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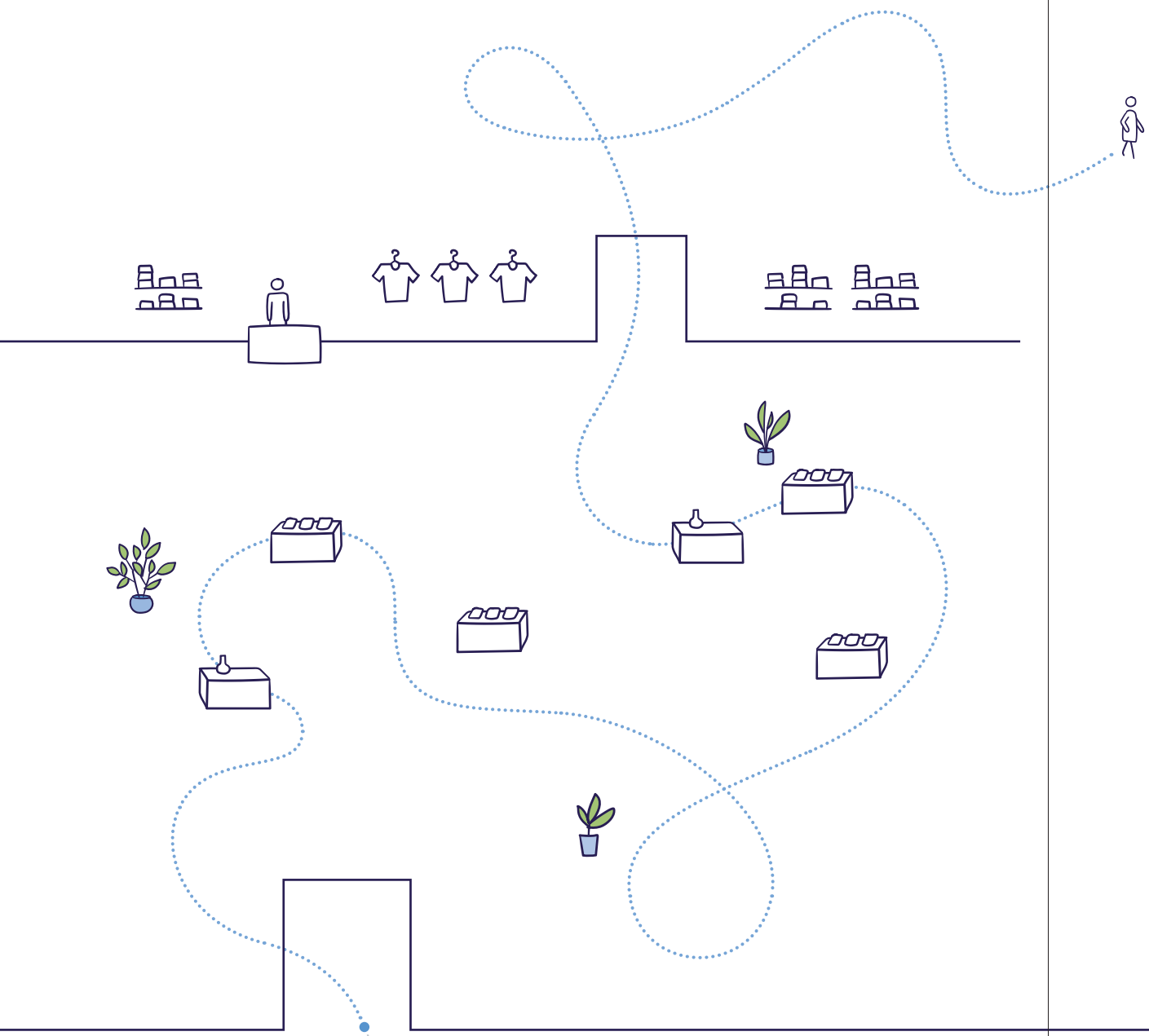
WHITEPAPER

Tracking
in stationary retail



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TRACKING IN STATIONARY RETAIL

Tracking technologies, long established in e-commerce, are now making their way into brick-and-mortar retail. This shift enables retailers to gather valuable data for strategic decisions and allowing for real-time operational control.

ON THE TRAIL OF CUSTOMERS

Tracking – meaning the digital observation of customer behaviour – has long been a standard practice in e-commerce. Online retailers can track every step of the customer journey, from the products they search for to the items they place in their shopping carts. However, the situation in brick-and-mortar retail is quite different. Here, customers browse and shop without generating data that could enhance their experience.

Premium retailers, who aim to provide top-tier customer service in their brick-and-mortar locations even in today's predominantly digital age, rely heavily on data.

The goal is for retailers to gain a comprehensive understanding of the entire **CUSTOMER JOURNEY** – every interaction and experience customers have in the store, from the moment they enter, through the purchasing process, and even post-purchase.

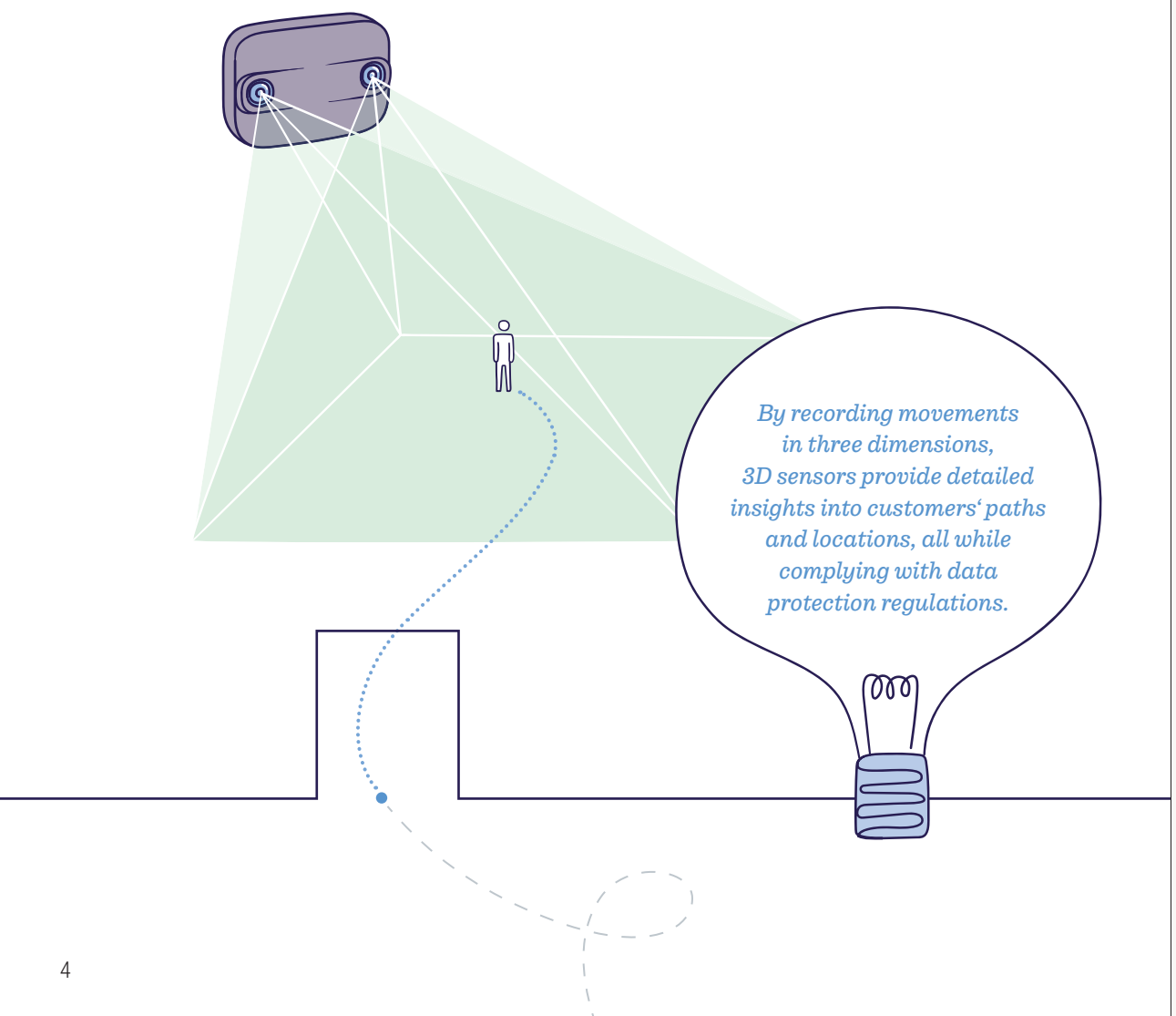
Anonymous tracking of customers in stores plays a key role in achieving this. Using GDPR-compliant 3D sensors, retailers can capture customers' movements throughout the store. The data collected forms the foundation for detailed analysis, allowing businesses to optimize product placement or implement in-store check-ins, which in turn enable personalized services – just two of the many possibilities how tracking can be utilized.

In this white paper, you'll discover the most effective tracking technologies in retail, and how they can help you better understand customer behaviour, refine product assortments and displays, and ultimately boost sales.

HOW RETAILERS CAN BETTER SUPPORT THEIR CUSTOMERS

In retail tracking, customer behaviour in stores is monitored and analysed through advanced technical processes. A prime example of this concept in action are the Douglas stores.

The core of tracking technology consists of strategically placed 3D-sensors (stereo cameras). In a Douglas store, for example, between 20 and 30 of these sensors are distributed throughout a 400-square-meter sales area. These sensors capture each customer 's pathways in real time with exceptional accuracy, both temporally and spatially.



Other tracking technologies

LIDAR-TRACKING utilizes precise 3D laser point clouds to map out spaces with exceptional accuracy. While it offers data granularity comparable to that of stereo cameras, its high cost makes it less practical for smaller areas, such as retail stores.

BLUETOOTH-TRACKING uses Bluetooth signals from smartphones or dedicated beacons to determine customer locations. However, this method tracks only a limited number of customers, as it requires them to have downloaded the retailer's specific app and provided consent through it.

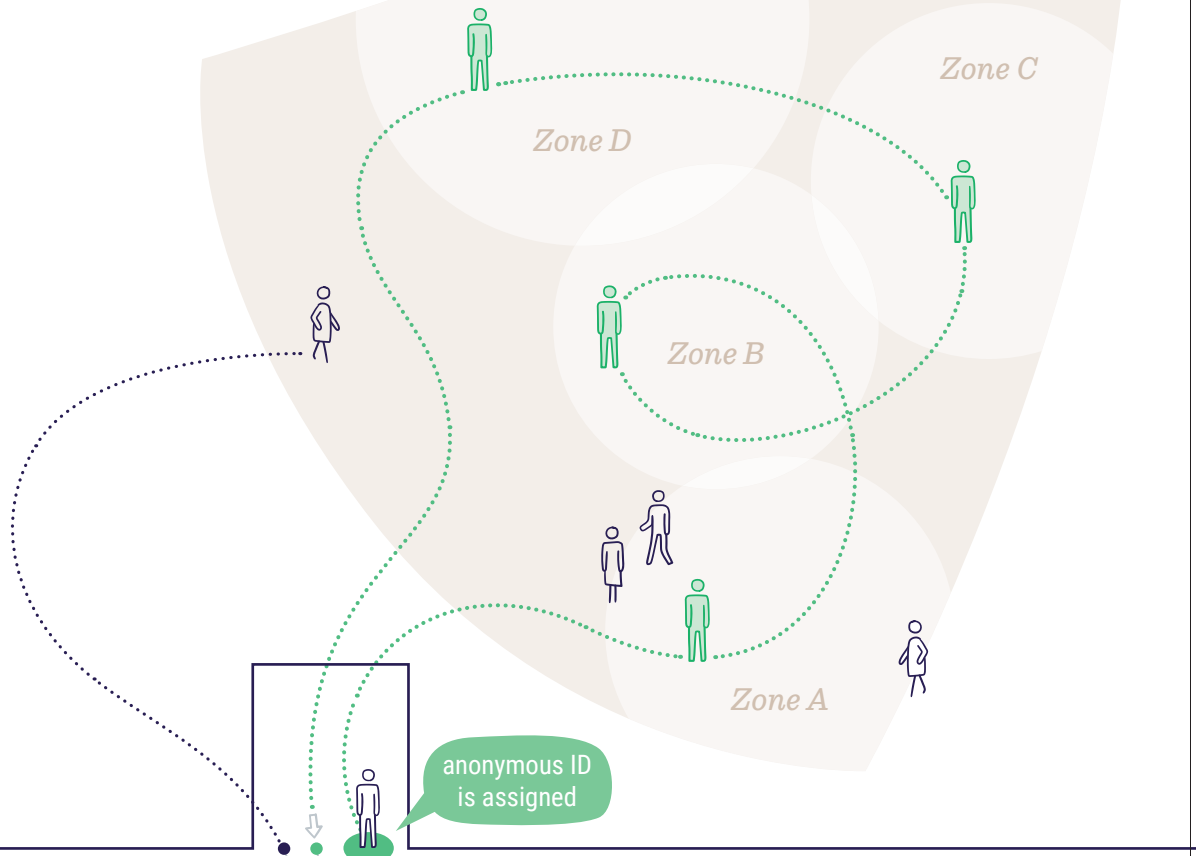
CCTV-TRACKING-SYSTEMS capture visual data on customer movements within the store, utilizing facial and behavioural recognition technologies. However, these systems often struggle to create a comprehensive view of the customer journey due to limitations in tracking continuity and context.

WIFI-TRACKING utilizes signals from smartphones searching for available networks to determine customer locations within a store. This method does not require devices to be actively connected to a network. However, it operates in a grey area of data protection regulations and provides only rough estimates of customer movement.

RFID-TRACKING (Radio Frequency Identification) employs radio waves to collect data from RFID tags attached to products or shopping bags. These tags are detected by RFID readers, enabling the tracking of goods' locations and movements within the store. However, linking the movement of goods to individual customers can sometimes result in inaccuracies or misinterpretations.

PRESSURE SENSORS are embedded in the floor, and detect footsteps and movement, but their installation is complex and requires significant effort.

The collected data is transmitted in real time to sensalytics for processing and analysis. Everyone entering the store is assigned a **UNIQUE, ANONYMOUS ID** that tracks their movements from entrance to exit. This ID remains constant during their visit but is not linked to multiple visits, ensuring no personal characteristics are recorded. The sales area is divided into distinct **LOGICAL ZONES** and **LINES**, allowing for detailed tracking of customer movements and pattern recognition. For instance, the data can reveal how many customers initially spent time in Zone A before proceeding to Zone B.



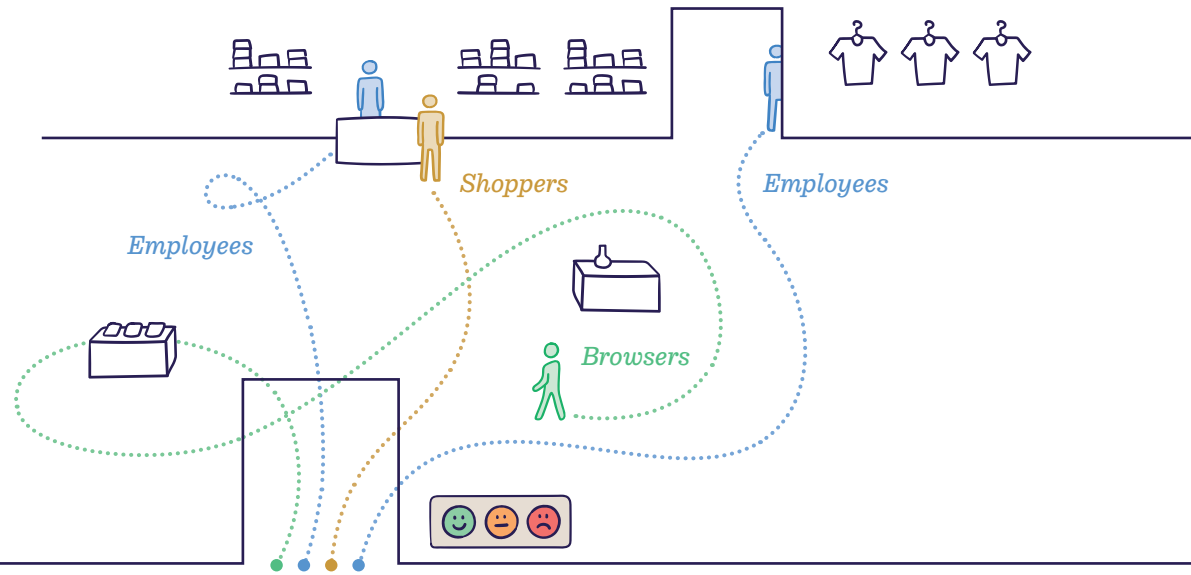
CLASSIFICATION OF USERS

The zoning system facilitates a detailed analysis of customer behaviour. Using sensalytics' **OBJECT RULE ENGINE (ORE)**, customers are classified based on their movement patterns, such as employees, shoppers, and browsers. For instance, employees are identified by their presence **BEHIND THE CHECKOUT COUNTER**, while shoppers tend to stand in front of the checkout, and browsers typically avoid these areas. These classifications are flexible and can be adjusted to meet specific analytical needs.

Key to this analysis are the concepts of **DWELL TIME** and **VIEWING TIME**. Dwell time measures how long a person remains in a particular zone, while viewing time tracks which products are observed and for how long. This distinction is crucial for understanding interactions with closely placed products. This detailed tracking allows retailers to identify high-traffic items and understand which customer segments are interested in specific products.

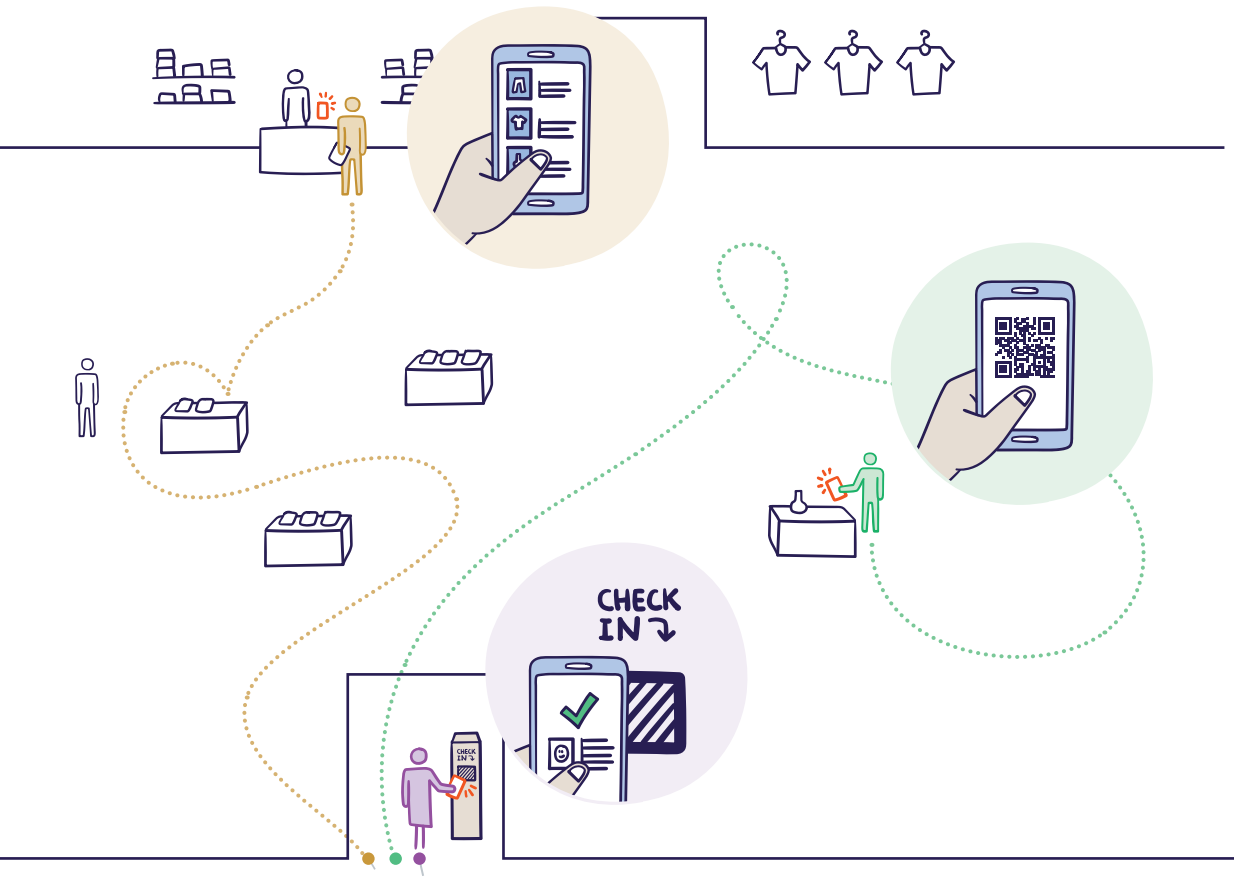
Additionally, gender recognition is employed, using artificial intelligence to estimate the statistically probable biological gender (male/female) of visitors. This GDPR-compliant pattern recognition supports both **ORE** and reporting functions, enabling deeper analyses.

Furthermore, **MOOD BOXES** placed at the store exit can gather customer satisfaction feedback. This feedback is then correlated with the customers' paths, allowing for an analysis of satisfaction levels among shoppers versus non-shoppers, their time spent in the store, and the number of products they viewed.



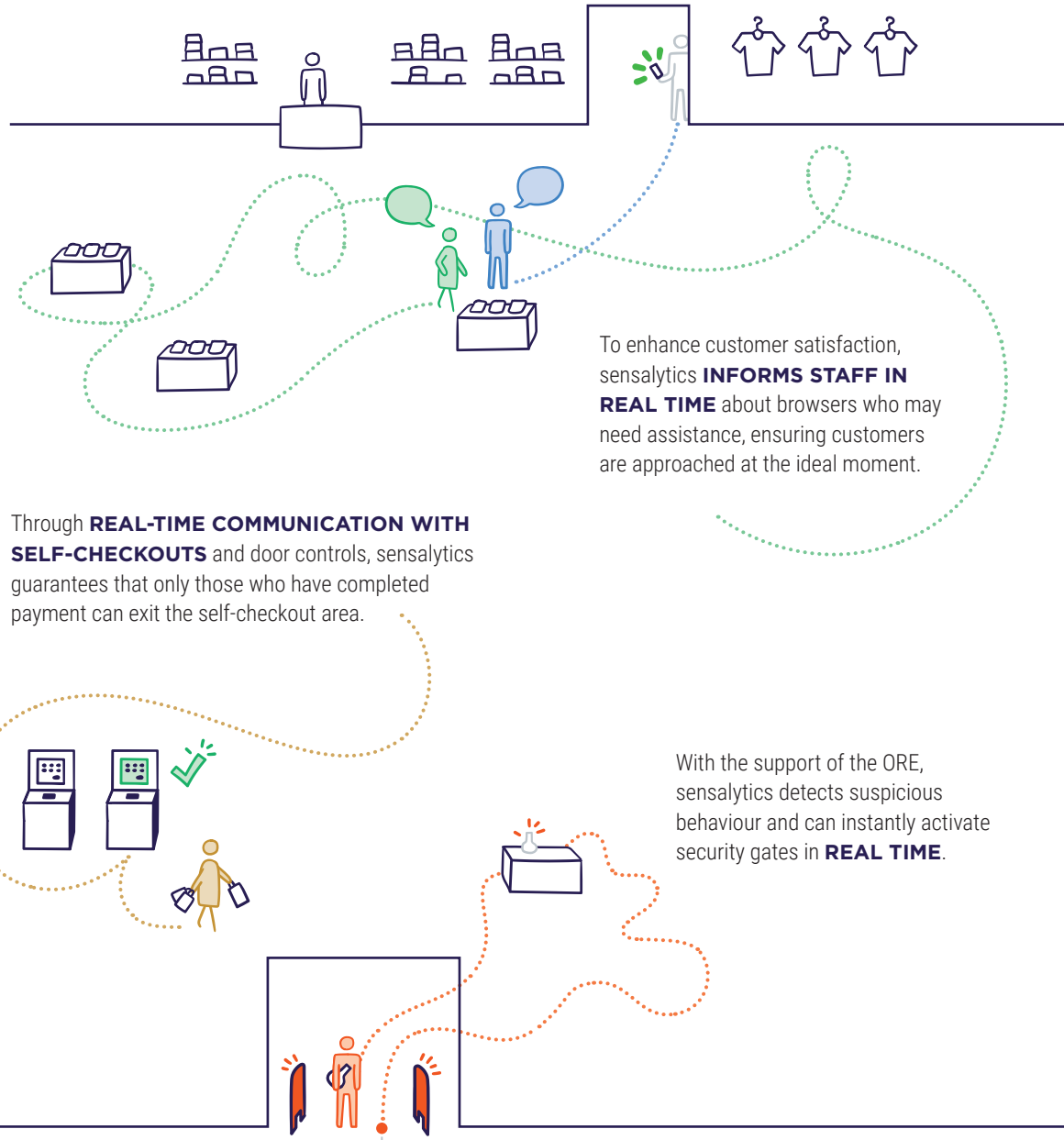
INTEGRATION OF TOUCHPOINTS

Tracking also enables the integration of additional data with an anonymous ID. For instance, **QR CODE SCANS** on product shelves can connect online and offline retail experiences.
When a customer scans a QR code, the system recognizes this action in real time and associates it with the anonymous tracking ID. This data is then incorporated into reporting. By tracking interactions at the checkout area, **SALES DATA** is attributed to individual customers pathways.
This allows for detailed analysis of the purchase process, revealing which products were viewed but not purchased. Such insights are valuable for optimizing product assortments and placements.



SEMI-AUTOMATED STORES AND CHECKOUT MONITORING

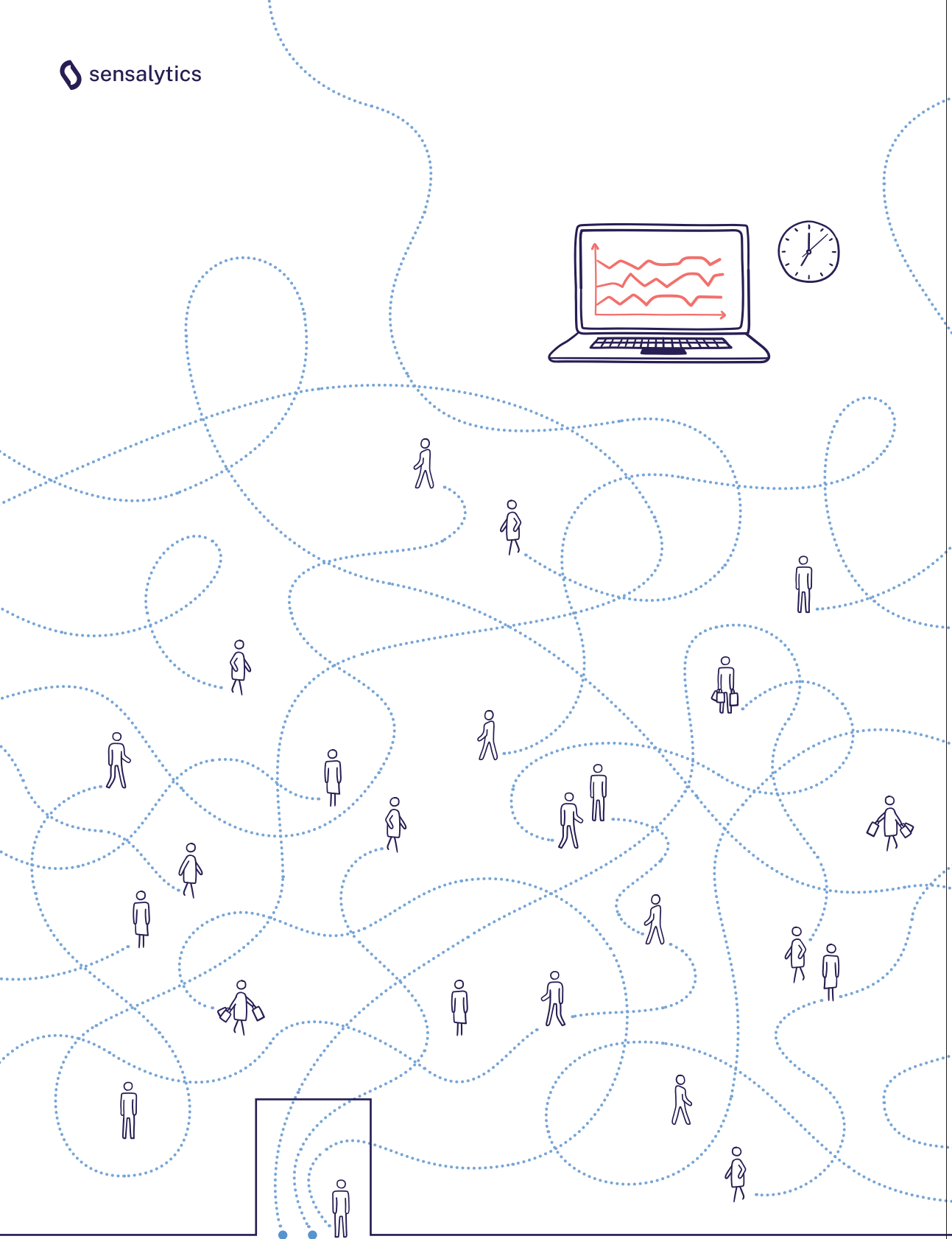
The anonymous ID serves as a crucial link in a (semi-)automated store environment.



To enhance customer satisfaction, sensalytics **INFORMS STAFF IN REAL TIME** about browsers who may need assistance, ensuring customers are approached at the ideal moment.

Through **REAL-TIME COMMUNICATION WITH SELF-CHECKOUTS** and door controls, sensalytics guarantees that only those who have completed payment can exit the self-checkout area.

With the support of the ORE, sensalytics detects suspicious behaviour and can instantly activate security gates in **REAL TIME**.



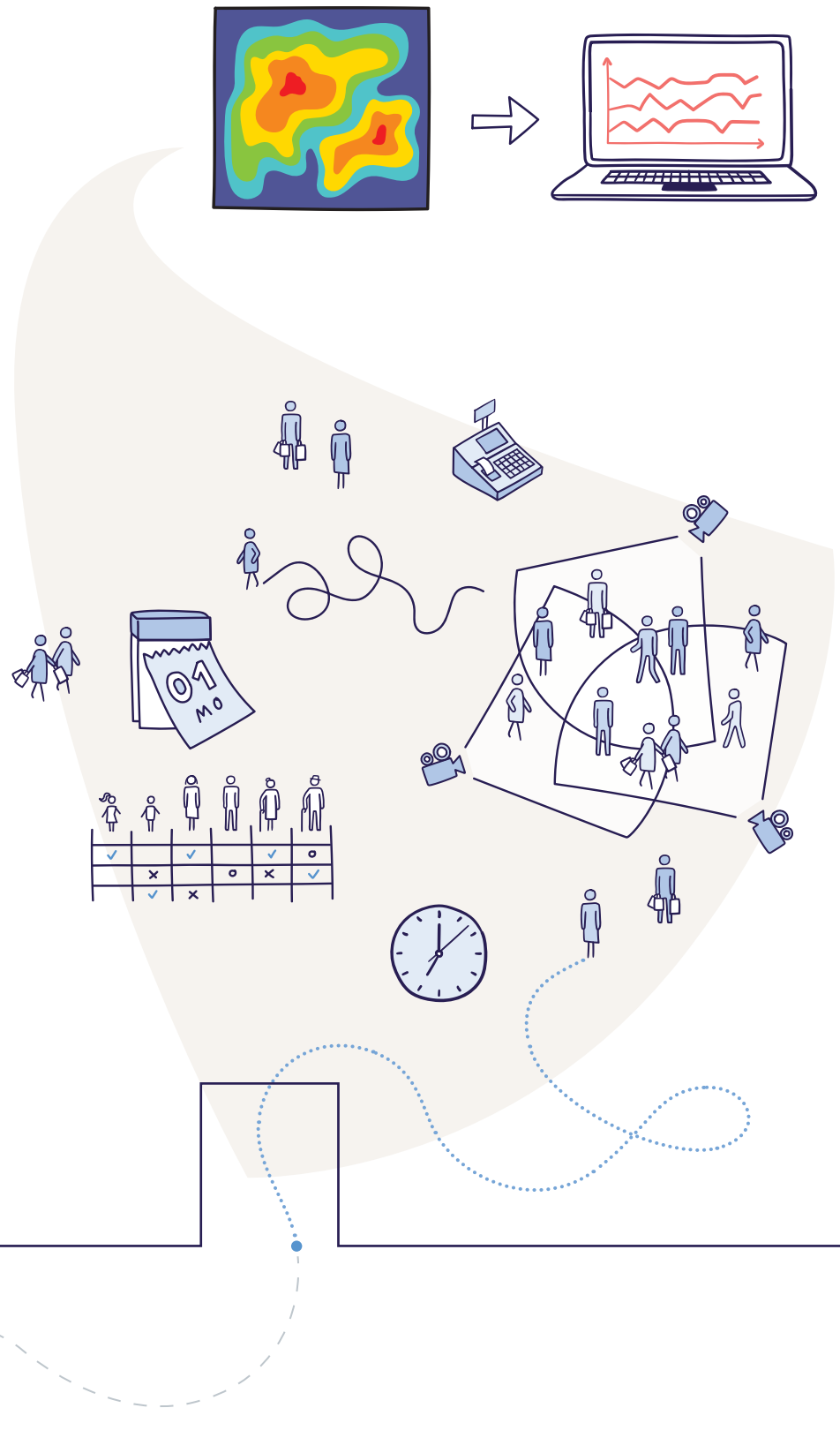
Practical applications of tracking technologies

THE LINK BETWEEN ONLINE AND OFFLINE

To fully capitalize on its potential, brick-and-mortar retail should more closely integrate with e-commerce. While many companies have made strides in this direction, others are still progressing. A crucial step in this integration is linking collected data through **ANONYMOUS IDS** that track both online and offline interactions.

QR codes are placed on product shelves or promotional materials to facilitate this connection. When customers scan these codes with their smartphones, the system instantly links their **ONLINE AND OFFLINE MOVEMENT DATA**. Additionally, customers can log into their accounts via the retailer's app while in-store, which streamlines the integration of different channels and enables retailers to offer personalized promotions. Customers also benefit from enhanced services, such as the ability to pick up items ordered online.

Connecting online and offline experiences provides retailers with valuable opportunities to deepen their understanding of customer behaviour, personalize shopping experiences, and refine marketing strategies. By accurately capturing and analysing movement and interaction data, retailers can gain a comprehensive view of customer behaviour, benefiting both in-store and online operations.



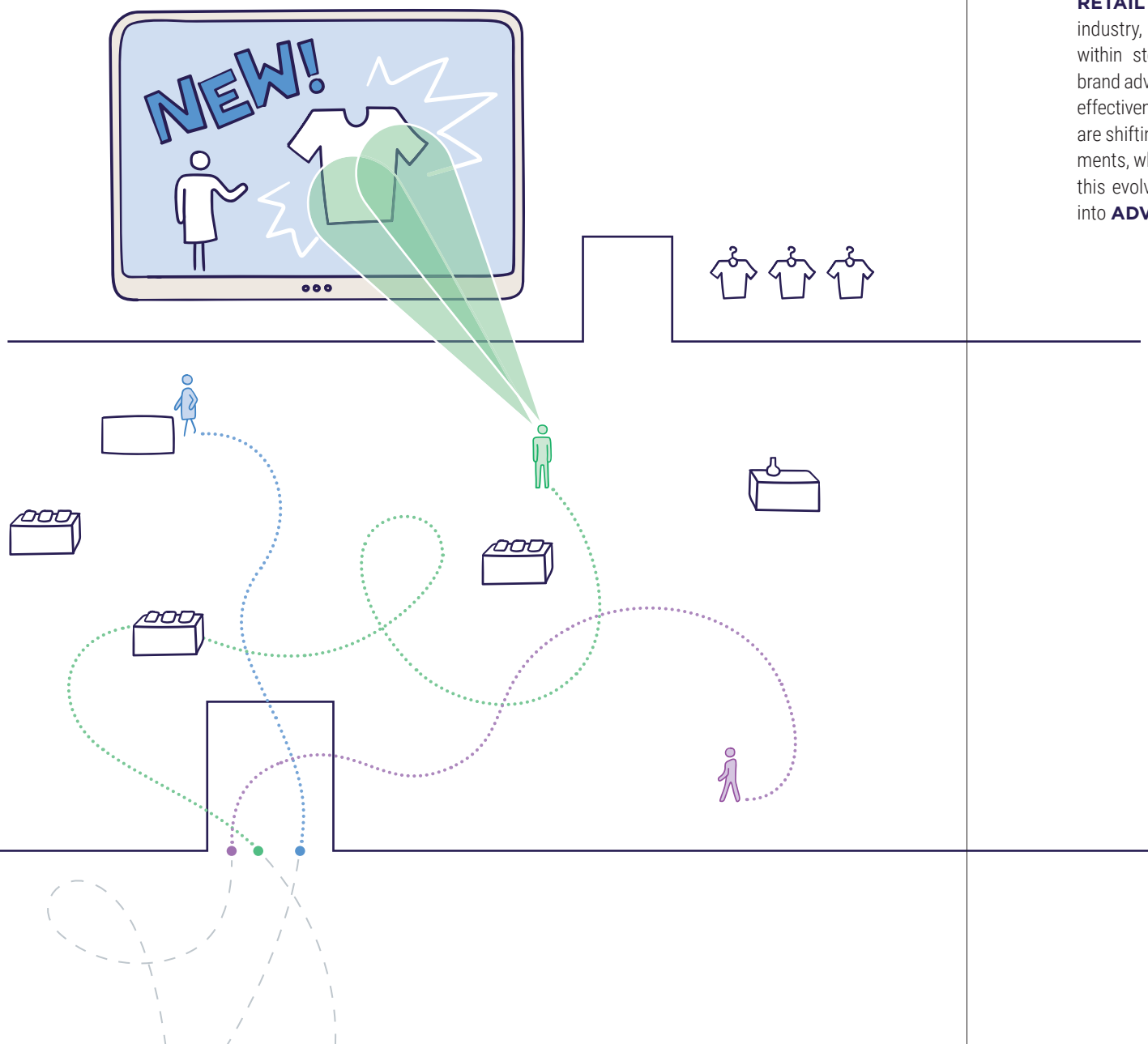
Practical applications of tracking technologies

HEAT MAPS: WHERE DO CUSTOMERS GO?

A heat map is a visual analysis tool that uses colour shading to represent data on a map. In retail, heat maps are employed to visualize and analyse customer movement within a store, revealing which areas are most frequented and where customers spend the most time.

Heat maps highlight product attention and movement patterns, enabling retailers to strategically place products for maximum visibility and sales. Items located in less-trafficked areas can be repositioned to high-traffic zones to enhance their prominence. Additionally, analysing dwell time across different areas can help identify customer pain points or areas where additional information may be needed.

Sensalytics' **DYNAMIC MOTION HEAT MAPS** offer advanced features for in-depth analysis. These maps can be dynamically filtered and tracked over various time periods, allowing retailers to observe **INDIVIDUAL CUSTOMER BEHAVIOUR** during peak times, rather than relying on general data. This transforms a standard heat map into a detailed analytical tool. This way, retailers gain control and valuable insights into customer behaviour.

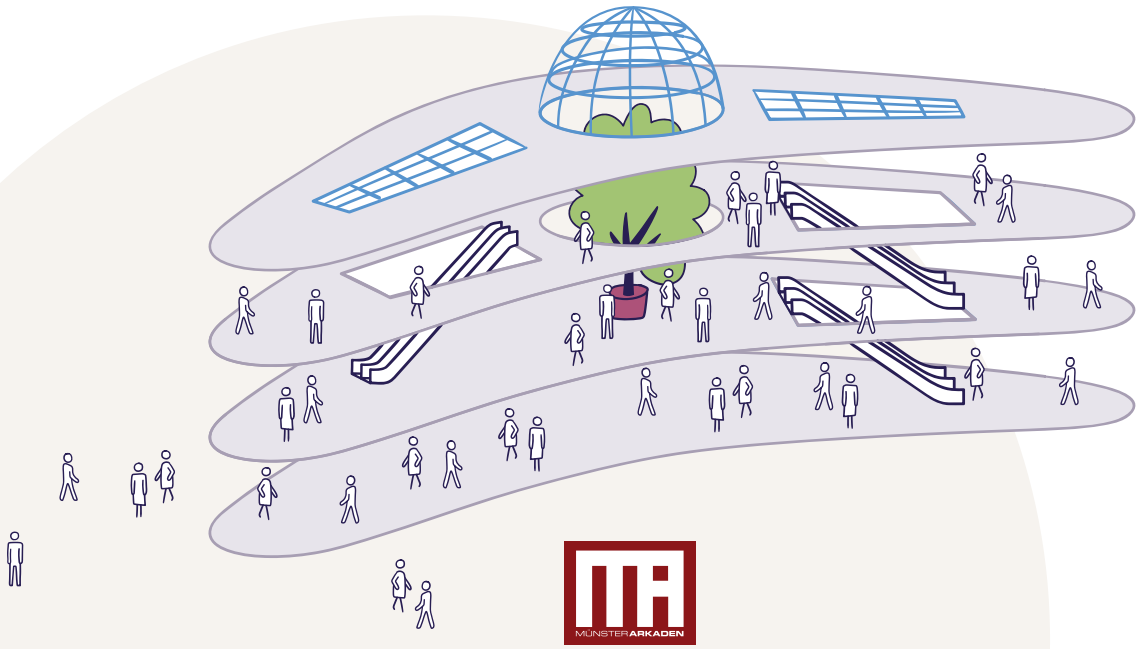


Practical applications of tracking technologies

RETAIL MEDIA TRACKING: WHAT DO CUSTOMERS LOOK AT?

RETAIL MEDIA is a growing trend in the retail industry, utilizing screens and advertising space within store windows and interiors to showcase brand advertisements. As traditional TV advertising's effectiveness decreases, more advertising budgets are shifting towards social media and retail environments, where consumers spend substantial time. In this evolving landscape, retailers are transforming into **ADVERTISERS**.

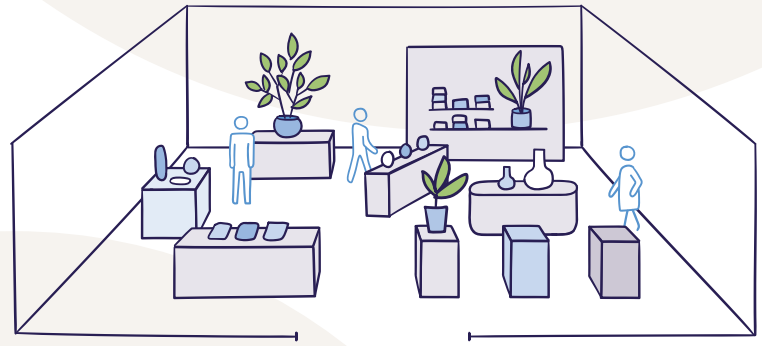
Sensalytics supports the establishment and cost-effective assessment of this revenue stream through precise data acquisition. By providing real-time tracking of **SCREEN TIME** retailers area enabled to bill advertisers on a per-impression basis, rather than a flat rate, and to charge by the second for advertising time. Unlike other tracking solutions, sensalytics not only monitors where a person has been but also precisely tracks their viewing behaviour – both the location and duration of their attention. Additionally, sensalytics allows for detailed visitor classification based on viewing time, distinguishing between shoppers and companions. While accompanying persons may merely stand near the checkout, shoppers are actively engaged and interact with the checkout staff, providing more valuable impressions for advertisers.



The Münster Arkaden, a city center located on the historic Prinzipalmarkt, exemplifies how data analytics can be used for optimization. By leveraging 3D sensor technology from Sensalytics, the center's operators analyze the correlations between various stores, classify visitors, and calculate precise turn-in rates. This technology allows for a detailed assessment of tenant performance.
The collected data enables operators to enhance the shopping experience for visitors. By accurately analyzing visitor flows and dwell times, they can make strategic decisions to boost the center's appeal and optimize space utilization. This, in turn, helps in creating a well-balanced tenant mix that maximizes the center's overall efficiency.

OBI

OBI conducted an extensive tracking project with Sensalytics to gain valuable insights for the future development of its stores. A 12,000 m² store in Cologne, designated as the Customer Experience Center, was equipped with 400 3D sensors. The project aimed to analyze customer behaviour in detail to make informed decisions about various store concepts.
Running over two years, the project allowed OBI to evaluate and compare different store formats. The data collected provided insights into the impact on shopping basket size and overall store traffic. This comprehensive analysis enabled OBI to optimize its store concepts effectively, enhancing both customer experience and operational efficiency.



DOUGLAS

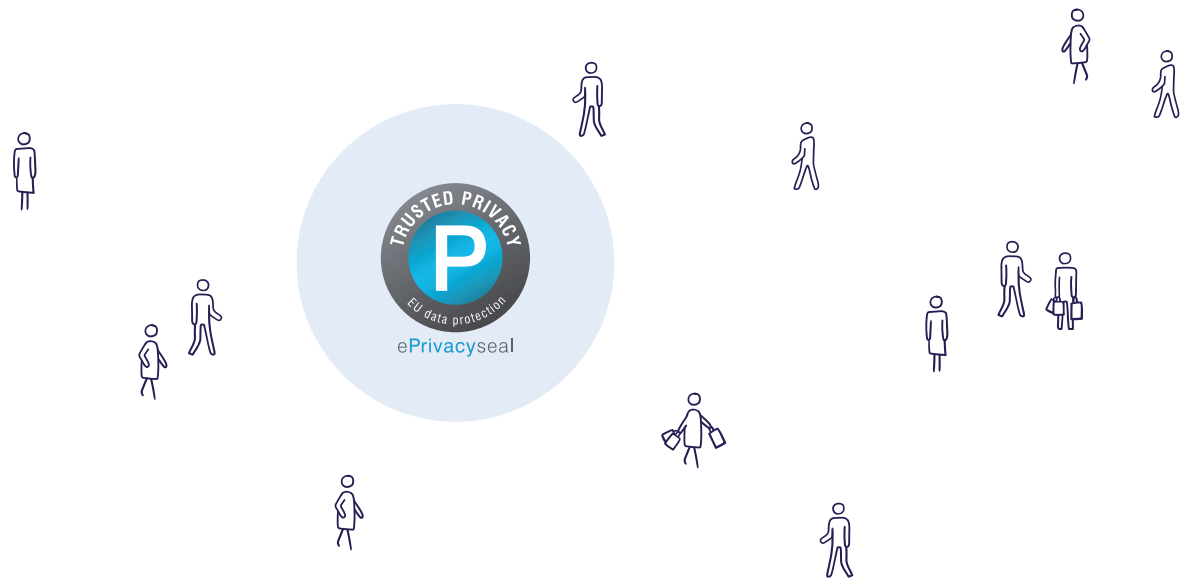
DOUGLAS, the leading omnichannel provider of premium beauty products in Europe employs sensalytics technology in several of its stores Advanced 3D sensors are installed to accurately track customer movements within the stores. By analysing this data, Douglas can assess how changes in store layout and product placement impact customer behaviour and sales.
Using sensalytics' Object Rule Engine (ORE), customer data is anonymized and categorized into groups based on behavioural patterns. This segmentation enables Douglas to craft targeted strategies.

DATA PROTECTION AND TRACKING: COMPLEMENTARY, NOT CONTRADICTORY

Data protection and tracking do not have to be opposites. In fact, modern tracking systems can operate in full compliance with data protection regulations while still offering valuable insights for retailers. For instance, the advanced 3D sensors from sensalytics **DO NOT CAPTURE PERSONAL DATA** such as faces or other identifiable features; they only record anonymous movement patterns. Strict adherence to data protection guidelines ensures that customer **PRIVACY** is always safeguarded.

Sensalytics places a strong emphasis on the anonymization of collected data. Individuals are not identified; instead, their movements are analysed anonymously. This approach allows retailers to study customer flows without compromising personal information, ensuring full compliance with all data protection regulations.

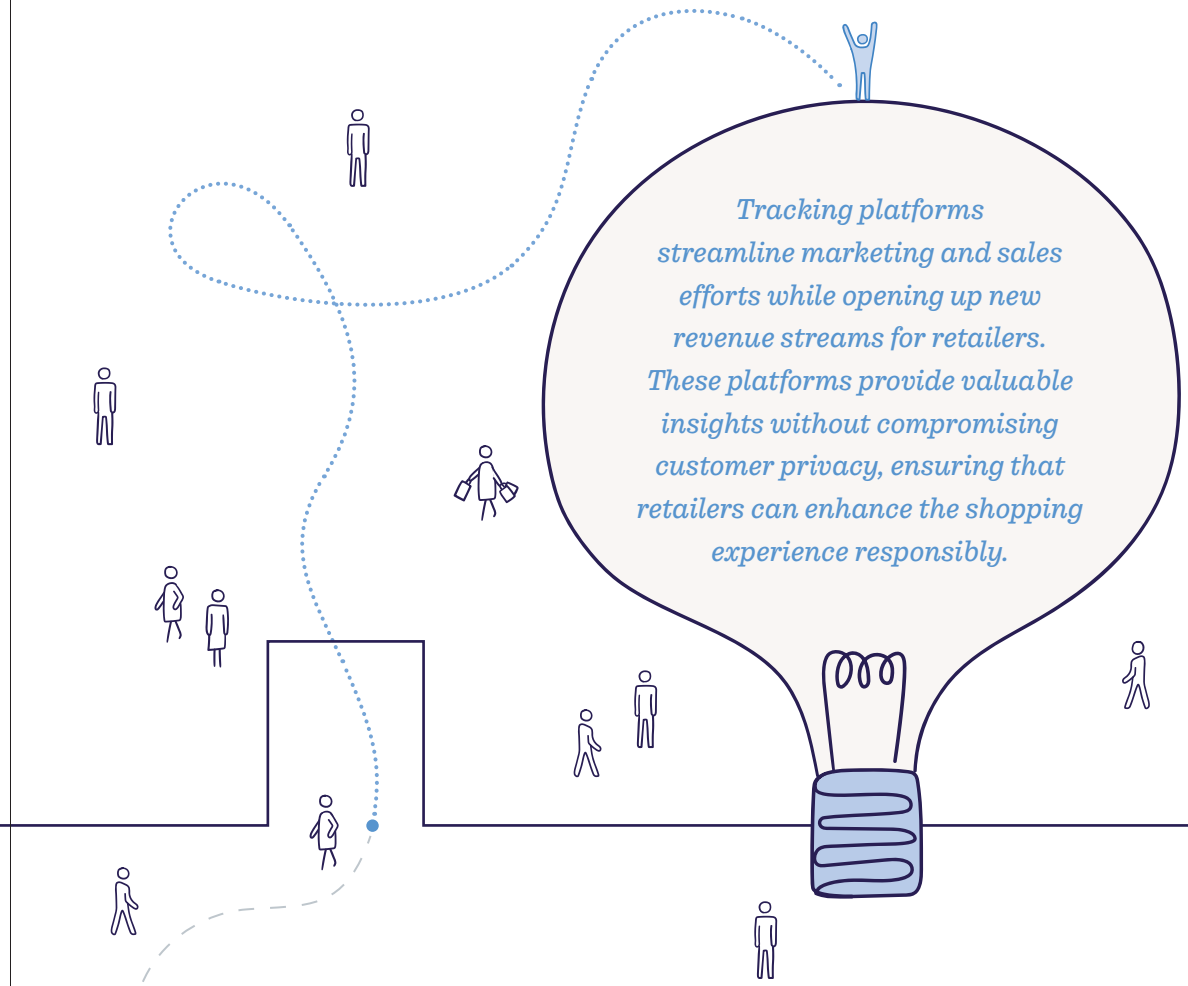
TRANSPARANCY is another crucial element. Retailers using tracking technologies should clearly inform customers about how data is collected and used. This openness fosters trust and demonstrates a serious commitment to data protection. By combining precise sensors, anonymized data, and transparent communication, retail tracking can be effective without compromising privacy.



VALUABLE INSIGHTS FOR THE RETAIL SECTOR

Tracking has long been a established in e-commerce, yet many brick-and-mortar retailers have not fully exploited its potential. In physical stores, customers often remain anonymous, and their behaviour goes largely unnoticed. However, this is changing with the use of modern tracking technologies that monitor and analyse customer movements and interactions within the store.

Retailers like DOUGLAS and OBI are use this data to **OPTIMIZE** their sales strategies and **PERSONALIZE** the shopping experience. By connecting online and offline data – such as through QR codes – retailers can create a seamless, integrated customer journey. Tools like heat maps and detailed customer movement analyses allow for strategic product placement and optimized space utilization.



sensalytics is the partner for retail analytics.

sensalytics provides offline retailers with an analytics tool that the online world has benefited from for a long time.

Retail Analytics – In-Store-Tracking –
Customer Experience – Predictive Analytics

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