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Essay | The Self-Checkout Revolution

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On June 26, 1974, Sharon Buchanan, a supermarket cashier in Troy, Ohio, made retailing history when she became the first person to ring up a sale by scanning Universal Product Codes, rather than punching keys on a cash register. Fifty years later, we take bar-code scanning for granted. It is the normal way to check out in most stores.

The question today is whether the person doing it is a store employee or the customer. More than half of U.S. food and grocery retailers have self-checkout systems, as do about a third of convenience and fuel outlets, according to a 2023 survey by market-research firm Incisiv for NCR Voyix. Another 37% of convenience stores are testing or scaling up self-checkout.

The cashier position is one of the most important—and trickiest—in retailing. Cashiers must balance speed, accuracy and security while leaving customers with a positive impression. Innovations at the cashier stand do more than increase productivity or profit. They reflect and shape culture.

Before the 19th century, retail cashiers were uncommon if not unknown. Stores were small and staffed largely by their owners and others in their households, including apprentices. Clerks showed customers merchandise kept behind a counter and charged them for purchases. Cash went into a box, drawer or pocket. Many purchases were made on credit, especially when currency was scarce.

The great 19th-century emporiums, with their hundreds of clerks, needed more scrupulous systems. Each clerk had an individual record book for writing out sales slips. The most prosperous and trusted customers could charge items, but most people had to pay cash, either on the spot or on delivery. Shouting clerks, ringing bells and dashing “cash boys” made for a chaotic scene, especially during busy seasons. Money could easily be dropped and lost, with poorly paid clerks expected to make up discrepancies.

James Ritty, the owner of a flourishing bar and cafe in Dayton, Ohio, found himself losing money because an ever-changing roster of bartenders kept pilfering from the open cash drawer. To solve the problem he invented the first cash register. “Ritty’s Incorruptible Cashier” tabulated each sale by displaying metal numbers to cashier and customer as the keys were depressed. That immediately made stealing more difficult. So did a paper tape that recorded each sale with punched holes. At the end of the day, the owner could compute the totals and make sure all the cash was accounted for.

Ritty soon sold the business, which in 1884 became the National Cash Register Co., the ancestor of today's NCR Voyix. By the early 1890s, the invention had gained a crucial refinement: The cash drawer opened only when the total key was depressed. A bell rang at the same time, hence the term "to ring up" a sale. Finally, printed receipts were added, giving customers as well as stores a record of each transaction. By enabling verification, cash registers expanded trust.

The cashier system was so successful for so long that when bar codes were introduced in the 1970s, there was resistance from shoppers. How would they know the price of a can of peas or a box of cake mix without a price sticker? Politicians took up the anti-scanner cause. "Replacing numeric pricing with computer symbols takes the truth out of 'truth in packaging,'" warned one California legislator who sponsored a bill to require prices on each item. Other colleagues declared, "This in effect is eliminating comparison shopping by putting the buyer at the mercy of a laser beam."

Yet the old ways were hardly perfect. In September 1974, as politicians and consumer activists were grandstanding against the new technology, Ann Landers ran a letter complaining about cashiers who "ring up the items so fast that the cash register sounds like an adding machine. It is fun for the shopper to discover, after she gets home, that she paid $1.69 for a 69 cent box of cereal." The letter was signed "The Customer Hasn't Been Right Since World War II."

A Los Angeles Times article on the new bar-code technology bucked the fashionable panic, predicting that "the new machines will mean a faster and more accurate checkout, and a better record of their purchases." Fifty years later, shoppers have learned to manage perfectly well with prices displayed on shelf signs instead of stickers on every item. Customers now expect detailed receipts, with item descriptions unimaginable in the days before bar codes. Customer loyalty cards even make it possible for stores to rectify overcharges.

But scanners had their most significant effects behind the scenes. By giving retailers real-time sales data, the systems revolutionized inventory management, boosting productivity and allowing stores to stock more variety. Bar codes enabled the growth of warehouse stores such as Costco and Home Depot. Not all of these advantages were foreseen.

The same will no doubt be true of self-service checkout—if the law permits its evolution. Retailers are still trying to balance the efficiency of self-checkout with the need to thwart theft. Some have removed self-checkout stations, while others limit the number of items in a purchase. Many have installed machines that don't take cash. New systems add cameras and algorithms for spotting likely thefts. A run on tiny votive candles, for example, is suspicious: The little packages can be positioned under large, expensive items to register the lower price.

Self-checkout systems still have aggravating glitches that require assistance from an employee. But they are improving, and the option is popular, especially among younger shoppers. A November 2023 survey for NCR Voyix found that more than half of grocery shoppers under 45 prefer self-checkout, compared with only 26% of those over 60.

A bill now being considered by the California legislature would squelch self-checkout. Sponsored by state Sen. Lola Smallwood-Cuevas, a Democrat, SB-1446 would require grocery and drugstores to post one employee at every two self-checkout stands, with no duties but to assist customers with checking out. This featherbedding would eliminate many of the technology's efficiencies. One worker for every four to six stations is the norm. I've even seen smoothly flowing operations with eight checkout stands watched by a single worker.

Most important, the law would freeze how workers are deployed. Anchoring them to the self-checkout post isn't likely to be the best use of their time. Under intense pressure from the convenience of one-click shopping, bricks-and-mortar retailers are finding "order online, pickup in store" an increasingly successful option, combining the convenience of both formats. But somebody has to go around the store filling each order—a more productive job than overseeing a couple of self-checkout stations.

Most new technologies don't reach their full potential until organizations and users adjust their routines. That requires the freedom to experiment and change. Who knows? Freeing up cashiers to offer directions and provide advice to shoppers might restore a personal touch to self-service stores, offering a social space to lure shoppers away from their screens.

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