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## **Guest Editorial: More supportive or more distractive? Investigating the negative effects of technology at the customer interface**

**Abstract.** The continuous development of technology leads to stimuli-dense consumption environments for consumers. Although the literature primarily highlighted the advantages of adopting technologies to support consumers' decision-making process, these systems may also require too much attention and excessive effort to be considered always rewarding. Accordingly, this special issue addresses the interplay between technology-supported consumption experiences and the related distracting mechanisms triggered by this interaction in varied contexts. Specifically, the actual collection of papers in this special issue covers three main themes: (1) conceptualizing a Customer Smartphone Distraction (CSD) organizing framework, (2) drivers (including musical atmosphere, the context of the application, parasocial interaction and anthropomorphisms of virtual agents), and (3) consequences (cognitive, affective and behavioral responses, including sensory overload and discomfort).

**Keywords:** Technology; digital marketing; distraction; consumer behavior; virtual agents; metaverse

### **1. Introduction**

In the last few decades, a wide variety of technologies has been integrated in the marketplace to enhance the customer experience, leading to stimuli-dense consumption settings (Pantano, Pedeliento, Christodoulides, 2022). Such digital transformation has substituted or augmented traditional face-to-face consumer interactions with virtual assistants (i.e., mobile applications enabling self-checkout, locating products in stores automatically, or planning and visiting destinations without a human tour guide). Following the COVID-19 pandemic disruptions, many innovative technologies were explored to reduce consumers' and service personnel's exposure to the virus. For instance, in hospitality, new systems like service robots have been introduced to limit guest interactions with employees and improve hygiene and cleanliness (Shin & Kang 2020). Likewise, the tourism and hospitality industry is increasingly adopting Artificial Intelligence (AI) systems such as intelligent voice assistants (e.g., Siri, Alexa, Google Assistant) to help travelers in several activities such as hotel room services and visit planning (Loureiro et al., 2021). In retail settings, robotic and self-service systems have been introduced to facilitate contactless shopping either in brick-and-mortar stores or at home (e.g., new apps to find favorite items and pay in the store automatically, or new delivery modalities), and Augmented and Virtual Reality (AR and VR) to boost consumer engagement with retailers, brands, and products while delivering novel consumption experiences (Sung et al., 2021), and safeguarding consumers' safety and health (Rahman et al., 2022a). Nevertheless, these novel systems are able to balance the unavailability of human workers, thus providing automated experiences that could elicit satisfaction (Pala et al. 2021). However, incorporating new technologies (e.g., VR, AR, AI) into today's consumption experiences might lead to both positive (e.g., enjoyment, escapism, efficiency, convenience) and negative (e.g., frustration, stress, binge-watching, visually induced motion sickness, isolation, addiction, unhappiness, etc.) impacts on consumers, and broader society (Nanda & Banerjee 2020; Pantano & Scarpi, 2022).

Although literature primarily highlighted the advantages of adopting technologies to support consumers' decision-making process, these new systems also impact human-to-human interactions, causing companies to change their marketing and communication strategies to reach customers (e.g., shift to digital influencers) (Mishra et al. 2021; Hollebeek et al. 2021; Dwivedi et al., 2023a); whereas technology implementation radically changes the nature of relationship experiences between individuals and retailers (Huang & Rust, 2022), atmospherics (Roggeveen et al. 2020), and the way consumers process and combine information from the offline and online consumption environments (Rahman et al., 2022b; Yang et al., 2020). Besides, Kotler and colleagues (2017) portrayed how new

technology might further turn consumers from being informed to becoming distracted. Consequently, using these systems may also require too much attention and excessive effort to be considered always rewarding, pushing consumers to focus on the technology characterized by several tasks, complex features, and unfamiliar or unresponsive interfaces. Noticeably, this interaction might potentially reduce consumers' perception of atmospherics or other environmental stimuli, especially when these are below the consciousness threshold. Similarly, these technologies act either as "collaborators" or "opponents" (Han et al., 2023; Peng et al., 2022). Thus, technology would move from being a supporting tool for customers to being a distractive mechanism that inhibits purchase behavior. For instance, in a luxury point of sale, technology may inhibit prospective consumers from the opportunity to interact with sales assistants, who might provide additional information about the history, craftsmanship, heritage, tradition, and outstanding product quality. In other circumstances, technology is a beneficial tool facilitating beneficial access to luxury services or products that would otherwise be unattainable (Christodoulides et al., 2021).

Likewise, if tourists' attention is focused on a mobile device showing the best route to a specific destination, this technology catches attention and leads them to ignore other attractions on the travel journey. This dyadic nature of technology is barely researched in actual literature. Indeed, authors have recently claimed that unintended consequences for firms, consumers, and broader society still need further investigations (Peterson Fronczek et al., 2023; Dwivedi et al., 2023b). For instance, these adverse effects might span brand trust violations (Lefkeli, Karatas, Gurhan-Canli, 2024), dramatic addiction (Chopdar, Paul, Prodanova, 2022), vulnerability, misinformation, propaganda, and social exclusion (Dwivedi et al., 2023; Pantano et al., 2022). Thus, technology's distractive and adverse effects on the customer interface are still scarcely explored and understood. This is a relevant issue due to the importance of new technology developments and innovations targeting the UN's Sustainable Development Goals (SDGs), including sustainable consumption and societal production (Dwivedi et al., 2022). To this end, this special issue addresses the relationship between technology-supported consumption experiences and the distracting mechanisms triggered by this interaction in varied contexts.

Accordingly, the five papers included in this special issue concentrate their efforts on providing a comprehensive understanding of the supportiveness and distractedness of technological solutions at the customer interface. Each contribution offers guidance and suggestions for academics and practitioners to enhance the understanding of the technologies' positive and negative effects. These papers cover three main themes: (1) conceptualizing a Customer Smartphone Distraction (CSD) organizing framework, (2) drivers (including musical atmosphere, the context of the application, parasocial interaction, and anthropomorphisms of virtual agents), and (3) consequences (cognitive, affective and behavioral responses, including sensory overload and discomfort) (Table 1). Moreover, contributions come from global marketing and technology and information science communities from different countries, including the EU countries, Australia, the United Arab Emirates, and China. In the next section, we outline the papers included in this special issue and discuss their individual and unique contribution to the consumer behavior literature from the viewpoint of the adverse effects of technology implementation.

Theme	Description	Relevant Studies
<b>Theme 1: Distraction Conceptualizations</b>	Conceptualizing antecedents, contingency variables, and	<i>"Appetite for distraction? A systematic literature review on customer smartphone distraction"</i> (Taylor et al., 2024)

	consequences of customer distraction with technology	
<b>Theme 2: Drivers</b>	Musical atmosphere, the context of the application, parasocial interactions, and anthropomorphism of virtual agents	<p><i>“Musical atmosphere as a (dis) tractive facet of user interfaces: An experiment on sustainable consumption decisions in eCommerce”</i> (Xu et al., 2024)</p> <p><i>“The dark side of virtual agents: Ohhh No!”</i> (Mostafa et al., 2024)</p> <p><i>“The dark side of the metaverse: the role of gamification in the virtualization of cultural events”</i> (Flavian et al., 2024)</p>
<b>Theme 3: Consequences</b>	Cognitive, affective, and behavioral responses, including sensory overload and discomfort	<i>“Does technology distract Generation Z? The effect of technology distraction on consumers’ responses, sensory overload, and discomfort”</i> (Priporas et al., 2024)

Table 1. Organizing framework of this special issue: the adverse and unintended effects of technology implementation at the customer interface.

## 2. An overview of the contribution included in this special issue

In the first paper, Taylor et al. (2024) introduce the concept of Customer Smartphone Distraction (CSD), which arises when an internet-connected mobile device competes for a consumer’s attention during a specific goal-oriented task or behavior. Drawing upon a systematic literature review and supporting qualitative study, the authors develop a conceptual framework incorporating drivers, contingency variables, and effects of CSD. Results suggest that CSD is affected by both environmental stimuli (including audio and visual notifications) and internal psychological states (including anxiety and boredom), which are strictly interrelated. The authors call for customers to reconsider their consumption behavior to deal with this issue. At the same time, businesses, society, and policymakers need to aid customers by providing better education aligned with an improved design of mobile device experiences.

In the second paper, Xu et al. (2024) focus on the extent to which online musical atmosphere can play a supporting versus distracting role in sustainable decision-making. Results show that the fast music tempo has a positive effect on the intention to purchase healthy food while reducing negative emotions if compared to no music or slow music tempo. By contrast, consumers show a more positive attitude towards unhealthy food choices if the music tempo is slow.

In the third paper, Priporas et al. (2024) investigate Generation Z's response to technology distraction cues and related consumer cognitive, affective, and behavioral responses, including sensory overload and discomfort. In particular, the authors confirm that consumers show a higher level of distraction when they are highly involved with the technology, show a limited appreciation of the technology, and the technology is complex.

In the fourth paper, Mostafa et al. (2024) provide a comprehensive understanding of the virtual agents used by firms to develop relationships with consumers, with emphasis on the characteristics that lead to dissatisfaction in terms of (negative) parasocial interactions and specific anthropomorphic

characteristics. In this way, authors suggest virtual agents' pitfalls and consequent actions to anticipate and avoid the negative outcomes.

In the final paper, Flavian et al. (2024) investigate the cultural events taking place in the metaverse and the extent to which users find it challenging to focus on the main elements of the environment. These difficulties lead to the metaverse's inability to convey the cultural event's authenticity. However, improved attention solicited by gamification might improve users' ability to imagine the real experience and increase the perception of authenticity, resulting in a higher behavioral intention.

### 3. Conclusion

This editorial underscores the paramount significance of studying new customer-facing technologies and their profound influence on consumer behavior. As our digital landscape continues to grow and evolve at an unprecedented pace, the ability to harness the potential benefits while mitigating potential drawbacks has never been more crucial. The collection of papers in this special issue insights into how organizations can capitalize on emerging technologies to enhance customer engagement, and warns against the pitfalls that may arise from a blind embrace of these innovations. By remaining informed and adaptable, scholars and practitioners in the field are poised to shape a future in which technology harmoniously complements and amplifies positive consumer experiences while minimizing the disruptions and adverse effects resulting from their mismanagement.

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