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### Abstract

This paper explores changes in technology enabled omnichannel customer experiences in stores over a five-year period. It contributes to the literature of omnichannel experience management through customer technology-enabled touchpoints within fashion retail. Adopting an exploratory qualitative approach, primary data was obtained using semi-structured interviews with millennial consumers. The findings demonstrate the growing importance of implementing and integrating consumer-facing in-store technologies to improve customer experience. From these, two models are developed, Technology Induced Experience and Technology Enabled Customer Shopping Journey.

**Keywords** Omnichannel; In-store technologies; Physical store; Customer experience; Fashion

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# **Change in technology-enabled omnichannel customer experiences in-store**

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## **Abstract**

This paper explores changes in technology enabled omnichannel customer experiences in stores over a five-year period. It contributes to the literature of omnichannel experience management through customer technology-enabled touchpoints within fashion retail. Adopting an exploratory qualitative approach, primary data was obtained using semi-structured interviews with millennial consumers. The findings demonstrate the growing importance of implementing and integrating consumer-facing in-store technologies to improve customer experience. From these, two models are developed, Technology Induced Experience and Technology Enabled Customer Shopping Journey.

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## **Change in technology-enabled omnichannel customer experiences in-store**

### **1. Introduction**

The satisfaction of consumers' increasing expectations of seamless, consistent and personalized shopping experience requires the integration of channels and touchpoints of a retail organization (Hossain et al., 2019; Grewal et al., 2017). Customer experience is optimized through their synergistic management in which technologies are critical (Beck and Rygl, 2015; Kaushik and Rahman, 2015; Larke et al., 2018; Lee, 2015; Mosquera et al., 2018). The offline channel, the physical store is increasingly integrated with digital channels to offer a connected, personal experience in the consumer's shopping journey (Alexander, 2019; Blazquez, 2014; Fernández et al., 2018; Mosquera et al., 2018). This is mediated through information look-up, ordering and return services (Bell et al., 2014) and more immersive facilities such as virtual fitting rooms (Pantano and Sevidio, 2012) and augmented reality (Poncin and Ben Mimoun, 2014).

Studies of technologies' integration in-store tend to focus on consumers acceptance of the technologies (Inman and Nikolova, 2017; Roy et al., 2018); retail management strategies towards integration (Hagberg et al., 2017; Pantano et al., 2018a; Pantano and Vannucci, 2019; Roy et al., 2018) and the role of technologies in instore atmospherics to enhance the shopping experience (Blazquez, 2014; Pantano and Vannucci, 2019; Poncin and Ben Mimoun, 2014). However, they tend to focus on a few existing and the potential for new, technologies while technological innovation and consumer expectations are shown to constantly change (Mosquera et al., 2018; Pantano et al., 2018a; Pantano and Vannucci, 2019). Moreover, whilst the fashion sector is recognized as a technology innovator, this has been based on the number of technologies in-store and not on the type of technologies nor how they contribute to customer

experience (Pantano and Vannucci, 2019, Lemon and Verhoef, 2016). Despite these rapid advances, research into the changing relationship between technologies and customer experience remains scarce (Flavián et al., 2020; Lemon and Verhoef, 2016).

Accordingly, this paper responds to the call for further consumer perspectives towards in-store technologies in retail (Inman and Nikolova, 2017; Roy et al., 2018). Specifically, it addresses the need for research into customers' experiences in stores and with other channels, their stability and how the experience evolves over time (Grewal et al., 2017; Verhoef et al. 2009) as well as the application of a temporal dimension to the retailer's relationship with space and its consumers (Collin-Lachaud, and Vanheems, 2016). It offers a methodological advance in the omnichannel literature by using a different approach (Vannucci and Pantano, 2019) and taking a time-based perspective to the implementation and derived experience of technologies in physical retail settings.

The theoretical contribution of this research is a deeper understanding of customer experience of in-store technologies in their shopping journey and how this changes over time. The following research questions ensue:

RQ1: How are fashion consumers responding to in-store technologies in physical stores?

RQ2: How is customer experience enhanced through in-store technologies?

RQ3: How do consumer perceptions of in-store technologies change?

To achieve these goals, the paper is organized as follows: the next section reviews literature on the physical store within omnichannel retailing, retail customer shopping experience and in-store technologies. The subsequent sections focus on the research methodology, then key

results are presented and discussed. Finally, the last section elucidates on theoretical and managerial implications, concluding with limitations and directions for future research.

## **2. Literature review**

### **2.1 The physical store within omnichannel retailing**

Omnichannel retailing (OCR) has received increasing attention because of its market-changing potential (Alexander and Blazquez Cano, 2019; Mosquera et al., 2018; Perry et al., 2019; Rusanen, 2019). The proliferation in retail channels and touchpoints has enabled consumers to access, compare, choose, purchase and return goods more readily (Alexander and Blazquez Cano, 2019; Pantano, 2014; Wagner et al., 2013). As consumers have become accustomed to using different channels across the purchase journey (Blazquez, 2014; Pantano and Viassone, 2015; Verhoef et al., 2015), webrooming (research online, buy offline) and showrooming (research offline, buy online) behaviors have intensified. These consumers demand the same superior experience regardless of how they access it (Alexander and Blazquez Cano, 2019; Bäckström and Johansson, 2006; Perry et al., 2019). Thus, the retailer challenge is how to compete in this new scenario and develop the physical channel (Pantano and Viassone, 2015).

The physical store environment influences customer purchase behavior and experience, through “atmospherics” to refer to the cues that characterize store atmosphere (Poncin and Ben Mimoun, 2014). More recent studies have situated digital technology as a point of purchase variable within store atmospherics (Pantano, 2016; Poncin and Ben Mimoun 2014) and posited that consumer-facing technologies can increase the attractiveness and aesthetic appeal of stores, thus positively impacting buying behavior (Lee and Leonas, 2018; Pantano and Di Pietro, 2012).

## **2.2 Retail customer shopping experience**

Customer experience has been theorized by scholars since Holbrook and Hirschman's (1982) conceptualization of consumption as generating hedonic and utilitarian value (Babin, et al., 1994). The interactions between the consumer and the retailer is the origin of customer experience, recognized as generating value and improving satisfaction and purchase intentions (Huré et al., 2017; Molinillo, et al., 2020).

Customer experience exists as a multidimensional construct, being “holistic in nature and involves the customer's cognitive, affective, emotional, social, and physical responses to the retailer” (Lemon and Verhoef, 2016 p.70). An immersive experience is contextualized by the distance of the consumer from a combination of products, environment and activities (Bèzes, 2019; Carù and Cova, 2006). Given that experiences consist of distinct touchpoints between the retailer and customer, it is acknowledged that this holistic customer experience is a response to the retailers offering during the customer's purchase journey (Lemon and Verhoef, 2016; Prentice et al., 2019; Verhoef et al., 2009).

This focus on interactions across the customer journey has been strengthened by numerous scholars (Lemon and Verhoef, 2016; Parise et al., 2016; Piotrowicz and Cuthbertson, 2014; Wolny and Charoensuksai, 2014), asserting that retailers must service customers at any of the multiple touchpoints, combined into three overall stages: pre-purchase, purchase, post-purchase (see Figure 1) (Lemon and Verhoef, 2016; Pucinelli et al., 2009; Schmitt, 2003; Stein and Ramaseshan, 2016). Within the fashion sector, Farfetch's technology strategy focuses on four key areas of the customer journey: customer recognition, browsing, experience and checkout (Goldfingle, 2019). The activities performed within each stage have changed due to channel integration and the shift towards omnichannel retailing (Jocevski et al., 2019). For

example, in pre-purchase, price comparisons can be conducted on smartphones; in purchase stage, consumers can select from a range of payment and delivery options on and offline; and post-purchase stage includes a focus on consumption experience, service, returns, repurchase as well as word of mouth, engagement and loyalty (Lemon and Verhoef, 2016; Jocevski et al., 2019).

<<insert Figure 1 about here>>

Previous studies have shown that technology innovations are capable of transforming the customer experience (Bolton et al., 2018; Lemon, 2016; McCarthy and Wright, 2004; Pantano and Naccarato, 2010). This research therefore responds to the call for further research into how technology affects the customer shopping experience, especially within physical retail settings (Verhoef et al., 2009; Lemon and Verhoef, 2016), from a fashion perspective.

### **2.3 In-store technologies**

In-store technology is defined by the “different devices that facilitate the shopping process at various points in the store” (Mosquera et al., 2018 p.66) and which enable consumer interaction. This research focuses on the integration of technologies in-store through the implementation of omnichannel touchpoints (Hagberg et al., 2017; Pantano and Vannucci, 2019), which previous research has explained as transformation change (Mosquera et al., 2018; Pantano et al., 2018a, 2018b; Pantano and Dennis, 2019; Poncin et al., 2017).

The use of human, virtual and technology-driven contact has led to the merger of online and offline retail spaces (Lee, 2015; Salomonson et al., 2013). These integrating developments are increasingly used to differentiate brands, improve purchase decision making and the shopping

experience (Beck and Rygl, 2015; Pantano, 2016; Pantano and Vannucci 2019; Parise et al., 2016; Perry et al., 2019). The technologies can be categorized by their location (Pantano et al., 2018a), ownership and control by the store or consumer (Beck and Rygl, 2015; Bèzes, 2019) and application (Pantano et al. 2017; Pantano and Vannucci, 2019). The devices themselves facilitate the shopping journey and processes in the store through voice shopping (Bolton et al., 2018), fit technology such as magic mirrors, virtual fitting rooms (Beck and Crie, 2018), augmented reality (Poncin and Ben Mimoun, 2014; Rese et al., 2017; Watson et al., 2018), self-checkout (Fernandes and Pedroso, 2017; Lee, 2015) and retail apps (Kim et al., 2013; Pantano and Prioras, 2016; Perry et al., 2019).

Research into in-store channel integration has demonstrated its continuous evolution in innovation, consumer expectations and usage (Pantano and Vannucci, 2019; Poncin and Ben Mimoun, 2014; Perry et al., 2019). However, there is an absence of longitudinal studies of technology implementation within the physical store to track such changes and their omnichannel application in store. Moreover, whilst new technologies may provide a new shopping experience, there remains a dearth of literature concerning the possible usage of new technologies (Pantano et al., 2018a). Further, Grewal et al. (2017) posit whether these new technologies will affect all types of retailing and all types of shoppers in the same way. Therefore, this research has taken a longer-term perspective of change over five years, to generate a deeper understanding of consumer's response to in-store technologies, the types of shopping experience they provide, how they change and ultimately the extent to which retailers are meeting the technology challenge within omnichannel retail. However, the complexity of choice and costs of technology integration present significant challenges to retailers (Pantano et al., 2018b; Pantano and Vannucci, 2019).



### **3. Methodology**

The research employs a qualitative approach using semi-structured interviews at the start and finish of the five-year study (2014 and 2019 respectively). As an exploratory project, this method provides access to in-depth knowledge, perspectives and actions about the problem (Denzin and Lincoln, 2005). Analyzing interviews conducted over time can alert researchers to shifts and changes and suggest continuities or disruptions in emotional investments in desires and dispositions (McLeod, 2000).

The unit of analysis was fashion retail, defined as comprising footwear, men's, women's and children's clothing, sportswear, beauty, jewellery, accessories, luggage and bags and lingerie across all segments, from value to luxury (Alexander 2019; Business of Fashion [BoF] and McKinsey, 2019). Clothing was identified as one of the top ten categories most influenced by the in-store use of digital devices (Mosquera et al., 2018). London-based consumers are considered to be tech-led (Pantano and Vannucci, 2019) and the city is globally recognized as a key fashion destination, in which Oxford, Regent and Bond Streets are considered within the top 20 busiest shopping streets in Europe (Briggs, 2017).

Face-to-face consumer interviews were conducted based on semi-structured questions about perceptions of digital technologies, their interactivity and influence on the in-store shopping experience (Pantano, 2016; Pantano and Naccarato, 2010; Poncin and Ben Mimoun, 2014; Lemon and Verhoef, 2016). Purposive sampling was used (Miles et al., 2014) and respondents were selected according to two criteria: that they regularly visit and shop for fashion in Oxford Street, Regent Street and Bond Street and have visited fashion stores in these streets within the last 6 months. A sample comprising 20 fashion consumers in 2014 and 2019 respectively, 40 in total, were drawn from the Millennial age group (those born between early 1980's and late

1990's) (see Table 1) and have become an increasingly attractive segment for fashion retailers generally (Staines, 2018). This sample was deemed suitable because young participants have a propensity towards technologies, are aware of and use digital tools for shopping and are referred to as the shoppers of the future (Pantano, 2016).

Each interview was moderated by the researchers face-to-face and lasted between 20-40 minutes (Jamshed, 2014). A protocol was used to give consistency to the questions asked to elicit response on the core themes explored over the time period (see Table 2). Interviews were audio recorded, from which full transcripts were developed.

<<insert Table 1 about here>>

<<insert Table 2 about here>>

Data was analyzed using thematic analysis, providing a detailed analysis of key aspects of the data, using Braun and Clark's (2006) six phases of analysis: data familiarisation, initial code generation, searching for themes, reviewing themes, defining and naming themes and producing the report. By systematically identifying themes and patterns of meaning, these categories summarized, and key quotes added to gain interpretive understanding (Miles et al., 2014).

Given the study's naturalistic paradigm, Guba and Lincoln's (1994) criteria for evaluating qualitative research trustworthiness and authenticity were used in the research operationalization. Themes identified from the literature informed the protocol design, which were consistently applied in each interview and respondent validation sought through iterative questioning for confirmation that we correctly understood the perspectives shared. 'Rich

descriptions' were sought from each interview, ensuring deep accounts of the phenomenon were gathered. Detailed records about the protocol, codebook and database of each stage of research were kept for procedure transparency (Gibbert et al., 2008). The analysis used objective probing and minimization of personal bias to generate different viewpoints of the topic (Elo et al., 2014). Lastly, inter-researcher reliability was conducted in the data analysis phase, thereby adding rigor and quality to the codes and themes deduced (Olsen et al., 2016).

## **4. Results and discussion**

### **4.1 Omnichannel millennials**

The findings, in alignment with earlier studies (e.g. Sopadjieva et al., 2017) demonstrated that Millennial fashion consumers are omnichannel purchasers with clear webrooming and showrooming behaviors and these increased over the five-year period. Most consumers engaged in webrooming (researching online before purchasing instore), especially when the purchase value was high. Greater use of retailer apps for searching was evidenced over the period, *"for Zara I check the app for new products then go to store"* (R9). Similarities in the reasons given for this behavior were offered: search for new products, price comparisons, convenience, ease, speed. Increasingly though, consumers are seeking *"styling suggestions"*, and to *"read reviews"*, *"check stock availability"* and *"review company practices"* (R33, R29, R31, R40), which more highly value others' opinions and ethical considerations in the decision-making process.

No notable change was seen in their channel preference over the period, with stores remaining the dominant choice (Alexander and Blazquez Cano, 2019; Fernández et al, 2018; Mosquera et al., 2018). Social media was often a trigger for shopping, *"I check their stories first"* (R37). This increased over the period, with Instagram being the dominant platform. Some choose to

purchase online because of the “*chaos*” (e.g. R15, R17,R29, R33) experienced offline in central London shopping locations. Crowding coupled with overwhelming choice prompted channel switching.

#### **4.2 Consumers response to in-store technologies**

The five-year period demonstrated the importance of ‘technology as facilitator’ centred on product display and information search to enhance the convenience of the shopping journey, typically through tablets, digital display and signage. Non-interactive ‘big’ screens impressed respondents through their fashion content and sense of dynamism they gave to the brand, the tablets for their stock look-up function. However, in 2019 greater emphasis was given to types of ‘technology as generator’ notably through interactivity with self-checkouts and experiences with interactive screens, windows and photobooth technologies (See Table 3). Retailers increasingly install and trial technologies to create experience, either through efficiency (speed) and its improvement of the shopping journey or immersion (dwell) with the content or interaction.

The most positively memorable experiential in-store technologies were the photobooths at Lululemon, Urban Outfitters and Topshop, which were cited for their fun, interactivity and social connectivity. Nike’s ID touchscreen shared these characteristics but included an important element of product personalization. By contrast, Zara’s self-checkout for payment, introduced in 2019 was widely cited for its convenience. Individual examples of technologies were enjoyed for their novelty, unexpectedness and engagement; in this category there was a temporary window display at, COS, a smart mirror at JD Sports and social media real-time feed digital display at Bershka:

*“There’s a really big screen in Bershka, going up the stairs, they ask you to post pictures on Instagram and then posts are displayed on the screen, that’s pretty cool”* (R35).

Many participants associated high street retailers more with implementing technology to drive convenience but had fewer associations between technology and luxury because of the value of personal service, *“I don’t expect to have fancy technology in luxury stores, apart from screens showing catwalks, its more about the human connection”* (R40).

<<insert Table 3 about here>>

However, the implementation of payment and shopping experience technologies was very limited over the period. In 2019, only Zara was cited as a retailer offering payment technology and only two consumers had actually used the self-checkout with mixed experiences *“it was a disaster, horrible, it didn’t work, I had to ask for help!”* (R40). Similarly, four consumers had seen AR in store (at Asics, Charlotte Tilbury, JD sports, Zara), yet only one had actually used it. Even tablets, which were one of the most diffused in-store technologies, were only used by six consumers, less than half of the 2019 respondents. By contrast with non-interactive screens, interactive technologies experienced a low rate of diffusion, which, contrary to extant studies (Pantano and Vannucci, 2019; Mosquera et al., 2018) contributed to their low visibility and usage.

#### **4.3 Limitations of in-store technologies and omni-services**

In general, consumers agreed that the most prevalent in-store technologies available to them were basic, old or unimportant, *“tablets are nothing great, I could do that at home”* (R32).

Tablets and large digital screens became more widely used by many retailers, and the respondents use of words like “ubiquitous” “nothing special” and “non-interactive” (R16, R23, R38) to suggest that they have become an expected and accepted part of the store environment. Permanent in-store technologies, tended to be more “functional”, “basic” (R26, R20) and utilitarian.

Frictions between consumers, in-store technology and shop staff became evident over the period of study (see Table 4). The most significant friction was deemed *invisibility*, meaning the store was either tech-less or the technology was not easily perceived: “honestly, I didn’t ever see them in store” (R10). *Inertia* depicts basic or old technologies perceived by consumers, in particular, tablets were singled out for their functionality but “everyone uses iPads, it’s nothing new” (R23). A significant number of consumers did not care about the availability of technologies, for them they were *Trivial*, gimmicky, unimportant or uninteresting: “I don’t care [about tech]” (R24) and “it doesn’t make me feel any different, I go to the shop to look and buy clothes, not to use tech”(37).

The anticipation of a convenient in-store experience is reflected in consumers’ widespread dissatisfaction with failures of technology (Zhu et al., 2013): *Time-wasting*, where technologies are difficult to use, too slow or do not work: “it’s clunky” (R36) and “usually it’s very disappointing” (R35). *Human* friction relates to sales associates who are unhelpful or unknowledgeable regarding in-store technologies or where consumers prefer human interaction so that the technology becomes the barrier, “there wasn’t anyone to help” (R2) and “I prefer to ask staff for help, it’s nice to talk to someone” (R40). *Disconnected* relates to the seamless integration of channels through technologies. While these became more available

over the period, expected omni-services such as ‘order in store deliver to home’ and ‘order online return to store’ were still limited:

*“COS’s service is awful; the store doesn’t talk to the website and visa-versa! They don’t offer click and collect, I can’t order in-store for delivery home or return an online order to store!” (R30).*

Lastly *Brand-experience incongruence* depicts a misfit between the brand and technology type or their usage of that technology, so that rather than a benefit, the technology becomes a barrier between the brand and consumer, *“it’s more like an obstacle”* (R9) and *“it makes the distance even bigger between store and customer”* (R1). This friction was experienced in 2014 but less so in 2019, with emphasis given to the importance of an in-store multisensory experience: the ability to touch, feel and try-on in the consumer-brand encounter. Little change was evident in the remaining six consumer friction typologies over the time period, which implies a lack of advancement in the omnichannel customer shopping experience in-store. This needs to be addressed in order for acceptance, usage and shopping experience to improve.

<<insert Table 4 about here>>

#### **4.4 Benefits of in-store technologies and omni-services**

Most of the consumers associated in-store technologies with providing information, convenience and efficiency, *“it helps me choose more conveniently”* (R29), followed by speed, *“I can just check the tablet, it’s quick”* (R11). Emphasis given to functional rather than experiential in-store technologies (see Table 5). Efficiency and speed are linked to avoiding queues and were perceived as benefits especially in high street stores, where crowding is an issue. Some saw in-store technologies as a way to avoid sales associate interactions.

Much less prominence was given to hedonic experiential benefits derived from in-store technologies. Those that provided fun, inspiration or enjoyment tended to be limited to specific examples and were typically remembered for their novelty or stimulating the respondent's sense of curiosity *"it makes shopping more interesting"* (R30). Looking at the fashion content on screens and finding style advice provided a motivation to stay in store. Further, retailers were differentiated by favorable in-store technologies. For a few respondents, this led to positive purchase intentions, *"I was so engaged [with technology], I ended up buying something"* (R29) (e.g. Pantano, 2016).

Omnichannel integration requires a social dimension, and this was evident across the time-period. Retailers could successfully contribute virtual community benefits within the physical setting and positively build a brand relationship: *"I really love social media, so everything that is connected to that I like to use more"* (R29). Connectivity contributed to a reduction in shopping anxiety in 2014, *"I now have an idea what I want in store because of online, I feel more relaxed rather than stressed"* (R9). However, anxiety was less evident in the later period as respondents more confidently described their individual online research activities in the shopping journey.

<<insert Table 5 about here>>

#### **4.5 Customer shopping experience enhanced through in-store technologies and their change over time**

The implementation of in-store technologies incrementally advanced over the period of study. There was increasing experimentation with experiential shopping technologies over the period, evident in consumers' enjoyment, playfulness, attractiveness and online community



interactions. Excitement and word-of-mouth commonly described experiences across the duration of the study but technologies trigger word-of-mouth only if social media is integrated into them to enable onward sharing, *“I’ll share if it’s cool”* (for example at a Lululemon photobooth) (R39). Loyalty only features in 2014, *“if you have a good experience, it makes you want to go back to that store”* (R2). ‘Engagement’ was stimulated with interactive technologies only, as *“they are more interesting”*(R24). Using technologies to *“kill time”* (R28) when waiting for a family or friend in-store was seen as offering utilitarian value (see Table 6). However, after time, the effect was normalised, with the technology perceived as nothing new or as expected, *“once the coolness and newness wears off, you’re left with a practical thing”* (R3).

For some, in-store technologies were seen to induce a more positive attitude towards the retailer, increasing store attractiveness, with a *“....feeling that this brand is more about experience not just sales”* (R2). In explaining Nike’s customizing shoe technology *“it was offering something that I couldn’t find anywhere else”* (R31). The COS interactive window was *“different and new”* (R29) and Lululemon’s interactive screen was *“not just about shopping anymore”*(R22). The association of the experience with the brand in each case generated positive brand perception.

<<insert Table 6 about here>>

In some ways the experience of in-store technologies declined over the period of study, with some viewing it as *“unattractive”* (R34) *“unimportant”* (R30) *“disconnected”* (R36) *“peripheral to the shopping experience”* (R35) *“useless”* (R33) *“distracting”* (R29) and *“incongruent”* (R28). This reinforces the importance of strategic fit between brand and

technology and consumer first approaches to retailer adoption (Lemon, 2016; Lemon and Verhoef, 2016).

Whilst almost half of consumers felt in-store technologies do not contribute to the store space, as they *“don’t notice it,”* the remainder considered the contribution positively, over the duration of the study. Similarities were that the retailer appeared more modern, more spacious and more lively given the dynamic nature of screens displaying branded content (Poncin and Ben Mimoun, 2014). In 2019, consumers also associated in-store technologies with being *“high end”*, more *“professional”*, *“organised”* and *“amplified the brand”* (R23, R35, R32, R34). These are new positive aspects not evidenced in previous studies.

#### **4.6 In-store technologies and omni-services that would improve customer experience**

Opinion was polarized regarding technologies capable of improving the in-store customer experience. Functional technologies prioritizing efficiency, speed and convenience dominated in 2014 but shifted to emphasizing experiential technologies in 2019, with a focus on immersive, interactive, playful and surprising technologies. Within this category, over half want to see more AR/VR in-store technologies, *“that make you more involved”* (R32). Personalization technologies were also prominent with one respondent comparing innovations in another industry to challenge the fashion sector, *“in McDonalds you can customise your burger, why can’t you do the same with fashion purchases?”* (R38). Some respondents were - and wanted to be surprised by in-store technologies, *“tech should be unexpected and surprising”* (R27). Consumers highlighted temporary technology implementation, for example COS’s interactive window, appeared more interesting and experimental.

Click and collect continues to be important to consumers as a way to merge the online and offline shopping experience, whilst responding to the need for convenience in-store, *“it’s all about consumers’ convenience”* (R21) (e.g. Hossain et al., 2019). An iteration of the click and collect experience was one innovative proposal, conceived as a conveyor belt, with consumer collection activated on entering the store via recognition technologies.

#### **4.8 The temporal in-store technology challenge for fashion retailers**

Contrary to extant studies that consider the fashion sector to be early adopters in embracing technology (Mosquera et al., 2018; Pantano and Vannucci, 2019), the findings show that most fashion retailers are slow in meeting the technology challenge. From the consumer perspective, the retailer focus is on functional technologies, ability to drive efficiency and speed and convenience at the point of sale, rather than experiential technologies that emphasize fun, interactivity and enjoyment, even though consumers would like more of the latter.

Over the five-year period, changes are incremental with a focus on technologies for display, information search and payment solutions. This aligns with extant studies that show the misalignment between retailer focus on operational cost reduction technologies and consumers expectation towards enjoyable experiences in retail (Demirkan and Spohrer, 2014; Pantano et al., 2018a). Whilst the emphasis given to shopping experience technologies is relatively small, there is evidence of increased experimentation by retailers with AR, interactive window displays and technology enabled photobooths. Their hedonic value creates forms that surprise, immerse and excite consumers, especially as temporary rather than permanent fixtures.

This study supports earlier research that retail organisations and practices are evolutionary rather than revolutionary (McArthur et al., 2016; Pantano et al., 2018a). The retailer challenge

is to innovate, experiment, test and trial more with in-store technologies in order to improve the customer experience with the brand.

## **5. Conclusion, implications and future directions**

The empirical evidence shows that in-store technology implementation is limited and not as widespread as otherwise considered (Pantano and Vannucci, 2019; Pantano and Viassone, 2014). It is largely restricted to functional rather than experiential technologies and therefore has a limited transformational effect on the customer shopping experience. Advancing earlier technology innovation studies (Pantano and Vannucci, 2019), our research depicts the form of in-store technologies rather than the quantity implemented. Figure 2 shows the types of technologies and associated services based on consumer's desire for speed and efficiency or immersion and excitement, categorized as utilitarian and hedonic and according to brand fit and relevancy. This serves as a preliminary tool for retailers when selecting in-store technologies.

<<insert Figure 2 about here>>

In contrast with existing research, technology enabled immersive experiences were not considered pervasive in fashion retail settings (Poncin and Ben Mimoun, 2014; Pantano et al., 2017; Mosquera et al., 2018). Nevertheless, the effect of in-store technologies tended to be timebound so that on initial sighting and interaction, consumer responses were mostly positive, resulting in pleasure, intrigue and excitement. This raises strategic challenges for retailers in speed of change and investment to keep abreast of constantly changing consumer needs and expectations.

The paper responds to the call for further consumer-focused research in smart technologies in retail (Inman and Nikolova, 2017; Roy et al., 2018). In doing so, it contributes to the understanding of the consumer experience of technology integration, specifically within a seamless approach to omnichannel fashion retailing. It extends previous studies (Hagberg et al., 2017; Mosquera et al., 2018; Pantano et al., 2018a, 2018b; Pantano and Vannucci, 2019) with a temporal perspective. By tracking consumer attitudes towards in-store technologies and tech-enabled services over time, it qualifies expectations of continual change and adoption of retail technology (Pantano et al., 2018; Pantano and Vannucci, 2019).

A key finding is the friction between technologies, environment and people (Curran et al., 2003; Kaushik and Rahman, 2015; Laukkanen, 2016; Roy et al., 2018; Vannucci and Pantano, 2020; Zhu et al., 2013). Seven categories of friction hamper technology readiness that retailers must overcome for successful adoption. Whilst it is accepted that all innovations face some form of consumer resistance (Chouk and Mani, 2019), this study provides insights into the implementation process of in-store technologies.

The study identifies the types of technology and their influence on experiences through the shopping journey as depicted in Figure 3.

<<insert Figure 3 about here>>

- 1) *Pre-purchase* – includes need recognition, search and consideration. In-store technologies such as tablets, apps, interactive windows and digital signage, trigger the journey by informing consumers about new products or services, with social media influencing this initial step. Technologies that induce utilitarian and hedonic responses

are prevalent at the search stage, especially through online channels, to facilitate shopper convenience by providing more information about the retailer's products or services, for example, using tablets online or interactive screens offline to generate this step. In the consideration stage, tablets and interactive screens enable consumers to make choices based on the information received yet are currently mainly functional. More innovative, experiential technologies like AR/VR and body scanners may have even greater influence on consumer decision making, although this study showed how rarely they are used. The consideration phase is evident in on- and offline environments and greater emphasis could be given to experiential technologies that converge channels and touchpoints in a more immersive and interactive way within the physical store.

- 2) *Purchase* - technologies capable of supporting consumers through payment are currently under-utilized in physical stores. As offline is still the dominant channel for purchasing fashion products, there is an opportunity to capitalize on this step further with a focus on self-checkouts, apps and click and collect services.
- 3) *Post-purchase* - building on the improvements in the previous stages of the shopping journey, technologies are likely to positively influence the customer experience through engagement, excitement, interest and generation of word-of-mouth shared on social channels. Moreover, there is some evidence that in-store technologies improve brand perception and brand – customer relationships, which may influence purchase intention but not necessarily loyalty. Technologies such as digital display, which integrate real-time social media feeds and touchscreens, enable access to social channels and customer online reviews to assist in supporting and validating past purchase decisions.

This study found that technologies available in fashion retail stores were mainly perceived as basic and non-interactive in contrast to earlier research (Pantano and Naccarato, 2010; Pantano, 2016; Poncin and Ben Mimoun, 2014). While technology is capable of redefining the store space and experience through consumer-facing technologies and tech-enabled services, significant improvement is necessary to more fully realise these objectives. Therefore, the findings offer several implications for retailers. First, the extent to which fashion retailers are responding to the technology challenge is offered, is understood as nascent rather than extensive from the Millennial consumer's perspective, with only incremental change in retailer implementation and consumer interactions over the five-year period. Second, the findings should prompt retailers to innovate and experiment more with in-store technologies and related omni-services in order to improve the customer experience and brand relationship. Further, in-store technology frictions need to be overcome to improve the customer shopping experience, specifically issues concerning retailer fit, relevancy and visibility, which Figure 1 (Technology Induced Experience) and 2 (Technology Enabled Customer Shopping Journey) serve to address by providing a) a tool to inform in-store technology selection and b) a lens on the technology enabled customer shopping journey – signifying prevalent technologies and channels at each stage. The study reinforces extant studies demonstrating that in-store technologies positively contribute to the store space, specifically improving attractiveness, brand perception, knowledge, relationship and credibility. Retailers are therefore encouraged to continue to invest in consumer-facing in-store technologies as a way to differentiate and develop brand community. To enhance visibility, we suggest greater attention is given to technology location and integration in-store, focusing on prominence and adjacencies e.g. front of store, inside or next to fitting rooms, collection and payment points, whilst improving in-store signage about available technologies. Finally, improving staff training and knowledge about in-store technologies will alleviate the human friction currently encountered.

The limitations of the study are its focus on Millennial consumers in London. It is therefore bound by age, geography, sector and scale. Similar studies could be undertaken in countries or cities where there are high expectations for technology and greater responsiveness by retailers to allocate resources to more experiential forms of technologies. Interesting perspectives for further research include technology linked to consumer well-being, community building, generation and gender differences, whilst also exploring notions of temporary technologies to drive customer experience. Further, given the associations arising concerning market levels through this study, further research on in-store technologies and customer experience within and across market levels would be useful, both as a systematic longitudinal observation study to track change across levels or taking a comparative case study approach to analyze adoption. Such research would contribute to the future of omnichannel customer experience in-store.



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Table 1: Interview sample ( $n = 40$ )

2014			2019		
#	Age	Gender	#	Age	Gender
R1	24	F	R21	23	F
R2	25	F	R22	32	F
R3	25	F	R23	25	M
R4	23	F	R24	25	F
R5	24	F	R25	24	F
R6	23	F	R26	29	M
R7	25	F	R27	29	M
R8	23	F	R28	23	F
R9	24	F	R29	24	F
R10	22	F	R30	30	F
R11	25	F	R31	26	M
R12	24	F	R32	26	F
R13	31	M	R33	24	F
R14	26	F	R34	32	F
R15	26	F	R35	25	M
R16	25	F	R36	26	M
R17	27	F	R37	21	F
R18	27	F	R38	24	F
R19	26	F	R39	29	F
R20	27	F	R40	24	F

Table 2: Consumer interviews protocol

<b><i>Research protocol</i></b>
Personal details e.g. age, gender
Frequency of visiting and purchasing from retail stores in designated location (Bond, Oxford, Regent Street)
Omnichannel shopping behaviors e.g. webrooming and showrooming behaviors
Types of consumer-facing technologies seen in fashion stores
Interactions with consumer-facing technologies in fashion stores
Experiences with consumer-facing technologies in fashion stores
Interactions with tech enabled services in fashion stores e.g. Click and collect
In-store technologies that would enhance in-store experience
Technologies contribution to store space

Table 3: In-store technologies observed by consumers over the period

In-store technologies observed, by category	2014	2019
1. Information / product display	Digital signage	Digital signage
2. Shopping experience	Digital display	AR, photobooth, interactive window, digital display
3. Information search	Tablet / touchscreen, QR codes	Tablet / touchscreen, QR code
4. Payment	-	Self-checkout
5. Others	Body scanner, stock scanner	-

Table 4: Categorization of in-store technology friction

<b>In-store technology friction</b>	<b>2014</b>	<b>2019</b>
1. Invisibility	Nascent technologies	Nascent or hidden technologies
2. Inertia	Basic technologies	Old, basic technologies
3. Trivial	Uninteresting, gimmicky, no reason to use	Unimportant, uninteresting, gimmicky, no reason to use
4. Time wasting	Broken, clunky, distracting, complicated	Broken, clunky, complicated, slow
5. Human	Unknowledgeable staff, prefer human interaction, service obstacle, consumer ignorance	Unknowledgeable, unhelpful staff; prefer human interaction
6. Disconnected	Limited click and collect availability, no order in store, delivery to home; order online return to store	Limited order in store, delivery to home; order online return to store
7. Brand-experience incongruence	Brand-tech incongruence, brand image barrier, offline experience credence, sensory experience important (touch, feel, try)	Sensory experience important (touch, feel, try)

Table 5: Perceived benefits of in-store technologies

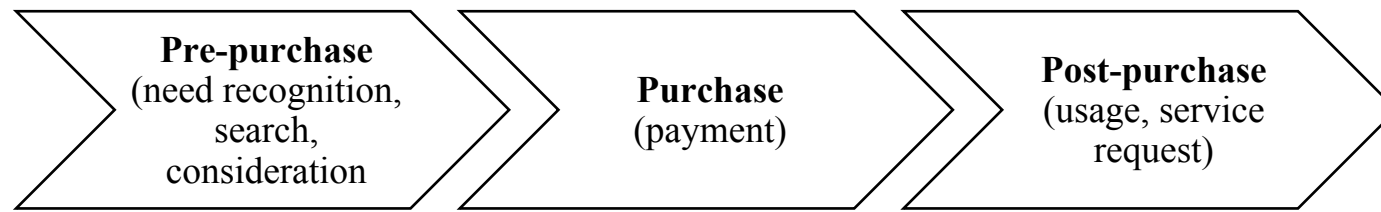
<b>Benefits</b>	<b>2014</b>	<b>2019</b>	<b>Tech types</b>
<b>Functional</b>	Speed	Speed	Tablet, digital signage, self-checkout, QR code, + Click & collect services
	Convenience	Convenience	
	Information	Information	
	Easy	Easy	
	Cost saving	Efficient	
	Sales	Control	
	Negates sales associate	Practical	
	Check stock	Negates sales associate	
<b>Experiential</b>		Data collection	Digital display, interactive mirrors / screens /windows, AR, photobooth
	Engaging	Engaging	
	Increases store attractiveness	Enjoyment	
	Social media interactions	Inspiration	
		Playful	
		Attractive	
		Builds awareness	
		Social media interactions	
		Online community interactions	
	Wellbeing – anxiety reducing		

Table 6: Technological enhancement of consumer experience

<b>Technology enhancement of consumer experience, by category</b>	<b>2014</b>	<b>2019</b>
Hedonic value	Satisfaction	Engagement
	Loyalty	-
	Excitement	Excitement
	Word of mouth	Word of mouth
		Intrigue
		Interest
		Added value
Utilitarian value	-	Killing time
Attitude towards retailer	Store attractiveness	Store attractiveness
	Positive brand perception	Positive brand perception
	Brand relationship	Brand knowledge
		Differentiation
		Credibility
Behavioural intentions	Purchase intention	Purchase intention
None	Nascent tech	Nascent tech



Figure 1: Customer purchasing journey



Source: Lemon & Verhoef (2016)

Figure 2: Technology induced customer experience

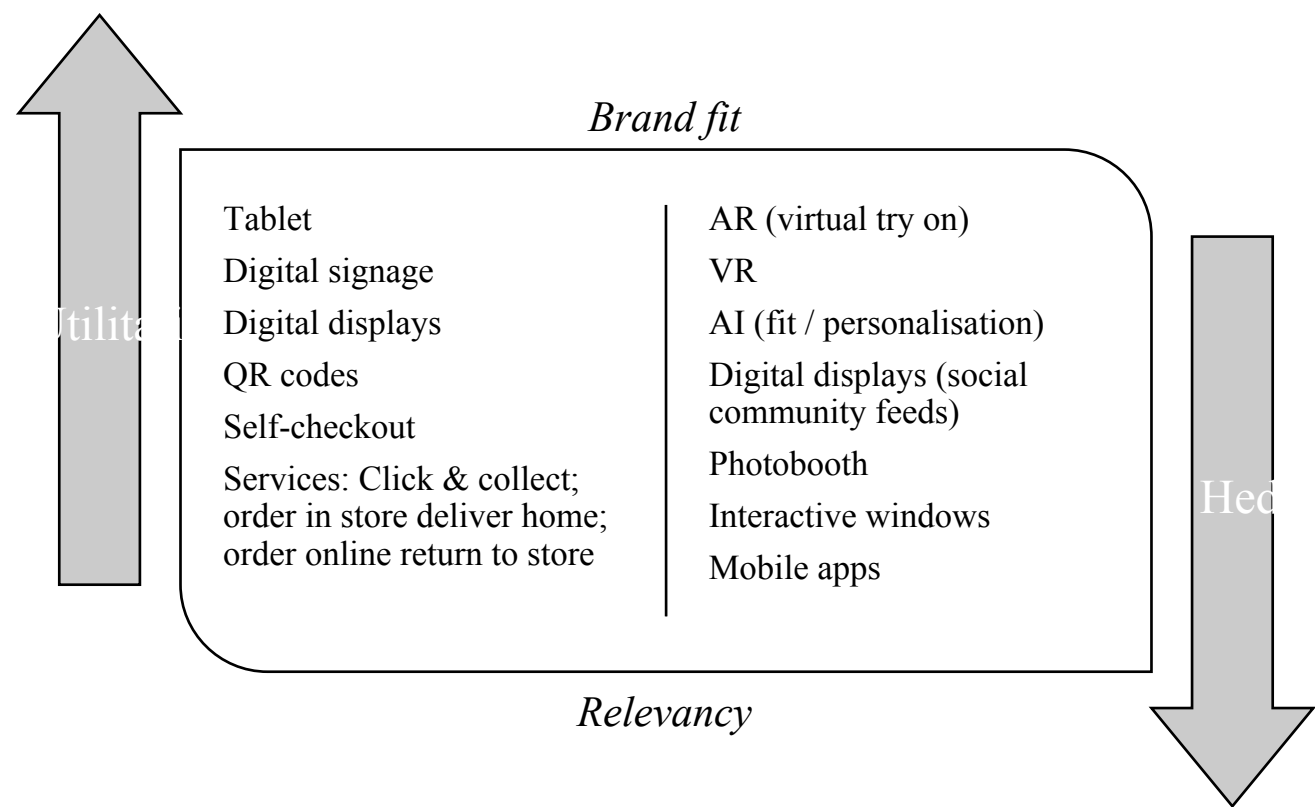


Figure 3: Technology enabled customer shopping journey

