EasyChair Preprint

№ 13842

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July 6, 2024

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ABSTRACT

The increasing diffusion of technology offers new possibilities to collect data from consumers' interactions automatically. This study aims to provide a comprehensive understanding of the retail technologies available (classified according to different approaches) and the kind of data they can extract from this interaction, emphasizing the customer journey stages. Our results show the extent to which the huge amount of extracted data might led to a certain retail surveillance. Consequently, this phenomenon opens new lines of inquiry about the benefits and pitfalls of (retail) technology surveillance in online and offline shopping settings. In this way, our results suggest guidelines to support the development of better practices to embrace retail technology and regulate consumers' data extraction.

Keywords. Retail surveillance; Consumer interaction; Surveillance; Technology; Data.

1. INTRODUCTION

The number of available retail technologies to improve the service and consumer experience increases every year (Pantano et al., 2018), such as retail apps to support in-store visits (from creating the shopping list to identifying the product in the store), contactless payment systems, (online) chatbot, and (in-store) robot to act as shopping assistants. However, anytime a consumer interacts with a technology, either online or in person, the interaction generates a huge amount of information that the retailer might explore to achieve a competitive advantage. Therefore, these technologies *observe* consumers' data and can deliver customized services or more accurate behavior predictions accordingly. This observational phenomenon largely acquired scholars' and practitioners' attention, trying to understand how to increase consumer benefits over retailers' benefits (Pantano et al., 2023), limiting consumers' privacy loss (Scarpi et al., 2022). Moreover, recent studies pointed out that the technology is not limited to observing consumers. Instead, it acts as a sort of retail surveillance (Brooksbank et al., 2022). Accordingly, recent scholars developed a new concept defining the technological observation of human behavior as *dataveillance* to describe the online automatic tracing and analysis of individual data (Kappeler et al., 2023; Strycharz and Segijn, 2022) and *retaillance* when in brick-and-mortar retail settings (Elnahla and Neilson, 2021), starting from the original concept of surveillance that referred to the generic surveillance of all human behaviors (Dandeker, 1990). Thus, retail surveillance embraces the routine and automatic

extraction and analysis of consumers' data (including data related to shopping behavior and experience), which can usually be mediated by technology and not consciously disclosed.
Despite all this literature, actual studies evaluate retail surveillance technology only regarding consumers' acceptance in online or physical stores. To our knowledge, no studies simultaneously evaluate the online and in-store technology that enables consumer surveillance. Our study aims to fill this gap by further offering a deeper understanding of what data the technologies can extract from customers' interactions and how to regulate them. In this way, our study helps better navitaing the new technology mediated retail scenario (online and offline), while opening new lines of inquiry to better balance the level of surveillance and consumers' benefits in both offline and online settings.
The remainder of this paper is organized as follows: the next section will focus on consumer-computer interaction, and then the paper will go deeper into the classification of different forms of retail technology and related forms of interaction. Subsequently, the paper will provide a more comprehensive overview of the data extracted during the consumer-computer interaction. Finally, the paper will present the implications for theory and practice and suggest directions for future research.

2. THEORETICAL BACKGROUND

2.1. Consumer-Computer Interaction

Consumer-computer interaction is a multidimensional domain affecting online and offline store experience, influencing how customers engage with products, services, and brands. Online, consumers traverse a dynamic digital landscape, interacting with various interfaces that shape their retail experience. This includes e-commerce websites, mobile applications, social media platforms, and immersive virtual reality (VR) retail environments. Each interface offers a unique platform for interaction, aiming to captivate and connect consumers with a virtual storefront.
The consumer-computer interactions online encompass diverse levels of immersion and realism. Modern VR experiences represent the pinnacle of immersion, enabling customers to explore stores, visualize products, and simulate the in-store shopping experience. These interactions, enriched with visual, auditory, and haptic feedback, strive to replicate real-world retail scenarios, fostering a multisensorial feeling of presence and authenticity (Heller et al., 2019). Realism is critical in online retail interaction, directly influencing consumer engagement and purchase decisions (Azer et al., 2023). High levels of realism, as seen in immersive VR retail and the metaverse, aim to provide an experience closely resembling a visit to a physical store (Yoo et al., 2023). Customers can virtually inspect products, assess their features, and visualize how they fit into their lives, enhancing their confidence and satisfaction in purchasing. Conversely, simpler interactions, like browsing through product listings on a website, offer functional but less immersive experiences, focusing primarily on ease of navigation and efficient access to product information (Wu et al., 2016).
Integrating multiple technology media is a common feature of online retail interactions. Incorporating images, videos, interactive graphics, and audio enriches the customer journey, making it visually appealing and informative. These elements help convey product details, showcase usage scenarios, and provide a deeper understanding, enhancing the overall shopping experience (Biswas, 2019; Roggeven and Sethuraman, 2020). Additionally, these computer-mediated interactions allow tailoring product recommendations, offers, and the overall interface to individual preferences and shopping behaviors, learning from present and past interactions.

In offline retailing, consumer-computer interactions extend beyond e-commerce platforms: interactive displays, touchscreens, and augmented reality (AR) provide customers with engaging and informative experiences, enabling customers -for instance- to virtually try on apparel or visualize how furniture fits into their homes, enhancing their confidence in the decision process (Heller et al., 2019; Serravalle et al., 2023). Interactive kiosks allow customers to browse product catalogs, access additional information, and place orders while in-store (Van De Sanden et al., 2022). In online and offline retail interactions, interface design and ease of use remain critical factors: intuitive navigation, visually appealing layouts, and seamless user experiences significantly impact how customers perceive a retailer and its offerings (Madsen and Petermans, 2020).

In turn, ease of use often translates into quick load times and responsiveness, effortless product exploration and purchase completion, and an intuitive interface (Li et al., 2020). Overall, the evolving landscape of consumer-computer interaction is reshaping the retail industry, blending the digital and physical worlds to offer customers enriched, seamless interactions. Understanding these interactions is paramount for retailers, enabling them to create compelling digital and physical retail spaces that better resonate with consumers (Cheung et al., 2021).

2.2. Ethics in Consumer-Computer Interaction

As anticipated, a huge amount of data can be extracted during consumers' interaction with retail technologies, whose outcomes could be potentially harmful to humans (Sullivan and Fosso Wamba, 2022; Jorling et al., 2019). Consequently, these technologies should be subject to ethical and moral norms. Limited to the online scenario, scholars conceptualized accordingly the role of Corporate Digital Responsibility (CDR) to emphasize the ethical issues unique to the digital context. They specified CDR as the "set of shared values and norms guiding an organization's operations concerning the creation and operation of digital technology and data" (Lobschat et al., 2021, p.876) by pushing all the actors involved in the development and integration of digital technologies and related data processing to act ethically responsibly.

For instance, the data used in retail technology might include information extracted from consumers' photos, including their faces, race, age, skin type, and exact geographical position at any given time. Further data would be obtained from the purchased product size, colors, etc., that could reveal preferences, household size, consumption habits, etc. Indeed, many consumers would not be willing to share this personal information easily. While this data can personalize the shopping experience and improve customer service, it raises concerns about privacy and data security (Pantano et al., 2023; Moriuchi, 2021; Cowan, Javornik, and Jiang, 2021).

One major concern is the potential misuse of customer data by retailers or third-party companies (Pizzi and Scarpi, 2021). Customers may be uncomfortable when companies use their personal information for marketing or targeted advertising. Additionally, there is the risk of data breaches, which could result in sensitive customer information being stolen and used for malicious purposes (Quach et al., 2022). Accordingly, the authors introduced the concept of (Artificial Intelligence) responsibility in retail service automation, when the retail technology is based on AI, and the related corporate data responsibility in terms of data quality, acquisition, storage, access, and equity (Scarpi and Patano, 2024). Despite these attempts, consumers' data extraction and usage in retail is still subject to debate, requiring further investigation (Scarpi and Patano, 2024).

3. DATA EXTRACTION FROM CONSUMERS' INTERACTIONS WITH RETAIL TECHNOLOGY

3.1. Retail Technology Classification

Literature provides different approaches to classify retail technology. For instance, Pantano and Viassone (2014) suggest that the recent retail technologies can be in the form of touchscreen displays (e.g., virtual fitting systems), mobile applications (e.g., product comparison apps), and hybrid-in-store systems (e.g., RFID recommendation systems). These systems are integrated for two types of stakeholders, namely demand-side and supply-side stakeholders, represented by in-store workers and manufacturers/retailers (Shankar et al., 2021). Sethuraman and Parasuraman (2005) broadly categorize each stakeholder group's purpose of system utilization into cost reduction and service enhancement. For instance, customers can enjoy an enhanced experience throughout their customer journey when augmented reality (AR) and virtual reality (VR) technologies are integrated into various touchpoints (Shankar et al., 2021). For instance, greater convenience has been made possible by deploying technologies that automate the shopping experience, such as self-checkout systems and store grab-and-go options. The grab-and-go option is supported by systems that leverage deep learning, sensors, and transaction automation, allowing customers to retrieve products from shelves without visiting a traditional checkout counter (Grewal et al., 2020). From a supply-side perspective, the most significant implication of digital innovation in the retail sector, in terms of cost reduction, lies in efficiently managing interactions with customers, inventory records, product identification, and delivery processes, among others (Shankar et al., 2021). Certain technologies, such as blockchain and IoT-enabled tracking systems, have the potential to revolutionize inventory management, enhance supplier-retailer communication, and improve supply-chain efficiency (Sethuraman & Parasuraman, 2005; Shankar et al., 2021).

Another classification is based on the technology used at various stages of the customer journey and its value and utility for customers (Hoyer et al., 2020; Reinartz et al., 2019). In the pre-purchase stage, technology's role in customer interaction primarily includes *observation*, *support*, and *product/service co-creation*. During the observation phase, seamlessly interconnected platforms, systems, and smart devices (e.g., Alexa, cloud computing) collect information about customers and the surrounding environment without providing any feedback to customers in return (Reinartz et al., 2019). The passive operation of technology turns into active interaction when devices, such as chatbots, machine learning, cookie recommendation agents, and geo-targeting apps, come to the forefront. These tools provide location-based notifications in specific geographic areas and support customers searching for relevant products and services. Furthermore, these systems empower the co-creation of products and services by customizing offerings based on individual customer needs (Hoyer et al., 2020; Reinartz et al., 2019). Customers can co-create services when interacting with systems like chatbots and imagination-enhancing technologies such as augmented reality (AR) applications (e.g., IKEA), virtual showrooms, and kiosks. For instance, IKEA's app allows customers to assess how selected furniture fits into their living space. Interactive chatbots, in particular, simulate human interaction, enhancing the shopping process's experiential value (Roggeveen & Sethuraman, 2020). The observation, support, and product/service co-creation modes manage customer needs and foster engagement in the search process (Roggeveen & Sethuraman, 2020).

During the purchase stage, technologies significantly facilitate the transaction process and physically acquire products. Customers engage with machines to receive *support* in executing

transactions or to *fully automate* certain transactional processes. Retailers may also employ machines during the shopping phase to observe customers during transactions. Specifically, recommender systems connected with inventory management technology can offer support by suggesting substitutes for out-of-stock items (Hoyer et al., 2020). After the transaction concludes, blockchain and chatbots can ensure transparency in the delivery process by providing regular notifications regarding the status of orders (Mollenkopf et al., 2021). Support also occurs when individuals employ voice-based assistants (e.g., Alexa) to complete transactions using voice commands (Hoyer et al., 2020). Integrating technologies such as automated payment systems (e-wallets), smart carts, RFID chips, scanners, and drones can further streamline transactions by automating processes related to product ordering, checkout, and delivery (Roggeveen & Sethuraman, 2020). It's worth noting that facial recognition systems, while not directly controlled by customers, observe customer behavior, capture emotions during interactions with products in stores, and verify payment transactions (Gao et al., 2023).

Moving to the post-purchase stage, customers primarily receive *support* from technologies or encounter *fully automated* follow-up services. Apps powered by machine learning, artificial intelligence (e.g., chatbots), and blockchain play a key role in keeping customers informed about new items similar to those in their purchase history, as well as notifying them about price changes and new service/product upgrades (Quinones et al., 2023; Reinartz et al., 2019). Automated customer communication enhances engagement and fosters loyalty (Roggeveen & Sethuraman, 2020). Additionally, the automation of follow-up services occurs when IoT-enabled home appliances can identify customers' needs and autonomously process orders without requiring human intervention during the repurchase stage (Roggeveen & Sethuraman, 2020).

3.2 Data typology

The interaction with technology also leads to the extraction of different kinds of consumer data. Specifically, we propose classifying six distinct types: identity data, interactional/engagement data, behavioral data, attitudinal data, spatial-temporal data, and other personal data (Table 1).

During the pre-purchase stage, while engaging in product/service co-creation, chatbots, AR, and VR technologies can gather socio-demographic characteristics, visual information disclosing individual identities, and attitudinal data, such as preferences and needs. Applications and systems such as cookies, chatbots, recommender systems, and geo-targeting apps simultaneously assist customers while collecting interactional data (e.g., browsing history), behavioral data (e.g., past purchases, wish list items), and spatial-temporal data (customer location and time of interaction). IoT-enabled devices, like smart appliances, can observe customers and collect identity and behavioral data.

During the purchase stage, RFID tags, scanners, blockchain, chatbots, automated payment systems, and drones prove useful for gathering identity, spatial-temporal, and personal data (e.g., bank details) essential for automating product delivery and purchases. Retailers can access behavioral and attitudinal data through chatbots, blockchain, recommender systems, voice-based digital assistants, and smart carts, with these insights being inferred based on the nature, quantity, and value of purchases made. Observing customers in stores through facial recognition technology facilitates the collection of identity data.

In the post-purchase stage, automating follow-up services using IoT-enabled devices results in retrieving behavioral data (e.g., past purchases) and personal data (e.g., bank accounts). Providing post-purchase support and granting access to transactional data through chatbots and blockchain

technology becomes possible due to access to customers' behavioral and attitudinal data. Table 1 summarizes the types of data extracted during the consumer-machine interaction.

Table 1: Types of data extracted and processed during consumer-machine interactions.

Customer journey stage	**Interaction mode**	**Types of data and indicative technology collecting/processing it**					
		Identity data	**Interactional / engagement data**	**Behavioral data**	**Attitudinal data**	**Spatial-temporal data**	**Other personal data**
Pre-purchase	Product/ service co-creation	Chatbots, VR, and AR technology			Chatbots		
	Support		Cookies	Chatbots, recommender systems		Geo-targeting systems	
	Observation			IoT-enabled appliances, cloud computing			
Purchase	Process automation	Automated payment systems, facial recognition systems, RFID tags, scanners				Drones	Automated payment systems
	Support			Chatbots, blockchain, recommender systems, voice-based digital assistants, smart carts	Chatbots, blockchain, recommender systems, voice-based digital assistants		
	Observation	Facial recognition technology					
Post-purchase	Process automation			IoT-enabled appliances			IoT-enabled appliances
	Support			Chatbots, Blockchain	Chatbots, Blockchain		

4. CONCLUSIONS

This study provides a comprehensive understanding of the retail technologies available and the kind of data they can extract from this interaction during the three phases of the customer journey. Our results suggest that a "*surveillance*" of consumers' data occurs depending on the phase of the consumer journey, and the amount of data (extracted) surveilled varies across technologies (Figure 1).

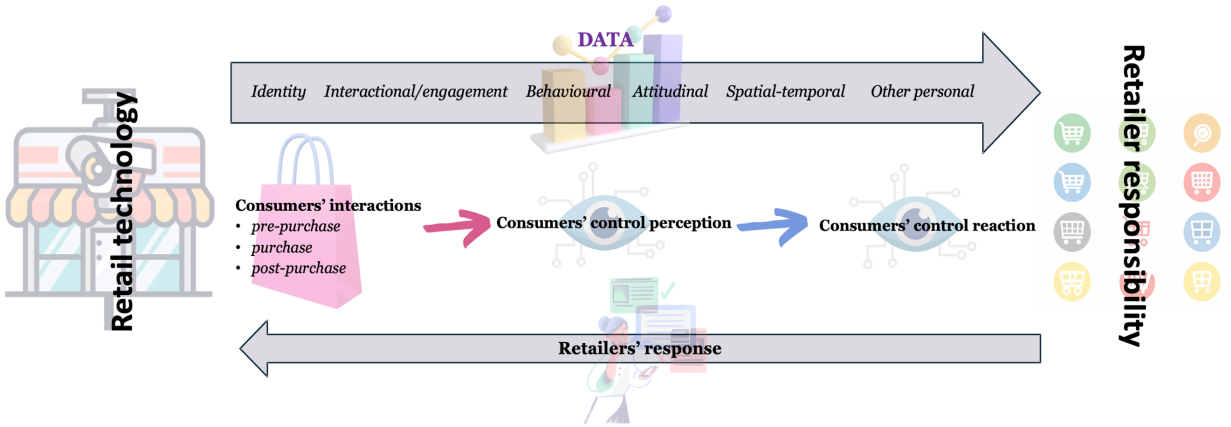

Figure 1. Retail surveillance framework

In other words, different data are extracted during any stage with any interaction with the retail technology. In addition to retail technology classifications by previous studies (e.g., Sethuraman & Parasuraman, 2005; Shankar et al., 2021; Hoyer et al., 2020; Reinartz et al., 2019; Pantano and Viassone, 2014), our study shows the specific consumers' data that can be extracted by retail technology. Our results further emphasized the role of technologies as *observers* in the three phases of the customer journey, enriching the concept of retail technology surveillance (Elnahla and Neilson, 2021). In this way, our research corroborates the findings from Brooksbank and colleagues (2022), who introduced the concept of surveillance in a retail context by specifying the data typology and extending the fundamental role of retailers as regulator (responsible) of data management (from extraction to usage) (Scarpi and Pantano, 2024).

However, the concept of surveillance, usually associated with the concept of control, might lead to negative consequences for consumers, opening new lines of inquiry in understanding to what extent consumers accept to be observed by retail technology and to share personal data for a more engaging shopping experience with brands, products, and services. Thus, balancing the level of surveillance and consumers' benefits in both offline and online settings becomes paramount.

Specifically, we suggest a research agenda articulated along three main directions with related examples of research questions:

(i) Consumers perception of control/surveillance

1. To what extent are consumers aware of the specific surveillance occurring when interacting with the retail technology?
2. To what extent does the context of surveillance (e.g., online or brick-and-mortar) change consumers' perception of it?
3. What conditions would lead consumers to perceive retail surveillance as always positive/negative?
4. What kind of data and from what kind of interaction generate the most value for consumers?

(ii) Consumers reactions to surveillance

1. What are the main positive and negative emotional/cognitive and behavioral consumer reactions to retail surveillance?
2. To what extent does the context of surveillance (e.g., online or brick-and-mortar) change consumers' reactions?

3. What are the more useful forms of collaboration to make consumers more positive towards retail surveillance?

(iii) Retailers' responsibility towards technology surveillance

1. What is the retailer's responsibility towards the technology surveillance?
2. What automated controlling mechanisms might retailers integrate to limit the negative consequences of surveillance from a consumer's perspective?
3. How can a new retail business model ideally be implemented to integrate their responsibility towards technology surveillance?

References

Azer, J., Blasco-Arcas, L., & Alexander, M. (2023). Visual Modality of Engagement: Conceptualization, Typology of Forms, and Outcomes. *Journal of Service Research*, 10946705231190867.

Biswas, D. (2019). Sensory aspects of retailing: Theoretical and practical implications. *Journal of Retailing, 95*(4), 111-115.

Brooksbank R., Scott J.M., Fullerton S. (2022). In-store surveillance technologies: what drives their acceptability among consumers? *The International Review of Retail, Distribution and Consumer Research, 32*(5), 508-531.

Cheung, M. L., Pires, G. D., Rosenberger, P. J., Leung, W. K., & Sharipudin, M. N. S. (2021). The role of consumer-consumer and consumer-brand interaction in driving consumer-brand engagement and behavioral intentions. *Journal of Retailing and Consumer Services, 61*, 102574.

Cowan, K., Javornik, A., & Jiang, P. (2021). Privacy concerns when using augmented reality face filters? Explaining why and when use avoidance occurs. *Psychology & Marketing*, *38*(10), 1799-1813.

Dandeker C. (1990). *Surveillance, power, and modernity: bureaucracy and discipline from 1700 to the present.* Padstow, Cornwall: Polity Press.

Elhahla D., Neilson L.C. (2021). Retaillance: a conceptual framework and review of surveillance in retail. *The International Review of Retail, Distribution and Consumer Research, 31*(3), 330-357.

Gao, J., Rong, Y., Tian, X., & Yao, Y. (2023). Improving Convenience or Saving Face? An Empirical Analysis of the Use of Facial Recognition Payment Technology in Retail. *Information Systems Research, Ahead-of-print.* Doi: 10.1287/isre.2023.1205

Grewal, D., Noble, S. M., Roggeveen, A. L., & Nordfalt, J. (2020). The future of in-store technology. *Journal of the Academy of Marketing Science, 48*(1), 96-113

Heller, J., Chylinski, M., de Ruyter, K., Mahr, D., & Keeling, D. I. (2019). Touching the Untouchable: exploring multi-sensory augmented reality in the context of online retailing. *Journal of Retailing*, *95*(4), 219-234.

Hoyer, W. D., Kroschke, M., Schmitt, B., Kraume, K., & Shankar, V. (2020). Transforming the customer experience through new technologies. *Journal of Interactive Marketing, 51*(1), 57-71.

Jorling, M., Bohm, R., & Paluch, S. (2019). Service robots: drivers of perceived responsibility for service outcomes. *Journal of Service Research*, *22*(4), 4040-420.

Kappeler K., Festic N., Latzer M. (2023). Dataveillance imaginaries and their role in chilling effects online. *International Journal of Human-Computer Studies, 179*, 103120.

Li, X., Zhao, X., & Pu, W. (2020). Measuring the ease of use of mobile applications in e-commerce retailing from the perspective of consumer online shopping behavior patterns. *Journal of Retailing and Consumer Services, 55*, 102093.

Lobschat, L., Mueller, B., Eggers, F., Bradimarte, L., Diefenbach, S., Kroschke, M., & Wirtz, J. (2021). Corporate digital responsibility. *Journal of Business Research*, *122*, 875-888.

Madsen, S. M., & Petermans, A. (2020). Exploring the system of digitized retail design—flattening the ontology. *Journal of Retailing and Consumer Services, 54*, 102053.

Mollenkopf, D. A., Ozanne, L. K., & Stolze, H. J. (2021). A transformative supply chain response to COVID-19. *Journal of Service Management, 32*(2), 190-202.

Moriuchi, E. (2021). An empirical study on anthropomorphism and engagement with disembodied AIs and consumers' re-use behavior. *Psychology & Marketing*, *38*(1), 21-42.

Pantano, E., Priporas, C.V., & Stylos, N. (2018). Knowledge push curve (KPC) in retailing: evidence from patented innovations analysis affecting retailers' competitiveness. *Journal of Retailing and Consumer Service, 44*, 150-160.

Pantano, E., Vannucci, V., & Marikyan, D. (2023). Gratification in a change of privacy? The response of four consumers' generational cohort toward facial recognition technology in retail settings. *Journal of Consumer Behavior, 22*(2), 288-299.

Pantano, E., & Viassone, M. (2014). Demand-pull and technology-push perspective in technology-based innovations for the points of sale: The retailer's evaluation. *Journal of Retailing and Consumer Services, 21*(1), 43-47.

Pizzi, G., & Scarpi, D. (2020). Privacy threats with retail technologies: A consumer perspective. *Journal of Retailing and Consumer Services, 56*, 102160.

Quach, S., Thaichon, P., Martin, K. D., Weaven, S., & Palmatier, R. W. (2022). Digital technologies: Tensions in privacy and data. *Journal of the Academy of Marketing Science*, *50*(6), 1299-1323.

Quinones, M., Gomez-Suarez, M., Cruz-Roche, I., & Díaz-Martín, A. M. (2023). Technology: a strategic imperative for successful retailers. *International Journal of Retail & Distribution Management, 51*(4), 546-566.

Reinartz, W., Wiegand, N., & Imschloss, M. (2019). The impact of digital transformation on the retailing value chain. *International Journal of Research in Marketing, 36*(3), 350-366.

Roggeveen, A. L., & Sethuraman, R. (2020). Customer-interfacing retail technologies in 2020 & beyond: An integrative framework and research directions. *Journal of Retailing, 96*(3), 299-309.

Scarpi D., Pizzi G., & Matta S. (2022). Digital technologies and privacy: state of the art and research directions. *Psychology and Marketing, 39*(9), 1687-1697.

Scarpi, D., & Pantano, E. (2024). "With great power comes great responsibility": exploring the role of Corporate Digital Responsibility (CDR) for Artificial Intelligence Responsibility in Retail Service Automation (AIRRSA). *Journal of Organizational Dynamics*, *53*(2), art. 101030.

Serravalle, F., Vanheems, R., & Viassone, M. (2023). Does product involvement drive consumer flow state in the AR environment? A study on behavioral responses. *Journal of Retailing and Consumer Services, 72*, 103279.

Sethuraman, R., & Parasuraman, A. (2005). Succeeding in the Big Middle through technology. *Journal of Retailing, 81*(2), 107-111.

Shankar, V., Kalyanam, K., Setia, P., Golmohammadi, A., Tirunillai, S., Douglass, T., Hennessey, J., Bull, J., & Waddoups, R. (2021). How technology is changing retail. *Journal of Retailing, 97*(1), 13-27.

Strycharz, J., Segijn, C.M. (2022). The future of dataveillance in advertising theory and practice. *Journal of Advertising, 51*(5), 574-591.

Sullivan, Y.W., and Fosso Wamba, S. (2022). Moral Judgments in the age of artificial intelligence. *Journal of Business Ethics*, *178*, 917-943.

Van De Sanden, S., Willems, K., & Brengman, M. (2022). How customer's motive attributions impact intentions to use an interactive kiosk in-store. *Journal of Retailing and Consumer Services, 66*, 102918.

Wu, K., Vassileva, J., Zhao, Y., Noorian, Z., Waldner, W., & Adaji, I. (2016). Complexity or simplicity? Designing product pictures for advertising in online marketplaces. *Journal of Retailing and Consumer Services, 28*, 17-27.

Yoo, K., Welden, R., Hewett, K., & Haenlein, M. (2023). The merchants of meta: A research agenda to understand the future of retailing in the metaverse. *Journal of Retailing, 99*(2), 173-192.