eBook

Saving Self-Checkout:
How and Why SCO Theft Occurs and What to Do About It

Agilence

Self-checkout is entering a period of **reckoning**.

Self-checkout systems began appearing in grocery stores nearly four decades ago, promising convenience for shoppers and efficiency for retailers. Customers could bypass long lines by scanning and bagging their own items, transforming the shopping experience into a faster, more streamlined process. For retailers, it meant better service with less labor, freeing employees for other tasks, and potentially enhancing productivity and service quality in other areas of the store.

At the heart of this promise was empowering consumers and addressing labor shortages in retail. However, the reality has proven more complex. In 2024, self-checkout faces a huge backlash due to high theft rates, leading some grocers and retailers to remove self-checkout lanes entirely. Self-checkout is entering a period of reckoning.

In this eBook, we'll explore the reasons for this backlash, data on self-checkout theft, and its impact on grocery retailers. We'll examine the psychology of self-checkout theft, how it differs from other shoplifting forms, and the techniques individuals use to steal from self-checkout lanes. Finally, we'll share what retailers can do about it and the tools and techniques necessary to save their self-checkout investment.

The missed promise of self-checkout

Many retailers have invested millions, even billions, in self-checkout technology, but some are now reversing course. Walmart has removed self-checkout in certain stores, Target is limiting the number of items for self-checkout customers, and Booths in the UK is reducing self-checkout to just two stores.

Dollar General, previously aggressive in expanding self-checkout, is rethinking its strategy. CEO Todd Vasos announced during the Q3 2023 earnings call that they would add more attendants to self-checkout stations. Other retailers like Costco and Wegmans have also revised their strategies, with Costco requiring membership verification and photo ID at self-checkout areas.

Why are so many retailers changing their approach? Initially, self-checkout promised to revolutionize the retail experience and save customer time.

However, the reality has been different. Self-checkout systems often frustrate customers, with many finding them confusing and unreliable. According to CNN, self-checkout has failed to deliver on its promises and has become an emotional trigger for shoppers.

Technical issues, such as malfunctions and glitches, and a lack of assistance, lead to customer frustration and abandoned baskets. Reduced staff presence results in a decline in personalized customer service and upsell opportunities. Long wait times, bottlenecks, and privacy concerns due to monitoring technologies also contribute to the dissatisfaction. Additionally, self-checkout kiosks require ongoing operational and maintenance costs.

However, **the most significant issue for retailers is the high theft rates** at self-checkout kiosks.

Self-checkout's reality check:
high levels of theft

While customer dissatisfaction is a big concern, there's one glaring problem when it comes to self-checkout: unacceptable levels of theft and loss.

Just how much theft is happening at self-checkout lanes? It depends on who you ask. Elevated rates of theft at self-checkout are well-reported across the industry and confirmed by numerous studies and surveys, but many offer different numbers. One study found that 39% of grocery shrink comes from self-checkout. Business Insider claimed that theft is five times higher in self-checkout lanes. Anecdotal conversations with retail and grocery LP professionals will reveal different numbers at different companies – and that's about the *known* levels of shrink.

Let's look at three studies that give us a good idea of what is happening with self-checkout.

ECR Retail Loss Study (2022)

Professor Adrian Beck surveyed 93 Loss Prevention leaders from 25 countries, primarily in grocery. Findings include:

- Self-checkout systems account for up to 23% of unknown store losses, with malicious losses at 48%.
- 66% of respondents see self-checkout losses increasing.
- For every 1% increase in self-checkout transactions, there's a 1 basis point increase in loss.

A smaller study found stores with average self-checkout machines see 31% higher shrink than the industry average, and those with above-average kiosks see shrink rates 60% higher.

Lending Tree Survey (November 2023)

This recent survey of American shoppers revealed:

- 96% have used self-checkout, with 41% almost always opting for it.
- 69% believe self-checkout contributes to shoplifting, and 15% admit to purposely stealing items.
- 44% of these thieves plan to steal again, targeting more expensive items or essentials.
- Younger generations are more likely to engage in theft, with an average value of $60 stolen per incident.

University of Leicester Study:

This study at the University of Leicester by Professors Adrian Beck and Matt Hopkins found that self-checkout lanes can increase theft by up to 122%, accounting for nearly 4% of total sales. Retailers estimate self-checkout systems cause up to 23% of total unknown store losses, with 48% of those losses being intentional theft.

"The Why:" The Unique Psychology of Self-Checkout Theft

Does self-checkout encourage theft by everyday shoppers, or is it just that thieves like to target self-checkout lanes? The answer? Both.

Thieves' Perspective: Self-checkout's ease of theft appeals to offenders. Interviews reveal that thieves find self-checkout easier to exploit and believe it's harder to get caught. They often rationalize their actions, claiming misuse of technology, distraction, or accidents if caught. The perceived difficulty in proving intent makes self-checkout theft attractive to typical shoplifters.

Everyday Shoppers: The impersonal nature of self-checkout reduces the personal interaction that traditionally deterred theft. Without direct human judgment or disapproval, ethical boundaries blur, making theft seem less consequential. Research shows people are more likely to act unethically when they believe they're not being observed, suggesting self-checkout might inadvertently encourage theft by providing a sense of invisibility.

Understanding this psychology is crucial for creating effective loss prevention strategies. One such example of applied psychology is the use of overhead mirrors or non-functional cameras at self-checkout lanes to create a sense of being watched and combat the phenomenon described below, deterring theft.

Psychological explanations for self-checkout theft

Diffusion of Responsibility and Deindividuation

The anonymity of self-checkout purchases creates a different psychological environment for shoppers than the normal checkout line. Psychological concepts such as diffusion of responsibility and deindividuation can offer some insight into why individuals may feel more inclined to steal in self-checkout contexts. Diffusion of responsibility theory suggests that individuals in a group (or in this case, users interacting with a machine rather than a person) are less likely to feel personally accountable for negative actions, while deindividuation refers to the loss of self-awareness and erosion of personal standards when individuals are part of a group.

However, these sociopsychological phenomenon don't apply only to human behaviors in large groups, but increasingly, to how people behave when dealing with machines. In the context of self-checkouts, the interaction with a machine instead of a person can create a sense of anonymity, even in a public setting, that can lower inhibitions against theft, as individuals feel less identifiable and therefore less accountable for their actions. By not directly interacting with another human being, the shopper's sense of personal responsibility for the action is diluted.

The "Spotlight Effect" and Moral Decision-Making

The "spotlight effect" describes the tendency of individuals to overestimate the extent to which their actions are noticed by others. In traditional checkout lines, the presence of cashiers and other shoppers may amplify this effect, discouraging theft due to the perceived risk of being observed and judged. However, at self-checkout stations, where observation by others is greatly reduced, this psychological deterrent diminishes. Shoppers may feel less "in the spotlight" and thus more comfortable engaging in theft, under the assumption that their actions are not being scrutinized as closely.

Psychological Theory 1:

Opportunity Theory in the Context of Self-Checkout

Opportunity theory provides a crucial lens through which to understand the dynamics of theft at self-checkout stations. Opportunity theory posits that an individual's decision to commit a crime is significantly influenced by the presence of a perceived opportunity within their normal routine or environment. In the context of retail self-checkouts, this means that the very design and operation of these systems can inadvertently create opportunities for theft, influencing shopper behavior in ways that might not occur with traditional cashier-operated checkouts.

The design of self-checkout stations offers a degree of autonomy and privacy not available in manned checkout lanes. This autonomy, while enhancing customer convenience, also reduces the perceived risk of detection for potential thieves. A 2006 research paper highlights how the physical cues within the retail environment influence shoplifter perceptions, suggesting that the layout and design of self-checkout areas can significantly impact the decision to steal. The isolated nature of these kiosks, combined with the often busy and distracted store environment, creates a prime opportunity for theft.

A 2016 study by the University of Leicester led by retail expert Adrian Beck also highlighted the unintended consequences of self-scanning technologies in retail spaces. Beck suggested that by minimizing human interactions, self-checkout lowers the risk perceived by potential thieves, thus fostering an environment where theft becomes more tempting. Beck has pointed out that individuals who engage in theft at self-checkout are not habitual offenders but are rather ordinary customers who stumble upon an unexpected opportunity to take something without paying, like a frozen pizza that wasn't scanned properly. This phenomenon indicates that the design of self-checkout systems could unintentionally encourage theft among those who would normally not consider stealing.

Another intriguing lens through which to view the behavior of theft at self-checkout stations is Neutralization Theory. This theory, initially developed by Gresham Sykes and David Matza in the late 1950s, delves into the cognitive gymnastics offenders perform to justify their crimes.

At its core, Neutralization Theory proposes that individuals drift between law-abiding behavior and delinquency based on their ability to "neutralize" conventional moral values. In other words, even those who commit theft often subscribe to general societal norms but find ways to "turn off" their internal moral compass when it comes to specific acts of stealing.

When we apply Neutralization Theory to the environment of the self-checkout, we begin to understand the mental loopholes shoppers might jump through to alleviate guilt or justify theft. The impersonal nature of self-checkouts, combined with the occasional frustrations they present (like misreading barcodes or unresponsive interfaces), provides fertile ground for these rationalizations.

Sykes and Matza broke down justifications by criminals into five categories, which we can apply to self-checkout theft.

1. Denial of Responsibility: "The machine wasn't working right, so it's not really my fault."
2. Denial of Injury: "This corporation makes millions; they won't miss a few dollars."
3. Denial of the Victim: "These prices are too high anyway; I'm just leveling the playing field."
4. Condemnation of the Condemners: "The staff here are rude and don't help, so why should I bother being honest?"
5. Appeal to Higher Loyalties: "I need to save money any way I can for my family."

Psychological Theory 2: Neutralization Theory and Self-Checkout Theft

Excuses and Justifications for Self-Checkout Theft

"The Big Corporation Can Afford It"

A common justification is the belief that taking an item or two won't harm the store's profits. Customers see big companies as greedy and faceless, thinking theft is a victimless crime.

The Protest Theft

Some shoppers steal as a protest against the technology, viewing it as taking jobs to enrich the company. According to one shopper: "If they make me self-serve and reduce employment, I will help myself to expensive items at lower prices."

"They Owe Me"

Frustrated shoppers feel justified in compensating themselves for inconveniences like mis-scans, long lines, or lack of assistance. They feel entitled to something for "doing the work" of an employee or believe they are correcting inflated prices.

"It's Just A Small Item"

The trivialization of theft by minimizing the value or size of the stolen item is another common tactic. Some consumers see self-checkout lanes as an easy target, feeling morally justified in stealing small items under the guise that it's inconsequential.

"Everybody Else Is Doing It"

The normalization of theft in self-checkout scenarios can also play a significant role. When people observe others bypassing scanning items or hear stories of successful thefts, it can lower their inhibitions, fostering a 'bandwagon' mentality.

Psychological profiles of self-checkout thieves

Diving into the world of self-checkout theft, it's fascinating to see that not all thieves are cut from the same cloth. Far from the stereotypical shoplifter, the profiles of individuals who engage in theft at self-checkouts are as varied as the products they discreetly slip into their bags. Let's explore the psychological makeup of these modern-day pilferers.

Opportunistic Shopper

First up, we have the Opportunistic Shopper. This individual doesn't walk into the store with the intent to steal but finds themselves tempted by the ease and perceived anonymity of the self-checkout. A study from the Journal of Applied Psychology highlighted that theft occurs four times as often at self-checkout kiosks compared to manned stations, suggesting that the opportunity itself plays a significant role in encouraging otherwise law-abiding citizens to commit theft.

Calculated Thief

On the other end of the spectrum is the Calculated Thief, someone who enters the store with a clear plan to exploit self-checkout systems. These individuals are well-versed in the various tricks of the trade. Their actions are premeditated, and they often keep abreast of technological and procedural changes to stay one step ahead.

High-Income Shoplifter

Perhaps surprisingly, income level doesn't always deter theft. According to Business Insider, those with incomes over $100,000 are more likely to admit to stealing at self-checkouts. This demographic might not be stealing out of financial necessity but rather for the thrill or the challenge. Some may also steal as a "silent protest" against bagging their own groceries.

Entitled Compensator

Justified by the belief that self-service saves retailers money at the expense of customer convenience and jobs, some shoppers feel entitled to "compensate" themselves by stealing, also driven by resentment toward automation and supermarket dominance.

Emotional Shoplifter

Theft isn't always driven by financial or opportunistic motives; sometimes, it's an emotional act. Triggered by frustrating experiences such as "unexpected item in the bagging area" errors, some customers justify theft as a response to their irritation, using excuses similar to those used by burglars, questioning whether the intent to steal was present before or arose due to the self-service system.

Accidental Thief

Initially unintended, this type of theft becomes habitual for some as they realize the ease with which they can take items, especially after a first incident that occurs by accident or due to scanning issues.

"The How:" Popular Self-Checkout Theft Techniques

1   **The Banana Trick** (Product Misidentification): The "banana trick" is one of the most common, well-known, easy-to-do and hard-to-stop self-checkout theft schemes. Customers weigh and mislabel expensive items (such as a steak or macadamia nuts) as a cheaper item (like bananas), exploiting the self-checkout's scale system. Reliance on customers to accurately input produce codes can lead to intentional misidentification, requiring close monitoring by staff.

2   **Bulk Repacking:** Customers empty out bulk product containers (like boxes of snacks) and fill them with more expensive items, paying only for the cheaper bulk product's barcode. This can be hard to catch without manual inspection.

3   **Repacking Scheme (Non−Bulk Items):** Individuals repack items such as popcorn boxes or coolers with more expensive merchandise and then scan the cheaper item's barcode at self-checkout. Detecting repackaged items is difficult without manual inspection, especially if the weight or size seems reasonable for the scanned item.

4   **Barcode Switching:** Individuals alter or switch barcodes to scan a lower-priced item's barcode for a more expensive item, so the scanner charges the lower price. This will usually need to be done with an item of similar weight, to avoid triggering the "unexpected item in bagging area" alert. This is also a subtle form of theft that can be hard to catch.

5   **Double Barcode Tampering:** A form of barcode switching, the individual applies a second barcode over the first one in such a way that it scans but at a lower price, sometimes even reusing barcodes from previous purchases.

6   **'Forgot to Scan' Technique:** Shoppers pretend to scan an item by mimicking the scanning motion but intentionally failing to scan it, often accompanied by a quick movement to the bagging area. The thief will usually cover the stolen item with another item or place it in a reusable shopping bag to avoid suspicion.

"The How:" Popular Self-Checkout Theft Techniques

7   **Partial Scanning:** The thief partially covers the barcode with a finger or hand so that it doesn't scan properly, thereby pretending to have tried scanning without success.

8   **The Pass-Around/Skip Scanning:** The shopper scans one item while smoothly passing another item around the scanner to avoid detection. When done at the same time, this can fool a self-checkout machine that uses weight to verify scanned items.

9   **Multiple Item Overlap:** Similar to the pass-around, the perpetrator scans one item while intentionally covering another with it, so both items appear as one during the scanning process.

10   **Coupon Fraud:** Customers repeatedly scan a single-use coupon multiple times across multiple transactions to receive unauthorized discounts, or they use other expired or irrelevant coupons, or manipulate digital coupon codes to get unauthorized discounts or free items. Without systems to recognize and invalidate a coupon after its first use, retailers can incur significant losses.

11   **The Walk Out:** The most direct form of theft. A thief enters the self-checkout area to make it appear to others that he is paying, but if the attendant is distracted, simply walks out without completing the transaction, going unnoticed by employees in other parts of the store.

12   **Self-Checkout Shielding:** Using the body or other items to shield the screen or scanning area to obscure unauthorized actions from surveillance cameras or monitoring staff.

"The How:" Popular Self-Checkout Theft Techniques

13   **'Help Needed' Exploit:** The thief or an accomplice triggers a 'help needed' alert to engage an employee, then distracts them to overlook unscanned items or manipulates the situation to create an opportunity for theft.

14   **Under-the-Cart Technique:** Individuals place larger, more expensive items at the bottom of the cart and intentionally do not scan them, often going overlooked by security as customers focus on smaller items within the cart.

15   **Gift Card Fraud with Fraudulent Payment Methods:** Fraudsters purchase large quantities of gift cards using stolen or counterfeit credit cards, converting them into untraceable assets. While this doesn't only happen at self-checkout, the speed and anonymity of self-checkout can facilitate this type of fraud, especially with contactless or phone-based payment methods.

16   **Multiple Scans of Low-Value Items for Concealed Higher-Value Items:** Customers scan a low-value item multiple times while bagging higher-value items, paying a fraction of the actual cost. This requires constant monitoring of transaction patterns and individual customer behavior to identify and prevent.

17   **Employee-Assisted Fraud:** Employees in cahoots with shoppers may facilitate theft through price overrides, ignoring unscanned items, or other forms of collusion. Internal theft requires rigorous employee vetting and monitoring and systems to track unusual activity by checkout attendants.

How Can Retailers Respond?

With all these problems, does that mean the era of self-checkout is over?
Not so fast.

Despite its problems, given a tight labor market, large investments in self-checkout systems, and a new generation of more acclimated shoppers, self-checkout isn't going away for most retailers. While self-checkout is experiencing growing pains, the positives outweigh the negatives for many retailers and consumers alike – if they can get a handle on theft.

Retailers don't need to throw the baby out with the bathwater. With some improvements in policy, process and technology, they can better achieve the promised benefits. Here are some ways that grocers and other retailers can save self-checkout.

How can retailers respond?

Attentive Attendants

The first line of defense protecting your organization from self-checkout theft and fraud is an attentive, engaging and properly trained employee on duty. While self-checkout can improve the efficiency of human labor, it can't replace them entirely. A dedicated staff member present at the self-checkout area can provide assistance, deter potential theft, and add a human touch to the process. These employees should also be properly trained on how to monitor self-checkout lanes effectively, including identifying common methods of theft and knowing when to intervene.

In addition to being attentive and looking for potential theft, this employee should be engaging and willing to help frustrated customers struggling with the checkout process. Whether the employee is a store associate, a security guard, or an Asset Protection/Loss Prevention representative, when customers come across an aware employee, they're less likely to steal and remain honest.

Policy Changes (Such as Limiting Eligible Items)

Modifying the policy and conditions of self-checkout lanes can greatly reduce the largest sources of loss from. First, limit high-risk items. Retailers can restrict self-checkout to items that can be scanned with a barcode – no produce, no bulk items, no proteins, no alcohol. This would minimize mistakes, remove dependence on scales (that can break), eliminate employee required interventions such as age verification, and protect expensive items such as beef, seafood, or organic produce from being rung up "mistakenly" as a lower priced item. Small, expensive items can also be restricted.

How can retailers respond?

Security Scales and Surveillance Measures

Implementing stronger surveillance measures, such as cameras at self-checkout stations can be a helpful deterrent against potential thieves, as well as provide data to be reviewed later. Security scales in the bagging area of the self-checkout kiosk are also a common anti-theft tool by alerting both the customer and the attendant when an item is added to the bagging area without being scanned. Used in conjunction with a video-integrated data analytics platform, scales and video systems can also be an important data source for preventing future theft. Data patterns can point to potential issues with specific customers, items, and or attendants (as well as provide video evidence for cases) that can help minimize shrink exposure.

A Modern, Integrated Analytics Tool

A data analytics platform such as Agilence Analytics is an invaluable tool in the battle against fraud in the self-checkout lane. Often, when a customer is caught intentionally stealing from the self-checkout, it isn't their first time. As mentioned above, tracking data patterns and validating them with video can be used to identify specific customers and other instances of theft. Data analytics with both transaction data and inventory data will also be able to help identify the item(s) stolen. Identifying specific attendants with excessive abandoned orders or using the same reason codes for scale overrides can help with developing training and awareness programs for attendants.

Data analytics can also be used to automatically flag suspicious transactions, like those containing multiple prepaid gift cards that may be indicative of a stolen credit card. Other suspicious transactions might include above-average weights for produce. The ability to send automated alerts to store managers, or even directly to self-checkout attendants can allow them to investigate these suspicious transactions in near real-time.

Beyond Surveillance: How Agilence Can Help in the Fight Against Self-Checkout Theft

Agilence Analytics
Identifies Self-Checkout Abuse

Agilence Analytics goes beyond traditional surveillance methods to proactively identify patterns of theft and fraud in self-checkout lanes, ensuring a seamless and secure shopping experience.

Low-Price, High Value Items	**Multiple Similar Items**	**Payment Anomalies**	**Repackaging**	**Employee Assisted Fraud**	**Coupons and Price Overrides**
Detect transactions where high-value items are scanned at low prices, suggesting label tampering or collusion.	Find transactions with many identical low-cost items, like multiple banana SKUs, to uncover expensive items disguised with cheaper barcodes.	Find transactions with a high percentage paid by compromised methods, such as certain benefits cards.	Report transactions where the scanned item's weight or quantity deviates from typical patterns, indicating possible repacking.	Alert on unusual checkout activity, including excessive price overrides, to detect employee-shopper collusion.	Identify employees with a high volume of coupons or manual price overrides, indicating potential fraud.

Beyond Surveillance: How Agilence Can Help in the Fight Against Self-Checkout Theft

Agilence Case Management Links Investigations

With the power of AI, Agilence Case Management's "Case Linking" feature connects incidents, making it easier to spot and stop self-checkout.

Find Patterns

Identify common characteristics of incidents across stores.

Discover Connections

Reveal links between incidents that weren't apparent before, like similar vehicles or suspect tattoos.

Target Chronic Thieves

Automate the detection process and pinpoint chronic self-checkout abusers.

Learn more about how Agilence can help save self-checkout.
See Agilence in action with a live demo.

About Agilence

Agilence is the leader in loss prevention analytics, helping prominent retail, restaurant, and grocery companies increase their profit margins by reducing preventable loss.

At Agilence, we specialize in uniting digital and physical transactions to help cutting-edge loss prevention teams expand beyond traditional theft and fraud to tackle preventable loss in all its forms – in the store, online, and at the corporate office.

Every day, Agilence analyzes over 24 million transactions for our customers, transforming data into insights, and insights into actions. Our platform combines data from 200+ sources, including point-of-sale (POS), eCommerce, HR, labor, inventory, product, third-party delivery platforms, alarms, case management, loyalty, access control, video surveillance, and more.

Companies have saved millions of dollars by optimizing operations, identifying sources of margin erosion, and reducing shrink using Agilence. Many have also improved employee and customer safety, identified training opportunities, improved customer experiences, increased promotional success, and eliminated productivity gaps.

Agilence