost. In this case, Webvan always had to have many lines of merchandise in its warehouses to provide quick deliveries. Additionally, to compete against traditional supermarkets, the company could not charge high enough handling and shipping fees to cover the cost. Worse yet, Webvan did not have the same buying power (and therefore discounts) as traditional supermarkets (Natsuki, 2001). In any lower-margin business volume is the key to profitability. Companies have to secure enough orders to operate at near capacity all the time, and usually it takes two to five years for a new company to acquire such a number of customers (Kuramochi, 2001).

On the operation side, Webvan depended on technology as the driver of its business while overlooked the basics of the grocery industry (Himelestein and Khermouch,

2001). With the bankruptcy of Webvan, a number of other similar businesses also failed (e.g. HomeRuns.com and Ahold). Clearly, selling groceries on the Internet with home delivery is more difficult than anticipated (Yrjölä *et al.*, 2002).

One of the reasons of these failures is their lack of brick-and-mortar partners. For example, traditional supermarkets such as Albertsons and Safeway have recently expanded into the online arena. These stores have the luxury of using their own stores as warehouses and not having to invest heavily in distribution centers. They can pick groceries from their storefront and deliver to customers charging a shipping fee of \$9.95. They have successfully introduced their online services into cities such as Portland, Los Angeles, and San Francisco. Their successes seem to stem from having positioned their online services as value-added service for customers.

In Japan, major traditional supermarkets have been seriously working on establishing online services in metropolitan areas with similar business models as those of Albertson and Safeway. Unlike their counterparts in the USA, because of the intense competition from supercenters, convenience stores, and food-specialized supermarkets, the success of their online business could mean life and death to their companies. With current limitations based on socioeconomic conditions, Japanese culture and expected future trends in mind, this paper discusses operation and service concepts in Internet-grocery business. We also examine strategic reasons for today's Japanese supermarkets in establishing online grocery business.



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## Operations/service concepts for Internet-grocery companies

Most of the strategic efforts in the Internet-grocery business today focus on improving the purchasing transaction and physical distribution of goods. Unfortunately, without offering their customers more value, simply improving ordering and fulfillment does not make Internet-grocery shopping a viable competitor to the current supermarket business model. Some of the potential new “values” include operating concepts (Smáros *et al.*, 2000), with different service levels (Punakivi and Saranen, 2001; Punakivi *et al.*, 2001).

### Operational alternatives

Operational alternatives include intermediary and direct. From a consumer’s point of view, the business model Internet grocers use is the same old thing; the only difference is that ordering takes place using the Internet and the items are delivered to the customer’s home. Upon closer examination though, there are actually two different business models (Kämäräinen *et al.*, 2001a, b). In the first model, Internet-grocers serve as an intermediary in the supply chain by picking groceries from a supermarket or “cash and carry” and delivering these to the households (Figure 1, I.A and I.B). This Intermediary model is based on an assumption of occasional deliveries and small sales volumes – but requires quick home delivery.

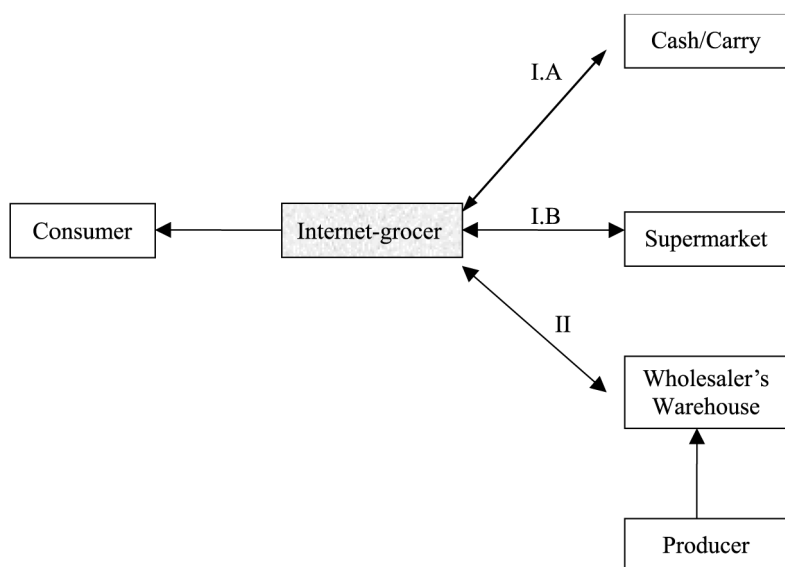
When sales volumes are sufficiently large, it will need a totally new direct channel between the producers and the consumers (Figure 1, II). In this business model, Internet-grocers purchase items straight from producers or importers, stock products in local distribution centers and deliver directly to consumers. Streamline and Webvan in the USA, and Matomera in Sweden operate on this model. When the number of customers increases, order packing must take place in the distribution centers rather than in supermarkets to achieve better services and lower costs. To further decrease delivery costs, flexible method of receiving must be devised for customers. These service level alternatives will be described below.

### Service level alternatives

Attended reception is when goods are delivered with customers receiving them in person. On the other hand, if the goods are dropped off at the location without requiring customer presence, it is called unattended reception. In the latter, some kind of boxes must be in place for the delivery. Since unattended reception incurs the installation cost of boxes for new customers, this model slows down the company growth. For a company that looks for fast growth, perhaps attended reception is necessary. However, once the repetitive purchasing and stable demand of goods begin to take place, unattended reception proves to be more convenient to customers and more cost effective to companies. According to Punakivi and Saranen (2001), the unattended reception reduces home delivery costs by up to 60 per cent. However, due to its high cost and requiring customer commitment, unattended delivery has not been widely used.

Two types of boxes may be used in unattended deliveries: reception box and the delivery box. The reception box is simply a refrigerated, customer-specific reception box installed at customer’s garage or home yard. The delivery box is an insulated secured box equipped with a docking mechanism that deliverers can drop off and secure at the customer site. The reception box is a more effective mechanism for home deliveries since it requires less space on the truck. On the other hand, delivery box requires a smaller cost to achieve the unattended reception that potentially enables a faster growth rate and higher flexibility in the future. The drawback is the additional cost of collecting the empty boxes later.

**Figure 1**  
 An Internet-grocery business model



## **E-shopping environment in Japan**

### **Internet growth**

According to InfoCom Research, 60 million people, or approximately 46 per cent of the Japanese population, use Internet. In terms of households, the penetration reached 49 per cent in 2001 (InfoCom Research, 2002a). In contrast, this figure was 19.2 per cent and 35.3 per cent in 1999 and 2000, respectively. Even though these figures are much lower than the 46.3 per cent and 51.3 per cent for the USA in the same periods, InfoCom predicts that Japan will exceed the USA in 2002 (InfoCom Research, 2001).

This rapid increase in the Internet penetration rate is caused by the large-scaled diffusion of broadband that began in 2001. Until 2000, dial-up access accounted for more than 80 per cent of Internet connection (Society for the Study on Internet Business, 2001). Hindered by high monthly charges and non-flat rate schedules, it was difficult for the growth of Internet usage. With the reasonably priced flat-rate schedules, broadband not only converts many existing dial-user to switch, it attracts many more new home users. As of July 2002, 60 per cent of broadband users have constant access to the Internet. A total of 80 per cent of broadband users who switched from analog lines testify that they have increased their Internet usage (InfoCom Research, 2002b). It is predicted that the broadband penetration rate will reach 80 per cent by 2003. This will dramatically accelerate popularization of the Internet shopping.

### **Internet user profile**

For most Japanese families, grocery shopping is the woman's responsibility; therefore easy access and attractiveness of Internet for this population segment are essential to the success of Internet grocers. According to a study from Video Research NetCom (2001), the digital divide between male and female is disappearing. As of April 2001, the number of female Internet users has increased from 35.6 per cent in 1999 to 42.3 per cent of the total Internet users. However, a large digital divide still exist between urban and rural regions. A survey conducted by Japan Access Rating in May 2001 shows that while more than 30 per cent of people use Internet in metropolitan areas such as Tokyo, Kanagawa, Chiba, and Saitama prefectures; less than 10 per cent of people use Internet users in some rural areas (Japan Access Ratings, 2001). In terms of Internet

infrastructure, it will take more time for B2C market to mature in rural areas.

As of 2001, 17 per cent of Japanese Internet users have shopped online at least once. This figure is the eighth largest in the world (Taylor Nelson Sofres, 2001). According to Internet.Com, as of June 2002, 4 per cent of Japanese Internet users have shopped groceries online, and 36 per cent of them were interested in using online supermarkets (Japan.internet.com, 2002).

### **Mobile commerce**

Cellular phones are quite popular in Japan. As of July 2002, 55 per cent of the population have cell phones (Telecommunications Carriers Association, 2002), among them 44 per cent own browser phones (Video Research, 2001). With this kind of connectivity, the stage is set for the development of mobile commerce. Unfortunately, unlike in the USA, where credit cards and debit cards methods have been well established as payment collection methods for B2C businesses (Wang, 2001), in Japan even the B2C companies today have struggled to find safe and convenient payment methods because checks and credit cards are not widely accepted as a mode of transaction settlement (Ogawara *et al.*, forthcoming). When Japan's largest cell phone service company, NTT Docomo, introduced i-mode (an Internet connecting service) cell phone in 1999; due to its convenient settlement system for e-shopping i-mode was expected to become one of the main infrastructures of B2C businesses (Diamond Publishing, 2001).

In i-mode systems, charges on purchases are included in telephone bills. When using i-mode, e-retailers no longer have to worry about collections and customers gain the convenience of a one-step, centralized payment. Consequently, many e-shops have become official sites of i-mode, and some online supermarkets accept orders from i-mode. Unfortunately, with the exception of those e-retailers who provide digital contents, cellular phones have not yet become the main access method. The primary culprit is the cell phone's small displays and the poor search interface. As a result, only 4 per cent of cellular phone owners have used their cellular phones to shop online (Nikkei Net Business, 2002). Consumers currently are using this wireless Internet access mainly for e-mail, ringer melody distribution, weather forecast, general news, music downloading, and traffic information. However, mobile PCs possibly will become part of main infrastructures in

mobile commerce in the near future. A recent survey shows that, while 46.5 per cent of current Internet users favor cellular phones as a future tool for mobile commerce mini PCs and pocket PCs account garners 22.0 per cent (Nikkei Net Business, 2002). PC-specialized data-communication services such as AirH have gained popularity in business use lately. As the prices of such services become affordable to general consumers, PC-based mobile B2C market may expand as a result.

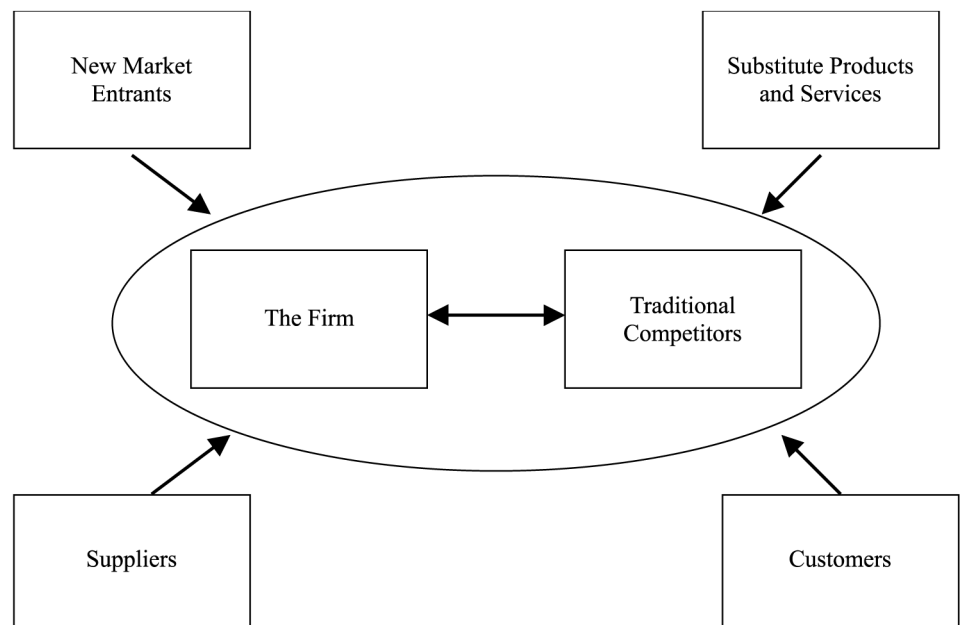
### The supermarket industry in Japan

According to Porter, the bargaining power of buyers, the bargaining power of suppliers, the rivalry among existing competitors, the threat of new entrants, and the threat of substitute products are the five competitive forces that control any industry (Figure 2):

- 1 The bargaining power of buyers in the supermarket industry is strong, especially in metropolitan areas where many national and regional markets have already been crushed. Consumer choices are abound. It is quite common to have two or more supermarkets within 20 minutes walk from any residence.
- 2 Just like in the USA where retailers gain strength through consolidation over their suppliers, the bargaining power of suppliers in Japan is relatively low; for example, the largest national chains can

- 3 Rivalry among existing competitors is strong. Several supermarkets have been scrambling for customers in the same markets, and price competitions have intensified in a slow economy.
- 4 Because the legal restrictions placed to protect residential environment, the barriers to entry are quite high in Japan. The opening of large stores (defined as 1,000m<sup>2</sup> or more) in residential neighborhood is severely limited.
- 5 Due to the abundance of alternatives such as supercenters, convenience stores, and food-specialized supermarkets, the strongest competitive force for existing supermarkets is the threat of substitute retailers. According to *Commerce Statistics* (Ministry of Economy, Trade and Industry, 1999), from 1997 to 1999 the sales of entire retail industry decreased 8.0 per cent. The break-down figures show that sales of convenience stores and food-specialized supermarkets actually increased by 20.2 per cent and 8.5 per cent respectively. The supercenters saw their sales decreased by 9.0 per cent, but this is minor when compared with the whopping 40.1 per cent decline in supermarkets sales (Ministry of Economy, Trade and Industry, 1999).

**Figure 2**  
 Porter's five competitive forces



This phenomenon of “going small” is the result of lifestyle change in Japan. Over the years the number of two-income families and singles has grown in the metropolitan areas. Many live in the suburbs but commute to downtown by buses and trains. The average commuting time in the Tokyo metropolitan area is 45 minutes (Statistics Bureau and Statistics Center, 1999) but often extends to more than one and half hours. Because the basic commute is already long, few people choose to take a detour to a supermarket on their way home. The typical solution is to wait until the weekends and drive to supercenters and/or food-specialized supermarkets on the outskirts to buy in bulk and shop in convenience stores during weekdays. Because of the high demand of convenience stores, they sprout everywhere; there is now one within a ten-minute walk from any residence in the metropolitan area. Moreover, taking advantage of their small floor spaces, convenience stores can be placed at locations near bus stops or stations. The success of this strategy adopted by convenience stores also accords with the fact that lately speed and accessibility to products and services has been becoming a more and more important differentiation factor (Savoie and Raisinghani, 1999).

This shopping pattern has distanced people from traditional supermarkets. Furthermore, the customers who got away are high-profit customers. Generally, customers who shop at supermarkets fall into two distinct groups: bargain hunters and time savers. The latter group would rather save time and tend to buy non-discounted merchandises, and this is the group traditional supermarkets are losing in an increasing rate. That is why traditional supermarkets desperately turn to online services to bring back those time savers.

The online service indeed shows promise, and Web seems to be the preferred means by customers. According to Tokyo Mycoop, a groceries mail-order company that delivers groceries to contracted customers on a weekly basis and just started acceptance of orders on the Web, average sales per shopping through the Internet is approximately ¥1,000 (\$8.4). This is higher than paper-based orders (Nikkei Net Business, 2001).

has grown to the stature of “big business” yet, some have expanded their service areas and/or have turned profitable. They all have to face the following common challenges:

- *Reasonable yet profitable pricing.* Even with added convenience, customers still refuse to pay premium prices for groceries. With delivery charges added, the actual cost may deter would-be clients.
- *Flexible delivery.* For any B2C operation, order fulfillment is one of the most important critical success factor (Duffy and Dale, 2002); in addition, online services’ greatest selling point is convenience. Hence, establishing superior delivery systems is a key for the online supermarket business. Delivery should be flexible and quick enough to attract customers but not at the cost of sacrificing operational efficiency.
- *Easy-to-use item-search system.* If customers have to jump over too many hoops to find what they want to buy, online services would end up with just giving customers a different type of inconvenience in exchange for the inconvenience of going to a supermarket by themselves.
- *Safe and convenient settlement systems.* As mentioned earlier, only 10 per cent of online B2C shops in Japan adopted credit cards as a payment method in 1999. Prospective online grocery shoppers are not “innovators” and will need a payment method they feel comfortable using.
- *Assurance of the quality of perishable food.* Freshness and appearance of perishable food are of utmost importance to Japanese. They refuse to buy day-old fish, meat, and milk priced the same as those of current day; and they are reluctant to choose shapeless cucumbers. In fact, many consumers list “not being able to choose food by eye” as a reason of not using online supermarkets (Japan.internet.com, 2002).
- *An integrated full-service suite.* The challenge is to integrate company’s customer service functions to allow customers check the information and status of their orders online in a very easy, convenient manner.

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### **The challenges of Internet grocery business in Japan**

Many online supermarkets in Japan were established in 2000 and 2001. Although none

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### **Current business model of online supermarkets in Japan**

The three most important national supermarkets are Seiyu, Ito Yokado, and Izumiya; and in many cases they seem to

adopt similar solutions to meet the challenges described above. The prices for their groceries are the same for online and in-store purchases; the difference is the delivery charge. Seiyu charges ¥500 (\$4.10) per delivery for orders under ¥5,000 (\$37.90), and Ito Yokado and Izumiya charge ¥300 (\$2.40) for orders under ¥10,000 (\$75.60). Customers seem to think these charges to be reasonable; however, it is not easy for supermarkets to cover the delivery costs. Seiyu outsources its system maintenance and delivery, for example. The cost for system maintenance runs ¥250,000 (\$2,032) per month, and each delivery may cost as high as ¥720 (\$5.45). This cost per delivery is on a sliding scale with respect to the number of orders. According to Seiyu, 40 to 50 orders are needed per day per shop for them to break-even (*Nikkei Shimbun*, 2001). To boost the number of orders, these three supermarkets use the following rules to select their markets for online businesses. The market must be in a densely-populated area; a metropolitan area; and where their brand power is strong.

The third requirement is especially important, since brand power greatly influences their Web sales. For example, Mycal lost its market share against Seiyu in Tokyo area because Seiyu has better brand name loyalty in that market (Matsuda, 2001). Both Mycal and Seiyu are national supermarket chains well known to almost all Japanese. However, while Seiyu is headquartered in Tokyo with 127 stores in the Tokyo area, Mycal is headquartered in Osaka and has only 25 stores in the Tokyo area. As a result, Mycal and Seiyu had respectively 700 and 6,500 online membership in the year 2000. Moreover, transferring existing brands to the Web is much cheaper than creating new brands (Schneider and Perry, 2000), so by focusing on markets where creditworthiness of their real stores is high, companies may significantly reduce their promotion costs. Consequently, the three national supermarkets Seiyu, Ito Yokado, and Izumiya have been providing online services only in the Tokyo area, Tokyo-Edogawa area, and Osaka area, respectively.

With respect to flexible delivery solution (Table I), these supermarkets all provide delivery windows, albeit differ in details. Seiyu gives customers a two-hour window of their choice from 2p.m. to 10p.m. Izumiya's customers have the same two-hour delivery window but only from 2p.m. to 8p.m. The most generous one is Ito Yokado which requires a three-hour window from noon to

9p.m. For the same day delivery, customers will need to place their orders by 5p.m. at any of these supermarkets.

Even with Seiyu's delivery schedule, it is still inconvenient for working people. There is an implicit rule in Japanese work places that full-time workers are expected to work overtime almost everyday, and the worker must comply. To use Seiyu's service, customers need to be home to receive the delivery by 8p.m. at the latest. Yet, with two-hour overtime they cannot possibly be home in time. If a customer misses the delivery, Seiyu will try again the following day. Since some groceries are perishable, and there is charge for additional delivery, customers are not likely to use online supermarkets.

With respect to an easy-to-use item-search system, these supermarkets have simplified the process by reducing the number of items sold on the Web. For example, instead of listing the same 6,000 items on the Web as in the store, Seiyu has only 3,000 items on the Web (*Nikkei Shimbun*, 2001). Izumiya went one step further and only lists 1,700 items. However, this solution may backfire because quality of product merchandising and portfolio is one of major factors that influence consumer satisfaction in their e-shopping experiences (Cho and Park, 2001). Customers might be frustrated that their favorite brands of soy sauce or shampoo are not sold online. If customers will have to go to stores to pick up those items, then it defeats the purpose of shopping from home and they might choose to keep their current shopping styles.

There are lots of room for improvement in these item-search systems as well. For instance, Albertson sells 25,000 items on the Web. We conducted an informal experiment of searching 20 items (such as Colgate toothpaste and Vaseline skin lotion). It takes 17 minutes to locate all the items on Seiyu's Web site and 18 minutes on Albertson's. Based on the number of the searched items and amount of time spent, it is obvious that Albertson's item-search system is more efficient. On Albertson's Web, customer can request a list of items by category (Personal Care – Skin Care – Body Lotions) or by item (Lotion – Hand and Body). Seiyu's Web requires that customers request a list of items by category only. If a customer does not know the right category for the item, then it is all trial and error. It is obvious that Japanese online supermarkets must improve their item-search systems to make it feasible to have the same number of items as sold in stores.

**Table 1**  
 Home delivery solutions for three Japanese companies

Company	Order	Delivery	Reception	Delivery time window
Seiyu	By 17:00	Same day	Attended	Two-hour delivery time windows between 14:00-22:00
	After 17:00	Next day or other arranged time	Attended	Two-hour delivery time windows between 14:00-22:00
Ito Yokado	By 17:00	Same day	Attended	Three-hour delivery time windows between 12:00-21:00
	After 17:00	N/A		
Izumiyu	By 17:00	Same day	Attended	Two-hour delivery time windows between 14:00-20:00
	After 17:00	Next day or other arranged time	Attended	Two-hour delivery time windows between 14:00-20:00

With respect to settlement system, the three supermarkets accept cash on delivery (COD) and credit cards as the means of payment. Izumiya's credit card settlement system processes transactions via a portable terminal instead of transferring credit card numbers through the Internet. This method of credit card settlement seems to be more acceptable by the majority of the Japanese, who are weary of credit card numbers being intercepted on the Internet.

Regarding the customer anxieties about quality of perishable food, Seiyu's "picking staff" chooses the best and freshest items for delivery. Providing quality groceries all the time is especially critical for online supermarkets because once a customer receives stale fish or a blackened peach, she/he would not want to use the online service again, ever.

lieu of recipient's signature. The e-locker transmits the delivery information to a server at an apartment management company, and the server sends a notification to the recipient's PC, PDA and/or cellular phone. If a recipient does not pick up those goods in three days after the notification, the server will e-mail another reminder. All records of receiving and retrieving goods are stored in the server. The e-lockers developed by Full Time System (Figure 3) can even process settlement electronically. Customers may use a card to open lockers and pay for goods simultaneously. By using Full Time System's e-lockers, customers can order and receive groceries at anytime, and online supermarkets can deliver groceries much more efficiently. This will significantly bring

**Future trend - "e-locker"**

In June 2001, out of a total of 212 stores Seiyu only provided online services at eight stores in the Tokyo area. There are now 15,000 registered customers and 130 to 160 orders each day. The company has been expanding the service areas. By August 2002 the service has been provided in 12 of 208 stores.

However, this growth is slower than expected. The critical bottleneck is the delivery system. As mentioned earlier, the current system still requires customers to make time to wait for deliveries - which is difficult for these full-time workers.

To remedy, B2C begins to look closely to "e-lockers" (a reception box). E-lockers are computerized personal lockers designed to receive home-delivery, and some apartments have already come furnished with them. The basic system of e-locker works this way: A deliverer puts items into a locker and receives a "receipt" issued by the locker in

**Figure 3**  
 e-locker



in more customers and reduce the average shipping cost.

## Conclusion

In order to turn Internet-grocery shopping into a profitable business, Internet-grocers have to look beyond the traditional business model. Instead of simply offering a range of products, the Internet-grocers should offer their customers a number of services to match customer's individual acquisition process (Smáros *et al.*, 2000). Although the online supermarket business in Japan (as well as in the USA) is still in its infancy, there is no doubt about its potentials. According to IBM's consulting arm, by 2004 there will be enough demand exist in some metropolitan areas to support at least three profitable grocers (Himmelstein and Khermouch, 2001). As Internet population increases and infrastructure for online shopping improves, business will certainly grow. The critical success factor in this line of commodity business will be the creation of a superior business model:

There is a belief that technology is culturally neutral and that the underlying process of technology development is uniform across countries (Hasan and Ditsa, 1999).

Yet, difference in culture and social conditions will influence the formulation of e-business model and the development of effective strategies in each country.

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*Internet grocery business in  
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### Further reading

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