Journal of Retailing and Consumer Services xxx (xxxx) xxx

Contents lists available at ScienceDirect

Journal of Retailing and Consumer Services

journal homepage: http://www.elsevier.com/locate/jretconser

Change in technology-enabled omnichannel customer experiences in-store☆,☆☆

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ARTICLE INFO

Keywords:
Omnichannel
In-store technologies
Physical store
Customer experience
Purchase journey
Fashion retail

ABSTRACT

This paper explores changes in technology-enabled omnichannel customer experiences in stores over a five-year period (2014–2019). It contributes to the omnichannel-experience-management literature through customer technology-enabled touchpoints within fashion retail. Adopting an exploratory qualitative approach, primary data were obtained using semi-structured interviews with millennial consumers. The findings demonstrate the growing importance of implementing and integrating in-store technologies to improve customer experience. From these, two models are developed: "technology-induced customer experience in-store"; and "technology-enabled customer shopping journey in-store".

1. Introduction

The satisfaction of consumers' increasing expectations of seamless, consistent, and personalized shopping experience requires the integration of retail organizations' channels and touchpoints (Grewal et al., 2017; Hossain et al., 2019). 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 primary 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; Blázquez, 2014; Fernández et al., 2018; Mosquera et al., 2018).

Research on in-store technologies (ISTs) has demonstrated the interchangeable use of multiple terms to explain their application and contribution to channel integration and customer experience: a review of 42 studies on "in-store technologies" generated 15 variations of terms. In this paper, the term ISTs is used to mean the different consumer-facing devices that facilitate the shopping process in the physical store and are distinguished from ISTs with which consumers cannot engage. The integration of such technologies into the store tends to focus on consumer acceptance and ownership (Inman and Nikolova, 2017; Venkatesh and Davis, 2000), retail management strategies towards integration (Hagberg et al., 2017; Pantano et al., 2018; Roy et al., 2018), and their contribution to store atmospherics to enhance the shopping experience (Blázquez, 2014; Pantano and Vannucci, 2019; Poncin and Ben Mimoun, 2014). This is a field that is rapidly evolving, in which technological innovation and consumer expectations are shown to constantly change and to create opportunities for new technologies (Grewal et al., 2020; Mosquera et al., 2018). Retailers that experiment with technologies to enhance the customer experience are likely to find greater success (Blázquez, 2014; Foroudi et al., 2018), particularly from a consumers' viewpoint concerning what they use and how these technologies affect their shopping experience in the omnichannel retail context (Savastano et al., 2019). In particular, fashion retailers are recognized for their innovative approach to technologies through the number of technologies introduced in-store (Lemon and Verhoef, 2016; Pantano and Vannucci, 2019).

Despite these rapid advances, the type of technologies and how they contribute to customer experience remains less well known and research into the changing relationship between technologies and customer experience remains scarce (Flavián et al., 2020; Grewal et al., 2020). Accordingly, this paper responds to the call for further research into consumer perspectives regarding ISTs in retail (Blázquez, 2014; Grewal

☆ Funding.
☆☆ This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.
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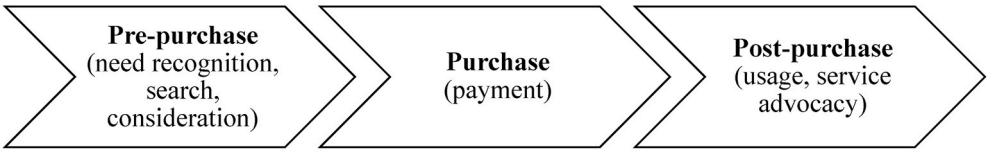
https://doi.org/10.1016/j.jretconser.2020.102338
Received 28 January 2020; Received in revised form 4 September 2020; Accepted 4 October 2020

Please cite this article as: Bethan Alexander, Anthony Kent, *Journal of Retailing and Consumer Services*, https://doi.org/10.1016/j.jretconser.2020.102338



Source: Lemon and Verhoef (2016).

Fig. 1. Customer purchase journey.

et al., 2020; Inman and Nikolova, 2017; Roy et al., 2018). Specifically, it addresses the need for research into customers' experiences in-store and with other channels, their stability, and how the experience evolves over time (Grewal et al., 2017; Verhoef et al., 2009). It offers retailers a roadmap to assess ISTs implemented in the physical store across the shopper journey and their contribution to customer experience. Finally, it responds to Vannucci and Pantano's (2019) call for methodological advances in the omnichannel literature by using a time-based approach to the implementation and experience of technologies in physical retail settings.

The theoretical contribution of this research is therefore fourfold. First, it offers new insights into the types and usage of ISTs across the customer journey. Second, it offers a deeper understanding of customer experience of ISTs and the extent to which this changes over time. Third, it offers a "technology-induced customer experience in-store" model, a typology of ISTs differentiated for hedonic- or utilitarian-orientated customer experience to better inform retailers' choice concerning technology investment. Fourth, it conceives the "technology-enabled customer shopping journey in-store" framework to link technology types with each stage of the customer journey. This provides retailers with a roadmap of consumers' technology usage preferences at each stage of the shopping process.

1.1. The following research questions ensue

RQ1: What types of ISTs are used in the customer shopping journey?
RQ2: How is customer experience enhanced through ISTs over time?
RQ3: How should retailers use ISTs to improve the omnichannel customer experience?

To achieve these goals, the paper is organized as follows: section 2 reviews the literature on the customer journey within omnichannel retailing (OCR), retail customer shopping experience, and ISTs. Section 3 focuses on the research methodology, while section 4 presents and discusses the key results. Finally, section 5 elucidates on theoretical and managerial implications, concluding with limitations and directions for future research.

2. Literature review

2.1. The customer journey in omnichannel retailing (OCR)

OCR has received increasing attention because of its market-changing potential (Alexander and Blázquez Cano, 2020; 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 (Beck and Rygl, 2015; Wagner et al., 2013). As consumers have become accustomed to using different channels in their journey (Blázquez, 2014; Burke, 2002; Verhoef et al., 2015), so they may be influenced by behavioural, cognitive, and emotional factors (Grewal and Roggeveen, 2020) and interactions across the customer journey (Grewal et al., 2020; Lemon and Verhoef, 2016; Parise et al., 2016; Piotrowicz and Cuthbertson, 2014; Wolny and Charoensuksai, 2014).

The customer journey is defined by the multiple stages of pre-purchase, purchase, and post-purchase, which are increasingly seen as non-linear and more intricate (Grewal and Roggeveen, 2020; Lemon and Verhoef, 2016; Puccinelli et al., 2009; Schmitt, 2003; Stein and Ramaseshan, 2016). The activities performed within each stage have changed due to channel integration and the shift towards OCR (Jocevski et al., 2019). For example, in pre-purchase, price comparisons can be conducted on smartphones; in the purchase stage, consumers can select from a range of payment and delivery options online and offline; and the post-purchase stage includes a focus on consumption experience, service, returns, and repurchase, as well as word-of-mouth, engagement, and loyalty (see Fig. 1) (Lemon and Verhoef, 2016; Jocevski et al., 2019). This complexity, making use of human, virtual, and technology-driven contact, has led to the merging of online and offline retail spaces (Lee, 2015; Salomonson et al., 2013). However, consumer perceptions of this process of merged spaces, the journey, and its dynamics, are less well understood.

2.2. Retail customer shopping experience

Customer experience has been theorized by scholars since Holbrook and Hirschman's (1982) conceptualization of consumption as generating both hedonic and utilitarian value (Babin et al., 1994). The interactions between the consumer and the retailer form the basis of customer experience, which are 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). A holistic experience is expected by customers regardless of how and where it is accessed in the customer journey (Bäckström and Johansson, 2006; Colombi et al., 2018; Foroudi et al., 2018; Lemon and Verhoef, 2016; Prentice et al., 2019; Puccinelli et al., 2009; Verhoef et al., 2009). In addition, the sense of immersion in an experience is contextualized by the distance of the consumer from a combination of products, environment, and activities (Bèzes, 2019; Carù and Cova, 2006). Thus, the retailer challenge is how to compete in this scenario and develop the physical channel (Savastano et al., 2019).

The physical store environment provides not only a range of experiential touchpoints but also cues that characterize the 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 behaviour (Lee and Leonas, 2018; Savastano et al., 2019). Moreover, innovative technologies can have a transformational effect on customer experience (Bolton et al., 2018; Lemon, 2016; McCarthy and Wright, 2004). Understanding how perceptions of experience have changed under these influences can usefully be evaluated over time. This research therefore responds to the call for further research into how ISTs affect the customer shopping experience, specifically enhancing the customers' purchase journey, within physical retail settings (Grewal et al., 2020; Lemon and Verhoef, 2016; Verhoef et al., 2009), from a fashion perspective (Mosquera et al., 2018).

Table 1
Classification of in-store technologies used by fashion retailers.

Category	Technology	Example
Info/product display technologies	Virtual catalogue, digital wallpaper, digital signage	Burberry (many others) use large screens to display branded content.
		Tommy Hilfiger virtual wardrobe, giving access to full collection, product information, outfit choices.
Shopping experience technologies	AR – virtual mirror, virtual fitting room, visual search	Zara connected mirrors.
		Gap, Warby Parker, Speedo virtual try on app.
		Canada Goose try on experience store.
		Asos "See my fit".
		Asos and H&M app visual search.
		Hermes interactive "face tracking" window, London.
Information search technologies	Tablet, QR code	QR codes used in Matchesfashion Townhouse for product information.
		Ralph Lauren's digital product ID smartphone scan.
		Superdry (many others) uses tablets for search and shop.
Payment technologies	Self-checkout	Zara's self-checkout stations.
		Nike mobile check-out; "Speed Shop" – reserve online, try-on in store.
		Target's mobile wallet via the app.
		Urban Outfitters e-receipts.
Other technologies/ services	Click and collect, self-service kiosk, vending machine	Zara and Walmart's self-service kiosk for collecting online orders in-store; Nordstrom Local hubs for click and collect, drop off returns, order online, and alterations

Source: Adapted from Pantano et al.'s (2017) in-store technology categorization.

2.3. In-store technologies (ISTs)

ISTs are defined as "different devices that facilitate the shopping process at various points in the store" (Mosquera et al., 2018, p. 66) and that enable consumer interaction. This research focuses on the integration of technologies in-store through the implementation of omnichannel touchpoints (Hagberg et al., 2017; Tyrvä;inen and Karjaluoto, 2019). The technologies can be categorized by their location (Pantano et al., 2018), ownership and control by the store or consumer (Beck and Rygl, 2015; Bèzes, 2019), application (Pantano et al., 2017), cost and service (Roggeveen and Sethuraman, 2020). They facilitate both consumer experience and managerial processes through self-checkout (Fernandes and Pedroso, 2017; Lee, 2015) and retail apps (Kim et al., 2013; Perry et al., 2019), and provide more complex, immersive experiences through virtual reality (VR) and augmented reality (AR) technologies (Rese et al., 2017; Watson et al., 2018). Interactive touch screens, digital signage, and self-service kiosks have extended the range of consumer-facing technologies to extend customers' experiences. In the clothing sector, technologies embedded in interactive "magic" mirrors and virtual fitting rooms provide a more personalized fit (Beck and Crié, 2018). Table 1 categorizes types of technologies by consumer usage and provides examples of fashion-retailer implementation.

Whilst research shows that ISTs can increase store attractiveness, enjoyment, satisfaction, and purchase intention, as well as driving customer relationships and enriching the experience (Flavián et al., 2020; Kim and Forsythe, 2009; Mosquera et al., 2018; Parise et al., 2016; Pantano and Viassone, 2015), fashion retailers are often slow to utilize ISTs (McKinsey Global Institute, 2017; Thomson, 2019). The economy, as an expression of its technologies, is always open to change (Arthur, 2009). Research into in-store channel integration has demonstrated a continuous evolution in innovation, consumer expectations, and usage (Poncin and Ben Mimoun, 2014; Savastano et al., 2019), as well as transformational change brought about by the technological integration of omnichannel touchpoints (Mosquera et al., 2018; Pantano and Dennis, 2019; Poncin et al., 2017). Consequently, an understanding of changes over time concerning consumers' engagement with technology within the physical store and their use across channels will be helpful in assessing their interest in extending their experience across channels.

Existing studies have tended to take a cross-sectional approach to data collection (e.g. Inman and Nikolova, 2017; Pantano and Vannucci, 2019; Willems et al., 2017; Yadav and Pavlou, 2020), thereby limiting the ability to assess changes in retailer technology adoption and customer experiences. However, 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., 2018). Given that the physical channel is still preferred and consumer desire to use ISTs is strong (Grewal et al., 2020), further studies are required to engage with the dynamics of the retail industry (Dekimpe and Gyskens, 2019) and to better understand the impact of technologies by sector and their future evolution (Paul and Rosenbaum, 2020; Souiden and Ladhari, 2019).

Table 2
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

3. Methodology

This research employs a qualitative approach using semi-structured interviews at the start (2014) and finish (2019) of the five-year study. As an exploratory project, this method provides access to in-depth knowledge, perspectives, and actions concerning the problem (Denzin and Lincoln, 2005). Analysing 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 is 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 and Company, 2019). Clothing has been 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-

Table 3
Consumer interviews protocol.

Research protocol – consumer interviews
Personal details e.g. name, age
Frequency of visiting and purchasing from retail stores in designated location (Bond, Oxford, and Regent St., London) and awareness of in-store technologies
Webrooming and ROBO behaviours
Types of consumer-facing in-store technologies in fashion physical stores
Interaction with/usage of in-store technologies in fashion physical stores
Experiences with in-store technologies in fashion stores
Click and collect and other omnichannel services in fashion physical stores
In-store technologies that would enhance customer experience
In-store technologies sensory effects in-store (e.g. visual, touch, etc.)
In-store technologies contribution to store space

structured questions about perceptions of ISTs, their usage, interactivity, and influence on the shopping journey and in-store shopping experience (Foroudi et al., 2018; Lemon and Verhoef, 2016). Convenience sampling was used, with participants selected based on their accessibility, geographical proximity, and availability to participate (Etikan et al., 2016), commonly accepted in social research (Robinson, 2014). Additional criteria were that they regularly visited and shopped for fashion in Oxford Street, Regent Street, and Bond Street, had visited fashion stores in these streets within the last six months, and were aware of ISTs. A sample comprising 20 fashion consumers in 2014 and 2019, respectively (40 in total), were recruited from the millennial age group (those born between 1981 and 1996) (see Table 2). The sample size was comparable to similar exploratory studies on this emerging topic (e.g. Pantano, 2016; Pantano et al., 2018; Tyrvä;inen, and Karjaluoto, 2019). Millennial consumers have become an increasingly attractive segment for fashion retailers (Danziger, 2019) and are deemed suitable because they have a propensity towards technologies and are aware of, and use, digital tools for shopping (Burke, 2002; Pantano, 2016). Earlier studies concerning the acceptance of digital technologies and motivations for their use have identified gender-based differences (Dittmar et al., 2004; Mittal and Kamakura, 2001; Ono and Zavodny, 2002). However, more recent research in the use of ISTs and practices has shown gender to have an insignificant moderating effect (Mosquera et al., 2018), reflecting a more equal gendered acceptance of m-commerce (Li et al., 2008). Moreover, millennial consumers are known to be the most consumption-orientated of all generations (Sullivan and Heitmeyer, 2008) and share more similarities than other generations (Stein and Sanburn, 2013), especially in their use of new technologies (Vogels, 2019). For these reasons, this research does not distinguish by gender.

Each interview was moderated by the researchers face-to-face and lasted 20–40 min (Jamshed, 2014). A protocol was used to give consistency to the questions asked to elicit responses on the core themes explored over the time period (see Table 3). To ensure consistency of understanding, a definition of ISTs was shared with each participant at the outset. Interviews were audio recorded, from which full transcripts were developed.

Data were analysed using thematic analysis, providing a detailed analysis of key aspects of the data, using Braun and Clark's (2006) six phases of analysis: data familiarization; 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 were summarized, and key quotes added to gain interpretive understanding (Miles et al., 2014). A further stage in the analysis was to identify the frequency and saliency of IST usage and change over the five-year period. While we recognize that the sample is too small to deduce meaningful generalizations, it gives some indication of the relative importance of the items and themes examined (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

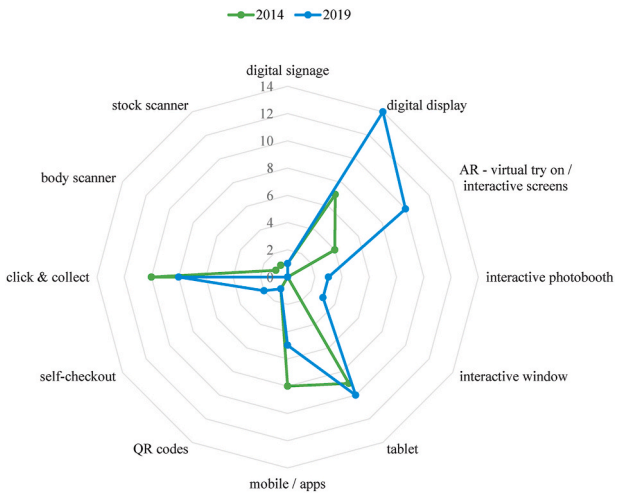


Fig. 2. Radar chart of in-store technologies visibility/usage over time.

from the literature informed the protocol design, which were consistently applied in each interview and respondent validation was 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 on the topic (Elo et al., 2014). Finally, inter-researcher reliability was conducted in the data-analysis phase, thereby adding rigour and quality to the codes and themes deduced (Olson et al., 2016).

4. Results and discussion

4.1. Omnichannel millennials

The findings, in alignment with earlier studies (e.g. Sopadjieva et al., 2017), demonstrate that millennial fashion consumers are omnichannel purchasers with clear webrooming and showrooming behaviours, which 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 behaviour were offered: search for new products; price comparisons; convenience; ease; and speed. Increasingly though, consumers seek "*styling suggestions*" (R33) and to "*read reviews*" (R29), "*check stock availability*" (R31), and "*review company practices*" (R40), which reveals more highly valuing others' opinions and ethical considerations in the shopping journey.

No notable change was seen in millennials' channel preference over the period, with stores remaining the dominant choice (Grewal et al., 2020; 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 chose 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. Type of in-store technologies (ISTs) encountered and used

The five-year period demonstrated the importance of technology as a facilitator of customer experience centred on digital display and information search to enhance the convenience of the shopping journey,

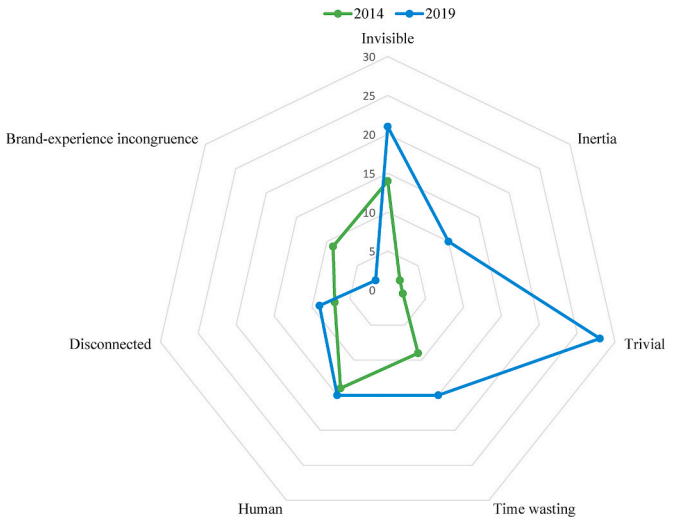


Fig. 3. Radar chart of categorization of in-store frictions over time.

typically through tablets and digital screens. Mobile app usage in-store decreased over the period, following the increase in webrooming pre-purchase behaviours before visiting the store. Non-interactive "big" screens impressed respondents through their fashion content and the sense of dynamism they gave the brand, as did tablets for their stock-look-up function. However, in 2019, greater emphasis was given to types of technology as generators of experience, notably through interactivity with self-checkouts and experiences with interactive screens, windows, and photobooth technologies (see Fig. 2). Retailers are increasingly installing and trialling 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 ISTs 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, Tommy Hilfiger's smart changing-room mirror offered information, efficiency, and simplicity. Similarly, 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 a 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, it's more about the human connection" (R40).

However, the implementation of payment and shopping technologies was extremely 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). Even tablets, which were one of the most diffused ISTs, were only used by 10 consumers (half of the 2019 respondents). Conversely, AR interactive screens in-store increased in use over the period, notably in sport retailers Asics, Nike, and JD Sports, but also in Charlotte Tilbury, Tommy Hilfiger, and Zara, demonstrating their willingness to experiment with more experiential technologies. However, by contrast with the pervasiveness of non-interactive screens, interactive technologies demonstrated an extremely low level of adoption, which, contrary to previous studies (Mosquera et al., 2018; Pantano and Vannucci, 2019), contributed to their overall lower visibility and usage.

4.3. Limitations of in-store technologies (ISTs) and omnichannel services

Over the time period, consumers tended to agree that the prevalent ISTs available to them were basic, old, or unimportant: "*Tablets are nothing great, I could do that at home*" (R32). As tablets and large digital displays became more widely used by many retailers, they became "*ubiquitous*" (R16), "*nothing special*" (R23), and "*non-interactive*" (R38), suggesting that they have become an expected and accepted part of the store environment. These permanent ISTs tended to be seen as a more "*functional*" (R26) and "*basic*" (R20) element of the store environment.

The limitations of ISTs increased over the period of study and were categorized as seven friction points of the shopping journey (see Fig. 3). The most significant friction was deemed "*trivial*", meaning consumers did not care about the availability of technologies; for them, they were typified as gimmicky, unimportant, or uninteresting ["*I don't care [about tech]*" (R24); "*It doesn't make me feel any different, I go to the shop to look and buy clothes, not to use tech*" (R37)], and this increased significantly over the period. For an increasing number of consumers, the store was either tech-less or the technology was not easily perceived, resulting in "*invisibility*": "*Honestly, I didn't ever see them in store*" (R10). "*Inertia*" denotes 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).

The anticipation of a convenient in-store experience is reflected in consumers' widespread dissatisfaction with failures of technology (Giebelhausen et al., 2014; Zhu et al., 2013), resulting in "*time-wasting*", where technologies are difficult to use, too slow, or do not work: "*It's clunky*" (R36); "*Usually it's very disappointing*" (R35). "*Human*" friction relates to sales associates who are unhelpful or unknowledgeable regarding ISTs, or where consumers prefer human interaction so that the technology becomes the barrier: "*There wasn't anyone to help*" (R2); "*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 omnichannel 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).

Finally, "*brand-experience incongruence*" denotes 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); "*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, i.e. the ability to touch, feel, and try on in the consumer-brand encounter (Spence et al., 2014). "*Trivial*", "*invisible*", "*inertia*", and "*time-wasting*" friction typologies saw notable change over the time period, which implies a lack of technology innovation and advancement in the in-store omnichannel customer shopping experience. This needs to be addressed in order for acceptance, usage, and shopping experience to improve.

4.4. Benefits of in-store technologies (ISTs) and omni-services

Most consumers associated ISTs with providing information, convenience, and efficiency over the period ["*It helps me choose more conveniently*" (R29)], followed by speed ["*I can just check the tablet, it's*

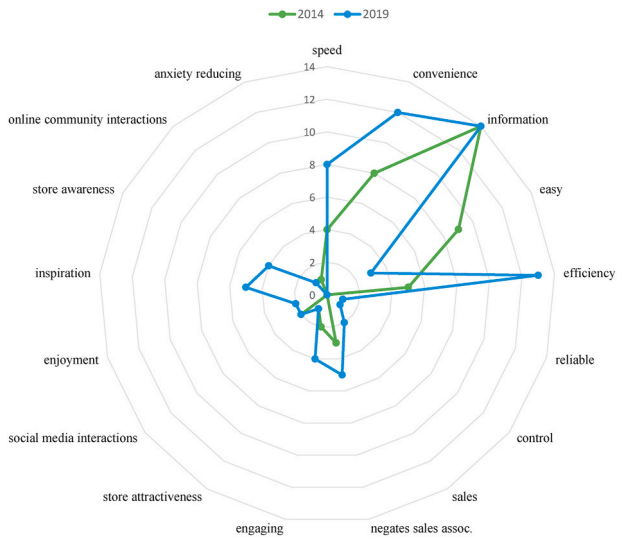


Fig. 4. Radar chart of perceived benefits of in-store technologies over time.

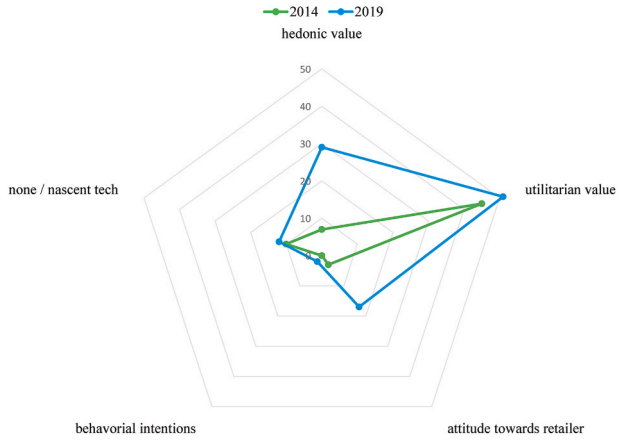


Fig. 5. Radar chart of technological enhancement of customer experience over time.

quick" (R11)]. Emphasis was given to utilitarian (convenience, etc.), rather than hedonic (enjoyable, etc.) benefits attained from ISTs (see Fig. 4). 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 ISTs as a way to avoid sales-associate interactions. Much less prominence was given to hedonic benefits derived from ISTs, with only a small increase over the period. 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 favourable ISTs. For a few respondents, this led to positive purchase intentions: "*I was so engaged [with technology], I ended up buying something*" (R29) (see, 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.

4.5. Customer shopping experience enhanced through in-store technologies (ISTs) and their change over time

The implementation of ISTs incrementally advanced over the period of study. There was increasing experimentation with experiential (hedonic) shopping technologies over the period, evident in interactive windows, and personalizing technologies, 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 featured in 2014: "*If you have a good experience, it makes you want to go back to that store*" (R2). In 2019, "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 Fig. 5). However, after time, the effect was normalized, 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). Significantly, ISTs that induce utilitarian value were most prominent over the time period.

For some, ISTs were seen to generate 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.

In some ways, customer experience of ISTs 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), or "*incongruent*" (R28). This marginalization points to disconnections in the integration of channels and technologies from a consumer perspective (Lemon, 2016; Lemon and Verhoef, 2016) and their purpose in the customer journey.

Whilst almost half of consumers felt ISTs did not contribute to the store space as they "*don't notice it*" (nascent technology), 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 ISTs with being "*high end*" (R23), more "*professional*" (R35), and better "*organized*" (R32), and considered that IST usage "*amplified the brand*" (R34). These are new positive aspects not evidenced in previous studies.

4.6. In-store technologies (ISTs) and omnichannel services that would improve customer experience

Opinion was polarized regarding ISTs capable of improving the customer experience. Utilitarian technologies prioritizing efficiency, speed, and convenience dominated in 2014, but shifted to emphasizing hedonic technologies in 2019, with a focus on immersive, interactive, playful, and surprising technologies. Within this category, over half of the respondents wanted to see more AR/VR ISTs "*that make you more involved*" (R32). Similarly, customer involvement was evident in a desire for more customizing technologies, 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). Differentiating personalization from customization is a complex definitional field and this respondent used it in the sense of taking a basic, mass-produced product and adding different

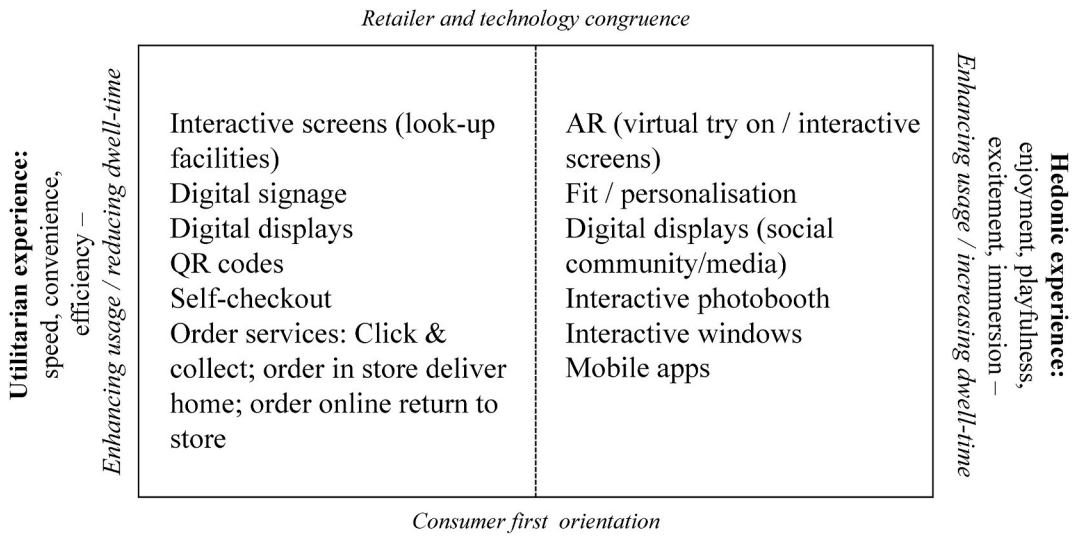


Fig. 6. "Technology-induced customer experience in-store" model.

standardized elements. However, in other contexts, respondents literally understood personalization to mean the addition of a personal name or monogrammed initials to a product. Another form of personalization required a degree of creativity applied by the consumer to a mass-produced product, for example a T-shirt that could be designed by the consumer and printed by the store. Some respondents were, and wanted to be, surprised by ISTs: "*Tech should be unexpected and surprising*" (R27). Consumers highlighted that temporary technology implementations, as opposed to permanent ISTs, for example COS's interactive window, appeared more interesting and experimental as it was available for a limited time only.

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) (see, 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 facial-recognition technologies.

4.7. The in-store technology (IST) challenge for fashion retailers

Contrary to extant scholarly 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 utilitarian technologies, i.e. the ability to drive efficiency, speed, and convenience at the point of sale, rather than hedonic technologies that emphasize fun, interactivity, and enjoyment, even though consumers would like more of the latter.

Over the five-year period, changes were 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' expectations of enjoyable retail experiences (Demirkan and Spohrer, 2014; Pantano et al., 2018). Whilst the emphasis given to hedonic 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 organizations and practices are evolutionary rather than revolutionary (McArthur et al., 2016). The retailer challenge is to innovate, experiment, test, and trial more with ISTs that surprise, excite, and engage in order to improve the customer experience with the brand.

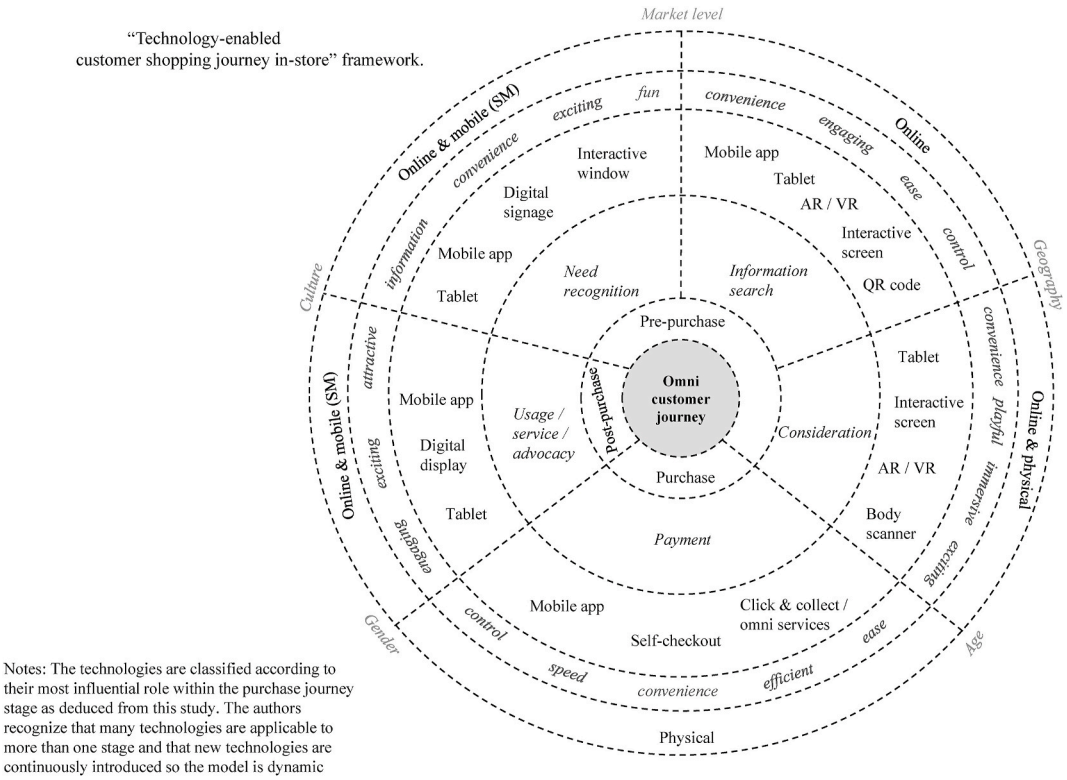
5. Conclusion, implications, and future directions

First, this study contributes to research on ISTs to enhance customer experience, and specifically to the types of technologies used and how they influence the purchase experience, which represents an underdeveloped research area (Blázquez, 2014; Foroudi et al., 2018; Grewal et al., 2020; Savastano et al., 2019). Second, it contributes to the understanding of the consumer experience of technology integration, specifically within a seamless approach to omnichannel fashion retailing. In doing so, it extends previous studies (Hagberg et al., 2017; Mosquera et al., 2018; Pantano and Vannucci, 2019) with a temporal perspective. By tracking consumer attitudes towards ISTs and tech-enabled services over time, it qualifies expectations of continual change and the adoption of retail technology (Grewal et al., 2020).

The empirical evidence shows that IST implementation is limited, with incremental change over the period, and not as widespread as otherwise proposed (Mosquera et al., 2018; Pantano and Vannucci, 2019). It is largely restricted to utilitarian technologies for convenience rather than hedonic experiential technologies and, therefore, has a limited transformational effect on the customer shopping experience. Advancing IST studies (Colombi et al., 2018; Foroudi et al., 2018), our research emphasizes the type of technologies rather than the quantity implemented and that technology-enabled immersive experiences are not perceived as pervasive in fashion-retail settings, in contrast to earlier research (Pantano et al., 2017; Poncin and Ben Mimoun, 2014). Nevertheless, the effect of ISTs tended to be time-bound so that, on initial sighting and interaction, consumer responses were mostly positive, resulting in pleasure, intrigue, and excitement. This raises strategic challenges for retailers regarding speed of change and investment to keep abreast of constantly changing consumer needs and expectations.

A key finding is the friction between technologies, environment, and people (Curran et al., 2003; Kaushik and Rahman, 2015; Roy et al., 2018; Zhu et al., 2013). Seven categories of friction hampered 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 new insights into the implementation process of ISTs.

In response to the final research question, the paper contributes two practical models that offer a lens to aid retailer IST decision-making. The first model ("technology-induced customer experience in-store"; Fig. 6) focuses on two dimensions from the consumer perspective, i.e. utilitarian and hedonic experience. It provides a typology of technologies



Notes: The technologies are classified according to their most influential role within the purchase journey stage as deduced from this study. The authors recognize that many technologies are applicable to more than one stage and that new technologies are continuously introduced so the model is dynamic

Fig. 7.

"Technology-enabled customer shopping journey in-store" framework.1) *Pre-purchase:* includes need recognition, search, and consideration. ISTs 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, though they are currently mainly utilitarian. More innovative, hedonic (experiential) technologies like AR/VR and body scanners may have even greater influence on consumer decision-making, although this study shows how rarely they are used. The consideration phase is evident in online 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 that generate more hedonic experiences.

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 customer experience through engagement, excitement, interest, and generation of word-of-mouth shared on social channels. Moreover, there is some evidence that ISTs 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.

that are found in-store and associated services based on consumers' nuanced desire for utilitarian or hedonic customer experience. Specifically, advancing theory on IST classification according to attributes-benefits derived (Roggeveen and Sethuraman, 2020). These ISTs drive speed, convenience, and efficiency (reducing dwell-time) or immersion, enjoyment, and playfulness (increasing dwell-time) so long as there is a strategic fit between the brand's channel and experience strategy and the technologies (congruency) and the retailer takes a consumer-first approach to technology adoption. The non-linear customer journey requires a reconceptualization of the purchasing stages, the use of technologies for each stage, and their contribution to the in-store experience. This model therefore serves as a preliminary tool to better inform retailers when choosing ISTs for investment.

The second model ("technology-enabled customer shopping journey in-store"; Fig. 7) links each stage of the shopping journey (circle layers 1 and 2) with types of technology (layer 3), experiential benefits derived (layer 4) and channel preference (layer 5), subject to the contextual factors (outer layer: market level; geography; culture; gender; and age). In doing so, it advances knowledge of consumers' technology usage preferences at each stage of the non-linear shopping journey (Grewal and Roggeveen, 2020), that is, from a process-driven perspective, as an enhancer of the purchase journey experience (Roggeveen and

Sethuraman, 2020) and provides retailers with a roadmap enabling them to improve the omnichannel customer experience:

This study found that technologies available in fashion retail stores were mainly perceived as basic and non-interactive, in contrast to earlier research (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 realize these objectives more fully. Therefore, from a practical perspective, the findings offer several implications for retailers. First, the extent to which fashion retailers are responding to the technology challenge is offered, seen as nascent rather than extensive from the millennial consumers' perspective, with only incremental change in retailer implementation and consumer interactions over the five-year period. Second, the findings prompt retailers to innovate and experiment more with ISTs and related technology-enabled services to improve the omnichannel customer experience and brand relationship, emphasizing those that induce hedonic experience that encourages consumers to engage and dwell. Third, IST frictions need to be overcome to improve the customer shopping experience, specifically issues concerning retailer congruency and visibility, which Figs. 6 and 7 address by providing a tool to inform IST selection and a lens on the technology-enabled customer shopping journey, signifying prevalent technologies, channels, and experiential benefits induced at each stage. Fourth, the study demonstrates that ISTs positively contribute to the store space, specifically improving attractiveness, brand perception, knowledge, relationships, and credibility. Retailers are therefore encouraged to continue to invest in ISTs 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, and collection and payment points, whilst improving in-store signage about available technologies. Finally, improving staff training and knowledge about ISTs will alleviate the human friction currently encountered.

The limitations of the study are its focus on millennial fashion consumers in London and the lack of gender delineation and sample size. 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 allocating resources to more experiential forms of ISTs. Promising directions 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 ISTs and customer experience within and across market levels would be useful, either as a systematic longitudinal observation study to track change across levels or taking a comparative case study approach to analyse adoption. Such research would contribute to the future of omnichannel customer experience in-store. Finally, given recent unprecedented change caused by the global COVID-19 pandemic, we concur with the call for more nuanced and creative conceptualizations to address the lacuna between academic research and retail practice (Dekimpe and Geyskens, 2019; Grewal et al., 2020), specifically within the context of the customer purchase journey and retail technologies (Roggeveen and Sethuraman, 2020) to help advance meaningful contributions towards "new retailing" in the "new normal".

Declarations of competing interest

None.

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