

# The Interdependencies between Customer Journey, Business Model, and Technology in Creating Digital Customer Experiences – A Configurational Analysis at the Example of Brick-and-Mortar Retail

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## Abstract

*As brick-and-mortar retail increasingly disappears while online retail flourishes, the customer experience (CX) becomes a critical source of competitive advantage. Customers expect the same information, personalization, and availability in a brick-and-mortar store as they do online. While digital technology enables such CXs and enhances the advantage of the physical experience, brick-and-mortar retailers struggle with the complexity of these digital transformations. We analyze 38 cases of retailers implementing digital transformations to create digital CXs by conducting a qualitative comparative analysis. In eight expert interviews, we refine our understanding of CX in retail and discuss the validity and generalizability of the three resulting configurations: value chain innovation, seamless purchase experience, and personal experience. They provide actionable pathways to digital CX representing individual transformation initiatives. Since the configurations overlap strongly, we discuss the necessity to combine the three configurations to implement digital CX across all phases of the customer journey and business model.*

**Keywords:** customer experience, digital transformation, retail, QCA.

## 1. Introduction

Digital marketplaces such as Alibaba or Amazon are overtaking brick-and-mortar retailers, causing disruptions in the retail industry. Artificial intelligence, the internet of things, mobile commerce, and extended reality have become ubiquitous and eventually unavoidable for retail (Grewal et al., 2020). The

question has long since ceased to be whether brick-and-mortar retailers need to undergo a digital transformation but how to do it.

Digital technology, for example, implemented to create digitally augmented stores, can help attract, support, and engage customers in their customer journey. Digital mirrors that, for example, virtually change the color of a shirt or personalize prices and complementary products, rather than just buying and consuming the product or service, create a digital customer experience (DCX) that ensures customers move through the various stages of this journey (Lemon & Verhoef, 2016; Roggeveen & Sethuraman, 2020).

DCX is about fulfilling the customer's desire for an experience supported by digital technology. Since customers want different experiences at different stages of their customer journey, the business model (BM), which describes all company activities to create and capture value for and from customers, must fulfill these desires. DCX thus emerges at the intersection of digital support for the customer journey and digital innovation of the BM (Lemon & Verhoef, 2016).

The ways digital technology can be used to create DCXs have become a significant source of competitive advantage in retail (Keiningham et al., 2020). However, firms struggle to create DCX because they do not view DCX as an integrated construct of the customer journey and BM that takes into account changing customer expectations along their journey and the experience offered across the various BM elements. For example, Procter & Gamble wasted great investments in their digital distribution systems to have their products available to the customer at all the times, thus ensuring the transition from the pre-purchase to the purchase stage. However, as part of the BM, their key partners and retail customers were not ready for these systems,

which then failed (Grewal et al., 2020). From a different perspective, Macy's once rejected the TV shopping BM idea that spawned QVC and a significant competitor because they did not understand the customer journey of willingly buying a product that was just comfortably presented to customers on the couch.

The literature already selectively addresses these challenges, such as the benefits of digital technologies and their usage along the customer journey (Roggeveen & Sethuraman, 2020) or in BMs (Böttcher, Li, et al., 2021). Thus, we know how digital technology can innovate either the customer or the firm perspective on DCX. Although both sides are necessary, one of the two implementations may not achieve the desired result of improving DCX, as the example of Procter & Gamble shows, and convince customers to continue their journey satisfied or return because of the positive DCX. Such focused research does not provide integrated recommendations for creating DCX that coherently addresses the two-sided challenge of creating a digital customer journey and digital BM innovation (Grewal et al., 2020; Keiningham et al., 2020).

To make such recommendations that address the interactions between the customer journey, the BM, and digital technology, we seek to find configurations that explain what experiential value represented in the BM is presented to the customer along the customer journey when using digital technology that creates such DCX in retail. These configurations demonstrate how retailers digitally transformed their customer journey and BM in alignment to create DCX. We propose the following research question: *What are the configurations of using digital technology across the customer journey and the BM to create digital customer experiences?* Brick-and-mortar retail provides an appropriate research context because changes in consumer behavior impact retailers early on, requiring an early response from retailers who are now using digital technologies to create DCX (Hagberg et al., 2017). As such, the industry serves as a pathfinder for other consumer-facing industries. Brick-and-mortar retail is of particular interest because consumers are increasingly shopping online, and offline retailers need to counteract this trend by offering experiences that convince consumers to shop in offline stores (Brynjolfsson et al., 2013).

We follow a three-step research approach, combining a case survey with qualitative comparative analysis (QCA) and refining the resulting configurations with expert interviews. Based on 38 case studies on digital transformations of brick-and-mortar retailers, we identify three set-theoretic configurations creating DCX. We refine our understanding of these configurations, namely digitally innovated supply chains, seamless purchase experiences, and personal experiences, with eight expert interviews. The findings

propose three individual DCX initiatives to transform the customer journey and the BM digitally. Besides the interdependencies between the customer journey, the BM, and digital technology, the QCA also reveals interdependencies between the three configurations. Hence, all three configurations must be combined to create a holistic DCX. This guides practice to implement digital technology to effectively create DCX by digitally transforming the customer journey and the BM in alignment with each other.

## 2. Theoretical Background

### 2.1. Digital Customer Experience

Holbrook and Hirschman (1982) introduced the idea that consumer consumption involves experience factors rather than viewing consumers as purely rational actors. Experiences employ hedonic, symbolic, and aesthetic characteristics of the customer journey. Later, Pine and Gilmore (1998) referred to the emergence of the *Experience Economy* as the next step in economic value progression, replacing the agricultural, industrial, and service economies. Building on these initial findings, the existing literature describes customer experience (CX) as the interplay between a company's physical performance and the aroused emotions of customers, intuitively measured at each contact with customer expectations (Shaw & Ivens, 2002). Therefore, CX is a “multidimensional construct focusing on a customer's cognitive, emotional, behavioral, sensorial, and social responses to a firm's offerings during the customer's entire [customer] journey” (Lemon & Verhoef, 2016). Due to the holistic nature of CX, this endeavor is also notably challenging to replicate, in contrast to various product or service improvements (Berry et al., 2002).

To provide an immersive CX and enhance and promote competitive advantage, retailers must leverage today's digital technologies. We refer to CX as the overall concept of experiences provided to the customer and to DCX if this CX is created by using digital technology, thus digital technology is critical for the CX. However, the sole use of technology is no longer a fascination point for consumers but a base expectation (Stephens & Pine, 2017). Technological stimuli are increasingly becoming essential to creating a memorable CX (Bustamante & Rubio, 2017). Creating DCXs, for example, by guiding a customer in the store using augmented reality or smart monitors is becoming a prerequisite for competitiveness as retail is rapidly evolving due to changes in consumer behavior (Grewal et al., 2020; Piccinini et al., 2015). DCX provides value for retailers by either attracting customers who value such experiences and are willing to pay more for a DCX

or digitizing human services such as customer consultations or self-checkout payments (Sethuraman & Parasuraman, 2005).

To assess how digital technology creates value in DCXs, firms must consider when technology is used in the customer's journey (Roggeveen & Sethuraman, 2020). The customer journey refers to "a series of touchpoints, involving all activities and events related to the delivery of the service from the customer's perspective" (Patrício et al., 2011) and is considered an integrative and vital part of CX (Voorhees et al., 2017). These touchpoints (i.e., interactions) are divided into the three stages, pre-purchase, purchase, and post-purchase, and into direct and indirect interactions (Lemon & Verhoef, 2016). For example, intelligent warehouses create value pre-purchase by providing customers information about how many product items are available in a particular store or by enabling data analytics for improved stock levels. They also add value after the purchase, such as handling customer returns, offering follow-up services, or making new purchases based on the previous CX. Direct interactions mainly happen during the purchase stage, the use, and the receipt of goods and services. The indirect contact consists of interactions pre-and post-purchase, such as depicting a company's product, reviewing recommendations or criticism, services, brands, advertising, reports, or news (Meyer & Schwager, 2007).

## 2.2. Business Models

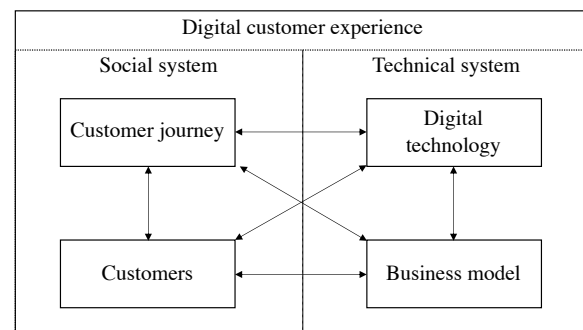
To fully leverage the potential of digital technology for DCX, the technology must also be embedded in the BM. Firms need to gauge the impact of technologies on DCX in terms of additional revenue when new BMs are enabled or cost savings when a given BM can be optimized (Böttcher & Weking, 2020; Jocevski et al., 2019).

The term "BM" is defined as the "logic, the data, and other evidence that support a value proposition for the customer, and a viable structure of revenues and costs for the enterprise delivering that value" (Teece, 2010, p. 179). Thus, the BM is the architecture linking interdependent activities to create, deliver, and capture value (Zott & Amit, 2010). It consists of three main components: the value proposition (i.e., the offered products and services), the value chain (i.e., all processes and activities and the necessary resources, capabilities, and coordination to achieve the value proposition), and the revenue model (i.e., cost structure and revenue streams) (Zott & Amit, 2010). Digital technology is relevant for all these elements. Once it fundamentally alters the elements, the BM is considered a digital BM (Veit et al., 2014).

Consciously integrating DCX in the BM offers new perspectives for firms in renewing their BMs. Firms frequently conduct BM changes based on their perception of what the market will accept and believe will achieve their business objectives. Nevertheless, the literature has ignored DCX's implications for BMs (Keiningham et al., 2020). Both topics overlap strongly since a new BM typically influences customer perceptions of their experiences with a company. DCX can also be viewed as a potential enabler for creating new digital BMs by capitalizing on opportunities that customers want and are willing to alter their category spending (Weill & Woerner, 2018). Digital technology is the catalyst for bringing these concepts together.

## 2.3. An Integrated Perspective on DCX

Based on the overlap of the presented elements of DCX, customer journey, digital technologies, and BMs, we propose an integrated socio-technical perspective on DCX presented in Figure 1 (Bostrom & Heinen, 1977). This socio-technical perspective highlights the integrated and interdependent nature of the concepts related to DCX.



**Figure 1. A socio-technical perspective on CX**

As the value of technology increases when embedded in a salient BM, retailers need to consider the opportunities that digital technology offers to innovate the BM (Teece, 2010). The BM presents a technical system articulating "the processes, tasks, and technology needed to transform inputs to outputs" (Bostrom & Heinen, 1977, p. 17), or the activities to create, deliver, and capture value (Zott & Amit, 2010). It creates affordances to use digital technologies to introduce novel activities that add customer value and incorporate part of that value as profit (Teece, 2010). The integration of DCX provides possibly more than just an incremental improvement in a firm's current BM; it can help organizations innovate, allocate resources, and transition from an old BM to a new one based on newly created customer demand (Norton & Pine, 2013).

Further, DCX can be captured in the three stages of the customer journey and its touchpoints between the retailer and the customer. Roggeveen and Sethuraman (2020) argue that digital technology provides value in the different stages of the customer journey and creates, changes, or enhances the associated touchpoints. Firms need to acknowledge the affordances related to implementing digital technology in the different customer journey stages and assess how, why, and when it can create value for the customer, thus improving the DCX.

In summary, firms' affordances to create a DCX are the potential technology implementations to support the customer journey (i.e., activities in the pre-purchase, the purchase, or the post-purchase stage) and to change the BM (i.e., the value proposition, or the value chain).

### 3. Methodology

We conducted a three-step research method depicted in Figure 2. In step one, we followed the case survey method (Larsson, 1993) to collect a case sample on retailers implementing DCX initiatives. We coded these cases using a coding scheme grounded in theory from a structured literature review. In step two, we analyzed this coded case sample with crisp-set QCA (csQCA) to derive configurations of DCX initiatives (Rihoux & De Meur, 2009). In step three, we refined our understanding of these configurations with industry experts in semi-structured interviews and developed a model of effective use. This combination of methods allowed us to benefit from the advantages of each of the three methods while compensating for their disadvantages through the combination of methods.

#### 3.1. Case collection

We scanned the extant literature to identify cases for our case sample (Larsson, 1993). To identify a comprehensive set of case studies about DCX in retail, we searched for case studies about digital transformation initiatives in retail. We can include cases that present DCX initiatives (i.e., transformation projects creating or changing DCX) but do not focus on DCX explicitly but on digital transformation, digital BMs, or digital retail in general. We included peer-reviewed academic, practitioner- and education-oriented outlets. We did not filter for publication date, research method, or publication type. Also, we did not exclude any retail sectors (e.g., food, fashion, and furniture). Initially, we identified 80 case studies relevant to our research. We analyzed these case studies using inclusion and exclusion criteria to ensure quality, relevance, and topic fit for our research purpose. We included cases if (1) the case context was brick-and-

mortar retail and (2) the case narrative provided a detailed description of the firm and its digital transformation efforts. We excluded cases if (1) we could not identify any instances of technology and BM consistent with our research purpose and (2) if too little information was reported. After the application of selection and rejection criteria, 38 cases remained. For non-anonymous case studies, we triangulated the information with publicly available information, such as the firm websites and news articles.

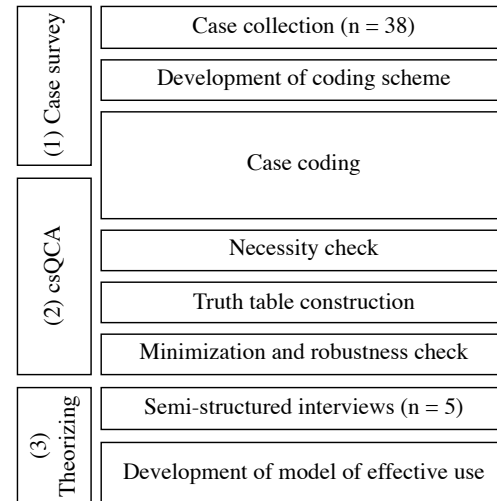


Figure 2. Three-step research method

#### 3.2. Coding scheme

We developed a coding scheme grounded in theory. It is based on the literature review and our socio-technical view of DCX. Thus, the coding scheme is organized in the three meta-characteristics digital technology implementation along the customer journey, BM change through the implementation, and improved DCX as the outcome. For the meta-characteristic digital technology implementation, we used the framework by Roggeveen and Sethuraman (2020). The framework categorizes digital technology along the three customer journey stages based on their primary influence. We could combine the information about which of the three customer journey stages uses digital technology and the information about which digital technology is used.

The BM change refers to the BM element whose change was enabled or supported by the technology implementation. Initially, we used four variables to describe the BM elements: value proposition, customer, value chain, and profit mechanism (Gassmann et al., 2019). However, during the coding process, we summarized the value proposition and customer and the value chain and profit mechanism since we could not differentiate the two aggregated variables (e.g., value

proposition and customers). The reason for this was either limited availability of information or double coding where both variables were coded as present, for example, when digital technology was introduced to change the value proposition and target a new customer segment. DCX served as an outcome variable and was therefore described by one variable expressing whether or not the changes enabled by digital technology along the customer journey or in the BM improved DCX.

We coded all variables binary, indicating whether the variable applies to a specific case. For example, Home Times has implemented digital walls that allow customers to see their desired furniture and décor in a virtual home setting. This supports the decision-making of which furniture to buy. Thus, we coded the pre-purchase stage to "1." The coding was performed in collaboration by two of the authors.

Besides the variables in our coding scheme, we recorded additional control variables. These control variables include the firms' retail sector, age, size, headquarter location, and internationalization. We used these variables in the data analysis to check if one or more control variables bias any configurations.

### 3.3. Configurational analysis

To analyze the coded case sample, we applied csQCA. QCA was first introduced by Ragin (1987) and has been further developed and refined into multiple so-called "flavors," such as fuzzy-set QCA, csQCA, or multi-value QCA. As our coding was binary or "crisp," we applied csQCA. QCA bridges qualitative and quantitative research methodologies, increasing confidence in the results (Duşa, 2007). QCA identifies combinations of conditions that are sufficient to achieve the outcome. Based on the socio-technical perspective on DCX, the customer journey and BM changes are interdependent. Thus, they need to be assessed in combination. Hence, the configurational approach of QCA is a suitable method for our research since we aim to find the combinations of when (customer journey) and how (BM) digital technology is used to improve DCX in brick-and-mortar retail.

The csQCA comprises four main steps: First, a data set is constructed that summarizes whether the causal conditions and outcome are present or absent for each case. We did this step in coding our cases, coding whether a variable is present for every case. Second, conditions are tested for necessity. Necessary conditions are conditions that are always present if the outcome is observed. We tested for necessity using a minimum coverage threshold of 0.6, a consistency threshold of 0.95, and a relevance for necessity of 0.5 (Schneider & Wagemann, 2012). No combinations were found with the specified cut-off thresholds for both the presence

and the absence of the outcome. Hence, we assume no necessary conditions for the outcome. Third, the coded data table is converted into a truth table. The truth table lists all logically possible combinations of conditions. Fourth, the truth table is minimized using Boolean minimization to identify sufficiency relations that explain the observed outcome. We derived the intermediate and the parsimonious solution to identify core and peripheral conditions (Fiss, 2011). Based on our medium sample size, the coverage threshold, which determines how many cases must be included in a configuration as a minimum, was set to 1. We set the consistency threshold, which determines how consistent the configuration is with the input data, to 0.8 to ensure empirically valid configurations.

### 3.4. Refinement and interpretation

The final step in QCA is to interpret and theorize from the resulting configurations (Park et al., 2020). We conducted semi-structured interviews to refine our understanding of the csQCA results. We interviewed five retail experts from a global technology consultancy to understand the context of the configurations in retail. We selected the experts based on their experience with digital technology and DCX, particularly in retail. To validate the generalizability of our findings, we interviewed three CX experts from a global software firm that operates more than fifteen CX centers worldwide to support their sales process. By validating the configurations with these experts, we could ensure their practical relevance and empirical reasoning. Also, it allowed us to add in-depth practical insights to our analysis. Thereby, we address a limitation of the case survey method: the case studies analyzed were not initially written for our specific research purpose. To avoid bias in the validation, we did not present the results of our csQCA to the interviewees. Our questions targeted the technology trends in the retail and the software industry, experiences in technology implementation, and the success factors of DCX implementations.

## 4. Results

### 4.1. Case sample

Our final case sample consists of 38 retail firms. The sample contains primarily large and established companies rather than start-ups or small and medium-sized firms. All retail sectors contain a reasonable proportion of cases, although Fashion and Food & Grocery are more strongly represented. The firms are equally distributed around the USA, Europe, and Asia.

The sample also contains an equal amount of international and locally operating retailers.

## 4.2. Configurations

**Table 1. Configurations for enhancing CX**

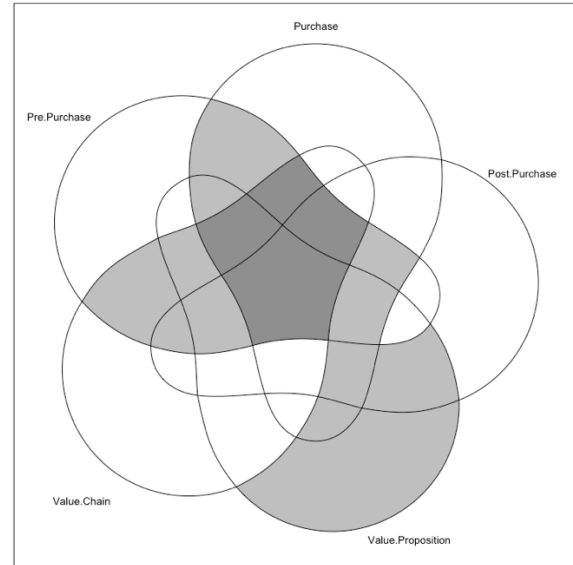
		Solution		
Configuration		[1]	[2]	[3]
Customer journey	PREP	●	●	⊗
	PUR		●	⊗
	POST			
BM	VPROP			●
	VCHAIN	●		
Unique consistency		1.000	1.000	1.000
Unique coverage		0.273	0.152	0.091
Solution consistency		1.000		
Solution coverage		0.788		

Table 1 displays the results of the csQCA. The analysis revealed three configurations, leading to a DCX. Following the notation of Fiss (2011), black circles indicate the presence of a condition; crossed circles indicate the absence of a condition. Large circles indicate core conditions; small ones indicate peripheral conditions. Blank spaces indicate irrelevance to the outcome. The overall solution indicates consistency of 1.000. Thus, the configurations fully explain the outcome. The solution coverage of 0.788 indicates an explained variance of 78.8% of our analyzed cases. Thus, our solution is a good fit for our cases, similar to other applications of QCA in information systems research (e.g., Park & Mithas, 2020). The unique consistency and coverage indicate each configuration's consistency and coverage individually. The unique coverage reveals how much variance of the solution coverage is explained solely by this configuration. Since the sum of the individual coverages does not equal the solution coverage, there is an overlap in explained variance between the three configurations, as illustrated in Figure 3. The dark areas in the middle of Figure 3 illustrate the overlap of the configurations.

### 4.2.1. Configuration 1 "Value chain innovation."

Solution 1 represents technology implementation in the pre-purchase stage and changes the BM's value chain. Thus, digital technology implemented in the pre-purchase stage is not sufficient to increase DCX but needs to be combined with an optimized value chain, bridging the gaps between the customer journey stages. The value chain is specifically relevant because it

consists of the processes and activities and the involved resources and capabilities to build and distribute the value proposition. Saving cost, enabling fast logistics, managing and storing data to streamline internal processes, and forecasting to ensure product availability seem to be a success factor for companies. An innovative supply chain can manage peak times and ensure availability, which significantly impacts DCX.



**Figure 3. Venn Diagram of the QCA Solution**

For example, the beauty retailer Sephora enabled its supply chain to provide free two-day shipping. This improved supply chain is essential to convince customers to move from the pre-purchase stage to the purchase stage. Otherwise, if the product they want is not available in the store or cannot be delivered to their home immediately, the customer might enjoy the DCX Sephora created with chatbots, personalized alerts, digital screens, and augmented reality, but then buy online from any other online retailer to deliver the product quickly.

Stock and inventory management and forecasting are critical elements for a fast value chain, ensuring availability in-store or enabling quick deliveries. Therefore, data analytics plays a key role as retailers such as Target and Walmart implement to improve planning accuracy and forecasting. This also reduces supply chain costs, augments productivity, and ensures the availability of products that will, in turn, serve the customer and enhance the DCX.

Based on the digital optimization of supply chains, the retailers can create omnichannel experiences combining the benefits of online and offline experiences. The offline experience of touching and feeling is still valuable to customers. Thus, many online-

first retailers, such as Warby Parker or Bonobos, are opening showrooms to enter the offline world. However, sold products are fulfilled via home delivery just as online sales, improving both realized demand and operational efficiency. As an outcome, the retailers created DCXs by “providing assistance by stylists for better customer interaction” (Bhatnagar, 2018, p. 2). On the other side, brick-and-mortar retailers are moving online, thus changing their value chain. J.C. Penney, for example, has realized the potential of their stores also becoming distribution points for their online retail. Moreover, Home Times uses gamification, digital catalogs, digital walls, and virtual showrooms to attract customers in the pre-purchase stage. Besides the DCX in offline stores, an omnichannel experience creates awareness and brand legitimacy to attract customers to the online channel and transfer them to the purchase stage.

**4.2.2. Configuration 2 "Seamless purchase experience."** Solution 2 combines technology implementation in the pre-purchase stage and the purchase stage. We find no link to the BM elements in this solution. Pre-purchase technology engages customers and encourages them to interact with businesses before committing to any purchases. The technology inspires potential customers, enabling them to experiment with the idea of transacting with a business. Once committed to the purchase, technology invested in the purchasing phase makes the journey from commitment to exchange seamless. For example, the McDonald's digital kiosk goes beyond reducing the time spent waiting in a line to order; it allows customers to interact with the menu and create customized burgers. Once customers found the right combination, it enabled the creation to become a real burger. The combination of pre-purchase and purchase technology complement each other to bring greater customer engagement and convenience, thus creating DCX through the digital interface.

In the fashion industry, Nordstrom, for example, invested in pre-purchase technology such as digital self-service kiosks to find products quickly and digitally. Tablets in changing rooms can be used to call for personal assistance or pay directly via mobile payment. Moreover, Nordstrom deploys technology such as cloud computing and endless aisle and uses a store app for geotargeting (e.g., routing the customers to the nearest store).

Overall, the DCX decreases the barriers between the pre-purchase stage and the actual purchase. It helps addressing individual customers more personalized, create a convenient experience in brick-and-mortar stores that is known from online retail, and ensures a personal connection between customers and sales assistants.

#### **4.2.3. Configuration 3 "Personal experience."**

Solution 3 indicates low technology need to create CX due to the combined absence of technology implementations in the pre-purchase and purchase phases. However, the retailers used other means to enhance the value proposition to create CXs. Instead of DCXs, these retailers focus on the strengths of offline retail: the personal, physical CX.

For example, Casper Sleep, a retailer selling sleep products, attracts “more traditional shoppers who would not purchase a mattress without trying it out” (Tangirala & Purkayastha, 2018, p. 7) by demonstrating mattresses’ cooling functionality and simulating bedrooms to test and experience the products before buying. Nike flagship stores create happenings with DJs causing customers to stay longer in the store just to enjoy the musical experience. By increasing the value of the retailers’ bundle of products and services to the customer, thus the value proposition, a better CX can be achieved. Other opportunities to create personal CXs are marketing campaigns, such as giveaways included with the purchase, or attractions in the store, such as the DJ, with positive word-of-mouth effects.

## **5. Discussion**

In the wake of the digital transformation, customers expect a memorable experience in brick-and-mortar retail that provides some benefits compared to online retail (Grewal et al., 2020). Digital technology provides one way to achieve a superior DCX. However, both the customer journey and the BM need to be considered to maximize the benefits of DCX (Keiningham et al., 2020; Lemon & Verhoef, 2016). We conducted a case survey of 38 retailers to address the resulting challenge of complex interdependencies and analyzed their initiatives to create DCXs. The csQCA revealed three configurations to create DCX with strong overlaps. We refined and validated the configurations with eight expert interviews from a technology consultancy and a software firm.

First, digital technology enables *value chain innovation* to create superior DCX in the pre-purchase stage, which helps convince the customer to proceed to the purchase stage. Second, digital technology innovates the customer journey and creates a *seamless purchase experience* from the very beginning when a customer identifies a need until the purchase is completed. Third, retailers should look outside digital technology and consider the *personal experience* and the non-digital interactions with customers that create a superior DCX.

However, while the configurations are sufficient to create DCX in set-theoretic terms, neither of the configurations alone is enough to create a holistic DCX that should be targeted. As the overlaps in Figure 3

show, all three configurations and all elements of the customer journey and the BM are needed. The sweet spot is right in the middle of Figure 3. For example, intelligent mirrors suggesting matching pants to a shirt (i.e., configuration 2) do not create a beneficial DCX if these pants are unavailable in this store (i.e., configuration 1). Personal experiences, such as in-store events (i.e., configuration 3), do not create additional benefits if the customers are not convinced to buy anything, a process supported by DCX (i.e., configurations 1 and 2).

The creation of DCX thus needs to address the entire customer journey and the BM. It needs to merge online and offline experiences. In retail, customers have nearly complete information about products and prices. The DCX in offline environments, such as brick-and-mortar retail but also in business-to-business relationships like enterprise software, needs to provide a benefit (i.e., the experience) customers cannot obtain from the internet or from looking at publicly available presentations, reviews, or price lists (Piccinini et al., 2015). In online retail, customers are used to product recommendations based on previous purchases or the current shopping cart. Combining digitally innovated value chains and seamless purchase experiences makes similar DCXs possible in brick-and-mortar retail. For example, augmented reality makes it easier to identify vegan or organic food in a grocery store. Interactive displays or smart mirrors can inform the customer about the farm the meat comes from or match shirts to selected pants. Again, this also translates to other industries. For example, based on a firm's current enterprise software architecture, or the usage thereof, software firms can suggest optimal additions to the architecture improving business processes or enabling new BMs.

During the customer journey, brick-and-mortar retailers need to find ways to support customers by digitalizing the value chain. Implementing digital technology in the value chain improves the DCX by bridging the gap between online and offline. The store is no longer the only point of interaction as customers start the customer journey already at home online (Brynjolfsson et al., 2013; Jucevski et al., 2019). For example, if the customer knows a product is available in-store, it is more likely they will go to the store to buy the product there. Similarly, if a firm knows a new software is compatible with its existing architecture, chances are it is open to implementing it. Digital technologies support the connection between the pre-purchase and the purchase stage. The technology eases the transition between the two stages and increases the chances of customers buying the product or service (Roggeveen & Sethuraman, 2020).

Besides all benefits of digital technology, the third configuration highlights social interactions. This builds

on the notion that a DCX includes emotional and social components (Lemon & Verhoef, 2016). In retail, these DCX are created through event-like experiences such as live music, pop-up stores, or social reputation. Customers plan to visit a store not because they want to buy something first but because they want to enjoy the experience. In other industries, such as enterprise software, social experiences are created through personal meetings, such as customized workshops demonstrating the software's potential for a customer, meeting the board members of the software vendor, or invitations to events at unique locations. These social experiences are beneficial not in the way that it helps to transition customers through the customer journey stages but in the way it creates a customer engagement effect. Customers will remember the experience and eventually return based on past experiences.

## 5.1. Contributions to research and practice

The theoretical contributions of this research are threefold. First, we demonstrate three configurations of initiatives creating DCX. These configurations represent individual and separate elements of DCX. However, our analysis also reveals that these three elements must be combined to create a holistic DCX. Thus, we find support for previous research arguing that CX needs to be considered across the customer journey and the BM. We extend this argument by drilling it down to the three identified configurations presenting pathways to implement DCX. Thereby, we address several calls for research to provide actionable guidelines to implement the potential of digital technology in retail (Grewal et al., 2020; Lemon & Verhoef, 2016; Roggeveen & Sethuraman, 2020). Combining the case survey method with the configurational approach of csQCA shows how digital technology can be effectively used to create DCXs. The configurational approach enables us to acknowledge the complexity and interdependencies of the socio-technical model in retail, comprising digital technology, the customer journey, and the BM.

Second, we find personal experiences (i.e., configuration 3) creating social and emotional experiences as a relevant element even for DCX. While digital technologies support the customer journey and help transition the customer from one stage to the following, personal experiences, not relying on digital technology, are a critical element of the CX.

Third, our findings based on 38 cases of brick-and-mortar retailers are generalizable to many industries. We use examples from the enterprise software context we learned during our interviews to demonstrate how DCX supports software vendors' sales and consulting process. This applies to almost any industry, such as



hospitality and tourism, automotive and logistics, or government services.

For practice, our model provides guidelines to create DCXs in retail and other industries, leveraging digital technology. The three configurations can serve as guidelines to structure DCX projects and drill them into more manageable and focused initiatives. Firms can refer to these configurations when making strategic decisions about digital technology implementations. In combination with the framework by Roggeveen and Sethuraman (2020), the actualizations provide practicable guidelines on how digital technology can be implemented to create a superior DCX throughout the customer journey and the BM.

## 5.2. Limitations and Future Research

Despite its contributions, our research faces some limitations. First, our primary data sources are published case studies about digital transformation in retail. While we employed a rigorous case selection procedure to select information-rich and purposeful publications, the case studies were not written for our research purpose (Larsson, 1993). Thus, the information provided in the individual case studies may not be complete. However, we tried to address this limitation by validating the configurations with expert interviews that supported our case analysis. Second, the reliance on these case studies does not allow us to quantify the effect of the changes on the improved DCX. As reflected in the binary coding of the case data, we only collected data if a customer journey stage or a BM element were changed by digital technology. However, we cannot differentiate if changing the pre-purchase stage influences the DCX stronger than the value proposition.

In future research, scholars can build on our findings to quantify the effects of the three configurations. Through quantitative surveys, scholars can assess the retailers' and customers' perspectives on the effect of digital technology on DCX throughout the customer journey. A large sample and differentiated item scales allow for fuzzy-set QCA, which can further differentiate the importance of individual elements in the configurations leading to improved DCX. This could also validate our claim for generalizability if such large-n studies include multiple industries despite retail.

Additionally, COVID-19 heavily impacted the retail industry (Böttcher et al., 2022). In our interviews, the experts highlighted the increasing demand of retailers for digital technologies, especially cloud computing, that serves as a base for further technology implementations. Hence, the pandemic may be a trigger to kick-start digital transformations in retail (Böttcher et al., 2022). For research, this provides a unique setting to analyze the digital transformation of the retail

ecosystem (Böttcher, Rickling, et al., 2021) after a shock, to analyze the digital transformation of late movers or small and medium-sized retailers that did not engage in digital technology before COVID-19, or to look into the implementation and usage of digital technology, such as virtual reality or digital platforms, to provide digital DCX.

## 6. Conclusion

Creating and improving the DCX is a significant competitive advantage in retail and other customer-focused industries. Customers want to enjoy the shopping experience. Firms create DCXs by implementing unique, enjoyable experiences so that customers like to spend time in the store or make it as convenient as possible, eliminating unpleasant activities in the customer journey. Digital technologies enable both types of DCX, thus providing great potential for retailers. However, DCX is a multidimensional construct. To effectively create a digitally augmented DCX, firms must consider the entire customer journey from the pre-purchase stage to the post-purchase stage. Also, the BM is necessary for DCX, as it articulates how value is created, captured, and delivered to the customer. This research proposes a socio-technical perspective on DCX. It identifies three configurations, value chain innovation, seamless purchase experience, and personal experience, leading to the creation of DCXs and highlighting the interdependencies of the aforementioned customer journey, BM, and digital technology.

## 7. Acknowledgments

The authors would like to thank the track chairs, editors and all anonymous reviewers for their helpful comments and suggestions. This work was funded by the German Federal Ministry for Economic Affairs and Energy as part of the project 01MK20001B (Knowledge4Retail) and the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) – project no. 464594907.

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