



# MANAGING DIGITAL TRANSFORMATION

Per Andersson, Staffan Movin,  
Magnus Mähring, Robin Teigland,  
and Karl Wennberg (eds.)

## Managing Digital Transformation



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Robin Teigland, and Karl Wennberg (eds.)

Karyn McGettigan, Language Editor



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In his central role at the Wallenberg Foundations, Peter Wallenberg Jr has furthered a broad range of important research and research-led education initiatives at the Stockholm School of Economics (SSE) and its Institute for Research (SIR). This indispensable work has also helped create a fertile ground for research on digital innovation and transformation: a phenomenon currently experienced, shaped, and managed in and between organisations and throughout society.

This is the topic of this book, which we dedicate to him.



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## Acknowledgements

Every year since 1992, the Stockholm School of Economics Institute for Research (SIR) has published an Annual Research Anthology, and this year SIR is publishing the book in cooperation with MTC (Stiftelsen Marknadstekniskt Centrum). The purpose of the SIR Annual Research publication is to enable managers and practitioners better understand and address strategically important challenges by showcasing SSE research on a selected topic of importance for both business and society.

This year's book, *Managing Digital Transformation*, features authors from academic areas across SSE together with representatives outside the institution. The book's eighteen chapters show the strength and breadth of SSE's research within the area of digitalization and reflect the importance that SSE places upon closely linking research to practice and on investigating the leadership challenges and their implications in order to support value creation in society.

Participating in the many ongoing research projects at SSE and the multitude of aspects of digital transformation addressed in the various chapters has been very rewarding for the editors. We would like to thank all the authors for their hard work and cooperation throughout the project. In finalising this book, we have relied upon the expert work of Karyn McGettigan for language editing, Petra Lundin for layout and graphic design, and Marie Wahlström for digital access to the book. We are, indeed, most grateful for their excellent and diligent work.

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Finally, we would like to thank all the companies and organisations for sharing their challenges and engaging in dialogue and research collaborations with us so that we can produce more solid and relevant research to help better our society.

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Stockholm, January 2018

*Per Andersson, Staffan Movin, Magnus Mähring, Robin Teigland, Karl Wennberg*

## Introduction

One of the hottest research topics lately is digitalization. Many research projects are focusing upon different perspectives. Gone are the days when digitalization or business implications of ICT were just about increasing efficiency. Instead, the ripple effect of digital development can now be felt wider and deeper than ever before. The way in which business is conducted and how it creates value, as well as how corporations can become more efficient and sustainable, are all implications of digitalization. Adapting to new demands and taking advantage of the plethora of possibilities, however, is not always easy.

Managing digitalization and the transformation of business always involves new challenges. The novelty and complexity of the digital age has led to an increased academic interest in the area of digital transformation and a call from companies that seek support in this process.

We take a look at digitalization from the perspective of business research. This creates a better understanding of the challenges that today's businesses are facing. We believe this anthology will serve as a tool to help businesses better understand the force that is digitalization and support these corporations in their digital transformation.

The idea behind this anthology grew as Marknadstekniskt Centrum was taking part in several interesting research projects. Companies were asking MTC to facilitate contact with scholars and supply them with academic insight. Vinnova came on board, by supporting the project *Progressiv digital utveckling förutsättningar för framgång* (*Progressive Digital Development: Pre-Requisites for Success*) of which this book is a part: its aim to stimulate business to become more progressive in digital change. At last, this book and the website [www.digitalchange.com](http://www.digitalchange.com) have become a reality.

This joint venture between Marknadstekniskt Centrum and The Stockholm School of Economics Institute for Research follows the SIR tradition of publishing an annual yearbook to showcase its vital research contributions. The book begins with an overview of digitalization, then moves to understanding the new digital customer, and ends by exploring re-organisational effects, business models, and ecosystems. We hope this year's anthology will be useful for managers by facilitating their digitalization processes.

#### **PART 1: DIGITALIZATION – DIFFERENT PERSPECTIVES**

The role of digital technology in business and society is rapidly shifting from being a driver of marginal efficiency to an enabler of fundamental innovation and disruption in many industrial sectors, such as media, information and communication industries, and many more. The economic, societal, and business implications of digitalization are contested and raise serious questions about the wider impact of digital transformation. Digitalization affects all private and public operations, as well as the internal and external workings of any operation. Digitalization is the major driving force behind sweeping large-scale transformations in a multitude of industries. Part 1 includes various perspectives on digitalization and digital transformation.

#### **PART 2: THE NEW DIGITAL CUSTOMER**

Digitalization has resulted in more user-centric business and user-centric systems. The changing behaviour of the digital consumer/customer is discussed here as it connects to new forms of customer involvement and engagement, as well as analysis models of what creates customer value in this digital context.

#### **PART 3: THE RE-ORGANISATION IN ORDER TO CONNECT WITH THE DIGITAL CUSTOMER**

How can companies connect with digitalized consumers and non-digitalized customers? This is a central issue in managing digital transformation, as it draws attention to the emerging intra-organisational, marketing, and customer interaction challenges associated with digitalization: for both the consumer and the supplier. Another aspect of this is the internal handling of new forms of organizational ambidexterity; that is to say, companies and organizations engaged in digitalization processes often require an internal re-organisation in order to handle the demands that digitalization brings, and to explore new digital opportunities while promoting their existing business and operations.

#### **PART 4: BUSINESS MODELS AND ECOSYSTEMS**

How do companies change, adapt, and innovate their business models? Given that digitalization leads to a convergence of previously unconnected or loosely connected markets, the digitalizing company and organisation is analysed in its systemic and dynamic context. This part draws attention to business models

and business model innovation. Incumbent firms need to adapt and change business models while competing with digital start-ups based upon new scalable business models, accessible ventures, and rapid processes of intermediating. These chapters discuss completely new co-operative business models: processes that need to be developed as companies shift from products to digitally based services.

The Ecosystem places digitalizing organisations and companies into their broader and systemic context. This includes discussions on digital disruption, industrial convergence processes, and shifting patterns of competition and cooperation. Digital technologies cause markets to converge in many new and sometimes unexpected ways. The result is the emergence of new roles and market positions of technical platforms.

*Staffan Movin, Stiftelsen Marknadstekniskt Centrum*

# Catering to the Digital Consumer: From Multichannel to Omnichannel Retailing

SARA ROSENGREN, FREDRIK LANGE, MIKAEL HERNANT, AND ANGELICA BLOM

## Introduction

Digitalization has a long history in retailing. In fact, it has been a driving force since the 1960s with developments being made, for example, in terms of electronic cash systems, barcodes, point-of-sale data, and electronic data interchange (EDI) with suppliers (e.g., Hagberg et al, 2017). Since the early 2000s, however, digitalization driven by operations and supply-side concerns has been complemented by digitalization following changing consumer behaviours and demands. The way consumers search and shop for products has changed dramatically during this period and, consequently, retail offers have changed with it. Although this change has affected retailing in general, it has been especially disruptive in service retailing (such as travel and banking) and for retailers focusing upon products that have been digitized: such as, for instance, music and books (Verhoef et al, 2015). The intangibility of these offers has made them highly suitable for online transactions that, in turn, make physical stores more or less obsolete.

Still, the shift in consumer behaviour is increasingly being felt in other retail sectors. A clear indication is the many recent store closings and bankruptcies of large retailers in US. As is the fact that online retailing comprised all growth in Swedish non-grocery retailing in the first half of 2017. With increasing use of mobile, tablets, social media and technological advances in analytics, the integration of channels in online and offline retailing continues to develop; as a result, the retail landscape continues to change. As a consequence, it has been argued that digitization of consumer behaviours will



fundamentally change retail as we know it (Grewal et al, 2017; Verhoef et al, 2015).

This chapter discusses contemporary research on digital shopper behaviour and its implications for retailers to better understand this development; it does so by reporting on two ongoing research projects at the Center for Retailing at Stockholm School of Economics: more detailed descriptions can be found in Hernant and Rosengren (2017) and Blom et al (2017). While previous research has primarily focused upon the growth of online retailing (Hagberg et al 2017) we focus upon the integration between online and offline retailing, which is often referred to as omnichannel retailing (Verhoef et al 2015). The question raised in this chapter is not whether an omnichannel strategy should be implemented; rather, what should be the omnichannel strategy. We particularly focus upon the importance of understanding, managing, and evaluating consumer behaviour across channels and touchpoints when crafting an omnichannel retail strategy.

In our first project, we use customer-level data of actual customer purchases offline and online to track changes in consumer behaviour over time (Hernant and Rosengren, 2017). The data comes from three Swedish retailers that operate in three different retail industries: pharmacy, grocery, and beauty. This project contributes to omnichannel retailing by offering a way to understand changes in customer behaviours over time. In the second project (Blom et al. 2017), we use experimental methods to test the effectiveness of efforts to integrate consumers' digital traces (for example, online browsing history) with promotional offers from a retailer. This project contributes to omnichannel research by examining digitalization related to individual shopping trips and shopper reactions to omnichannel-based promotions that are created for short-term sales effects. In both projects, we adopt the perspective of an established retailer adapting their offer to increasingly digital shopper behaviours. Still, it should be noted that the challenges in combining the online and offline retail offer is equally pressing for pure online players trying to grow, as indicated, for instance, by more and more online retailers opening physical stores (for example, Amazon buying Whole Foods or Zalando adding outlets and pop-up stores to their online offers).

## **From Multichannel Retailing to Omnichannel Retailing**

Although interest in digital consumers dates back to the 1990s, it is in the past decade or so that digital consumer behaviour has become mainstream.

According to eMarketer (n.d.), a leading source of statistics on digital retail, over 2.14 billion people worldwide are expected to buy goods and services online in 2021, which is up from 1.66 billion global digital buyers in 2016. In 2016, 58.3 percent of global internet users had purchased products online. By 2019, this figure is expected to grow to 63 percent. This development clearly shows that retailers need to cater to consumers who are constantly online via smart phones and tables and for whom social and digital media are an ever-present part of everyday life and, thus, the buying process.

Verhoef et al (2015) discuss in their seminal article how digital consumer behaviour has led retailers to move from multichannel retailing: that is to say, offering their products in several different online and/or offline channels, to omnichannel retailing: offering customer experiences that are integrated across different channels and touchpoints. Whereas multichannel retail management focuses upon “the design, deployment, coordination, and evaluation of channels to enhance customer value through effective customer acquisition, retention, and development”, they argue that omnichannel retail management should be concerned with “the synergetic management of the numerous available channels and customer touchpoints, in such a way that the customer experience across channels and the performance over channels is optimised” (p. 175). The main differences in perspectives lie in the focus upon synergies rather than coordination, on holistic customer experiences rather than conversion (customer acquisition, retention, and development), and on combining sales (channel) and brand (touchpoint) perspectives. Table 4.1 provides an overview of the different perspectives.

**Table 4.1: Differences Between Multichannel and Omnichannel Management in Retailing (Adapted from Verhoef et al, 2015)**

	<b>Multichannel</b>	<b>Omnichannel</b>
Focal channels	Interactive (transactional)	Interactive (transactional) and mass communication channels
Channel integration	Channels separate	Channel synergies
Focal interactions	Customer, store	Customer, store, brand
Management	Per channel	Cross-channel
Performance measures (KPI)	Sales	Sales and brand equity

The literature on multichannel retailing is vast; however, Verhoef et al (2015) points to the need for more research on omnichannel issues. Such research has, indeed, emerged over the past couple of years as illustrated, for instance, in special issues coming out in several of the leading academic retail journals dealing with omnichannel issues (for example, Grewal et al, 2017; Hagberg et al, 2017).

From a retailer perspective, the move to omnichannel retailing seems inevitable. Consumers are digital shoppers and, thus, retailers need to offer experiences that cater to their demands. Still, there is plenty of room for variations, in terms of what the omnichannel strategy should be. We will now discuss three key issues to consider in developing this strategy: namely understanding, managing, and evaluating movements between channels and touchpoints.

#### UNDERSTANDING MOVEMENTS BETWEEN CHANNELS AND TOUCHPOINTS

Previously, researchers discussed channel migration, as consumers were thought to switch from offline stores to online stores. Nowadays, there is a general understanding that most consumers move back and forth between channels and use them interchangeably. There is a vast literature documenting different tools for understanding consumer behaviours and decision journeys in order to create strong customer experiences (for a review: see Lemon and Verhoef, 2016). Customer experience is a multi-dimensional construct focusing upon cognitive, emotional, behavioural, sensorial, and social responses to a firm's offerings during the entire purchase journey (Lemon and Verhoef, 2016: p. 71). This means the overall customer experience is created in interactions before, during, and after a specific purchase has been made. The interactions are not all controlled by the retailer; they also comprise touchpoints created by brands and partners as well as other consumers, influencers, and media (see Figure 4.1 below).

*Pre-purchase customer experiences* are created through interactions taking place as the consumer recognises a need and begins to search for ways to fulfil it. In order to serve these effectively, retailers should consider different types of shopping needs. For example, it is often fruitful to distinguish between utilitarian (also referred to as task oriented or problem solving), and hedonic (also referred to as recreational, or experiential) shopping needs, as they lead to different decision journeys. From a retailer perspective, it is also vital to understand where the need occurs and whether it will lead consumers to

search for information. In this regard, a distinction can be made between planned (the need occurs prior to purchase and typically leads to information search) or unplanned (the need occurs at the point of purchase without much previous information search).

Considering the interplay between online and offline channels in the pre-purchase stage in an omnichannel context is especially important. Key behaviours to consider are the extent to which consumers use webrooming (that is to say, searching online and then moving in to physical stores to make a purchase) and showrooming (searching offline and then moving to digital stores to make a purchase).

*Purchase customer experiences* cover all interactions with the brand and its environment during the actual purchase. From a retailer perspective, key behaviours to consider at this stage are how choice, ordering, and payment are facilitated. Shopping experiences can also be created during the purchase stage.

Traditionally, the focus in retailing has been on the offline store as the arena for purchase (sales), whereas online platforms have been used as touchpoints to convey messages and provide information (brand). However, this logic can easily be turned around today: as indicated by novel showrooming concepts, such as the Samsung concept store in NYC (where consumers are not able to leave the physical store with a product) and American department store retailer Nordstrom's new concept: small neighbourhood stores without inventory. In addition, all retailers need to be sensitive to the fact that shoppers may look for the same product in competing online stores while shopping in a specific online or offline store.

*Post-purchase consumer experiences* comprise interactions that consumers have with the brand and its environment following the actual purchase. These interactions are usually related to usage and consumption; important behaviours from a retailer perspective deal with service and loyalty. Thus, the focus in this step has been on issues related to the brand rather than to sales.

In omnichannel retailing, however, this stage of the decision journey is more complex. Whereas the shopping experience in traditional physical retailing typically stopped with the purchase, the purchase and delivery of products is typically extended in time when an online purchase is made. This means that omnichannel retailers need to be more concerned about the experience offered in delivering the product to customers. This has led to an increased focus upon different delivery options: such as click-and-collect

(where products purchased online are picked up in offline stores) and last-mile delivery as part of the customer decision journey.

Understanding how consumers make decisions, mapping the use of different touchpoints in different stages, and identifying trigger points that lead customers to continue or discontinue in their purchase journey is crucial for understanding how to manage an omnichannel retail offer. Shoppers today may use a retailer’s digital channels and touchpoints on the path to purchase and, thereby, disclose information to the retailer about, for instance, the types of products in which they are interested. This behaviour produces digital trace (for example, from website browsing with the mobile phone) about shopping goals that may be a valuable source of information for retailers that they can use in order to analyse movements between channels and touchpoints, which they are able to manage them over time.

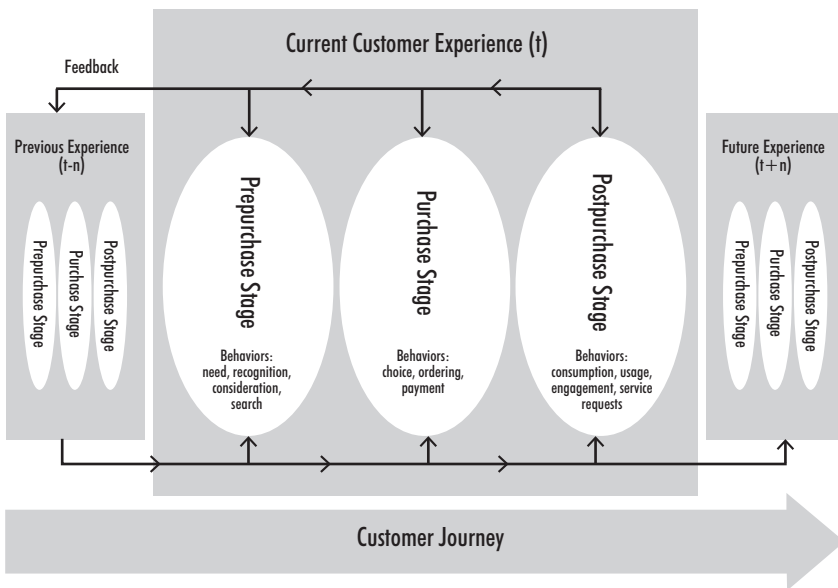


Figure 4.1. Process model for customer journeys (adapted from Lemon and Verhoef, 2016)

#### MANAGING MOVEMENTS BETWEEN CHANNELS AND TOUCHPOINTS

Based upon thorough analyses of the consumer decision journey, retailers are better equipped to come up with strategies on how to manage movements

between channels and touchpoints. A review of existing literature on omnichannel retailing highlights that integration between channels and touchpoints needs to be managed differently depending upon the type of product being offered and the type of decision journey used by consumers (Blom et al 2017).

We investigated in a recent research project how consumers respond when retailers offer a promotion in the physical store that is based upon pre-purchase digital data. We compared such tailored promotions (that is to say, promotions that are adapted based upon the customer's pre-purchase behaviour online before entering the store) with a generic promotion (see Blom et al, 2017 for a more detailed description). The results reveal that shoppers are more responsive to tailored promotions compared to generic traditional promotions. We also found the advantages of using tailored promotions vary depending upon the type of product (utilitarian versus hedonic motivation) and decision process (planned versus unplanned) of consumers.

In terms of product categories, our study found that, although tailored promotions have a positive effect on both sales and brand, this effect is attenuated for hedonic compared to utilitarian product categories. Since a tailored promotion evokes benefits that are more valued by those shopping for utilitarian rather than hedonic products, consumers who are shopping for a utilitarian product category redeem the promotion to a greater extent and have a more positive attitude towards the retailer after being offered such promotions. The tailored promotion facilitates the shopping trip, thus, enabling the consumers to satisfy their shopping goal in an effortless manner. Conversely, consumers seek exploration, variation, and enjoyment when shopping for hedonic product categories. In order to be relevant in promotions targeting such consumers, promotions that satisfy their shopping goal in an experiential fashion is required, as the shopping experience is part of the shopping goal. The tailored promotion is, therefore, of less relative importance since consumers shopping for hedonic products also perceive the shopping trip experience as such as part of their shopping goal.

In terms of consumer decision processes, our study found that, although tailored promotions have a positive effect on both sales and brand, the effect is attenuated when consumers make an unplanned versus a planned purchase. Consumers that have made a planned purchase have previously identified a problem. This typically means they engage in a more rational shopping process with clearly defined shopping goals. In contrast, unplanned purchases

correspond to more irrational, emotional, affective, hedonic, experiential, and variety seeking aspects of shopping. An unplanned purchase occurs without much thought or consideration and is less rational, thus, meaning that it is made with relatively little cognitive control and is usually linked to abstract shopping goals. A tailored promotion is more helpful for consumers that have planned their purchase. Since consumers that have made a planned purchase have engaged in cognitive effort, thought and involvement, and have formed a concrete shopping goal, a promotion that is congruent with this goal is more valuable. As a consequence, consumers who make a planned purchase are more likely to redeem the promotion and become more positive toward the retailer.

Overall, the results from the Blom et al. (2017) study indicate that examining different types of shopping situations is important to better understand omnichannel promotional initiatives and how to manage movements between channels and touchpoints in an omnichannel setting. We also found that integration is less important in hedonic (versus utilitarian) product categories and for unplanned (versus planned) purchases.

We also explored the benefits to consumers that drive these effects. The use of digital traces in promotions may produce both utilitarian and hedonic benefits and value for shoppers; these benefits and values are linked in different ways to purchase behaviour and brand perceptions. The results reveal that integration is more important for omnichannel performance (sales) than for omnichannel experience (brand). If retailers are interested in short-term effects on sales (promotion redemption), they should strive for designing omnichannel promotions that provide benefits and shopping value, which are primarily utilitarian. However, a retailer should offer both utilitarian and hedonic benefits and experiential values if the main purpose of omnichannel promotions is to create long-term effects on perceived omnichannel experience (that is to say, brand building).

The results from our study suggest that omnichannel promotions are more effective if they are designed with in-depth knowledge about the shopping goals of specific shopping trips. Based upon an analysis of the customer journey for different customers it is, thus, possible to come up with more tailor-made strategies to manage customer movements between channels and touchpoints. This implication is not restricted to promotions; rather, it could

be used to guide other decisions related to managing consumer movements between channels and touchpoints. For example, the other study discussed in this chapter (Hernant and Rosengren, 2017) found an asymmetric effect of converting customers from online to offline compared to converting them from offline to online, in the context of pharmacy retailing (which can be characterised as driven by utilitarian products and planned consumer behaviours). Whereas online customers buy more as they convert offline, existing offline customers mainly switch channels. This implies that a retailer should target customers recruited online with offers that will help converge them offline; while it should market its online channel to current customers more as an information channel or a complement to the existing store. As illustrated thus far, there is a lot to gain by analysing and managing movements between channels and touchpoints. These activities also need to be matched with a clear understanding of how to evaluate these movements.

#### EVALUATING MOVEMENTS BETWEEN CHANNELS AND TOUCHPOINTS

Retailers must also come up with a system for evaluating movements between channels and touchpoints in order to fully understand omnichannel retailing. Such measures play a key role in making insights actionable for the firm (for example, Lemon and Verhoef, 2016). The omnichannel literature points to the importance of integrating customer experiences, sales, and brand perspectives; thus, these three aspects must be included when evaluating movements between channels and touchpoints (Verhoef et al, 2015).

In practice, it is difficult to find a single set of measures that adequately captures customer experience across different retail sectors and different channels. This means that firms typically rely upon a set of different measures (such as satisfaction, net promoter score, or similar) for different parts of the omnichannel offer. There ideally should be proven measurement approaches for the overall customer experience at each stage in the customer journey (pre-purchase, purchase, and post-purchase) and for all touchpoints. This measure should then be complemented with measures of sales and brand perceptions. However, there is not yet agreement on robust measurement approaches to evaluate all aspects of customer experience across the customer journey. Lemon and Verhoef (2016, p. 81–82) conclude the following in their review of customer experience research:



- Long-tested approaches, such as SERVQUAL (reliability, assurance, tangibles, empathy, and responsiveness) may offer a good starting point.
- Customer satisfaction and NPS (net promoter score) perform equally well in predicting firm performance and customer behaviour, although the predictive performance differs between specific contexts.
- Transformations of metrics are useful to account for potential non-linear effects due to notions such as customer delight.
- Customer feedback metrics focusing upon a specific domain of the customer are not strong in predicting future performance.
- Multiple customer feedback metrics predict customer behaviour better than a single metric.

Lemon and Verhoef (2016) recommend crafting dashboards that combine different measures to evaluate customer experience across channels and touchpoints, based upon this review. Such dashboards also need to consider retailer performance, in terms of both sales and brand, to provide a comprehensive evaluation of omnichannel performance. For example, as a way to facilitate integration between online and offline sales performance, Ikea and Åhléns attribute additional sales in the online channel to the offline stores in geographical areas where the product is delivered. This way, store employees can focus upon customer experience and satisfaction rather than direct conversion in stores. Similarly, it is important to examine simultaneously the effects on both purchase behaviour (sales) and brand image (see Blom et al., 2017) when evaluating omnichannel promotions.

From a customer journey perspective, it is also important to track how multiple touchpoints encountered throughout the journey affect purchase (or other behavioral) outcomes. This is often done through attribution or path-to-purchase models. Although such analyses can be valuable, a general problem with modelling such behaviours is that touchpoints tend to be used in different phases of the decision journey and, as a consequence, touchpoint effects can be endogenous, thus, leading to erroneous conclusions and resource allocation (Lemon and Verhoef, 2016). What is more, tools are available in an online context for tracking shopper behaviour in real time. Offline, however, these tools typically comprise satisfaction, and sales and are not measured as frequently as are online measures. As a consequence, there is a risk that too

much weight is given to aspects of customer behaviours that are easily measured in relation to what should be measured and what really drives customer experience, sales, and brand effects.

## A Framework for Analysing Buying Behaviour Across Channels

Although the overall customer experience is multi-dimensional, retailers typically have quite elaborate and readily available data in terms of behaviours in their CRM (customer relationship management) systems or loyalty programs. This data can be valuable in developing an understanding of consumer behaviour in different channels, thus, providing a point of departure for analysing, managing, and evaluating behaviours across channels. In our second recent project discussed here, we use this type of data to develop a framework that provides a comprehensive understanding of the implications of retail digitalization for sales in physical stores and of how to manage customers across channels (for details, see Hernant and Rosengren, 2017). Our framework illuminates how customer behaviours of individual customers change when a new online channel is added to an existing network of physical stores. Thus, our focus is upon the purchase step of the consumer decision journey and the extent to which buying behaviours of individual customers change when they also start using an online channel.

To analyse movements between channels for individual customers, our framework disentangles overall buying behaviors of each customers into amount, frequency, and regularity.

**Table 4.2: Definitions of Variables (from Hernant and Rosengren, 2017)**

Purchase amount	Total amount of all purchases the customer has made.
Purchase volume	Total number of all products the customer has purchased.
Purchase visits	Number of occasions the customer has made purchases.
Purchase months	Number of different months for the customer's purchase visits.
Customer months	Total number of months the customer has been a customer.
Monthly amount	Purchase amount per customer month, (i.e. the total amount of purchases divided by the number of months since the first recorded visit in the database).
Monthly volume	Purchase volume per customer month, (i.e. the total volume of purchased products divided by the number of months since the first recorded visit in the database).
Amount per visit	Purchase amount per purchase visit (i.e. the total amount of purchases divided by the number of purchase visits).

The variables used in our study are summarised in Table 4.2. All measures refer to the aggregate behaviour during the time period for which the customer has been a customer, and were used to describe overall behaviour as well as behaviour for the online and offline channel, respectively (for further details regarding the variables: please see Hernant and Rosengren, 2017).

The variables facilitate a comparison of customers purchase behaviour (in total, as well as online and offline) after they have become online customers. The monthly amount (volume) can be calculated by multiplying the amount (volume) per transaction, the purchase frequency, and the purchase regularity. Mathematically, the monthly amount (volume) can be expressed by multiplying the amount (volume) per transaction, the purchase frequency, and the purchase regularity (see Figure 4.2).

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$\frac{\text{Purchase amount}}{\text{Customer months}}$	=	$\frac{\text{Purchase amount}}{\text{Purchase visits}}$	•	$\frac{\text{Purchase visits}}{\text{Purchase months}}$	•	$\frac{\text{Purchase months}}{\text{Customer months}}$
<i>(Monthly amount)</i>		<i>(Amount per visit)</i>		<i>(Purchase frequency)</i>		<i>(Purchase regularity)</i>
$\frac{\text{Purchase volume}}{\text{Customer months}}$	=	$\frac{\text{Purchase volume}}{\text{Purchase visits}}$	•	$\frac{\text{Purchase visits}}{\text{Purchase months}}$	•	$\frac{\text{Purchase months}}{\text{Customer months}}$
<i>(Monthly volume)</i>		<i>(Volume per visit)</i>		<i>(Purchase frequency)</i>		<i>(Purchase regularity)</i>

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**Figure 4.2: Calculations of monthly revenues and sales volumes using the variables (from Hernant and Rosengren, 2017)**

#### UNDERSTANDING MOVEMENTS IN PHARMACY RETAILING

Our framework was developed in the context of pharmacy retailing, using the CRM system of a Swedish pharmacy retailer, and capturing data for a total of 12,139 online customers. Each sales receipt shows detailed information on an actual purchase: that is to say, the (anonymised) customer's identity, the products purchased, and the date and time of purchase. Furthermore, all purchases in the retailer's physical stores in a time period from one year before the online store opened were identified for all customers who made at least one purchase in the online store. In all, this dataset enabled us to analyse customer purchase behaviour for a full year prior to, and 15 months post-introduction of the online store at the specific retailer (for a more detailed description: see Hernant and Rosengren, 2017).

The analysis using the framework showed that going online facilitated customer acquisition. A total of 2,954 (24%) of the 12,193 customers who patronised the online store made their first purchase online. Most of these (1,798 or 61%) made no purchases offline. The remaining 1,156 (39%) online customers also became offline customers. The latter customer group provided twice as much sales every month as online-only customers; this was primarily due to their higher purchasing regularity. From the retailer's perspective, this difference clearly indicates that it is crucial to convert customers acquired online to also become customers of the physical store.

We also found that existing customers buying online (9,239 or 76%) were primarily shifting their purchases from one channel to the other. These customers showed only minor increases in total purchasing after their first online purchase; identical number of products purchased per month, and monthly amount increased by 2%. However, the average transaction size among these customers increased (most notably in amount spent per visit, which rose by 13%) after their first online purchase. The purchase frequency of this customer group increased by 2.4%; purchase regularity decreased by 5%. The net effect, therefore, was the larger average transaction translated into only a small increase in monthly amount. Overall, the online buying by existing (offline) customers represented a switch from offline to online. After their first online purchase, existing customers changed their offline behaviour, as illustrated by lower average transactions, lower frequency, and lower regularity.

Based on these analyses we found an asymmetry in channel migration. Converting online customers into customers at a physical store provided more opportunities for additional sales than the other way around. The results also highlighted the importance of looking beyond average transaction size (see also Pauwels and Neslin, 2015). By using the average monthly sales from individual consumers as the target variable, our study found that, despite the larger online transaction size, the interaction between average transaction, purchase frequency, and regularity for existing customers is a zero-sum game. The effects on the physical stores for the retailer were negative for all variables.

This highlights how retailers can use our framework to design address various aspects of consumer behaviour (average transaction, frequency, and regularity), as well as describe the offers and their underlying strategies to decision makers and store employees. The framework (Hernant and Rosengren, 2017)

allows for a more insightful discussion of the sales impact of adding an online channel. It can also serve as a basis for targeting different customer groups with tailored offers designed to change the facet of customer behaviour (average transaction size, frequency, or regularity) considered most likely to impact overall sales among that specific group of customers.

While access to this type of customer-level data is rare in academic research, it is typically readily available for retailers, which makes the framework easy to implement. The framework can also be used for continuous tracking and aggregation of individual customers' purchase behaviour between channels, and assist retailers in identifying sales-related problems as well as potential opportunities. For the retailer in our study, the online channel is still small in relation to the total business. Nevertheless, our research provides important insights. In particular, managers should carefully evaluate the effects of going online, based upon the transaction size, as well as the routine or pattern according to which transactions occur. For instance, an increase in average transaction size for offline customers going online can be offset by lower frequency and regularity. Since online channels also cannibalize on physical stores (see further Hernant and Rosengren, 2017), priority should be placed upon marketing activities that encourage customers' cross-channel purchasing: both to benefit more from customers acquired online and to reduce cannibalisation. For example, promotion and reward offers to customers can be based upon their degree of cross-channel purchasing. There is an important trade-off between cost functions online and offline from an operational perspective, as well as between short-term customer responses and longer-term potential effects on customer behaviour and revenues. For managers, our study highlights the importance of considering effects on cost, profit, customer relationships, loyalty, and long-term revenues when considering multi and omnichannel strategies.

#### COMPARING MOVEMENTS ACROSS RETAILERS

The framework can also be used to gain a better understanding of movements between online and offline channels in different retail contexts. In a second step of the project, we added the same type of data from two additional retailers: one grocery retailer and one beauty retailer. The framework was adapted to weekly behaviours to better fit the purchase cycle of grocery retailing, whereas monthly behaviours were used for the other two.

As buying motives as well as buying processes differ substantially between industries, adding an online channel should have differential effects upon customer behaviour and sales performance between various retail industries. For example, Kushwaha and Shankar (2013) found that customers that buy from more than one channel increase their purchases for hedonic product categories, yet not for utilitarian categories. Their study did not, however, address the effect upon retailers' sales performance. Still, it is reasonable to expect based upon this finding that retailers in industries facing consumers with hedonic motives for their purchases have more to "win" from also going online.

In comparing the changes in behaviour for existing customers also starting to buy online, the three cases reveal the following:

- In all three cases, the average purchases in the physical store are reduced after customers start buying online (range: -22 to -24%). Customers who start to also buy online increase their total spending with the retailer in grocery (+23%) and beauty (+19%). There is no such effect for the pharmacy.
- In all three cases, the average purchase is larger online than offline. When customers start buying online, this means the average purchase in total (considering both online and offline purchases) increases by 13–15%. At the same time, the average purchase offline is lower in all three cases (Pharmacy: -11%; Grocery: -8%; Beauty: -5%).
- In all three cases, the purchase frequency is lower online than it is offline. Customers who start to buy online become less frequent offline (Pharmacy: -10%; Grocery: -5%; Beauty 6%). The overall effect on frequency is positive for Beauty (+7%), yet it is small for Grocery (-1%) and Beauty (+2%).
- The purchase regularity in all three cases is lower online than offline. Purchase regularity increases overall after the first online purchase for Grocery (+17%), yet it decreases for Pharmacy (-5%) and Beauty (-2%).

The results thus support the notion that omnichannel strategies need to be adapted based upon product categories and purchase behaviour (Blom et al 2017). Achieving high online purchase regularity among customers seems to

be most beneficial for overall sales (online plus offline) in the beauty industry. Cannibalisation is brought about to a larger extent in the grocery industry, although overall sales are increasing here too. With its primarily utilitarian motives and planned purchases, cannibalisation on the offline stores is the highest in the pharmacy industry.

## Conclusion

This chapter set out to provide a better understanding of digital shopper behaviour and its implications for retailers. Whereas previous research has primarily focused upon the growth of online retailing, we focused on omnichannel retailing: the integration between online and offline retailing. More specifically, we outline the importance of understanding, managing, and evaluating consumer behaviour across channels and touchpoints when crafting an omnichannel retail strategy. We discuss how it is not possible, based upon two ongoing projects, to provide a one-size-fits-all key to omnichannel retailing. Omnichannel strategies must be designed with in-depth knowledge about the type of products and decision processes used by consumers. Therefore, it is possible to come up with more tailor-made strategies to manage customer movements between channels and touchpoints, based upon an analysis of the customer journey for different customers. The chapter also points to the importance of combining measures of customer experience, sales, and brands when evaluating different channels and touchpoints through the use of dashboard approaches. The frameworks presented in the chapter can be used as tool in this regard.

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