Artificial intelligence-enabled personalization in interactive marketing: a customer journey perspective

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Abstract

Purpose – Artificial intelligence (AI) technology has revolutionized customers' interactive marketing experience. Although there have been a substantial number of studies exploring the application of AI in interactive marketing, personalization as an important concept remains underexplored in AI marketing research and practices. This study aims to introduce the concept of AI-enabled personalization (AIP), understand the applications of AIP throughout the customer journey and draw up a future research agenda for AIP.

Design/methodology/approach – Drawing upon Lemon and Verhoef's customer journey, the authors explore relevant literature and industry observations on AIP applications in interactive marketing. The authors identify the dilemmas of AIP practices in different stages of customer journeys and make important managerial recommendations in response to such dilemmas.

Findings – AIP manifests itself as personalized profiling, navigation, nudges and retention in the five stages of the customer journey. In response to the dilemmas throughout the customer journey, the authors developed a series of managerial recommendations. The paper is concluded by highlighting the future research directions of AIP, from the perspectives of conceptualization, contextualization, application, implication and consumer interactions.

Research limitations/implications – New conceptual ideas are presented in respect of how to harness AIP in the interactive marketing field. This study highlights the tensions in personalization research in the digital age and sets future research agenda.

Practical implications – This paper reveals the dilemmas in the practices of personalization marketing and proposes managerial implications to address such dilemmas from both the managerial and technological perspectives.

Originality/value – This is one of the first research papers dedicated to the application of AI in interactive marketing through the lenses of personalization. This paper pushes the boundaries of AI research in the marketing field. Drawing upon AIP research and managerial issues, the authors specify the AI–customer interactions along the touch points in the customer journey in order to inform and inspire future AIP research and practices.

Keywords Artificial intelligence, Artificial intelligence-enabled personalization, Interactive marketing, Customer journey

Paper type Conceptual paper

1 Introduction

Artificial intelligence (AI) is a revolutionary concept that is changing people's everyday lives. Haenlein and Kaplan (2019, p. 5) define AI as "a system's ability to interpret external

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data correctly, to learn from such data and to use those learnings to achieve specific goals and tasks through flexible adaptations." The key applications of AI systems include natural language processing, image recognition, speech recognition, problem solving and reasoning, machine learning, natural language generation, image generation and robotics (Paschen *et al.*, 2020). The ultimate AI application is expected to operate like a human, with the capabilities of knowing, learning, perceiving, sensing, acting, planning, communicating and reasoning (Huang and Rust, 2018; Payne *et al.*, 2021a). According to a recent report by IDC, the market value of AI application and research reached $327.5bn in 2021 and was expected to break the $500bn mark by 2024 (IDC, 2021). In addition to the changes that AI has brought to individuals' daily lives, AI is also reshaping the way in which organizations operate by facilitating task automation (Davenport *et al.*, 2020). Against the ever-growing application of AI in practice, AI research in the social sciences is also witnessing a major step in its scope and focus on AI and decision making, application domains, data information and challenges in practice (Dwivedi *et al.*, 2020).

Among its application domains, AI's value has been recognized in the field of marketing and the landscape of the consumer market and marketing practices is rapidly changing. In the marketing field, compared to the application of AI in marketing management and operation, a greater proportion of AI research focuses on customer-facing AI (Guha *et al.*, 2021). In this case, AI directly interacts with consumers and reshapes their interactive marketing experiences throughout the customer journey (Kannan and Kulkarni, 2022). Wang (2021, p. 1) defines interactive marketing as a "bi-directional value creation and mutual-influence marketing process through active customer connection, engagement, participation and interaction." The application of AI in interactive marketing replaces human-to-human interactions and has changed the nature of interactive marketing by the widespread use of human-to-machine interactions at the touch points along the customer journey (Huang and Rust, 2018). Lemon and Verhoef (2016) highlight three key touch points of the customer experience (i.e. prepurchase, purchase and post-purchase stages) that are affected by a previous experience and could be used to forecast a future experience. The application of AI in interactive marketing emphasizes utilizing data generated from previous interactions with customers to improve the customer experience at those key touch points (Payne *et al.*, 2021a, b).

Among the transformations brought by the application of AI along the customer journey, personalization is an essential aspect that has been highlighted by marketing research and practice (Payne *et al.*, 2021a). Personalization plays a crucial role in cocreating, connecting and engaging with customers in interactive marketing practices (Payne *et al.*, 2021a). The personalization of interactive marketing is an iterative process of understanding consumers and generating responses (Thomaz *et al.*, 2020). By interlinking customers and marketers, personalization enhances the relationship between them, leading to positive attitudes and behaviors among consumers (Simonson, 2005). However, the research also points out that psychological reactance and subsequent opposition action may occur when personalization limits a consumer's freedom of choice and raises privacy concerns (Pizzi *et al.*, 2021; Simonson, 2005). Such facts revealed the dilemma of employing AI to create a personalized marketing experience.

Against this background, in this paper, the authors explore how AI-enabled personalization (AIP) shapes customer experiences along the customer journey. On the basis of the critical background of the application of AIP and research gaps revealed in academic research and marketing practice, the objective of this paper is threefold. First, drawing upon Lemon and Verhoef's (2016) concept of a customer journey, the authors focus on utilizing previous experience in shaping customer experiences in the prepurchase, purchase and post-purchase stages and develop an integrated framework of AIP application throughout the key touch points along that journey. Second, considering the emerging stage of AIP development, the authors also highlight the dilemmas that marketers face at each stage of the customer journey and offer

managerial recommendations for interactive marketing practices. Third, from an academic perspective, based on a review of the academic literature and industry observation, the authors identify gaps between academic research and industry practices and thereby suggest important directions for future research.

In what follows, the authors first develop a comprehensive understanding of AIP and build an integrated framework focusing on AIP throughout the customer journey. The authors next illustrate the dilemma of applying AI at each stage of the customer journey and offer corresponding managerial recommendations. The authors conclude the paper by recommending future research directions.

2 AI-enabled personalization throughout customer journey

AIP is supported by fine-grained contextual insights at the individual customer level. Technically, AIP relies strongly on learning paradigms, including supervised learning, unsupervised learning and reinforcement learning, to analyze consumer data (Ma and Sun, 2020). These algorithms provide marketers with a convenient way of analyzing customer hyper-contextual factors (Tong *et al.*, 2020). AIP is often used in conjunction with the Internet of Things (IoT) for capturing data (Ameen *et al.*, 2021) and virtual reality or augmented reality for creating enjoyable and satisfied interactions (Ma and Sun, 2020). As noted earlier, the ultimate objective of AIP is to initiate effective interactive marketing activity with the customer at the appropriate time and in an appropriate place (Kumar *et al.*, 2020). When AIP achieves this objective, it would make itself an ideal form of interactive marketing implementation (Huang and Rust, 2021b). It is, however, difficult to achieve this success because AIP is constrained by the volume and quality of customer data, the ability of firms to generate insights from the data and the effectiveness of implementation (Ma and Sun, 2020).

AIP delivers different types of personalization according to the various categories of AI (i.e. mechanical, thinking and feeling AI) (Huang and Rust, 2021a). As such, AIP results in different ways of cocreating value and engaging with customers according to the various levels of consumers' value-in-use perceptions (Payne *et al.*, 2021a, b). More precisely, there is a lower level of AIP when firms leverage mechanical AI in interactive marketing. Mechanical AI has the aim of automating repetitive and routine tasks in order to maximize scale and efficiency (Huang and Rust, 2021b), but there is still a degree of personalization, such as bill payments, fund transfers and fast food ordering and delivery (Payne *et al.*, 2021a). As such, AIP with mechanical AI can fulfill routine and standardized interactions with consumers. There is a higher level of AIP when firms leverage thinking and feeling AI in interactive marketing. Thinking AI has the aim of delivering personalization by uncovering meaningful patterns from personal and contextual data (Huang and Rust, 2021b). AIP with thinking AI could fulfill informative and pragmatic interactions with consumers. As such, AIP with thinking AI could respond to consumers with information or actions, such as greener product recommendations and real-time personalized insurance planning (Payne *et al.*, 2021a; Dawar, 2018). Feeling AI has the aim of feel customers with empathy and understanding. AIP with feeling AI could thus fulfill emotional and relational interactions with consumers (Huang and Rust, 2021b). Examples of feeling AIP are Alexa, Cortana and Siri, which can chat with customers like a human. True feeling AI has not yet come about because AI is still unable to recognize, emulate and respond appropriately to human emotions (Huang and Rust, 2018). Hence, true feeling AIP could help fulfill real personalization with customers' thoughts and emotions fully considered by the time general AI is created (Prentice *et al.*, 2020).

Although AIP is developed by firms that leverage the AI technology of machine learning, it is widely applied to the customer experience along the customer journey because it is a customer-centric and customer-facing interactive marketing practice (Payne *et al.*, 2021a; Tong *et al.*, 2020). AIP has changed the landscape of the customer experience and value co-creation in interactive

marketing. Focusing on the touch points of the customer journey and understanding the customer's interaction with AIP along that journey help to draw a rich picture of the role of AIP in shaping interactive marketing.

Given the important role of AIP in collecting, categorizing, analyzing and utilizing the data generated from previous customer interactions and in shaping the customer experience at the prepurchase, purchase and post-purchase stages, it is important to understand AIP applications and managerial implications throughout the customer journey. The authors develop an integrated framework to illustrate AIP tactics that include personalized profiling, navigation, nudging and retention (Figure 1). Under each tactical approach, the authors detail touch points in which AIP applications shape the customer experience. The authors next review the academic literature and industrial observations that focus on each stage of the customer journey and identify dilemmas and countermeasures.

3 AIP in the previous experience stage: personalized profiling

The AIP tactics employed are specific to each stage of the customer journey, along with the touch points that customers have with connected AI-enabled technologies. A consumer's previous experience enables AIP to analyze the purchase history of that consumer, and, by doing so, AIP can characterize that individual (Gupta *et al.*, 2020). Given the role of previous experience (Lemon and Verhoef, 2016), AIP specializes in personalized profiling that aims to provide an accurate profile of each customer (King and Forder, 2016).

3.1 Applications of personalized profiling

Personalized profiling refers to the process whereby firms leveraging AI collect fine-grained data at the granular level to holistically characterize a consumer and precisely predict the

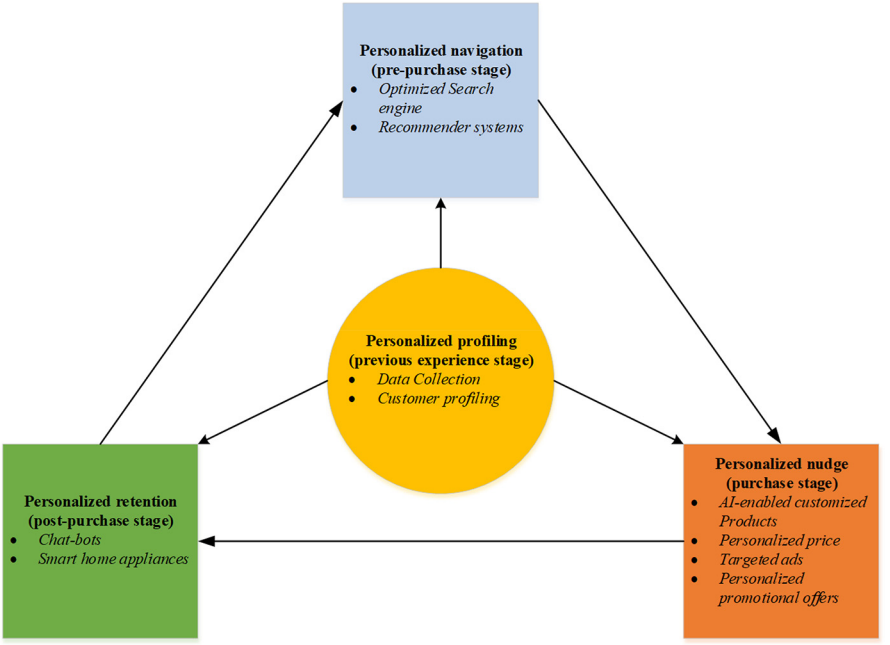

Figure 1.
AIP applications throughout the customer journey

behavior for even one consumer (Hoyer *et al.*, 2020; Lemon and Verhoef, 2016). Personalized profiling works to generate insights into customers' intentions, preferences, traits, decision-making processes and immediate needs (Tong *et al.*, 2020). Unlike traditional targeting, which usually captures a segment of one group, personalized profiling can reach a segment of one group successfully, and thus micro-targeting can be put into practice (Huang and Rust, 2021a). AIP can leverage the IoT, by involving sensors, wearables, heat maps, video surveillance and beacons to collect individuals' unstructured and structured data (Soleymanian *et al.*, 2019). Theoretically, AIP builds profiles by collecting data from a wide range of digital platforms (Grewal *et al.*, 2020). Consumers are exposed to various digital touch points (e.g. social media, e-commerce, etc.). Therefore, profile building is relatively easier in the digital age (Menard and Bott, 2020; Dwivedi *et al.*, 2020). When building profiles, marketers are dependent on machine learning, deep learning, neural networks, natural language recognition and image recognition (Paschen *et al.*, 2020). In other words, personalized profiling mainly incorporates data collection and customer profiling.

3.2 AIP dilemma in the previous experience stage

3.2.1 Misunderstanding. Personalized profiling may lead to misunderstanding consumers. In the process of building consumers' profiles, personalized profiling defines consumers by leveraging an AI database (Cui *et al.*, 2021). Firms are increasingly dependent on the insights generated by an algorithm (Langenderfer and Miyazaki, 2009). Although personalized profiling could create a seemingly objective digital consumer identity through big data and AI, it may misunderstand consumers due to customers' relative sophistication and inherent algorithm weaknesses (De Bruyn *et al.*, 2020). For instance, a consumer is exposed to several psychological treatment ads because this consumer used to browse relevant web pages, although the consumer simply has an interest in how to start up this kind of business. Thus, consumers often experience daily interventions from irrelevant promotional practices without any apology from firms leveraging personalized profiling (Lucia-Palacios and Pérez-López, 2021). In such conditions, consumers are likely to become frustrated.

3.3 Managerial recommendations for improving personalized profiling

3.3.1 Consumer confirmation. A useful approach in addressing a failure to understand consumers is to encourage those consumers to provide confirmation. First, firms should design an easy-to-use system to allow consumers to confirm whether their data can be collected (Ma and Sun, 2020). For instance, an easily readable permission button to help consumers determine self-disclosure of personal data can be designed before consumers open an app (Thaler and Benartzi, 2004). Firms should then strive to explain the data collection and data analysis processes to consumers (Grewal *et al.*, 2021). Second, the key to addressing misunderstanding is to invite consumers to validate the results of personalized profiling (Puntoni *et al.*, 2021). Firms should also disclose the relevant results of data analysis to consumers (Gupta *et al.*, 2020). Third, firms should attend to consumers' reactance toward algorithm-based interactive marketing practices, such as unforeseen pop-up ads (Pizzi *et al.*, 2021), and strive to impede ineffective interference, although data capture and data analysis are very unlikely to be avoided.

4 AIP in the prepurchase stage: personalized navigation

In the prepurchase stage, customers take actions such as need recognition, information searches and considering alternatives (Lemon and Verhoef, 2016). These interactions with

a company and the environment provide AIP with an opportunity to guide the potential customer around online and offline touch points (Puntoni *et al.*, 2021). For instance, AIP leverages search engines to guide customers' online attention. As such, the tactic of AIP in the prepurchase stage is conceptualized as personalized navigation.

4.1 Applications of personalized navigation

Personalized navigation refers to the process whereby firms leveraging a designed AI system can guide customers to a prepared online site (Hoyer *et al.*, 2020; Lemon and Verhoef, 2016). It means that AIP designs a technological system to navigate potential customers toward future purchases. Personalized navigation is highly reliant on personalized profiling to design the navigation pattern (Ma and Sun, 2020), help identify consumers' needs and prepare potential customers for the purchase stage (Sihi, 2018). Optimized search engine and recommender systems are essential touch points of personalized navigation. Firms widely apply text, voice and visual search engines to orient customers (Campbell *et al.*, 2020). Text and voice search engines have become routine search methods (Haridasan and Fernando, 2018). Visual search engines now offer a new situation, in which consumers use their camera to search for items (using the Amazon App to search items by taking photos of objects) (Grewal *et al.*, 2020). The new search engine technologies have broken the previous restrictions on searching, as search activities can now occur inside an elevator while using an AI camera to recognize photos on the wall. In addition to search engines that require consumers' actions, recommender systems can automatically present the most relevant products at the appropriate time and in the appropriate place (Marchand and Marx, 2020).

4.2 AIP dilemmas in the prepurchase stage

4.2.1 Algorithm-led search results. Text, voice and visual search engine services greatly enhance the efficiency of searching, but this is determined by an algorithm-driven AI (Perez-Vega *et al.*, 2021). The algorithm works to determine what to display and how to display it (Mik, 2016). First, the items that consumers are searching for are often among the bestsellers in the marketplace because this could increase the possibility of purchase (Guha *et al.*, 2021). Second, the reason a certain product is searched out is that the producer or the retailer pays higher fees for its top ranking on an e-commerce platform (Vlacic *et al.*, 2021). It is the case that firms strive to offer a personalized search service that considers both consumers' characteristics and firms' benefits. Finally, the results that search engines display might not be the ones that consumers initially imagine and desire because the algorithm is created by computer scientists, mathematicians and engineers (Ghose *et al.*, 2012). Consumers lose the freedom to choose when they encounter a search engine.

4.3 Managerial recommendations for improving personalized navigation

4.3.1 Consumer-oriented settings. Search engines should focus on consumers' traits and states, although firms will not need to give up their algorithms (Srinivasan and Sarial-Abi, 2021). Firms need to harness search engines to display the most relevant results for potential customers to create benefits such as convenience for consumers (Rust, 2020). Insights gained into customers' preferences and product features should determine the search results, but the algorithm could be used to improve the display quality of the search results (Edmondson *et al.*, 2010). In this regard, search engines should not simply display products that have a high level of stock or have sold well (Hussain, 2019). Although recommender system is very useful for consumers who want to save time, energy and costs in searching, comparing and evaluating, this marketing tool should be dependent on who the consumers are and what they want to buy (De Bruyn *et al.*, 2020).

5 AIP in the purchase stage: personalized nudge

In the purchase stage, customers are likely to act by making a choice, ordering and paying (Lemon and Verhoef, 2016). To fulfill a customer purchase, marketers are highly reliant on interactive marketing "nudges" (Anker, 2020). In this regard, AIP focuses on personalized nudges in the purchase stage. By carrying out personalized nudges, AIP combines traditional marketing thinking with AI to satisfy customers' needs, such as by making personalized promotional offers (Seele *et al.*, 2019).

5.1 Application of personalized nudging

Personalized nudging refers to the process whereby firms combine AI technology with a marketing mix to incentivize consumers to engage in a purchase (Hoyer *et al.*, 2020; Lemon and Verhoef, 2016). It aims to encourage a purchase decision (Tong *et al.*, 2020) and includes the touch points of AI-enabled customized products, personalized prices, targeted ads and personalized promotional offers. AI-enabled customized products refer to the leveraging of AI in the automatic design and production of real-time products that satisfy individual needs (Campbell *et al.*, 2020). Customizing a product is thus dependent on the predictive ability of an algorithm (Zhao *et al.*, 2012). This could, for example, relate to a music-based automated recommender system (Chung *et al.*, 2009), whereby a music player app can reorganize a music list according to similar styles if a consumer often listens to a certain type of music. Personalized pricing refers to automatically customized or targeted pricing, whereby firms charge different prices to different consumers based on the consumers' characteristics and willingness to pay to ensure gains (Choudhary *et al.*, 2005).

5.2 AIP dilemmas in the purchase stage

5.2.1 Confusing and deceptive pricing. Personalized AI-powered pricing could result in a feeling of having been deceived. To attract and satisfy consumers, AI may automatically set a suitable price for a consumer at the appropriate time and in the appropriate place (Choe *et al.*, 2018), but this may not mean that the price is one of the cheapest (Kummer and Schulte, 2019). Personalized AI-powered pricing aims to implement a price policy by identifying a customer's reservation price and that individual's willingness to pay (Ezrachi and Stucke, 2016). In this case, a consumer is likely to find a cheaper item from among his/her peers' purchases if personalized AI-powered pricing is still working (Haws and Bearden, 2006). In addition, the consumer may find the same product at a cheaper price afterward on the same webpage or mobile app (Wolkenfelt and Situmeang, 2020). When the consumer pays higher prices than others and finds cheaper prices for similar transactions, the one will be frustrated because of the sense of deception.

5.2.2 Preestablished commercials. AIP keeps track of consumers across a wide range of touch points. It is very unlikely that a consumer can avoid an AIP trace over time, so AIP could gain information about what consumers do, how consumers think and how consumers feel 24/7 (Overgoor *et al.*, 2019). In response to tracking, AIP can create a preestablished commercial for a consumer (Ma and Sun, 2020). For instance, real-time customized e-commerce website morphing (i.e. matching the look and feel of a website to each customer) emerges that is based upon consumers' browsing records and characteristics (Hauser *et al.*, 2009). Another way to keep consumers with a preestablished commercial is to implement optimized ad placement (Gupta *et al.*, 2020). For instance, a consumer who reads an article about changing eating habits to protect the stomach may see medicine ads at the end of the piece, such as for a Chinese herb or omeprazole. Thus, targeted ads that firms actively create are prepared and waiting for

consumers (Lucia-Palacios and Pérez-López, 2021). In other words, consumers' movements are, to one extent or another, planned by AIP.

5.2.3 Manipulative promotion. Preestablished commercials are the means, and the transaction is the end. When prompting a personalized nudge, personalized promotional offers lead to a manipulative transaction. Personalized promotional offers require matching the promotional offer to the consumer who is just in need (Kumar *et al.*, 2020). Given the preferences and needs are dynamic, and the temporary nature of the opportunities that arise, a window of only minutes will exist in which to deliver a personalized promotional offer when AIP detects an inbound consumer (Ma and Sun, 2020). By harnessing manipulative transactions, AIP considers all kinds of promotional tools and promptly delivers customer-tailored ones based on the real-time predictions of consumers' preferences, interests and time-contextual factors (Cui *et al.*, 2021). AIP delivers promotional offers that stem from a backstage process based on the precise analysis of customers and contexts (Gupta *et al.*, 2020). As such, personalized promotional offers are presented to consumers who have that exact demand at a certain time. It is also often done without consumers being aware of it (Martínez-López and Casillas, 2013).

5.3 Managerial recommendations for improving personalized nudge

5.3.1 Transparent pricing. Tackling confusing and deceptive pricing requires transparent pricing by adding critical messages. Firms should not hide relevant information about how AI shapes prices, although most consumers never require firms to disclose the exact price origin, such as why a particular item costs, for example, 5 dollars instead of 6 dollars (Allender *et al.*, 2020). Firms should at least suggest that personalized prices are different among different consumers at different times and in different places (Haws and Bearden, 2006). Firms should also provide some explanation about why price changes automatically and why different people may get different offers. This improves the transparency of transactions and potentially increases consumers' fairness perceptions (Maxwell and Garbarino, 2010; Zuiderveen and Poort, 2017).

5.3.2 Explainable AI. As a form of persuasion, it is not likely that targeted ads and personalized promotional offers will stop, but they should be designed to make them more acceptable to consumers (Donath, 2021). Explainable AI that offers explanations of the rationale behind AIP could be an effective approach to addressing this dilemma (Rai, 2020). Explaining why something happens to consumers is an effective way of preserving autonomous decisions (Shin, 2020). In other words, firms need to shift the force of their persuasion toward explainable procedures. For example, consumers could click on the *Why is this for me?* button and learn the reason for seeing the pop-ups or digital display advertisements when surfing online (Cramer *et al.*, 2008). In this case, AIP system should offer a more detailed interpretation.

6 AIP in the post-purchase stage: personalized retention

In the post-purchase stage, customers show behaviors such as usage and consumption, post-purchase engagement and service requests (Lemon and Verhoef, 2016). At the same time, marketers hold a key objective of developing customer loyalty through marketing efforts, including after-sales services (Court *et al.*, 2009). In this case, AIP can not only consider customers' requests in the post-purchase stage but also strive to retain customers and even begin the customer journey process anew. As such, AIP develops itself as a form of personalized retention in this stage.

6.1 Applications of personalized retention

Personalized retention refers to the process whereby firms leveraging AI preserve the one-to-one relationship with the consumer and even create a trigger that drives the consumer to begin the customer journey again (Hoyer *et al.*, 2020; Lemon and Verhoef, 2016). The aim of personalized retention is to cultivate customer loyalty and encourage reentering the prepurchase phase (Court *et al.*, 2009; Lemon and Verhoef, 2016). Personalized retention works by collecting comments about product usage and consumption, enhancing consumers' engagement and offering customer services (Lemon and Verhoef, 2016; Sterne, 2017). Chatbots and smart home appliances are critical touch points in personalized retention. Firms can design and deploy chatbots that encourage a high level of engagement with customers (Thomaz *et al.*, 2020). Chatbots can also now fulfill both incoming and outgoing calls by leveraging human-like conversational approaches (Youn and Jin, 2021). Famous examples of chatbots include Amazon Alexa, Apple's Siri and Facebook Messenger. Unlike Alexa and Siri, which are voice bots (Pitardi and Marriott, 2021), Facebook Messenger is a type of social bot designed initially for answering complaints by text in a customer service department (Xu *et al.*, 2017). It was predicted that the social bot industry would be worth $1.25bn by 2025 (Grand View Research, 2019).

6.2 AIP dilemma in the post-purchase stage

6.2.1 Anthropomorphic threats. Chatbots play an important role in facilitating customer services (Thomaz *et al.*, 2020), but anthropomorphized features may also negatively affect consumer well-being. Chatbots are able to function like human service staff members because they can understand consumers' voices and tones and respond with anthropomorphized conversations (Luo *et al.*, 2019). Anthropomorphism enables voice-based bots to speak using human-like tones, voices and emotions (Klaus and Zaichkowsky, 2020). Consumers may, however, feel threatened, unnerved or uncomfortable when they discover that they are interacting with a bot that not only speaks like a human but also seems to know them (Davenport *et al.*, 2020). Chatbots can understand consumers through data analysis, but the reverse is not the case. Consumers find it extremely difficult to understand fully how chatbots think, despite the fact that these bots are created by humans (Kaplan and Haenlein, 2019). This limited knowledge of chatbots that seem to have a rich understanding of consumers leads to consumer dissatisfaction (Chen *et al.*, 2021).

6.3 Managerial recommendations for improving personalized retention

6.3.1 Decreasing anthropomorphic features. To preserve consumer autonomy, firms need to consider decreasing the anthropomorphic features of chatbots. The less anthropomorphized the product, the stronger the sense of autonomy consumers are expected to have (Kim *et al.*, 2016). One useful way of achieving this is to create machine-like and gender-neutral voices that are completely different from a female or male voice (Sydell, 2018), which would enable consumers to be clear that a machine is delivering customer service (Glushko and Nomorosa, 2013). Decreasing anthropomorphic features requires redesigning chatbots according to the individual needs of customers (Thomaz *et al.*, 2020). It is necessary to set clear buttons for opt in and opt out options for customers who have different levels of resistance to chatbots before and during conversations. Therefore, customer autonomy can be preserved and customers can easily choose to receive robotic customer service or human service at any time.

7 Future research agenda

The reviews and observations above showcase the practices, dilemmas and implications of AIP in interactive marketing throughout the customer journey through both technological and marketing lenses. However, as noted earlier, academic research lags behind the pace of technological development and marketing innovation in practice. Based on the discussion of AIP applications during the customer journey, a series of important inquiries emerged that urgently need to be addressed by academic researchers. The authors categorize these inquiries into four themes: AIP conceptualization, contextualization, application and implication and consumer interaction. The authors summarize future research directions in Table 1 and elaborate them below.

First, considering the conceptualization of AIP, the authors echo Huang and Rust (2021b) and call for more fundamental work that defines and conceptualizes AIP through different theoretical lenses. Meanwhile, though AIP marketing is enabled by AI technologies, how AIP practice contributes to the continuous technological development of AI in interactive marketing is also important (Desai, 2022). Theoretical work is needed to understand the paradigms of AIP in interactive marketing. Additionally, technological advancement

Table 1. Future research directions for AIP

Future research directions	Potential research questions
Conceptualization of AIP	What is AIP, from both marketing and technological perspectives?
	How does AIP advance the incorporation of AI technology in marketing practices?
	What are the mechanisms and paradigms of AIP technologies?
	How does AIP affect the development of consumer cultures and communities in the digital age?
	Which theoretical perspectives can be used to refine the definition of AIP?
Contextualization of AIP	How do AIP tactics vary across countries or industrial sectors?
	How do data protection and privacy legislation affect AIP's practices and perceptions across countries?
	How do different digital media, platforms and technologies affect the effectiveness of AIP?
Application and implication of AIP	What are the motives of barriers for businesses to adopt AIP in their marketing strategies?
	What resources do AIP-oriented strategies require?
	How do businesses mobilize their resources to support the AIP strategies?
	What are the possible negative outcomes of implementing AIP in marketing strategies?
	How is the effectiveness of AIP strategies measured?
	How do AIP strategies affect business performance?
	How does AIP facilitate the digital servitization?
Consumer interactions	How does AIP affect consumer behaviors and experiences throughout the decision-making process?
	How does AIP contribute to consumers' loyalty building with a business, a brand or a platform?
	What is the consumer resistance mechanism of AIP?
	How does AIP affect consumers' autonomy and well-being?
	How does AIP integrate with other digital marketing strategies of a brand to enrich the consumers' digital experience with the brand?
	How does AIP contribute to the value co-creation in the consumer–business interactions?
	How could AIP be implemented in the service robots to improve the customer experience?
	How individual differences affect the AIP-triggered customer experience?

affects the development of consumer cultures in the digital age (Hollebeek and Belk, 2021). Therefore, future work could explore the impact of AIP on consumer behaviors, particularly group behaviors, through the lenses of consumer culture theory.

Second, from the perspective of contextualization, little has been known about the impact of contextual factors on the effectiveness of AIP in interactive marketing. More precisely, at a macro level, how AIP is perceived and practiced differently across different countries and cultures remains underexplored. Furthermore, AIP heavily relies on the collection and utilization of consumer data (Tong *et al.*, 2020), while the data protection and privacy legislation vary across the globe (e.g. European Union's General Data Protection Regulation and USA's California Consumer Privacy Act) (King and Forder, 2016). Future research should also investigate how such policies shape the AIP practices around the world. At a micro level, aforementioned, the touch points between customers and marketing information along the customer journey are mediated by different media, platforms and technologies. Meanwhile, the utilization of AIP may also vary among different industries (Payne *et al.*, 2018). Therefore, future research should identify nuanced differences between different technological media across different sectors and product categories.

Third, there are several urgent inquiries about the application and implication of AIP from a strategic perspective (Huang and Rust, 2021a). In the first place, the motives and barriers of adopting AIP in marketing practices need to be examined. Once a business decides to incorporate AIP in its marketing strategy, AIP requires a large number of resource inputs (Kumar *et al.*, 2019). However, how to efficiently acquire, mobilize and utilize resources for AIP remains unclear (Wang *et al.*, 2021b). Meanwhile, researchers should also explore how AIP integrates with other marketing strategies and tactics. Nevertheless, AIP as an important strategy should serve the overall marketing objective and contribute to marketing performance (Campbell *et al.*, 2020). Furthermore, given the increased use of integrated marketing strategies, it is critical to explore how the effectiveness of AIP is measured and evaluated at each stage of the customer journey (De Carlo *et al.*, 2021). Moreover, AI technology plays an irreplaceable role in the service sector and has revolutionized the landscape of digital servitization (Payne *et al.*, 2021a). Future research could explore how the introduction of AIP facilitates the development of new service models for service organizations and accelerates the progress of digital servitization today. Additionally, based on the AIP dilemmas that are highlighted in various stages in this paper, future research could empirically investigate the implications of such dilemmas and examine the effectiveness of the managerial guidance recommended in this paper.

Last, but not least, AIP plays an irreplaceable role in the consumer–business interactions in the digital age, and researchers should further examine how AIP shapes consumer behaviors. More specifically, research should investigate how consumer experiences benefit from AIP to build trust, facilitate the purchase and develop loyalty and advocacy. In contrast, it is equally, if not more, important to understand the dark side of AIP (Hermann, 2022; Thomaz *et al.*, 2020). For example, future research needs to clarify the potential hard feelings caused by AIP and investigate the impact of AIP on consumers' autonomy, control and self-regulation (Andre *et al.*, 2018). This is particularly important in developing a healthy digital marketing environment and an ethical and sustainable approach (Pedrero-Esteban and Gas-Gozalbo, 2021). Furthermore, interactive marketing highlights the significance of value co-creation (Izogo *et al.*, 2021; Wang, 2021), and the authors' observations reveal the importance of AIP in interactive marketing practices. The authors therefore encourage future research to examine how AIP contributes to value co-creation in consumer–business interactions. In addition, in the service sector, service robots have been observed to have an important role in enriching the customer experience, revolutionizing service exchanges and facilitating digital servitization in modern society (e.g. enabling the food-serving process in restaurants, assisting customer check-ins in hotels

and providing assistance in mobile banking services) (Baabdullah *et al.*, 2019; McCartney and McCartney, 2020). However, in most cases, the services provided by service robots remain standardized, which may negatively affect the customer experience (Hu *et al.*, 2021). How to incorporate AIP into customer–robot interactions in order to improve the customer experience in the service setting is a crucial inquiry that requires further research in the future (Hu *et al.*, 2020; Wu *et al.*, 2020). Moreover, recent research identifies that individual differences (e.g. personality traits, gender, age, etc.) affect the consumers' acceptance of AI technologies and the way to interact with such technologies (Frank, 2021; McLeay *et al.*, 2022). Future research could investigate the impact of individual differences on the AIP-triggered customer experience, thereby improving the effectiveness of segmenting, targeting and positioning the brand in the digital age.

8 Conclusion

In this paper, the authors introduced the concept of AI-enabled personalization that could serve as an important strategy that shapes the customer journey. The authors identified the incorporation of AIP in each stage of the customer journey (personalized profiling, navigation, nudges and retention), identified dilemmas in marketing practices and offered managerial recommendations based on an extensive academic review and industry observation. The authors also highlighted several important directions that inspire future research into AIP. As AIP research and practice are in the embryonic stage, by defining AIP, understanding the application of AIP in the customer journey alongside the academic literature and practical observations and drawing up a future research agenda, the authors are in the hope of witnessing further development of AIP in interactive marketing.

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