

**M**ARKETING  
**I**NTELLIGENCE  
**R**EVIEW

# THE FUTURE OF RETAILING



Reinventing the Retailer

Digitalized Interactive Platforms

Loyalty Programs in the Digital Age

Retail Price Differentiation

▲ Big Data for Smart Retailing

▲ New Technologies in Brick-and-Mortar Stores

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to Practical Use

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interested in current marketing topics  
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Its publisher, the

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*The institute is the founder and anchor shareholder of GfK SE.*

Besides changing its name, the journal's layout was slightly adopted.  
The basic concept, however, remains the same:

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# Editorial



As early as 1994, Bill Gates made the provocative and controversial statement that in the future, banking would be needed, but banks themselves would not. With every year since, this statement has seemed to hold even more validity – given that financial services are largely digitizable. Looking forward, similar thinking may be applied to the retailing sector. Retailing as a function will not vanish, but traditional retailers as an institution may be endangered.

While the customer appears to be a clear winner from these developments, the competitive landscape for established retailers is wider than ever: Online shops, mobile shops, locally acting shopping platforms from all over the world, brands themselves, and last but not least the Internet of Things. They all enter the retail arena and approach customers with their offers. Nevertheless, incumbents need not watch this development in passive awe. The future of retailing holds many opportunities for them as well - which we will discuss in this issue. Whether it be by means of big data, co-creation, digitalized loyalty programs, or new technologies: Those who understand to create individual experiences that last beyond the purchase itself and that consumers truly value will not cease to exist.

The core functions of retailing – assuring logistics, building assortments, providing information and the actual exchange of goods and money – will always be required. But around these core functions retailers have a vast playground to mingle technology with high touch and feel in creative ways. The concept of retailing needs to broaden its perspectives because never before have options been so diverse. We hope you will tackle this new retailing age with courage and that you will be inspired by the insights and ideas we present in this issue. Happy reading!

Yours

Werner Reinartz

Cologne, January 2019

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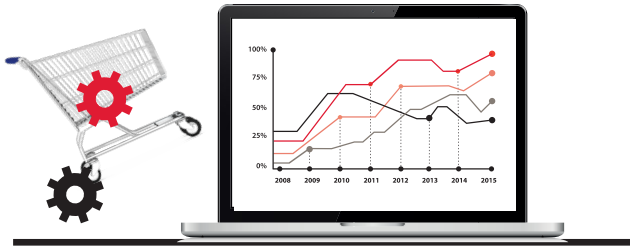
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In our digital environment price differentiation may be technically easier, but it also gets more transparent and obvious and therefore riskier.

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## Reinventing the Retailer: Retaining Relevance and Customer Access

*Werner Reinartz*

The retail sector is evolving from a structurally rather rigid and somewhat unemotional mainstay in the economy to a most dynamic field where old business models cease to exist, and new business models and players are bustling. As more and more customers prefer the convenience of internet-based shopping and direct-to-home delivery, many traditional retailers are forced to break fresh ground.

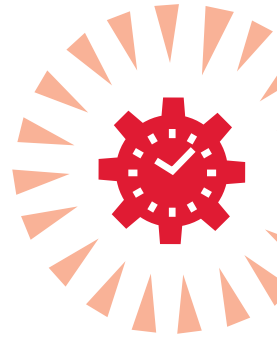
Today, retailers must achieve relevance and meaning in the daily life of consumers and develop significance beyond the interaction in the store. They have to be easily accessible both physically and digitally. Retailers still need to fulfill the classic retail functions but on top they need to develop digitally-enabled value creation sources. How well they succeed in implementing automation, individualization, life-embeddedness, interaction as well as transparency and control will determine whether they will persist in the new retailing environment. Only those retailers will survive who are able to translate the new value adds into meaningful and positive experiences that last beyond the purchase itself.

## Digitalized Interactive Platforms: Turning Goods and Services into Retail Co-Creation Experiences

*Venkat Ramaswamy and Kerimcan Ozcan*

With the rise of digital technologies, retailing has become a field of value co-creation. Rather than selling readymade products and services, retailers now offer means for creating value together with their customers through manifold interactions. To enable co-creation, they need to develop digital interactive platforms (DIPs) around retail-related activities. Typically, individuals engage with a retail DIP offering in their particular contexts of interactions with apps or similar components. By delving deeper into the nature of the individual interactions, hidden and untapped sources of value can be revealed. Shoppers get more engaged, and retail managers gain more insights and can design ecosystems that allow a more effective creation of “all-win-more” outcomes in more profitable ways. To be successful, retailers need to incorporate a broader view of value creation into their operations. They will be successful with hybrid delivery systems in which consumers can use a range of interface technologies across multiple channels. Being able to interact with informational content, human actors, and technical resources at different stages of the decision making and shopping process will enable rewarding shopping experiences for customers and retailers alike.





## Keeping Loyalty Programs Fit for the Digital Age

*Matilda Dorotic*

Though some managers question the success of loyalty programs (LPs), the core idea of leveraging information gained through loyalty initiatives remains stronger than ever. But as LP membership penetration reaches all-time highs, customers demand more value from LPs. LP managers should leverage opportunities that mobile devices offer in increasing the convenience and communication with LP members. The integration of LPs with digital payment systems like mobile wallets seems particularly promising. Another way to become more attractive is by forming partnerships with other companies at which customers can collect and/or redeem points. Such partnership LPs hold appeal for retailers, particularly if potential partners might benefit from synergies. In the future of linked data, companies further need to be more flexible in terms of the types of customer engagements that will be rewarded. Many companies already move towards rewarding not only on past transactions, but also activities on social media. In the digital age, customers still enjoy some form of loyalty rewarding and expect retailers to acknowledge their purchases as investments in relationships.

## The Perils of Retail Price Differentiation: Why Nobody Wins When Customers Lose

*Werner Reinartz and Nico Wiegand*

Price differentiation is a longstanding marketing instrument in retailing. In our digital omni-channel environment its implementation may get technically easier, but also more transparent and obvious. As consumers generally consider price differentiation as unfair, systems need to be implemented cautiously and hold potential benefits for all parties. Some practices are perceived as more unfair than others. Dissimilarity of the purchase situation, control over the final price, the suspected motive of the company, and fairness of the pricing rule are decisive factors in the consumer evaluation process of price differentiation measures.

To avoid detrimental effects like perceptions of unfairness or permanent damage of the relationship, companies must strike a balance between their own and consumers' interests. The latter need to feel the advantage of price differentiation to appreciate it, especially the price-sensitive segment. However, from a company perspective, there is a profitability boundary to giving away free lunch. One way out of this dilemma is to foster self-selection into low-price offerings but preventing bargains for everyone by increasing the effort or time to get better prices. If head-on price differentiation is unavoidable, negative reactions can be attenuated by embedding pricing rules in social norms.

## Big Data and Analytics in Retailing

*Venky Shankar*

Big data are taking center stage for decision-making in many retail organizations. Customer data on attitudes and behavior across channels, touchpoints, devices and platforms are often readily available and constantly recorded. These data are integrated from multiple sources and stored or warehoused, often in a cloud-based environment. Statistical, econometric and data science models are developed for enabling appropriate decisions. Computer algorithms and programs are created for these models. Machine learning based models, are particularly useful for learning from the data and making predictive decisions. These machine learning models form the backbone for the generation and development of AI-assisted decisions. In many cases, such decisions are automated using systems such as chatbots and robots.

Of special interest are issues such as omnichannel shopping behavior, resource allocation across channels, the effects of the mobile channel and mobile apps on shopper behavior, dynamic pricing, data privacy and security. Research on these issues reveals several interesting insights on which retailers can build. To fully leverage big data in today's retailing environment, CRM strategies must be location specific, time specific and channel specific in addition to being customer specific.

## E-Commerce in a Physical Store: Which Retailing Technologies Add Real Value?

*Peter Linzbach, J. Jeffrey Inman and Hristina Nikolova*

To remain competitive in a connected world, offline retailers have responded with integrating digital in-store technologies into their physical servicescapes. Often, the introduction of multichannel connecting services like click & collect or order from or return to store are first steps.

Shopper-facing advanced technologies can be key to creating a different physical shopping experience for consumers and delivering benefits to retailers such as improved traffic, conversion and baskets or streamlined operational cost. In general, consumers consider retailing technologies as useful. However, shoppers assess the fairness of the exchange about procedures, outcome and treatment and the value of the technology they receive compared to what the retailer gets. Also, satisfaction, trust and privacy concerns are relevant for customers. Retail managers need to ensure the functionality and safety of their application and take consumer concerns seriously. Also, they need to address privacy concerns and build trust, if they want proximity marketing to deliver on its promise of increasing basket size or attracting new shoppers.

## Technologies Turning Future Brick-and-Mortar Stores into Data-Rich Environments

*Fabian Buder, Anja Dieckmann, Holger Dietrich  
and Julia Wieting*

Visitors of an online retailer's website leave digital traces. Every click and each interaction on the website generate information about a customer while many traditional retailers tend to know very little about their customers. However, market incumbents need not watch this development in passive awe. Many technologies are already available that help brick-and-mortar stores gather more valuable information about their customers, allowing them to improve shopper experience, retain customers, and ultimately increase profits. If used in a smart, transparent and non-offending way, technologies like in-store cameras, smart sensors, virtual reality or augmented reality can make a physical store almost as data-rich as a website. Retailers can be enabled to track the customer journey, observe product interactions in front of shelves, recognize customers and identify segments, detect emotional states automatically and understand their customers' information needs and decision making processes. Virtual reality offers retailers environments for controlled experimentation so that they can employ A/B tests to optimize customer experience and turnover and do not fall behind online retailers. New technologies need to be introduced carefully and consider people's needs for transparency and control.

## eBay: Transforming an Auction House into a Retailing Platform

*Interview with Eben Sermon,  
Vice President eBay Germany*

Auction thrill for everybody – no matter if you are the buyer or seller – that's what has made eBay famous and attractive in its early years. The internet pioneer was already born in the last millennium and has revolutionized the consumer to consumer business. Originally the first supra-regional, electronic flea market, eBay has evolved into one of the world's largest retailing platforms. A lot has happened and the auctions that once constituted the core of the brand are more of a sideshow nowadays. In our interview, Eben Sermon, Vice President of eBay Germany, explains how the brand has been reinventing itself and talks about eBay's innovations within the highly competitive field of e-commerce.





# Reinventing the Retailer: Retaining Relevance and Customer Access

*Werner Reinartz*

## KEYWORDS

*Retailing, E-commerce,  
Platforms, Digitalization,  
Automation, Individualization*

## THE AUTHOR

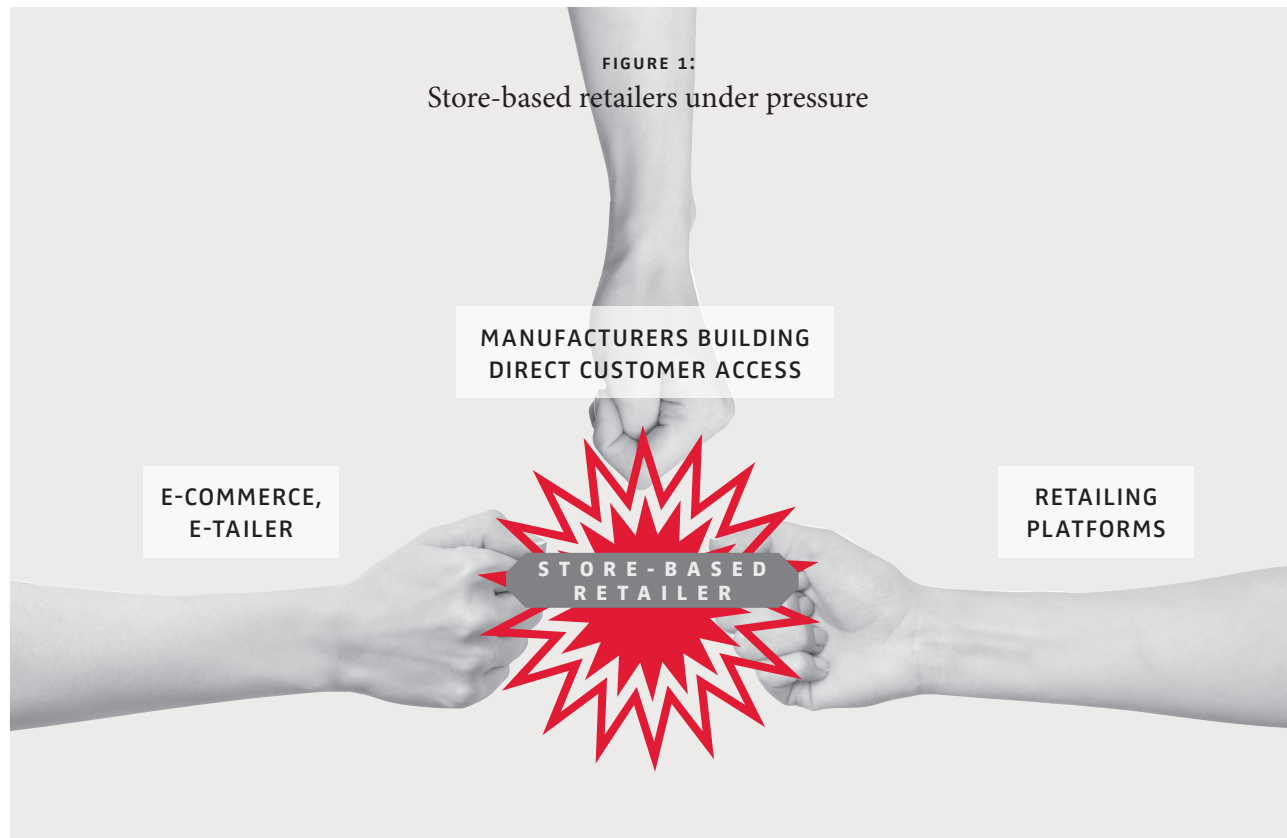
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**Turmoil in the retail-scape** /// “Stores only existed because the internet hadn’t been invented.” This provocative statement by Oliver Samwer, CEO of Rocket Internet, boils down the dilemma many traditional retailers are facing today. The sector is evolving from a structurally rather rigid and somewhat unemotional mainstay in the economy to a most dynamic field where old business models cease to exist, and new business models and players are bustling.

Take the venerable department store concept which has been thriving for decades and decades. It has lost a lot of its traditional appeal and it is coming heavily under pressure these days. Its role in the lives of many US shoppers declines along with the closures that sweep through the shopping mall landscape. Sometimes it seems hard to separate the difficulties of the anchor store from the struggles of the mall itself. In Germany, the two surviving (what a telling description!) stores, Karstadt and Kaufhof, eventually merged in order to rationalize cost even further. With respect to the value created for consumers, the outcome is still wide open.

Contrast these struggles with the triumphal march that Amazon has displayed. From its early beginnings in books and music it has become a technology powerhouse, active in virtually all Western mature markets across all consumer goods categories. In 2018, the share of Amazon alone of the entire E-commerce sales in the US and in Germany approaches nearly 50 %. What a feat! This company seems to be offering something that consumers certainly appreciate. But it’s not only Amazon.



**Retailers have only begun to run the marathon of change** /// Existing retailers have certainly started to digitalize their entire offering and provide a multi-or omni-channel approach. Beyond that, however, manufacturers are increasingly reaching out to the end consumer, wanting to build a direct interface. Likewise, the platform concept with the likes of Alibaba, Wish, Etsy, or Zalando is finding extraordinary appeal from a consumer perspective. These are a few but still massive changes that the retailing industry encounters. As more and more customers prefer the convenience of internet-based shopping and direct-to-home delivery, many traditional retailers are forced to adapt under the pressure (see Figure 1).

But what is the backdrop against which we observe these changes? In fact, three mega-forces are driving these transformations (Box 1). In combination, these three mega-forces will considerably drive and alter existing consumption patterns. It is at the confluence of these three forces where new business models in retailing will be born and will flourish. And

it is here where old retailing models that are simply no longer able to address the associated changing consumer needs will vanish – some quickly, some slowly.

**How is the digital transformation affecting value creation in retailing** /// The traditional value-creation processes of retailers revolved a lot around consumer interaction at a physical point-of-sale and the fact that the merchandise and the assortment had to be furnished and assembled efficiently. The classical retail functions encompassed the building of assortments, physical logistics of merchandise, legal transaction with the consumer, information provision and communication in general, and the rendering of ancillary services. Retailing channels remained viable by performing functions that reduce the end user's search efforts, waiting time, storage requirements and other costs. Retailer's operations revolved large around making supply and supply-chain processes efficient while creating a positive POS experience in widely varying retailing formats.

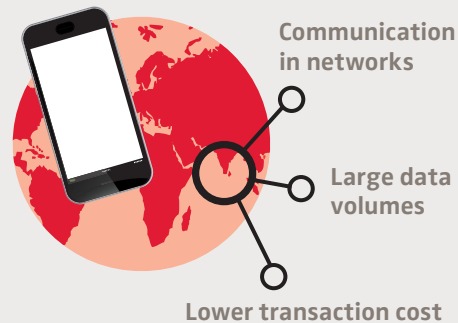


{Box 1}

## MEGA-FORCES DRIVING TRANSFORMATION IN RETAILING

### Digitalization → → → → → →

At heart, the digital transformation is characterized by the advent of very large data volumes that need to be properly stored and processed. Companies are required to interact with all stakeholders in the form of networks and less bilaterally. Further, the entire value systems become massively more efficient as the costs of all transactions drop. This shift will enable entirely new business models and value creation opportunities – as we can observe them readily.



### Demographic changes ← ← ←

The demographic development encompasses not only the general aging of the population in all mature western societies but also the transformation of the consumer base in other respects. For one, there is a strong trend towards an urbanized society. According to the 2018 United Nations Urbanization prospects, 55 % of the world's population lives in urban areas today and that proportion is expected to increase up to 68 % by 2050. Along with the continuing trend towards smaller (single) households and the ever-increasing ethnic diversity, we are going to see a significant impact on which kinds of products and services are being demanded. Likewise, supply chains, warehousing and physical delivery will be impacted multifold.

### Change in values and norms → → → → → →

Third, consumers themselves change their underlying need structure. Lead of course by the infamous Generations Y and Z, the trend gravitates towards an ever-more individualized demand. Consumers express a strong and explicit desire for positive experiences which they expect "here and now". Also, at least a significant segment increasingly cares for offerings characterized by health and sustainability attributes. Finally, as consumers are increasingly "always-on" and digitally socially connected, this aspect has to be built in.



Experience orientation

Online Socially connected

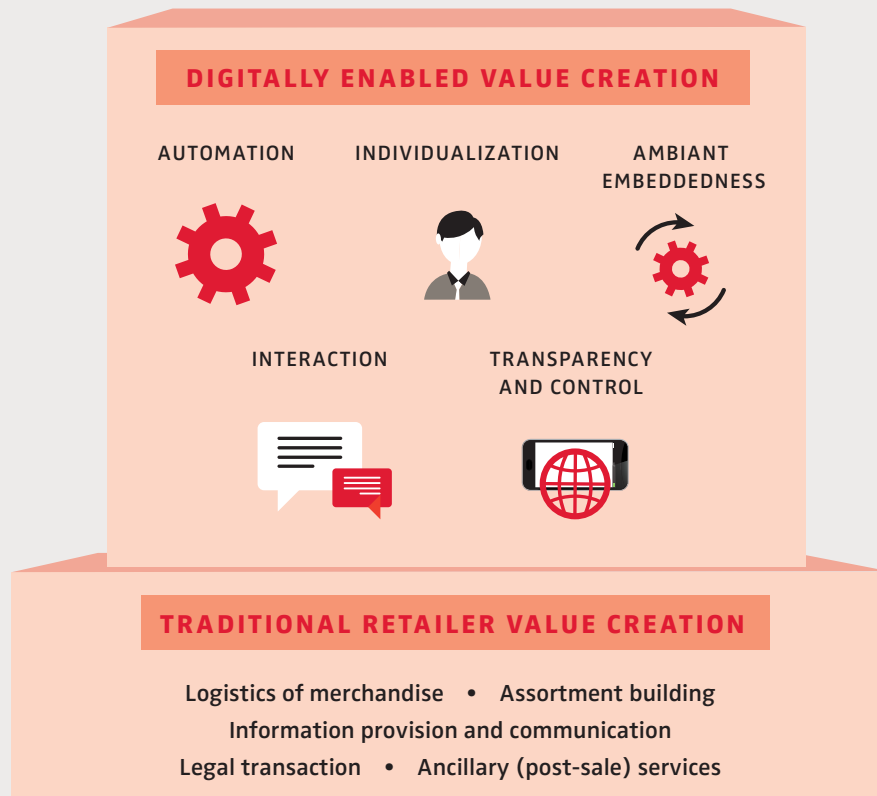
Individualization

Health/Sustainability

Always on

Here and now

**FIGURE 2:**  
Digitally enabled sources of retailer value creation on top of the traditional ones



However, this has become table stakes today and the requirements from consumers have far exceeded those traditional must haves. Accordingly, many stationary retailers have improved the POS experience and they have digitalized a number of store and shopping-related aspects. Store shopping apps, RFID-based inventory management, digital loyalty programs, geo-fencing, in-shop navigation, intelligent dressing rooms and the like are on the rise. This is important and valid to do. Yet, the requirements go beyond that.

**The new sources for value creation** /// Today, the retailer “as a brand” has to achieve relevance and meaning in the life of consumers. It must develop significance beyond the interaction in the store. The focus thereby lies increasingly

on the very mundane life, including work, leisure time, travel, vacations, activities etc. – and not just the act of shopping. On top, the retailer has to be accessible both physically and digitally and consumers must be able to easily obtain information and get in touch with the vendor. Thus, in order to create systematically new value for consumers, retailers have to think along the following new lines value creation sources.

> **Automation** /// Automation refers to all activities and processes that operate automatically, without active human input or control. Take for example the Amazon Dash technology to automate reordering of replenishment items such as a toner for a printer. Powered by the advent of the Internet of Things (IoT), smart household appliances such as

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Today, the retailer must  
develop significance beyond the  
interaction in the store.

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washing machines or refrigerators can automatically order refills when the supply is running low. The automation of marketing and communication processes such as reminders, in-stock alerts, chatbots, etc. will offer customers valuable real-time information and responses. Moreover, automation of consumer processes such as (re)purchasing simplifies or eliminates routine processes for consumers. Automation enables thus value creation through greater convenience and more efficiency through an optimized product use.

- > **Individualization** /// Individualization refers to the customization and personalization of the offering and of marketing efforts that are tailored to an individual's current needs and preferences. The advances in individualization possibilities address one of the great needs of today's consumer expectations. Readily available digital data from sources like online reviews, social-media activities or smart products can be combined with customer behavioral data. Insights from these data will permit truly individualized marketing efforts and companies can engage in meaningful, real-time, one-to-one communication with the customer. Individualization will thus enable value creation through greater relevance of the offering and greater efficiency with respect to information search and decision making. This efficiency also increases perceptions of convenience. It should not go unmentioned that the desire for individualized products on the basis of specific databased user profiles comes at the cost of lesser privacy. Increasingly consumers understand that they "pay with data" about their own behavior and preferences for the advantage of having a more customized offering. Hence, consumer will have to make their personal trade-offs in that respect. Also, retailers should be aware that the need for privacy could also be a powerful dimension on which to generate benefits for consumers.

- > **Ambient embeddedness** /// Ambient embeddedness refers to the integration of processes, products, and communications into customers' routines, making them present in the immediate environment and an integral part of everyday life. In other words, it is the meshing of digital tools into the very mundane and natural physical life of consumers. For instance, voice-based digital assistants such as Amazon's Alexa are becoming extremely prevalent. BMW cars, Marriott hotels, household appliances and increasingly more services use such technologies and enable very natural voice-based interactions. Of course, these interactions also include shopping activities. Another example is geo-targeting, which facilitates the delivery of location-based push messages when a customer enters a specific geographic area. Above all, digital technologies foster ambient embeddedness by connecting customer data across multiple platforms, channels, or devices and by integrating interactions seamlessly into consumers' lives. Depending on the context, ambient embeddedness will enable value creation through greater convenience, better experiences, and higher relevance of the offering.

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Increasingly consumers understand that  
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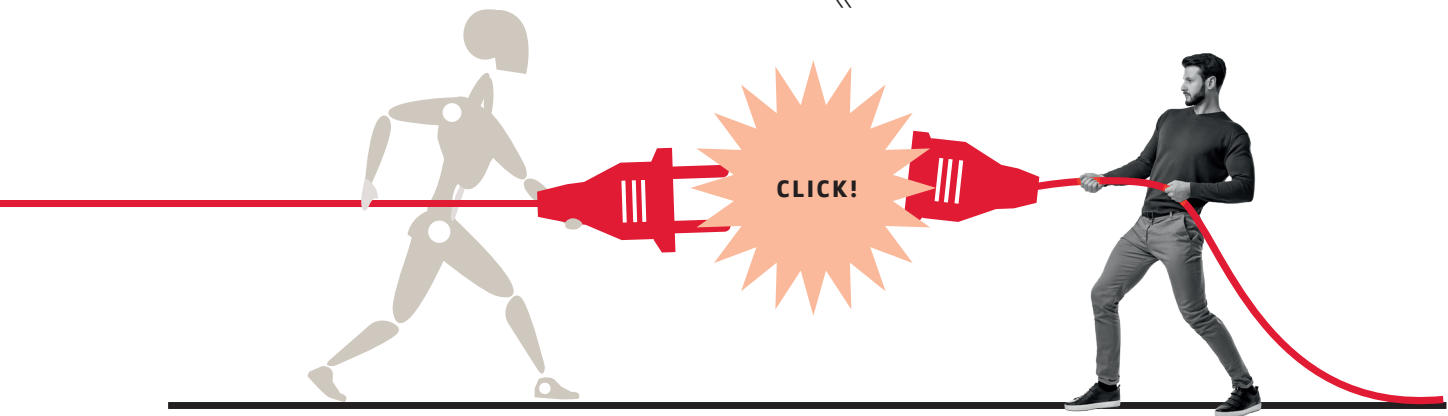
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While human-to-human interaction is the very traditional playing level for stationary retailers, intelligible human-to-machine interaction will be the very next frontier to master.

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> **Interaction** /// Interaction encompasses all virtual and physical relations and refers to all aspects of how customers and/or companies communicate and interact. Importantly, it refers to the nature of the interaction and not to the channel where it takes place. Interaction is one of the basic and very powerful human needs that increasingly happens in an online context. Digital technologies are being used to enrich traditional interactions or to enable new ones along the entire consumer decision and use process. Depending on the context, interaction primarily enables value creation through experiences, relevance and convenience. Contacts range from technology-enriched pre-purchase interactions over digitalized product-user interactions to customer-to-customer post-purchase interactions on social media. For example, IKEA has released the augmented reality app "Place." This app allows customers to see how specific furniture would look in their homes, thus improving the buying experience. At the same token, brands have to learn to interact with customers along the entire purchase and consumption phase. They need to contribute to a positive experience even while consumers are actually using the product. While human-to-human interaction is the very traditional playing level for stationary retailers, intelligible human-to-machine interaction will be the very next frontier to master.

> **Transparency and control** /// Transparency and control refer to processes and activities that provide customers with superior information, education and product use. Of all possible benefits digital technology can offer to consumers this is probably the most obvious one. Digital technology simplifies customers' access to comprehensive product information from various sources like online product descriptions, reviews or prices. Further, digital technologies can facilitate the analysis of relevant data and the transformation of these data into insightful information through machine learning algorithms. Take the product rating system based on "stars" that has become most prevalent: What it does in principal is to lower the information asymmetries between vendors and buyers – something that is as old as commerce itself. The mechanism of trust as a tool to enable commercial relationships is now being extended by information that comes from other users. Likewise, digitally and IoT-enabled products allow for far greater transparency and control around most classical activities. For example, Colgate's smart electric toothbrush enables users to monitor their brushing habits and to optimize their brushing techniques through coaching. Transparency and control primarily enable value creation through empowerment. Customers get greater command over their behaviors or choices and get enabled to make

more effective or better decisions. Empowerment pertains to both product purchase and product use. Control over product use often implies potential savings, as optimization of product use leads to efficiency gains.

**How retailers will succeed in future** /// We composed this issue of the MIR along these lines. We invited several world-class experts explore how retailers – or whoever is performing this function today – can use the new sources of retailer value creation in specific retailing contexts.

Venkat Ramaswamy and Kerimcan Ozcan (pp. 18) explain how digitally enabled interaction allows retailers to co-create the shopping experiences with their customers. This interactive process helps to individualize and embed these experiences seamlessly into consumer's lives – a crucial strategic capability in the new environment of rising digitalized interactive platforms. Matilda Dorotic (pp. 24) evaluates how loyalty programs – one of the mainstays in traditional retailing – need to adapt to thrive in the technology age. Werner Reinartz and Nico Wiegand (pp. 30) then zoom in on a classical and paramount of the 4 P's – pricing. They provide insights on how the very trendy though controversial topic of dynamic and differentiated pricing can be maneuvered smartly. Big data analytics is the focus of Venky Shankar (pp. 36), who explains how retailers can use all their data to create value for themselves and consumers alike and how privacy concerns can be handled successfully.

Peter Linzbach and colleagues (pp. 42) analyze the value-add of shopper-facing retailing technologies in traditional stores. They develop crucial success factors for implementing the most promising ones and suggest a framework to classify the myriad of technologies. Similarly, Fabian Buder and colleagues (pp. 48) venture the idea that point-of-sale environments can and should be turned into data-rich environments. They outline how various data-capturing technologies can help reduce the information disadvantage of brick-and-mortar operations vis-a-vis e-tailers and how they can help optimize classical store operation dimensions such as shelf placement, ad targeting or store design. Finally, in our interview, Eben Sermon, Vice President eBay Germany, illustrates that even companies that were born digital constantly need to redefine themselves. To remain relevant in a technologically evolving world where new players keep entering the scene and consumer expectations keep rising, innovation and permanent business model reconfiguration are still key (pp. 54).

**The future of retailing is born today** /// It is important to note that the traditional sources of value creation depicted in Figure 2 will not vanish. To a large degree they still need to be performed. Yet the advent of the new technologies along with the unwaveringly changing consumer needs – which by all means are not easy to satisfy – will establish entirely new requirements. The new, digitally-enabled value creation sources as presented in this issue need to be developed on top of the traditional ones. And it is really the performance in automation, individualization, life-embeddedness, interaction, transparency and control that determines who will be persisting in this new retailing environment. Only those retailers – or manufacturers, platforms or other new players in that space – who are able to translate those new value adds most effectively into meaningful and positive shopping experiences will survive. This is where the future of retailing in fact is born – as it is happening here and now.

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## FURTHER READING

*Reinartz, W. and Imschloß, M. (2017):*  
“From Point of Sale to Point of Need: How Digital Technology Is Transforming Retailing”, GfK Marketing Intelligence Review, Vol. 9 (1), 42–47.

*Reinartz, W.; Wiegand, N.; Imschloß, M. (2019):*  
“The Impact of the Digital Transformation on the Retailing Value Chain”, International Journal of Research in Marketing, Vol. 36 (3).





# Digitalized Interactive Platforms: Turning Goods and Services into Retail Co-Creation Experiences

*Venkat Ramaswamy and Kerimcan Ozcan*

## KEYWORDS

*Offerings, Digitalized Interactive Platforms,  
Interactional Value Creation,  
Omnichannel Store Environments,  
Smart Retailing, Retail Ecosystems*

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## Co-creation replaces distinct roles of retailers and shoppers

Over the past decade, the digitalized technology revolution has transformed retail offerings. Traditionally, retailers and shoppers were seen as having distinct roles in the process of retail value creation. Shoppers had a stake, but retailers viewed them as being largely passive and docile recipients of retailers' offers. With the rise of digital technologies, however, shopping has morphed from purchasing products, through receiving services, to having experiences and, ultimately, to transforming a lifestyle.

Retailing has become a field of value co-creation. Instead of offerings "having value" in the traditional sense, retailers now offer the means for continuously "creating value" through interactions. Offerings are no longer finished, but the creation of value continues in a joint space between consumers and their social networks and companies with their associated organizational ecosystems. Shoppers co-create and contribute through their different views of the created value and through their specific interactions on digital and mobile devices and in social networks. Often parts of the process happen away from retailers' own premises and increasingly move into shoppers' environments.

## Digitalized interactive retail platforms: Joint spaces for co-creation

Consequently, retailers are increasingly faced with the challenge of purposefully designing their offerings as digital interactive platforms (DIPs) for interactional value creation. This movement spans the retail landscape from omnichannel store environments and smart-connected retailing to entire retail ecosystems. Box 1 highlights the conceptual framework of DIPs in retailing and Box



2 presents a brief outline of Apple's digitalized interactive retailing platform and retailing ecosystem. Other brands that have successfully developed their own DIPs are Starbucks, Burberry and – of course – Amazon, and we will present how these brands have transformed their retailing experience.

**How Starbucks manages omnichannel store environments** /// Consider the case of Starbucks' retail stores and its Starbucks app. The pre-transaction environment involves a DIP that includes menu boards and a showcase of food items, along with one's favorites and past purchase history. The transaction environment consists of a DIP entailing an order processing system integrated with purchase-based rewards and payment options, and estimated time of pickup. In the digitalized physical environments of Starbucks' as a "third place," the customer becomes part of an assemblage of tables and chairs made from ecologically recycled and increasingly locally sourced wood that connects with environmentally conscious customers. The music –streamed by Starbucks partner Spotify– the complimentary WiFi service, lighting, the artwork showcasing local artists, and other persons in the store round out environments of experiences. There is also the scope for individuals to define their own preferred consumption contexts and to enjoy and shape different kinds of personalized Starbucks experiences.

**How Burberry encourages smart, connected retailing** /// The fashion retailer Burberry has brought together its customer portal, social marketing, its supply chain and the Burberry world of fashion, together with the retail experience, social product offerings, custom mobile apps, insights and analysis, in a unified retail enterprise architecture. In its flagship retail stores the retail experience has changed through several enabling technologies deployed throughout the store to engage individuals. For instance, a key enabling technology is a radio-frequency ID tagging (RFID) system, which provides both sales associates and customers with immediate access to a rich stream of content when a RFID-tagged item is activated. The content includes up-to-date information on every item, such as what sizes or colors are currently available. This information enables sales associates to spend more time attending personally to a customer, rather than disappearing in the back room to check the stock. The content also includes the heritage of the product, sketches, color swatches and video clips, which customers can view on display units throughout the store.

Customers can visit the store with items saved from their online account. They can make store appointments to check

out a new collection and initiate conversations on a variety of lifestyle issues. Employees not only have access to CRM type data, but they can also connect with customers' social media activities, from Facebook comments to Tweets and blog postings. Catwalk shows can be watched live on a huge screen, and customers can participate remotely in fashion shows with a front seat experience and order items in real time directly off the runway. Customers also get to showcase the retail brand's iconic products, such as its trench coat, through a standalone social media platform environment, uploading photos of themselves wearing their trench coats, featured on the site's main page for a short duration. They can also suggest (re)design ideas for products. Burberry, in turn, can experiment with changes to its offerings and test its marketing communications with the Burberry community.

**How Amazon leverages its retail ecosystems** /// Amazon customers can interact and transact with Amazon retail offerings through online services such as Amazon.com, Amazon Music, Amazon app and Alexa. All services are made more accessible through devices such as Amazon Fire, Echo and Dash and extended through brick-and-mortar operations such as Whole Foods, Amazon Books, Amazon Locker and Amazon Go. Amazon.com itself continues to be a DIP retail offering par excellence. It consists of an assemblage of elements like the 1-click ordering button and the ubiquitous Amazon delivery boxes, and of people like the tens of thousands of Amazon reviewers populating the world's largest and most-up-to-date database of customer reviews. Algorithmic processes power the experience-centric analytics and recommendation engine, and the industry-leading web navigation interface that is continuously iterated to sustain stickier and personalized engagements. "Amazon.com + Echo + Alexa," "Amazon.com + Amazon Books + Amazon app," or "Amazon.com + Whole-Foods" can be seen as further assemblages of the focal DIP retail offering coming into relation with other supporting DIPs in the Amazon network.

In each instance, value emerges from joint creation through the contextualized, location-based and dynamic interactions of DIP components activated by particular shoppers, allowing unique engagements. The Amazon network multiplies the value of Amazon.com to shoppers and cannot be controlled and staged by the company on its own. Shoppers, by co-creating with the network, are active stakeholders in defining the interactions, the context of the events that underlie these interactions and what they find meaningful.



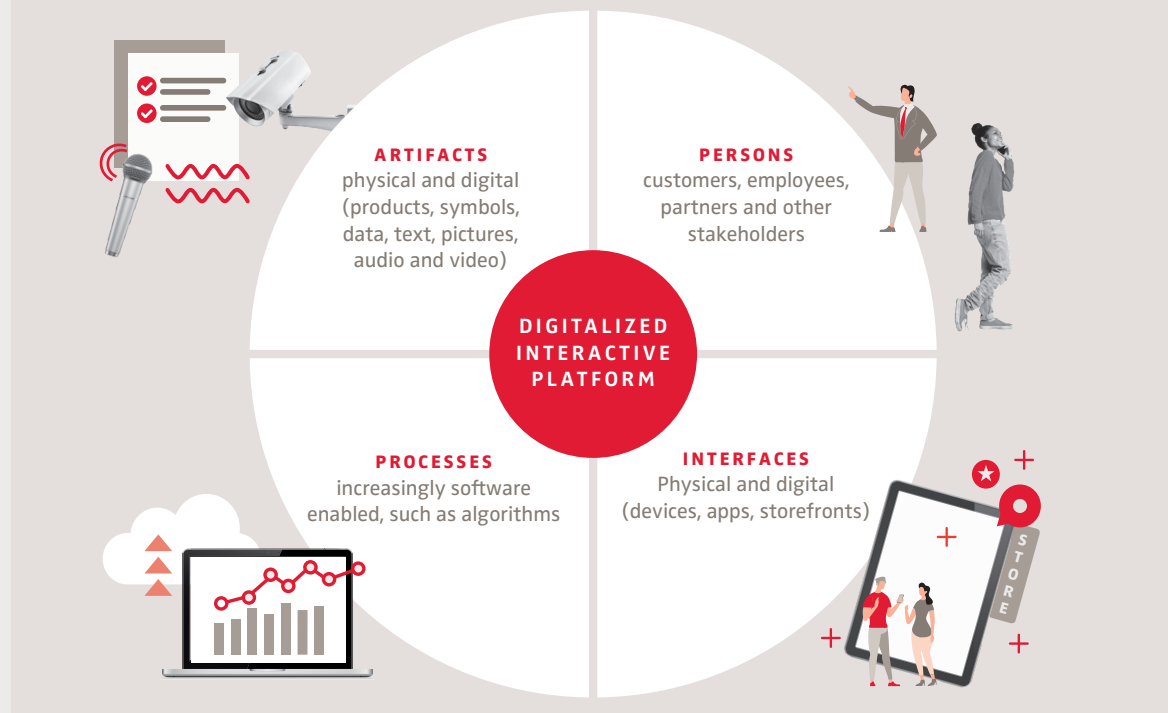
{Box 1}

## INTERACTIONAL VALUE CREATION THROUGH DIGITALIZED INTERACTIVE PLATFORMS (DIPs)

In a network economy with innovation increasingly based on personalization and co-design of services, offerings as DIPs promote interactive agency in retail environments. A DIP can be described as an evolving digitalized networked arrangement of related physical and digitalized artifacts of persons, increasingly software-enabled processes, and different interfaces such as apps or elements of a store (see Figure 1). Altogether they provide many interactive system environments enacting interactional creation of value.

FIGURE 1:

Retail offering as a DIP, composed of artifacts, persons, processes and interfaces, affording multiple interactive system environments for engaging actors



Typically, individuals engage with a retail DIP offering in their particular contexts of interactions with apps or similar components. By delving deeper into the nature of the individual interactions, hidden and untapped sources of value can be revealed. Shoppers get more engaged, and retail managers gain more insights and are able to design ecosystems that allow a more effective creation of “all-win more” outcomes, especially in more profitable ways.

{ Box 2 }

## APPLE'S DIGITALIZED INTERACTIVE PLATFORM: THE RETAILING EXPERIENCE RECONFIGURED

Apple's retail store is a great example of an environment through which DIPs come to life for individuals experiencing the store. Artifacts, employees, processes and interfaces (see Figure 1) are purposefully arranged in a typical Apple store located in a shopping mall or city. The store is territorially and symbolically set apart from all other neighboring shops to convey a museum-like aesthetic. Products on display are not presented as mere commodities with exchange- or use-value but as artifacts intrinsically worthy of playful interaction and enjoyment with full mind-body engagement. Apple's (mobile) devices transport customers to a larger world of play, exploration and discovery of entertainment, productivity and lifestyle media. The virtual possibilities are designed thoughtfully and are neither trivial nor obvious out of the box.

The store as a DIP offering is configured for ordinary people to combat "feature-itis," the common overemphasis by technology companies on the features of products. Instead, Apple is focused on inviting people to play with its products as they would experience them. In the store, employees are equipped, of course, with Apple devices. But more importantly, an internal app allows employees to capture insights from the experience in interactional creation of individuals. This includes employees offering customer support through the Genius Bar after purchase. A digital concierge process, available in both self-service and employee-assisted modes, orients entering customers, directing them to appropriate parts of the store or fixing an appointment at the Genius Bar for walk-ins. With EasyPay as an interface for supporting DIPs, customers can scan the barcodes of accessories in the store, get reviews, ratings and product specs and pay for purchases within the app through Apple Pay in self-checkout fashion.



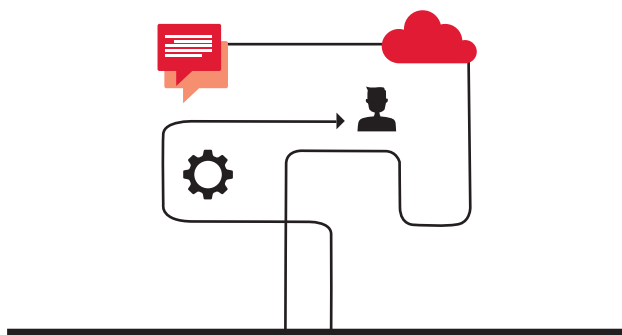
Apple Store Kyoto, opened August 2018 (© Apple)

Apple's retail stores and devices, together with the App Store, which is itself a DIP with multiple connective other assemblages entailing books, music, videos and credit card accounts that enable a variety of novel, personalized, co-creational brand experiences. Developers are further stakeholders in Apple's enterprise ecosystem who provide applications for new assemblages of interfaces, artifacts, persons and processes coming together as various kinds of DIP offerings for unique experiences instore and everywhere else.

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In a connected world, retailers will be successful with hybrid-delivery systems in which consumers can use a range of interface capabilities across multiple channels.

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**How to be a successful retailer-co-creator** /// Based on these retailers' experiences, there are several recommendations for those interested in reinventing retail offers.

> **Broaden your view of retailing** /// Retailers need to incorporate a broader view of value creation into their operations, encompassing different types of stakeholding individuals in the organizational ecosystem. Shoppers, fashionistas, designers, journalists, enterprise partners and many more can have a distinct role in co-designing environments from the perspective of interactions. They all contribute to meaningful retail experiences, focusing on what different stakeholders value in retail engagements, and to better managing a retailer's relationships by tapping into the knowledge and skills of all individuals, both personally and as communities.

> **Enable DIPs for internal and external activities** /// DIPs of engagement in retail activities entail digitalized networked arrangements. They need to be designed around activities such as connecting with customers, employees, partners or any other stakeholders, innovating/marketing offerings, customer service/support and activities of collectives such as brand/user communities, whether self-organized or otherwise.

> **Integrate physical and digital environments** /// Technological innovations such as IoT, virtual or augmented reality, GPS and RFID tracking, AI, and robots/drones/driv-erless vehicles are already changing the face of commerce, equipping both consumers and retailers with new capabilities in decision-making, analytics, traffic flow and cus-tomer experience management. Advanced technologies on mobile devices, social networks and in-store solutions are fusing touch-and-feel information in physical retail with online content in e-commerce in smart, connected ways. In a connected world, retailers will be successful with hybrid-delivery systems in which consumers can use a range of interface technologies across multiple channels. Being able to interact with informational content, human actors and technical resources at different stages of the decision mak-ing and shopping processes will enable rewarding shop-ping experiences for customers and retailers alike.

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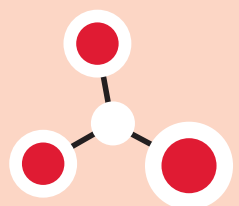
## FURTHER READINGS

**Ramaswamy, Venkat and Ozcan, Kerimcan (2018):**  
"Offerings as Digitalized Interactive Platforms:  
A Conceptual Framework and Implications", *Journal of Market-  
ing*, Vol. 82 (4), 19–31.

**Ramaswamy, Venkat and Ozcan, Kerimcan (2014):**  
"The Co-Creation Paradigm", Stanford, CA:  
Stanford University Press.

**Ramaswamy, Venkat and Guillard, Francis J. (2010):**  
"The Power of Co-Creation:  
Build It with Them to Boost Growth,  
Productivity, and Profits", New York:  
The Free Press.

**Prahalad, C. K. and Ramaswamy, Venkat (2004):**  
"The Future of Competition:  
Co-Creating Unique Value with Customers,"  
Boston: Harvard Business School Press.





# Keeping Loyalty Programs Fit for the Digital Age

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## KEYWORDS

*Retailing, Loyalty Programs,  
Consumer Spending, Rewards,  
Digitalization*

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**Loyalty programs: Relicts from the past? ///** The omnipresence of loyalty programs (LP) across markets shows that LPs have been one of the most prominent business trends of the last two decades. Besides their traditional stronghold among airlines and grocery retailers, loyalty reward schemes have spread among nonprofit organizations like museums, charities and sport clubs, among online and offline services, and even among utility providers and business-to-business markets. On average, two-thirds of Europeans belong to at least one LP. In the UK LP penetration reached 90 % and even 94 % in Finland, according to a worldwide Nielsen study in 2016. The 2017 US census by Colloquy reports 3.8 billion LP memberships, with the strongest penetration in the retailing sector to which more than 1.6 billion memberships belong. Beyond reinforcing customer loyalty and retention, LPs can help a retailer increase its share in a customer's wallet and to cross-sell and up-sell additional products to customers. However, as the number of companies offering LPs soar, the battle for a "place in the consumer wallet" is intensifying, resulting in the fact that more than half of all the memberships that customers sign up for are eventually abandoned, according to Colloquy's reports. This tendency, coupled with increases in investment costs necessary to leverage benefits from LPs, makes some managers question whether supposed gains from LPs are sustainable. These managers wonder whether investments in LPs should rather be replaced with new must-haves such as mobile marketing, gamification and social media leverage.

**Beware of bombastic promises, but know that loyalty programs pay off ///** Popular press and CRM consulting firms in the last two decades have boasted about large differences in purchase levels and profitability between LP

{ Box 1 }

## CALCULATE THE EFFECTIVENESS OF YOUR LP CORRECTLY

To calculate the true return on your LP investment, it is not sufficient to look at the average differences in spending between members and nonmembers. Rather, start by observing individual customer's purchase behavior before they joined the LP. Identify members and nonmembers who in the period before joining the LP had similar purchase levels, demographics and other information that you can get. If you pair the LP member with such a similar nonmember and compare how member's purchase behavior changed relative to the nonmember's in the periods after joining the LP, you will be able to gauge the true effect more realistically.

FIGURE 1:

Compare purchase behavior of similar members versus nonmembers before and after joining an LP program to get the true effects



members and nonmembers, attributing the difference in purchase levels to the LP. The large difference in spending levels, between LP members and nonmembers, comes primarily from the fact that loyal, high-spending customers are more likely to become LP members. The true impact on performance that could be attributed to LPs is much smaller, although it is significant and positive. This impact comes from LP's ability to increase spending and frequency of purchasing of LP members after they join the LP. In general, research evidence shows that retailers of FMCGs can expect from 6–25 % increase in sales and airlines around 4 %. Specifically, research among Dutch supermarket chains showed that loyalty program membership on average increases share-of-wallet by 4 %. This effect is seven times smaller than the increase in sales that would be attributed to the LP if the underlying dif-

ference between members and nonmembers were not taken into account.

> **LPs are primarily attracting existing customers** /// One misconception to avoid is the belief that an LP is able to attract significant numbers of new customers who are otherwise less likely to shop with the retailer. LPs predominantly engage existing customers – those who feel they do not have to significantly change their standard purchase behavior to earn rewards. Customers most likely to join retailers' LPs are those who already purchase, those who live close by and those for whom buying at the retailer is convenient anyway. In any case, retailers should expect the greatest increase in purchase frequency and volume within a few months of the LP introduction.

> **The LP effect is stronger for medium and light buyers**  
 /// Moreover, managers may be surprised to realize that the largest increases in purchase behavior may not come from their “best” customers and high spenders. LP members most likely to significantly increase their spending and share of wallet are customer segments that are often underestimated and perceived as less relevant: medium and light buyers. The explanation is straightforward: Heavy buyers and high spenders already devote a large part of

their overall consumption in a category to their favorite company, so they have less room to grow their expenditures. Light and medium buyers may, in contrast, increase their share of purchases by switching from competitors or increasing their consumption in the category.

{ Box 2 }

## THE POWER OF REWARDS: HOW TO GET AND KEEP ACTIVE LOYALTY PROGRAM MEMBERS



In their evaluation of whether to join an LP, customers always weigh convenience and effort against the likelihood of earning the LP benefits. “Do I shop often enough with this store to earn their rewards easily with my regular purchases?”

Typical LP rewards are discounts, free products or a preferential service. Surprisingly, half of all issued points and considerable value remain unredeemed. To encourage members to collect their reward, some companies impose high spending thresholds and points expiry. These measures, however, can also increase frustration if the points expire before members have an opportunity to cash them in. Indeed, the most prominent reason for abandoning an LP is if customer feels it takes too long or too much effort to earn rewards, according to the Colloquy census. Managers fear that without imposing the pressure to redeem points, members’ purchases may decline, and their loyalty will fade. An analysis of purchase and redemption behavior in a European LP found that such restrictive policies are not necessary. In an LP without points expiry customers’ decisions to redeem rewards, by itself, significantly enhanced purchase behavior in the periods before and after redemption. Customers purchased more frequently, and they tended to spend more per purchase, without being “pressured” with points expiry or spending thresholds. These findings emphasize the power of encouraging redemption of rewards in LPs to counteract the negative effects of being inactive in the LP which leads to decline in purchases and higher likelihood to abandon the LP. This is particularly relevant for long-term, high-spending members who tend to decrease their purchases over time more than other customer groups.



FIGURE 2:

## Future loyalty program success factors

### GO DIGITAL INSTEAD OF CARDS

- integrate with mobile applications
- integrate with digital payment systems
- Integrate with real-time in-store offers



### BUILD NETWORKS

- Include complementary partners to increase value



### INTEGRATE MONETARY AND NONMONETARY AWARDS

- for purchases
- for referrals and WOM
- for social media engagement
- for lifestyle and prosocial behaviour



### The future of loyalty programs: How to keep LPs worthwhile in the digital age

/// The core idea of leveraging information gained through loyalty initiatives remains stronger than ever. As LP membership penetration reaches all-time highs, customers demand more value from LPs. There are several ways in which LPs need to increase value to remain attractive in a more and more digital and highly competitive retailing space.

> **Think beyond plastic cards** /// What sceptics about the future of LPs may rightfully highlight is that the effectiveness of classic LPs as plastic cards is declining. The future of LPs is linked to leveraging opportunities that mobile devices offer in increasing the convenience and communication with LP members. Digital transformation for LPs seems particularly important, because as many as around one third of LP members are willing to abandon an LP if it does not offer a mobile-friendly solution. In the future, the integration of LPs with digital payment systems like mobile wallets seems particularly promising. Such integrations would allow customers to seamlessly earn and

redeem rewards when they are using a mobile wallet. The savvy LP retailer will go one step further and integrate their program and digital payment systems with real-time targeting of offers in the store. Flexible redemption schemes would offer customers an opportunity to buy in the store with a combination of points and money and encourage redemption of rewards in real time. Starbucks and the UK supermarket chain Tesco, for example, have already implemented NFC technology successfully to integrate contactless payments with mobile wallet and their LPs' earning and redeeming options.

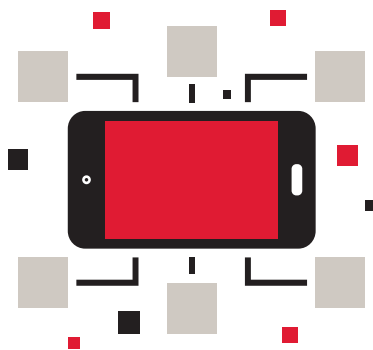
> **The power of networking: Increase the value through LP partnerships** /// Another way to become more attractive is by forming partnerships with other companies at which customers can collect and/or redeem points. Lufthansa's Miles and More, for instance, currently has around 300 partners, of which 270 are nonaviation partners. They regard their LP as a platform for many partners, offering a broad range of customer loyalty possibilities. Similarly, the Payback coalition of partners has reached 30 million active



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The power of networking is increasing the value of an LP, both for customers and participating companies.

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members in Germany and distributed 50 billion coupons in 2017. Such partnership LPs hold appeal for retailers, particularly if potential partners might benefit from synergies. An initial study of an LP coalition of an airline and complementary partners shows that customer usage and satisfaction with the airline as the core service increased cross buying from complementary partners like hotels, which in turn reinforced usage of the core service. Moreover, partnerships seemed to some extent be able to shield partners from the negative effects of service failures. The power of networking is increasing the value of an LP, both for customers and participating companies, and the future will likely see more networking in LPs.

- > **Be more creative in what to reward** /// In the future of linked data, we also expect to see higher flexibility in terms of the types of customer engagements that will be rewarded. Many companies already move towards rewarding customer engagement not only on the base of past transactions, but also for their activities on social media. They accredit, for example, points for WOM referrals, or for writing social media posts or customer reviews, and they acknowledge other customer activities that are not directly related to purchases, such as health-promoting activities like running.

Customers still enjoy some form of loyalty rewarding and expect retailers to acknowledge their purchases as investments in relationships. Particularly for retailers who rely on high quality and customer experience building through a differentiation strategy, some form of customer relationship building is unavoidable. If we see the LPs for the gist that they could offer – enhancing customer experiences and building loyalty – they will remain as attractive and essential as when they were first introduced, although we may have considerably fewer plastic cards in our wallets.

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## FURTHER READINGS

*Dorotic, M., Bijmolt, T. H. and Verhoef, P. C. (2012):*  
“Loyalty Programmes: Current Knowledge and Research Directions”, *International Journal of Management Reviews*, Vol. 14, 217–237.

*Dorotic, M., Verhoef, P. C., Fok, D. & Bijmolt, T. H. A. (2014):*  
“Reward redemption effects in a loyalty program when customers choose how much and when to redeem”, *International Journal of Research in Marketing*, Vol. 31 (4), 339–355.

*Leenheer, J., Van Heerde, H. J., Bijmolt, T. H., & Smidts, A. (2007):*  
“Do loyalty programs really enhance behavioral loyalty? An empirical analysis accounting for self-selecting members”, *International Journal of Research in Marketing*, Vol. 24 (1), 31–47.

<https://www.colloquy.com/latest-news/u-s-customer-loyalty-program-memberships-reach-double-digit-growth-at-3-8-billion-2017-colloquy-loyalty-census-reports/>



# The Perils of Retail Price Differentiation: Why Nobody Wins When Customers Lose

*Werner Reinartz and Nico Wiegand*

## KEYWORDS

*Price Differentiation, Retailing,  
Willingness-to-Pay, Price Fairness,  
Consumer Behavior*

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**The new pricing playground** /// Retailers increasingly make use of differentiated prices in forms of coupons, sales promotions, and personalized offers. Especially in multichannel retailing it has become common practice to differentiate prices according to touchpoints or across online and offline channels. For example, prices for identical products are often lower on price comparison sites than when accessing the shop directly via its URL. Price differentiation comes in different forms. In general, retailers may charge different prices according to customer segments and/or sales channels as well as dynamically over time, or a combination of both (Figure 1).

With the growing availability of behavioral consumer data from online browsing and purchasing, businesses can even tailor product prices to consumers' individual willingness-to-pay. Simulations show that profit uplifts are much higher when such data is used compared to traditional consumer metrics like demographics. Besides, automated algorithms have made the implementation of pricing measures much cheaper and easier. It is thus not surprising that many companies are jumping on the bandwagon by experimenting with various forms of price differentiation.

**Digitalization works both ways** /// However, the same advances that enhance retailing's options to leverage price have also been a blessing for consumers. Price transparency at near zero search costs not only affects their sensitivity towards product prices but makes fencing – the supplier's attempt to shield consumer groups with different prices

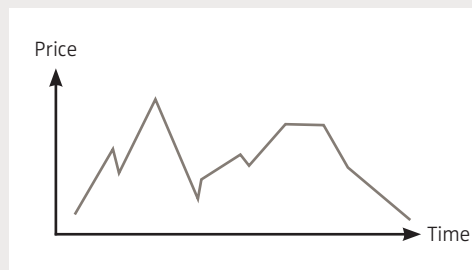
**FIGURE 1:**  
Different forms of price differentiation

### STATIC



Different prices between segments and/or sales channels

### DYNAMIC



Different prices over time

for the same or similar offers from each other – a difficult endeavor. Nowadays, betting on consumers' lack of awareness or even ignorance towards price differences does not seem like a sustainable strategy. In fact, our representative survey among German customers across three large product categories suggests that an overwhelming majority (91 %) obtained information about price ranges of the desired product prior to their purchase. Over 40 % even confirmed very accurate price knowledge. This transparency paired with awareness of companies' differentiation practices makes consumers highly alert and sensitive to price changes, placing tight boundaries around overt differentiation schemes. We exposed over 2,000 German consumers to different forms of retail price differentiation in a large-scale experiment to empirically analyze how they react.

**How consumers identify and evaluate the fairness of differentiated prices** /// Even if both, companies and consumers, can benefit from price differentiation, consumers identifying these practices may feel discriminated. Our study showed that independent of whether consumers benefitted from a pricing scheme, 74.8 % of consumers across six price differentiation schemes considered the shown difference as unfair. Among the beneficiaries, this number dropped only slightly to 65.2 %. This is likely because consumers may fear

that a price differentiation scheme might be turned against them another time. To what extent consumers perceive price differentiation as fair or unfair depends on several criteria and on the types of price differentiation measures a company implements. Figure 2 summarizes the impact the different criteria have on trust in a retailer.

- > **How similar is the purchase situation?** /// The less similar the purchase situation is, the less likely a different price is considered unfair. For example, a company can offer a basic, and a premium version of the same good. Additional services or features added to products, or different distribution channels reduce the perceived similarity. Also, the timing of price differentiation plays a role. From the consumer's viewpoint, it makes a difference whether, e.g. an available coupon expired just the day before or the last promotion was several months ago. If the difference is clear, offers tend to be classified as separate and not as a form of pure price differentiation. Overall, the dissimilarity of offers has a high impact on trust.
- > **Can I decide which price to pay?** /// If a good deal is accessible through extended search or other consumer action, consumers have some degree of control over the price they pay. Price-sensitive consumers are likely to incur

greater effort and time to receive a good price, while less sensitive consumers may accept the higher price without much complaining when, for example, they need a product urgently or have little time. Our study showed that consumers who have more control, e.g., when they can use coupons or use a specific channel, their attitude and loyalty towards the retailer improves. However, more control by itself has a smaller effect on perceptions of fairness and behavioral consequences than other criteria. It seems, that consumers do not only base the evaluation on their own advantage, but also consider the effects on disadvantaged consumers. A feeling of solidarity with less knowledgeable people may induce a feeling of rejection towards the retailer and reduce the overall positive influence of control on trust.

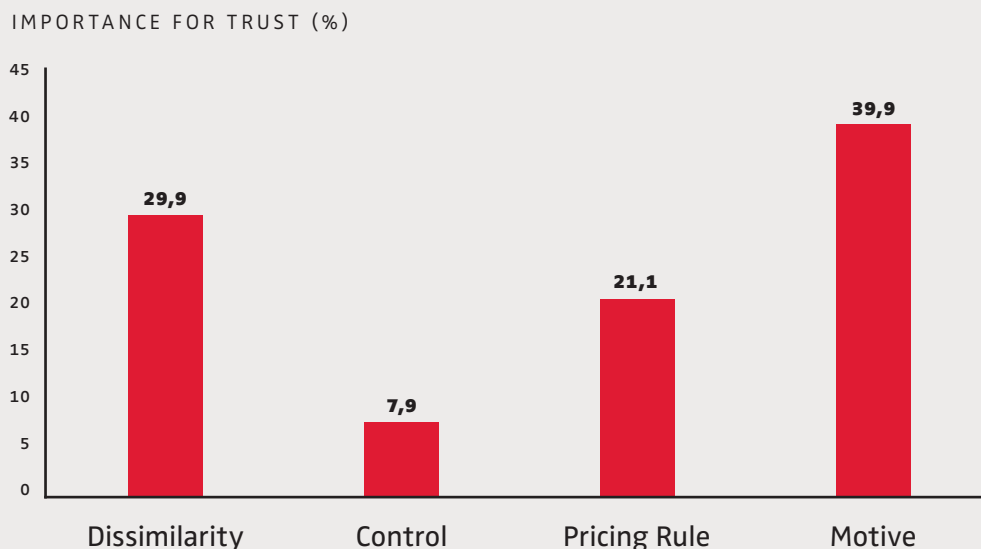
- > **Why did my neighbor get a better price than me?** /// The perceived implicit or explicit rule underlying the price differentiation scheme influences its evaluation as well as behavioral reactions. Price differentiation is perceived as more fair and has less dire consequences if people

see good reasons for it. Examples for relatively fair pricing rules are discounts for children or senior citizens and quantity rebates, as larger quantities allow companies to incur lower margins per item sold.

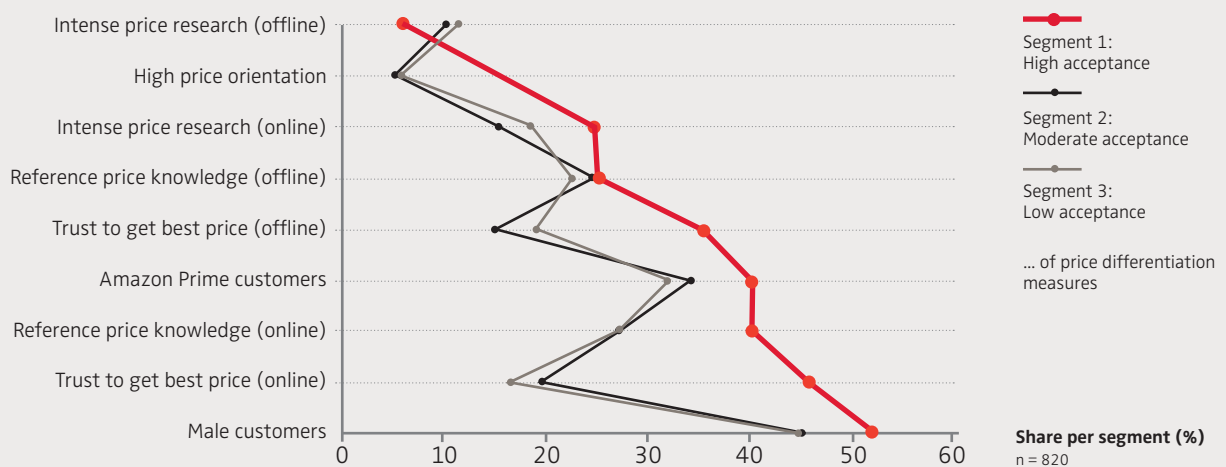
- > **Does the retailer differentiate for pure profit maximization or for “more reasonable” motives?** /// Lastly and linked to the pricing rule, consumers make inferences about the retailer’s motive behind price differentiation. If retailers charge different prices based on cost or performance differences, consumers will be more understanding. This holds also for differences between stationary and digital retailing. Figure 2 shows that the suspected motive of the retailer had the strongest positive association with trust among all tested criteria. Customers do grant companies a certain profit margin as long as they don’t feel cheated.

**Knowing how to play the game** /// In addition to these general observations, our study also revealed considerable heterogeneity among participants, suggesting different seg-

**FIGURE 2:**  
Relative importance of price differentiation criteria for consumer trust



**FIGURE 3:**  
How consumers with high acceptance of price differentiation differ from the rest



ments based on reactions towards price differentiation. Some participants – making up a substantial portion (27 %) of the market – stand out through significantly more positive reactions towards price differentiation than the rest. This group is particularly well-informed about prices through online channels, leading to increased confidence about their own price expertise and skill to find the best deal (see segment 1 in Figure 3). Obviously, consumers who know how to maneuver through the pricing jungle and are able to land on the “right” side of the spectrum are not as much repelled by differentiation practices. It is therefore reasonable to assume that success in terms of “scoring good deals” plays a significant role in the evaluation of differentiated prices. These assumptions are backed by an analysis of industries in which price differentiation has been common practice for quite some time. For instance, consumers of gas stations find dynamic prices over time – especially within the same day – just as unfair as for any other industry, if they perceive to have been disadvantaged. However, once they profit from the practice, their assessment is significantly more positive than of the same practice in categories like sneakers, perfume, or consumer

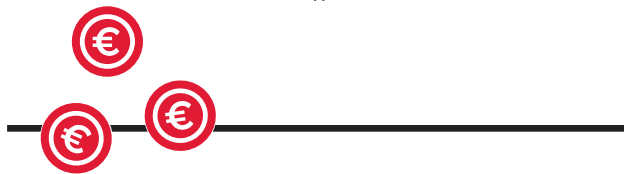
electronics. We explain this asymmetry by a combination of learned “pricing skills” and control over the final price: Gasoline customers often know the patterns according to which prices fluctuate throughout the day or week. Hence, they can predict and “choose” to get good deals. Their price success lies, at least in part, in their own hands, which lets differentiation schemes shine in a more positive light. Furthermore, others can easily benefit as well, because fluctuating prices are common knowledge and striking a bargain does not require special skills or expertise. Therefore, the rejection based on unfair discrimination of others is low. It is only when consumers feel helplessly at the mercy of the situation – or perceive that others might – that they strongly reject differentiated prices.

**To win at price differentiation, retailers need to play fair** /// Managers can use these insights to engage in more acceptable methods of price differentiation. After all, feelings of unfair price discrimination can seriously harm trust in the company and damage its reputation. Before implementing differentiation schemes, managers should consider a few aspects.

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Nobody wants to pay  
higher prices for identical or very similar  
products, but some have more urgent  
needs than striking a good deal.

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> **Appeal to consumers' reward system** /// Even in industries where price differentiation is long established, learning effects are not universal and getting a bad price is never acceptable. Rather, consumers need experiences of success. It is critical to show that differentiated prices are not only for the company to skim consumer surplus but may benefit consumers as well. A precondition for this is transparency of the success. Consequently, companies engaging in price differentiation should attempt to make advantages explicit to the target customer. For example, search engines for hotel rooms or airplane seats could point out whether a consumer has paid the lowest price for a room or seat available within the past 30 days.

> **Let the wheat separate itself from the chaff** /// Price-sensitive consumers are willing to work for their bargain. It is important to give them the opportunity to do so. The slogan should be: Some control, but no free lunch. For example, members of a company's loyalty program give up their personal data in exchange for savings. Our experiments show that consumers who choose not to be part of such a program are less dissatisfied when getting a worse deal on products. They could have opted to become a member, which makes them attribute the price difference to their own decision rather than blaming the company for unfair pricing practices. Freemium pricing models work in similar ways: They offer two or more product versions, where customers of the free version must cope with reduced functionality and often third-party advertising. If the difference between perceived benefits and these "costs" remains larger than those of the paid version, consumers will be reluctant to upgrade. On the other hand, less price sensitive consumers have no problem paying for the service.

> **Conform to social norms** /// Lastly, consumers are more willing to pay a price premium when they believe it to be socially acceptable and not based on managers' greed. When self-selection mechanisms are difficult to implement and offerings at different prices are perceived as very similar, it can help to implement pricing rules that appeal to common decency. For example, public transportation firms often grant discounts for schoolchildren, seniors, and disabled persons, despite offering them the exact same service as regular passengers. Similarly, there are theme parks where customers enjoy free access on their birthday, and residents can visit without charge during one day of the year to compensate for the traffic and noise they endure on the remaining days.

It is a challenge to implement differentiated prices that carry an upside for both consumers and retailers. Not all consumers can benefit from price differentiation on all occasions as this would make differentiation efforts absurd. However, not all need to either. Identifying and addressing price-sensitive customers with good deals is key for the practice to work. Nobody wants to pay higher prices for identical or very similar products, but some have more urgent needs than striking a good deal. Addressing alternative needs, like saving time or effort or contributing to a fair cause can increase willingness-to-pay and create a balanced system of price differentiation.

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## FURTHER READING

Reinartz, W.; Haucap, J.; Wiegand, N.  
and Hunold, M. (2018):  
"Price Differentiation and  
Dispersion in Retailing," IFH White Paper, Issue 6, Köln.  
ISBN: 978-3-935546-82-9







# Big Data and Analytics in Retailing

*Venky Shankar*

## KEYWORDS

*Big Data, Analytics,  
Retailing, Automation,  
Data Science, AI, Machine Learning*

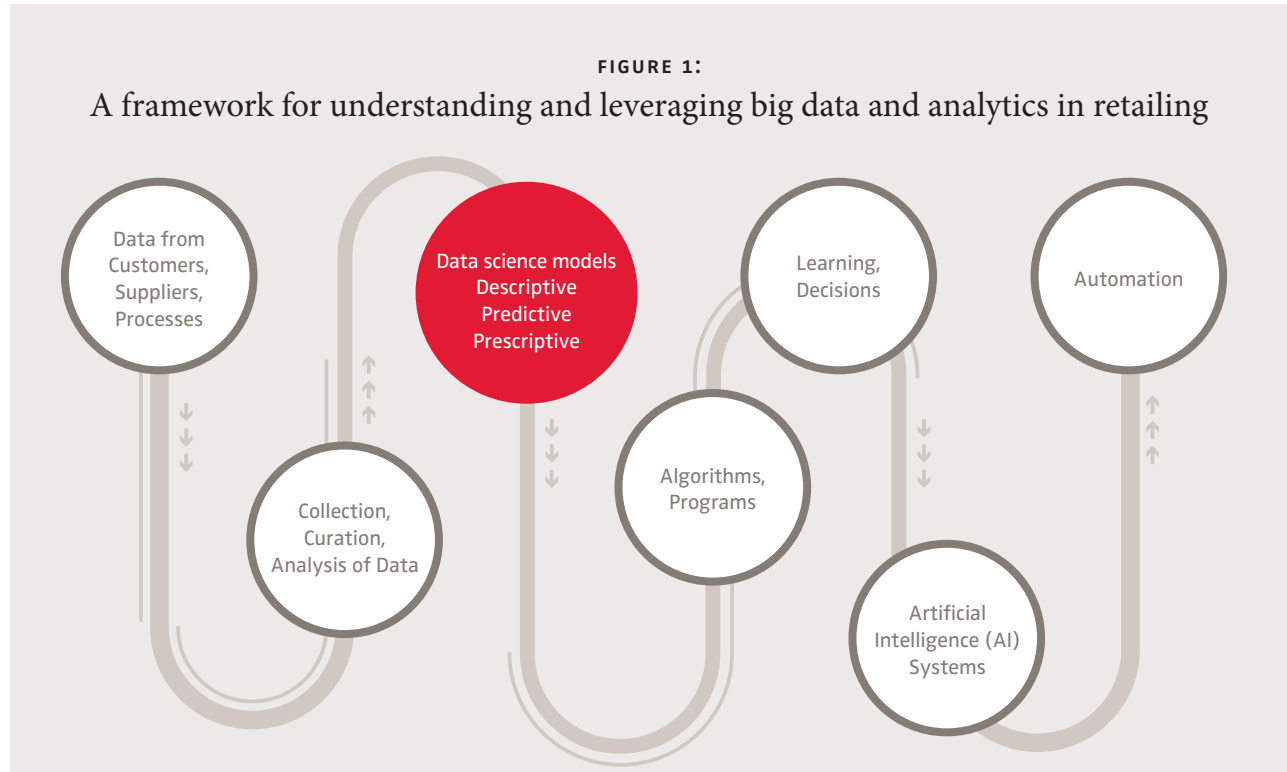
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**What is the big deal about big data?** /// Big data are taking center stage for decision-making in many organizations, especially retailers. The McKinsey Global Institute has predicted that retailers embracing big data can increase their operating margin by more than 60 %. There is an explosion in data availability and collection. Business data double every 1.2 years. Specifically, customer-related data are growing by leaps and bounds. These data include online browsing data, social media data, mobile usage data, purchase data, customer satisfaction data and the like. For example, a retailer like Walmart collects data on about 1 million transactions per hour, contributing to 2.5 terabytes of data. Furthermore, with the runaway growth of the Internet of Things (IoT), more data are continuously collected from sensors in multiple devices such as smart watches, smart speakers and other wearables that are connected to the Internet. These data require massively parallel software running on thousands of computer servers often in a cloud-based environment. By some estimates, in 2020, one third of the data will be processed through the cloud, yielding 35 zettabytes ( $35 \times 10^{21}$  bytes) of data, which may be spread across about half a million data centers across the world.

**How can retailers better understand and leverage big data?** /// Retailers like Amazon are constantly collecting, curating, and analyzing data, and making critical decisions. Their decisions, in turn, fuel customer interactions with retailers with more data which are again recorded, processed and analyzed for further decisions. Many such decisions are made in real time. Thus, the cycle of constant data collection, analysis, decision, and further data collection keeps escalating with larger volumes of data. By some estimates, the market for big data is expected to be \$56 billion in 2020. The framework in Figure 1 can help to understand big data analytics and its impact on retailing.



In this framework, customer data on attitudes and behavior across channels, touchpoints, devices and platforms are constantly recorded and collected. These data are integrated from multiple sources and stored or warehoused, often in a cloud-based environment. Statistical, econometric and data science models are developed for enabling appropriate decisions. Computer algorithms and programs are created for these models. A class of models, called machine learning-based models, are particularly useful for learning from the data and making predictive decisions. Many decisions, especially continuous and real-time decisions, are automated. These machine learning models form the backbone for the generation and development of AI-assisted decisions. In many cases, such decisions are automated using systems such as chatbots and robots. For example, chatbots assist in customer service and robots help in warehouse and retail store automation.

#### **Hindsight, insight and foresight from data analysis**

/// Data science models are at the heart of this framework. These models can be classified as descriptive, predictive and prescriptive models. Descriptive models primarily capture past behavior and data. The outputs from these models can

be viewed as hindsight. Predictive models predominantly offer forecasts of focal outcomes. These models typically offer insight for retailers for decisions. Prescriptive models focus on providing normative decision recommendations. These models can be thought of as offering foresight. They incorporate optimization of focal decision variables. In the retail pricing context, a descriptive model could be a demand model of how customers responded to past price changes. A predictive model could be one that predicts future sales response to price changes. A prescriptive model is one that offers optimal price recommendations to retail managers. Because a large retailer deals with several thousands of items with millions of customers and perhaps billions of transactions, such a pricing problem is truly a big data problem.

#### **How retailers can benefit from big data** ///

Of special interest are issues such as omnichannel shopping behavior, resource allocation across 3 channels, the effects of the mobile channel and mobile apps on shopper behavior, retailer pricing (in particular, dynamic pricing), data privacy and security. Research on these issues reveals several interesting insights on which retailers can build.

{Box 1}

## THE DATA PRIVACY CHALLENGE



Many highly publicized data breaches of retailers have heightened consumers' concerns about privacy. The General Data Protection Regulation (GDPR) is a sweeping set of new rules developed by the European Union to protect consumers in Europe. Noncompliant retailers can face fines up to 4 % of company revenues or 20 million Euros, whichever is greater.

Unfortunately, many retailers haven't made any meaningful changes to their data collection and use to the point of noncompliance. Retailers will have to explicitly seek consumer permission for data gathering and processing. Consumers expect to be able to control how their personally identifiable information is used. Therefore, retailers must be sophisticated in their use of technology and scrupulously follow security procedures. However, privacy concerns should not be a reason for failure to embrace the promise of data-driven decisions.

Retailers that leverage data with business analytics will be able to identify profitable products and services, as well as target customers effectively throughout their purchase journeys. The GDPR may significantly alter retail marketing. It will make behavioral data collection more challenging. To comply with the new rules and still be effective, marketers may have to adopt practices such as contextual online advertising.

This means rather than use a consumer's profile to target an ad online, marketers may have to serve an ad based on the content of the article, blog or webpage that a consumer is viewing in real time. Behavioral data collection through the use of cookies, geofencing and app monitoring will not go away entirely. Retailers will have to be more transparent, better secure consumer data and be more creative in the collection, processing and use of data.

- > **Omnichannel shopping behavior.** /// Multichannel and omnichannel shoppers are typically more valuable than single channel shoppers. However, for certain categories, single channel shoppers may be more valuable than multichannel shoppers. A mobile channel typically enhances overall purchases. In particular, mobile apps have interesting effects on shopping behavior. They lead to greater frequency, quantity and monetary value of purchases in both online and offline channels, but also result in greater prod-

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The future will be dominated by  
AI-assisted customer behavior and  
AI-based managerial decisions.

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uct returns. However, overall, mobile apps lead to greater monetary value of purchases net of returns. By the same token, a failure in a mobile app can lead to decreases in the frequency, quantity, and monetary value of purchases in offline channels. Also, marketing efforts in one channel tend to have cross-channel effects. Therefore, retailers need to carefully analyze big data and leverage the findings for improved decisions.

- > **Personalized recommendations and offers** /// Amazon, for example, uses big data about its customers, including over 100 million Amazon Prime customers, mainly for predicting customer purchases, making personalized recommendations of offerings and optimizing supply chains. Retailers such as Kroger and Safeway use big data to offer weekly promotions. Many of these retailers' models are based on machine learning. The larger the customer base and the number of interactions and transactions, the bigger the training data. The more the training data, the better the algorithms' learning from the data, which in turn translates into more accurate predictions of future customer behavior.
- > **Customer relationship management** /// An integrated database is critical to business success, so many retailers are investing in creating such databases. Retailers are also focused on using analytics to identify new sources of revenues to improve topline growth, as well as identify and

implement profitable customer relationship management (CRM) strategies. To fully leverage big data in today's retailing environment, CRM strategies must be location specific, time specific and channel specific in addition to being customer specific.

**The future of big data in retailing** /// Leading-edge practitioners of big data in retailing such as Amazon and Alibaba are developing more advanced machine learning models to continue their lead over rivals. Such models are driven by deep learning algorithms. Most deep learning models are based on neural networks. These deep learning models form the engine for smart AI systems. AI is pervading all consumer tools, ranging from Siri to Alexa and Gmail. The future will be dominated by AI-assisted customer behavior and AI-based managerial decisions. Automation will continue to grow and replace or reshape jobs. By some estimates, AI could lead to the displacement of about one third of the jobs in the retailing industry. Whatever happens in the future, one thing is clear: Big data and analytics will be the bedrock of smart retailing in the future.

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## FURTHER READING

**Bolton, Ruth and Shankar, Venkatesh (2018):**

"Emerging Retailer Pricing Trends and Practices," in Handbook of Research in Retailing, Katrijn Gielens and Els Gijsbrechts eds., Edward Elgar, MA, 104–131.

**Kushwaha, Tarun and Shankar, Venkatesh (2013):**

"Are Multichannel Customers Really Valuable? The Moderating Effects of Product Category Characteristics", Journal of Marketing, Vol. 77 (4), 67–85.

**Narang, Unnati and Shankar, Venkatesh (2018):**

"Mobile Marketing 2.0: State of the Art and Research Agenda", Review of Marketing Research, forthcoming.

**Narang, Unnati and Shankar, Venkatesh (2018):**

"The Effects of Mobile Apps on Shopper Purchases and Product Returns", Working Paper.





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# E-Commerce in a Physical Store: Which Retailing Technologies Add Real Value?

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## KEYWORDS

*Instore E-commerce, Retail Technology,  
Marketing Automation, Process Automation,  
Customer Response*

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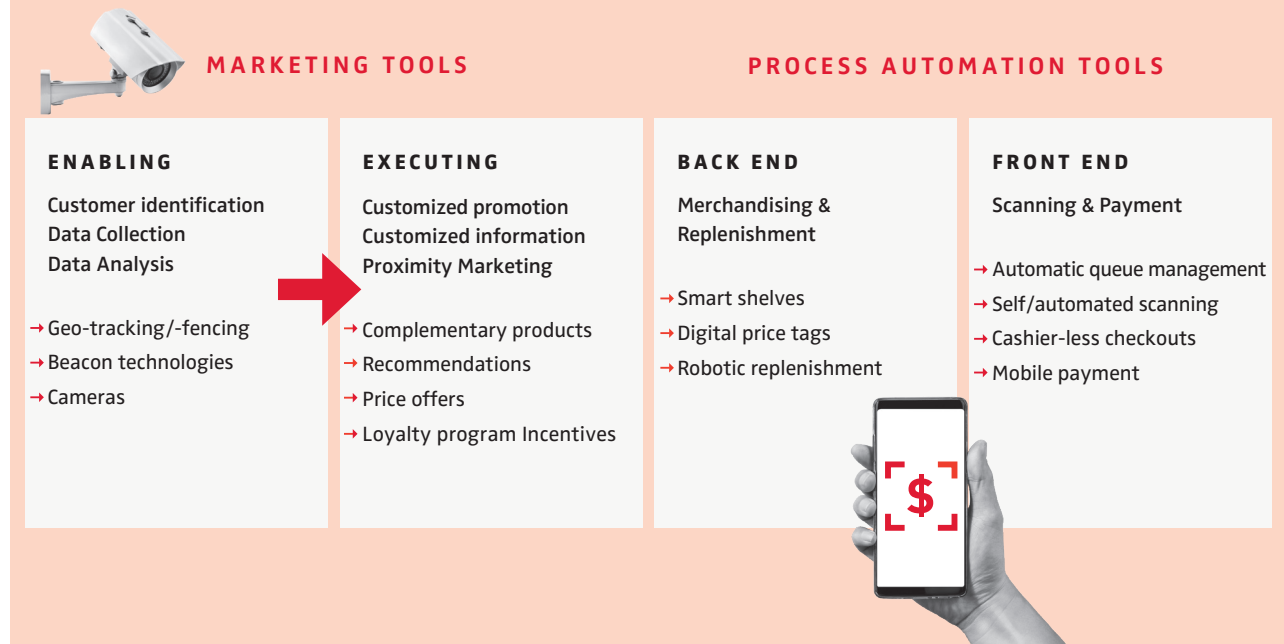
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**Hard times for physical stores** /// The progress in digitalization is playing hard on many traditional retailers. The growing share of e-commerce is leading to an erosion of customer loyalty and an ongoing drop in footfall and revenues in physical stores. Consumers follow a different path in making and carrying out their shopping decisions and online retailers are taking their share. They are able to offer alternative and attractive value propositions with wide and deep assortments, convenient shopping processes and personalized and customized solutions. Instead of presenting an “average” offer to an “average” target group they have consumer access in the moment of decision taking. Even within a physical store environment, customers can go online anytime and visit an online retailer’s site. To remain competitive, offline retailers have responded with integrating digital in-store technologies into their physical servicescapes. Often, the introduction of multichannel connecting services like click & collect or order from or return to store are first steps. Nowadays, upgraded technology solutions allow a cohesive shopping experience and can leverage both the benefits of e-commerce and in-person, physical store shopping. The overall attempt of brick-and-mortar retailers is to digitally engage physical shoppers on their journey with a personalized shopping experience, thus creating a kind of 4.0 multichannel experience. The range and number of available shopper-facing technologies is growing constantly but they are not yet widely implemented. But do shoppers respond positively and does the investment pay off for retailers?

**Shopper-facing technologies** /// Bundles of hardware and software are developed to change or enhance the interface between retailers and customers within the physical retail setting. Retailers are faced with dizzying options of technologies that require a multitude of IoT devices and related connectivity solutions (see Figure 1 for an overview).

**FIGURE 1:**  
Shopper-Facing Retail Technologies



> **Marketing tools** /// collect data as soon as the customer comes near a retailer. Geo-tracking/-fencing and Bluetooth- or WiFi-based beacon technologies support identifying a person's current location, navigation and activities via smartphone. Also, customers who already have a relation to a retailer can actively identify themselves, e.g. at self-service terminals. Additionally, cameras with biometric face recognition capabilities monitor the shop floor and can identify the customer's gender, age or height, and their sentiment, gestures or speech. Predictive analytics, data mining plus artificial intelligence may then generate insights to create and transmit in-store personalized and customized offers. Corporate or third-party mobile applications on consumers' smartphones may provide content of interest, like complementary products or recommendations, or offer price incentives like coupons, discounts or free samples to consumers identified as existing or loyal customers. All data may be enriched by further information or research features, for example, by visual search, and is ideally linked to information about previous consumer behavior both online and off-line. Additionally, smart in-store installed

communication devices support mobile devices in making the physical customer journey more customized. These so-called proximity marketing tools operate either one-way and semi-targeted, such as with normal screens, video monitors or intelligent shopping carts, or two-way and responsively, like with digital screens, smart mirrors or AR/VR-centers for virtual simulations of product interactions.

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Upgraded technology solutions  
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experience and can leverage both the  
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physical store shopping.

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> **Process automation tools** /// are merchandise-handling technologies that help retailers improve their cost efficiency and to ease customers' shopping journeys. Those tools automate back-end work processes like merchandising or replenishment or offload work to customers, e.g. for check-out and payment.

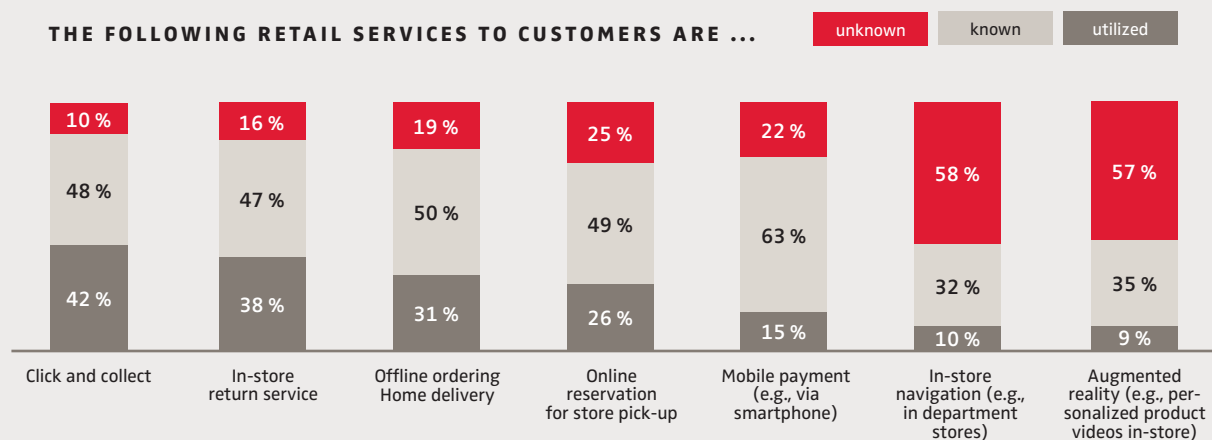
**Shopper-facing technologies** /// are merchandise-handling technologies that help retailers improve their cost efficiency and to ease customers' shopping journeys. Those tools automate backend work processes like merchandising or replenishment or offload work to customers, e.g. for check-out and payment.

**Shoppers and in-store technologies** /// Consumer response depends on availability, awareness and perceived attractiveness of solutions. Traditional, widely implemented and communicated multichannel services like click-and-collect are well known and utilized by consumers. Modern shopper-facing technologies like mobile payment are well known, but hardly available; others are currently not known, available or utilized, like store navigation or augmented reality offers (see Figure 2). Due to rare store implementation levels, the evaluation of the attractiveness of such technologies is still

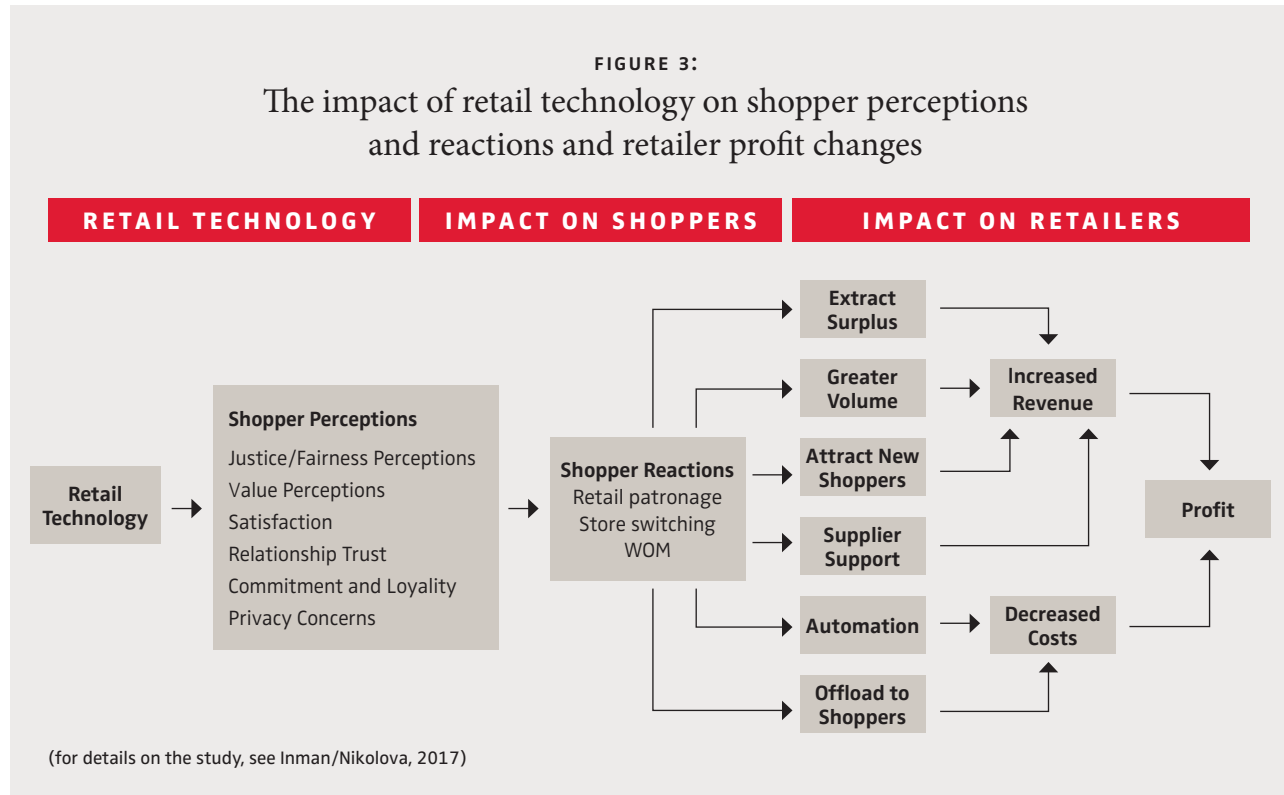
difficult. In general, the technologies can improve offers or shopping convenience through customization and enable a more emotional shopping experience. On the other hand, they are partly designed to operate silently and invisibly in the background and require customer activities such as signing-in, downloading or learning applications, or changes in handling processes or additional tasks, like scanning. As a result, they might highlight the dark side of new technologies: One person may regard in-store technology as helpful and convenient, another might see it as a challenge to the shopper's technological skills or as a purposeful degradation in service quality. One may regard data transparency as an entry to better offers, another may raise serious privacy concerns. In a physical store environment and in high-density-areas such as indoor and outdoor shopping centers, customers might feel swamped with messages. Negative perceptions may cause on-spot refusals, potentially followed by lower future retailer patronage intentions or negative word-of-mouth. These potential downsides might attenuate or even reverse the monetary benefit.

**How to evaluate new retailing technologies** /// Adoption decisions of shopper-facing technology should be expanded beyond what the technology can potentially

**FIGURE 2:**  
Awareness und utilization of selected digital retail services



from: Representative study conducted in Germany 2018 (n=1500); published by EY Parthenon



deliver to consider what the technology will deliver from a shopper's perspective. A framework developed by Inman and Nikolova gives some guidance on which aspects should be considered on the retailer and the consumer side (see Figure 3). Shoppers assess the fairness of the exchange with regard to procedures, outcome and treatment and the value of the technology they receive compared to what the retailer gets. Also, satisfaction, trust and privacy concerns are relevant to a customer's evaluation of technology. In a study of six different retailing technologies, marketing as well as process automation tools at local grocery stores were analyzed to test how customer perceptions were affected, leading to attitudinal and behavioral reactions. The study revealed the following effects.

- > In general, the retailing technologies were considered useful and easy to use, and shoppers indicated that they would likely use them. The only exception was proximity marketing, which produces mixed reactions.
- > Retail technologies have significant effects on future retailer patronage intentions and on the shoppers' willingness to share positive word-of-mouth about the retailer.

- > Respondents reacted rather negatively on proximity marketing activities or smart shelves. Shoppers had serious reservations about proximity marketing and they questioned fairness and doubted consumer value. On top of that, they stated privacy concerns.
- > Automatic queue management was perceived positively and did not raise privacy concerns. As this technology is "invisible" to the customers – as other process automation tools might also be – retailers should make shoppers aware of these technologies and their benefits to foster positive word-of-mouth.
- > Visible process automation technologies like self-checkout, scan and go and mobile apps as a marketing tool were perceived slightly positively and less critically in terms of privacy.

**Critical success drivers for implementing retailing technology** /// Shopper-facing advanced technologies can be key to creating a different physical shopping experience for consumers and delivering benefits to retailers such as improved traffic, conversion and baskets or streamlined operational cost. These benefits can only be realized if cus-

tomers engage with the technologies. To encourage engagement, retailers need to consider some critical success drivers of retailing technology.

> **Ensure functionality and safety** /// Functionality is related to the complexity and technological lifecycle of the respective technology. Some functions are well developed and safe, such as mobile apps or digital signage, others, often more complex ones, are at an early or experimental stage and not yet fully reliable (such as beacon, cashier-less checkout or mobile payment technologies). For example, Amazon's unattended "Just Go" solution has to handle high complexities and has only been implemented in one single store so far. All handling tools require 100 % functionality, as failures or defectiveness would cause inefficiency or financial damages (such as non-cashed articles) and would discourage customers.

> **Evaluate investments realistically** /// The question is to what extent and in what time technology investments can generate monetary benefits. It is important for retailers to evaluate input like content production cost, operating cost and one-time investments against output like revenues, gross margins and cost reductions. The cost and output of process automation tools are traceable and predictable on a store level, while the cause-effect relation of customer information and marketing tools is more difficult to predict and trace. The latter demands comprehensive data collection and analysis and ideally the set-up of feasible control groups. Results may vary by different products or target groups and store formats. As an example, store navigation, product locators and smart shelf technology tools are a value-add in large scale boxes like Hypermarkets or DIY stores, but much less efficient in smaller specialty stores.

> **Manage customer concerns actively** /// While most of the technologies were perceived well, proximity marketing seemed to trouble consumers. To encourage adoption, retailers need to convince customers that activities like in- and out-of-store customer tracking generate significant value for shoppers. Retailers need to address privacy concerns and build trust, if they want proximity marketing to deliver on its promise of increasing basket size or attracting new shoppers.

**How should retailers move ahead now?** /// They must strike a balance between old school retail and cutting-edge technology, ask their customers what they want, thoroughly

analyze and evaluate all technologies, manage concerns and not chase everything shiny that competitors might be trying out. Uncertainty, investment level and complexity suggest a test-and-learn culture and step-by-step approach with store piloting and (ideally) funding by suppliers. As consumer response is core, open and transparent promotion and easy to understand communication for applications is indispensable. Online and offline will merge to ensure a totally seamless and frictionless, truly two-way, interactive customer journey. By 2020, 30 % of all human interactions will be with smart devices, and retailers must build respective capabilities, both for the management of content and the management of devices. So, on a long-term perspective, applications that would be called "nice-to-have" and are far away from paying off, might still be a worthwhile investment.

1.

## FURTHER READING

*Inman, J. Jeffrey; Nikolova, Hristina (2017):*  
"Shopper-Facing Retail Technology: A Retailer Adoption Decision Framework Incorporating Shopper Attitudes and Privacy Concerns,"  
*Journal of Retailing*, Vol. 93 (1), 7–28.

*Inman, J. Jeffrey; Nikolova, Hristina (2017):*  
"Shopper-Facing Retail Technology: A Retailer Adoption Decision Framework Incorporating Shopper Attitudes and Privacy Concerns,"  
*Journal of Retailing*, Vol. 93 (1), 7–28.

*Willems, K.; Smolders, A.; Brengmann, M.; et al. (2017):*  
"The path-to-purchase is paved with digital opportunities: An inventory of shopper-oriented retail technologies," *Technological Forecast and Social Change*, Vol. 124, 228–242.

*Betzing, Jan H.; Hoang, Anh-Quoc Martin and Becker, Jörg:*  
"In-store Technologies in the Retail Servicescape",  
[http://mkwi2018.leuphana.de/wp-content/uploads/MKWI\\_3.pdf](http://mkwi2018.leuphana.de/wp-content/uploads/MKWI_3.pdf)



# Technologies Turning Future Brick-and-Mortar Stores into Data-Rich Environments

*Fabian Buder, Anja Dieckmann, Holger Dietrich and Julia Wieting*

## KEYWORDS

*Retailing Technology, FMCG, Supermarket, Face Recognition, Emotion Measurement, Virtual Reality, Augmented Reality*

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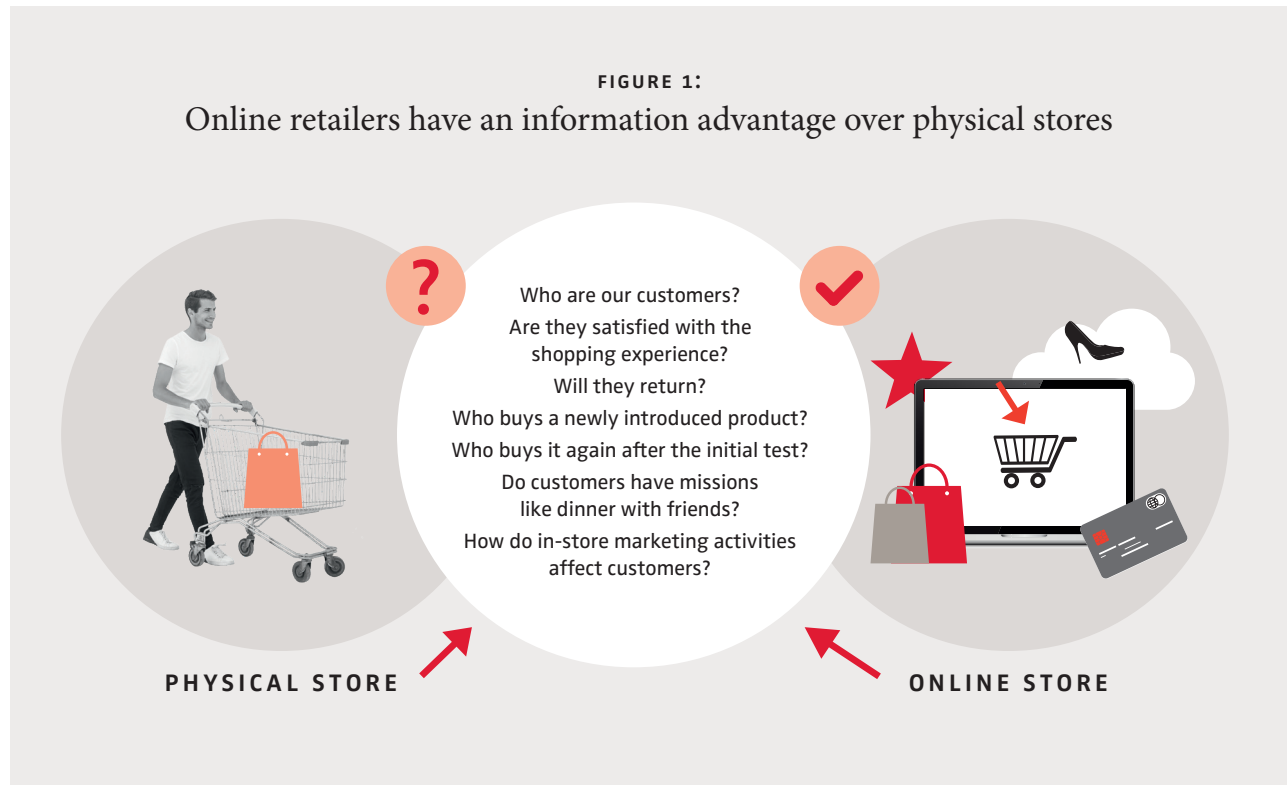
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**Catering to anonymous customers** /// In a supermarket, an exemplary shopper, let it be Paul, takes a shopping cart and makes his way through the aisles. From the perspective of the supermarket, he is yet another anonymous customer. Paul takes products from the shelves, looks at the packages, compares information and decides to put some products in the cart and others back on their shelves. At some point, information regarding allergens puzzles Paul and he finally decides to abandon a product even though the item was on his shopping list. After waiting some time in line for check-out and paying cash, Paul returns the shopping cart, which now waits for the next unknown customer to move it around. Retailers know very little about consumers like Paul. Although security cameras may have filmed him several times, the tapes are probably deleted after a while and no other usable personal data will be retrieved or stored – data that may help the retailer improve the shopping experience, retain customers and ultimately increase profits.

**For online retailers, the situation is different** /// Visitors of an online retailer's website leave digital traces. Every click and each interaction on the website generate information about a customer. During registration or for a purchase, their names, addresses and often more information are revealed. Digital retailers leverage big data and smart algorithms to reveal consumers' wants and needs, predict shopping behavior, recommend products, and optimize inventories to minimize storage cost and delivery times (see Figure 1).

Recently, digital players like WeChat in China and Amazon GO in the USA and Europe started bridging online and offline: They establish automated, self-service or even checkout-free supermarkets that offer unprecedented levels of shopping convenience and generate additional data about customers.



### Technologies that can help brick-and-mortar stores catch up

/// Market incumbents need not watch this development in passive awe. Many technologies are already available that help brick-and-mortar stores gather more valuable information about their customers, allowing them to improve shopper experience, retain customers, and ultimately increase profits. If used in a smart, transparent and non-offending way, the technologies described below can make a physical store almost as data-rich as a website (see Figure 2).

> **In-store cameras and sensors for tracking the customer journey** /// Insights from tracking the shopper path in a store can be used for many purposes, from optimizing the store layout over deciding on secondary placement locations to time-of-day-dependent adjustments of offers. For a proof-of-concept, we developed a typology of shopping trips based on path-tracking data collected over a one-year period in a German supermarket, using UWB (ultra-wide band) antennas that monitor battery-operated tags implemented in shopping carts and baskets. Based on characteristics like distance covered on a shopping trip, speed,

and the proportion of trips spent in specific areas of the store, we identified eight different shopping trip types. For instance, “unstructured refills” are characterized by a long distance, whereas, “single purpose” and “lastminute trips” by a high speed. Combined with survey and sales data, more detailed behavioral differences between segments can be carved out. Such data allows targeted recommendations for specific segments, such as reminders for frequently forgotten items for unstructured refills, optimized category management and bundled secondary placements for single purpose trips, and special product aisles for last-minute shoppers.

> **Observing customer decisions: Product interaction at the shelves** /// For more detailed information, shopper behavior in front of shelves can also be observed. The options range from relatively coarse distinctions between passing vs. stopping in front of a certain shelf to detection of hand movements and interaction with products. Ceiling- or shelf-mounted cameras combined with smart algorithms allow the identification of target behaviors.

The results reveal areas that receive exceptional high or low levels of attention in terms of stopping or interaction. For example, they allow to identify products that are often grabbed but then returned to the shelf. Further analysis can reveal why customers abandon the product despite initial interest. Today, judging from our own experience with shelf interaction tracking, such data can still be extremely noisy and needs to be evaluated and analyzed very carefully. However, several tech companies are working on this problem. Amazon GO, for instance, already trusts their shelf-tracking technology enough to use it for computing the total a customer needs to pay. So, we expect technology to advance relatively soon and allow improved applications for retailers.

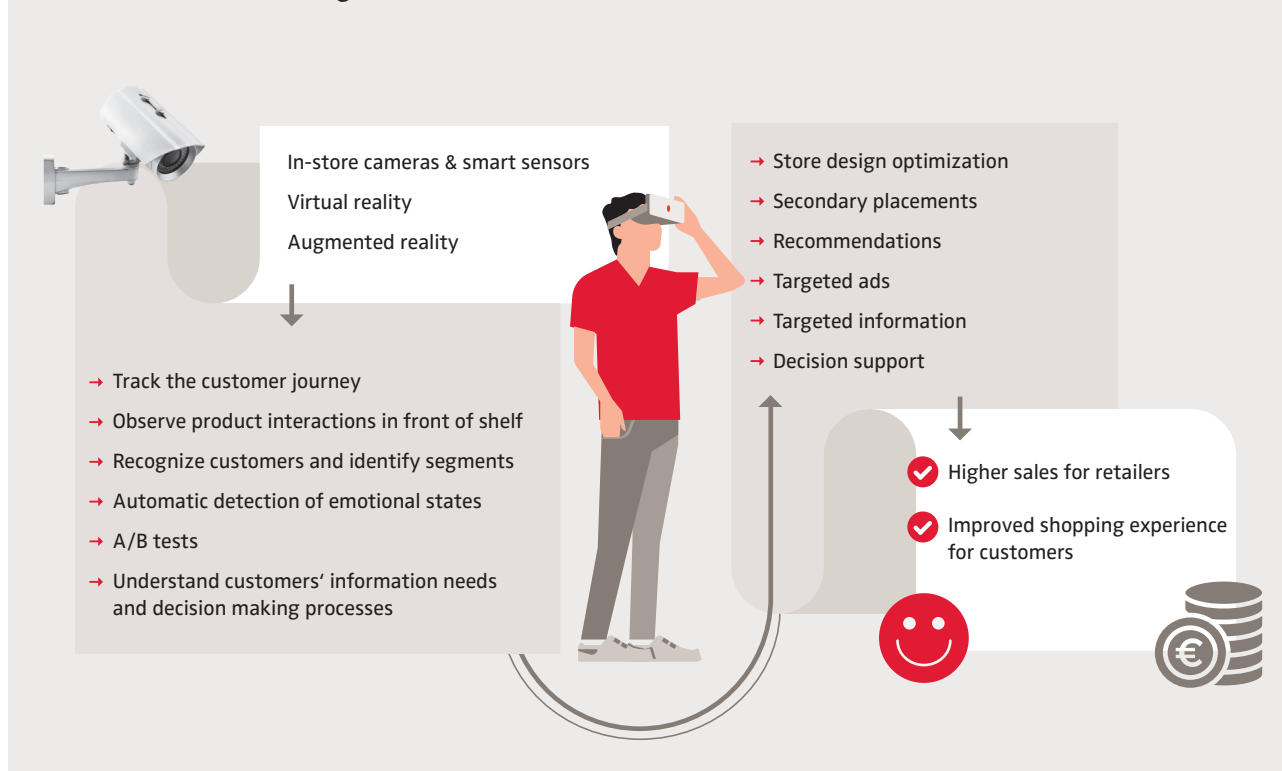
> **Recognizing customers' faces: Customer profiles without registration** /// Modern POS systems enable efficient and timely tracking of sales in terms of when and where

which products are purchased at what price. What is missing is information about the customer – about who buys a certain product. Even basic customer profiles based on sociodemographic features such as age group, gender, and whether the shopper is alone or in company are helpful for more targeted communication.

Already, there are new smart cameras available that automatically analyze recorded faces in terms of likely age and gender. They only keep this meta data while not storing the face itself and comply with the strict EU legislation on data privacy (GDPR), as to which personal data must not be recorded without explicit consent. Equipped and synchronized with, for instance, the certified privacy-by-design solution AVARD of Fraunhofer Institute, POS systems can add customer data to each recorded sales transaction. However, even if such technologies comply with data privacy regulations, they need to be introduced carefully and consider people's needs for transparency and control.

FIGURE 2:

## Smart technologies at the POS and how retailers and customers can benefit











> **Augmented reality for convenient and flexible decision support** /// Augmented reality (AR) means “augmenting” a real-world environment by computer-generated perceptual content or information. AR apps may facilitate in-store navigation and provide efficient decision support by, for instance, highlighting features the shopper cares about. Customers might use their smartphone camera to get additional information on allergens, customer ratings or climate footprint for all products on the shelf. Thus, AR can make information as readily available in stores as in online shopping. Even visual filtering of shelf content is possible with AR. Data about in-store information searches using AR can inform retailers about the shopping mission and the decision process of consumers, and ultimately also make shopping more convenient. KIT researchers are developing AR applications for in-store decision support. One objective is making the system responsive to automatically detected information needs and decision stages of the customer for optimized decision support at the POS.

**Shopping in the data-rich environments** /// In a not too far future, our exemplary consumer Paul might walk into a supermarket of his choice, get recognized by the store's cameras and be welcomed as a regular customer on a display on his cart. After tracking his path through the store for a while and analyzing the products he selects, the shop will have learned that Paul is on a mission: Getting ingredients for preparing a fine dinner for 3 to 5 persons. A smart assistant will now try to make his life easier, for example by recommending a wine and reminding Paul of often forgotten basic ingredients, making shopping convenient and time efficient. The supermarket will benefit from upselling as Paul follows the system's recommendation for a higher priced, awarded red wine to impress his guests.

The age of the anonymous shopper is over. Brick-and-mortar stores must leverage data to create individualized shopping experiences and to implement new data-based services for their customers. Otherwise they risk falling behind new digital players that invest in physical stores, leveraging big data from tracking shopping behavior both online and offline.

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## FURTHER READING

*Contigiani, M., Pietrini, R., Mancini, A., & Zingaretti, P. (2016):*  
“Implementation of a tracking system based on UWB technology in a retail environment”,  
Proceedings of the 12th IEEE/ASME MESA Conference, 1-6.  
<https://ieeexplore.ieee.org/abstract/document/7587123>

*Pfeiffer, J., Pfeiffer, T., & Meißner, M. (2015):*  
“Towards attentive in-store recommender systems”,  
in D. Power & I. Lakshmi (Eds.), *Annals of Information Systems: Vol. 18. Reshaping Society through Analytics, Collaboration, and Decision Support*, Springer, 161-173.

*Garbas, J.U., Ruf, T., Unfried, M. & Dieckmann, A. (2013):*  
“Towards Robust Real-Time Valence Recognition from Facial Expressions for Market Research Applications”, *Proceedings of the Humaine Association Conference on Affective Computing and Intelligent Interaction*, 570-575.  
<https://ieeexplore.ieee.org/document/6681491>

*Kárník, J., & Streit, J. (2016):*  
“Summary of available indoor location techniques”, *IFAC-Papers OnLine*, Vol. 49 (25), 311-317.  
<https://www.sciencedirect.com/science/article/pii/S240589631632691X>



#### ABOUT EBAY

eBay Inc. is a global commerce leader, which includes the Marketplace, StubHub and Classifieds platforms. Collectively, eBay Inc. connects millions of buyers and sellers around the world. The technologies and services that power the eBay platforms are designed to enable sellers worldwide to organize and offer their inventory for sale, and buyers to find and purchase it, virtually anytime and anywhere. eBay Inc. employs approximately 14,100 people globally. The eBay Marketplace platforms include the online marketplace ebay.com, its localized counterparts like ebay.de and the eBay mobile apps, which are among the world's largest and most vibrant marketplaces for discovering great value and unique selection. In 2017, goods worth \$ 84 billion were traded globally on the eBay marketplace.



#### ABOUT EBEN SERMON

Eben Sermon is responsible for the German eBay marketplace, one of the largest global markets for eBay, since May 2017. He joined eBay in 2007 and held a number of leadership positions since in Marketing as well as Cross Border Trade. In August 2015 he took over the role of Vice President Greater Europe, overseeing the eBay businesses in France, Italy, Spain as well as the marketplaces in Russia and Turkey. Prior to joining eBay, he held various leadership roles at British Airways. Eben is British and studied Business Administration and French at the University of Wales, Aberystwyth.

#### THE INTERVIEWER

Prof. Werner Reinartz  
conducted the interview  
in November 2018.

# eBay: Transforming an Auction House into a Retailing Platform

*Interview with Eben Sermon, Vice President eBay Germany*

Auction thrill for everybody – no matter if you are the buyer or seller – that’s what has made eBay famous and attractive in its early years. The internet pioneer was already born in the last millennium and has revolutionized the consumer to consumer business. Originally the first supra-regional, electronic flea market, eBay has evolved into one of the world’s largest retailing platforms. A lot has happened and the auctions that once constituted the core of the brand are more of a sideshow nowadays. In the following interview, Eben Sermon, Vice President of eBay Germany, explains how the brand has been reinventing itself and talks about eBay’s innovations within the highly competitive field of e-commerce.

**MIR:** eBay is one of the venerable Internet pioneers – basically being synonymous with the online auction format. How has the auction format and your retailing business model evolved since then?

**EBEN SERMON:** It is true that in the beginning eBay was particularly well-known for auctions. This has, however, changed significantly. Today roughly 80 % of our business is fixed price trade with brand new items. A series of fundamental investments have been made during the last years to strengthen eBay in what is a very competitive industry. The focus of these investments has been to offer buyers the greatest possible selection of inventory from all over the world, with the most engaging shopping experience, whilst strengthening the platform for sellers. Much has been done already and there remains lots more to do.

**MIR:** The success of the platform business model is being discussed vividly these days. What are the success factors for a marketplace such as eBay?

**EBEN SERMON:** In Germany, platforms account for more than 50 % of all online sales and are growing up to four times faster than other e-commerce players. They play an increasingly important role and work as an ecosystem. The strength of a good marketplace lies in the extent of the inventory range. For consumers this makes marketplaces a one-stop shop for all of their retail needs. This collection of buyers then subsequently makes it attractive for sellers. The more a market place grows, the more competitive it gets in terms of price and variety. The key, though, lies in the way that marketplaces are able to collect data and insights into consumers and inventory trends and in using these to create vibrant and personalized shopping experiences.

**MIR:** What are your priorities to remain attractive for consumers and to become even more attractive?

**EBEN SERMON:** Customers demand more and more convenience and engagement. Today about 60 % of Germans expect delivery in two days or less. And according to DHL, fast shipping is



decisive for 80 % of e-commerce consumers. In addition, Germany also has the highest expectations of returns. Some 15 % of all parcels are sent back. This is about three times more than in the US. But convenience is also about consumer's desire for experiences that are personalized and about convenience in choosing and ordering products. The challenge for all in e-commerce is delivering on high expectations of convenience but also doing it in a way that shows off one's inventory in increasingly engaging ways. Online shopping simply needs to be fun. There are apps to shop by video and others that are gamified. But most important is knowing how to remain flexible on these two axes – convenience and engagement – for different shopper segments. For instance, a Young Value Shopper can have very different expectations from a mother of three children.

**MIR:** What precisely do you do to score on convenience and to exceed other platforms?

**EBEN SERMON:** With regard to convenience, one of the main building blocks is our loyalty program eBay Plus which provides premium shipping, free returns, premium customer support and exclusive eBay Plus offerings to buyers. In 2018, the number of items eligible for eBay Plus has doubled and we are working to further increasing it. Our logistics initiatives

eBay Fulfillment and eBay Versand are central to this, as they allow sellers to meet the standards of the eBay Plus program. eBay Fulfillment enables together with our partners FIEGE and Hermes next-day-delivery for purchases that come in until 6pm on a day. eBay Versand offers smaller sellers fast delivery solutions at attractive prices for all channels. In partnership with DPD, participating retailers agree on a suitable daily pick-up window that is always later than 2:30pm to ensure that many orders can be delivered the next day. We are currently testing both of these new services in a beta version with selected eBay sellers.

**MIR:** And how do you make sure that your shopping experience keeps getting more engaging?

**EBEN SERMON:** For example, we recently launched image search in Germany to power searching and shopping with images on mobile devices. Shoppers can take a photo or use an existing photo from their camera roll of an item they want to purchase and enter it into the search bar. eBay will then surface listings that are a close match or visually similar – all enabled by artificial intelligence and machine learning. We are also experimenting with conversational commerce and virtual reality. Conversational commerce enables eBay to let buyers find the

desired item in the Google assistant “Ask eBay” as if they had asked a friend about it. And with regard to VR, StubHub has been pioneering a feature that lets buyers of 4 event tickets see a 360-degree view from their chosen seat. Within a short time of its launch, a large percentage of all ticket purchasers are using this technology.

**MIR:** So, new technologies are the key to success?

**EBEN SERMON:** Yes, but the basics need to be taken care of as well. In Germany, for instance, we have established a local engineering team to really get the site working perfectly in the German language. As a non-native German speaker, I have quickly understood the importance of getting it right on the site. Some of the things we address here, might seem small, e.g. to ensure that German “Umlaute” are handled in the right way - yet, they bring quite a lot of additional opportunity to the business.

**MIR:** Before you talked about different shopper segments with their different needs and mentioned Young Value Shoppers. How do you address the specific needs of this segment?

**EBEN SERMON:** The younger millennial shoppers below 35 are driving up eBay.de's total number of active buyers. In 2018, growth in new buyers on eBay.de accelerated by 16 percentage points compared to 2017. We are achieving this acceleration at a time where growth of online shoppers in Germany in general is slowing. So, this segment is of particular importance. The work here has included the launch of our “Unter 20 Euro” experience on eBay.de as well as a beta version of Catch – our new mobile-focused and browse-based shopping experience that sits off-eBay. The Catch platform addresses the Younger Value Shoppers who want to discover the newest and hottest products at great prices, shop spontaneously and who have high expectations for service and engaging, fun experiences.

**MIR:** As a retailing platform you are handling a two-sided market and you have to be attractive for the other side – the sellers – as well. Which innovative services do you offer to your eBay sellers?

**EBEN SERMON:** For sellers, a particular focus has been on new advertising formats, new promotion tools as well as new tools to manage and grow their business. The start of the introduction of the new payments experience in the US is also highly relevant for sellers as they will benefit from a simplified pricing structure, more predictable access to their funds, and better visibility into sales and payouts.

**MIR:** Do you also see segments on the seller side? Are there segments that are more critical for your growth perspectives than others?

**EBEN SERMON:** More than in any other market in Europe, there is a strong base of SMBs in Germany, aka the “Mittelstand”, which includes brands, manufacturers and retailers. Of these roughly 3.6 million SMBs, more than two thirds do not sell online and less than 10 % export online. Which is why one of the core issues for us in Germany is how to best support SMBs and their particular needs and challenges. We have made clear improvements in our inventory offering – including the launch of more than 60 brands and retailers in 2018 alone. Our mission is to be a strong and true partner to brands and retailers of all sizes – including the many smaller retailers and local store owners. Different from other market players, we will never compete with the sellers on our site. The success of our sellers is our success.

**MIR:** Especially for small merchants, eBay may provide a lot of value. How does eBay unlock that potential?

**EBEN SERMON:** eBay provides tools to allow easy upload of inventory and to generate data insights. We have, for instance, developed a Seller Hub which is designed to offer in one place all you need to sell and grow, and we are working to add new features continuously. In Seller Hub, sellers of any size find the

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Different from other market players, we will never compete with the sellers on our site.

The success of our sellers is our success.

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tools that allow them to analyze their business and to promote their inventory – for example to highlight listings in search with “Promoted Listings” and to offer volume discounts like the newly launched Multi-buy feature. This has recently been supplemented with specific support for shipping and fulfilment so that even small sellers can compete with 1-2 day delivery.

**MIR:** You described your market place as an ecosystem. Besides the sellers and the buyers, are there any other exciting new partners and cooperations that you can tell us about?

**EBEN SERMON:** In general, we believe very much in the power of partnerships. There are many areas where we see the potential for partnership – and all aimed at fulfilling our vision to delight the customer and win on both convenience and engagement. In 2018, our partnerships have mostly focused on convenience. Examples are our eBay Fulfillment and eBay shipment offerings in partnership with Fiege Logistik, Hermes, plentymarkets and DPD. Our partnership with idealo allows the direct purchase of eBay items on idealo. Our partnerships with local cities help buyers find local eBay sellers and inventory in their neighborhood. Another concrete example is our partnership with Werkstars. It enables us to offer local tire installation services to consumers who buy new tires on eBay. And through our partnership with AXA we are able to offer insurance to eBay Plus members. My diary is filled with partnership discussions related to 2019. You should definitively watch this space for what we might do next, including an additional focus on partnerships and experiences aimed at driving deeper engagement.

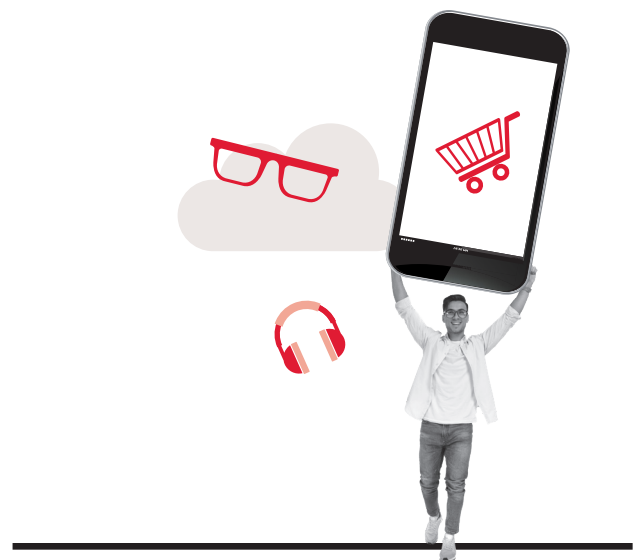
**MIR:** How do technology developments such as artificial intelligence (AI), machine learning, or virtual reality impact you and your offering?

**EBEN SERMON:** We are excited about the rapid development of technology and are continuously testing solutions, especially in the AI field. With the acquisition of specialist AI focused companies AppTek, Expertmaker and SalesPredict we have reinforced our activities. We use AI to improve eBay’s “Best Match” search algorithm that drives better discoverability for individual items from the vast inventory and learns how customers search and browse – enabling them to faster find what they are looking for. Recently we have enabled users to shop by image in eBay’s apps. Further, we machine-translate items so that shoppers all over the world can understand the items descriptions in their language. Combining all our data through AI has also helped eBay start to structure our one billion of items into grouped products. Other technologies such as Virtual Reality are exciting

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Today at eBay about 64 % of the trading volume is touched by mobile somewhere in the purchase flow.

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but more nascent in use cases. One example of implementation has been our experimentation with VR in our tickets business Stubhub, which I have mentioned before.

**MIR:** Do eBay customers increasingly use their mobile phones for their purchases?

**EBEN SERMON:** In the market, about 69 % of the German smartphone owners use their mobiles for shopping and app-based shopping sessions are surging. Of course, we notice this trend as well. The value of articles sold via mobile device accounts for 12.7 billion US dollars for eBay worldwide in the third quarter of 2018 alone. Today at eBay about 64 % of the trading volume is touched by mobile somewhere in the purchase flow and eBay’s app is one of the most popular shopping apps in Germany.

**MIR:** What is the impact of this trend to mobile on your business?

**EBEN SERMON:** It is huge. We had to strongly adapt the way we operate as a company. Marketing budget allocation, promotions, browse experiences, usability and competition moni-

toring have all needed to change. eBay has been very focused on improving the usability of our mobile experiences. This year we have launched a new mWeb experience, the image search function in our eBay app and we introduced Catch, our new mobile-oriented shopping platform for Young Value Shoppers. We have also simplified the listing flow for items via mobile. At the same time, we are rapidly testing different new kinds of engagement for mobile users.

**MIR:** Apart from these technological challenges, are there additional focus areas for eBay in Germany?

**EBEN SERMON:** eBay's position in the German market remains strong and is strengthening. The eBay brand is, however, still somewhat misunderstood and this is something we are keen



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Our business has changed a lot  
in the last decade and today 80 % of  
our items are new.

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help people understand what the eBay brand stands for today. We are offering an incredible breadth and depth of inventory from both professional and private sellers – covering the entire product life cycle, from new in-season merchandise, last season items, refurbished merchandise, vintage items or completely unique articles – enabling everybody to find exactly the item he or she is looking for.

**MIR:** What will the future of retailing hold for eBay Germany? Is eBay well positioned in this highly competitive environment?

**EBEN SERMON:** Today eBay is the number 38 brand in the world according to Interbrand and has some 177 million active buyers located in 190 markets. 1.1 billion products are for sale on the platform worldwide – this makes it one of the most vibrant marketplaces in the world. More than 17 million of these active buyers are located in Germany and this number is on the rise. We also have a strong position with brands, retailers and SMEs in Germany – many of them choosing to trade only on eBay because of our general commitment not to compete with our partners. Germany is particularly interesting for eBay because of its rapidly expanding portfolio. Beside the eBay marketplace and the newly launched Catch site, we also operate the platforms eBay Kleinanzeigen, brands4friends, mobile.de and StubHub. eBay marketplace and eBay Kleinanzeigen combined account for some 42 % of all internet shopping minutes that people spend online in Germany. This scale allows us to more aggressively tackle both local and global opportunities in a way that no other marketplace can do. You will see us leverage this more in the coming year.

**MIR:** We are thrilled to observe what will be coming. Thank you very much for granting us insight into the eBay universe. We wish you continued success with all your new ventures!

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to address with both buyers and in industry. Our business has changed a lot in the last decade and today 80 % of our items are new. This is a key thing we need to address in our brand work and this is what we do. We have a huge opportunity to



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