



# Prevention, Intervention and Support of Retail Crimes and Shoplifting through VCIS Location Intelligence

Retail shoplifting is a pervasive issue that plagues businesses worldwide, causing substantial financial losses, increased prices for consumers, and significant strains on retail employees. Shoplifting, often considered a petty crime, has far-reaching consequences for both retailers and society as a whole.

*Addressing this problem requires a comprehensive approach by integrating location intelligence with consumer risk factor data, retailers, law enforcement agencies, and community organizations to better understand the dynamics of shoplifting behavior.*



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## Introduction

The National Retail Federation estimates organized retail crime (ORC) causes \$62 billion in annual losses to retailers across the country. Even though retailers focus on stopping these criminals from taking their products off shelves, shoplifters continue to become increasingly bold including robberies, smash-and-grabs, and flash mob-style thefts. Fundamental security principles have been used to prevent, deter, and investigate these criminal activities for decades, but they continue to fall short of helping shut down ORC.

Add to that, as a retailer, you possess valuable assets, including direct shopper relationships, extensive transaction data, and real-time insights into product preferences. However, succeeding in today's rapidly evolving consumer landscape requires harnessing the full potential of these assets.

Modern consumers are discerning and expect the flexibility to buy products whenever, wherever, and however they desire. Retailers must excel in tasks such as effectively managing diverse product portfolios, optimizing category selections, tailoring the shopping experience, devising robust omnichannel strategies, and utilizing data and analytics to make informed decisions. In a world where data flows in from all directions in the omnichannel sphere, we empower retailers to harness this data to supercharge every facet of their

operations, spanning from product assortment and pricing to supply chain management and workforce recruitment.

As consumer preferences evolve, we possess an unparalleled understanding of their needs - what resonates with them, their shopping behaviors, and the motivations behind their purchases. We join forces with retailers to realign their strategies to meet the ever-changing demands of consumers.

VALOORES offers comprehensive support for end-to-end commercial transformations and performance enhancements, drawing upon its exceptional retail expertise and prescriptive solutions. We empower you to leverage real-time data and advanced analytics to simplify operations, provide hands-on decision guidance, and create value across all commercial aspects, including assortment management, marketing optimization, pricing, and promotions.

With VCIS, we leverage the potential of artificial intelligence (AI) and advanced analytics to rethink personalization, customer journeys, and even environmental sustainability. Our focus centers on enhancing our clients' capabilities by bolstering their technology infrastructure, refining processes, and nurturing talent, with an eye toward both short-term successes and long-term sustainability.

## Consequences of Retail Shoplifting

### **Financial Losses for Retailers:**

Shoplifting results in substantial financial losses for retailers, which are often passed on to consumers in the form of higher prices. Smaller businesses may even be forced to close due to the impact of theft.

### **Increased Prices for Consumers:**

Retailers often offset their losses by raising prices on their products, which affects all consumers. In essence, everyone pays a hidden "shoplifting tax" when they shop.

**Negative Impact on Employees:** Retail employees are directly affected by shoplifting. They may face increased

workloads due to inventory shrinkage and may be subjected to additional security measures, making their jobs more stressful.

**Legal Consequences:** Shoplifters, when caught, face legal consequences such as fines, probation, community service, or even imprisonment. These penalties can have a lasting impact on their lives.

**Societal Costs:** Shoplifting contributes to the erosion of trust in society and can lead to a sense of insecurity within communities. It also diverts law enforcement resources away from more serious crimes.

## Solutions to Retail Shoplifting

**Enhanced Security Measures:** Retailers should invest in security technologies such as surveillance cameras, alarms, and anti-shoplifting tags to deter thieves. Additionally, hiring security personnel can provide a visible deterrent.

**Employee Training:** Employees should be trained in recognizing and addressing shoplifting. Effective customer service can also reduce theft, as potential shoplifters are less likely to steal when they feel observed.

**Community Engagement:** Communities can play a role in preventing shoplifting by raising awareness about its

consequences and providing support for individuals facing economic hardships.

**Rehabilitation Programs:** For individuals caught shoplifting due to psychological issues or substance abuse, rehabilitation programs can offer an alternative to incarceration, addressing the underlying causes of their behavior.

**Legal Reforms:** Policymakers can consider reforms that emphasize restorative justice and rehabilitation rather than punitive measures for non-violent shoplifting offenses. This approach can reduce recidivism rates.



## Geospatial Technology Role

The terms “big data,” “artificial intelligence,” and “algorithms” are commonly found in advertisements for new security tools but often serve as nothing more than buzzwords with no substantive backing. Now there is a new buzzword that delivers what it promises: geospatial intelligence.

***What is geospatial intelligence?*** The traditional approach to geospatial intelligence involved analyzing satellite imagery and gathering data such as the number of tanks on a neighboring country’s border or assessing a country’s nuclear program by measuring the number of cement trucks and type of construction material at a secret location. Now geospatial intelligence compiled from mobile phone location data is becoming an increasingly popular investigative tool due to the vast amounts of information that can be quickly deciphered into actionable intelligence. Geospatial intelligence technology now allows customers to identify known and unknown shoplifters, boosters, fences, black market distribution, and more with only a few clicks.

Geospatial intelligence and technology can play a significant role in enhancing security measures to combat retail

shoplifting. By leveraging Geospatial Intelligence for location-based analysis, predictive analytics, real-time monitoring, and other applications, retailers can create a more secure shopping environment, reduce losses, and respond to theft incidents effectively.

VCIS can provide valuable tools for retailers to enhance their security measures and combat retail shoplifting.

As cheaper processing power, lower storage costs, and big data become more mainstream in everyday life, VCIS has stepped in to provide ways of combating theft and fraud with location-based red flags and suspicious patterns. Like POS exception reporting, companies are producing algorithms that uncover theft based on how people travel in and around store locations. By reviewing billions of signals compiled from data brokers, patterns of how consumers travel from point A to point B can reveal investigative insights, lead generations, and actionable intelligence instantly. VCIS even offers the ability to review location patterns to quickly investigate cybercrime and other online activity in ways that were impossible for civilians and companies to conduct in the past.



## How Can VCIS Be Implemented?

Combating shoplifting and managing customer risk through an intelligent system based on geospatial technology and analysis involves leveraging location-based insights to enhance security measures and minimize losses.

### **1. Identifying High-Risk Areas**

Geospatial technology can help retailers identify high-risk areas or stores prone to shoplifting. By analyzing historical data and location-based crime statistics, the system can pinpoint where theft incidents are most likely to occur. Retailers can then allocate additional resources, such as security personnel or surveillance cameras, to these high-risk areas.

### **2. Location-Based Analysis**

Geospatial technology enables retailers to analyze shoplifting incidents in specific geographic areas. By identifying high-risk areas or stores, retailers can allocate security resources more effectively. Retailers can also use geographic data to optimize store layouts, product placements, and security camera placements based on the likelihood of theft in certain areas.

### **3. Real-Time Monitoring**

Implementing geospatial technology for real-time monitoring is crucial.

Surveillance cameras equipped with geospatial capabilities can detect suspicious behavior patterns and alert security personnel instantly. This allows for immediate responses to potential thefts, reducing the chances of successful shoplifting.

### **4. Predictive Analytics**

Geospatial analysis can be combined with predictive analytics to forecast when and where shoplifting incidents are likely to happen. Factors like local events, weather conditions, and historical data can be used to predict peak theft times or locations. Retailers can adjust security measures accordingly to deter theft proactively.

### **5. Customer Profiling**

The system can build customer profiles based on geospatial data. It can track customer behavior within stores and identify patterns associated with high-risk customers, such as frequent returns, suspicious movements, or previous theft incidents. Retailers can then implement personalized loss prevention strategies.

### **6. Inventory Tracking**

Geospatial technology can be integrated into inventory management systems to track product movements within stores.

This includes geo-tagging merchandise and monitoring item locations in real time. If an item is moved without being scanned at a register, the system can trigger an alert, potentially preventing shoplifting attempts.

### **7. Behavioral Analysis**

Geospatial technology can analyze customer behavior patterns, such as dwell times, entry and exit points, and movement within stores. It can identify anomalies and trigger alerts when behavior deviates from the norm, allowing for immediate investigation.

### **8. Heat Mapping and Layout Optimization**

The system can create heat maps to visualize high-traffic and high-risk areas within stores. This information can guide retailers in optimizing store layouts, enhancing visibility, and minimizing blind spots where theft is more likely to occur.

### **9. Communication and Collaboration**

Retailers within the same geographic area can use geospatial technology to facilitate communication and

collaboration. Sharing information about known shoplifters or suspicious individuals can lead to a more coordinated approach to security.

### **10. Mobile Applications and Alerts**

Retail employees can use mobile applications integrated with geospatial features to report incidents, track suspicious individuals, and receive real-time alerts. This improves communication and enables a swift response to potential thefts.

### **11. Data-Driven Decision-Making**

Geospatial data and analytics can inform data-driven decision-making for loss prevention strategies. Retailers can adapt their security measures based on evolving patterns and trends in shoplifting behavior.

By integrating geospatial technology and analysis into their security systems, retailers can proactively address shoplifting and customer risk, reduce losses, and create a safer shopping environment for both customers and employees.



## VCIS Confronting the Challenges

With VCIS geospatial intelligence and advanced analytics, it is now possible to identify criminals and their patterns before, during, and after they commit crimes. In the current retail landscape, disruption is the name of the game. As the industry adapts to this new reality, we collaborate closely with retailers to confront these challenges head-on.

### **1. *Big Data from Small Devices***

In one example using mobile phone locations, multiple consumer patterns can be uncovered quickly when examining the typical retail location to identify possible criminal behavior. Consider how often a consumer might visit more than one big-box retailer on the same day when shopping. It may be expected that they needed help finding an item at store #1 and drove to store #2 in search of a product. Another consumer may be an auditor at a big-box retailer and visit multiple stores daily. And now we have many cases of workers for companies like Instacart and Uber who pick up numerous items each day from multiple retailers. Unlike single shoplifters or even regular customers, boosters travel from retailer to retailer, sometimes hitting multiple stores in multiple cities daily. Some geospatial intelligence vendors have analyzed these patterns millions of times and identified

anomalies that have now been converted into algorithms that can uncover these patterns in seconds, highlighting the suspicious travel patterns indicative of boosting. Subsequent geospatial data can analyze multiple booster travel patterns and look for common relationships between devices. Quickly, unknown fences, shipping companies, and other suspicious locations are identified for further investigations. Even basic searches, often called “behavioral patterns,” can show investigators where a device has traveled dating back years.

### **2. *Map Visualization***

VCIS queries and map visualization, primarily when used at the point of sale, has proven valuable in the detection of theft and fraud. Programmers and investigators have worked together to identify transactions or performance metrics that raise red flags, also known as anomalies. A typical example of an exception report is an employee using the void transaction button statistically more than others, indicating that merchandise is possibly being stolen at the POS. Other exception reports can be much more complex and discover many areas of theft and fraud in a company.

### **3. Co-traveler Analysis**

In addition, VCIS utilizes a spatial-temporal analysis search to verify when two or more people have been together anywhere in the world. A simple-to-understand model would be instantly knowing if employees from company A ever had lunch, private meetings, or inappropriate relationships with any employee from competitor company B in the past few years.

These patterns can also apply to boosters meeting up with partners and fences, conflicts of interest, intellectual property theft, and other types of crime involving sex trafficking, cartels, and organized crime activity. The use cases for geospatial intelligence are unlimited.

### **4. Facial Recognition through CCTV**

Facial Recognition technology has a vast database of documented shoplifters, organized retail crime associates, disgruntled ex-employees and other

individuals that pose a risk. The shoplifters, if entering a store, can be traced from video footage or following an apprehension. As soon as the shoplifter returns to the store, the camera enabled with face recognition algorithm can match that individual's face against the database of images on file. When the system recognises any potential match, the store security professionals can be alerted instantly. The technology therefore allows to observe the suspected individuals and reduce the number of shoplifting instances.

In case any individual successfully gets away with committing a crime, face recognition can add tremendous value. An image of the retail criminal can be taken from store CCTV and enrolled in the system. You might not have a clue who the person is, but your security team will know the moment they return to a store.

## Shoplifting Behavior Insights

This segment focuses on customers engaged in shoplifting activities, and understanding their behavior is crucial for retailers to implement effective security measures, optimize store layouts, and enhance loss prevention strategies. By studying different customer behavior segments, our goal is to gain a comprehensive understanding of customer preferences, habits, and motivations. This knowledge will then be utilized to develop targeted marketing campaigns, improve customer retention strategies, enhance the shopping experience, and optimize store operations.

Shoplifters exhibit various scenarios, and to track and identify suspicious individuals, we can follow a list of key points:

1. Check the areas of interest (AOIs) that customers frequent on the day of the incident and verify their presence in poor or suspicious areas.
2. Observe if shoplifters are accompanied by lifters and distractors, or if they have multiple distractors. Entering the store simultaneously with one or two co-travelers and leaving within a short time frame (up to 5 minutes) could indicate suspicious behavior.
3. Monitor their entrance time to take advantage of peak store hours, whether in the morning, evening, or during busy periods.

4. Pay attention to customers lingering in one area, especially if it is near the store's exit. Studying their almost stationary behavior within the store can raise suspicion.
5. Note the short duration spent inside the store after perpetrating their crime, as most shoplifters aim to exit swiftly.
6. Be vigilant about individuals watching the store from outside without entering, as this can raise an alert.
7. Analyze group behavior in other stores and identify repetitive suspicious actions with the same duration and conditions.
8. Recognize that adolescents and young adults between 15 and 24 years old are more likely to engage in shoplifting. For instance, check if one device is inside the store for the same duration as another device parked near the store.

To improve the accuracy and effectiveness of identifying suspicious devices or customers, integrating additional data sources such as CCTV footage, loyalty card data, and transaction records is essential. By combining these diverse data sets, retailers can establish a comprehensive and robust system for detecting and mitigating potential risks and fraudulent activities.

## Consumer Insights

VCIS delivers key insights on consumer behavior, brand perception, and innovation opportunities that enable companies to drive revenue growth, create optimal portfolio strategies and implement an agile consumer-centered marketing mix.

To effectively cater to today's consumer, it's essential to delve beneath the surface and comprehend the underlying drivers and motivations that influence them. Their preferences, purchasing behaviors, and available choices are undergoing rapid transformations, and the disruptions in the industry are emerging as fresh avenues for growth. VCIS assists you in cutting through the clutter by meticulously tracking and seamlessly integrating global consumer sentiments, behaviors, and spending patterns. This enables us to furnish you with distinctive, and actionable insights. Through our platform, we offer a comprehensive 360-degree perspective on consumers, leveraging our experience and Data access, an expanding portfolio of exclusive insights tools, and providing transparent and timely perspectives. Our consumer data, sourced from both our proprietary channels and an extensive network of partners, fuels our insights. This grants you a continuous,

real-time view of consumer actions, movements, and behaviors. Armed with this knowledge, you can steer your strategic decisions and business model choices, ultimately unlocking pathways to growth.

### **Assortment**

VCIS's proprietary methodology provides in-depth analyses of consumer behavior, evaluating loyalty, transferable demand, profit, and incrementality, to allow organizations to optimize assortment and space allocation. VCIS automates reports to support category management and is fully scalable.

- Delivers unique new insights into how shoppers perceive and shop the category, revealing category growth opportunities
- Rebalances and tailors assortment to better meet customer needs by customer segment and significantly reduce the walk rate
- Analyzes and quantifies the most productive and profitable segments, brands, and products and their impact on revenues
- Adding variety and reducing duplication and out-of-stocks
- Data-driven recommendations that decrease costs but maintain share.

## Category Insights

Retail companies know they need to focus on customers to improve their sales. But they struggle with gaining accurate insights into what consumers want and their shopping behavior to make the right decisions for their categories.

Companies need a comprehensive and structured approach to optimize their category planning - one that combines data-based insights across customers, competitors, pricing, promotions, and channels with advanced analytics analyses and scenario planning. Such an approach can identify growth opportunities in the category, inform negotiation strategies, and, ultimately, enhance relationships with customers, improving both margins and sales. Our Category Insights suite of tools helps you focus on what your customers want to optimize your category planning, improve your category performance, and maximize sales.

### **1. Category Factory**

Category Factory combines advanced analytics and robust scenario testing to help companies make informed decisions that better meet customer needs and grow sales. The solution consists of five modules that can be used flexibly to identify high-potential opportunities, optimize assortments,

improve customer perception, set negotiation strategies, and synthesize category priorities. Category Factory:

- Delivers granular insights on how customers shop the category and identifies opportunities based on the market, competition, cluster, and product
- Optimizes assortments by format and store cluster by creating a master planogram and developing a private-brand plan, including revised needs and innovation
- Integrates a robust assortment process into company operations
- Reviews suppliers' recommendations for new products and pinpoints the most likely to drive ROI using impact scenarios
- Builds automated vendor and category playbooks in seconds based on data-driven insights

### **2. Growth Mapping**

Growth Mapping uncovers high-potential opportunities for revenue growth using an analytical approach to segment and align behavior, benefits, and consumers. It provides a predictive, consumer-led foundation for creating portfolio brand strategies, helping

companies size and prioritize opportunities as well as design the road map for optimally allocating resources and minimizing risk. Growth Mapping:

- Integrates three essential elements of consumer behavior to understand market demand:
  - Product segmentation to identify how customers make choices and trade-offs when purchasing products
  - Need-states segmentation to understand the benefits that are most important to customers
  - Customer segmentation to define who to communicate with based on their attitudes toward the category
- Develops growth strategies, including framing and recommendations for portfolio positioning, innovation, M&A options. and assortment
- What makes Growth Mapping distinctive: Provides a quantitative, behavioral lens on market demand and actionable insights on how to capture growth potential, quantifying opportunity size based on proprietary modeling
- Allows companies to select which elements of the approach are most relevant to their needs

### **3. E-Category Management**

E-Category Management helps companies achieve a sustainable uplift in top-line growth by optimizing their digital assortment, pricing, and promotion strategies, strengthening their relationships with key pure-play or omnichannel retail partners, and gaining a deep understanding of online consumer behaviors to increase their trade-spend effectiveness. E-Category Management:

- Consolidates data from different sources, including online shoppers, customers, and online retail channels, into a robust analytics data cube to create transparency on all dimensions important to the business.
- Leverages data-visualization capabilities to provide insights across assortment, merchandising, price, promotion, and digital marketing for the digital marketplace.
- Uses advanced analytics to perform simulations and evaluate scenarios across, for example, long-tail assortment opportunities, product innovations, and category growth trends.





## Promotion Performance

***Create promotions that drive real impact while optimizing your trade spend.***

Creating and managing effective promotions across various brands, channels, and geographic regions while targeting the appropriate customer base can be a daunting challenge. Companies often grapple with the complexities of identifying the most promising opportunities, introducing new offers without adversely affecting sales, and allocating their promotional budget effectively.

To tackle these challenges, companies require a sophisticated approach to trade promotions that uncovers the true drivers of impact, designs compelling new offers, and accurately measures performance. It's crucial that this solution seamlessly integrates with existing systems and workflows to enable efficient promotion management across the entire organization, allowing for quick reallocation of trade spending based on promotion performance.

Our Promotion Performance solutions provide companies with the insights and tools necessary to craft compelling offers and effectively manage their promotional investments. VCIS empowers companies to design and

execute promotional activities that maximize profitability, sales, and long-term impact. This solution assists in determining the optimal allocation of promotional investments, ensuring the highest return on investment across brands, customer segments, channels, and geographic regions, while also offering transparency into promotional event performance.

Promotion Advisor plays a pivotal role in this process by performing the following tasks:

- Collects, cleans, and validates data to generate critical insights and expedite the creation of guidelines that are embraced throughout the organization.
- Analyzes the effectiveness of promotions to identify areas where investment is lacking or excessive, thus ensuring the judicious allocation of trade spending.
- Plans promotion calendars, forecasts their impact, compares various scenarios, and manages workflow approvals to pinpoint winning events and maximize ROI.

- Seamlessly integrates with existing transaction systems to ensure an efficient and flexible workflow.
- Streamlines the vendor negotiation process by enabling effective collaboration with suppliers while offering insights into securing the best deals.
- Harnesses the power of machine learning techniques to optimize the promotional plan and facilitate informed decision-making by striking the right trade-offs.

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