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Security Matters



Retail Security

*The Technology
Driving Innovation
in Retail Today*

+ SECURITY GUIDE

What is Electronic
Article Surveillance?

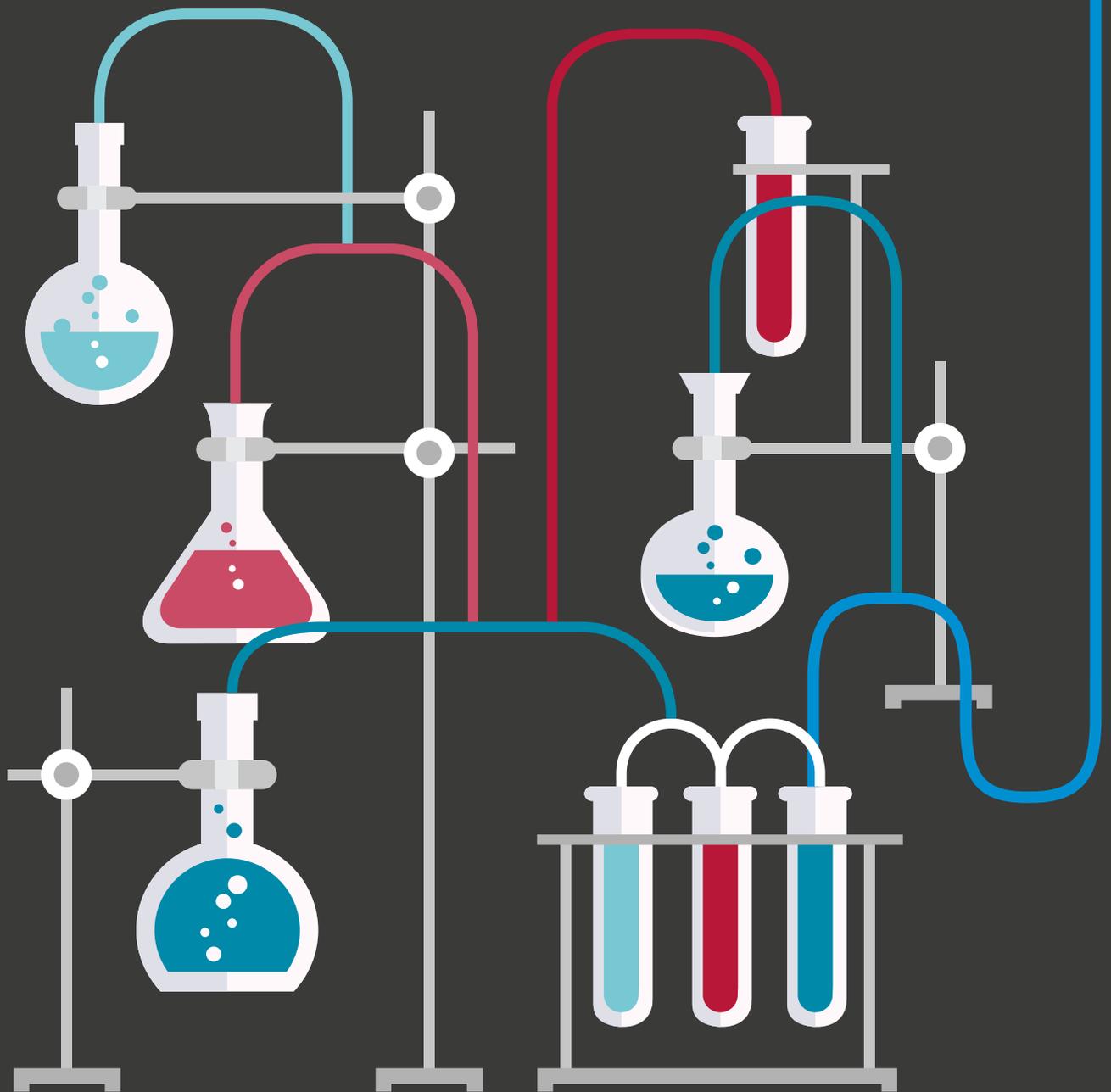
**+ CONNECTED
SECURITY**

How it creates real
value for retailers

+ LOSS PREVENTION

The items most
vulnerable to theft

CENTURIES OF SECURITY EXPERTISE...



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There is still room for retailers to grab the “leading innovator mantle”. According to PwC’s Total Retail Survey 2016, when people were asked if their favourite retailer was at the forefront of innovation, no category scored higher than 17%. In this issue of *Global Security Matters*, we investigate where retailers can take the initiative – from smart fitting rooms to connected retail security.



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Guide to Electronic Article Surveillance

What is EAS and how it should be used to prevent shoplifting? Our security guide gives you the answers.



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Connected Retail Security

Connected security systems not only improve and optimise store security but also provide valuable intelligence.

Security Guide

What is Electronic Article Surveillance?

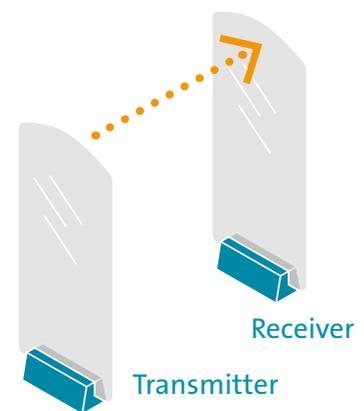
Electronic Article Surveillance (EAS) is a “tag-and-alarm” system for preventing shoplifting. The tag is attached to an item of clothing or merchandise. On purchase this tag is either removed or deactivated. If the tag has not been removed or deactivated when the item is taken out of the store, then special antennas placed in the store exit will sound an alarm.



EAS Antennas

Antennas work by sending a signal backwards and forwards across a store exit. One antenna operates as the transmitter and sends the signal out while another antenna on the other side of the exit operates as the receiver and listens for that signal.

If a tag or label passes through this signal, an alarm sounds. Only one transmitter is required for a single exit and at least one receiver. The exact number of receivers needed depends on the size of the opening to be covered and the range of the technology.



EAS Tags and Labels

Tags

Often referred to as “hard tags”, these are attached most commonly to garments and are removed by shop staff on purchase using special detachers. Hard tags are attached to a garment using a pin and will give you a larger detection range than soft labels.

Some hard tags also contain small cartridges of ink which will permanently stain a garment when tampered with. These tags increase the level of deterrence.

There are also bottle tags designed specifically to fit around the neck of a bottle of spirits.



Labels

To contrast with “hard tags”, these are also referred to as “soft labels” and come in various shapes and sizes. They are stuck onto packaged items and deactivated on purchase using a special pad.



HOW DO STORES CHOOSE THE RIGHT TECHNOLOGY?

Retailers use either RF or AM whilst EM is a niche solution used specifically by libraries. When choosing between RF and AM, the decision is made based on the products being protected.

EAS Technologies

There are three types of EAS systems:

Radio Frequency



Acousto-Magnetic



Electromagnetic



Here is a brief summary of the features of each technology

Technology	Application	Features
RF	Clothing, supermarket goods, some electronics	<ul style="list-style-type: none"> • Often cheapest system • RF labels flatter than AM
AM	Metal hardware, bottled liquids, some electronics	<ul style="list-style-type: none"> • AM signals not disrupted by liquids or metals • AM antennas have better range than RF • AM labels can be reactivated
EM	Mainly libraries, but also used in pharmacies and cosmetics stores	Niche technology used by libraries. Uses small, thin labels – perfect for the spine of a book – which can be deactivated when a book is loaned and reactivated when it is returned.

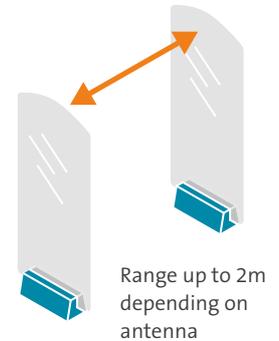


Note!

- Higher frequency makes signal easier to shield
- Signal disrupted by liquids and metals

Radio Frequency (RF)

RF technology is the most common type of EAS system and is widely used by fashion retailers. However, the high frequency signals it uses makes it unsuitable for protecting liquids and metal items which effectively weaken the signal and prevent the alarm from triggering. For these types of products, AM or EM technology is preferred.



Preferred by

- Fashion retailers
- DIY stores
- Supermarkets

Types of tag

RF hard tags and soft labels



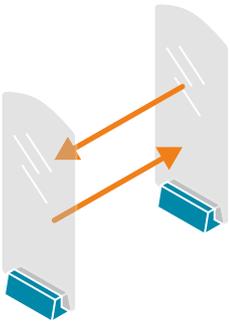
How does it work?

RF tags are adhesive labels which contain a tiny electronic circuit and antenna. When it senses a particular frequency – the one sent out by the transmitter antenna in the store exit – it responds and this response is picked up by the receiver antenna. When this happens, the alarm is triggered.

AM

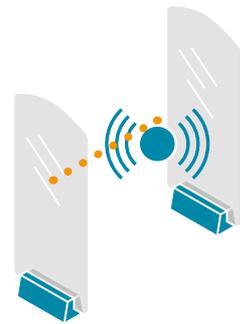
Acousto-Magnetic (AM)

AM antennas have a wider detection area than other types of system which makes them ideal for larger shop entrances. Since AM technology works on a lower frequency than RF, it is perfect for use with liquids and metallic objects as there is no disruption of the signal.



How does it work?

A transmitter antenna sends radio pulses which energise any AM tag in its detection area. This causes the tag to emit its own signal which the receiver antenna listens for. This is why the system is referred to as acousto-magnetic – “acousto” being derived from the Greek word for hearing. If the frequency known to be emitted by the tag is picked up by the receiver, then the alarm sounds.

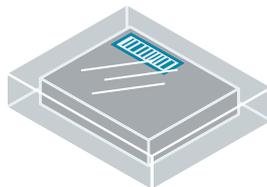


Preferred by

- Department stores
- Cosmetics retailers and perfumeries
- Electrical goods stores
- Hardware outlets

Types of tag

AM hard tags and soft labels





Electromagnetic (EM)

EM technology is a niche solution used almost exclusively by libraries. It has the advantage of using small, thin adhesive labels which can be deactivated and reactivated. The discreet security labels are read by a security scanner, allowing books to be checked out on deactivation and then later checked back in when the EM label is reactivated.

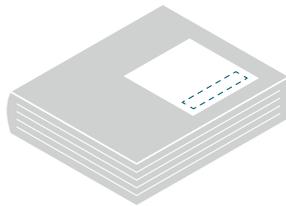


Preferred by

- Libraries (public, university and school)
- Book stores
- Pharmacies

Types of tag

EM strips



How does it work?

Rather than using removable tags, EM systems employ adhesive labels inside of which is a magnetic strip containing iron. This strip is detected when it passes between a pair of EM antennas. One antenna acts as the transmitter and the other as the receiver. To deactivate the label, a specific type of strong magnetic field is passed through the strip so that it no longer triggers the alarm.

Additional Benefits of EAS Systems

The primary goal of an EAS system is of course to prevent shoplifting but it can also be used to collect data on customer flow. Since everyone who enters and exits a store passes through the EAS antennas, this movement can be registered and collated.



Analysing footfall patterns can help with the optimisation of opening hours, the allocation of staff and measuring the success of promotional campaigns.





Technology Driving *Retail Innovation*

Retail is digitising faster than most sectors as managers are looking to technology to make their business more efficient and to create a more convenient shopping experience for their customers.

With e-commerce growing all the time, the high-street needs to find new ways to compete. There is a wealth of opportunities, but it is not always obvious where the real value can be created.

This article focuses on some of the areas where retailers can make gains and where some of the most exciting technologies are being pioneered – from smart fitting rooms and augmented reality to the Internet of Things and connected retail security.

THEME: RETAIL INNOVATION

Fitting Room Technology

One of the few trump cards that high-street fashion retailers hold over e-stores is that shoppers still want to try on clothes and see what they look like in them before making a purchase. However it is not uncommon for shoppers to mention bad fitting rooms as a reason for not returning to a store. As a result new fitting room technologies are becoming an area of growing interest.

Here are four examples of how fashion retailers will be using technology to make fitting rooms far more convenient for their customers.

1 *The Smart Fitting Room*

By tagging garments with RFID labels, a smart fitting room will recognise which items have been carried in by the customer and display related information on a screen inside the booth.

The customer can then use this screen to request the item in another size or colour and have it brought to them by a sales assistant.

2 *Robotised Fitting Rooms*

Using their smartphone, customers select the garments they want to try on and the items are delivered to them in a matter of seconds via a chute in the fitting room itself. If the customer doesn't want the item, they simply discard it via a second chute.

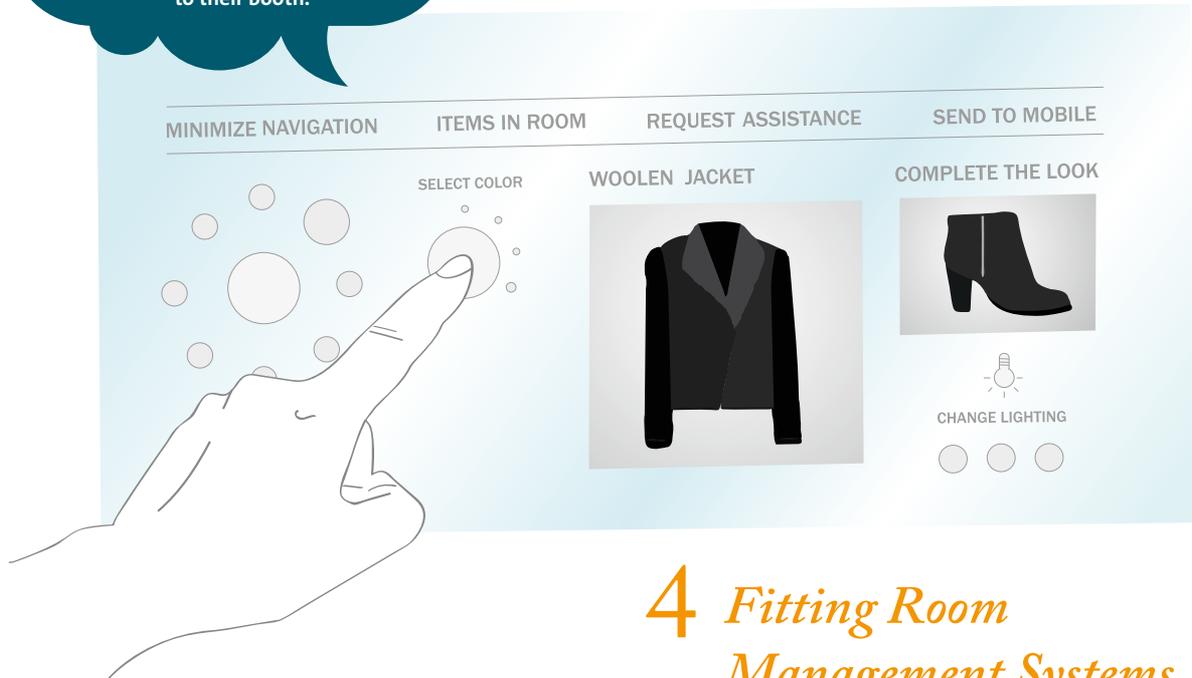
Once in the fitting room, the customer can continue to request different colours or sizes using an app or via a mounted touch screen. The result: less time spent undressing and redressing and more time browsing.

US retailer, Macy's, is experimenting with these types of enhancements, starting with fitting rooms in the swimsuit department of its Manhattan Beach store in California¹.



THEME: RETAIL INNOVATION

Smart interactive mirrors in fitting rooms allow shoppers to browse product catalogues and request new items to be brought to their booth.



3 *The Virtual Fitting Room*

Virtual fitting rooms do away with having to try on physical garments all together. Instead the customer stands in front of a screen and is shown an image of how they would look with the clothes on.

This employs the sort of technology developed by the games console industry which uses cameras to capture a person's movements in real time.

This sort of system has been trialled in Japan as part of a complete virtual vendor unit².

If a customer is happy with the clothes they have seen, they receive a QR code which accesses the brand's online store so the product can be purchased. On a basic level, a fitting room management system detects when a booth is occupied.

4 *Fitting Room Management Systems*

This provides useful data for the retailer, such as the length of time spent trying on clothes per shopper and the link to sales conversion.

Real-time occupancy data also helps with staffing and knowing how many assistants should be on hand around the fitting room area.

Also being able to show shoppers which fitting rooms are empty enhances the general customer experience.

Security benefits

Occupancy data can equally be used to help with loss prevention. Monitoring unusual customer activity, such as long dwell times, alerts staff to potential shoplifters. Knowing when that booth has been vacated, means someone can promptly check for removed tags and increases the chance of identifying the shoplifter while they are still in the store.

SOURCES

¹ bloomberg.com - Macy's Tests Chutes, Tablets in Dressing Rooms to Repel Amazon

² The Tokyo Times – Have You Used a Virtual Dressing Room?

THEME: RETAIL INNOVATION

Virtual and Augmented Reality

Virtual reality (VR) and augmented reality (AR) have the potential to transform shopping by creating an elevated, differentiated and personalised customer experience.

What is Virtual Reality?

Virtual reality (VR) is a computer-generated environment created using software designed to replace the real world around you.

The concept of VR is certainly nothing new and early examples of the technology include flight simulators used to train air force pilots.

However it is only recently that VR has made the transition to the consumer landscape via VR headsets.

Just as earphones take over one's sense of sound, VR headsets take over one's sense of vision. These include products like Google Cardboard, which contains a pair of lenses and a space for a smartphone to act as the screen, and Oculus Rift, which already has everything from a gyroscope to a screen built in.

Virtual Reality in Retail

Retailers are testing the scope for VR and a number of brands have already experimented with the technology.

Travel operator, Thomas Cook, has used VR headsets to give consumers a closer look at holiday destinations which included a helicopter tour of Manhattan¹.

UK fashion retailer, Topshop, made VR headsets available in store where customers could enter the virtual world of a catwalk show².

Fast-food chain, McDonalds, created Happy Meal boxes in Sweden which could be folded into a VR headset³.



THEME: RETAIL INNOVATION

What is Augmented Reality?

Augmented reality (AR) is technology which superimposes a computer-generated image on top of the real-time camera view of a smartphone or tablet.

AR has many applications, from architectural planning to medical training, but has probably become best known through its use in the record-breaking Pokémon Go game.

Augmented Reality in Retail

Due to the lower take-up barrier, AR has been and is becoming more appealing to retailers. Whilst most people are still unaccustomed to wearing a VR headset, any smartphone can be used as a platform for AR.

How AR Can Be Applied within Retail

Make-up

An AR mirror shows customers how they would look wearing different types of make-up such as lipstick or eye shadow⁴.

Wearable Technology

AR glasses enhance the shopping experience by displaying product information, pricing comparisons, recommendations, offers and interaction with social networks⁵.

Advertising

Digital billboards can be made to come to life, superimposing engaging visuals onto a real-time image of the real world⁶.

Catalogues

Customers can unlock extra interactive features using an AR app⁷.

Home Design

Furniture or interior design can be superimposed onto a real-time view of a room so consumers can test and see how it would look in their home.

SOURCES

- ¹ ITPro.co.uk - Thomas Cook to offer virtual reality holidays in store
- ² Retail-innovation.com - Top Shop use Virtual Reality headsets for catwalk
- ³ Mashable.com – Hands on with McDonald's Happy Meal VR headset
- ⁴ Modiface.com – Sephora + Modiface launch the world's first 3D augmented reality mirror in Milan
- ⁵ YouTube – Google Glass and the Retail Revolution
- ⁶ YouTube – Unbelievable Bus Shelter | Pepsi Max
- ⁷ YouTube – Place IKEA furniture in your home with augmented reality

THEME: RETAIL INNOVATION

Connected Retail Security

Connectivity and machine-to-machine communication are having an impact on the way retailers are managing store security. Security levels can be improved through automated security protocols, end-to-end cash management and proactive fraud notification, for instance. Security systems also collect valuable data which is an often untapped source of business intelligence which can be utilised for efficiency gains and to make improvements to the customer experience.

Here are some examples of how connected security systems can create value for retailers.

Instant Alarm Intervention

When an item with an active tag passes through an electronic article surveillance (EAS) system, it triggers an alarm. By connecting EAS with CCTV, a picture of the area where the alarm was triggered is sent straight to the phone of a security guard. This allows the guard to identify the person who set off the alarm and increases the likelihood of catching a criminal, if a crime has been committed.



Proactive Fraud Notification

By connecting analytics, CCTV and other security systems such as cash management, employee fraud can be detected quicker and more often by alerting management to unusual behaviour, such as a POS transaction being made outside of store hours.

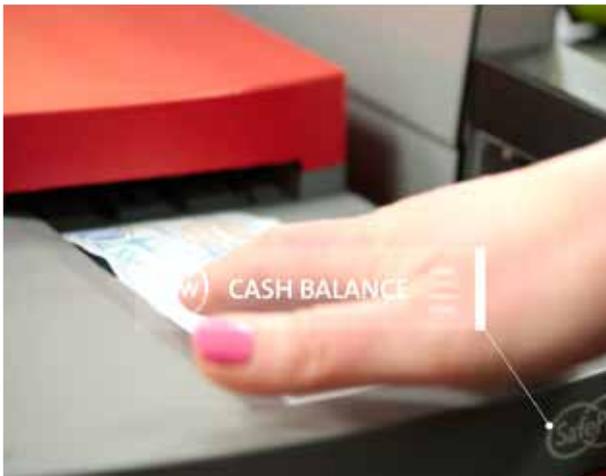


THEME: RETAIL INNOVATION

Secure Cash Management

Cash payment stations are connected to software which monitors cash levels and dictates refilling and emptying procedures. Only when the cash management system signals the need for a refill, can the door to the cash room be opened. Then only a pre-defined user can enter the room and the safe itself cannot be opened until the cash room door has closed behind the person who entered.

Once inside a one-time code sent to the user's phone will open the safe. This enables controlled access to back-office safes with a tracked history of who deposited what and when.



Business Analytics

Security systems collect potentially usable data which often goes ignored. The speed gates at a supermarket entrance, for example, can provide a running total of how many people are in the store at any one time. Electronic article surveillance systems can provide the same information for high-street retailers.

How the volume of shoppers changes depending on the time of day, the day of the week and the time of year can be used to improve staff allocation and resource management.

These footfall figures can also be used to assess the success of a campaign or the impact of a window display.



Loss Prevention

A DEFINITION OF RETAIL LOSSES

A retail loss is any occurrence which results in a reduction in profit. Therefore **loss prevention** – or the reduction of preventable losses – in retail is any action taken to preserve profit. A preventable loss is any business cost caused by deliberate or inadvertent human actions and is referred to as **shrinkage**. **Loss prevention tools** include electronic article surveillance, CCTV, closed cash management systems and speed gates.

Thefts committed
by staff

39%

Shoplifting

38%

Global shrinkage and types of losses

Global shrinkage is estimated to be 123.4 billion USD.

Administrative and
operational errors

16%

Supplier fraud*

7%

*Supplier fraud is when suppliers steal store or competitor's merchandise while they stock their company's products.

Seasonal shrinkage

Most shrinkage occurs during the winter months (46% globally)

High footfall
in stores

More products
available within
easy reach

Larger winter clothing
makes it easier to
conceal stolen items

Items most vulnerable to theft

RANK	Apparel and Fashion Accessories	DIY/Home Improvement	Electronics	Food and Beverages	Health and Beauty
1 ST	Footwear	Batteries	Mobile Device Accessories	Wines and Spirits	Razor Blades

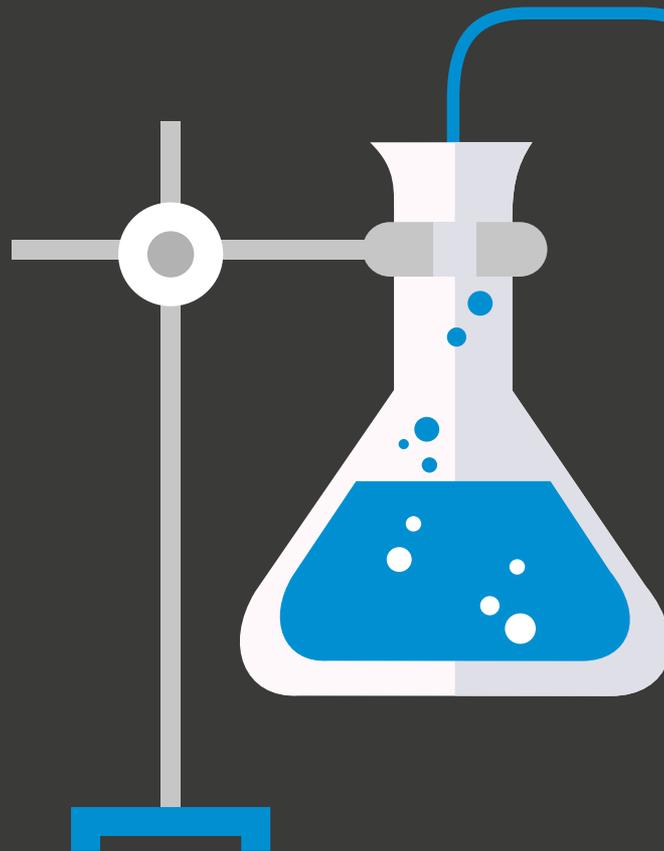
Several small and easy to conceal items rank among the most stolen by category

SOURCE

Statistics taken from "The Global Retail Theft Barometer 2014-2015". Author ©: The Smart Cube ©: Checkpoint Systems (2015); All rights reserved.



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TRANSLATION

Comactiva, www.comactiva.se

PRODUCTION OF LANGUAGE VERSIONS

Newsroom, www.newsroom.se

PRINTING

Larsson Offsettryck, www.larssonoffsettryck.se
Images from Istock and Pexels.