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Share of time in omnichannel retailing: Definition and measurement

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ABSTRACT

The time that consumers spend shopping represents a valuable resource. When consumers engage with multiple omnichannel retailers, they divide this limited resource among them, such that the retailers must compete for shares of consumers' time. Previous explorations of the effects of time-related variables on consumer behavior rarely address the *relative* time that consumers devote to different channels associated with competing omnichannel retailers. To introduce this idea, the current research proposes an "omnichannel share of time" (OSoT) concept. With four mixed-method studies, the authors derive and validate an easy-to-administer, four-item measure of OSoT. A nomological network analysis also demonstrates its positive mediating role in the relationship between omnichannel customer experience and customer engagement. By proposing and validating OSoT, this article introduces a valuable tool that retail managers can leverage to evaluate the effectiveness of their customer experience strategies and drive value co-creation through greater customer engagement.

The digital era has revolutionized the retail industry, expanding its horizons from traditional brick-and-mortar stores to countless digital channels. By combining these myriad channels—physical stores, websites, mobile apps, and social media platforms, as well as emerging, immersive, digital channels such as metaverses—omnichannel retailing promises to provide customers with seamless, continuous, personalized shopping experiences (Forrester, 2025; Rahman et al., 2022b). A recent industry report indicates that 73 % of customers prefer omnichannel shopping, which allows them to interact with multiple channels throughout their purchase journey—whether it's researching products, reading customer reviews, searching for deals, completing transactions, or engaging in post-purchase communication with sellers (Cardona, 2025). One of the major benefits of adopting omnichannel strategies is their

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positive impact on customer loyalty and profitability. Businesses that implement these strategies retain up to 90 % more customers compared to single-channel retailers. Furthermore, a mere 5 % increase in retention can lead to profit growth ranging from 25 % to 95 % (Beard, 2025). Thus, the importance of mastering omnichannel retailing for customer satisfaction, customer engagement (CE; Pansari & Kumar, 2017), and retention, and ultimately retail success, cannot be overstated.

In pursuit of these goals, omnichannel retailers compete intensively, seeking a greater share of not just customers' wallets but also their time (Hollebeek et al., 2014; Mogaji et al., 2023). On average, customers spend more than eight hours daily on digital media, and omnichannel retailers actively vie for their attention (Guttmann, 2023; McKinsey & Company, 2023; Sullivan, 2025), as evidenced by their strategic investments in tactics to establish an excellent customer experience (CX) that promises to increase CE. Such strategic moves receive support from the growing research into CX (see Fig. 1). For example, Rahman et al. (2022b) demonstrate how omnichannel CX (OCX) affects consumer behavior in consumer goods retailing; Van Nguyen et al. (2022) explore customers' channel switching intentions and emotions; Tyrväinen et al. (2020) note the positive effects of personalization and hedonic motivation on CX and loyalty, involving customers' cognitive and emotional experiences; and Gahler et al. (2023) propose a measure of different customer interactions and CX in omnichannel environments. A related stream of research specifies how technology and digitalization shape CX in omnichannel retailing, as when Mimoun et al. (2022) investigate the interaction of omnichannel retail technology with shopping orientations. In immersive channels, Pangarkar et al. (2022) propose the notion of "phygital" omnichannel luxury retailing, and Mogaji et al. (2023) refer to "immersive time" in making the argument that human interactions are critical to the creation of immersive CXs. Overall, research indicates that an excellent CX can drive CE (e.g., purchase loyalty, word of mouth).

This rapid rise in CX and CE literature has produced a comprehensive network of research into CX in omnichannel retailing, as illustrated in Fig. 2, that features notable considerations of technological advances, artificial intelligence, green innovation, and psychological constructs such as preferences and motivation, as well as their interconnections. What is missing is a dedicated consideration of omnichannel retailers' active competition to account for more of customers' time. That is, the network in Fig. 2 strikingly lacks any substantive reference to time-related constructs, despite the fundamental importance of time dimensions to marketing and CX literature. This notable gap in omnichannel retailing literature warrants efforts to understand and specify the interplay of CX, time spent visiting competing omnichannel retailers' channels, and CE. To do so, we raise and seek to address two theoretically and practically relevant questions:

1. What is an effective means to measure the time a customer spends across the channels of an omnichannel retailer, relative to the time spent with the channels of other omnichannel retailers in the same market category?
2. Does the share of time spent across the channels of an omnichannel retailer influence CE?

To address these questions, we might compare relevant data from competing omnichannel retailers, but such an approach is not particularly feasible. First, it is challenging for retailers to capture and aggregate the time that customers spend across all their various channels. Second, some time-related data (e.g., website/app session length) are highly sensitive. Third, retailers typically do not share

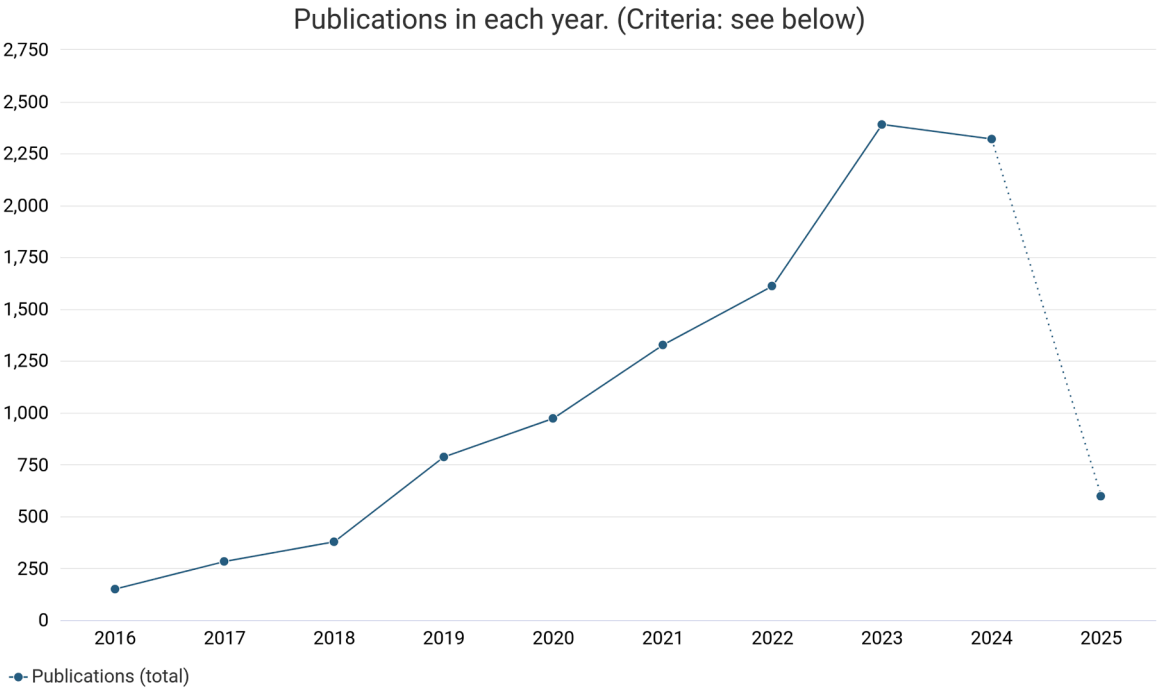

Fig. 1. Trends in omnichannel retail customer experience research.

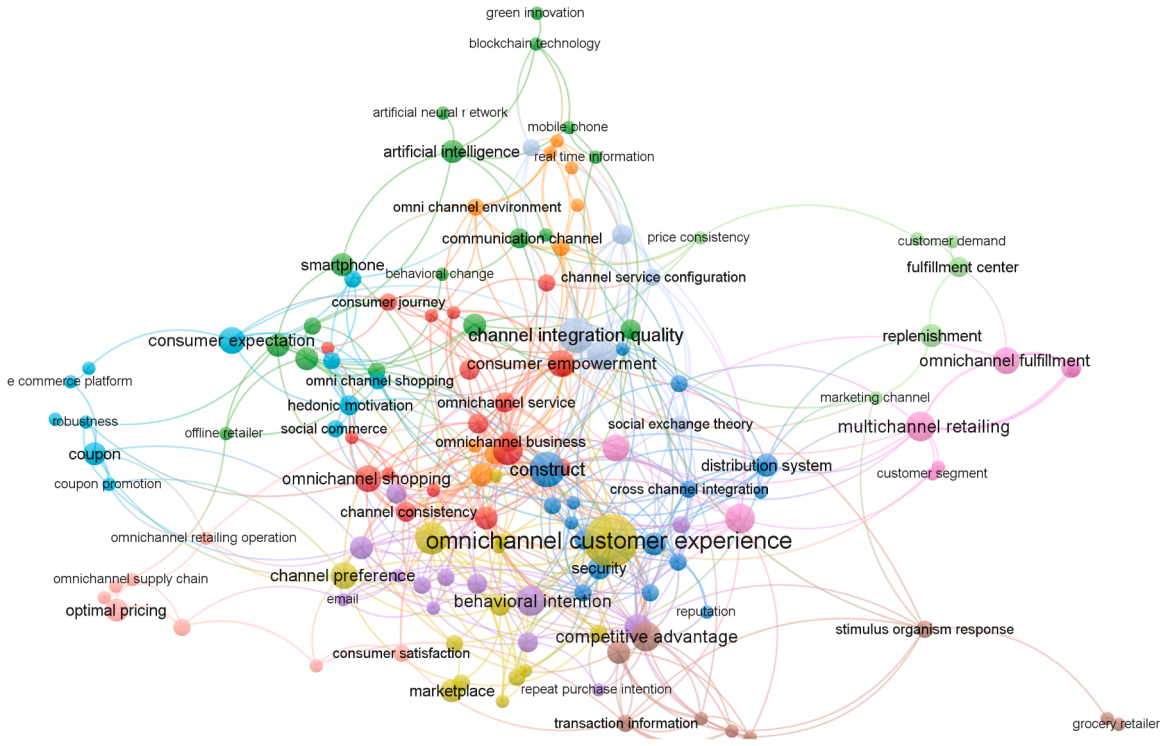

Fig. 2. Key concepts and terms in omnichannel retailing and OCX literature.
Notes: Data were extracted from the Dimensions database (https://www.dimensions.ai/). The diagram was generated using Gephi.

data that they might leverage to gain strategic advantages.

Alternatively, customers might self-report their assessment of how much time they spend with a retailer, relative to the time they spend with other retailers. To support this approach, and thereby give omnichannel retail managers a tool to gauge how much time customers spend in each of their channels, relative to those of competing retailers, we introduce a novel *omnichannel share of time (OSoT)* concept, defined as customers' assessment of the proportion of time they allocate across the channels of an omnichannel retailer, relative to the total time spent engaging with other retailers. With four mixed-method studies, reflecting an empirics-first approach (Elsevier, 2023; Golder et al., 2023), we also generate and validate an easy-to-administer, four-item measure of OSoT.

Because it captures customers' assessments of their relative time allocations, OSoT offers a new approach to CE, in that it highlights time as a limited and competitive resource. Unlike sales metrics such as share of wallet (SoW), which quantify spending, OSoT captures how customers allocate what is arguably their most valuable and finite resource to competing retailers. Unlike other time-related constructs like consciousness or scarcity, which focus on individual perceptions or stress related to time, OSoT uniquely captures the competitive dynamics inherently associated with allocations of time. Furthermore, because it provides a holistic view of CE based on the time consumers spent in various channels, OSoT offers deeper insights into customer preferences and behaviors than do traditional metrics like SoW or market share. With a temporal perspective on CE, as it manifests across competing retailers, OSoT provides distinctive insights into long-term CE patterns too, such that it can serve as a leading indicator of future CE performance; increased time spent often correlates with increased activities in various channels. Finally, OSoT can address some limitations of A/B testing, which is effective for specific interventions (e.g., promotion effectiveness) but typically is limited to short-term behavioral changes. In contrast, OSoT provides a long-term view that enables managers to identify CE trends and then proactively adjust their strategies.

To the best of our knowledge, this study is the first to specify a temporal dimension in omnichannel CE research; we do so by introducing the comprehensive OSoT concept and empirically demonstrating its relevance for omnichannel retailing. Theoretically, OSoT highlights how customers' temporal investments can create value, such that the concept helps extend value co-creation and customer engagement frameworks. This study also establishes a foundation for continued research into the implications of consumers' time allocations to diverse retail and service contexts that continue to undergo ongoing, profound changes. For practitioners, OSoT complements existing marketing metrics, provides insights into the competitive dynamics of consumers' assessments of time allocations, and suggests ways to enhance CX and drive value creation. By integrating OSoT with other metrics, retail managers can make more informed resource allocation, channel investment, and customer relationship management decisions to enhance both CE and business performance. Although this study focuses on omnichannel retailing, the "share of time" concept holds theoretical and managerial potential for broader applications in various sectors, including health care, where patients' time allocations across services can affect outcomes, and education, where student engagement across learning platforms is pertinent.

Fig. 3 summarizes the research steps. First, we review marketing and management literature pertaining to time-related constructs. Second, we highlight the significant role of time as a resource in the value co-creation process between retailers and customers and conceptualize OSoT. Third, we develop a parsimonious scale to measure OSoT, on the basis of qualitative findings (Study 1). Fourth, we test its validity empirically (Studies 2 and 3). Fifth, we conduct a nomological analysis to test OSoT's predictive ability. Sixth, with an experiment, we specify how positive, neutral, and negative OCX influence OSoT and clarify if and how the OSoT construct is sensitive to varying experiences. We conclude with a discussion of how this study advances CX and CE literature, as well as avenues for further research.

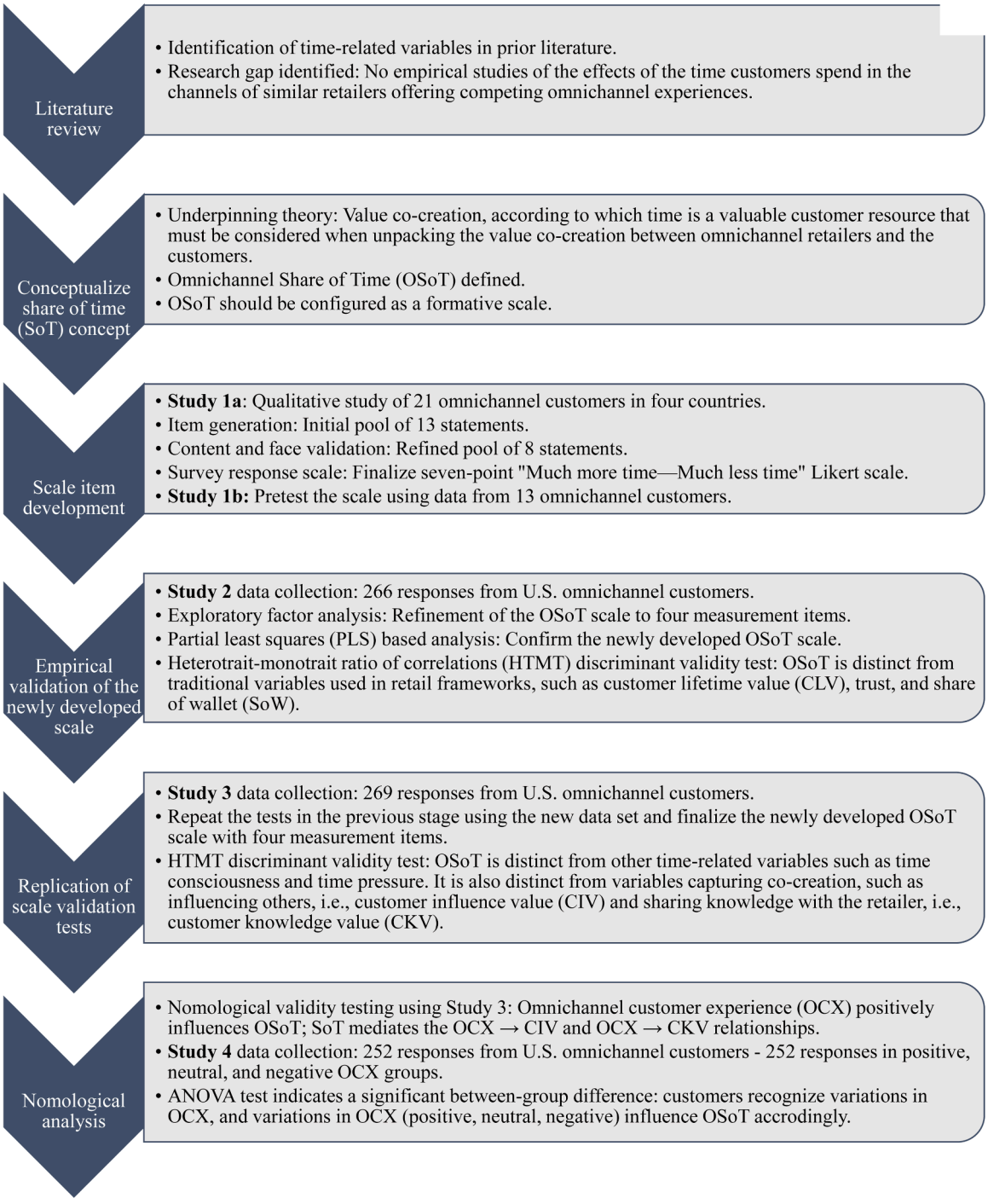

Fig. 3. Research design for developing the omnichannel share of time scale.

1. Literature review

Understanding how customers allocate their time across various channels is crucial for omnichannel retailers (Grewal et al., 2017), especially in the attention economy, in which customers experience both limited time and numerous choices (Kubler, 2023; Van Nguyen et al., 2022). Omnichannel retailers compete for greater shares of customer attention and time across myriad channels (Blut et al., 2023; Chib, 2023), and their efforts might be informed by relevant research in marketing, management, and psychology domains that pertains to time-related constructs. Such research also provides a foundation for our theorizing about the OSoT concept, in which we seek to clarify both its distinctiveness and its relevance for omnichannel retailing. To explore various dimensions of time, as a resource, we searched for research that deals with constructs such as time consciousness, time pressure, and time scarcity, which help predict how customers allocate their time across different channels. To achieve a comprehensive review and thereby ensure that our conceptualization of OSoT is grounded in a robust theoretical framework, we sought peer-reviewed journal articles and conference papers listed in multiple databases (INFORMS, ScienceDirect, Sage, Wiley Online Library, Springer Link, Taylor & Francis Online, Emerald Insight, and Oxford Academic), as detailed in Web Appendix W1. Through this extensive review, we identified 12 previously operationalized time-related constructs, which we group into three categories: time-related personality traits, time-related stress and anxiety, and time management and control (Table 1).

1.1. Time-related personality traits

We define time consciousness, time perspective, time attitude, and time submissiveness as time-related personality traits, that is, as relatively stable characteristics that influence behavior and decision-making. They reflect how people perceive, value, and use time in their daily lives. For example, Kleijnen et al. (2007) note the effect of *time consciousness* (awareness of and importance placed on time) for mobile service delivery: It moderates the relationship between the perceived utilitarian value of mobile services and customers' behavioral intentions. In turn, convenience and user control appear to shape consumers' perceptions and actions. Zimbardo and Boyd (2014) instead propose a model of five *time perspectives*—past-negative, past-positive, present-hedonistic, present-fatalistic, and future-oriented—that influence decision-making processes and behaviors. Britton and Tesser (1991) study *time attitude*, which refers to a person's attitude toward time-related activities and willingness to engage in time management behaviors. Finally, Usunier and Valette-Florence (1994) propose the concept of *time submissiveness*, defined as a person's willingness to submit to external temporal demands.

1.2. Time-related stress and anxiety

In this category, we include time pressure, time anxiety, and time scarcity. These constructs capture negative emotions associated with time, such as feeling overwhelmed or pressured or perceiving a lack of control, as well as factors that contribute to such time-related stress, which in turn might inform interventions to reduce it. For example, Hwang (1994) shows that *time pressure* significantly influences consumers' product decisions, the length of time they spend evaluating alternatives, and their attitudes toward and satisfaction with their purchases. In examining the effects of time pressure on management and organizational behavior, Matteson and Ivancevich (1987) and Lesser and Forsythe (1989) show that it can lead to stress, anxiety, and decreased job satisfaction. Whereas time pressure reflects negative emotional responses to a lack of time to complete tasks, including stress and anxiety, time consciousness is distinct, as we noted previously; it entails clear awareness of time and implies efforts for proactive planning and scheduling (Kleijnen et al., 2007), to manage and appropriate valued time. In introducing the concept of *time anxiety*, Usunier and Valette-Florence (1994) define it as a negative emotion arising from time pressure and demands and individual coping mechanisms. *Time scarcity* refers to perceptions of having insufficient time to accomplish desired tasks and activities (Kaufman & Lane, 1997; Kaufman-Scarborough & Lindquist, 2003; Southerton, 2003), which can increase stress, reduce well-being, and negatively affect people's personal and professional lives, such that it exacerbates the effects of time-related anxiety.

1.3. Time management and control

This category comprises four constructs that pertain to how people manage, control, and organize their time: use of time, sense of purpose, perceived control of time, and time convenience. For example, Feather and Bond (1983) study the *use of time*, or how people allocate their time to different activities, which may reflect their values, goals, and personality traits. Then Bond and Feather (1988) examine a *sense of purpose*, which refers to the degree to which people perceive the time they spend as purposeful and meaningful. It relates to individual motivations, goal orientations, and life satisfaction. Mudrack (1997) studies *perceived control of time*, reflecting people's beliefs about their ability to manage their time effectively. People who perceive they have control over their time are more likely to engage in time management behaviors and experience less time-related stress. *Time convenience* refers to the extent to which they perceive they are using their time efficiently and effectively, particularly in shopping contexts. This construct highlights the importance of time-saving strategies and the value of convenience for decision-making processes, which ultimately influences people's overall satisfaction with their time management (Mathwick et al., 2001). Beyond these broad constructs, Mogaji et al. (2023) use *immersive time* to capture users' deliberate dedication of time to immersive digital channels, such as the metaverse.

Table 1
Time-related constructs and measurement items.

Construct	Definition	Measurement items (Response scale)	Study (Domain)	Key Findings
Use of time	Extent to which people perceive their time as filled with useful activity that demonstrates purpose	Do you ever find that time just seems to slip away? Do you have a daily routine which you follow? Do you often feel that your life is aimless, with no definite purpose? Do you tend to leave things until the last minute? Do you think you do enough with your time? Do you long time to 'get going'? (7-point scale: 1 = *Yes, always* to 7 = *No, never*)	Feather and Bond (1983) (occupational psychology)	Structured and purposeful uses of time are positively correlated with self-esteem and negatively correlated with depressive symptoms in employed and unemployed graduates.
Time pressure	Extent to which users feel pressure to work at a faster pace than usual or have insufficient time to complete tasks	I am constantly working against the pressure of time. I always have to rush in order to complete my jobs. There is just not enough time to do my work My life is fast paced. I usually seem to be in a hurry. (7-point scale: 1 = *Strongly disagree* to 7 = *Strongly agree*)	Matteson and Ivancevich (1987) Lesser and Forsythe (1989) Hwang (1994) Maule et al. (2000) (management and organizational psychology)	Time pressure significantly increases stress levels. Time pressure negatively affects the intrinsic motivation to shop, because it reduces enjoyment and satisfaction derived from the shopping experience. Time pressure reduces information search, increases reliance on heuristics, and leads to potentially poorer decisions in the context of information systems. Time pressure increases negative affect and leads to a shift toward simplified information processing strategies.
Sense of purpose (subscale of Time Structure Questionnaire)	Extent to which people feel their lives have meaning, purpose, and direction	Do you often feel that your life is aimless, with no definite purpose? Do you ever feel that the things you have to do during the day just don't seem to matter? Do you get bored with your day-to-day activities? Looking at a typical day in your life, do you think that most things you do have some purpose? Do you ever feel that the way you fill your time has little use or value? (7-point scale: 1 = *Yes, always* to 7 = *No, never*)	Bond and Feather (1988) (occupational psychology)	People with a stronger sense of purpose and structured use of time exhibit greater life satisfaction and psychological well-being.
Perceived control of time (component of Time Management Behavior Scale)	Extent to which people believe they can affect how their time is spent	We are overwhelmed by tasks. We are involved in small details. We take on too many tasks. We underestimate time. We are involved with unimportant tasks. We can't keep to schedule. We are unable to say no. (5-point scale: 0 = *Seldom true* to 4 = *Very often true*)	Macan et al. (1990) Mudrack (1997) (cognitive psychology)	Perceived control of time significantly influences time management behaviors and psychological well-being, suggesting that a greater sense of control over time leads to more effective time management and reduced stress. College students who perceive greater control of time reported higher academic performance and lower stress levels.
Time attitude	Degree to which people use time constructively and feel in charge of the way their time is spent	Do you often find yourself doing things which interfere with your schoolwork simply because you hate to say "No" to people?	Britton and Tesser (1991) (cognitive psychology)	Effective time management practices, including setting goals, prioritizing tasks, and organizing schedules, positively affected college students' grades.

(*continued on next page*)

Table 1 (*continued*)

Construct	Definition	Measurement items (Response scale)	Study (Domain)	Key Findings
		Do you feel you are in charge of your own time, by and large? On an average class day do you spend more time with personal grooming than doing schoolwork? Do you believe that there is room for improvement in the way you manage your time? Do you make constructive use of your time? Do you continue unprofitable routines or activities? (5-point scale: 5 = *Always* to 1 = *Never*)		Adopting time management skills can lead to improved academic performance.
Time submissiveness (dimension of time-styles psychometric scale)	Extent to which people adapt to external time pressures and expectations	No matter how hard I try, I am nearly always a little late. I am almost never late for work or appointments. If the only way I can get to an appointment is by rushing, I'd rather be later. I would rather come early and wait than be late for an appointment. (7-point scale: 1 = *Strongly disagree* to 7 = *Strongly agree*)	Usunier and Valette-Florence (1994) (management)	Time submissiveness, characterized by a passive acceptance of external time constraints, negatively affects well-being and satisfaction with time management.
Time anxiety (dimension of time-styles psychometric scale)	Extent to which people feel overwhelmed or pressured by the demands of time	Looking at a typical day in my life, I think that most things I do have some purpose. I sometimes feel that the way I fill my time has little use or value. I am bored by my day-to-day activities. I often feel that my life is aimless, with no definite purpose. (7-point scale: 1 = *Strongly disagree* to 7 = *Strongly agree*)	Usunier and Valette-Florence (1994) (management)	Time anxiety, characterized by negative feelings and stress related to time management, is associated with negative effects on well-being, decision-making, and overall life satisfaction.
Time convenience (dimension of web atmospherics)	Extent to which consumers perceive a service or product as convenient and time saving in terms of time and effort required to obtain or use it	Using mobile transactions is an efficient way to manage my time. Using mobile transactions would be convenient for me. Using mobile transactions would allow me to save time. Using mobile services would make transactions less time consuming. (6-point scale: 1 = *Strongly disagree* to 6 = *Strongly agree*)	Mathwick et al. (2001) (retailing)	Time convenience, a component of experiential value, positively affects customer satisfaction and loyalty in catalog and internet shopping environments. Time-saving features and efficient online experiences are important for retailers to attract and retain customers.
Time scarcity	Perceived need to work more to meet expectations of consuming more within smaller blocks of time	When I'm doing something, I often think of something else.	Kaufman and Lane (1997)	Time scarcity significantly affects well-being, decision-making, and consumption behaviors.
		I more or less expect that nothing will go according to schedule.	Southerton (2003)	Time scarcity significantly affects daily life experiences and well-being.
		I seldom have any idea how much time I spent on things I did yesterday. (6-point scale: 1 = *Strongly disagree* to 6 = *Strongly agree*)	Kaufman-Scarborough and Lindquist (2003) (management)	Time scarcity, experienced as an ongoing issue, negatively affects well-being, decision-making, and overall quality of life.

(*continued on next page*)

Table 1 (*continued*)

Construct	Definition	Measurement items (Response scale)	Study (Domain)	Key Findings
Time consciousness	Extent to which consumers are aware of the passing of time and how they spend it	I rarely think about how I am using my time. I prefer to do things when I am ready, not at set deadlines. I prefer not thinking about how I use my time. I prefer not to be late for appointments. I like to make to-do lists to help sequence my activities. I usually have a time schedule for everything. I prefer to be able to plan in advance what tasks I need to do. I often combine tasks to optimally use my time. I usually feel pressed for time. (7-point scale: 1 = *Totally disagree* to 7 = *Totally agree*)	Kleijnen et al. (2007) (retailing)	Value creation in mobile service delivery is influenced by perceived usefulness, ease of use, and enjoyment. Time consciousness moderates these relationships, with highly time-conscious consumers placing more importance on perceived usefulness and less on enjoyment. Mobile service providers should tailor their offerings based on customers' time consciousness for optimal value creation.
Time perspective	Degree to which people consider the past, present, or future in their decision-making	My decisions are mostly influenced by people and things around me. If things don't get done on time, I don't worry about it. Before making a decision, I weigh the costs against the benefits. I make decisions on the spur of the moment. (5-point scale: 1 = *Very uncharacteristic* to 5 = *Very characteristic*)	Zimbardo and Boyd (2014) (management)	Time perspectives, assessed using the Zimbardo Time Perspective Inventory, influence various aspects of life, including decision-making, risk-taking, well-being, and interpersonal relationships
Omnichannel share of time (OSoT)	Customers' assessments of the proportion of time they allocate across the channels of an omnichannel retailer, relative to the total time spent engaging with other retailers.	See Table 2 for the newly developed scale.	This research (omnichannel retail marketing)	OSoT is positively associated with omnichannel customer experience and mediates its relationship with customer engagement (i.e., customer influence value, customer knowledge value).

1.4. Research gaps

Despite these insightful contributions regarding other time-related constructs, our literature review identifies critical gaps, related to the associations among a retailer's CX efforts, the proportion of time that customers spend with the retailer relative to competing retailers, and important managerial outcomes such as customers' intentions to engage with a retailer to co-create value (Kumar et al., 2010; Vargo et al., 2023). Understanding these associations is crucial, particularly for omnichannel retailing, because increasingly time constrained consumers (Van Nguyen et al., 2022) face growing demands from omnichannel retailers that strive to engage those customers across multiple channels (e.g., Adhi, 2021; Adobe Communications Team, 2022).

Furthermore, prior research rarely acknowledges explicitly that time spent does not necessarily correlate positively with CE. That is, more time spent might enhance customer value in some settings, such as by providing richer interactions and deeper engagement. Customers also might appreciate spending more time on a website that offers comprehensive product information and personalized recommendations. But in other contexts, additional time spent will detract from customer value, such as when customers experience long wait times or struggle to find relevant information, leading to frustration and dissatisfaction. Furthermore, despite some support for a positive link between omnichannel CX and CE (Rahman et al., 2025a), providing excellent CX across channels does not necessarily guarantee CE for a retailer. Consider the Australian market, where Woolworths, Coles, Aldi, and IGA are dominant omnichannel consumer goods retailers. If a customer chooses to spend most of their shopping time in Aldi's channels, other competing retailers might not be able to engage with that customer, despite their dedicated efforts to provide high-quality CX across their channels.

Time spent in a channel and OSoT also do not necessarily correlate with sales and SoW. A customer who spends considerable time browsing products on an e-commerce site without making a purchase might be comparing prices or seeking (unavailable) information. In this case, the time spent might indicate engagement, but it is unlikely to translate into immediate sales or increased SoW. Omnichannel retail customers often use different channels for different purposes, such that each channel could contribute to their overall

engagement. When visiting the retailer's website to gather detailed product information, the customer might devote substantial cognitive effort and time to the interaction; once they shift to soliciting reviews on social media channels, their time spent instead is likely to vary, from considerable time spent reading other customers' comments to quick assessments of aggregate star ratings. This very same customer could complete the purchase quickly in a physical store, where they need to spend relatively little time because they already have researched their choice completely. Thus, for omnichannel retailing, the key consideration is not the time spent in a single channel but rather the proportion of time a customer allocates across all the retailer's channels, relative to the total time spent engaging with other retailers. The more time they dedicate to a retailer, rather than its competitors, the greater the opportunities for them to co-create value.

Reflecting these relationships, we conceptualize the OSoT construct as a customer's assessment of the proportion of time they spend in all the key channels hosted by an omnichannel retailer, relative to the total time spent with competing retailers offering similar omnichannel experiences. An omnichannel customer journey involves many channels, across the pre-purchase, purchase, and post-purchase stages, and as we acknowledge, customers might spend more time in one channel (e.g., learning about a product on a website) than in another (e.g., receiving deals via mobile apps). Again, what is critical is the proportion of time a customer spends engaging with the omnichannel retailer across all its channels and whether, in the customer's judgment, that time is more or less than the total time spent with competing retailers, and then how that time allocation affects CE.

2. Conceptualization of the omnichannel share-of-time construct

To define OSoT and conceptualize its relationship with CX and CE, we use insights from prior theory and our literature review.

2.1. Definition

Customers' time is a valuable, limited resource that has a significant role in the value co-creation process they undergo in collaboration with retailers. Whereas traditional retailing involved only a couple of channels, such as physical store and website, omnichannel retailing involves multiple channels, including websites, social media, physical stores, mobile apps, online and printed catalogs, and newsletters. During the customer journey, customers can engage with an omnichannel retailer across channels for different purposes, including content consumption across channels to learn about product or services, purchase, and post reviews/comments in social media or blogs. Throughout this customer-retailer interactive process, value is co-created across channels in the form of direct engagement (e.g., purchase), and indirect engagement, which might take the form of positive comments that influence other customers or shared innovative ideas with retailers (Rahman et al., 2025a).

However, value through engagement cannot be created if customers do not expend some time on the tasks. A customer's time is a valuable, finite resource; therefore, similar omnichannel retailers offering competing omnichannel experiences compete for customers' limited time and attention across customer journey stages. Customers tend to combine their CX across different stages of their customer journey and across channels of an omnichannel retailer to form an overall OCX (Rahman et al., 2022b). During the customer journey, depending on the tasks required at a particular moment and customers' varying levels of interest, motivation, and purchase intentions, they spend different amounts of time in different channels (Lemon & Verhoef, 2016).

When a customer receives a deal for a product through a mobile app for example, they might take just a moment to check the details of the deal, but they need more time to read about the product on the retailer's website. People might spend substantial time on social media reading reviews and customer comments, then quickly cross-check prices in competitors' channels, before visiting a physical store to buy the product. After using the product, some customers might engage further with the retailer by offering suggestions for improvement through different channels. Therefore, it is important for an omnichannel retailer to understand the proportion of time customers spend across its key channels relative to those of competing retailers, and then use that understanding to devise an overall measure of their share of time in the omnichannel retail space.

We propose that such understanding is possible, because omnichannel retailers can capture customers' assessments of the proportion of time they spend in the retailers' key channels relative to the time spent in the channels of similar retailers offering competing omnichannel experiences. The channel-level assessments can be combined into a total score, which provides an assessment of the total time spent with the retailer relative to other retailers. Although the individual channel–level measures convey information about different types of channels, the underlying meaning of OSoT remains the same: the proportion of time allocated to a retailer, based on a customer's overall experience with that retailer. Thus, as noted previously, we define *omnichannel share of time (OSoT)* as customers' assessment of the proportion of time they allocate across all the channels of an omnichannel retailer, relative to the total time spent engaging with other retailers.

With this definition, we reiterate that OSoT is distinct from the absolute length or total amount of time a customer spends with a retailer. Spending a long time with a particular retailer does not necessarily entail excellent CX or positive sales performance (Hui et al., 2009). Rather, it could mean that it is difficult to locate products or essential information in stores or that customers must spend longer on calls or chats with inefficient customer service agents or unhelpful bots. Time-constrained consumers, who often are occupied by multiple digital media channels (Van Nguyen et al., 2022), also might prefer to spend minimal time on shopping tasks. For them, longer periods interacting in a channel would not imply excellent CX delivery. Therefore, rather than measuring total amount of time spent, our OSoT measure gauges customers' perceptual assessments of the relative proportion of time they allocate to an omnichannel retailer, compared with that allocated to similar retailers and experiences.

Nor is OSoT directly related to personal traits, qualities, or dispositions. Rather, it stems from retailer–consumer relationships and the retailer's relationship marketing strategies (Morgan & Hunt, 1994), including its provision of a seamless, engaging OCX across

channels (Lemon & Verhoef, 2016). Personal traits can influence customer behaviors, but OSoT captures engagement with a retailer's channels, not individual predispositions toward them. For example, deal-prone customers might explore more channels to find the best deals and produce a lower OSoT for any one provider. Because OSoT measures the aggregate time spent across channels of a specific retailer, it provides an aggregated view of customer engagement, effectively allowing them to capturing overall customer attention and time.

Another potentially related metric refers to customer-initiated, discrete visits, driven by customer needs or motivations (e.g., Bowman & Narayandas, 2001). Measures of customer-initiated visits reflect isolated instances of customer action. In contrast, OSoT offers a holistic view of customer engagement across the omnichannel retail channels that the customer uses, involving both the focal retailer and its competitors.

Finally, OSoT uniquely addresses a competitive dimension of engagement, by reflecting how a retailer's efforts contribute to sustained customer attention, relative to attention devoted to rivals. Because OSoT is a dynamic metric that constantly evolves and adapts to various factors that affect the CX, including ever-changing consumer preferences, market conditions, and marketing strategies' effectiveness, retailers must continuously monitor and adjust their efforts to maintain and enhance the CX, to ensure their OSoT remains competitive and accurately reflects their market position.

2.2. Nomological network: the distinct role of OSOT in the customer experience–customer engagement relationship

Customers are active participants in the creation of value, by integrating their resources (time, money, effort) with those of the retailer (quality service, perceived value). This process leads to higher CE. Engaged customers contribute both directly (purchases) and indirectly (influence on others, shared knowledge) to increase firm value (Kumar et al., 2010; van Doorn et al., 2010). Because CX is one of the key determinants of the time that a customer is willing to spend with a firm, relative to its competitors (Lemon & Verhoef, 2016), high-quality CX is crucial for boosting CE and value creation.

By providing excellent omnichannel CX (OCX) for their customers, omnichannel retailers also encourage ongoing customer interactions in multiple channels (e.g., physical stores, websites, social media, mobile apps) (Rahman et al., 2022b). In detail, a high-quality OCX offers accurate information (e.g., customer reviews), consistent product availability in both physical and online channels, personalized advertisements and promotions, courteous customer service, protection against payment fraud, prompt delivery, easy product exchanges, and easy-to-use loyalty or reward programs that span across channels. Such high-quality OCX should encourage customers to spend more time engaging with an omnichannel retailer relative to its competitors.

According to social exchange theory (Kieserling, 2018) and resource exchange theory (Foa, 1971), customers reciprocate and exchange resources when they derive benefits from their consumption experiences. Temporal resources, such as the time customers allocate to a retailer's channels, are a key part of these exchanges. Customers who perceive high-quality omnichannel customer experiences (OCX) are likely to allocate a greater share of their time (OSoT) to that retailer. In turn, OSoT should act as a precursor to indirect customer engagement (CE) behaviors, such as contributing knowledge and influencing other customers (Kumar et al., 2010; Pansari & Kumar, 2017). These indirect values, operationalized as customer knowledge value (CKV) and customer influence value (CIV), complement the direct value generated from purchases (Pansari & Kumar, 2017). We seek to validate OSoT empirically and within this nomological network by examining its predictive relationships with CIV and CKV. As illustrated in Fig. 4, we predict that customers who perceive high-quality OCX allocate a greater share of their time to the retailer, which increases both CIV and CKV (Rahman et al., 2022b; Tyrväinen et al., 2020). If we can establish these relationships, we can confirm the theoretical distinctiveness and practical relevance of OSoT, as a mediator between perceived OCX and indirect CE behaviors.

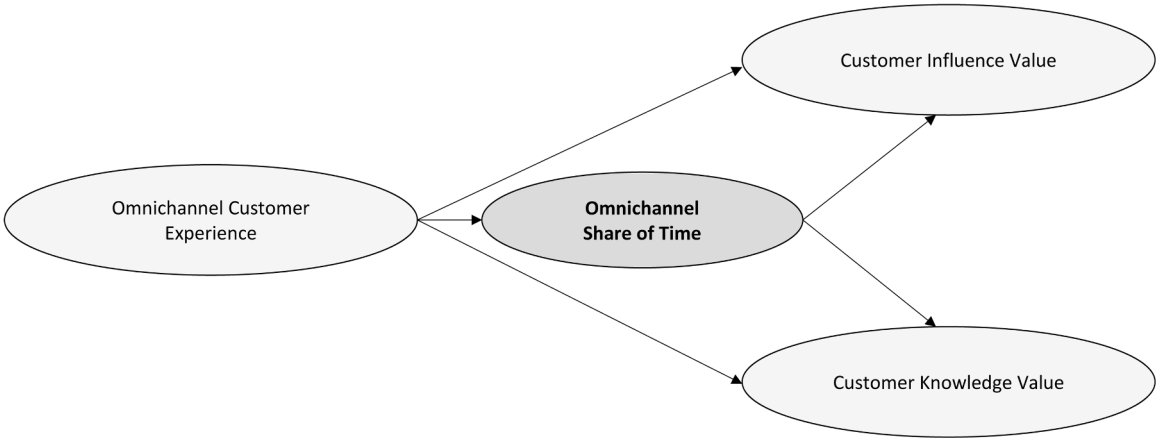

Fig. 4. Nomological network tested in Study 3.

3. Omnichannel share of time scale development and validation

3.1. Development of the measures

In Study 1a, we developed an online survey in Qualtrics, which we distributed to 21 omnichannel retail customers in four countries that feature substantial omnichannel retail activities: United States (8), United Kingdom (6), Australia (4), and Canada (3). We use the findings from Study 1a to assist with the development of scale items for the OSoT measure. That is, in Study 1a, we first provided a brief description of the nature of omnichannel retailers and asked the respondents to list a few omnichannel retailers that they buy from. Their responses, such as Walmart, Target, JCPenney, Macy's in the US, ASDA, Tesco, Waitrose in the UK, indicated their good understanding of omnichannel retailing.

We then asked respondents to list the main channels they use for interacting with and buying from omnichannel retailers. Additionally, we clarified that channel is also known as media and platforms, e.g., social media, mobile platform. The responses included physical stores, websites, social media, custom messaging, mobile apps, events, SMS, email, WhatsApp, call centers, Instagram, Facebook, Twitter, newsletters, and catalogs. Scholarly and industry data also indicate that customers mostly use physical stores, websites, mobile apps, and social media in omnichannel retailing (O'Connell, 2022; Rahman et al., 2022a).

Next, we used the insights from Study 1a, combined with our conceptualization of OSoT to be relative time spent at a given omnichannel retailers' channel to develop an initial pool of 13 statements to capture customers' OSoT (see Web Appendix W2). To ensure content validation, we also asked three marketing scholars with extensive publications in marketing and scale development domains to review these statements; this review led us to reduce the number of items from 13 to 8 (Web Appendix W2).

Next, we selected a response scale for the survey items that meets our objective (Krosnick & Presser, 2010) of estimating the time a respondent spends in an omnichannel retailer's channels, relative to the time spent in other, similar retailers offering competing omnichannel experiences. After discussion with the same three marketing scholars, we came to a consensus to use a seven-point, fully labeled Likert scale with the following responses: *Much more time, More time, Somewhat more time, About the same time, Somewhat less time, Less time*, and *Much less time*. These relative measures, compared with specific, quantitative time measurements, also offer practical benefits. It is difficult for consumers to engage in accurate time tracking (e.g., 20 versus 17 min). They generally do not record the exact time they spend in different channels and retailers, so requesting quantitative time estimations could create a risk of recall biases. A relative scale instead encourages respondents to make relatively easy, meaningful comparisons of a given omnichannel retailer, relative to other retailers, on the basis of their experiences. It also offers greater reliability, because it accommodates people's natural ability to compare and rank their behaviors, even without precise recall of absolute metrics. Prior literature also offers support; for example, one of the items in the well-established SoW uses a relative measure (see the Appendix).

To pretest the scale, in Study 1b, we pretested the newly developed items with the new response scale to 13 respondents (6 women) residing in the United States, using a brief online survey, in which we asked omnichannel customers to elaborate on the reasons for their response scores. They mostly stated that their responses represented their overall experience with the retailer. For example, in explaining why they selected *About the same time* (a score of 4, or midpoint, on the seven-point Likert scale), participants offered the following answers, which also illustrate the good balance of the response scale:

> About the same amount of time with a few retailers. It depends if they have the item or items I need at a price I'm willing to pay. If not, I'll check another retailer's channels.
>
> Walmart is my go-to when I buy essentials and groceries. But I'm always open to go to other retailers when I feel that I need something there that's not available in Walmart.
>
> I do use the mobile app quite a bit for ordering but no more or less than anywhere else.

These qualitative responses are consistent with the meaning of the eight items in the OSoT scale. Therefore, we retained all eight items for the model refinement, which we conducted using quantitative data. Finally, one of the authors explored the validity of the newly developed OSoT concept and the measure with two marketing managers.

We anticipated that OSoT would best be configured as a formative composite measure with multiple measurement items, where each item captures distinct aspects of customers' assessments of their time allocations across different channels in an omnichannel retail context. Unlike reflective measures, which assume that items are interchangeable, such that an average score suffices, formative measures assume each item contributes uniquely to the construct. This distinction is critical for OSoT because, as discussed, customers often allocate time differently depending on the channel. A customer might report spending significantly *more time* on a retailer's website for detailed product information (e.g., 6 on the 7-point Likert scale), *less time* on social media to check quick updates or star ratings (e.g., 2), and *about the same time* in physical stores for specific purchases (e.g., 4). Averaging these scores would misrepresent the unique contributions of each channel to the customer's overall engagement with the retailer. Instead, a summative approach, as provided by a formative configuration, provides a more accurate overall assessment.

3.2. Validation of the newly developed scale

To validate the newly developed scale, in Study 2, we distributed the online survey to a pool of omnichannel customers of retail goods in the United States and received 266 responses (47 % women). The respondent screening procedure and data collection methods mimicked those outlined by Rahman et al. (2022b). To ensure that OSoT was distinct from other, previously established constructs, we included four constructs that appear frequently in other omnichannel retail studies: OCX, trust, SoW, and customer

lifetime value (CLV) (e.g., Campo et al., 2021; Hossain et al., 2020; Rahman et al., 2022b). With OCX and trust, we seek to capture the quality and reliability of engagements across channels; these constructs provide a foundational understanding of customer perceptions that can influence time allocations. Whereas OSoT captures the temporal allocation of CE, the SoW and CLV constructs focus on financial aspects of CE. Distinguishing them is necessary to account for the multifaceted nature of CE, in the sense that time and money represent different, even if interconnected, value exchanges.

To measure these constructs, we used previously established scales (Appendix). For OCX, both a full scale with 36-item across nine dimensions and a 9-item condensed scale where each item represents one dimensions are available, and Rahman et al. (2022b) suggest that the condensed model is appropriate for studies in which OCX is not the focal construct. Accordingly, we adopted the 9-item condensed OCX measure, which also helps reduce the effort required to complete the survey. Also in line with Rahman et al. (2022b), we measured trust with four items on seven-point (agreement) Likert scales, and we gauged SoW with three items on five-point response scales. For CLV, we used Kumar and Pansari's (2016) measure, which asks respondents about the degree to which they agree or disagree with four statements describing the lifetime value of a purchase (Appendix).

3.2.1. Exploratory factor analysis

We conducted an exploratory factor analysis in SPSS to assess the parsimony and reliability of the factors in the OSoT scale. Varimax orthogonal rotation provides an appropriate technique, in that it aims to identify a simple scale with uncorrelated factors (Field, 2009; Hair et al., 2019a). After conducting the exploratory factor analysis several times (see Web Appendix W3), we eliminated four of the initial eight items, due to item loadings <0.40 (Hair et al., 2019a). The remaining four items met the criteria for a reliable scale (Cronbach's Alpha = 0.805) and thus were retained (Table 2). They provide a comprehensive, parsimonious view of customers' time allocation across an omnichannel retailer's diverse channels, and they capture unique dimensions of engagement. Specifically, not only do the items focus on different channels, such that the scale measures time spent in a holistic way, but they also reflect the unique contribution of each channel to OCX. For example, item OSoT1 focuses on physical store time and thus gauges in-person experiences that are critical for tactile product evaluations or personal interactions. Item OSoT2 deals with time on the retailer's website, which might be spent exploring detailed product descriptions or making purchases. With item OSoT3, we capture time spent on social media channels, which often involves engaging with reviews, promotional content, or community members. Finally, item OSoT4 include digital communication channels more broadly, such as mobile apps and emails, which cater to convenience-driven engagement through deal notifications, quick queries, and so forth. Together, these items reflect the multifaceted nature of modern retail omnichannel experiences across channels.

3.2.2. Construct validity tests using PLS-SEM

We used partial least squares structural equation modeling (PLS-SEM) with SmartPLS (Ringle et al., 2022) software to confirm the OSoT scale. Specifically, we relied on PLS-SEM to assess the reliability and validity of the newly developed scale, in which the OSoT construct comprises four composite variables representing specific time-related information across key channels in omnichannel retailing (Table 2). The PLS-SEM–based analysis supports the maximization of the total variance extracted from the exogenous variables and the retention of theoretically relevant items (Hair et al., 2020). In contrast, common factor analysis seeks only the common

Table 2
Omnichannel Share of Time (OSoT) measurement items.

Item	Measurement	EFA loading		PLS loading		*t*-value		α		CR		AVE	
		Study (2: n = 266; 3: n = 269)											
		2	3	2	3	2	3	2	3	2	3	2	3
OSoT1	Based on your overall experience with XYZ, relative to other retailers, how much time do you spend at XYZ's physical stores?	0.54	0.66	0.72	0.75	9.08	22.85	0.80	0.79	0.87	0.86	0.63	0.62
OSoT2	Based on your overall experience with XYZ, relative to other retailers, how much time do you spend on XYZ's website?	0.77	0.84	0.83	0.82	33.27	28.34						
OSoT3	Based on your overall experience with XYZ, relative to other retailers, how much time do you spend on XYZ's social media?	0.71	0.76	0.78	0.71	21.54	16.01						
OSoT4	Based on your overall experience with XYZ, relative to other retailers, how much time do you spend on XYZ's digital channels, including the mobile app, emails, and e-newsletters?	0.85	0.87	0.84	0.83	33.03	27.60						

Notes: EFA: exploratory factor analysis; PLS: partial least squares; α: Cronbach's alpha; CR: composite reliability; AVE: average variance extracted. Responses to all survey items were collected on a seven-point, fully labeled Likert scale: *Much more time, More time, Somewhat more time, About the same time, Somewhat less time, Less time*, and *Much less time.*

Before answering the questions, respondents received the following introductory statement: "The next questions are about relatively how much more or less time you spend across competing omnichannel retailers' channels. Based on your overall experience with XYZ across channels, relative to other retailers, please indicate to what extent you spend time with XYZ.".

XYZ is a placeholder for the name of an omnichannel retailer, such as Walmart.

The survey items appeared in random order, and respondents answered one at a time (no matrix table).

variance between the items and the construct, such that low estimates might suggest item elimination, which can undermine the conceptual meaning of the construct (Hair & Sarstedt, 2019). In this sense, PLS-SEM is a more suitable method to produce determinant construct scores; it has been used in prior retail studies (e.g., Rahman et al., 2025b) and enables us to assess the reliability and validity of the scale accurately.

According to the PLS-SEM results, the outer loadings of the OSoT variables are all higher than 0.7 ($t > 1.96$) (Hair et al., 2011). The squared values of the individual indicator loadings demonstrate adequate shared variance between each indicator and its corresponding construct. Next, we assessed construct reliability by estimating Cronbach's alpha and composite reliability values. All of them exceed 0.70, indicating the satisfactory internal consistency of the scale (Hair et al., 2019b). We also confirm the convergent validity of OSoT, because the average variance extracted is greater than 0.50.

The empirical data support our formative configuration of OSoT, in that the construct captures unique and non-redundant contributions from the individual indicators. The inter-item correlation matrix shows that the correlations between the four indicators are moderate and do not indicate multicollinearity concerns. For example, the correlations between OSoT1 and the other three items range from 0.38 to 0.46; OSoT4 shows similar moderate relationships with all three other indicators (e.g., 0.65 with OSoT3, 0.64 with OSoT2). As these values confirm, the items are related but also capture distinct facets of customer time allocation across different channels (Hair et al., 2020). The variance inflation factor (VIF) values for all items fall below the commonly accepted threshold of 3.0, in further support of the absence of multicollinearity (Hair et al., 2020). Specifically, the highest VIF value we find is 2.26, for OSoT4, so we have evidence of the independence of the indicators (Hair et al., 2020) and confirmation of our use of a formative configuration. Each item uniquely contributes to the overall construct, without redundancy. Finally, a confirmatory tetrad analysis (CTA-PLS; Gudergan et al., 2008) reconfirms the formative configuration too (e.g., tetrad 2: $t = 2.51$, 95 % confidence interval [CI] [0.07, 0.51], $p = .01$).

3.2.3. Distinctiveness of OSOT

We use the same procedures and criteria to assess the reliability and validity of the other study constructs (OCX, CLV, SoW, and trust), all of which meet the cutoff values. Because the heterotrait–monotrait ratio (HTMT) values between OSoT and the other constructs are all <0.90 (Table 3), we note excellent discriminant validity. By establishing the discriminant validity of OSoT relative to the other constructs, we can confirm that OSoT offers a novel lens for examining customer engagement.

3.4. Replication of scale validation tests

To retest the reliability and validity test of the scale, we collected a separate set of data (Study 3) from an online panel ($n = 269$). The OSoT indicators show outer loadings of 0.75–0.86, except for OSoT1 (0.66), which still exceeds the threshold of 0.50. All *t*-statistics are well above 1.96, such that each indicator significantly loads on its intended construct. The squared values of the indicator loadings also confirm indicator reliability. The composite reliability and Cronbach's alpha values of 0.86 and 0.79, respectively, establish construct reliability, and the average variance extracted of 0.62 signals satisfactory convergent validity (Hair et al., 2020). In addition, Study 3 reaffirms the formative configuration of OSoT. The interitem correlations are moderate (e.g., OSoT1's correlations range between 0.35 and 0.41), and the VIF values range from 1.28 (OSoT1) to 2.29 (OSoT4), below the 3.0 threshold. Thus, we find no evidence of multicollinearity concerns.

To test the discriminant validity of OSoT relative to the other established time-related constructs, we added two such constructs to the study: time consciousness (TIMC) and time pressure (TIMP). Establishing discriminant validity relative to these constructs is essential to ensure that OSoT captures a unique aspect of customer behavior—time allocation across channels—rather than merely reflecting general attitudes or constraints related to time. To assess TIMC, we include four items related to how a person perceives and uses time (Kleijnen et al., 2007). For TIMP, we rely on three items, reflecting the degree to which the person is under time pressure (Konuş et al., 2008) (Appendix). The HTMT values for time consciousness and OSoT and for time pressure and OSoT are 0.08 and 0.09, respectively (Table 4). Thus, we can confirm discriminant validity among the constructs and also demonstrate that OSoT is distinct from established time-related constructs.

3.4.1. Results of nomological validity testing

We tested the nomological validity of the OSoT construct using SmartPLS, which can deal with complex mediation models (Sarstedt et al., 2016). Using the Study 3 data set, we checked the mediating effect of OSoT on the OCX→CIV and OCX→CKV relationships (Fig. 4). Both OCX and OSoT constructs were configured formatively in SmartPLS. The results show that OCX has a direct effect on CIV

Table 3
HTMT-based discriminant validity, Study 2.

Construct	OSoT	OCX	CLV	SoW
OCX	0.32			
CLV	0.46	0.81		
SoW	0.58	0.16	0.35	
Trust	0.36	0.85	0.81	0.21

Notes: PLS: partial least squares; HTMT: heterotrait–monotrait ratio; OSoT: share of time; OCX: omnichannel customer experience; CLV: customer lifetime value; SoW: share of wallet.

Table 4
HTMT-based discriminant validity, Study 3.

Constructs	OSoT	OCX	CIV	CKV	Trust	TIMC
OCX	0.33					
CIV	0.57	0.46				
CKV	0.50	0.25	0.66			
Trust	0.43	0.79	0.5	0.31		
TIMC	0.08	0.09	0.06	0.04	0.04	
TIMP	0.09	0.07	0.1	0.04	0.07	0.55

Notes: PLS: partial least squares; HTMT: heterotrait–monotrait ratio; OSoT: share of time; OCX: omnichannel customer experience; CIV: customer influence value; CKV: customer knowledge value; TIMC: time consciousness; TIMP: time pressure.

($\beta = 0.42$, $p < .001$, $t = 8.72$) and an indirect effect on CIV through the mediating effect of OSoT ($\beta = 0.12$, $p < .001$, $t = 4.19$). Furthermore, OCX has a direct effect on CKV ($\beta = 0.21$, $p = .001$, $t = 3.34$) and an indirect effect on CKV through the mediating effect of OSoT ($\beta = 0.13$, $p < .001$, $t = 4.23$). These results confirm the mediating effect of OSoT in the OCX→CIV and OCX→CKV relationships (Table 5).

To assess the predictive relevance of OSoT, we estimated the path model with and without OSoT. When OSoT was not included as a mediator, the adjusted R^2 values of CIV and CKV were 0.29 and 0.12, respectively. Including OSoT as a mediator increased the adjusted R^2 values of CIV and CKV to 0.38 and 0.22, respectively. That is, OCX exerts a stronger effect on CIV and CKV when OSoT is greater, and OSoT emerges as one of the mechanisms driving CIV and CKV. We also used PLSpredict with 10-fold cross-validation and 10 repetitions to assess the predictive relevance of OSoT (Hair et al., 2019b). The case-level predictions show that all three dependent variables produce Q^2 values greater than 0 ($Q^2_{OSoT} = 0.09$, $Q^2_{CIV} = 0.28$, $Q^2_{CKV} = 0.08$), confirming the predictive relevance of our model. To check for potential subgroup differences (i.e., observed heterogeneity) in the data set, we conducted multigroup analyses for male (53 %) and female (46 %) participants (1 % reported "other") and for younger ($\leq$ 42 years; 47 %) and older ($>$ 42 years; 53 %) respondents (Hair et al., 2024). With a permutation test, we assess differences in path coefficients between groups. The p-values are all above 0.05, and the CIs all include 0, suggesting no difference in model estimates based on gender or age.

3.4.2. Common method bias and endogeneity tests

To ensure the robustness of our findings, we conducted additional tests that involved VIFs, as well as Gaussian copula tests and marker variables. Specifically, we calculated VIF values using SmartPLS to check for multicollinearity and determine that, across all key relationships in our model, the VIF values fall below the recommended threshold of 3 (Hair et al., 2024) (Web Appendix W4). For example, in Study 3, the VIF values for the paths OSoT → CIV and OSoT → CKV are both 1.13, and the OCX → OSoT path shows a VIF value of 1.00. Therefore, multicollinearity is unlikely to confound our findings.

A Gaussian copula approach to testing for endogeneity is suitable for SEM involving latent variables (Becker et al., 2022). As detailed in Web Appendix W5, we ran six models to test for the potential for endogeneity across the key constructs. None of the Gaussian copula path coefficients is statistically significant at the 0.05 level, and all t-values are below the critical threshold of 1.96. For example, the GC(OCX) → CIV path produced a t-statistic of 1.75 ($p = .08$), and GC(OSoT) → CIV resulted in a t-statistic of 0.79 ($p = .43$). These results offer evidence that endogeneity is not a significant threat to the validity of our model.

Finally, following established procedures (MacKenzie & Podsakoff, 2012), we included social desirability, a theoretically unrelated marker variable that Rahman et al. (2022b) also used, in Studies 2 and 3. The correlation tests indicate no significant association between the marker variable and OSoT, further mitigating concerns of common method bias. Table 2 summarizes the OSoT scale measurement items and the results of the robustness tests.

3.5. Examining the influence of positive, neutral, and negative OCX on OSOT

To establish the robustness and applicability of the newly developed OSoT scale for omnichannel retail management, we test its sensitivity to varying levels of CX. Specifically, in Study 4 we adopt a randomized, between-subjects experimental design and consider if and how positive, neutral, and negative OCX scenarios might influence OSoT. We developed three scenarios (Web Appendix W6) and randomly assigned them to respondents through a Qualtrics online survey conducted in December 2024. The 252 respondents, all residing in the United States, were recruited from an online panel provider. Each participant considered one scenario and answered the

Table 5
Nomological validity testing results.

Effects	Direct effect				Indirect effect (mediator: OSoT)				Outcome
	β	95 % CI	t	p	β	95 % CI	t	p	
OCX→CIV	0.42	0.33, 0.52	8.72	0.000	0.12	0.07, 0.18	4.19	0.000	OSoT mediates OCX→CIV relation.
OCX→CKV	0.21	0.10, 0.35	3.34	0.001	0.13	0.08, 0.20	4.23	0.000	OSoT mediates OCX→CKV relation.

Note: OSoT: share of time; OCX: omnichannel customer experience; CIV: customer influence value; CKV: customer knowledge value. SmartPLS parameters: complete bootstrapping with 10,000 subsamples, test type = two-tailed, significance level = 0.05, estimated using the latent variable scores of the constructs. Sample size: $n = 269$.

survey questions, including a manipulation check. To enhance response quality, the scenario page featured a one-minute timer, and participants could not skip directly to the survey questions without reading the scenario. A check at the end of the survey also asked respondents to recall and type the name of the hypothetical retailer presented in the scenario.

To verify that respondents recognized the intended variations in OCX levels across the three experimental groups, we had them rate the OCX manipulation on a 7-point scale. With a one-way analysis of variance (ANOVA), we identify a significant effect of OCX levels ($F(2, 249) = 268.44$, $p < .001$): The groups differed, and the manipulation worked as intended. Specifically, participants in the positive OCX group provided the highest ratings ($M = 6.51$, SD = 0.62), followed by the neutral OCX group ($M = 2.92$, SD = 1.55) and then the negative OCX group ($M = 2.16$, SD = 1.60). Post hoc analyses confirmed that all pairwise differences were statistically significant ($p < .001$).

Next, as another manipulation check, we tested for the sensitivity of the OSoT scale to varying levels of OCX (positive, neutral, negative), using another one-way ANOVA. It shows a significant effect of OCX on OSoT ($F(2, 249) = 197.57$, $p < .001$), with a large effect size ($\eta^2 = 0.61$, 95 % CI [.54, 0.67]). In post hoc comparisons using Tukey's HSD test (Web Appendix W6), all the group differences are statistically significant. In detail, participants exposed to positive OCX scenarios reported significantly higher OSoT scores ($M = 5.20$, SD = 0.88) than those exposed to neutral OCX ($M = 3.00$, SD = 1.15; mean difference = 2.20, $p < .001$, 95 % CI [1.83, 2.57]) or negative ($M = 2.12$, SD = 1.11; mean difference = 3.08, $p < .001$, 95 % CI [2.70, 3.46]) OCX. The neutral OCX scenarios also resulted in higher OSoT scores than the negative ones (mean difference = 0.88, $p < .001$, 95 % CI [.49, 1.27]). A homogeneous subsets analysis confirms that each OCX level forms a distinct group, with non-overlapping OSoT means. Thus, we validate the sensitivity of the OSoT scale to varying CX levels and offer support for its robustness in omnichannel retail contexts.

4. Implications for research and practice

4.1. Research implications

In response to recent calls for insights on rapidly evolving retail and channel practices (Elsevier, 2023), we introduce the concept of omnichannel share of time (OSoT), which offers a novel perspective for understanding consumer engagement with omnichannel retailers. Our research reflects an empirics-first approach (Golder et al., 2023), as advocated in calls to focus on a contemporary retail phenomenon with real-world relevance. Here, we consider the time that customers allocate in practice to a specific omnichannel retailer (or brand), compared with the time they allocate to its competitors. In four studies, employing mixed methods, we achieve an empirically validated OSoT scale. For consumer goods omnichannel retailing, our empirical findings indicate that understanding and measuring OSoT represent essential tasks, if the goal is to evaluate the real-world effectiveness of marketing and CE strategies in omnichannel retailing. This study offers initial insights into the OSoT concept and how scholars can use it to investigate the effects of strategic marketing on the time customers actually spend in key channels and thus the implications for value creation for retailers. This study makes several key contributions to retail literature.

First, it fills a gap and advances CX research by defining and validating a novel time-related construct in an omnichannel retailing context. As a quantifiable metric, OSoT can capture the time a customer spends in an omnichannel retailer's channels, relative to the time spent with competitors; it provides a relevant foundation for continued research. Because sensitive data (e.g., duration of website sessions, app usage) generally are not shared by retailers, any single retailer cannot know how much time customers are spending with its competitors, which limits its analytical capabilities. We overcome this challenge by proposing a robust, easy-to-administer, survey-based OSoT measure with validated psychometric properties.

Second, our research contributes to discourses about the relevance of time constructs in retailing and marketing research. Time previously has been recognized as a critical influence on consumer behavior and decision-making processes, but the OSoT concept offers a new way to conceptualize and measure time in omnichannel retailing contexts. We highlight the need to consider the role of time during the omnichannel customer journey; it shapes CX and customer–retailer relationships. By presenting OSoT as a key indicator for understanding and analyzing CE in omnichannel retailing, this study also enriches discourses on CE in omnichannel retailing. With our validated OSoT measure, researchers and practitioners can identify the time spent by customers in different channels and thus gain a more comprehensive understanding of the effect of CX on CE.

Third, the OSoT scale represents a novel construct that measures proportional time allocations. As we establish, it is distinct from related constructs, such as time consciousness and time pressure. Rather than people's mindfulness of time or any strain associated with time scarcity, OSoT focuses on how people distribute their time across various channels or activities. Empirical tests, including discriminant validity analyses, confirm the independence of these scales and underscore the unique ability of OSoT to capture a specific CX dimension. Due to its distinctiveness, OSoT also offers strong potential to complement existing time-related constructs in research and practice.

In a related sense, it is important to recognize that CX is not the sole driver of sales. Other factors, such as brand reputation and marketing efforts across channels, strongly influence customers' purchase decisions. Even if a customer enjoys a positive experience with a retailer, they might choose to purchase from a more proximally located competitor. Although high-quality CX can enhance customer engagement and contribute to sales, it is not sufficient to predict purchasing behavior, so we advocate for considering OSoT alongside other critical factors. Moreover, the share of time scale is flexible, and it can be customized to capture channel specific performances, e.g., see Rahman et al., 2025b p.12; share of time in the metaverse context with three adopted items.

4.2. Practical implications

These results provide practical guidance for omnichannel retail managers, related to OSoT but also to CX and CE. Using advanced data collection and analytical techniques, retailers can collect data about the amount of time customers spend in their channels and triangulate these data with CX and sales data. Such analyses cannot specify the proportion of time that customers spend with its competitors though, which also has potential effects on the focal retailer's CE performance (sales, CIV, CKV). For example, CE performance may decrease in a particular period, despite excellent CX across the retailer's channels, because competitors have managed to attract a greater share of customers' time by providing engaging cross-channel content (e.g., advertisements in various media, deals in apps, effective catalogs, email distribution) that provokes enhanced CE. Similarly, a retailer might observe a spike in value from customers, through CIV and CKV engagement, but fail to understand the cause. In both cases, OSoT can help explain the behaviors, by differentiating high versus low OSoT periods. Managers should prioritize CE activities in high OSoT periods. With a measure of the proportion of time spent with a retailer relative to its competitors, managers can better predict CE performance and where customers are likely to allocate their time.

In this study, we derived four OSoT items, based on rigorous empirical analyses. Constituting a formative (i.e., summative) scale, these four items collectively define the construct, and each item contributes to capturing the holistic measure of time allocations across an omnichannel retailer's key channels, such that removing any item would alter the construct's conceptual meaning. Thus, the validated four-item scale should not be reduced. However, the item pool for OSoT that we developed for this study (Web Appendix W2) reflects the flexibility of this formative scale to accommodate additional items, tailored to specific channels that may be important for a particular retailer and context. Managers could adapt the scale to their specific settings and focus on the channels most relevant to their existing strategies. If a retailer's omnichannel mix primarily relies on mobile app engagement for example, it might include more items related to mobile app usage from the initial item pool. By allowing for such customization, the formatively configured OSoT scale offers both flexibility and relevance, enabling managers to derive actionable insights tailored to their unique operational needs.

As we have emphasized throughout, OSoT adds unique value, beyond direct measures of concepts like SoW, CE, OCX, or customer satisfaction, because it provides insights into the relative proportion of time spent with a retailer versus its competitors. Retailers can use this information to understand the competitive landscape and the effectiveness of their efforts to capture customer attention. With OSoT, they also gain a dynamic, competitive perspective that is not limited to specific touchpoints or transactions. Instead, OSoT encompasses the entire customer journey across channels, so retailers can use it to identify patterns and trends in CE that might not be evident from other measures, such as survey-based satisfaction scores. By integrating the various measures—OSoT but also SoW, CE, CX, and customer satisfaction—retailers can gain a holistic understanding of their performance and competitive position, identify strengths and areas for improvement, optimize their omnichannel strategies, and enhance overall CE and loyalty. Their ability to respond proactively to the findings also might support sustained competitive advantages in fast-paced retail environments.

5. Directions for further research

This study offers a novel and comprehensive conceptualization of OSoT and its role in omnichannel retailing. Given the profound changes reshaping retail landscapes, we believe these findings can open new avenues for advancing the understanding and management of customer engagement in time-competitive environments. To support researchers in applying and extending the OSoT concept and measure, we outline several promising directions for future inquiry.

First, OSoT could be examined at a more granular, channel-specific level, as customer behaviors vary significantly across channels. Customizing the 'share of time' scale items to reflect specific channels may provide deeper insights (e.g., see Rahman et al., 2025b, p.12; share of time in the metaverse context). Researchers also could explore drivers of higher OSoT within particular channels. Second, the temporal dynamics of OSoT merit investigation. For example, does OSoT change over time, or during different relationship stages (Rahman et al., 2025b)? Third, OSoT could be studied across customer segments. Demographic factors such as age, location, or income may influence time allocation—e.g., younger customers may prefer mobile apps and social media, while older customers may favour physical stores or desktop websites. Segment-based analyses could inform channel-specific strategies for different customer groups.

Fourth, global variations in shopping habits, technology use, and customer expectations suggest that examining OSoT across cultural contexts could generate valuable insights. Shopping behaviors and channel preferences differ across cultures (Hofstede, 2001), and personalized omnichannel experiences may influence OSoT differently in collectivist versus individualist societies (Triandis, 1995). Technology adoption also varies: mobile-first shopping in India may increase app-based OSoT, while Germany's strict data privacy norms may reduce digital OSoT (Secure Privacy, 2024; Statista, 2024). Regional events, such as China's Singles' Day versus Western Black Friday, further highlight differences in time allocation patterns (McKinsey & Company, 2018).

Fifth, emerging technologies such as the metaverse, augmented and virtual reality, and artificial intelligence are increasingly integrated into omnichannel environments and likely influence OSoT. Exploring their impact could deepen understanding of CE (Rahman et al., 2025a). For instance, do immersive VR experiences extend engagement more than traditional channels? Can AI-driven personalization shift time allocation across touchpoints? Such research could test OSoT's applicability in tech-enabled contexts and offer insights for innovation-focused managers.

Sixth, future research could explore the interplay between OSoT and consumer psychology. The perceived value of time spent with a retailer likely shapes OSoT by influencing allocation decisions. Psychological and emotional factors such as trust, satisfaction, and convenience may contribute. For example, a sense of accomplishment or enjoyment could increase OSoT, while cognitive effort or usability issues may reduce it. Research could examine trade-offs customers make across retailers and channels, and how positive OCX

versus inefficiencies affect OSoT. These dynamics would clarify both the theoretical and practical implications of OSoT in omnichannel settings.

Seventh, Seventh, because it captures time allocations across different channel combinations, OSoT can generate actionable insights in various domains where optimizing engagement and co-creating value are priorities. While this study focuses on retailing, OSoT can be tailored for other sectors. In banking, mobile apps and websites often replace physical branches. In education, it can track student engagement across classrooms, online platforms, and hybrid modes. In healthcare, it may capture patients' time across in-person visits, telehealth, and app use. In entertainment, OSoT can reflect how audiences divide time among streaming, live events, and gaming. These examples highlight OSoT's flexibility, as measures can be customized for different contexts and validated before application. Our study offers guidance for such efforts.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.jretai.2025.04.001.

Appendix. Measures used in the studies for nomological validity tests

Omnichannel customer experience (Rahman et al., 2022b)
- Customer reviews of XYZ across all channels are accurate.
- XYZ has a good selection of products across all channels.
- The advertisements and promotions that XYZ sends to me across all channels are tailored to my situation.
- XYZ provides courteous customer service across all channels.
- XYZ's product availability at physical stores is consistent with what I find on their online channels.
- XYZ protects me against payment fraud across all channels.
- XYZ always sends out the items ordered.
- XYZ allows me to exchange products easily.
- XYZ's loyalty/reward program is easy to use across all channels.

Customer influence value (CIV) (Rahman et al., 2025a; Kumar & Pansari, 2016)
- I actively discuss XYZ on various channels.
- I love talking to others about my experience with XYZ.
- I discuss the benefits that I get from XYZ with others.
- I feel I am a part of XYZ and mention it in my conversations.

Customer knowledge value (CKV) (Rahman et al., 2025a; Kumar & Pansari, 2016)
- I provide feedback about my experiences with XYZ to them.
- I provide suggestions for improving the performance of XYZ.
- I provide feedback/suggestions to XYZ about the new products and services.
- I provide feedback/suggestions to XYZ for developing new products and services.

Share of wallet (SoW) (Rahman et al., 2022b)
- Of the last five times you selected a retailer to buy from, how many times did you select XYZ? Responses: 5, 4, 3, 2, 1
- Based on your total expenditure with all retailers in the past 3 months, what percentage of purchase was made from XYZ? Responses: (a) 81 %–100 % (b) 61 %–80 % (c) 41 %–60 % (d) 21 %–40 % (e) 0 %–20 %
- How frequently do you buy from XYZ compared to other retailers that you use? Responses: (a) Always (b) Often (c) Sometimes (d) Rarely (e) Never

Customer lifetime value (CLV) (Rahman et al., 2025a; Kumar & Pansari, 2016)
- I will continue doing business with XYZ in the near future.
- My purchases with XYZ make me content.
- I get my money's worth when I purchase from XYZ.
- Interacting with XYZ makes me happy.

Trust (Rahman et al., 2022b)
- XYZ reminds me of someone who's competent and knows what he/she is doing.
- XYZ has a name you can trust.
- XYZ's product and service claims are believable.
- Over time, my experiences with XYZ have led me to expect it to keep its promises, no more and no less.

Time consciousness (TIMC) (Kleijnen et al., 2007)
- I always think about how I'm using my time.
- I prefer to do things at set deadlines.
- I usually have a time schedule for everything.
- I prefer to be able to plan in advance what tasks I need to do.

Time pressure (TIMP) (Konuş et al., 2008)

(*continued on next page*)

(*continued*)

- I am always busy.
- I usually find myself pressed for time.
- I am always under time pressure.

Notes: XYZ was replaced with the name of an omnichannel retailer selected by respondents. The responses appear on seven-point Likert scales, "Strongly Agree" to "Strongly Disagree," unless otherwise noted.

References

Adhi, Praveen, Hough, Gerry, Calais, Sebastien, Lange, Tim, & Lenzen, Caroline (2021). *Reimagining the role of physical stores in an omnichannel distribution network*. https://www.mckinsey.com/industries/retail/our-insights/reimagining-the-role-of-physical-stores-in-an-omnichannel-distribution-network (last accessed 19 July 2023).

Adobe Communications Team. (2022). *Learn about Omnichannel marketing—What it is, why it's important, and how to start*. https://business.adobe.com/blog/basics/omnichannel-marketing-guide (last accessed 21 June 2023).

Beard, Nicolette V. (2025). *Comprehensive guide for omnichannel retail success for 2025*. https://www.bigcommerce.com/articles/omnichannel-retail/ (last accessed 3 April 2025).

Becker, J.-M., Proksch, D., & Ringle, C. M. (2022). Revisiting Gaussian copulas to handle endogenous regressors. *Journal of the Academy of Marketing Science, 50*(1), 46–66. https://doi.org/10.1007/s11747-021-00805-y

Blut, Marcus, Viktorija, Kulikovskaja, Marco, Hubert, Christian, Brock, & Dhruv, Grewal (2023). Effectiveness of engagement initiatives across engagement platforms: A meta-analysis. *Journal of the Academy of Marketing Science, 51*(5), 941–965. https://doi.org/10.1007/s11747-023-00925-7

Bond, M. J., & Feather, N. T. (1988). Some correlates of structure and purpose in the use of time. *Journal of Personality and Social Psychology, 55*(2), 321–329.

Bowman, Douglas, & Narayandas, Das (2001). Managing customer-initiated contacts with manufacturers: The impact on share of category requirements and word-of-mouth behavior. *Journal of Marketing Research, 38*(3), 40–56. https://doi.org/10.1509/jmkr.38.3.281.18863

Britton, Bruce K., & Tesser, Abraham (1991). Effects of time-management practices on college grades. *Journal of Educational Psychology, 83*(3), 405–410.

Campo, Katia, Lamey, Lien, Breugelmans, Els, & Melis, Kristina (2021). Going online for groceries: Drivers of category-level share of wallet expansion. *Journal of Retailing, 97*(2), 154–172.

Cardona, Nancy (2025). *Omnichannel statistics for retailers and marketers (2025)*. https://www.uniformmarket.com/statistics/omnichannel-shopping-statistics (last Accessed 3 April 2025).

Chib, Shipra (2023). *Omnichannel retail marketing: The what, why and how*. https://www.moengage.com/blog/what-is-omnichannel-retail-marketing/ (last Accessed 13 July 2023).

Elsevier. (2023). First Insights in Retailing: A new section in the Journal of Retailing. *Journal of Retailing*. https://www.journals.elsevier.com/journal-of-retailing/call-for-papers/first-insights-in-retailing-a-new-section-in-the-journal-of-retailing (last Accessed 11 July 2023).

Feather, N. T., & Bond, M. J. (1983). Time structure and purposeful activity among employed and unemployed university graduates. *Journal of Occupational Psychology, 56*(3), 241–254.

Field, Andy (2009). *Discovering statistics using SPSS*. Sage Publications.

Foa, Uriel G. (1971). Interpersonal and economic resources: Their structure and differential properties offer new insight into problems of modern society. *Science, 171*(3969), 345–351.

Forrester. (2025). *Predictions 2025: Hard-won insights drive growth*. https://www.forrester.com/predictions/ (last Accessed 4 April 2025).

Gahler, Marcus, Klein, Jan F., & Paul, Michael (2023). Customer experience: Conceptualization, measurement, and application in omnichannel environments. *Journal of Service Research, 26*(2), 191–211.

Golder, Peter N., Dekimpe, Marnik G., An, Jake T., van Heerde, Harald J., Kim, Darren S. U., & Alba, Joseph W. (2023). Learning from data: An empirics-first approach to relevant knowledge generation. *Journal of Marketing, 87*(3), 319–336.

Grewal, D., Roggeveen, A. L., Sisodia, R., & Nordfält, J. (2017). Enhancing customer engagement through consciousness. *Journal of Retailing, 93*(1), 55–64.

Guttmann, A. (2023). *Time spent with digital vs. Traditional Media in the United States from 2011 to 2022*. https://www.statista.com/statistics/565628/time-spent-digital-traditional-media-usa/ (last Accessed 6 July 2023).

Gudergan, S. P., Ringle, C. M., Wende, S., & Will, A. (2008). Confirmatory tetrad analysis in PLS path modeling. *Journal of Business Research, 61*(12), 1238–1249.

Hair, Joseph F., Black, William C., Babin, Barry J., & Anderson, Rolph E. (2019a). *Multivariate data analysis* (8th ed.). Cengage.

Hair, Joe F., Howard, Matt C., & Nitzl, Christian (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *Journal of Business Research, 109*(2020), 101–110.

Hair, Joe F., Ringle, Christian M., & Sarstedt, Marko (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice, 19*(22), 139–152.

Hair, Joseph F., Risher, Jeffrey J., Sarstedt, Marko, & Ringle, Christian M. (2019b). When to use and how to report the results of PLS-SEM. *European Business Review, 31*(1), 2–24.

Hair, Joseph F., & Sarstedt, Marko (2019). Factors versus composites: Guidelines for choosing the right structural equation modeling method. *Project Management Journal, 50*(6), 619–624.

Hair, J. F., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2024). *Advanced issues in partial least squares structural equation modeling (PLS-SEM)* (2nd ed.). Sage.

Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations*. SAGE Publications.

Hollebeek, Linda D., Glynn, Mark S., & Brodie, Roderick J. (2014). Consumer brand engagement in social Media. *Journal of Interactive Marketing, 28*(2), 149–165.

Hossain, Tasmin M. Taufique, Akter, Shahriar, Kattiyapornpong, Uraiporn, & Dwivedi, Yogesh (2020). Reconceptualizing integration quality dynamics for omnichannel marketing. *Industrial Marketing Management, 87*(2020), 225–241.

Hui, Sam K., Bradlow, Eric T., & Fader, Peter S. (2009). Testing behavioral hypotheses using an integrated model of grocery store shopping path and purchase behavior. *Journal of Consumer Research, 36*(3), 478–493.

Hwang, Mark I. (1994). Decision making under time pressure: A model for information systems research. *Information & Management, 27*(4), 197–203.

Kaufman, C. F., & Lane, P. M. (1997). Too much and Too little time: A proposed time supply scale. In D. Thorne LeClair, & M. Hartline (Eds.), *Proceedings of the 1997 Winter Marketing Educators' Conference* (pp. 284–290). American Marketing Association.

Kaufman-Scarborough, Carol, & Lindquist, Jay D. (2003). Understanding the experience of time scarcity. *Time & Society, 12*(2–3), 349–370.

Kieserling, André (2018). Blau (1964): Exchange and power in social life. In Boris Holzer, & Christian Stegbauer (Eds.), *Schlüsselwerke der netzwerkforschung* (pp. 51–54). Springer VS.

Kleijnen, Mirella, Ruyter, Ko de, & Wetzels, Martin (2007). An assessment of value creation in mobile service delivery and the moderating role of time consciousness. *Journal of Retailing, 83*(1), 33–46.

Konuş, Umut, Verhoef, Peter C., & Neslin, Scott A. (2008). Multichannel shopper segments and their covariates. *Journal of Retailing, 84*(4), 398–413.

Krosnick, Jon A., & Presser, Stanley (2010). Question and questionnaire design. In Peter V. Marsden, & James D. Wright (Eds.), *Handbook of survey research* (2nd ed., pp. 263–313). Bingley.

Kubler, Kyle (2023). Influencers and the attention economy: The meaning and management of attention on Instagram. *Journal of Marketing Management, 39*(11–12), 965–981.

Kumar, V., Aksoy, Lerzan, Donkers, Bas, Venkatesan, Rajkumar, Wiesel, Thorsten, & Tillmanns, Sebastian (2010). Undervalued or overvalued customers: Capturing total customer engagement value. *Journal of Service Research, 13*(3), 297–310.

Kumar, V., & Pansari, Anita (2016). Competitive advantage through engagement. *Journal of Marketing Research, 53*(4), 497–514.

Lemon, Katherine N., & Verhoef, Peter C. (2016). Understanding customer experience throughout the customer journey. *Journal of Marketing, 80*(6), 69–96.

Lesser, Jack A., & Forsythe, Sandra M. (1989). Antecedents and consequences of the intrinsic motivation to shop. *Psychological Reports, 64*(3_suppl), 1183–1191.

Macan, Therese H., Shahani, Comila, Dipboye, Robert L., & Phillips, Amanda P. (1990). College students' Time management: Correlations with academic performance and stress. *Journal of Educational Psychology, 82*(4), 760–768.

MacKenzie, Scott B., & Podsakoff, Philip M. (2012). Common method bias in marketing: Causes, mechanisms, and procedural remedies. *Journal of Retailing, 88*(4), 542–555.

Mathwick, Charla, Malhotra, Naresh, & Rigdon, Edward (2001). Experiential value: Conceptualization, measurement and application in the catalog and internet shopping environment. *Journal of Retailing, 77*(1), 39–56.

Matteson, Michael T., & Ivancevich, John M. (1987). Individual stress management interventions: Evaluation of techniques. *Journal of Managerial Psychology, 2*(1), 24–30.

Maule, A. John, Robert, G., Hockey, J., & Bdzola, L. (2000). Effects of time-pressure on decision-making under uncertainty: Changes in affective State and information processing strategy. *Acta Psychologica, 104*(3), 283–301.

McKinsey & Company. (2018). *What Singles' Day can tell us about how retail is changing in China*. https://www.mckinsey.com/capabilities/growth-marketing-and-sales/our-insights/what-singles-day-can-tell-us-about-how-retail-is-changing-in-china#/ (last Accessed 17 May 2023).

McKinsey & Company. (2023). *Retail speaks: Seven imperatives for the industry*. https://www.mckinsey.com/industries/retail/our-insights/retail-speaks-seven-imperatives-for-the-industry (last Accessed 17 May 2023).

Mimoun, Mohamed Slim Ben, Miltgen, Caroline Lancelot, & Slama, Boulbeba (2022). Is the shopper always the king/queen? Study of omnichannel retail technology use and shopping orientations. *Journal of Retailing and Consumer Services, 65*(2022), Article 102844.

Mogaji, Emmanuel, Wirtz, Jochen, Belk, Russell W., & Dwivedi, Yogesh K. (2023). Immersive time (ImT): Conceptualizing time spent in the metaverse. *International Journal of Information Management, 72*(2023), Article 102659.

Morgan, Robert M., & Hunt, Shelby D. (1994). The commitment–Trust theory of relationship marketing. *Journal of Marketing, 58*(3), 20–38.

Mudrack, Peter E. (1997). The structure of perceptions of time. *Educational and Psychological Measurement, 57*(2), 222–240.

O'Connell, Madison (2022). *How an omnichannel strategy benefits businesses and customers*. https://www.salesforce.com/eu/blog/2020/12/omnichannel-strategy-benefits.html (last Accessed 21 March 2023).

Pangarkar, Aniruddha, Arora, Vibha, & Shukla, Yupal (2022). Exploring phygital omnichannel luxury retailing for immersive customer experience: The role of rapport and social engagement. *Journal of Retailing and Consumer Services, 68*(2022), Article 103001.

Pansari, Anita, & Kumar, V. (2017). Customer engagement: The construct, antecedents, and consequences. *Journal of the Academy of Marketing Science, 45*(3), 294–311.

Rahman, Syed Mahmudur, Carlson, Jamie, & Chowdhury, Noman H. (2022a). SafeCX: A framework for safe customer experience in Omnichannel retailing. *Journal of Services Marketing, 36*(4), 499–529.

Rahman, Syed Mahmudur, Carlson, Jamie, Gudergan, Siegfried P., Wetzels, Martin, & Grewal, Dhruv (2022b). Perceived omnichannel customer experience (OCX): Concept, measurement, and impact. *Journal of Retailing, 98*(4), 611–632.

Rahman, Syed Mahmudur, Carlson, Jamie, Gudergan, Siegfried P., Wetzels, Martin, & Grewal, Dhruv (2025a). How do omnichannel customer experiences affect customer engagement? Theory and empirical validation. *Journal of Business Research*. , Article 115196. https://doi.org/10.1016/j.jbusres.2025.115196

Rahman, Syed Mahmudur, Chowdhury, Noman H., Bowden, Jana L. H., & Carlson, Jamie (2025b). Metaverse platform attributes and customer experience measurement. *Journal of Retailing and Consumer Services, 83*(2025), Article 104159. https://doi.org/10.1016/j.jretconser.2024.104159

Ringle, C. M., Wende, S., & Becker, J.-M. (2022). SmartPLS 4. *Boenningstedt: SmartPLS*. Retrieved from https://www.smartpls.com.

Sarstedt, Marko, Hair, Joseph F., Ringle, Christian M., Thiele, Kai O., & Gudergan, Siegfried P. (2016). Estimation issues with PLS and CBSEM: Where the bias lies! *Journal of Business Research, 69*(10), 3998–4010. https://doi.org/10.1016/j.jbusres.2016.06.007

Secure Privacy. (2024). *German data privacy laws: A guide to BDSG, TTDSG, and GDPR*. Retrieved 12 December 2024, from https://secureprivacy.ai/blog/german-data-privacy-laws-guide-bdsg-ttdsg-gdpr.

Southerton, Dale (2003). Squeezing time' Allocating practices, coordinating networks and scheduling society. *Time & Society, 12*(1), 5–25.

Statista. (2024). *E-commerce in India: Trends and statistics*. Retrieved from https://www.statista.com/topics/2454/e-commerce-in-india/.

Sullivan, L. (2025). Bayer, Coors, Jack Daniels created top-performing ads. *MediaPost*. https://www.mediapost.com/publications/article/404582/bayer-coors-jack-daniels-created-top-performing.html.

Triandis, H. C. (1995). *Individualism and collectivism*. Westview Press.

Tyrväinen, Olli, Karjaluoto, Heikki, & Saarijärvi, Hannu (2020). Personalization and hedonic motivation in creating customer experiences and loyalty in omnichannel retail. *Journal of Retailing and Consumer Services, 57*(2020), Article 102233.

Usunier, Jean-Claude G., & Valette-Florence, Pierre (1994). Perceptual time patterns ('Time-Styles'): A psychometric scale. *Time & Society, 3*(2), 219–241.

van Doorn, Jenny, Lemon, Katherine N., Mittal, Vikas, Nass, Stephan, Pick, Doreén, Pirner, Peter, & Verhoef, Peter C. (2010). Customer engagement behavior: Theoretical foundations and research directions. *Journal of Service Research, 13*(3), 253–266.

Van Nguyen, Anh Thi, McClelland, Robert, & Thuan, Nguyen Hoang (2022). Exploring customer experience during channel switching in omnichannel retailing context: A qualitative assessment. *Journal of Retailing and Consumer Services, 64*(2022), Article 102803.

Vargo, Stephen L., Wieland, Heiko, & O'Brien, Matthew (2023). Service-dominant logic as a unifying theoretical framework for the re-institutionalization of the marketing discipline. *Journal of Business Research, 164*(2023), Article 113965.

Zimbardo, Philip G., & Boyd, John N. (2014). Putting time in perspective: A valid, reliable individual-differences metric. In Maciej Stolarski, Nicolas Fieulaine, & van Beek Wessel (Eds.), *Time perspective theory; review, research and application: Essays in honor of Philip G. Zimbardo* (pp. 17–55). Springer International Publishing.