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### Smart vending machines: The minimarts in the near future?

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# Smart vending machines the minimarts in the near future?



Almost any place that has human traffic is a potential location for a vending machine. For consumers, this means the vending machine potentially beats the convenience store – whose biggest strength is convenience – at its own game, as it can reduce even more the distance you travel to get what you need, says the writer. THE NEW PAPER FILE PHOTO

The invention has become more popular as technology allows for a greater variety of items to be sold with smoother transactions

## Seshan Ramaswami

Even as e-commerce shook the retail industry, the vending machine is one technology that has stood the test of time. The first of its kind is often attributed to Heron of Alexandria, a Greek mathematician and engineer who developed a machine almost 2,000 years ago that would dispense holy water in temples with the deposit of a token. The invention has come a long way since. It's traditionally known to dispense an assortment of small-sized packaged snacks, confectionery and soft drinks. This evolved into ready-to-eat meals such as toasted sandwiches, salads and pizza. During the pandemic years, the vending machines also played a critical role in the distribution of masks and Covid-19 test kits. Today, there is a huge range of products that can be bought from the machine – bread, frozen salmon, fresh flowers, potted

plants, cotton candy, wagyu beef and even medication. The options have become more varied and useful.

### THE MINIMART OF THE FUTURE?

One of the main advantages of the vending machine is how it can be located optimally and is open for business 24/7. Given its small footprint, it can occupy strategic locations that are otherwise wasted non-revenue generating space, such as a lift landing, under a stairway, corridor space, covered bus stops, and even public toilets. Almost any place that has human traffic is a potential location for a machine that offers products or services appropriate for the kind of consumers most likely to pass by that location. For consumers, this means the vending machine potentially beats the convenience store – whose biggest strength is convenience – at its own game, as it can reduce even more the distance you travel to get what you need. And because it operates without

human staff, it offers 24/7 service. As commercial rentals remain high and manpower shortages continue to pose a challenge for businesses, the vending machine format is perhaps primed for take-off. For businesses, the main advantage is the lower overheads in terms of rental and manpower, with workers needed mainly for re-stocking and collecting money from the machines. As more businesses find innovative ways to make the vending machine work for their products and services, it could be an alternative to a brick-and-mortar store. Another possibility is for convenience stores and mini-marts to incorporate more automatic vending into their operations. Today, many of them struggle with the challenges of rental costs, hiring staff who can work night shifts, and competing with e-commerce. For some of them, a gradual conversion of the convenience store format into self-selection unmanned machines and stores might well be a solution. This has already happened with the unmanned convenience stores on university campuses in Singapore, which are in effect, giant vending machines.

At most supermarkets, consumers are getting used to checking out their own purchases. A clothing store in Japan is experimenting with vending fast fashion. In Britain, a convenience store has been redesigned to just be a set of vending machines, selling the typical assortment of drinks, snacks and daily necessities. It is interesting that the vending machine format is one of the few that have so far survived the e-commerce explosion. Its ability to immediately deliver, on a 24/7 basis, in locations extremely convenient to consumers will possibly keep the machines alive for decades. One potential challenge is from the "instant delivery" format trialled in India recently; but this model needs to pay workers very low wages to succeed and is probably not suitable for Singapore. There were concerns about ease

and security of payment, and uncertainty of the quality of the product, especially when you cannot examine the product closely before purchase and there is no in-person customer service. The frustration of consumers battling vending machines to coax them into accepting currency notes, and then to agonisingly watch the purchased candy bar tantalisingly poised to drop off the holder but remain stuck, has been hilariously depicted in TV sitcoms. But it's also a fair depiction of reality. However, recent technological developments have greatly enhanced the functionality of vending machines for marketers as well as consumers. One development in particular that is a game-changer is the widespread use of cashless payment methods – from ez-link, credit and debit cards, to a variety of mobile app-based services such as GooglePay and PayNow. These reduce and can even eliminate the need for secure currency note and coin delivery and collection. When there is some delivery malfunction, a consumer may be able to get an immediate refund, thanks to the use of these electronic payment systems. The inability to examine the packaging, for example to check

for the presence of allergens, expiry dates, or sugar or nutritional qualities is another problem. But vending machines today often feature an electronic touch screen display; this can be used to provide detailed information on demand on any of the available items. For fresh-cooked food machines, these displays can track the process of the product being prepared within the machine. Other technological developments have also greatly enhanced the capability of the vending machine operator. Vending machine operators can now get real-time, 24/7 feedback on the operation of their machines as well as on inventory levels. Artificial intelligence can help predict demand for all their products sold across the day, week and season. And for the vending machine operators who work with apps, they can also monitor the purchases of consumers on an individual and longitudinal basis, opening the door for the use of a wide range of marketing analytics tools to help meet individual demand and develop customised promotions.

### THE FUTURE OF THE VENDING MACHINE

Japan is widely considered to be the home of the largest, almost bizarre, assortment of products sold from vending machines. One estimate says there is one vending machine for every 30 Japanese – and they dispense beer, instant noodles, fortune-telling slips, disposable cameras, bananas, umbrellas, ties and caviar. In Europe, Holland is estimated to be the most vending-machine-dense country, with one for every 55 residents. The automat format is very popular there – there are rows of food lockers that have hot food available, with automated vending, in outlets that are open until very late and with seating for customers. It's possible that with consumers who are becoming increasingly tech-savvy, Singapore will see a similar proliferation of the machines and more diversity in the products sold. The entrants into this field may not just be convenience store operators. Any organisation that has logistics and software capabilities can become a fast-growing innovator in this market – fast-food restaurants, many of which already have machine-based ordering systems; food delivery platforms; and manufacturers of convenience products are all potential entrants. Companies have already begun using artificial intelligence (AI) to build smart vending machines to provide more personalised and interactive features for customers. Vending machines could thus get smarter and better – greeting you by name, answering questions about products in the machine, customising your order, suggesting complementary products. Automated high-quality service, with an electronic 100-watt smile (literally), may be coming soon to a lift landing near you!

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