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Consumer Packaged Goods Practice

Did online delivery kill the vending machine?

Not in Japan, says Costin Mandrea, the head of commercial at Coca-Cola Bottlers Japan Inc., who's making its vast network of unmanned retailers smarter and more integrated into people's daily lives.

by Stephenson Cherng, Jan P. Hartmann, Naoyuki Iwatani, and Jason Li

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Every so often, an innovation comes along and upends our way of life, rendering a whole category of existing technology obsolete: consider what personal computers did to typewriters, CDs did to cassette tapes, and MP3s did to CDs. Other times, though, existing technology proves surprisingly resilient—the failure of TV to kill radios is, of course, the classic case in point.

Costin Mandrea, the head of commercial at Coca-Cola Bottlers Japan Inc. (CCBJI), is betting that vending machines will be another example of enduring technology in the face of disruption—in this case, online delivery. Like people everywhere else in the world, the Japanese increasingly choose to order their meals through digital channels—revenues from online food deliveries in Japan are estimated to have soared by around 23 percent, to more than $3 billion, in 2020.

Guided by the conviction that vending machines can continue to play an integral role in the Japanese way of life, Mandrea set out to revamp CCBJI's network of nearly one million vending machines in 2019. He has not only launched a customer-loyalty program but also overhauled the entire end-to-end process of getting beverages from production plants to vending machines to customers' hands. His methods include using advanced analytics to optimize routes, streamline operations, and forecast inventory needs. As a result, CCBJI, already Japan's largest bottler—and one of Coca-Cola's top-three bottlers globally by revenue—has steadily expanded its market share in the country over the past 18 months.

Instead of slowing down when COVID-19 hit, Mandrea accelerated CCBJI's digitization efforts, condensing a yearslong process into mere months. Last November, he spoke with McKinsey's Stephenson Cherng, Jan P. Hartmann, Naoyuki Iwatani, and Jason Li, sharing his insights from CCBJI's ongoing digital transformation and providing a glimpse into the future of unmanned retailing.

McKinsey: First, why was the vending machine the starting point of CCBJI's digital transformation?

Costin Mandrea: Vending machines play a very important role for our business and for our consumers in Japan. They've been at the center of daily life since they were introduced in Japan around 40 years ago. And while Coca-Cola in Japan is a balanced business with vending as one of the channels, it's the channel from which everything started. Not only are there a lot of sentimental and emotional linkages with vending machines, but the channel has also been the most profitable system for us. Vending machines have traditionally generated constant, solid performance.

This is the channel through which we reach the actual consumer of the product directly. Usually, our retail customers serve the end consumer, but in the case of vending machines, Coca-Cola is the retailer. However, in recent years, we have seen significant headwinds because of shifts in consumer behavior and the lack of innovation—the way we operate our vending machines was basically the same as it was 40 years ago. This was affecting our top line and profitability.

So last year, we decided to step up our efforts to revamp vending machines and look deeper at the entire end-to-end process to reengineer them. How can we lower operational costs and expenses and make the machines simpler and better as a retail instrument?

McKinsey: Why not innovate in channels like online delivery, which accounts for a significant portion of the shifts in consumer behavior you alluded to?

Costin Mandrea: That's a good question, and the paradox is this: everyone in the industry is aspiring to an unmanned retail model. Amazon Go, 7-Eleven, and others are trying to reduce the friction shoppers face with technology like facial recognition, cashless payments, et cetera. But we already have the perfect unmanned retail model in our vending machines. No one else has the infrastructure we do. We're operating almost one million vending machines—

that's roughly one for every 150 consumers. Add to that our network of 300 warehouses and 7,000 people making deliveries on 5,000 trucks. No one else has one million convenience stores or bars or even delivery agents.

The questions have therefore become these: How can we leverage this vast network? How do we adapt vending machines and make them more attractive? Is it possible to implement elements like dynamic pricing and dynamic promotions? Can we reimagine the relationship between the consumer and the vending machine? Perhaps the role of the vending machine could change throughout the day—it could be a virtual coffee shop in the morning, where you get a Coke with your meal for lunch, and a provider of your mixer for an evening cocktail.

McKinsey: To do that, you'll need to look beyond the physical box. Can you describe the scope of the digitization efforts?

Costin Mandrea: We're reengineering the end-to-end process, from deciding what we're putting in the vending machine to the design and frequency of delivery routes to all the other back-end processes, including loading, unloading, and so on. A vending machine is a retailer with limited space, and we needed to design the assortment of products for sale in a way that effectively addresses different occasions and different segments. We use a PEAK framework—premium, essentials, attractive, and key value items—and we developed an algorithm that tells us what to sell, how to sell, and at what price. We tested it successfully last year, and it's now rolled out everywhere. Everything depends on where the vending machine is, where the nearest competitor is, and so on.

The second piece is making sense of the data generated by the vending machines. Our machines make millions of transactions every month. That's a lot of valuable information. This led us to create a proprietary loyalty program called Coke ON, which is the start of an ecosystem we're cultivating. We integrated a cashless-payment system so customers can buy directly with their phones. Users get points each time they buy something, and they can redeem a free drink if they accumulate enough points. Coke ON is also a very good communication channel because it's a mobile app, and we can send customers a promotion or incentive based on their consumption habits.

We also built a prediction model that factors in the ambient temperature, the load of each machine, the time it takes to load a truck. We optimized the delivery routes, taking into account traffic and the distance from point A to point B. We created a new role called operations controllers; they use the prediction model to help the delivery team plot the most optimal routes. We realized that we didn't need to divide the country into seven regions—we could operate with three regions. And we don't need as many planners; technology can handle a lot of that work.

McKinsey: What about the organizational changes that you've had to implement?

Costin Mandrea: Previously, the process was a one-man show. The same person was the driver, loader, and route planner. We all believed that these frontline workers were in the best position to make decisions, that they knew exactly what to put into the vending machines. But the environment around vending machines has changed, and it put too much pressure on them. Now we've sliced up the process and specialized the components. We created positions in warehouses that did only loading and unloading. As mentioned, we have operations controllers now. So we have different roles that have very clear, disciplined scopes. We've created new jobs, and this gave us the opportunity to improve efficiency at every stage of the process.

Apart from very good analysis, my team engaged a lot with frontline management. We spent time with them, drove with them on their routes to understand exactly why things happened the way they did. We spent countless hours in weekly meetings and follow-ups, and explained every single step, to create commitment—from the top of the organization to everyone else below. We paid attention to every detail. This was our biggest

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success factor to manage the transformation and helped us break through the layers.

McKinsey: Has your engagement with third-party operators changed?

Costin Mandrea: Around 40 percent of our operations are done in-house, and the rest is done by third-party logistics operators. CCBJI is the result of a 2017 merger of 12 legacy bottlers, each with a different route to market and a different working philosophy. Some of them do everything in-house, some of them outsource part of their business. But this is not a world-class bottler approach; we needed to standardize our operations.

And when it comes to third-party operators or external partners, how do I take stock of their capabilities and the way I’m paying and measuring them? We needed them to follow the same system as Coca-Cola’s. So we spent time to reengage with them, to help them and explain that they have to change the way they operate, even though they’ve been used to doing things the same way for the past 40 years. We sent our transformation teams in to work with our external partners on how to improve their operating models. We told them, “From now on, there’s going to be more transparency, clear and simple targets, and we will move toward a pay-for-performance model.” Of course, there was a bit of a gap. And some of them chose not to continue our partnerships and left. We have fewer partners today than before, but we have stronger partnerships and much better collaboration.

McKinsey: We’ve been hearing that COVID-19 has accelerated many digital initiatives. Is that true for CCBJI?

Costin Mandrea: Yes, but from a sales-force perspective, we had to address this as a healthcare crisis first of all. We immediately enhanced security protocols with masks, extra protection, and protective suits to make sure everyone stayed safe. We were also the first in the world to develop an antibacterial film to place on vending machines for added hygiene. Our customers also don’t have to come into physical contact with money, because they can use the Coke ON app on their phones.

Another impact of COVID-19 was that we saw usage of high-volume vending machines in places like train stations plummet to, basically, zero, while more people used outdoor vending machines. So the COVID crisis created an incredible urgency to go even deeper in terms of cost savings, and we immediately had to redesign the way we were filling these machines.

When we started the transformation last year, we were expecting to roll out the new process over a period of 12 to 18 months, starting with a pilot in Osaka. Our plan was to go into a new region each quarter. With COVID-19 hitting, we were faced with two options: either put our plan on hold and wait until things recover or implement it fully. We decided it's now or never. I wanted to implement the new model across the entire country within the next few months. We went live on July 17.

McKinsey: What benefits did an accelerated timeline bring?

Costin Mandrea: Despite the challenges we faced in implementation, and the fact that a lot of the support functions were stretched, all our performance indicators showed that this was the right decision. Within four months of implementation, we've reduced our routes by 20 percent and disposed of 1,000 trucks. In past projects where we said that we were going to reduce the number of trucks, the trucks were sitting in the corner. We brought them back at the first sign of a hiccup, and with that the costs crept back in. This time, we've sold the trucks, so the efficiency is here to stay.

More important, our experiment opened our appetite for more digital transformation. We've become wiser, and we're looking at better ways to leverage technology to make our processes even smarter. We're entering into phase two, which will have additional savings across functions.

McKinsey: What's next in the pipeline of digital initiatives?

Costin Mandrea: If we look at our Coke ON app, we're just about there. One option is that by outfitting it with a bit of extra internal capabilities, we'll be able to run this app as a separate business unit that can be a new revenue channel by selling services to other departments and to external companies.

And we're also looking at the obvious hardware. This box of a vending machine is still pretty much the same box as it was 40 years ago. Only 40 percent of my machines are smart; they can track what they're selling and can communicate remotely. But both the hardware and the software need to improve—I need to make them 100 percent smart, I need to be able to modify prices dynamically. If a product is running out of stock and the next restock is the next day, can I raise the price of the remaining bottles a bit? Or perhaps pause a promotion? Or if a product is not selling and is about to expire, can I run a price promotion? We need to explore partnerships to build on this capability and make our machines smarter.

Everybody is looking at unmanned retail; we have it, we know how to do it. And we're just starting to make it even more efficient. We are in the beginning stages of creating an ecosystem around the vending machine and integrating it more into daily life. For example, it can be a solution for last-mile deliveries, to increase options and convenience for customers. We could partner with food-delivery services and use vending machines as a virtual warehouse. The courier could pick up food from the shop and a cold or hot beverage at a vending machine close to the delivery point.

I'm very proud that CCBJI is leading the way in vending-machine innovation in Japan. What we've accomplished so far is an amuse-bouche. I feel like it's super promising, and it's going to be a great meal.

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