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From an online shopping experience to online purchase intentions: do showroomers differ? A study of a brand-owned D2C e-commerce store

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ABSTRACT

With omnichannel shopping journeys becoming more prevalent, manufacturers are opting to create their own branded direct-to-consumer (D2C) e-commerce stores, rather than solely relying on multi-brand retailers. This research examines the customer shopping experience within these e-commerce stores and its impact on attitudes and behaviors. The model establishes a link between a perceived e-servicescape, attitudinal loyalty, and online purchase intention, suggesting that customers who have already evaluated products in a physical store ("showroomers") respond differently to the e-servicescape than other customers do. The empirical results of a prominent technical sportswear brand's e-commerce store support the hypothesized differences in the e-servicescape's impacts.

Introduction

In response to customers' increasing preference for omnichannel shopping journeys (Kuksov & Liao, 2018; Thaichon et al., 2022; Tracogna & Hu, 2024; Verhoef et al., 2015; Zielke & Komor, 2025), retailers and producers are updating their channel and customer experience management strategies. Retailers increasingly implement omnichannel and phygital strategies to address showrooming (an offline information search and product trial followed by an online purchase) and webrooming (an online information search leading to an offline purchase) behaviors (Babin et al., 2021; Flavián et al., 2020; Goraya et al., 2022; Testa & Slaton, 2025). They have, for instance, adopted omnichannel customer experience strategies, such as deploying virtual mirrors in physical fitting rooms or offering augmented reality features in retailers' online stores to enable customers to visualize furniture in their accommodation (Rahman et al., 2025). Nevertheless, omnichannel shopping also poses complex challenges for those producers who simultaneously sell their products directly through direct-to-consumer (D2C) online channels and indirectly through independent brick-and-mortar retailers (Basak et al., 2020). Nike, for example, operates direct-to-consumer (D2C) channels, such as Nike.com, and manages its own mobile apps, in addition to having a presence in chains such as Foot Locker.

From the consumer psychology perspective, a producer's D2C e-commerce store represents a brand-controlled environment in which every aspect of the e-servicescape is deliberately designed to convey brand identity and to build a direct relationship with the consumer (Kalayci et al., 2024; Knapp et al., 2026). In contrast to multi-brand retailer websites (e.g. FootLocker.com), D2C e-commerce stores present products without the presence of rival brands, maintain full alignment between brand identity and store design, and foster a direct producer-consumer relationship that has distinctive implications for trust and attitudinal loyalty formation (Basak et al., 2020). These structural differences create a theoretically distinct context: consumers visiting a producer's D2C store encounter a brand-owned environment in which the brand controls the informational and aesthetic stimuli presented on the site. In turn, the brand-controlled nature of the D2C website may increase the influence of website cues on consumer attitudes (El-Manstrly et al., 2024).

The effective management of direct-to-consumer and independent sales channels is crucial for producers wishing to determine omnichannel shopping behaviors, particularly showrooming behaviors (Hao & Kumar, 2024). Generally, producers should not endeavor to

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maximize their e-commerce store sales at the expense of their independent retail partners. In fact, fierce competition from producers' D2C channels could cause retailers to disengage and reduce their purchases of those producers' products in terms of both the number of stock-keeping units (SKUs) and the quantity per SKU (Van Crombrugge et al., 2025). Nonetheless, D2C e-commerce stores are of strategic importance for producers, since they ensure greater control of the brand experience and the customers' loyalty, while they also yield higher profit margins on the sales (Basak et al., 2020; Huaman-Ramirez & Toti, 2023). Consequently, producers need to understand the customer-perceived shopping experiences within their e-commerce stores and how these experiences influence customers' attitudes and behaviors. Further, they can leverage this understanding by tailoring their e-commerce store features to achieve the desired levels of attitudinal loyalty and sales. However, currently the extant academic knowledge of producers' D2C e-commerce store strategies is limited, and marketing managers should therefore strive to gain insights into how these stores should be managed.

When addressing omnichannel shopping, existing studies tend to focus on isolated touchpoints and do not take a customer journey perspective, thereby failing to capture how customers who follow distinct omnichannel shopping journeys might experience the same touchpoints. In this study, we demonstrate that the type of customer journey moderates the customer experience with a touchpoint. Reviews of the customer journey literature confirm that no touchpoint can be meaningfully analyzed in isolation from the broader journey in which it is embedded (Lemon & Verhoef, 2016; Tueanrat et al., 2021). However, prior e-servicescape research focused on isolated touchpoints without considering the customer's omnichannel journey (Gulfraz et al., 2022; Harris & Goode, 2010; Tankovic & Benazic, 2018).

We show in detail that customer experience within a producer's D2C e-commerce store varies, resulting in different outcomes, depending on the customer's specific omnichannel shopping journey. We examine the different online shopping experiences of showroomers (shoppers who visit physical stores to examine or try products, but ultimately purchase them online) and other customers (i.e. those who seek information in the producer's e-commerce store, but subsequently complete their purchase either online or in a physical store; Figure 1) when using a producer's D2C e-commerce store.

Theoretically, we adopt the e-servicescape framework, which has been extensively applied to examine customer responses to stimuli in online environments (Harris & Goode, 2010; Wang et al., 2025). This framework does not, however, provide theoretical arguments explaining why and how the type of customer journey influences customer responses to the same online environmental stimuli (i.e. to the same touchpoints). We fill this gap by connecting the e-servicescape framework to customer journey studies (Hamilton & Price, 2019) and information processing theories (Goraya et al., 2022; Petty & Cacioppo, 1986).

Based on these foundations, we propose a research model illustrating customer experience's effect in a producer's D2C e-commerce store on attitudinal loyalty to and the intention to purchase the producer's brand. Thereafter, we evaluate the model by using data collected from a technical sportswear brand's e-commerce store; in the process, we distinguish between showroomers and other customers (i.e. those visiting the D2C e-commerce store to browse products, but who could decide to purchase them immediately or later in a physical store) by applying multigroup comparisons (Chin & Dibbern, 2010; Hair et al., 2024).

This study contributes in various ways to both scholars and practitioners. First, it enriches our

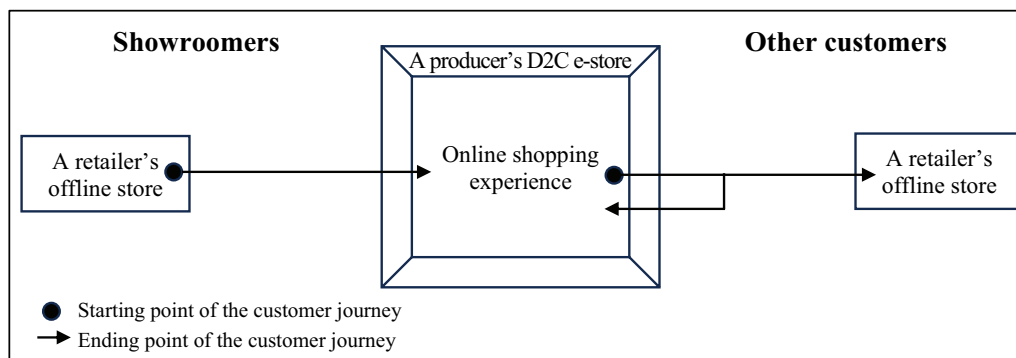


Figure 1. Shopping journeys: showroomers vs. other customers.

current understanding of omnichannel shopping journeys by examining how showroomers and other customers perceive their online shopping experiences within the same e-commerce store. Previous studies compared showroomers with webroomers, and/or pure online shoppers, highlighting the similarities and the differences in their perceptions, decision criteria, and purchasing processes (Goraya et al., 2022; Zielke & Komor, 2025). These studies did not, however, analyze the similarities and differences in the online shopping experience at the same e-commerce store. The model that we propose addresses this limitation by highlighting online shopping experiences' similar and different effects on customers' attitudinal loyalty and on online purchase intentions, thereby providing insights for marketing theory and practice. More precisely, the type of customer journey moderates the e-servicescape's attitudinal impact for a product-related attribute such as informativeness, producing no effect on showroomers, consistent with the idea that they have already elaborated product information offline. By contrast, store-related attributes such as transaction performance and visual engagement produce similar effects across both groups, because these are evaluated for the first time by all customers regardless of their prior journey. This pattern reveals that the moderation effects are attribute-specific and theoretically related to the information processing theory.

Second, this study also sheds light on producers' perspective of omnichannel shopping journeys. Previous studies examined the retailer's perspective in detail, but failed to study the shopping experience in producers' D2C e-commerce stores. Our study fills this gap by offering insights for those producers seeking to optimize their e-commerce store's design in order to attract specific target segments, such as showroomers or other customers, and doing so for specific purposes, such as increasing their brand loyalty or online sales. We emphasize that the study's contribution is not limited to the D2C e-commerce context. Its central theoretical contribution lies in showing that the type of omnichannel customer journey moderates the effects of e-servicescape attributes on consumer attitudes and behaviors. The D2C context is theoretically important because it helps us examine how a brand-controlled online environment interacts with the broader customer journey, an issue that prior research has not addressed.

The article is structured as follows: the next section introduces the theoretical background and describes the research model and hypotheses. The following sections

present the empirical analysis, including the methodology and findings. The last section outlines the findings' implications, the conclusions, and the opportunities for future research. [Figure 1](#) visualizes the different customer segments in producers' D2C e-commerce stores.

Theoretical framework

The e-servicescape framework for online retail environments

Bitner (1992) introduced the servicescape framework to capture “the built environment (i.e. the manmade, physical surroundings as opposed to the natural or social environment)” (p. 58) in which consumers experience a service. Since that time, this framework has been extensively applied to understand consumer attitudinal and behavioral responses to environmental stimuli, such as the store design (Wang et al., 2025). A specific stream of research extended the servicescape framework from the physical to the online environments, thereby introducing the e-servicescape (or online servicescape), which comprises “the online environment factors that exist during service delivery” (Harris & Goode, 2010, p. 231). However, despite online service environments' growing importance (e.g. for shopping), research on e-servicescapes remains underdeveloped compared to studies of physical servicescapes (Wang et al., 2025).

In this study, we argue that the e-servicescape framework offers a useful theoretical foundation to examine online customers' shopping experiences with a producer's D2C e-commerce store. In this context, we follow the established literature in distinguishing between the e-servicescape (i.e. the online environmental stimuli provided by the producer's D2C e-commerce store) and the online shopping experience (i.e. the customer's response to those stimuli). The e-servicescape includes the functional and emotional cues through which the online shopping experience is shaped in a D2C e-commerce context (Bleier et al., 2019; Gulfranz et al., 2022; Harris & Goode, 2010). For this reason, this study focuses on the e-servicescape when examining the online shopping experience. Showrooming and webrooming are instead treated as labels for omnichannel journey types (Lemon & Verhoef, 2016), rather than as direct operationalizations of the online shopping experience itself. However, extant e-servicescape literature has yet to be integrated with studies on omnichannel shopping behaviors. Some prior e-servicescape research considered the effects of control variables such as gender (e.g. Wu et al., 2017), age, income, education, and experience with e-commerce (e.g. Tankovic & Benazic,

2018), although the specific type of (omnichannel) shopping journey's effects have not as yet been considered. More importantly, the e-servicescape framework alone does not provide theoretical arguments to suggest why and how the type of customer journey (showroomers versus other customers) influences customer responses to the same online e-commerce store. In other words, standalone e-servicescape models suggest that online store attributes universally influence consumer attitudes and behaviors, regardless of the customer's prior journey experience. This framework cannot explain, for example, why the same e-servicescape attribute would have a nonsignificant effect for one customer segment but a significant positive effect for another, given that both groups are exposed to identical stimuli in the same e-commerce store. By combining the e-servicescape framework with the customer journey perspective, we show that the effect of the same e-servicescape attribute may differ depending on the customer's journey stage and prior knowledge.

We fill this gap by connecting the e-servicescape framework to omnichannel customer journey studies (Hamilton & Price, 2019). This literature argues that customer experience is formed across touchpoints, which represent the "individual contacts between the firm and the customer at distinct points in the experience" (Lemon & Verhoef, 2016, p. 71). Hence, "the effect of an individual touchpoint may depend on when it occurs in the overall customer journey" (Lemon & Verhoef, 2016, p. 83). This is why we cannot analyze each touchpoint, such as an online e-commerce store, as a discrete interaction point differing from previous touchpoints on the customer journey (Tueanrat et al., 2021). In our study, the producer's D2C e-commerce store is specifically positioned at different stages of the customer journey, depending on the customer segment. Showroomers visit the e-commerce store after their experience with the product at a retailer's physical store, while other customers visit it at the start of their journey (Figure 1).

Contrary to other customers, showroomers already have prior product knowledge when they visit the producer's D2C e-commerce store (Flavián et al., 2020). Based on information processing theories (Kahneman, 2011; Petty & Cacioppo, 1986), in this study, we argue that such prior knowledge influences showroomers' response to e-servicescape stimuli. The elaboration likelihood model (ELM) suggests that people elaborate on stimuli either through detailed processing (the central route) or through more superficial processing (the peripheral route), both of which are based on their motivation to process the information deeply (Petty & Cacioppo, 1986). Since showroomers already experienced

the product offline, they do not need to reevaluate the product-related information in detail (Goraya et al., 2022). As theorized by Kahneman (2011), this statement is also consistent with people's unconscious use of quick and automatic thinking to confirm their preexisting knowledge. We therefore argue that showroomers and other customers will process the product-related information provided by the producer's D2C e-commerce store, differently. We consequently argue that the showroomers and other customers will not have a homogenous experience of the magnitude of the e-servicescape stimuli effects on attitudes and behaviors. More precisely, we suggest that informativeness is likely to function as a central-route cue, as it provides substantive product-related information that invites deeper cognitive elaboration (Petty & Cacioppo, 1986). Visual engagement and transaction performance, by contrast, are likely to function as peripheral cues, as they refer to the store environment and transaction efficiency rather than to the product's intrinsic attributes (Petty & Cacioppo, 1986). Showroomers have already evaluated the product offline and thus have lower motivation to elaborate on central-route cues. As a consequence, we argue that they will respond less strongly to informativeness. Other customers, who lack prior product knowledge, are more motivated to elaborate on product-related information (central route) and will respond more strongly to it. Both groups are similarly exposed to peripheral cues (visual engagement, transaction performance) for the first time and thus, based on ELM, we do not expect differential responses to these cues based on prior product knowledge.

Research model and hypotheses

By building on the above foundations, we propose a model that links a customer's response to a producer's D2C e-commerce store to attitudinal loyalty and an online purchase intention (Figure 2). A person's assessment of an online shopping experience is the result of this person's combined evaluation of the shopping's functional and emotional components, from which utilitarian and hedonic shopping values emerge (Babin et al., 2021; Bridges & Florsheim, 2008; Hu et al., 2023). Our study consistently posits that an online customer shopping experience is examined through customers' responses to both functional and emotional attributes. With regard to showroomers and other customers, we specifically address the functional and emotional attributes' impacts on their attitudinal loyalty and their online purchase intention.

Ever since the initial investigations into this subject, scholars have suggested that an e-servicescape includes

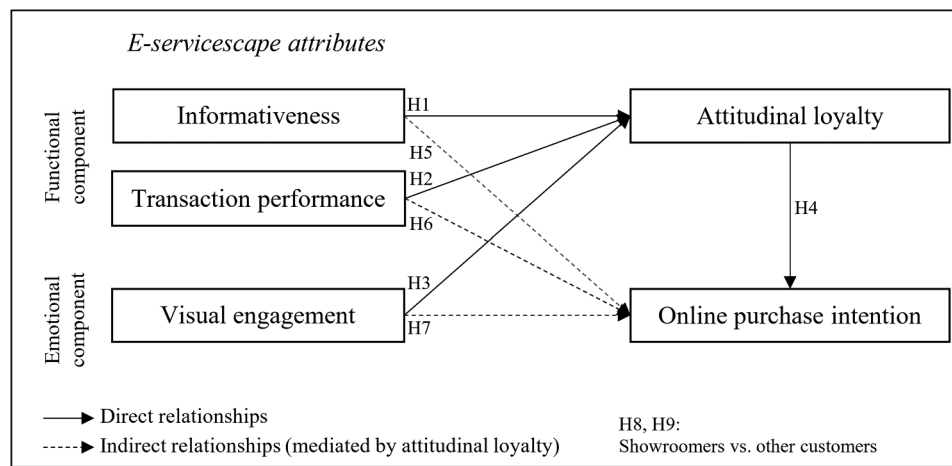


Figure 2. The research model.

three attributes: two functional attributes related, respectively, to the website's functionality contents and transaction efficiency and one emotional attribute related to the website's online visual appeal (Harris & Goode, 2010). Consistent with prior research that identified and examined the online shopping experience's functional and emotional components (Bridges & Florsheim, 2008; Hu et al., 2023), our research model includes informativeness and transaction performance as functional attributes, and visual engagement as an emotional attribute. We start by hypothesizing these three antecedents' effects on attitudinal loyalty and on the online purchase intention (H1–H7). Thereafter, we hypothesize the differences between the effects' magnitude in showrooms and other customers (H8–H9). We operationalize the key mediating attitudinal construct as attitudinal loyalty rather than as a general brand attitude, because attitudinal loyalty captures a more enduring brand-focused disposition whereas general attitude mainly reflects an overall favorable evaluation, and is therefore better suited to reflect consumers' preference for a focal brand (Toufaily et al., 2013; Yoo & Donthu, 2001). In a D2C e-commerce store, where the shopping environment is centered on the producer's own brand, attitudinal loyalty appears more appropriate than a general positive attitude for capturing consumers' commitment to that brand. Moreover, prior research has linked e-servicescape and online shopping experience dimensions to loyalty-related outcomes in online environments (Gulfranz et al., 2022; Harris & Goode, 2010).

Informativeness—also referred to as the product information's perceived usefulness (Wu et al., 2020) or as its quality (Zhang et al., 2020) – indicates the richness and completeness of the information about the products sold in the e-commerce store (Gulfranz et al., 2022).

Various studies have consistently confirmed that more favorable perceptions of an e-servicescape's attributes, including their informativeness, lead to better consumer attitudes, which include greater trust and brand loyalty (Harris & Goode, 2010; Sharma & Klein, 2025; Tran & Strutton, 2020). Specifically, extant research on online shopping indicates that information quality is a key component of e-service quality, which is a strong antecedent of consumer attitudes, such as satisfaction and trust (Wu et al., 2017). Higher levels of perceived informativeness lead to positive attitudinal reactions (Hsieh et al., 2014). Moreover, the relevance of the information that a brand's digital platform provides is strongly and positively related to brand equity, conceptualized as customer identification with the brand (Ozkan & Sekerkaya, 2025). We therefore, suggest that:

- **H1a.** Higher levels of informativeness have a positive influence on showrooms' attitudinal loyalty.
- **H1b.** Higher levels of informativeness have a positive influence on other customers' attitudinal loyalty.

Transaction performance refers to the ease with which clients can order products from the e-commerce store, and the payments that they can make (Kwon & Lennon, 2009). Both conceptual and empirical research have shown that transaction performance is one of online shopping convenience's key customer-perceived attributes, encompassing aspects such as effortless checkout processes and payment methods (Jiang et al., 2013). Such transaction convenience contributes to the overall online convenience and to customer attitudes such as satisfaction (Duarte et al., 2018). In other words, if customers' perceptions of a website include effective

purchasing processes, they improve the customer satisfaction (Belanche et al., 2012). All these studies are consistent with Harris and Goode's (2010) seminal work on the e-servicescape, highlighting that an online store's functionality strengthens customers' trust in that store. We therefore suggest that:

- **H2a.** Higher levels of transaction performance have a positive influence on showroomers' attitudinal loyalty.
- **H2b.** Higher levels of transaction performance have a positive influence on other customers' attitudinal loyalty.

Visual engagement describes the aesthetic appeal of the content available on the website, and its ability to engage consumers (Bazi et al., 2023; Gulfraz et al., 2022). Visual engagement is an evolution of the visual appeal attribute that early e-servicescape studies proposed (Harris & Goode, 2010). This update was introduced to acknowledge technological advancements and theoretical progressions, including those associated with customer engagement theories (Alzayat & Lee, 2021; Luo et al., 2024). A rich stream of research has consistently shown that webpage design elements stimulate affective responses from customers, including brand engagement and loyalty (Bilgihan et al., 2016; Bleier et al., 2019). Specifically, websites express their brand personality through visual engagement, thus eliciting positive visitor responses (Shobeiri et al., 2015). A stronger online store's visual engagement improves its customers' online shopping experience and their attitudinal loyalty (Gulfraz et al., 2022). We therefore suggest that:

- **H3a.** Higher levels of visual engagement have a positive influence on showroomers' attitudinal loyalty.
- **H3b.** Higher levels of visual engagement have a positive influence on other customers' attitudinal loyalty.

Overall, the product information, the navigation, and the payment process, as well as the website's visual design, all contribute to shaping attitudes and, ultimately, online shopping behaviors (Kaskas & Kitchen, 2024). Similarly, the overall shopping experience that the e-servicescape enables results in higher purchasing intentions (Bleier et al., 2019). Accordingly, more favorable attitudes, such as attitudinal loyalty, result in stronger buying intentions (Gulfraz et al., 2022). Toufaily et al.'s (2013) meta-

analysis strongly supported such a relationship, concluding that "[o]nline customer loyalty, whether measured behaviorally or attitudinally, positively influences [...] willingness to purchase and repurchase on the site." (p. 1443). Consequently, we propose the following hypotheses:

- **H4a.** Higher levels of attitudinal loyalty have a positive influence on showroomers' online purchase intentions.
- **H4b.** Higher levels of attitudinal loyalty have a positive influence on other customers' online purchase intentions.

Prior research highlighted that more favorable perceptions of a website's functional and emotional attributes influence customers' purchase intentions positively (Bleier et al., 2019). More precisely, the servicescape framework is based on the tenet that these perceptions have indirect effects. In fact, "perceptions of the servicescape lead to certain emotions, beliefs, and physiological sensations which in turn influence behaviors" (Bitner, 1992, p. 62). Consequently, "the perceived servicescape does not directly cause people to behave in certain ways [...] behaviors are thus mediated by a person's internal responses [to the perceived servicescape]" (Bitner, 1992, p. 62). Extant e-servicescape studies rely heavily on the stimulus-organism-response (SOR) framework (Mehrabian & Russell, 1974) to provide further theoretical arguments that substantiate the indirect effects of e-servicescape's attributes (e.g. Tankovic & Benazic, 2018; Tran & Strutton, 2020). According to this framework, environmental stimuli only impact a person's behavioral responses indirectly through the mediation of that person's emotional responses (Vieira, 2013). For example, Wu et al. (2017) applied the SOR framework and found that visitors' attitudes, including their brand attitude, mediated the e-servicescape's effects on clients' purchase intention. Overall, extant studies consistently confirm that e-servicescape attributes influence online customer attitudes, such as their pleasure and their attitudinal loyalty which, in turn, influence their online buying behaviors (Gulfraz et al., 2022; Laroche et al., 2022). We therefore propose the following hypotheses:

- **H5a.** Attitudinal loyalty fully mediates the relationship between showroomers' informativeness and their online purchase intention.
- **H5b.** Attitudinal loyalty fully mediates the relationship between other customers' informativeness and their online purchase intention.

- **H6a.** Attitudinal loyalty fully mediates the relationship between showroomers' transaction performance and their online purchase intention.
- **H6b.** Attitudinal loyalty fully mediates the relationship between other customers' transaction performance and their online purchase intention.
- **H7a.** Attitudinal loyalty fully mediates the relationship between showroomers' visual engagement and their online purchase intention.
- **H7b.** Attitudinal loyalty fully mediates the relationship between other customers' visual engagement and their online purchase intention.

We next move to the hypotheses about the differences between showroomers' and other customers' processing of e-servicescape stimuli. We argue that showroomers and other customers process product-related information differently. Before approaching an e-commerce store for online purchases, showroomers already have a significant amount of information about their potential purchases (Flavián et al., 2020). Consequently, they do not need to reevaluate the product-related information in detail when visiting the e-commerce store (Goraya et al., 2022). In addition, during their purchasing process, showroomers are less interested in information about the offerings than other customers are (Goraya et al., 2022). We therefore suggest that the product-related information that the e-commerce store provides will only be processed superficially (Petty & Cacioppo, 1986; Viejo-Fernández et al., 2018). Conversely, customers starting their journey by visiting the e-commerce store do not have prior product-related information and therefore lack the option to evaluate products' non-digital attributes (i.e. those attributes that only an in-store demonstration can provide, such as the texture of a clothing's fabric; Li et al., 2021). This means that these customers will rely heavily on digitally available product information to form their attitudes and behavioral intentions (A. P. Sharma et al., 2024). We therefore suggest that these customers will assess any product information in more detail, which is the central route (Petty & Cacioppo, 1986). Consequently, we expect informativeness to have stronger effects on such customers' attitudes and behavioral intentions than on those of showroomers.

Conversely, we do not expect visual engagement's and transaction performance's effect sizes to differ between showroomers and other customers. While informativeness is a product-related attribute, visual engagement and transaction performance are e-commerce store-related attributes. Therefore, regardless

of their type of journey, all customers will be exposed to these e-servicescape attributes for the first time. We argue that they will assess them similarly, whether or not they possess prior product-related information. Based on these arguments, we proposed the following hypotheses:

- **H8.** Informativeness's effect on attitudinal loyalty is weaker in respect of showroomers than of other customers.
- **H9.** Informativeness's indirect effect on online purchase intention (mediated through attitudinal loyalty) is weaker in respect of showroomers than of other customers.

Figure 2 shows the proposed model and hypotheses.

Methodology

Data collection and sample characteristics

We collected data from visitors to a reputable technical sportswear brand's D2C e-commerce store. Renowned as the preferred sportswear of various sports, the brand specifically emphasizes the cycling market's tradition. Besides being supplied to professional cycling teams, the brand is also one of amateur cyclists' most preferred brands due to its quality and heritage. The brand owners facilitated our survey by distributing a questionnaire through a pop-up on their e-commerce store, thereby extending the invitation to participate to its visitors over a continuous seven-day period. When submitting their responses, the participants were rewarded with a 20% discount code for purchases from the brand's e-commerce store. They were only informed about the reward once they had completed the questionnaire, which meant it did not act as an incentive to participate. Further, the brand owners believed that this method reduced irresponsible participation and enhanced the online survey data's quality (Wilson et al., 2025). Since all the questions were mandatory, there were no missing values.

At the start of the questionnaire, we asked the participants to select the response from the three provided ones that best describes their motivation for visiting the brand's e-commerce store. Overall, we obtained 355 responses. Specifically, 156 respondents selected "I have already seen/tried [brand's] product(s) at a physical store, and am currently visiting its e-commerce store to purchase one or more products online." We labeled these respondents as showroomers; 162 respondents selected "I am currently visiting [brand's] e-commerce store to browse its products,

Table 1. Descriptive statistics of the respondents.

Variables	Showroomers (n = 156)	Other customers (n = 162)
Gender		
Female	12 (7.7%)	9 (5.6%)
Male	144 (92.3%)	153 (94.4%)
Age		
<21 years	1 (0.6%)	2 (1.2%)
21–30 years	25 (16.0%)	10 (6.1%)
31–40 years	47 (30.1%)	40 (24.7%)
41–50 years	42 (26.9%)	46 (28.4%)
51–60 years	34 (21.8%)	50 (30.9%)
61+ years	7 (4.6%)	14 (8.7%)
Have you ever bought a [brand] product?		
Yes	156 (100.0%)	162 (100.0%)
No	0 (0.0%)	0 (0.0%)
How often do you participate in sports?		
Every day	42 (26.9%)	37 (22.8%)
Multiple times per week	108 (69.2%)	120 (74.1%)
Once a week or less frequently	6 (3.9%)	5 (3.1%)

and might decide to purchase them here or in a physical store.” We labeled these “other customers.” Finally, 37 customers selected “Other reasons (e.g. I am just browsing, but I have no plans to purchase any of [brand’s] products soon).” We excluded these answers from this study. We therefore used a self-segmentation criterion based on the participants’ responses instead of a data-driven approach. The final sample consisted of 318 respondents, of whom 156 were showroomers and 162 were other customers.¹ The sample size of both groups was sufficient to estimate the paths between 0.11 and 0.20, or higher, when assuming a significance level of 0.05, and a power level of 0.80 (Hair et al., 2027; Kock & Hadaya, 2018). Table 1 shows the respondents’ descriptive statistics.

Measurement scales and model estimation

Using multi-item scales from the established literature, we reflectively measured the constructs included in the proposed model. Specifically, we assessed both the informativeness and the visual engagement by respectively using four and three items from Gulfranz et al. (2022). We measured the transaction performance by using four items from Kwon and Lennon (2009). We assessed the attitudinal loyalty by using four items from Yoo and Donthu (2001), and assessed the online purchase intention by using two items from Hausman and Siekpe (2009). A few adaptations were made to the wording of certain items to reflect the research context, making the items more relevant for our respondents. For example, we added “(e.g. fabrics)” and “technical sportswear.” We registered all the responses on a 5-point Likert scale, with 1 indicating “totally disagree” and 5 “totally agree.” The list of items is shown in Table 2.

We analyzed the data by using partial least squares structural equation modeling (PLS-SEM; Lohmöller, 1989; Wold, 1982) and some of its extensions (Hair et al., 2027, 2024) – see also Hair et al. (2011) and Sarstedt et al. (2023). We selected this method due to its causal-predictive nature, which allowed us to assess both the model’s explanatory capabilities and its predictive power (Sarstedt et al., 2023; Wold, 1982). We found these evaluations particularly valuable for theoretically accurate findings, and to offer managerially relevant recommendations in order to determine the target constructs’ (i.e. attitudinal loyalty and online purchase intention) desired outcomes (P. N. Sharma et al., 2024). Overall, the PLS-SEM method has been widely applied in business research (Angelelli et al., 2025; Gudergan et al., 2025), including marketing (Guenther et al., 2023; Hair et al., 2012; Sarstedt, Hair, et al., 2027) and management (Magno et al., 2024; Richter et al., 2022; Ringle et al., 2020).

To estimate the PLS path model, we used the statistical software SmartPLS 4 (Ringle et al., 2024), which uses 10^{-7} as the stop criterion and a maximum number of 3,000 iterations, and selected the path weighting scheme (Hair et al., 2027). We assessed the estimated relationships’ significance by undertaking bootstrapping with 10,000 subsamples, applied the percentile method to build the 95% confidence intervals, and used a two-tailed test (we used a one-tailed test for the heterotrait-monotrait ratio of correlations, HTMT; e.g., Hair et al. 2027, Sarstedt et al., 2023). In order to address the mediation hypotheses, we estimated both the direct and the specific indirect effects simultaneously, drawing conclusions by following the guidelines that Hair et al. (2027) and Sarstedt et al. (2025) highlighted. Full mediation (i.e. indirect-only mediation) was established when the specific indirect effect was significant, while

¹The data are available online at the following link: https://osf.io/c8kwx/?view_only=9e6a2bd0351844b3af605bd625dec5d1.

Table 2. Item and construct assessment (showroomers and other customer segments).

Construct*	Item	Outer loadings		Cronbach's alpha		ρ_A		Composite reliability		Average variance extracted (AVE)	
		Show. ^a	Other ^b	Show. ^a	Other ^b	Show. ^a	Other ^b	Show. ^a	Other ^b	Show. ^a	Other ^b
Informativeness (Gulfraz et al., 2022)	In [brand] e-commerce store:			0.908	0.937	0.911	0.939	0.936	0.955	0.785	0.842
	I obtain rich information of the products' features and quality	0.904	0.926								
	I obtain accurate information of the products' and their components' (e.g. fabrics) features	0.907	0.929								
	I obtain detailed information of the products while shopping in this e-commerce store	0.815	0.905								
	I obtain sufficient information to make a choice	0.914	0.911								
Transaction performance (Kwon & Lennon, 2009)	It seems easy to find what you are looking for in this e-commerce store	0.801	0.858	0.822	0.866	0.824	0.874	0.882	0.909	0.651	0.715
	It seems easy to order items in this e-commerce store	0.823	0.866								
	It seems easy to pay in this e-commerce store	0.818	0.774								
Visual engagement (Gulfraz et al., 2022)	This e-commerce store seems easy to use	0.786	0.879								
	[Brand's] e-commerce store makes sportswear clothes look very appealing	0.739	0.897	0.812	0.915	0.832	0.917	0.890	0.946	0.731	0.854
	I can see the product from different angles while shopping in [brand's] e-commerce store	0.912	0.946								
	[Brand's] e-commerce store has been professionally designed	0.903	0.929								
Attitudinal loyalty (Yoo & Donthu, 2001)	[Brand] is my first choice when I have to buy technical sportswear	0.755	0.861	0.832	0.886	0.840	0.886	0.888	0.922	0.665	0.746
	I consider myself loyal to [brand]	0.818	0.884								
	I will not buy other brands if a [brand] product is available in the store	0.880	0.888								
	Even if another brand has the same features as [brand], I prefer buying [brand]	0.804	0.821								
Online purchase intention (Hausman & Siekpe, 2009)	I will definitely buy products from [brand's] e-commerce store today or quite soon	0.908	0.921	0.716	0.819	0.739	0.819	0.875	0.917	0.777	0.846
	I intend to make a purchase through [brand's] e-commerce store either today or quite soon	0.854	0.919								

*5-point Likert scale (1 = completely disagree; 5 = completely agree); ^ashowroomers; ^bother customer segments.

the direct effect was nonsignificant. We established partial complementary mediation when both the direct effect and the specific indirect effect were positive and significant (Hair et al., 2027). We assessed the model's predictive accuracy by running the cross-validated predictive ability test (CVPAT; Lienggaard et al., 2021; Sharma et al., 2023) with 10 folds and 10 repetitions. In addition, the composite models' (MICOM) measurement invariance procedure allowed us to make multi-group comparisons (Chin & Dibbern, 2010; Hair et al., 2024). We set 10,000 permutations for this procedure, a significance level of 0.05, and a two-tailed test. We selected the permutation approach for the multigroup analysis (MGA; Hair et al., 2024). Consistent with the established PLS-SEM guidelines, we first evaluated the measurement models, assessing the structural model thereafter (Hair et al., 2027; Sarstedt et al., 2025).

Results

Measurement model assessment

We applied the relevant criteria to evaluate the reflective measurement models (see also Guenther et al., 2025), including assessing the indicator reliability, the internal consistency reliability, the convergent validity, and the discriminant validity. We undertook these evaluations in respect of each of the two groups of participants (i.e. the showroomers and the other customer segments). All of the outer loadings were above the suggested threshold of 0.708 (Table 2), confirming the indicator reliability (Hair et al., 2019). Moreover, both groups met the internal consistency reliability criteria for all constructs, as the Cronbach's alpha, the composite reliability ρ_c , and the reliability coefficient ρ_A 's values were all between 0.70 and 0.95 (Table 2), with only one composite reliability value (0.955) slightly

Table 3. Discriminant validity: heterotrait – monotrait criterion.*

	1	2	3	4	5
1. Informativeness	—	0.800 P ₉₅ : 0.873	0.795 P ₉₅ : 0.869	0.675 P ₉₅ : 0.773	0.646 P ₉₅ : 0.752
2. Transaction performance	0.685 P ₉₅ : 0.788	—	0.752 P ₉₅ : 0.842	0.688 P ₉₅ : 0.787	0.723 P ₉₅ : 0.834
3. Visual engagement	0.850 P ₉₅ : 0.914	0.695 P ₉₅ : 0.801	—	0.682 P ₉₅ : 0.775	0.571 P ₉₅ : 0.695
4. Attitudinal loyalty	0.461 P ₉₅ : 0.603	0.597 P ₉₅ : 0.722	0.666 P ₉₅ : 0.793	—	0.722 P ₉₅ : 0.821
5. Online purchase intention	0.539 P ₉₅ : 0.676	0.676 P ₉₅ : 0.816	0.587 P ₉₅ : 0.734	0.733 P ₉₅ : 0.846	—

* HTMT values of showroomers are shown below the diagonal and, of other customer segments, above the diagonal; P₉₅ = the 95th percentile of the HTMT bootstrap distribution.

exceeding the upper limit. The values of the average variance extracted (AVE) were above the cutoff of 0.50 for each construct across the two groups (Table 2), thereby confirming the convergent validity. Finally, for the discriminant validity assessment, we find that all outcomes of the HTMT criterion (Henseler et al., 2015) were below the 0.90 (and in most cases below 0.85) for the showroomers and the other customer segments. However, the upper bound of the HTMT value's confidence interval of visual engagement and informativeness (Table 3) was slightly above 0.90 with respect to the showroomers' group (i.e. the HTMT criterion is not significantly lower than 0.90). Certain available studies have shown that the perceived website aesthetics are positively related to the perceptions of website content's usefulness and credibility (Jiang et al., 2016; Robins & Holmes, 2008). This result might explain the HTMT value we established regarding visual engagement and informativeness. Overall, we find that this analysis supports the discriminant validity (Ringle et al., 2023; Sarstedt et al., 2023).

In addition, we examined the measurement invariance, which is a prerequisite for concluding that no difference in the estimated paths between the showroomers and the other customer segments results from the constructs' different content and/or meanings across the two groups (Hair et al., 2024). Following the MICOM procedure

(Henseler et al., 2016), we first addressed the configural invariance, which was met because the indicators, data treatment, and algorithm settings were identical in the two groups. The outcomes of the permutation test also confirmed the compositional invariance, since the null hypotheses could not be rejected with respect to any of the constructs. Consequently, the composite scores were similar in the two groups, suggesting that the measurement invariance was at least partially met. Finally, the third step of the MICOM routine confirmed the equality of the composite mean values and variances for all constructs across the two groups. Full measurement invariance was therefore achieved (Hair et al., 2024).

Structural model assessment

Again, for the structural model assessment, we follow the guidelines provided by Hair et al. (2027) and Sarstedt et al. (2025)—see also Guenther et al. (2023) and Sarstedt et al. (2023). The variance inflation factor values' analysis showed that they were all smaller than 3 with respect to both the showroomers and the other customer segments. Consequently, multicollinearity did not substantially impact the estimates. The structural model estimations' results are reported in Table 4.

Table 4. Model estimates.

Effects	Showroomers			Other customers		
	β	p value	95% confidence intervals (two-tailed)	β	p values	95% confidence intervals (two-tailed)
Direct effects						
H1 Informativeness → Attitudinal loyalty	−0.106	0.340	[−0.330; 0.109]	0.231	0.017	[0.039; 0.416]
H2 Transaction performance → Attitudinal loyalty	0.306	0.000	[0.130; 0.468]	0.257	0.001	[0.094; 0.407]
H3 Visual engagement → Attitudinal loyalty	0.455	0.000	[0.260; 0.651]	0.273	0.000	[0.125; 0.419]
H4 Attitudinal loyalty → Online purchase intention	0.384	0.000	[0.230; 0.532]	0.362	0.000	[0.197; 0.534]
H5 Informativeness → Online purchase intention	0.124	0.326	[−0.129; 0.365]	0.149	0.238	[−0.096; 0.400]
H6 Transaction performance → Online purchase intention	0.258	0.011	[0.069; 0.468]	0.320	0.003	[0.100; 0.526]
H7 Visual engagement → Online purchase intention	0.013	0.915	[−0.230; 0.247]	−0.054	0.564	[−0.237; 0.133]
Specific indirect effect						
H5 Informativeness → Attitudinal loyalty → Online purchase intention	−0.041	0.347	[−0.128; 0.046]	0.084	0.038	[0.014; 0.172]
H6 Transaction performance → Attitudinal loyalty → Online purchase intention	0.117	0.005	[0.046; 0.206]	0.093	0.018	[0.027; 0.180]
H7 Visual engagement → Attitudinal loyalty → Online purchase intention	0.175	0.000	[0.093; 0.278]	0.099	0.009	[0.036; 0.184]

The findings indicate that, as expected, higher levels of the three e-servicescape attributes (informativeness, transaction performance, and visual engagement) have positive effects on attitudinal loyalty, with the showroomers' informativeness being the only exception ($\beta = -0.106$; $p = 0.340$). H1a is therefore rejected, while H1b, H2a, H2b, H3a, and H3b are supported. Moreover, higher attitudinal loyalty has a positive influence on both showroomers' and other customer segments' online purchase intention, thus supporting H4a and H4b. The analysis highlighted the mixed findings regarding the three e-servicescape elements' indirect effects on the online purchase intention. First, attitudinal loyalty fully mediates the relationship between informativeness and online purchase intention (i.e. indirect-only mediation), but only with regard to other customer segments. Informativeness has no effect on showroomers' online purchase intention, either directly ($\beta = 0.124$; $p = 0.326$) or indirectly ($\beta = -0.041$; $p = 0.347$). Consequently, H5a is rejected, while H5b is supported. Second, attitudinal loyalty mediates the relationship between both showroomers' and other customer segments' transaction performance and online purchase intention. The analysis, however, revealed (complementary) partial mediation, and not, as expected, full mediation. H6a and H6b are therefore rejected. Third, attitudinal loyalty fully mediates the relationship between the visual engagement and the online purchase intention of both the showroomers and other customer segments, thereby supporting H7a and H7b (i.e. indirect-only mediation).

We revert to the permutation-based MGA results to assess H8 and H9. The findings (Table 5) confirm that informativeness's effect on attitudinal loyalty is less pronounced in respect of showroomers than other

customers (β difference = -0.337 , $p = 0.023$). H8 is therefore supported. Similarly, when mediated by attitudinal loyalty, informativeness's effect on online purchase intention is less intense in respect of showroomers than other customers (β difference = -0.124 , $p = 0.027$). H9 is therefore supported. No other significant differences in either the direct or the indirect effects emerge from the permutation-based MGA.

Regarding the model's explanatory power, the R^2 values of attitudinal loyalty and online purchase intention of showroomers were 0.360 and 0.417, and, respectively, 0.468 and 0.478 of other customers. Moreover, the model fit based on the standardized root mean squared residual (SRMR) was acceptable: the SRMR of showroomers was 0.071 and 0.064 of other customers, thus below the cutoff value of 0.08 (Dash & Paul, 2021). Finally, the CVPAT (Lienggaard et al., 2021; Sharma et al., 2023) showed that the model had substantial predictive power regarding showroomers' attitudinal loyalty and their online purchase intention. The model also had predictive validity regarding other customers' attitudinal loyalty and a high predictive validity regarding their online purchase intention (Table 6).

Discussion and conclusions

The findings confirm most of the suggested hypotheses, highlighting the differences and similarities between showroomers and other customers regarding the producer's D2C e-commerce store's servicescape attributes' impacts. As expected, a relevant difference emerged in the informativeness's effects on both their attitudinal loyalty and online purchase intention. The results indicated that informativeness had no significant effect on showroomers' attitudinal loyalty, neither directly nor indirectly on their online purchase intention. In

Table 5. Permutation-based MGA results.

Effects	$\beta_{\text{showroomers}}$	$\beta_{\text{other customers}}$	$(\beta_{\text{showroomers}} - \beta_{\text{other customers}})$	95% confidence intervals (two-tailed)	Permutation p value
Direct effects					
Informativeness → Attitudinal loyalty	-0.106	0.231	-0.337	[-0.290; 0.293]	0.023
Transaction performance → Attitudinal loyalty	0.306	0.257	0.049	[-0.230; 0.234]	0.685
Visual engagement → Attitudinal loyalty	0.455	0.273	0.182	[-0.245; 0.242]	0.146
Attitudinal loyalty → Online purchase intention	0.384	0.362	0.022	[-0.221; 0.226]	0.848
Informativeness → Online purchase intention	0.124	0.149	-0.025	[-0.356; 0.359]	0.895
Transaction performance → Online purchase intention	0.258	0.320	-0.062	[-0.300; 0.303]	0.695
Visual engagement → Online purchase intention	0.013	-0.054	0.067	[-0.304; 0.305]	0.679
Specific indirect effect					
Informativeness → Attitudinal loyalty → Online purchase intention	-0.041	0.084	-0.124	[-0.111; 0.112]	0.027
Transaction performance → Attitudinal loyalty → Online purchase intention	0.117	0.093	0.024	[-0.112; 0.116]	0.672
Visual engagement → Attitudinal loyalty → Online purchase intention	0.175	0.099	0.076	[-0.119; 0.119]	0.214

Table 6. CVPAT results.

Benchmark	Level of analysis: target construct or overall model	Showroomers		Other customers	
		Average loss difference	<i>p</i> value	Average loss difference	<i>p</i> value
<i>CVPAT</i> ^{benchmark} _{IA} construct	Attitudinal loyalty	−0.143	0.002	−0.254	0.003
<i>CVPAT</i> ^{benchmark} _{IA} construct	Online purchase intention	−0.168	0.002	−0.284	0.001
<i>CVPAT</i> ^{benchmark} _{IA} overall	Overall model	−0.151	0.000	−0.264	0.001
<i>CVPAT</i> ^{benchmark} _{LM} construct	Attitudinal loyalty	−0.049	0.000	−0.010	0.584
<i>CVPAT</i> ^{benchmark} _{LM} construct	Online purchase intention	−0.050	0.045	−0.052	0.014
<i>CVPAT</i> ^{benchmark} _{LM} overall	Overall model	−0.049	0.000	−0.024	0.123

IA = naïve indicator–average prediction benchmark; LM = conservative linear model prediction benchmark.

Note: A negative average loss difference indicates that PLS-SEM has a lower CVPAT loss compared to the benchmark criterion, which supports PLS-SEM's better predictive capability.

addition, the MGA confirmed that there were significant differences between showroomers and other customers regarding informativeness's impacts.

In terms of the transaction performance, the analysis confirmed similar effects across the two groups, as hypothesized, but revealed partially (not fully) mediated impacts on the online purchase intention. These results suggest that transaction performance not only improves purchase intention indirectly by first reinforcing the attitudinal loyalty toward the brand, but can also stimulate an immediate purchase intention directly. This finding departs from the e-servicescape literature, which suggests that e-commerce store attributes only have indirect effects on the online purchase intention (Harris & Goode, 2010). The theoretical implication section discusses possible explanations for this unexpected result.

Finally, as hypothesized, higher levels of visual engagement influence attitudinal loyalty positively (directly), and both showroomers' and other customers' online purchase intentions (indirectly). Overall, the analysis showed that the proposed model predicts both groups' online purchase intentions accurately.

Theoretical implications

This study's findings have several theoretical implications. The results indicate that customers who follow distinct omnichannel shopping journeys experience the same touchpoint, such as a producer's D2C e-commerce store, differently. The analysis therefore confirms that "the effect of an individual touchpoint may depend on when it occurs in the overall customer journey" (Lemon & Verhoef, 2016, p. 83). Specifically, our research provides a theoretical explanation of the type of customer journey's impact on customers' attitudinal and behavioral responses to a producer's D2C e-commerce store's attributes. Our analysis therefore extends previous research that only relied on the e-servicescape framework to examine customer responses to e-

commerce stores' attributes (Harris & Goode, 2010; Wang et al., 2025). It also extends studies that examined consumer preferences for different offline and online channels at different stages of the customer journey (Zielke & Komor, 2025). By proposing a model that integrates the e-servicescape framework with customer journey studies (Hamilton & Price, 2019; Wang & Wang, 2024) and information processing theories (Petty & Cacioppo, 1986), this study offers a more nuanced understanding of showroomers' and other customers' attitudes and behavior at a specific touchpoint.

Our study's findings both corroborate and extend current knowledge of showroomers' and other customers' elaboration of the stimuli that a touchpoint provides. Previous research argued that showroomers were more likely to use the peripheral route to information processing, while webroomers and exclusive online customers were more likely to use the central route, and to evaluate product-related information in more detail (Herrero-Crespo et al., 2022; A. P. Sharma et al., 2024; Viejo-Fernández et al., 2018). Our study extends this argument by addressing the implications of these information processing mechanisms for the consumer evaluation of a producer's D2C e-commerce store's attributes. Our research reveals that the impacts of the e-commerce store's attributes on attitudes and behaviors differ somewhat between showroomers and other customers. We found evidence that they differ regarding product-related attributes, such as informativeness. In detail, informativeness had no significant effects on showroomers' attitudes and online purchase intention. Theoretically, in line with the Elaboration Likelihood Model (Petty & Cacioppo, 1986), we argue that showroomers are less motivated to reevaluate product-related information, because they had already elaborated their product knowledge before visiting the producer's D2C e-commerce store. Conversely, visual engagement and transaction performance had similar effects across the two customer groups. We argue that, regardless of their type of journey, both showroomers

and other customers are exposed to such e-commerce store-related attributes for the first time. They therefore engage in similar elaboration processes, which prior product-related knowledge does not affect. Overall, the moderation outcomes are theoretically meaningful beyond the individual supported hypotheses. The moderation effects are attribute-specific: they are significant for informativeness (a product-related attribute) but not for transaction performance or visual engagement (e-commerce store-related attributes). These findings are consistent with information processing theory tenets. Showroomers' reduced motivation to re-elaborate product information applies specifically to informativeness and not to store-related attributes that all customers evaluate for the first time. Therefore, the results confirm that the type of customer journey moderates the e-servicescape's attitudinal impact in a selective and theoretically predictable way, consistent with the ELM framework.

Regarding the transaction performance, our study surprisingly reveals that this did not only have indirect (as hypothesized) effects, but also direct ones on the online purchase intention. We interpret this finding in the light of the current literature on online impulse buying. This research stream indicates that variables, such as the variety of available payment methods, and the checkout simplicity, could have both indirect and direct effects on the online buying intention (Anoop & Rahman, 2025; Chan et al., 2017; Redine et al., 2023). For example, Wells et al. (2011) found that online transactions' perceived security influences the urge to buy impulsively both positively and directly. Several studies used the theory of self-control (Baumeister, 2002) to explain direct and indirect effects' co-existence. In the context of online impulse buying behavior, website visitors tend to show lower levels of self-control, thus revealing lower resistance to both the forming of positive attitudes toward the brand (the indirect effect) and impulse buying (the direct effect) (Nyrhinen et al., 2024). Similar effects could explain transaction performance's partially mediated impacts on the online purchase intention in our study.

Our analysis's results also advance extant knowledge of the producer's perspective of omnichannel shopping journeys. Recent research strongly advocates that producers should create brand-owned D2C e-commerce stores to complement independent multi-brand retailers' distribution, thus increasing their control over omnichannel shopping journeys (Kalayci et al., 2024). Simultaneously, other studies suggest managing D2C e-commerce stores carefully to avoid independent retailers' disengagement (Van Crombrugge et al., 2025).

Prior research specifically examined consumer choices between D2C e-commerce stores and independent multi-brand retailers, as well as the competition between these two channel types (Kalayci et al., 2024; Van Crombrugge et al., 2025). Our study enriches extant knowledge by clarifying the effects of brand-owned D2C e-commerce stores' attributes on customers' attitudinal brand loyalty and on their online purchase intention. Moreover, previous research indicated that, at specific stages of their journeys, particularly the later stages, customers prefer D2C e-commerce stores to independent retailers (Kalayci et al., 2024). These works did not, however, examine the different ways in which D2C e-commerce stores' e-servicescape influences showroomers' and other customers' attitudinal brand loyalty and online purchase intention. Our study advances current knowledge, suggesting that a D2C e-commerce store's performance might depend on a combination of the customer journey's specific stage (as the available literature demonstrates) and its specific type (showrooming vs. other types).

Practical implications

The findings yield valuable insights for producers seeking to optimize their D2C e-commerce store design for specific target segments, namely showroomers or other customers. When, for instance, aiming to enhance showroomers' conversions, managers should prioritize transaction performance. However, when pursuing the fostering of attitudinal loyalty, the e-commerce store should not only emphasize visual engagement, but also pay attention to its informativeness for customers who are not showroomers. By understanding a visitor's shopping journey, the producer could customize the e-servicescape's design to obtain the desired outcomes. For example, our research further emphasizes that, with regard to showroomers, "knowing that a segment of the market would like to be shielded from an abundance of information could serve as a competitive advantage" (Hunter et al., 2024, p. 108). Producers could utilize techniques, such as A/B testing, to determine showroomers' optimal level of informativeness, as well as to identify the most relevant information to display in their D2C e-commerce stores.

However, implementing these strategies requires first adopting an effective method for distinguishing showroomers from other customers among visitors to the D2C e-commerce store. In order to do so, managers could implement behavioral tracking systems to enable the real-time identification of customer

segments. Such a data-driven approach could draw on criteria, such as the amount of time spent consulting the product detail pages or spent comparing the product features. Machine learning algorithms and predictive analytics models could, based on artificial intelligence, support this data-driven approach and enable the dynamic personalization of the D2C e-commerce store design.

Moreover, the findings offer suggestions regarding integrating the use of a brand-owned D2C e-commerce store with independent multi-channel retailers in a complementary strategy. A producer might, for example, decide to use its D2C e-commerce store mainly for brand loyalty-building purposes, instead of maximizing online sales to avoid independent retailers' disengagement. Under such circumstances, the retailer should prioritize improving the visual engagement. Our model allows producers to predict customer shopping experiences' outcomes in their e-commerce stores. Such knowledge is particularly relevant to avoid a poor online shopping experience, which increases consumer willingness to not only switch to other channels, but to also switch to competing brands (Schiessl et al., 2023). Overall, by leveraging the increasing amount of data on visitors' profiles and on shopping journeys, producers could move toward more customized and more effective customer shopping experiences. This data could, furthermore, be used to enhance partnerships with independent retailers, resulting in more effective omnichannel customer journeys. For example, visitors to the brand-owned D2C e-commerce store who do not belong to the showroomers' segment could be directed to a specific retail partner's store to complete their purchase by using targeted (monetary or nonmonetary) incentives. This approach enables the producer to maintain control over its online brand experience, while also strengthening the partnership with independent retailers. As omnichannel consumer behaviors evolve, producers need to adjust their strategies dynamically to maintain a mutually beneficial approach with independent retailers. In order to do so, it is crucial to continuously monitor the channel performance, and to adapt both the incentive systems and the e-store features accordingly.

Limitations and future research

Some limitations need to be considered when interpreting this study's findings and its implications. Our empirical analysis was based on data collected from visitors to a reputable technical sportswear brand's e-commerce store. This choice has both advantages and disadvantages. The participants had a clear understanding of the e-

commerce store's e-servicescape, since they were approached when visiting the e-commerce store. However, the focus on a single e-commerce store in a specific sector (such as technical sportswear, mainly for the cycling market) suggests that we should be cautious when generalizing the findings. In addition, the self-segmentation approach used to identify showroomers and other customers introduces several potential confounds that should be acknowledged. First, the definition used to identify showroomers (visiting the e-commerce store to make purchases after offline product evaluation) already reflects a higher level of purchase readiness, which may partially contribute to the observed differences independently of the showrooming journey. Second, this study does not fully distinguish whether the observed effects arise from prior product knowledge or from proximity to purchase, since these two factors are structurally correlated in our research. Finally, although both groups had previously purchased from the brand, unobserved differences in loyalty level between groups cannot be ruled out, since brand loyalty was not measured and included in the model. Future research should employ experimental or longitudinal designs to better isolate these mechanisms and control for loyalty levels. Consistent with the brand's market focus, more than 90% of the respondents were male. Moreover, all the respondents had purchased at least one of the brand products previously, suggesting a highly loyal sample. We could therefore not control for the effects of gender and experience with the brand. However, recent meta-analyses have shown that the level of femininity or masculinity in respondents' culture moderates the effect of certain servicescape affordances on consumer attitudes (Wang et al., 2025). In cultures with higher levels of femininity, ambient conditions' impact on consumer satisfaction is specifically more intense. Such differences could also be stronger in a sportswear context. Similarly, respondents' experience with the brand might have influenced our findings, since these respondents were already somewhat familiar with the brand, regardless of their customer journeys. In order to further support our findings, future research should include other e-commerce stores in different product categories and explore gender and familiarity's effects. Moreover, we used the cross-sectional design to focus on single-visitor sessions in the e-commerce store, and could therefore not observe the entire omnichannel shopping journey. Future studies should address this limitation by collecting more detailed information about all stages of the shopping journey. Such studies could also use a data-driven approach to identify customer segments (showroomers versus other customers), or they could use latent class segmentation methods, such as finite mixture partial least squares

(FIMIX-PLS; Sarstedt, Radomir, et al., 2022). New studies could also investigate whether the type of device (e.g. smartphone, laptop, or tablet) used to visit the e-commerce store moderates informativeness's, transaction performance's, and visual engagement's effects on visitors' attitudes and behaviors (Parker & Kuo, 2022). Finally, we built on the general e-servicescape framework, which includes three attributes (informativeness, transaction performance, and visual engagement). Future studies could integrate additional constructs into this framework, such as customer perceptions of prices and assortments, and the shopper's susceptibility to information overload, and apply a multimethod research approach (Cassia & Magno, 2026; Hair et al., 2026).

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