

Whitepaper

Beacon Technology: Revolutionizing Customer Experience

Light is OSRAM

OSRAM

Contents

1. Executive Summary	3
2. Introduction	4
3. Customer Experience	5 – 6
4. Used Technologies	7 – 8
5. Customer's View	9
6. Beacon Technology	10 – 11
7. Summary	12

1. Executive Summary

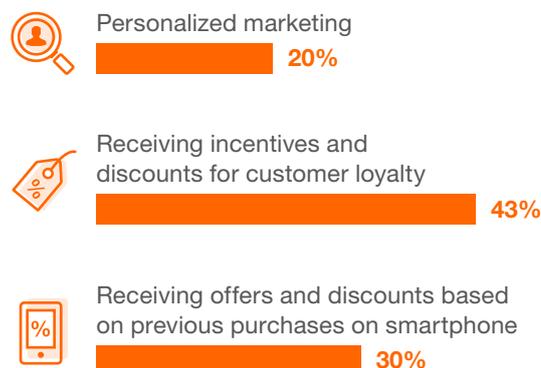
The goal of customer experience management is to optimize customer interactions and create a personalized customer experience. A well-managed customer experience leads to an emotional connection between consumer and product, which continues even after a purchase is made. Retailers are lagging behind in the use of retail analytics and personalization technologies. However, they have already set the right course, as they are aware of the significance of customer experience management. Currently, retail analytics mostly focus on information gathered from cash register systems or loyalty cards. Moving forward, beacon technology is an innovative and effective way to gather additional data allowing for further improvements to the customer experience: personalized offers and suitable information on a nearby location/product are sent using the location service of the customer's smartphone. This goes hand in hand with customer preferences: they want to receive more personalized marketing offers and share data provided they get something in return. Research results and pilot case studies suggest that retailers can benefit from the use of beacon technology in terms of increased average basket value, revenue growth from products equipped with beacons and growth of new customer acquisitions.

Next Level Customer Experience With Beacon Technology

Selected Results of Case Studies



Customer Expectations towards Technologies Used in Retail



Osram Einstone: Case Study Retail, 2017 & HUSS-VERLAG GmbH München: Handel: Filialen müssen sich weiter digitalisieren, 2017 & Shoppertrack: 5 Dinge, die Kunden vom Ladengeschäft der Zukunft erwarten, 2017

2. Introduction

Digitalization plays a major role in improving the customer experience. German physical retail revenue which is affected by digital devices accounts for more than 30% of total physical retail revenue. Examples of digital devices include computers, laptops, smartphones, tablets, wearables and in-store devices (e.g. interactive kiosks).

This is reflected in the online presence of the 100 highest-revenue physical retailers in Germany. Most of them use online channels to reach their customers. The majority offers a mobile-optimized website along with a Facebook site and, thirdly, an online shop. The highest-revenue bricks-and-mortar retailers are progressive regarding digitalization.

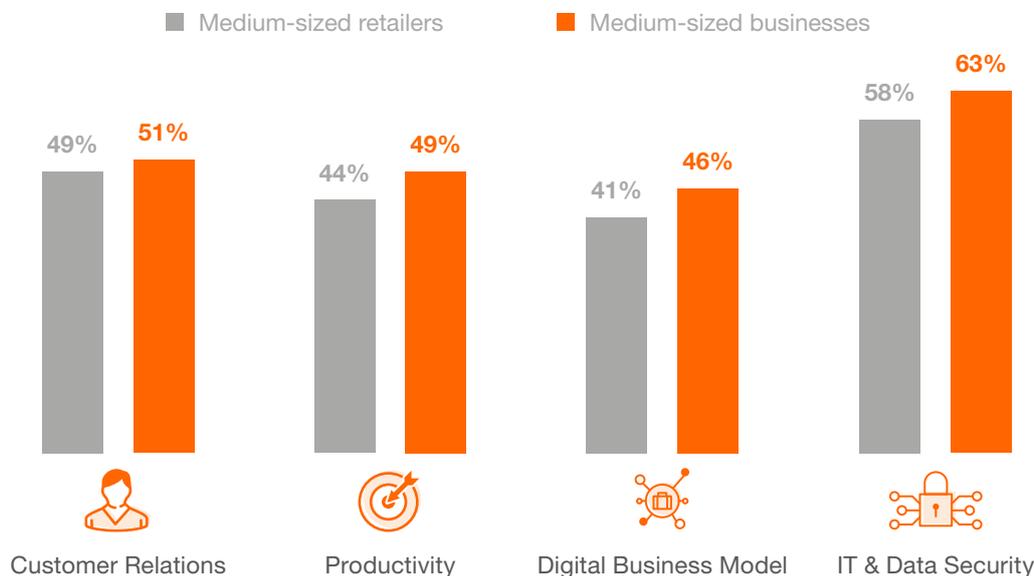
When looking at German medium-sized retailers, it is notable that the degree of digitalization is in fact below average for German medium-sized businesses.

One reason for the lower degree of digitalization is the high number of small businesses that do not have sufficient funds to invest in corresponding projects. These companies have already recognized the potential of digitalization, but are still paying less attention compared to larger companies. For German medium-sized retail businesses the most important areas of digitalization are IT security and data protection as well as customer relationship management.

However, the degree of digitalization varies between different sectors of the retail industry. Digitalization in the electronics and books sectors is, for instance, higher than that in the accessories and drugstore sectors.

Nonetheless, digitalization is the basis for gathering data of every interaction between a customer and an organization throughout the customer lifecycle.

Digitalization of German Medium-Sized Retailers is Below the Average Index of Digitalization



Source: Deutsche Telekom AG: Digitalisierungsindex – Der Digitale status Quo im Handel, 2015; Deutsche Telekom AG: Digitalisierungsindex - Der Status Quo des deutschen Mittelstandes, 2015

3. Customer Experience

Understanding the Customer Experience

The customer lifecycle is a series of interactions between customers and businesses. Customer experience management is therefore aimed at tracking and coordinating all processes that are involved in these interactions, which make up the customer experience. An increase in customer loyalty is the goal of a strategy which ideally considers each and every interaction between customer and organization.

To raise the quality of interactions, thereby also enhancing customer satisfaction, businesses and retailers, in particular, today are more than ever in great demand of data about their customers. Moreover, the information they collect has to be 360-degree data that is personalized. In the course of data collection, retailers rely on technologies like location-based advertising, mobile marketing and beacon technology. These allow for targeting customers with real-time location-aware marketing offerings, leading to an enriched customer experience in stores.

Importance of Beacon Technology in Customer Experience

Beacons are very useful to improve the customer experience provided the gathered data is analyzed. Personalized offers and information on a nearby location/product is sent using the location of the customer's smartphone. As a result, selected information is transmitted via Bluetooth technology.

A well-managed customer experience leads to an emotional connection between consumer and product, which continues even after the purchase is made. Companies which are able to establish an emotional connection through the use of trustworthy communication and storytelling have customer relationships which are characterized by a high degree of authenticity and credibility. Customers then are more likely to repeatedly shop at the respective store.



Decision-Makers Know about the Importance and the Potential of Customer Experience

Marketing managers in Germany are well aware of the changes and challenges this technological development brings about. A survey among German retail managers found that nearly four out of five see the customer experience as a rather high or high priority for their company. Such a great number shows that the advantages mentioned above are regarded as common sense in the industry. Furthermore, the most common reasons to invest in customer experience management show that they are also aware of the correlation between the customer journey and revenue. 61% of retailers say that one reason for investing in customer experience management is an increase in customer satisfaction. Nearly as much (54%) say that an increase in their own competitiveness is most important. The third most important reason is improved targeting of customers (35%).

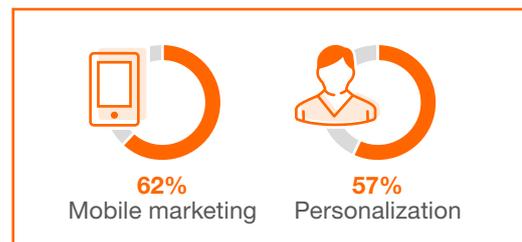
Retailers Are Lagging behind but Have Set the Right Course

Customer experience is regarded by physical retailers as important for distinguishing themselves from competitors. Mobile marketing and personalization are named in particular as priorities of the digital strategy of retailers. More than 60% of retailers want to invest more in mobile marketing and 57% in personalization in 2017. Retailers therefore seem more aware of the challenges of digitalization. In the medium term 34% of retailers regard success in digitalization as most important to outperform others. For comparison, customer service (14%), product/service quality (12%) and product/service innovation (12%) are considered way less important.

However, in e-commerce, 70% of respondents are already analyzing the customer journey, while 8% are planning to start doing so next year. Bricks-and-mortar retailers are lagging behind with 65% of German retailers currently measuring customer behavior. 20% of them, however, are at least planning to implement such a solution next year.

Even though retailers are aware of the necessity of customer experience management, they seem not to deliver. While 41% of customers are satisfied with their online experience, only 20% are satisfied with their in-store experience, a survey suggests. This suggests that the customer experience management is in need of improvement in physical retail in particular.

Mobile Marketing and Personalization Are the Main Digital Priorities in 2017 Investment Priorities of Retailers in 2017



Source: Econsultancy.com Ltd; Adobe: Digital Intelligence Briefing, Digitale Trends 2017 im Einzelhandel, 2017

4. Used Technologies

How Physical Retailers Today Get Insights Into Customer Behavior

While it is easily possible to automatically track and analyze every click made in an online store, bricks-and-mortar retailers are forced to use other technologies. They perform customer surveys and gather information from POS/cash register systems or loyalty cards. The great disadvantage here is that retailers only see which products customers actually buy, but not all those which are of interest. Retailers therefore are not able to measure the correlation between product placement campaigns and actual sales.

Recent technologies which are used by less bricks-and-mortar retailers than the common ones mentioned are WiFi, eye tracking and Bluetooth (by means of beacons and apps). Thus beacons in combination with retail analytics are only used by a few retailers right now, but already lead to highly appreciated benefits such as, for instance, revenue growth. Furthermore, beacons serve as a key differentiator against other retailers and can thus increase customer satisfaction. By leveraging data gained from beacons and retail analytics, retailers can improve sales, customer experience and product offerings.

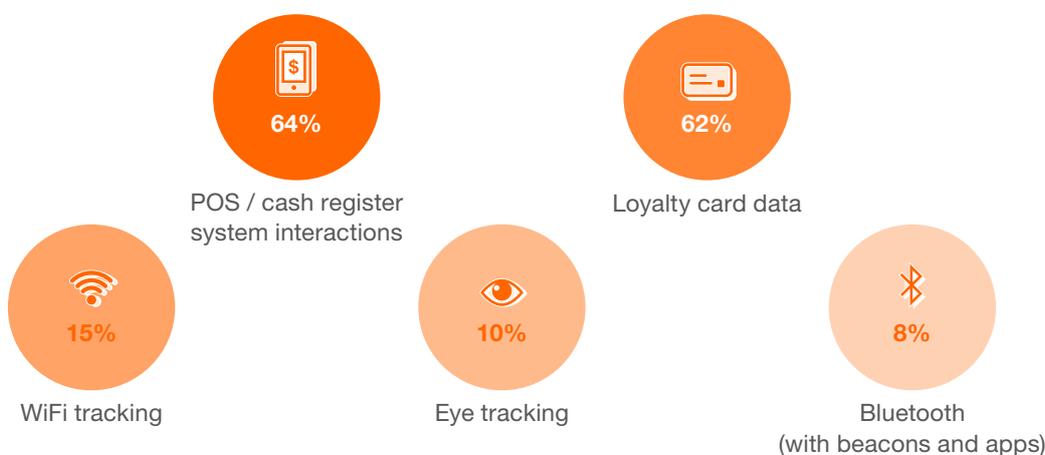
All in all the main focus of physical retailers still is on the entrance and exit of the store. Slightly less than half of all

bricks-and-mortar retailers analyze the entire retail store. A fifth collects data from different areas of the store already, and one-tenth apply analytics to advertised products. The focus is shifting more and more to focus group analytics in order to collect more exact and detailed data about various topics such as the time customers spend in a store or the perfect product placements.

Marketers see the necessity to share the collected data between company departments to ensure that every one of them is given the possibility to optimize their processes. According to respondents' statements, there is scope for improvement with regard to aspects such as category management, product placement, store layout, deployment planning and the determination of the conversion rate.

Fact is: Retailers need advanced analytic capabilities in order to compete in today's digitalized environment. To improve their in-store experience, bricks-and-mortar retailers need to opt for intelligent technologies. The key to unlock the retail advantage are data analytics pulling together data from all touchpoints (online, offline, mobile) in combination with location-based technologies, such as offered by beacons. Only then they create the big picture and can better understand their business, move it forward, and better serve its customers.

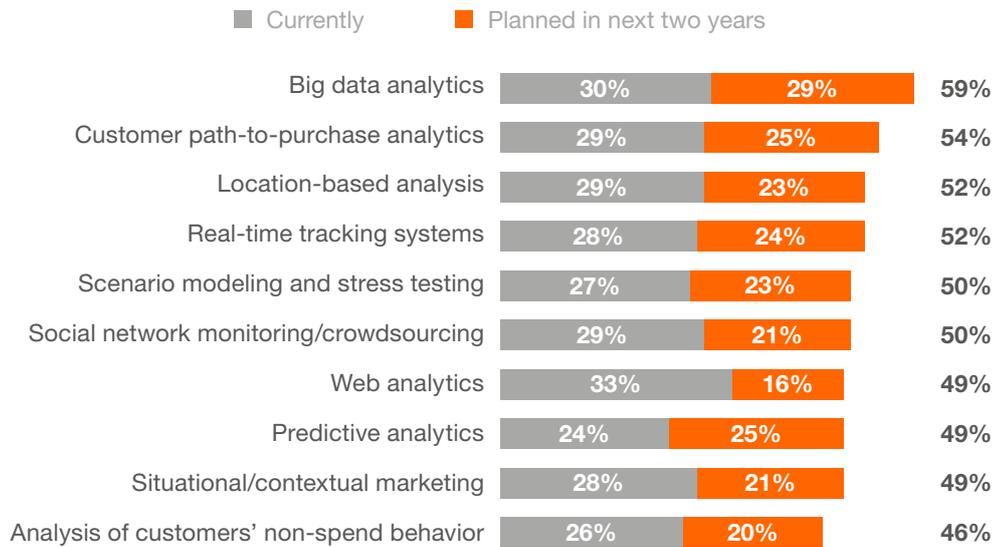
Many Retailers gain Insights into Customer Behavior Technologies Used by German Retailers



Source: Axis Communications GmbH; EHI Retail Institute: Whitepaper: Analyse des Kundenverhaltens im Einzelhandel, 2016

Digitalization of German Retail

Share of Medium-Sized Retail Businesses That ...



Source: Global Consumer Executive Top of Mind Survey, KPMG and the CGF, 2016

In the Future Physical Retailers Will Track the Customer Journey Even More

Over the coming years, bricks-and-mortar retailers will increase their degree of digitalization. The use of analytics technology will rise in the areas of big data analytics, customer path-to-purchase analytics and location-based analysis.

In addition, virtual and augmented reality, followed by artificial intelligence, bots, new payment methods (e.g. mobile payments or electronic receipts) as well as focus group tracking and the Internet of Things (IoT) have the greatest potential for implementation up to 2020.

IoT means that machines are interconnected and can talk to one another via sensors. Osram's beacon technology with continuous power supply thanks to the connection to the lighting infrastructure and its intelligent lighting solutions are examples of the IoT, and thus have a high future potential. Intelligent lighting solutions, for example, allow for controlling streetlights individually, in groups or of entire city blocks based on sensors via a software. Lighting can furthermore be regulated automatically or dynamically depending on the time of day or season, thereby helping achieve significant resource savings.

Results of Improved Customer Experience

Technologies used for improving the customer experience at the same time provide greater insight into customer behavior, thereby resulting in increased brand loyalty, brand awareness and reach. They also increase customer satisfaction rates and trust.

Besides, there is the potential for higher upselling rates, churn reduction and an increase of the conversion rate.

Other benefits that physical retailers expect from using analytical methods are higher added value across the entire value chain as well as more profitable growth and innovation.

This goes hand in hand with evaluations stationary retailers prefer. They want to track customer purchasing and to profile customers.

Top 5 List of Expected Benefits by Retailers



Source: SAS Institut: Wettbewerbsfaktor Big Data Analytics, 2015/16

5. Customer's View

Identifying Customer Needs and Expectations

E-Commerce with all its advantages continues to grow. Thus, it is not surprising that consumers want shopping at physical stores to offer the same benefits as online. But still their expectations for in-store experiences go beyond. Consumer's expectations push stationary retailers to rethink their in-store experiences and to offer an seamless customer journey.

There are various wishes customers have with regard to their customer experience. Roughly half of respondents want shorter waiting times in stores. Customers are annoyed by long queues and a considerable amount quits shopping when checking out takes too long (3 out of 10 customers). Therefore, a lot of respondents would prefer a faster check-out enabled by, for instance, contactless or mobile payment and automated queue management systems (one-third each).

Consumers want more transparency and a better overview. 3 out of 10 would like to have clearer information about prices and special discounts. Many are also annoyed when a store has an insufficient choice of products in stock (40%). One technology that customers would like to use to solve such problems is electronic product information (35%). Also, self-service tablets that enable the customer to get more information or order an out-of-stock product are much wished for (1 out of 3).

About a quarter of consumers desire an increased expertise and availability of retail staff. The majority (60%) of shoppers gets upset when sales staff do not have sufficient knowledge of the product. For some 25% the solution lies in equipping sales staff with tablets that enable them to answer customer questions faster. This is a two-edged sword, as a quarter of customers leave the store if retail staff appear too pushy.

It is common for customers to examine a product in a retail store before purchasing it online. About a third does this. Many (one-quarter) wish for virtual changing rooms that allow to "wear" interesting clothes at home. Not as interesting for customers are mirrors that can take pictures in stores. Only about 10% of respondents would like to take pictures of their outfits.

Technologies that are more accepted by customers are personalized marketing offers. 43% would like to receive incentives and discounts for their loyalty to a certain store or company. Another 3 out of 10 would be happy to receive those on their smartphone.

Also, the possibility to view and order the complete product range on one screen, an appealing atmosphere and fast and easy access to in-store Wi-Fi networks would improve the customer experience in physical retail.

By combining these digital technologies, retailers will be able to re-invent their physical stores to make in-store shopping an enjoyable experience for customers along the entire customer journey. And this will result in satisfied customers and an enhanced customer experience as well as additional revenues.

What Customers Expect from Retail Customer Expectations towards Technologies Used in Retail



Source: Shoppertrack: 5 Dinge, die Kunden vom Ladengeschäft der Zukunft erwarten, 2017

6. Beacon Technology

Benefits of Beacon Technology Selected Results of Case Studies

Osram Einstone: Case Study
Retail, 2017 & HUSS-VERLAG
GmbH München: Handel:
Filialen müssen sich weiter
digitalisieren, 2017



The Growing Role of Beacons for Enhancing Your Customer Experience

Beacon Technology is around for some time. But why does this technology have such a great potential to improve the Customer Experience at bricks-and-mortar retailers? Some real end-to-end solutions available on the market enable retailers a holistic view of the customers. They combine beacon technology with digital customer loyalty programs, location-based marketing and connect them to existing CRM and POS systems in order to increase revenue and the brand loyalty of its customers. Based on the data, specific purchase recommendations and location-based marketing campaigns increase sales and the average shopping cart as well as return visit rates.

In a nutshell: Beacons foster a customer's relationship with their favorite retail brands as the technology can provide location-based services such as personalized messages, coupons or advertisements. It is therefore a good way to satisfy customers' desire for more personalized marketing offers. Beacons emit Bluetooth signals within a nearby radius. Each beacon sends an individual signal that can be read by, for example, a corresponding application on a customer's phone. This technology is more suited to indoor locations such as shopping malls or stations as other technologies do not work as well in such a setting.

The benefits of beacons are widely recognized today. US American retailers already make quite extensive and successful use of the technology. It is therefore convincing that researchers estimate that beacon-triggered sales amounted to roughly 44 billion US dollars in US retail sales in 2016, a tenfold increase year-on-year.

Positive results can also be seen as regards beacon implementation in German retail stores. Projects that

were aimed at testing beacons showed that this technology holds great potential for a significant increase in sales of items which the beacon marketing campaign focused on. Additionally, the acquisition of new customers is improved and eased by the use of beacon technologies.

A field test that tracked internal processes such as the flow of goods and the handling of promotional goods by employees by means of beacons helped identify elements that have potential for improvement. As a result, the project caused a rise in average basket value by more than 10% along with a high double-digit offer redemption rate.

Contextual and personalized marketing is in particular improved by the use of beacons, because ads that reach consumers in the right situation are more effective. Studies show that while customers nearly always open situational messages (91%), messages that are sent a day later are less likely to be opened (47%). Such results are self-explanatory: people like to be informed about coupons or interesting offers while shopping, but they do not like to receive just another random promotional message. Beacon technology helps retailers achieve exactly that.

But not only is it possible to send messages through the use of beacon technology, beacons also allow for collecting data about customer behavior. A device placed near the store's door sends messages that entice customers into the store. Moreover, beacons can be placed inside the store to track customer behavior on the shop floor or the return rate of customers. This helps marketing managers analyze customer behavior on many levels. It can also be tracked which aisle is most attractive or which products are most frequented. Of course, such data has to be handled with care.

Customers Willing to Share Data Provided They Get Something in Return

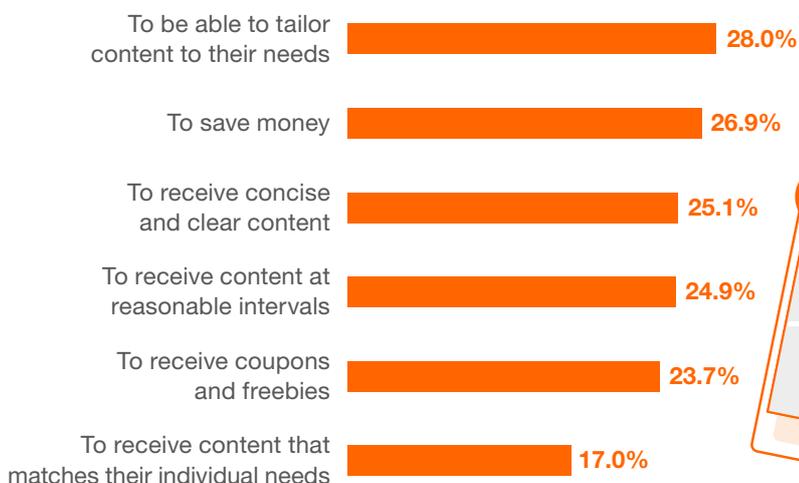
Surveys show that many customers agree on sharing their current location if they receive nice offers or personalized coupons in return. About 43% of German customers, said so in a survey. For comparison, less than a fifth (18%) want to share their location on a social network. This shows that the customer is aware of the potential possibilities and advantages of modern technologies.

However, consumers expect more than just coupons in return for their data, they want to be able to control what kind of content they receive. Only relevant offers by certain companies are welcome. Apps allow retailers to accommodate these preferences by having beacons send only signals that their own app can read. As they are free to decide whether or not to install a certain app, customers are thereby given the choice over the content they wish to receive. Moreover, they do not wish to be contacted by an app too often. Marketers should therefore be careful and only send relevant messages via beacon technology. By providing more consumer insights, beacons combined with retail analytics software also help to choose the most relevant information and advertisements to target customers with.

What is also considered morally unacceptable is data being transferred to a third party, information being misused or too high battery consumption for battery-driven beacons.

A vast majority of retailers invest in new technologies and want to improve their data analytics. The focus of such investments is marketing and customer loyalty.

Customer Demands regarding Location-Based Advertisements Reasons for Customers' to Share Their Location



Greven Medien: Mobile, ortsbezogene Werbung ist profitabel für lokalen Handel, 2016

7. Summary

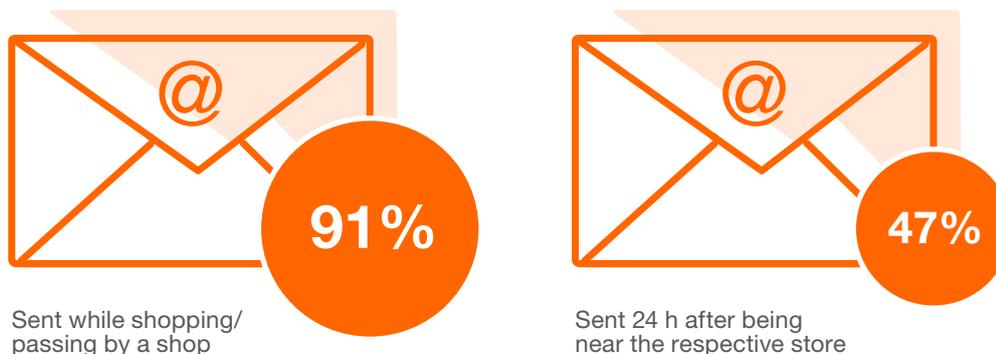
Decision-makers in physical retail know about the importance and the potential of the customer experience. They are lagging behind but have already set the right course by using different technologies. Bricks-and-mortar retailers gather and analyze customer data to improve the customer journey, and thus the customer experience.

Physical retailers pursue various goals by improving the customer experience: getting greater insight into customer behavior to increase customer satisfaction and trust as well as corporate competitiveness, especially against e-commerce shops. Furthermore, they anticipate an increase in brand loyalty, brand awareness and reach along with the potential for higher upselling rates, churn reduction and an increase of the conversion rate. Other benefits that bricks-and-mortar retailers expect from using analytical methods are higher added value across the entire value chain as well as more profitable growth and innovation.

A recent technology offering to improve the customer experience is beacon technology. This technology is highly useful as it enables personalized offers and the provision of information about a nearby location or product by using the location service of the customer's smartphone. And it makes quick work of configuration and deployment. Beacons rely on Bluetooth technology. The customer therefore only needs a smartphone and a certain application which is given the rights to send push notifications.

Recent survey results say that customers like personalized marketing offers such as incentives or discounts - and even more, if these messages are sent in the right situation. Beacons can lead to a significant increase in sales by fostering a successful customer's relationship with their favorite retail brand, the acquisition of new customers and improved internal processes.

Customers Respond Well to Messages Sent in the Right Situation Share of Messages Opened Depending on Situation



PFH Private Hochschule Göttingen: Location-based Marketing, 2015

8. Sources

Axis Communications GmbH, EHI Retail Institute:
Whitepaper: Analyse des Kundenverhaltens im
Einzelhandel, 2016

BI Intelligence: The Beacons Report, 2015

Bitkom: Datenschutz in der digitalen Welt, 2015

Deutsche Telekom AG: Digitalisierungsindex – Der
Digitale status Quo im Handel, 2015

Econsultancy.com Ltd , Adobe: Digital Intelligence
Briefing, Digitale Trends 2017 im Einzelhandel, 2017

Gelbe Seiten: Location-based Services, 2015

Greven Medien: Mobile, ortsbezogene Werbung ist
profitabel für lokalen Handel, 2016

HUSS-VERLAG GmbH München: Handel: Filialen
müssen sich weiter digitalisieren, 2017

IBM: Customer Experience Index Study, 2016

IFH Institut für Handelsforschung GmbH: Customer
Experience Management: Hype oder tatsächlicher
Mehrwert?, 2016

KPMG and the CGF: Global Consumer Executive Top of
Mind Survey, 2016

Osram Einstone: Case Study Retail, 2017

PFH Private Hochschule Göttingen: Location-based
Marketing, 2015

PwC: Store 4.0 Zukunft des stationären Handels, 2015

SAS Institut: Wettbewerbsfaktor Big Data Analytics,
2015/16

Shoppertrack: 5 Dinge, die Kunden vom Ladengeschäft
der Zukunft erwarten, 2017

Disclaimer

All information contained in this document has been collected, analyzed and verified with great care by OSRAM. However, OSRAM GmbH is not responsible for the correctness and completeness of the information contained in this document and OSRAM GmbH cannot be made liable for any damage that occurs in connection with the use of and/or reliance on the content of this document. The information contained in this document reflects the current state of knowledge on the date of issue.

If you would like to revolutionize your customer experience with the help of beacon technology, send us an email to einstone@osram.com. Thank you!

OSRAM GmbH

Head office:

Marcel-Breuer-Strasse 6
80807 Munich, Germany
Phone +49 89 6213-0
Fax +49 89 6213-2020
einstone@osram.com
www.osram.com

OSRAM