

# Vending Industry Keeps Growing

By David Kilburn

Vending machines began to spread throughout Japan around the time of the 1964 Tokyo Olympic Games. Since then, the industry has grown to Olympian proportions. Each year, it embraces more retail markets and incorporates even more advanced technology.

At the end of 1990 there were about 5.4 million vending machines at work in Japan (see Table 1). Vending sales that year were ¥5.8 trillion. This is equivalent to about 3% of total retail sales. Only the United States, with 6 million vending machines (1989), has more than Japan. However, Japan tops the league in vending machines per 1,000 people—44 in Japan compared with 24 in the United States. It also leads in sales per machine—¥1,075,000 in Japan, against \$4,081 (¥571,340 at the rate of ¥140/\$)

## So many products

Almost half of Japan's machines sell beverages, mainly soft drinks, including not only carbonated drinks but also fruit juices. They also sell *sake*, beer, wine, whiskey, coffee, cocoa, tea, milk and yoghurt. Among other goods sold are cigarettes, peanuts, chewing gum, cut flowers, hamburgers, bowls of piping hot noodles, complete meals, bread, pastries, ice cream, pearls and even panties.

Liquor vending machines occasionally spark controversy for making alcohol readily available to minors. Despite these arguments, the prevailing view has been that if the guidance of parents and teachers cannot solve problems of underage drinking, the removal of liquor vending machines could not.

On a healthier note, you can also have your vital signs (heart, blood pressure) checked by vending machines. If you run out of stamps or need batteries for a tape recorder late night, go to a vending machine. Machines also sell tissue paper, contraceptives, sanitary products and toi-

leties. If you run out of change, vending machines will change notes or issue you with prepaid magnetic cards. You can use these in vending machines of course and to make telephone calls, or buy train tickets.

Sometimes, a single vending machine can sell more of a particular product than a small store. According to Kirin Brewery Co., canned drink sales from its machines are more than double those at small convenience stores. Each machine averages annual sales of 250 to 300 cases (one case holds a dozen 250-milliliter cans).

Although vending machines sell a wide

range of products, the driving force behind the industry is the sale of beverages, mainly soft drinks. Different estimates put the share of soft drink sales through vending machines at between 40% and 50% of the market total.

The importance of vending machines in marketing soft drinks is responsible for some of the industry's unusual features. It has also led to the development of one major product in Japan that is virtually unknown elsewhere in the world—canned coffee.

Traditionally, soft drink sales peaked during the long hot summers and fell

Table 1 Vending Machines in Japan (1990)

		Number of machines	Change from previous year (%)	Sales value (¥ million)
Beverages	Soft drinks	1,918,090	-2.8	1,726,281
	Milk	151,390	2.1	138,068
	Coffee, cocoa (cups)	261,220	1.3	238,594
	Alcoholic drinks	194,940	1.2	344,405
	Total	2,525,640	-1.8	2,447,348
Food	Gum, candy, chocolate	64,280	-27.7	10,597
	Bread, buns, cookies	18,100	-22.1	8,742
	Lunch, noodles, sandwiches	60,770	-10.1	80,422
	Ice cream, etc.	44,850	6.4	18,180
	Total	188,000	-15.3	117,941
Cigarettes		475,640	7.3	1,406,487
Tickets	Train	18,260	0.3	1,273,608
	Meals, platform tickets	18,730	4.9	166,884
	Total	37,350	2.6	1,440,492
Others	Stamps, postcards	1,600	1.3	2,081
	Razors, socks etc.	146,910	2.4	49,873
	Newspapers, magazines	10,860	-16.2	9,137
	Sanitary/contraceptives	59,250	-15.6	18,597
	Batteries/toys/prepaid cards	700,110	-3.0	245,669
Total	918,720	-3.2	325,357	
Products total		4,145,350	-1.8	5,737,624
Services	Coin and note changers	122,890	16.4	
	Video, pachinko (pinball), golf	50,890	-29.1	
	Lockers, pay TV, parking	1,097,240	12.5	85,883
Services total		1,271,020	10.3	85,883
Grand total		5,416,370	0.8	5,823,507

Source: Japan Vending Machine Association

away during the cold winters. Vending machines therefore were in full use during the hot weather and idle in the winter. Marketers prefer even demand to dramatic peaks and troughs. New machines and new products solved this problem.

Ueshima Coffee Co. (UCC) hit the jackpot when it developed a canned coffee drink in 1972. Developments in canning technology made this possible. Firms such as Toyo Seikan were able to line the cans with materials that avoided any taste contamination.

In many respects, coffee is an ideal beverage for a soft drink manufacturer in Japan. It is popular as a chilled or iced drink in summer as well as a hot drink in winter (and indeed year round). When UCC began to put canned coffee in vending machines it soon became a hit. Other drinks makers, notably Coca-Cola, the market leader, soon followed suit. So did Pepsi Cola, Nestlé, and all the major food, drink and brewing companies. Today canned coffee sales, 90% of which go through vending machines, outstrip those of carbonated soft drinks such as Coca-Cola.

Virtually all new soft drink vending machines installed over the past five years have been able to both heat and chill their contents. So in summer you can buy chilled coffee, tea and soft drinks. In winter hot coffee, tea, cocoa and soup are all available.

The success of canned coffee sparked the introduction of canned milk tea, black tea, green tea, barley tea, lemon tea, oolong tea and fresh fruit juices. Canned coffee, meanwhile, comes black, white, espresso, mocha, Blue Mountain, au lait, Viennese, sweet and unsweetened.

The development of vending machines and soft drinks has gone hand in hand. As machines that can operate 6, then 12, 24 or 36 columns of cans have progressively appeared, so has the range of soft drinks they sell increased.

Today, no company can compete successfully in the soft drink market unless it has a wide range of products to fill vending machines. This year, for instance, Suntory has introduced no less than 32 new soft drinks.

The flexibility that beverage vending machines provide has drawn them into



Vending machines selling soft drinks are so numerous in Japan that they seem to be on virtually every street corner.

office use. Many workplaces now have an array of vending machines to provide employees with refreshments at subsidized prices.

Canned drinks are not everyone's ideal, but there are also machines that will grind your selected blend of coffee beans. They filter it through a paper filter, to the strength you choose. You can add sugar and cream to taste. These "mill and drip" machines need a little more maintaining than do the can machines but they are consistent and reliable.

Stocking what the customer wants is as basic to vending machines as it is to retailers. Each year, new drink vending machines provide even bigger choices. As an example, Fuji Denki Reiki Co.'s ¥2.2-million RCI-R2000 vending machine handles 30 different drinks, including fresh-brewed coffee, instant coffee, juice, cocoa and soup. With various combinations of ice, sugar or milk, the number of selections grows to 96. Four sizes of cup quadruple the choice.

The machine can also turn out fresh-brewed coffee in 18 seconds instead of the 25 seconds required by more conventional machines. The seven-second difference means a great deal when people have to

wait in line for their turn in front of vending machines.

### Coin-in-the-slot beef

Each year, there are new uses for vending machines. This year Hamilton Japan Co., a meat packer based in Kobe, will start selling U.S. beef through vending machines. Hamilton plans to sell beef for 30% less than Japanese market prices by raising and processing the beef in Nebraska and shipping it to Japan ready-frozen. Steaks will cost ¥1,000 (\$7) per 500 grams and meat for grilling ¥600 (\$4.3) per 350 grams.

The company plans to install vending machines at department stores, gas stations and other indoor places. The machines keep the meat below minus 18 degrees Celsius. The company plans to set up 1,000 vending machines by next year. It targets sales of 1,500 tons of beef or ¥3 billion in the first 12 months.

If vending machines can sell food, why not have them cook it too? That way hungry customers can enjoy a freshly cooked meal. Nichirei Corp., a food processor, has done exactly this. It has developed a vending machine equipped with a



Men who would not normally enter a flower shop to buy gifts find it easier to use a vending machine.

microwave oven for heating precooked frozen food.

The machine, which Nichirei claims is the first of its kind, can accommodate 10 packages each of five frozen food selections, such as apple pie and shrimp pilaf. Nichirei plans to install 1,500 machines in two years. Targets include convenience stores and fast food stores. Both are short of staff due to a labor shortage in Japan, thus giving vending machines an added attraction.

From fresh food to fresh flowers is one tiny step. Flower vending machines selling cut flowers appeared in 1989. They have helped attract customers who would not normally enter flower shops to buy gifts. Most of the people using flower vending machines have been men who might feel embarrassed visiting a flower shop.

Sales vary with the season and weather, but can reach over ¥300,000 a month. Trading house C. Itoh & Co. operates flower vending machines in some Tokyo department stores. These can hold up to 50 decorative boxes with cut flowers and two floral arrangements in baskets. The machines are temperature-controlled to less than 10 degrees Celsius.

One vending idea is a real gem. In March 1987 the Tasaki Pearl Co. installed "Jewellery Pochette" vending machines in Tokyo and other cities to sell pearl jewelry. The first machine sold over ¥1.5 million worth of pearl products in its first two months. Each machine carries a selection of items costing from about

¥2,000 to ¥35,000 (\$14-\$250). The main customers for such machines are men. They find it embarrassing when asked questions about what they want and why by salesgirls in stores.

Probably in no other country would anyone dream of filling a roadside vending machine with expensive jewelry! A high price tag is clearly no barrier to vending sales. Machines can sell expensive as well as inexpensive items.

A vending machine in Shirahama, Wakayama Prefecture, sells water from a hot spring. About 100 liters of water from nearby Tsubaki Spring costs ¥100. The water is 32 degrees Celsius and contains sulfur. For passing drivers who want hot water, containers are available at an electrical appliance shop near the vending machine. About 200 liters of hot spring water is needed to fill a decent-sized Japanese-style bathtub in the home.

Not only have vending machine numbers been increasing, they have been getting larger and cleverer. New models have microcomputers to control their systems. These keep both hot and cold drinks at their ideal temperatures no matter how cold or hot the weather. Some can also clean themselves.

This sophistication uses a lot of electricity. New machines often burn 700 to 900 watts. Those they replace might have needed only 400 to 500 watts. The nation's beverage vending machines alone consume the total output of a 1-megawatt nuclear power plant—and the figure is rising!

In 1990, exceptionally hot summer weather caused surges in electric power demand that strained the nation's generating capacity. The government appealed to the public to economize and raise the temperature setting on their air conditioners. Vending machines, however, could not heed calls for power economy. Luckily, power supply managed to keep pace with demand, but only just. The prospect of a soft drink vending machine blowing the nation's fuse was ridiculous. But it nearly happened.

## Special factors help growth

In law-abiding Japan, where vandalism is almost nonexistent, the risk for machine operators is small. Occasionally, newspapers carry stories about attempts to break open and steal money from vending machines. Usually the machines fare better than the criminals in these rare encounters. On at least one occasion, a would-be thief came to an unhappy end as the machine he was vandalizing tipped over and crushed him beneath it.

Low crime levels and a high level of respect for other people's property are factors that help the industry grow.

Pressure on space within stores also encourages the growth of vending. Many shops expand their sales area into the street with a lineup of vending machines. This also provides an extra bit of customer service, something Japanese retailers are always eager to do. High population densities deliver a ready passing market to make the investments worthwhile.

For the retailer, operating a bank of vending machines outside his store has become quite a sophisticated exercise. Vending column management is as crucial as shelf space management to profits.

If there are several banks of machines around the neighborhood, all the more difficult to keep them topped up with the right mix of products. With many new brands launched each year, knowing just what to stock to maximize profits is a headache only technology can solve.

Technology comes to the rescue again. The telephone can connect new machines via telephone lines to remote control centers. Computers can monitor

sales and stock, and program refills. New machines can also transmit data by radio. This spring, market leader Coca-Cola started using a radio data transmission system called Teleterminal. This monitors its vending machines and speeds up ordering refills.

Coca-Cola is trying to solve several problems at one stroke. It hopes to overcome the labor shortage, raise operational efficiency and improve services to retailers. If successful, the experiment could revolutionize the industry.

Teleterminal sends data from portable terminals to the head office computer by radio. The service comes from Japan City Media Inc. (JCM), set up last year by a group of 49 firms, including Tokyo Electric Power Co. and NEC Corp. Proponents say the new system has distinct advantages. It can send data both ways. The initial investment is also lower than for telephone systems. Transmissions have high accuracy, since there are noise suppression and retransmission functions built-in.

Coca-Cola will first use Teleterminal to monitor its 62,000 vending machines in the Tokyo area. It will install radio transceivers in each machine, enabling them to exchange information with the compa-

ny's head office computer via JCM's base station. Each machine will be able to send information about its inventory, small change and any malfunctions. The host computer will also be able to call up the vending machines for real-time sales data.

Soft drinks sold through vending machines are subject to wide seasonal fluctuations and unpredictable runs on particular brands. Dispatching workers to check on the stock of each machine is inefficient. Knowing what and how much is needed will speed servicing up and save labor costs. In addition, installing a point-of-sales system in vending machines could help to rationalize production. Makers will be able to allocate production to keep pace with real-time demand for each product.

Coca-Cola is also developing a next-day delivery system for retail outlets, using Teleterminals. Sales staff will use portable terminals to send orders directly to the host computer. The head office will process the order data as it comes in, allowing the company to guarantee next-day delivery. Under the current system, salesmen phone orders to branch offices. These compile the data and send it to the head office. The head office then arranges

the best delivery schedule and instructs each of the 29 branch offices accordingly.

This complicated procedure, used by all soft drink bottlers at the moment, holds back delivery until two days after the ordering. Small retailers, who often have little or no storage space, like frequent, small-lot deliveries. Next-day delivery would allow them to cut inventories virtually by half.

## Bigger and better

The introduction of larger vending machines will eventually lead to a reduction in their total numbers. New machines with 24 or more selections will replace older models with a mere 6 or 12 selections. Although growth in numbers has been slowing (see Table 2), the need to replace older machines gives the manufacturers steady business—provided they continue to innovate.

The biggest problem facing the industry is, ironically, the labor shortage. Workers to stock and service the machines are getting harder and harder to find. As a result, machines have been going out of stock of popular drinks and suffering more frequent breakdowns.

However, sales through vending machines seem sure to continue increasing. In 1964, sales through vending machines were less than 1% of retail sales. Today they are over 3% and have been growing steadily for over a decade. The growth is real, not inflationary. The price of a soft drink in a vending machine has been ¥100 since 1974. The introduction of POS-systems should also help increase sales.

The vending industry in Japan owes its success to technology. As new consumer needs, retail opportunities or problems have arisen, the makers have swiftly deployed suitable technologies. In this way, Japan's unusual vending industry provides a case history of how technology can create and develop markets to meet the everyday needs of society. ■

Table 2 Vending Machine Numbers and Sales (1980-1990)

	Number of machines	Change from previous year (%)	Sales value (¥ million)	Change from previous year (%)
1980	4,581,650	0.0	2,748,994	0.0
1981	4,762,950	4.0	3,007,074	9.4
1982	4,861,140	2.1	3,137,520	4.3
1983	4,987,770	2.6	3,234,015	3.1
1984	5,139,010	3.0	3,360,106	3.9
1985	5,215,800	1.5	3,578,531	6.5
1986	5,242,880	0.5	3,753,893	4.9
1987	5,101,340	-2.7	4,436,286	18.2
1988	5,238,890	2.7	4,959,895	11.8
1989	5,375,590	2.6	5,475,532	10.4
1990	5,416,370	0.8	5,823,507	6.4

Source: Japan Vending Machine Association

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