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## Article

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# Innovating the experience economy: How novel technologies transform customer experiences

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## ABSTRACT

Based on the concept of the experience economy, in this article we develop a framework for novel technologies (i. e., artificial intelligence, augmented reality, and virtual reality) that companies can use to shape customer experiences. This conceptual work addresses key concerns about ethics, privacy, cognitive overload, alienation, and sustainability, responding to calls for a critical discussion of these issues. We illustrate how these technologies can be integrated into the experience economy framework and applied in retail settings to enhance customer experiences across the four experiential realms of entertainment, education, escapism, and esthetics. Specifically, we outline how these technologies fit into the experience economy and can create positive experiences across all four realms. Chatbots are used as a case example to illustrate the application of our modified framework. This framework could serve as the theoretical foundation for future academic studies exploring the impact of novel technologies on consumers' retail experiences. Integrating AI, AR, and VR into the experience economy framework offers significant theoretical and practical insights into enhancing consumer retail experiences. These technologies provide new opportunities for creating personalized, immersive, and engaging experiences. By applying our enhanced experience-economy framework, companies can systematically explore the impact of using these technologies to improve consumers' experiences.

## 1. Introduction

**Problem description.** Creating customer value through experiential shopping experiences is essential for driving satisfaction, loyalty, and long-term brand success (Varshneya et al., 2016). The ongoing fifth industrial revolution fuels this by creating numerous opportunities for marketers to shape customer experiences through innovative technologies (Hanafizadeh, Hatami, Analoui, & Albadvi, 2021; Hoyer, Kroschke, Schmitt, Kraume, & Shankar, 2020; Noble, Mende, Grewal, & Parasuraman, 2022). This development has been fostered by the outbreak of COVID-19 and has gained substantial attention from the academic community (Kerdvibulvech & Dong, 2021). Artificial intelligence (AI), augmented reality (AR), and virtual reality (VR) are on the brink of transforming the shopping experience to a substantial degree (Moore, Bulmer, & Elms, 2022; Ornati & Kalbaska, 2022). Of course, there are numerous other technologies (such as Internet of Things, blockchain, or digital twins) that substantially transform customer experiences. To

ensure a focused review of scholarly literature and provide a solid basis for future research, we decided to concentrate on AI, AR, and VR. We outline why these technologies are important for shaping customer experiences, justify how they are connected, and provide a rationale for our choice of technologies.

**Advantages of novel technologies.** It is important to note that these smart technologies do not exist in isolation but are increasingly combined with marketers' efforts to prompt positive reactions from consumers (Becker & Jaakkola, 2020). Examples include AI-powered chatbots or AI and AR virtual applications used as tools to stimulate favorable consumer responses during the customer journey. In this regard, Ameen et al. (2021, p. 1) point out that "deploying AI technologies strategically at different key customer touch points may bring significant benefits to companies and a possible increase in customer satisfaction." Other researchers point out that AI-enabled technologies create greater efficiency and foster customer engagement (Hussain, Khan, & Malik, 2024; Jessen et al., 2020; Sung, Han, & Choi, 2022) and can be used to

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facilitate the co-creation processes of services (Behera et al., 2024). At the same time, scholars acknowledge the lack of research on the role of immersive technologies and AI in staging the customer experience (Hoyer et al., 2020; Tom Dieck & Han, 2022). Immersive experiences are regularly investigated only at one specific touchpoint, and a holistic perspective of the customer experience is neglected in the extant literature (Tom Dieck & Han, 2022).

**Illustrative examples.** Operational examples for these applications already exist, as is illustrated by IKEA, which has introduced VR showrooms that let shoppers virtually explore and customize their homes. IKEA's app allows customers to immerse themselves in a virtual kitchen, change colors, and view the room from different perspectives, which provides an impression of scale and design (Damaševičius, 2023). IKEA uses its AR-based app to help answer frequent shopper questions ("Will the product fit or match?") with the goal of reducing multiple store visits, assembly time, and product returns through the use of true-to-scale 3D previews of how a specific furniture fits into one's own home (Dyte, 2024).

Similarly, the beauty retailer Sephora has pioneered in implementing AR "virtual try-on" mirrors to improve cosmetic shopping experiences. Starting in 2017, Sephora's Virtual Artist was available in selected stores and via its mobile app to measure facial features and overlay "digital makeup" in real time, so that customers can try on different shades of products such as eye shadow or lipstick without the need for physical samples. Users can even turn their face and see the makeup from various angles, allowing them to make better purchase decisions. These interactive try-before-you-buy experiences not only increased customer engagement but have also benefited the company's performance. Recent numbers show that Sephora's AR mirror trials led to a 31 % increase in sales for products showcased via an AR mirror, and a 90 % higher conversion rate among AR users as compared to non-users (Mattan, 2025).

A third example is Amazon, which has long used AI-driven personalization to enhance its customers' e-commerce journey. Among other analyses, Amazon's recommendation algorithms analyze browsing behavior and purchase data to tailor individual users' shopping experiences. This can be done by suggesting items frequently bought together, recommending add-on products, or personalizing follow-up emails with related product offers. This AI-powered personalization has proven extremely effective in driving customer engagement and sales. Recent data confirm the profitability of this approach, with approximately 35 % of Amazon's sales coming from personalization efforts and 56 % of these shoppers being likely to purchase again (Rebuy Engine, 2024).

**Caveats of novel technologies.** Additionally, ethical considerations or potential drawbacks concerning consumers' privacy are often ignored, even though existing research has shown the harmful effects of AR on body image (Javornik et al., 2022), the potential of chatbots to cause feelings of creepiness (Rajaobelina, Prom Tep, Arcand, & Ricard, 2021), and its intrusion into people's privacy due to targeting (Garaus & Wagner, 2019). Extant research provides comprehensive reviews and frameworks on the application of specific new technologies, outlining both positive and negative consequences (Chen, Perry, Boardman, & McCormick, 2022). However, a theoretical framework is still missing (1) for the great variety of experiences that can be created through AI, AR, and VR in retailing and (2) that concentrates on generating the creation of the experiences themselves. This is surprising since scholars agree that new technologies can be used throughout the customer journey (Tom Dieck & Han, 2022) and existing research calls for a deeper understanding of the effects of various AI tools on the customer experience to ensure their effective use and favorable consumer responses (Ameen et al., 2021).

**Research agenda.** To close this gap, we conceptually develop a framework, backed by existing literature, for integrating AI, AR, and VR into the concept of the experience economy, with a focus on how these technologies can enhance customer experiences in retail environments.

Our article critically discusses emerging issues such as ethics, privacy, cognitive overload, alienation, and sustainability, responding to growing calls for a holistic perspective that integrates both the benefits and the drawbacks of new technologies and innovations in retailing. By incorporating novel technologies into the experience economy framework, the research explores how AR, AI, and VR can enrich customer interactions across the four experiential realms of entertainment, education, escapism, and esthetics, providing insights for companies seeking to leverage these innovations to improve customer engagement. Companies can use the enhanced framework to systematically explore how these technologies can improve consumer interactions and create valuable retail experiences.

The structure of this article is as follows: In section 2, we describe how the experience-economy framework can be modified to include the idiosyncrasies of AI, AR, and VR. Section 3 illustrates the applicability of the framework by using it to systematically assess the potential of a well-understood application, chatbots, along the four dimensions of the framework. In section 4, we discuss several important concerns that accompany the introduction of these technologies. In section 5, we discuss the implications for practitioners and academics and present a table listing several practical applications for the respective intersections of the technologies and the framework dimensions. Section 6 concludes this article with a summary, limitations, and an outlook on promising future research areas.

## 2. AI, AR, VR, and the four realms of experience

In 1998, Pine and Gilmore introduced the concept of the experience economy, postulating that consumers seek experiences associated with goods and services. The authors define four realms of experience (i.e., entertaining, educational, escapist, and esthetic) that differ based on their different levels of absorption/immersion (i.e., the level of involvement and the impact of the experience) and active/passive participation (i.e., individuals being participants rather than observers). Taken together, the four realms build a memorable experience, and the perfect customer experience includes elements of all of them (Tom Dieck & Han, 2022). Ideally, the experiences last throughout the whole customer journey (Lemon & Verhoef, 2016).

Over the years, consumers' expectations of experiences have increased consistently, with new technologies creating avenues to meet these expectations (Ameen et al., 2021). The idea of the experience economy accounts for these developments and is suitable for exploring the benefits and challenges that innovative technologies such as AI, AR, and VR bring to retail. Fig. 1 shows AI, AR, and VR as significant drivers of all four realms in the experience economy, the positive and negative

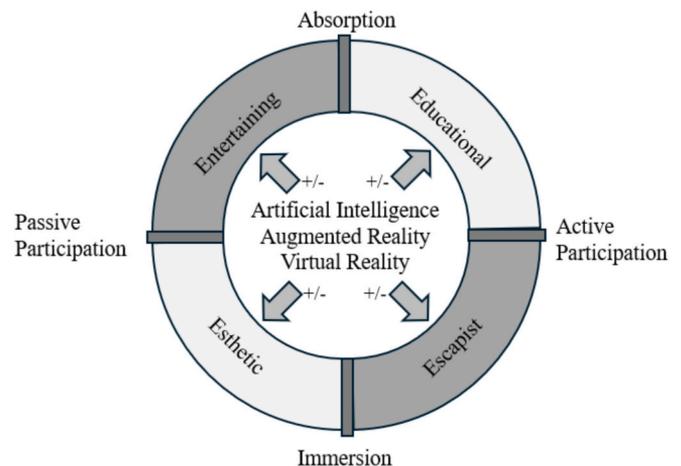


Fig. 1. The experience-economy framework with AI, AR, and VR (based on Pine & Gilmore, 1998).

implications of which we will detail in the following sections.

### 2.1. Entertaining

In Pine and Gilmore's model (Pine & Gilmore, 2011), entertainment is a passive experience based on emotions such as enjoyment and fun, during which consumers respond with actions such as laughing or applauding (McLellan, 2000). New technologies create new opportunities to create retail entertainment (Kang & Kim, 2025; Rauschnabel, Babin, Tom Dieck, Krey, & Jung, 2022) and social interaction (Moore et al., 2022). For example, AR filter-based selfies are recognized as a valuable way to create user-generated branded content, which can be easily integrated into selfie campaigns and lead to enhanced satisfaction and positive e-word-of-mouth (Ibáñez Sánchez, Orús, & Flavián, 2022). Likewise, using AR apps during the pre-purchase stage creates customer engagement, which stimulates creativity and a sense of anticipated satisfaction with the choice of product (Jessen et al., 2020). Similarly, mixed realities can be used to create novel and enjoyable experiences at the shopping venue, and to increase both the intention to purchase and consumers' willingness to share experiences (Sung, Bae, Han, & Kwon, 2021). Virtual influencers allow companies to rely on computer-generated avatars that look like real human beings (Sands, Campbell, Plangger, & Ferraro, 2022).

### 2.2. Educational

The educational realm prompts the consumer to participate fully in learning, for instance, about newly developed products or features (Pine & Gilmore, 2011; Rauschnabel et al., 2022). This content is increasingly AI-generated, as tools such as ChatGPT, Midjourney, and DALL.E allow us to create texts, images, audio, or video files extremely quickly (Park, 2024). Some of this content also features AR or VR, which reduces the cognitive load and increases fluency in processing the information by helping consumers imagine how a product would look (Fan, Chai, Deng, & Dong, 2020). This realm can even become a significant driver for the adoption of virtual environments such as the Metaverse (Sze, Salo, & Tan, 2024; Wang, Liu, Hu, & Lee, 2023; Zalan & Barbesino, 2023). Enhanced displays can be used to convey important product information and use mixed reality to educate consumers about products and brands (Sung et al., 2021). Even more sophisticated AI agents can infer that a problem exists from a customer's voice and support a human salesperson in helping to solve it. Chatbots can show customers how to use or give advice to reduce uncertainty over a product. In this way, virtual assistants can become companions fully integrated into consumers' lives, and this use of anthropomorphism can help to reduce the barriers between machines and human beings (Hoyer et al., 2020).

### 2.3. Escapist

In this context, escapism describes an individual's desire to leave the concrete, physical world (Henning & Vorderer, 2001). In contrast to entertainment, consumers actively participate in escapism (McLellan, 2000), for example, if the virtual element of AR links to interactive digital image technologies, also called telepresence (Cowan & Ketron, 2019). The latter can act as an intermediary in improving the attitudes of customers by triggering consumers' cognitive and affective responses, such as feeling a product's physical presence, a sense of ownership, and positive or negative emotions (Suh & Prophet, 2018). Often, escapism is considered a coping strategy that enables individuals to leave their real-world daily problems behind and immerse themselves in new and more desirable experiences (Sung et al., 2021). A closely related concept is social presence, which comes from the eponymous theory (Short, Williams, & Christie, 1976) and defines the extent to which an individual is perceived as a "real person" in mediated communication. The realm of escapism can be enriched by adding digital layers to the physical world (AR) or by allowing customers to dive into a purely digital world (VR).

The former modifies a realistic experience by changing and enhancing the physical world, while the latter implies that customers leave this to enter a digital environment (Sung et al., 2021). Previous research has already indicated the superiority of AR apps compared to traditional non-AR apps when it comes to reuse and the intention to purchase (Chekembayeva, Garaus, & Schmidt, 2023; Poushneh & Vasquez-Parraga, 2017). Shopping in a virtual store can thus stimulate the escapism experience, resulting in favorable affective and cognitive responses on the part of the consumer that yield feelings of pleasure and increase the intention to purchase (Loureiro, Guerreiro, & Japutra, 2021).

### 2.4. Esthetic

This realm deals with the passive immersion of a consumer into an environment or activity. In contrast to escapism, the consumer does not influence the environment actively (Pine & Gilmore, 1998). The impact of esthetics is far-reaching: Scholz and Smith (2016) report that even bystanders watching users interact with augmented marketing perceive the effect. In retail, this can be created by designing store environments that make customers feel comfortable (Pine & Gilmore, 2011). Hence, in this context, esthetics are concerned with making an environment appealing, exciting, and comfortable (McLellan, 2000).

The role of esthetics in augmented or virtual customer experiences is crucial since it shapes consumers' first impressions of technologically enhanced reality: AI can enrich the esthetic experience by enhancing the presentation of products (Abed & Castro-Lopez, 2023). Hilken et al. (2022) report that across four experiments, AR-powered presentations of products enhance the intention to purchase at the point of sale and stimulate this at home for bundled (vs. individual) products, and VR can expose consumers to innovative environments during the shopping experience. AI-created or manipulated imagery can be used to encourage purchases in an online store. Examples include the virtual try-on of Gucci shoes on Snapchat (2023), or the virtual try-on feature of Swarovski (2023) jewelry products. Computer-generated stores allow consumers to walk through virtual aisles, pick up virtual products, and put products into virtual baskets (Lombart et al., 2020). Previous research has shown that consumers purchase more products, spend more money, react more strongly to price promotions, and purchase more national brands in virtual than in physical stores (van Herpen, van den Broek, van Trijp, & Yu, 2016). Additionally, VR can create favorable attitudes toward a mall by helping consumers escape the crowded shopping experience as well as stimulate favorable responses (Van Kerrebroeck, Brengman, & Willems, 2017).

In physical stores, non-interactive big screens can be replaced by interactive displays that improve the overall customer experience (Alexander & Kent, 2022), and digital signage systems can be installed that allow physical retail environments to target consumer segments at the point of sale. AI-powered facial recognition software enables the identification of specific individuals and facilitates one-to-one marketing (Garaus, Wagner, & Rainer, 2021). Consequently, marketing content can be tailored to the target group, and the assortment can be optimized (Fountain, McCarthy, & Saleh, 2019).

## 3. Practical example: Chatbots in retailing

The following paragraphs demonstrate how the developed theoretical framework can be applied to the new technology of chatbots. We selected chatbots as an illustrative example, since they pose an application that is clearly defined and can be used to incorporate AI, AR, and VR technologies.

Chatbots have been described as digital conversational agents, digital butlers, virtual assistants, agents in electronic commerce, and online chat agents (Crolic, Thomaz, Hadi, & Stephen, 2022). Research on chatbots began more than 70 years ago with the seminal work of Turing (1950). It led to the emergence of modern chatbots that enable seamless

interaction with humans through the use of natural language (Tintarev, O'Donovan, & Felfernig, 2016). Essentially, they are software applications that interact with users through voice, text, or visual elements. Such embodied conversational agents are usually called avatars (Lee & Choi, 2017). Their appearances vary considerably, particularly in the degree to which they resemble humans.

Huang and Rust (2018) have already developed a theory of four levels of (artificial) intelligence (i.e., mechanical, analytical, intuitive, and empathetic), which can be applied to chatbots that automate tasks traditionally performed by humans. Similarly, we apply this approach to chatbots used in retailing and discuss the potential use of all four realms of the experience economy in ascending order of complexity. Depending on the role that chatbots take, they can be described as gamification tools, facilitators, advisors, or personalizers (see Fig. 2).

### 3.1. Entertaining: A gamification tool

Chatbots have long been used to answer basic questions regarding assortment (routine) ordering, logistics, and payments for stationary and online retailing. In addition, self-service checkouts or (specialized) vending machines regularly offer interaction with their users. In these cases, neither form realism nor behavioral realism is required, but ease of use is essential. Following Huang and Rust (2018), these might be labeled first-generation “early conversational systems.” They offer essential communication without contextual information and are used for simple, repetitive, routine tasks. Such chatbots are said to have “mechanical intelligence” and minimal ability to learn or adapt. From a technical point of view, these are rule-based algorithms that use pre-defined and stored text modules to formulate their answers. Still, these chatbots can offer entertaining experiences, such as elements of gamification (Putz & Treiblmaier, 2015) or interactive and personalized content. Apart from the ever-present sustainability concerns over the technology, this can lead to consumer concerns regarding cognitive overload.

### 3.2. Educational: A facilitator

Educational chatbots can answer more complicated questions on personalized products (e.g., cosmetics, fashion) and services (e.g., financial investments, insurance), or are suitable for complaint management. In this context, form realism is required, but not behavioral realism. Huang and Rust (2018) would label such chatbots second generation or “task completion conversational systems.” They allow situational communication, which uses current contextual information. Such chatbots use “analytical intelligence” and adapt their response based on available information. They follow logical, analytical, rule-

based learning and are designed to perform specific tasks in restricted domains. The quality of the experience depends on the task; for example, diffusing dissatisfaction and avoiding further retaliation is paramount in complaint management, and answers to inquiries might be supported by visual presentations (e.g., a model from an advertising campaign wearing a garment that is the subject of the complaint).

In retail, personalized accounts might be offered to support the delivery of repeat orders (e.g., clothing of the correct fit) to establish loyalty (via promotions or personalized discounts). In an online setting, these chatbots remember customer-specific data, such as the products they have viewed, which are used during the interaction. They provide tailor-made recommendations, which, however, might make some customers worry about privacy.

### 3.3. Esthetic: An advisor

We consider that the difference between absorption and immersion is defined by the degree of the chatbot’s personalization, implying that a single user communicates with a chatbot tailored to that customer. A personal shopping assistant (such as Apple’s Siri and Amazon’s Alexa) or a virtual dressing-room chatbot provides illustrative examples. The former might be asked for advice on what to buy in a particular store, while the latter creates an avatar for the customer, requiring the user to provide their dimensions or clothing sizes; alternatively, a cell phone camera could carry out a body scan. Personalization might proceed further by choosing a skin tone or a hairstyle (from a set of options), or by uploading an image of the customer’s face. The avatar shows the person’s appearance when wearing clothing or certain accessories. Behavioral realism is required, but only in a limited form. For example, in the case of the virtual dressing-room chatbot, anecdotal evidence suggests that shoppers do not like trying on underwear using an avatar with the same face as theirs (Shin, Kim, & Biocca, 2019).

Huang and Rust (2018) would designate such chatbots as being of the third generation, an “intelligent personal assistant” or a “digital butler”. They offer advanced levels of communication and learn in real time because they receive information from different sources (e.g., location, time, personal profiles, products already purchased, reviews, complaints). Chatbots provide reactive and proactive support, and their power increases with continuous usage. Issues of privacy become more pronounced with such chatbots, as well as the degree of cognitive overload and alienation.

### 3.4. Escapist: A personalizer

Personalization is brought to the next level by chatbots picking up on a user’s instantaneous reactions and connecting with them in a social environment. For the virtual dressing room, a chatbot might employ facial pattern recognition to infer the customer’s emotional state. In addition, it could search the internet in real-time for influencers’ recommendations that the customer or a group of people might appreciate. For this, both behavioral and form realism are required. According to Huang and Rust (2018) these chatbots are the fourth generation “social chatbots”. They can recognize emotions or even react to emotional changes during communication. Such chatbots build emotional bonds with users and have “empathetic intelligence”. To achieve this, they must also recognize emotions and individual communication styles, as well as have effective data processing.

In retail, the customer experience can be reinforced by combining the roles of producer and consumer (a “prosumer”). One example could be chatbots assisting in planning the furniture of a living room (cf., IKEA’s app described in section 1), assembling the (purchased) furniture, designing missing or broken parts of the furniture, and placing an accurate order for their production by a 3D printer. The AI-generated content could then be disseminated via online communities to share these new designs with other customers (Park, 2024). Another example could be that of the chatbot proposing a recipe for a meal based on the

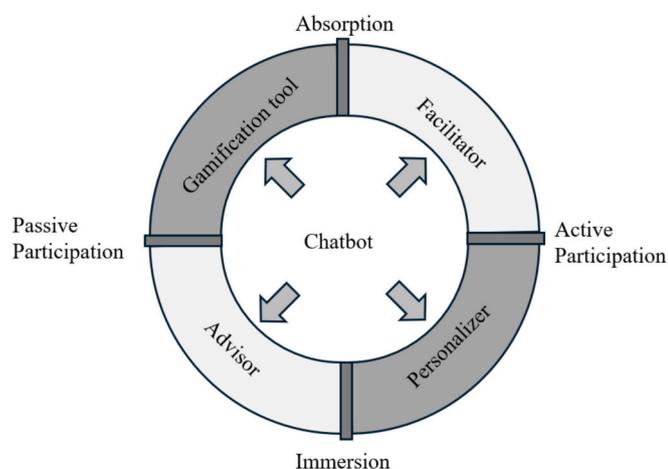


Fig. 2. Chatbots in the experience economy (based on Pine & Gilmore, 1998).

ingredients available in the refrigerator, which suits the user's tastes. So far, such chatbots (e.g., Replika, Xiaoice) have been developed predominantly in China and Japan, where data protection concerns play a lesser role than in the EU. Data protection becomes more relevant when the increased learning ability of chatbots is based on their improved access to personal data. From a consumer perspective, having chatbots as advisors who are deeply involved in individual lifestyles can raise ethical concerns, privacy issues, and, increasingly, problems of alienation.

#### 4. Concerns

Despite the numerous opportunities these approaches present, outlined in the previous section, the application of AI, AR, and VR in retail also raises several concerns. These concerns stem from the use of personal data or the possibility of inducing behaviors that are detrimental to consumers' personal interests. Concerns about privacy and ethics have always challenged the use of data in marketing, and this debate has become even more pronounced with the emergence of AI.

##### 4.1. Ethics

Ethical considerations arise when AI algorithms employ unfair or discriminatory targeting practices, amplifying existing biases (Yi & Turner, 2024). For instance, some retailers can use AI to analyze customer data and determine the highest price a specific customer is willing to pay for a product. This practice, known as targeting, can lead to discriminatory pricing, where customers from different demographic groups are charged different prices for the same product based on their perceived ability to pay. This can target lower-income individuals or minority groups unfairly, amplifying existing economic disparities and leading to significant ethical concerns about fairness and equality in retailing (Inman & Nikolova, 2017). Targeting based on a consumer's current state of mood makes them vulnerable and, at the same time, highly receptive to advertising. For instance, detailed knowledge of consumers in combination with targeted selling can allow companies to nudge them to purchase unhealthy food items, such as chocolate (Garg & Lerner, 2013) or alcohol (Monk, Qureshi, & Heim, 2020), with the use of highly questionable advertising practices at the point of sale. Research also reports that a lack of control and transparency in terms of the use of consumer data can cause feelings of exploitation (Puntoni, Reczek, Giesler, & Botti, 2021).

##### 4.2. Privacy

Previous research has identified trust in the vendor and the perception of risk to personal information as significant antecedents for an individual's willingness to disclose personal data online (Treiblmaier & Chong, 2011). The opacity of online and offline data collection and its use has aggravated problems related to consumer privacy since AI, AR, and VR not only employ enormous data sets but also have advanced real-time data processing abilities (Ameen et al., 2021). Concerns about unauthorized use of data represent a major drawback of AI-featured services, particularly for hedonic products (Barari et al., 2023).

The current practices of companies developing AI-powered facial recognition software are already under scrutiny due to concerns around privacy. For instance, a US-based company was fined 9.4 million US dollars due to violations of data-protection laws (Perrigo, 2022). The company collected 20 billion photographs from the internet to train AI software without acquiring consent. Walmart had already filed a patent in 2017 that allowed for the identification of unhappy shoppers and helped the company to take corrective action by, for instance, informing employees to find out what had gone wrong (Peterson, 2017). This illustrates that personal data can be used easily for intrusive business practices, such as sending (virtual) shopping assistants to "big spenders" and prompting them to spend more money in the store (Stevens, 2017).

The ability of an AI agent to infer from a customer's tone that there is a problem that has remained unmentioned and then provide real-time feedback and guidance might make customers feel uncomfortable about AI monitoring conversations (Davenport, Guha, Grewal, & Bressgott, 2020). Another example of privacy concerns is that of virtual try-ons, especially if the consumer's face is scanned. Virtual fitting rooms can have negative psychological impacts on people with a high body mass index. In addition, the self-image threat triggered by avatars representing a consumer's body image results in lower intentions to purchase and lower product evaluations (Yang, Xiong, Mao, & Ma, 2023).

Consumers might react negatively to such intrusive AI-enabled applications. For instance, the positive effects of emotional targeting are reduced through targeting disclosure: If consumers are made aware of emotional targeting, they might react with the feeling that they are being manipulated (Garaus et al., 2021).

##### 4.3. Cognitive overload

AI, AR, and VR can cause severe cognitive overload among consumers, especially in the escapist realm. Extant studies acknowledge that many factors contributing to the experience of escapism can also cause feelings of information overload (Scheibehenne, Greifeneder, & Todd, 2010). Conversely, if escapism leads to a flow experience without providing a challenge to consumers, they might experience the time spent on new technologies as wasted (Csikszentmihalyi & Csikszentmihalyi, 1988). Any enjoyable experience can also prolong app usage, which, in turn, might result in addictive behavior. In hindsight, consumers would regret having spent more time than necessary on the app and express feelings of frustration. The escapism experience can thus lead to decreased brand reputation, brand loyalty, and intention to reuse (McLean, Al-Nabhani, & Marriott, 2022). Previous research has also indicated that virtual store satisfaction is lower than physical store satisfaction (Pizzi, Scarpi de Claricini, Pichierrri, & Vannucci, 2019), and it also acknowledges that perceptions of products can be biased if real-world images are used as the basis for AR (Cho & Schwarz, 2012), leading to a slightly distorted perception of reality.

AI, in contrast, has the potential to reduce the cognitive load as it categorizes, summarizes, and analyzes content and provides suggestions based on the data. However, AI sometimes "hallucinates" and produces biased or irrelevant information, which can become problematic, particularly if consumers stop thinking for themselves and become overly reliant on AI (Park, 2024).

##### 4.4. Alienation

AR face filters are primarily used to change the appearance of the consumers and hence function as a means of self-representation (Ameen, Cheah, & Kumar, 2022; Javornik et al., 2022). However, the use of these filters is often motivated by ideal self-representation and was found to lead to mixed results regarding body image, self-esteem, and actual purchasing behavior. While Ameen et al. (2022) find a positive effect on the body image of Generation Z women, Javornik et al. (2022) demonstrate that it can also reduce self-acceptance and negatively affect well-being. In addition, if AR is used to project holograms into the real world, it is important to consider that retailers cannot control the context in which their products are evaluated. In other words, customers may use the AR technology in a context that is not beneficial for the evaluation of the product (i.e. in disorganized rooms), resulting in negative spillover effects (Pfaff & Spann, 2023).

Another controversial finding concerns the level of anthropomorphism attached to chatbots (Croluc et al., 2022; Han, 2021; Yanxia, Shijia, & Yuyang, 2024). Virtual influencers have given rise to debate on the desirability of having unreal, "perfect" bodies that serve as role models for adolescents and cause them to photoshop their own pictures—or, even worse, to have cosmetic surgery—to meet the same

requirements (Tiffany, 2019). Pictures of an idealized body can result in appearance anxiety (Slater, Cole, & Fardouly, 2019), which is particularly alarming since empirical research reveals that it is becoming increasingly difficult for consumers to identify virtual influencers (Franke, Gröppel-Klein, & Müller, 2023). In addition, the lack of human interaction or effort potentially required from customers may negatively affect the overall shopping experience (Ameen et al., 2021, Barari et al., 2023).

4.5. Sustainability

The substantial energy consumption needed to power AI, AR, and VR has long been under scrutiny. AI requires a significant degree of computational resources, particularly machine learning and deep-learning algorithms, including the increasingly popular large-language models. Large data centers host the infrastructure for AI processing and consume vast amounts of electricity, giving AI a large carbon footprint. Strubell, Ganesh, and McCallum (2019) warn that training a single AI model can emit as much CO<sub>2</sub> as five cars over their lifetimes. Similarly, AR and VR technologies require high-performance computing to manage real-time interactions. The steadily growing demand for improved graphics quality and smoother user experiences increases energy consumption, with motion tracking systems, high-resolution displays, and the need for real-time data processing in AR/VR applications contributing substantially to energy use.

Apart from their use, the production and disposal of electronic devices required for AI, AR, and VR technologies have substantial environmental impacts. These technologies rely on highly sophisticated hardware, including graphics-processing-unit sensors and specialized computing units, which are replaced frequently due to rapid technological change. Rare earth metals are needed to manufacture these components, whose mining is environmentally unsustainable (Nayar, 2021).

5. Discussion

Integrating AI, AR, and VR into the framework of the experience economy provides a novel lens through which to view consumer engagement in retail. The experience economy suggests that businesses can create value by offering memorable experiences across four realms: entertaining, educational, escapist, and esthetic. The advent of AI, AR, and VR technologies offers new avenues for enriching these experiences, with significant implications for companies' marketing strategies and consumer behavior research.

5.1. Implications for academics

In this article, we propose a framework that could serve as the foundation for rigorous academic studies exploring the impact of novel technologies on the retail experience of consumers. The integration of AI, AR, and VR into retail environments has significant theoretical implications for the experience economy, as Pine and Gilmore (1998) outlined. These technologies enhance the consumer experience and present new challenges and opportunities for businesses and researchers, while AI-driven personalization represents a paradigm shift in customer engagement strategies. The ability of AI to predict consumer preferences based on past behaviors can transform passive shopping into an engaging and interactive experience, fostering deeper emotional connections with brands (Ameen et al., 2021).

From an *entertainment* perspective, AI, AR, and VR create new opportunities by overlaying digital content onto the physical world or by immersing consumers in entirely virtual environments, both of which can enhance brand interaction and satisfaction. (Ibáñez Sánchez et al., 2022). These technologies simultaneously facilitate interactive and immersive *educational* experiences, with enhanced displays and AI-powered chatbots educating consumers about product features, use,

and benefits, reducing uncertainty and increasing product knowledge (Rauschnabel et al., 2022). From an *esthetic* point of view, AR and VR can create visually appealing virtual stores, allowing consumers to explore and interact with products in a simulated environment. This enhances the overall shopping experience by making it more engaging and enjoyable (Lombart et al., 2020). These technologies can also provide *escapist* experiences by transporting consumers to virtual worlds in which they can interact with products in a highly immersive setting. This can lead to positive emotional responses and an increased intention to purchase (Sung et al., 2021).

By applying our enhanced experience-economy framework, companies can systematically explore the impact of their (envisioned) use of these technologies using the realms of entertainment, education, escapism, and esthetics. This also entails carefully considering to what extent these tools' application infringes on issues of ethics, privacy, cognitive overload, alienation, and sustainability. This comprehensive and systematic evaluation will help to assess and better understand an application's value and impact before or during its deployment. Table 1 summarizes numerous research topics that illustrate how AI, AR, and VR will impact the sectors of the experience economy, respectively. Each of those topics represents a tool or strategy that the industry can use to improve the customer experience and, simultaneously, an area for investigation for research. Importantly, the topics listed in Table 1 are not exhaustive but provide an entry point for further investigation.

5.2. Implications for practitioners

From a practitioner perspective, the integration of AI, AR, and VR is a powerful opportunity for enhancing the customer experience across the four realms of the experience economy: entertainment, education, escapism, and esthetics. Among others, AI offers powerful personalization tools, and retailers can apply AI-driven chatbots not just for enhancing their service offerings, but for triggering engagement that contains emotions and adapts to the mood of the customers. Another potential application scenario is the recommendation of products based on customers' feelings or context and the provision of assistance when it comes to tasks such as the selection of an outfit or the suggestion of a recipe. Applications such as these foster customer engagement, particularly in the educational and escapist realms, but also necessitate the consideration of data privacy and transparency.

AR can be used to transform physical and digital customer

Table 1  
AI, AR, and VR tools for the experience economy.

	AI	AR	VR
Entertainment	Personalized entertainment, gamified chatbots, virtual influencers	Interactive filters and layers, gamified AR campaigns, branded selfie tools	Immersive games, virtual shows and showrooms, branded VR environments
Education	Chatbots for frequently asked questions, personal assistants and tutorials, adaptive learning agents, smart shopping manager 24/7	Product demos in 3D, visual overlays, in-store navigation and information, robotics in retailing	Simulated trainings, experimental learning experiences, interactive product labs
Escapism	Emotion-aware assistants, co-design tools, mood-based experiences	Telepresence, enhanced environments, emotional triggers	Immersive worlds, fantasy themes for shopping, branded narrative environments
Esthetics	Personalized product images, ads tailored to facial recognition, customized layout and interfaces	Virtual dressing rooms, overlays based on individual preferences, artistic enhancements	Visually appealing virtual stores, ambient virtual design, immersive environments

touchpoints into immersive and interactive experiences. For example, companies can use AR to enable virtual try-ons, branded filters, and real-time product demos. These applications can be particularly helpful at the pre-purchase stage and potentially enhance customer satisfaction and engagement. AR can also be used to improve entertainment and esthetic dimensions, encouraging creativity and the sharing on social media among users.

Similarly, VR can create immersive shopping environments, with virtual stores and branded VR experiences enabling escapism and esthetic immersion, which enable consumers to browse in simulated worlds that are free of outside distractions. Such environments can increase emotional connection and be beneficial for product recall and purchasing intent, especially when it comes to products that are related to lifestyle and luxury.

However, it needs to be mentioned that all these technologies come with their respective challenges. Cognitive overload, ethical use of consumer data, and sustainability issues need to be addressed, including the use of energy and the emergence of electronic waste. Consequently, practitioners need to focus on products' usability, informed consent when it comes to the use of private data, and environmentally responsible innovation to maintain consumer trust. In summary, retailers that strategically incorporate AI, AR, and VR into their business models can create more personalized, engaging, and long-lasting experiences. Managers will need to find ways in which they can combine these powerful and immersive technologies with an ethical design and a sustainable business model to create meaningful customer value.

## 6. Conclusion, limitations, and future research

Integrating AI, AR, and VR into the experience economy framework offers profound implications for a better theoretical understanding and practical enhancement of consumer retail experiences. This framework contributes a new theoretical perspective on how these technologies can enhance customer experiences across the four realms of the experience economy (entertainment, education, escapism, and esthetics). While these technologies can provide new tools for creating personalized, immersive, and engaging experiences, they also necessitate careful consideration of ethical, privacy, cognitive overload, alienation, and sustainability issues.

This study's findings are limited because our extended framework is purely conceptual and based on the existing literature. Future research should focus on empirical and longitudinal studies to better understand the long-term impacts of AI, AR, and VR on consumer behavior and attitudes in retail. In this regard, the chatbot example that we used in this article was an illustration of how the framework can be applied in practice, and we explicitly encourage other researchers to use it as a foundation to investigate other implementations of AI, AR, and VR in retail. The application areas that we list in Table 1 provide numerous starting points, but we also acknowledge that practitioners and researchers might come up with ideas that are not mentioned in this article.

Additionally, research needs to explore the intersection between these technologies and ethics and consumer privacy, ensuring that advancements in personalization and immersion do not compromise consumer trust and well-being. Finally, research is needed that explores the disruptive impact of other technologies (e.g., Internet of Things, Metaverse, blockchain, digital twins) in a similar manner to create a holistic understanding of the drivers that shape the customer experience.

## CRedit authorship contribution statement

**Marion Garaus:** Writing – original draft, Investigation, Conceptualization. **Horst Treiblmaier:** Writing - review & editing, Writing – original draft. **Christian Garaus:** Writing – original draft. **Udo Wagner:** Writing - review & editing, Writing – original draft, Conceptualization.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Horst Treiblmaier, the second author, has previously served as a guest editor for this journal. We confirm that he was not involved in the review process or the decision to publish this article.

## Data availability

No data was used for the research described in the article.

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