

Reinforcing customer journey through artificial intelligence: a review and research agenda

Reinforcing
customer
journey

Jyoti Rana and Loveleen Gaur

Amity International Business School, Amity University, Noida, India

Gurmeet Singh

School of Business and Management, The University of the South Pacific, Suva, Fiji

Usama Awan

Industrial Engineering and Management,

Lappeenranta-Lahti University of Technology, Lappeenranta, Finland;

Graduate School of Business, Duquesne University,

Pittsburgh, Pennsylvania, USA and

Department of Commerce, Mount Allison University, Sackville, Canada, and

Muhammad Imran Rasheed

Institute of Business Management and Administrative Sciences,

The Islamia University of Bahawalpur Pakistan, Bahawalpur, Pakistan

Received 11 August 2021
Revised 23 October 2021
Accepted 10 November 2021

Abstract

Purpose – This study defines a three-angled research plan to intensify the knowledge and development undergoing in the retail sector. It proposes a theoretical framework of the customer journey to explain the customers' intent to adopt artificial intelligence (AI) and machine learning (ML) as a protective measure for interaction between the customer and the brand.

Design/methodology/approach – This study presents a research agenda from three-dimensional online search, ML and AI algorithms. This paper enhances the readers' understanding by reviewing the literature present in utilizing AI in the customer journey and presenting a theoretical framework.

Findings – Using AI tools like Chatbots, Recommenders, Virtual Assistance and Interactive Voice Recognition (IVR) helps create improved brand awareness, better customer relationships marketing and personalized product modification.

Originality/value – This study intends to identify a research plan based on investigating customer journey trends in today's changing times with AI incorporation. The research provides a novel model framework of the customer journey by directing customers into different stages and providing different touchpoints in each stage, all supported with AI and ML.

Keywords Artificial intelligence, Augmented reality, Chatbot, Customer journey, Machine learning, Mixed reality

Paper type Research paper

Introduction

Artificial intelligence (AI)-based apps increase functionality, and practitioners have found that retail performance is subsequently improved that leverage reinforces customer experience (Malodia *et al.*, 2021). Businesses' widespread application of AI is seen as necessary for determining the direction of doing business in the emerging technology era (Awan *et al.*, 2021). AI can bridge the gap between the business and the prospective client



Funding: This research did not receive any specific grant from funding agencies in the public, commercial or not-for-profit sectors.

Conflict of interest: None.

needs, provide information and prompt a grievance redressal system (Paschen *et al.*, 2019). Hence, it is essential to understand the role of incorporating AI in the customer journey to understand emerging markets better. With multifaceted AI techniques, marketers can interact with the customer. Apple uses Siri, a chatbot that helps iPhone users answer their voice queries and perform actions without typing instructions on their smartphone (Hasan *et al.*, 2020). AI speeds up the precision and effectiveness of human efforts with its powered technologies such as the Internet of things (IoT), augmented reality (AR), virtual reality (VR), mixed reality (MR), virtual assistants and chatbots. MR combines real and virtual worlds to produce a new visual environment in emerging markets where physical and digital elements coexist and interact in real time (Rangaswamy *et al.*, 2020). Using imagined AR, it is possible to virtually experience products' feel before going into the hassle of buying them in actuality. Hence, AI tools are helping emerging markets grow better (Anshu *et al.*, 2022).

Microsoft has been offering a HoloLens device (smart glasses headset) showing how the future looks without screens and hardware. After the overwhelming success of HoloLens, Microsoft launched its updated version HoloLens2 on November 7, 2019 (Molina-Carmona *et al.*, 2018). The toy brand Lego offers AR functions for its products – its customers can set castles on fire virtually or play with virtual figures, thus improving their gaming experience in emerging markets (Hinsch *et al.*, 2020). This study attempts to find the sectors of retail in which AI has been applied by the marketers to embrace customer's shopping journey. COVID-19 pandemic forced stores to close, necessitating many customers to embrace online channels for the first time (Lavuri, 2021). Hence, marketers can build customer relationships, which AI reinforces to support emerging markets. Therefore, it becomes relevant to understand futuristic shopping methods and novel technologies with associated software and hardware that will transform the customer experience in emerging markets (Singh *et al.*, 2021; Hoyer *et al.*, 2020). This paper is a pioneer study that includes AI and machine learning (ML) to expand customer journey mapping and highlights how AI has benefited customer's behavioral choices and interaction. Since at a global level, customers are using the digital application for e-commerce and providing information about their options and preferences, generating a lot of data. Here, the marketers use AI and algorithms to understand customer behavior and purchase intention to formulate marketing trends in emerging markets (Khanra *et al.*, 2020; Arco *et al.*, 2019). From a manager's perspective, algorithms can help inventory control, sale forecasting and logistics optimization (Pitt *et al.*, 2020). Based on these premises, it is essential to investigate the role of AI in the customer journey. The objective of this theoretical paper is to systematize and synthesize the application of AI in the customer journey in emerging marketers. The current study entails exploring extant literature concerning the impact of AI tools in the customer journey to optimize the outcome of marketing practices in emerging markets. Specifically, the findings reveal how different retail sectors use AI tools to enhance customer experiences and reduce the complexity of purchase patterns and consumer activities.

AI is capable of learning, feeling and thinking without a human interface. Independent AI can make and update smart choices propelled by self-improving algorithms (Sujata *et al.*, 2019). AI can address target markets and provide marketing managers with a combination of strategies to induce customers to make purchases. For instance, AI can help marketing managers understand when and why a specific discount voucher is available to consumers, increasing marketing efforts' accuracy in the determined market segment (Dwivedi *et al.*, 2020). The customer journey is the complete sum of experience a customer goes through when interacting with the brand. A multidimensional construct focuses on the customer's cognitive, behavioral, emotional and social responses to offerings during the entire purchase cycle (Lemon *et al.*, 2016; Kaartemo *et al.*, 2021). The aim of blending marketing services with AI is to simplify the customer journey and predict consumer behavior in the emerging market. In addition, it seeks to induce customer retention and loyalty caused by the wholesome experience gathered during the purchase process.

This study intends to bring insights of literature review to study and discuss the significant opportunities, challenges and future research plans relating to AI's critical aspects in redefining the customer journey and enhancing customer experiences. The insights in this paper cover a broad spectrum of AI tools about the customer journey for creating a memorable customer experience and inducing repeated purchases (Gaur *et al.*, 2021; Akter *et al.*, 2020). The research gap addressed by the researchers in this article summarizes the emergence of AI, mainly benefiting the customers. This paper highlights AI's role in reshaping the customer journey by providing a literature review to define those existing research concerning the usefulness of the application of AI tools in marketing and identify the gaps not yet addressed by the researchers in agenda for future research.

Theoretical basis

AI is dramatically redefining markets as marketers understand customers, brands and market segments and grabs the market share (Awan *et al.*, 2021). Due to the existence of sizable academic literature in the field of AI, the authors have used exclusion protocol. First, the publication was selected from 2015 onward; the same approach has been followed by Arco *et al.* (2019). Second, the authors focused on articles only excluding the conferences proceeding and books chapters. And the articles published in the English language and the field of business and management were only included. The data were recovered on September 28, 2021, from the Scopus database. For this study, 40 articles were considered relevant by reading the title, abstract and entire documents. Further, these 40 articles were divided on the AI theme in focus, research design adopted by them and the sector of retail on which they have focused. Table 1 shows the combination of keywords used by the authors in the Scopus database and the articles used in the study.

The following section synthesizes the existing literature on embracing the customer journey through AI tools and techniques and discusses sectors of retail where it is applied.

Business establishments are taking ML and AI's help to enlighten, entertain and retain their customers (Lee *et al.*, 2020). Artificial neural networks (ANN) is a branch of AI that consists of complex compounds of algorithms that work in an organized manner to extract labels for a given set of data and accommodates both linear and nonlinear associations (Talwar *et al.*, 2021). Healthcare uses AI by incorporating digital consultations, robotic surgery and hassle-free electronic health records maintenance (Perez-Vega *et al.*, 2020; Payne *et al.*, 2021a, b). Even the education sector now has AI-powered appointment scheduling software like Acuity Scheduling, Doodle, etc., AI has transformed classrooms where tactile robots assist students with reading, learning and social interaction (Dwivedi *et al.*, 2020). AI is also helping develop vital social skills for children with disabilities (Hinsch *et al.*, 2020). AI-powered solutions have been at the forefront of the exponential growth saga of e-commerce and retail, and the researchers identified this gap (Nagdev *et al.*, 2021). This current study plans to pinpoint the different sectors of retail using AI tools (see Table 5) in different stages of customer journey mapping and depict the same by a framework (see Figure 2). Table 2 shows the research articles used in the study from different publishers and journals.

The following section follows the classification of broad topics is in AI's different tools and techniques: Chatbot, Voice bot, Recommender system (RS), AR, VR and MR.

Chatbot

With the advent of AI in the marketing sphere, opportunities have increased. It is easy to track customer behavior, document observation, notice patterns and provide personalized

Searches	Combination of keywords	Initial search result	Searches used in the study
First combination	Keywords used for search Artificial Intelligence and touchpoints, Document type article, Publication year limited to 2015, Subject area business and Language limited to English	4	1
Second combination	Keywords used for search Machine learning and customer engagement, Document type article, Publication year limited to 2015, Subject area business and Language limited to English	7	1
Third combination	Keywords used for search Chatbot and marketing, Document type article, Publication year limited to 2015, Subject area business and Language limited to English	17	4
Fourth combination	Keywords used for search Virtual reality and customer experience, Document type article, Publication year limited to 2015, Subject area business and Language limited to English	12	7
Fifth combination	Keywords used for search Artificial intelligence and customer engagement, Document type article, Publication year limited to 2015, Subject area business and Language limited to English	12	2
Sixth combination	Keywords used for search Chatbot and customer experience, Document type article, Publication year limited to 2015, Subject area business and Language limited to English	12	6
Seventh combination	Keywords used for search Artificial intelligence and marketing, Document type article, Publication year limited to 2015, Subject area business and Language limited to English	210	15
Eighth combination	Keywords used for search Artificial intelligence and customer journey, Document type article, Publication year limited to 2015, Subject area business and Language limited to English	11	3
Ninth combination	Keywords used for search Recommender system and customer experience, Document type article, Publication year limited to 2015, Subject area business and Language limited to English	4	1

Source(s): Prepared by authors from Scopus database

Table 1.
Combination of
keyword searches in
the Scopus database

products and services (Arsenijevic *et al.*, 2019). Chatbots embedded with AI can automatically extract customer experience by indulging in narrative conversations with customers using preprogrammed algorithms (Sidaoui *et al.*, 2020). Over the years, there has been an evolution in marketing concepts. Web 4.0, known as Intelligence Web, to span between the years 2020–2030, said to be adept as the human brain, will be about emotional interaction between humans and computers (Cooke *et al.*, 2019; Diederich *et al.*, 2020). Table 3 represents the distribution of 40 selected articles based on themes of AI.

Figure 1 depicts the distribution of 40 research articles based on technology-focused by them. Chatbot represents a novel interaction system by which companies can influence customer's value creation by establishing touch points in online marketing (Riikinen *et al.*, 2018; Kautish *et al.*, 2021). Due to the increase in competition among online sites, the focus is on customer convenience and providing them with personalized attention.

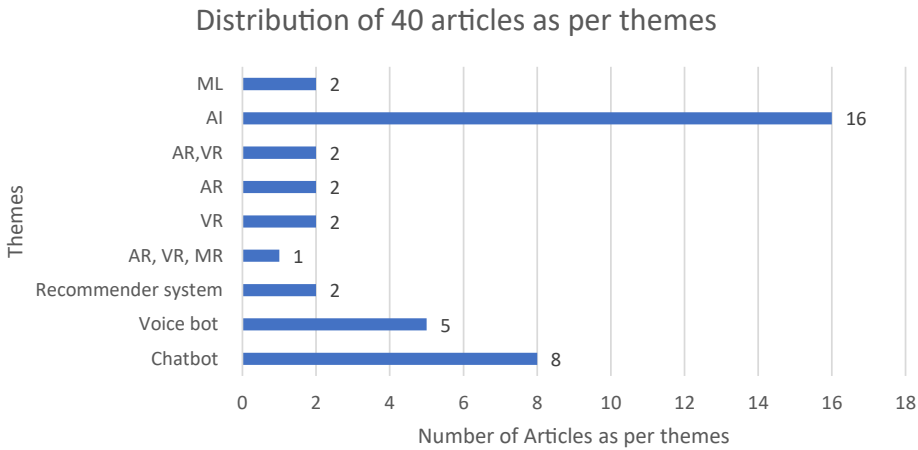


Figure 1. Representing the themes of AI-based literature review

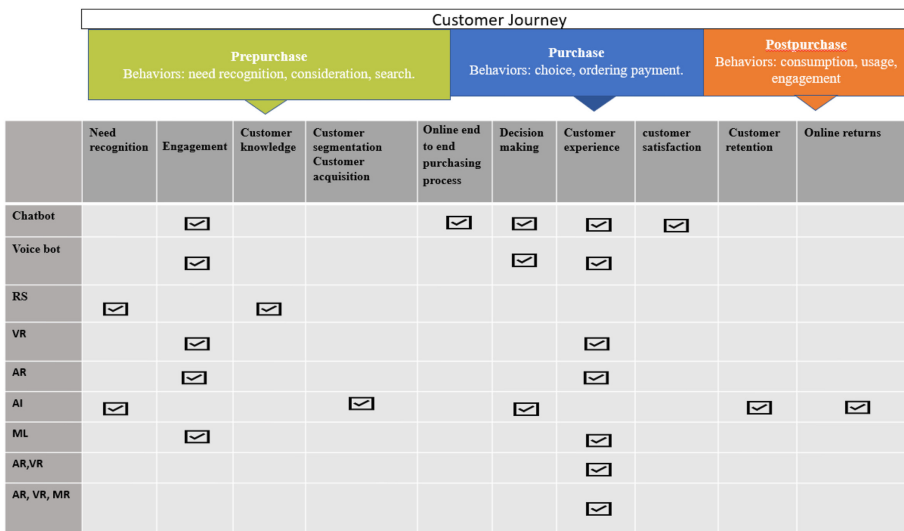


Figure 2. Framework of AI-embraced customer journey

AI has taken comfort to a whole new level for the consumer by opting for chatbots as their service of choice (Libai *et al.*, 2020; Huang and Rust, 2021). The adoption of chatbots in e-retailing creates a positive influence on extrinsic values of customer experience (Rai, 2020). The customer's personality also influences the relationship between the usability of chatbots and customer experience (Jiménez-Barreto *et al.*, 2021). The study of Yen and Chiang (2020) suggests the positive relationship between trust in chatbots, trust in sellers and purchase intention from customer's perspectives. Trust in chatbots is dependent on many characteristics like competence, credibility and informativeness. Prior studies provided mixed findings on the role of trust and boost technology use (Talwar *et al.*, 2021). Chatbot solves customer's problems in real-time and helps customers in purchasing processes (Yen and Chiang, 2020). Chatbots are used in different sectors of retail. The financial industry

S. no	Journal name	Publisher	References
1	<i>Business Horizon</i>	Elsevier	Campbell <i>et al.</i> (2020)
2	<i>Computers in Human Behavior</i>	Elsevier	McLean and Wilson (2019)
3	<i>European Journal of Marketing</i>	Emerald	Pitt <i>et al.</i> (2020)
4	<i>European Journal of Operational Research</i>	Elsevier	Martínez <i>et al.</i> (2020)
5	<i>International Journal of Bank Marketing</i>	Emerald	Riikkinen <i>et al.</i> (2018)
6	<i>Innovative Marketing</i>	Business Perspective	Arco <i>et al.</i> (2019)
7	<i>Journal of Interactive Marketing</i>	Elsevier	(Bruyn <i>et al.</i> , 2020; Libai <i>et al.</i> , 2020)
8	<i>Annals of Operations Research</i>	Springer	Yang <i>et al.</i> (2020)
9	<i>California Management Review</i>	SAGA Publications	Kumar <i>et al.</i> (2019)
10	<i>Behaviour and Information Technology</i>	Taylor and Francis	Yen and Chiang (2020)
11	<i>Electronic Markets</i>	Springer	Neuhofer <i>et al.</i> (2020)
12	<i>Journal of Interactive Marketing</i>	Elsevier	Pagani <i>et al.</i> (2019)
13	<i>Journal of Business Research</i>	Elsevier	Chung <i>et al.</i> (2020), Grewal <i>et al.</i> (2021), Kull <i>et al.</i> (2021), Perez-Vega <i>et al.</i> (2020), Regt <i>et al.</i> (2021), Flavian <i>et al.</i> , (2021), Singh <i>et al.</i> (2021)
14	<i>Journal of Service Research</i>	SAGA Publications	
15	<i>Journal of Retailing and Consumer service</i>	Elsevier	Ramadan (2021), Chinchanchokchai <i>et al.</i> (2021), Pleyers and Poncin (2020), Poushneh (2021)
16	<i>Journal of Revenue and Pricing Management</i>	Springer	Dadoun <i>et al.</i> (2021)
17	<i>Journal of Service Management</i>	Emerald	Sidaoui <i>et al.</i> (2020), Sands <i>et al.</i> (2021)
18	<i>International Journal of Contemporary Hospitality Management</i>	Emerald	Jiménez-Barreto <i>et al.</i> (2021)
19	<i>Journal of Product and brand management</i>	Emerald	Cheng and Jiang (2021)
20	<i>Technological Forecasting and Social Change</i>	Elsevier	Batat (2021), Frank <i>et al.</i> (2021)
21	<i>Journal of Theoretical and Applied Electronic Commerce Research</i>	MDPI	Lee <i>et al.</i> (2021)
22	<i>Psychology and Marketing</i>	Wiley	Rajaobelina <i>et al.</i> (2021), Kim <i>et al.</i> (2021)
23	<i>Journal of Research in Interactive Marketing</i>	Emerald	Payne <i>et al.</i> (2021a, b)
24	<i>International Journal of Hospitality Management</i>	Elsevier	Orus <i>et al.</i> (2021)
25	<i>Journal of Hospitality and Tourism Management</i>	Elsevier	Martin <i>et al.</i> (2020)
26	<i>Journal of Services Marketing</i>	Emerald	Klaus and Zaichkowsky (2020)
27	<i>Journal of Retailing</i>	Elsevier	Bellis and Johar (2020)
28	<i>Journal of Tourism Futures</i>	Emerald	Oskam and Boswijk (2016)
29	<i>Journal of Marketing Theory and Practice</i>	Taylor and Francis	Claudia and Danny (2021)

Table 2. Details of journal name, publishers and the articles references

Source(s): Prepared by authors

(Riikkinen *et al.*, 2018; Rajaobelina and Richard, 2021) conducted a study for the development of marketing strategies for different customer segments like men, women, etc. It classified individuals based on their interest in live chats services and chatbot-embedded interaction.

Theme	References	Reinforcing customer journey
Chatbot	Yen and Chiang (2020), Rajaobelina and Richard (2021), Chung <i>et al.</i> (2020), Kull <i>et al.</i> (2021), Sidaoui <i>et al.</i> (2020), Jiménez-Barreto <i>et al.</i> (2021), Cheng and Jiang (2021), Riikkinen <i>et al.</i> (2018)	
Voice bot	Klaus and Zaichkowsky (2020), Pagani <i>et al.</i> (2019), Singh <i>et al.</i> (2021), Poushneh (2021), Ramadan (2021)	
Recommender system	Chinchanachokchai <i>et al.</i> (2021), Dadoun <i>et al.</i> (2021)	
AR, VR, MR	Flavian <i>et al.</i> (2021)	
VR	Regt <i>et al.</i> (2021), Pleyers and Poncin (2020)	
AR	Batat (2021), McLean and Osei-Frimpong (2019)	
AR, VR	Claudia and Danny (2021), Orus <i>et al.</i> (2021)	
AI	Martin <i>et al.</i> (2020), Bellis and Johar (2020), Oskam and Boswijk (2016), Arco <i>et al.</i> (2019), Pitt <i>et al.</i> (2020), Libai <i>et al.</i> (2020), Bruyn <i>et al.</i> (2020), Kumar <i>et al.</i> (2019), Yang <i>et al.</i> (2020), Neuhofer <i>et al.</i> (2020), Perez-Vega <i>et al.</i> (2020), Grewal <i>et al.</i> (2021), Frank <i>et al.</i> (2021), Payne <i>et al.</i> (2021a, b), Sands <i>et al.</i> (2021), Kim <i>et al.</i> (2021)	
ML	Martínez <i>et al.</i> (2020), Campbell <i>et al.</i> (2020)	

Source(s): Prepared by authors

Table 3.
Themes of artificial intelligence

Technology classification	Year of establishment	Used in platforms	Meaning
VR	In 1968 scientist Ivan Sutherland and his student Bob Sproull made the first VR/AR headset name (Sword of Damocles) that was connected to a computer and not a camera	Treating post-traumatic stress, treat anxiety, phobia and depression	It follows a complete immersion experience that shuts out the physical world for the user. Instead, it immerses users in an entirely artificial digital environment
AR		Gucci-try on shoes in AR, Toyota-vehicle demo, YouTube beauty try-on	Adding digital elements to a live view, often using the camera on a smartphone, gives the user more freedom as it does not need a head-mounted display. It overlays virtual objects in a real-world environment
MR	In 1992 at Armstrong Laboratories of the USA	Microsoft Hololens	Blend of physical and digital worlds, based on computer vision advancements, graphical processing, and display technology. It not only overlays but anchors virtual objects to the real world. Mixed Reality is an extension of augmented Reality that allows natural and virtual elements to interact in a single environment

Source(s): Martínez *et al.* (2020)

Table 4.
Classification of technologies: VR, AR and MR

Chatbots are a unique way to offer convenience and customer assistance. The study (Chung *et al.*, 2020) predicted customer's perception of chatbots based on user interaction, entertainment, customization and inquire handling. The study revealed that chatbots as virtual assistants could help to improve customer service encounters. And marketers

References	Sector	Tools	Methodology/ research design	Aspect of customer journey
Jiménez-Barreto et al. (2021)	E-retailing	Chatbot	Quantitative	Online customer experience and customer satisfaction
Yen and Chiang (2020)	E-commerce	Chatbot	Quantitative	Trust and customers purchase decision
Rajaobelina et al. (2021)	Financial sector	Live chat, chatbot	Quantitative	Online end-to-end purchasing process
Chung et al. (2020)	Luxury Brands	Chatbot	Quantitative	Customer satisfaction
Kull et al. (2021)	Online retail	Chatbot	Quantitative	Brand engagement
Sidaoui et al. (2020)	Online service providers	Chatbot interview	Quantitative	Customer experience
Sands et al. (2021)	E-commerce	AI	Qualitative	Customer journey
Klaus and Zaichkowsky (2020)	E-commerce	Voice bots	Qualitative	Customer decision-making, customer experience
Pagani et al. (2019)	Frozen food brands	Voice bots	Quantitative	Personal engagement, brand trust
Singh et al. (2021)	Service firms	Voice bots	Quantitative	Customer engagement, customer journey
Ramadan (2021)	E-commerce	Voice interaction	Quantitative and Qualitative	Customer journey
Dadoun et al. (2021)	Aviation (airlines)	RS	Quantitative	Travel journey
Chinchanachokchai et al. (2021)	Beverages (beer)	RS	Quantitative	Customer knowledge, need recognition
Flavian et al. (2021)	Retailing	AR, VR, MR	Quantitative	Customer experience
Regt et al. (2021)	Retailing	VR	Quantitative – focus groups	Customer brand engagement
Pleyers and Poncin (2020)	Real estate	VR	Qualitative	Customer experience
Batat (2021)	Restaurant industry	AR	Qualitative	Customer experience
McLean and Wilson (2019)	Mobile applications	AR	Quantitative – survey	Customer brand engagement
Claudia and Danny (2021)	Retailing	AR, VR	Qualitative	Customer experience management
Orus et al. (2021)	Tourism	VR	Quantitative – laboratory	User experience
Martin et al. (2020)	Tourism	AI	Quantitative – survey	Need assessment
Bellis and Johar (2020)	E-commerce	AI	Qualitative	Shopping process
Campbell et al. (2020)	E-commerce	ML	Qualitative	Customer experience, engagement, journey
Arco et al. (2019)	E-commerce	AI	Qualitative	Customer journey
Pitt et al. (2020)	Art-collectors	AI	Quantitative and qualitative	Customer segmentation
Riikkinen et al. (2018)	Insurance	AI	Qualitative	Customer value creation
Libai et al. (2020)	Retailing	AI	Qualitative	Customer acquisition, development and retention
Kumar et al. (2019)	Retailing	AI	Qualitative	Customer acquisition and retention

Table 5.
Aspects of the customer journey based on articles in retail

(continued)

References	Sector	Tools	Methodology/ research design	Aspect of customer journey
Yang et al. (2020)	E-commerce	AI	Quantitative – case study	Online returns
Neuhofer et al. (2020)	Service industry	AI	Quantitative – case study	Customer experience
Perez-Vega et al. (2020)	E-commerce	AI	Qualitative	Online customer engagement
Grewal et al. (2021)	E-commerce	AI	Qualitative	Customized experience
Flavian et al. (2021)	Automobile	AI	Quantitative – linear modeling	Customer experience
Payne et al. (2021a, b)	Banking	AI	Quantitative – survey	Customer experience
Kim et al. (2021)	Retailing	AI	Qualitative	Decision-making
Martinez et al. (2020)	Retailing	ML	Quantitative	Predicting future customer behavior

Source(s): Prepared by authors

Table 5.

and managers of luxury brands can improve customer experience ([Chung et al., 2020](#)). Chatbots help initiate online interactions, creating customer's first brand image and engage customers ([Kull et al., 2021](#)). The study of [Kull et al. \(2021\)](#) suggested that brand awareness is improved with chatbots-initiated conversation. AI can be used to address the challenge faced by marketers of understanding customer experience cost-effectively. The authors ([Sidaoui et al., 2020](#)) presented a customer-centric approach for online service companies ([Seyyedamiri and Tajrobehkar, 2021](#)) to focus on AI-augmented chatbots to customer engagement.

The chatbot marketing efforts directly impact the quality of customer communication based upon interaction, entertainment, informativeness, accessibility and customization, and an indirect impact on the brand relationship with customer response ([Cheng et al., 2021](#); [Cheng and Jiang, 2021](#)). Toy manufacturer LEGO's chatbot "Ralph" allows customers to choose the right gift with a gift bot. It provides personalized gift recommendations to the users within the messenger. It gives gift recommendations based on how a user answers questions within the bot. For example, it asks questions like location, budget, themes (adventure, travel) and age of the person for whom you are buying the gift. As the user finds the product they like, the link automatically adds the product to Lego's website shopping cart to make the purchase. As per the Forbes report dated February 7, 2021, named "Valentine's Day Kicks off a booming year for gifts, predicts 1-800-Flowers CEO" the 1-800-Flowers, the online florists, with the support of Facebook-enabled chatbot, bloomed to become the largest gifting retailer in the USA, making over \$1.2bn in a year's sales. 1-800-Flowers' added three new AI tools (the chatbot, its integration with Amazon Alexa voice bot and its online IBM Watson concierge service), which have attracted users ([Bradlow et al., 2017](#); [Davenport et al., 2020](#)).

Voice bot

Customer trust is the essential aspect to be looked at by marketers in general in online shopping. The global e-commerce site Amazon understood this fact very well; Amazon has managed to acquire its customer base by creating customer trust in online shopping. Offering services mediated through in-home voice assistants linked to the distribution system ([Klaus and Zaichkowsky, 2020](#)).

A study conducted by Capgemini Digital Transformation Institute (Sengupta *et al.*, 2018) revealed that 24% of the 5,000 respondents are willing to use a bot assistant rather than a website. The Capgemini Digital Transformation Institute observed that 51% avail the service of voice assistance over smartphones. Overall, 35% of the survey respondents have used voice assistants to shop for groceries, home-care products and attire. Voice bots are associated with delivery systems for customer convenience by Google, Amazon, Apple and Microsoft (Sengupta *et al.*, 2018). The study of Pagani *et al.* (2019) discovered the effect of voice-based interactions on customer's trust in marketers. The adoption of emerging technology aims to extract useful information from users and offer opportunities for increasing the online experience (Sharma *et al.*, 2020). As technology proliferates customer interaction, marketers need to understand how to increase brand trust and personal engagement. The authors (Singh *et al.*, 2021) presented a framework based on service interaction space (SIS), one voice strategy and intelligence generation. They used capabilities like cost, speed, quality, agency and effect of AI in a particular interaction. The study of Ramadan (2021) on Amazon's AI relationship strategy with customers and the addictive relationship AI is establishing embrace the situation and leading the e-retailers to advance AI-based ecosystem in the online shopping journey. Consumers willingly delegate their shopping to bots because of convenience and ease of shopping (Ramadan, 2021).

Recommender system

The RS of AI means portraying the mind preference of the consumer. It has been used in many applications, like social networking sites, movie recommendations, query log mining, news recommendations, etc. (Kim *et al.*, 2021). YouTube's video recommendation system recommends a personalized set of videos to users based on their activity, like "Netflix's recommended for you" program. AI uses recorded data patterns to apply in a new situation. Collaborative Filtering (CF) is the most popular recommender system design approach among the recommendation methods' taxonomy. The principle behind AI's success is providing personalized product recommendations (Ameen *et al.*, 2021; Arco *et al.*, 2019; Paschen *et al.*, 2019). Chinchanchokchai *et al.* (2021) used personalized content in beer recommendations by reviewing the data of existing online customers. The moderating effect of customer knowledge was assessed on CF and content-based recommendation. Not only the beverage industry but the aviation industry is also using RS. The New Distribution Capabilities (NDC) lets airlines impart personalized offers by applying RS in the aviation industry. Under transactional or short run, RS can help airlines increase revenue, but it can enhance customer experience and customer loyalty in the long run (Dadoun *et al.*, 2021).

Under CF, one user's interest is linked to another user, say, a customer. For example, if Mr. A like Lays and Mr. B likes Lays and Cheetos, Mr. X might also prefer Cheetos, this will be shown in the recommendation (Terragni and Hassani, 2018; Goyani and Chaurasiya, 2020). The recommendations focus on products with similar attributes in a content-based recommender system relying on the products characteristics rather than other users familiar with the product before making a recommendation (Sujata *et al.*, 2019).

VR, AR and MR

"Thomas Cook," a UK-based travel agency, used VR in their campaign "Try Before You Fly," where they allowed their travel agent to experience specific trips to promote them to clients. VR changes our actual world with the help of hardware. The EPI cube model presents the interlinkage of technological embodied, psychological presences of behavioral interaction (Flavian *et al.*, 2021).

VR

Marketers seek novel ways to design a favorable customer perception and attitude toward the brand. VR offers interactive encounters and helping customers engage with brands. Using a headset and placing the users is another dimension, leading them into a real-life experience, even when shutting out is VR. VR as a brand interface aims to optimize strategic customer outcomes and benefits in social interactions (Regt *et al.*, 2021). Instead of a static screen option, VR provides a 360-degree view. In the real estate industry, VR is employed rather than static photos. Clients can have an interactive 360 view, which is associated with a better visiting experience and creates a positive attitude toward the brand (Pleyers and Poncin, 2020).

AR

The interactive experience of a real-world environment with computer-generated perceptual information using a smartphone's cameras is AR (Wedel *et al.*, 2020). In 2016, mobile game Pokemon Go used AR, which provides the marketer more freedom and possibilities to offer the user an enhanced experience. It does not need a head-mounted display. The application of AR in the dining experience is studied by Batat (2021) using the case study "Le Petit Chef," which suggests AR can improve the overall food well-being of the customer and lead to positive consumer behavior if the brand focus on restaurant experience based on affective, behavioral, social, intellectual and sensory dimension (Batat, 2021). AR interactivity and vividness are perceived on ease of use, usefulness and enjoyment. The results of McLean and Wilson (2019) showed a positive perception of AR attributes on brand engagement along with AR mobile applications. AR-mediated brand engagement results in improved satisfaction of app experience (McLean and Wilson, 2019; Bellis and Johar, 2020).

AR allows users to add a digital element to the virtual environment (Rauschnabel *et al.*, 2019). For example, Sephora, a beauty brand, uses AR technology, allowing users to try on makeup without leaving their homes via a facial recognition system – users can position their phone in front of their face and try out various featured products. It increases customer engagement with photo-realistic makeup and hair colors. It digitally transforms the beauty industry as customers can personalize their shopping experience (Bruyn *et al.*, 2020). The next AR level lets MR manipulate digital images superimposed on the real world (Libai *et al.*, 2020). Examples of MR tools are Microsoft HoloLens and Lenovo Explorer – they, unlike VR headsets, do not blank the whole world but allow one to see the natural world and place digital objects in it. AI is bridging the gap between early adopters and laggards. The task of marketers is balancing and blending AI and human intelligence to present a seamless end-to-end customer experience. By integrating computer programs with an understanding of human service agents, marketers can resolve customer grievances more efficiently (Sands *et al.*, 2021). Amazon Alexa strives at proliferating customer journey in detail under ambient environment.

Table 4 represents the use, inception and meaning of VR, AR and MR.

Theoretical implications

First, this article reviews and provides a framework based on the literature indicate the adoption of AI and ML in the retail sector like e-commerce, real estate, retail mobile applications, aviation, service firms, frozen food brands, luxury brands, financial, tourism and insurance (see Table 5 and Figure 2) to boost customer's engagement while purchasing a product online (Singh *et al.*, 2021). The study explains how the technological revolution has influenced customer's behavioral choices and how the retail industry has embraced these changes to strengthen its online presence to meet customer's expectations. AI tools have been focusing on different stages of customer journey mapping (Awan *et al.*, 2021).

Second, as mentioned by [McLean and Wilson \(2019\)](#), AR in mobile applications induces customer engagement in the mobile application. Brand engagement focuses on novelty, interactivity influenced by perceived ease of use, usefulness and customer's enjoyment. [Orus et al. \(2021\)](#) used AR and VR to focus on customer's experiences in tourism; mainly hotel industry has used 360-degree videos on visual appeal on the booking intention of the customer. The influence of ease of imagination and visual appeal has impacted the customer booking intentions positively. Hence, the authors suggest researchers apply AR, grocery shopping and other sectors of retail also.

Third, customer segmentation has been looked upon by [Pitt et al. \(2020\)](#) by emphasizing the art of collectors' characteristic drawn by AI's, natural language processing (NLP) and text analysis. The study classified the art collectors on the flowing attributes extroversion, agreeableness, emotional stability, openness to new experience, conscientiousness; based upon these personality attributes, customers can be segmented with AI's help. The authors suggest that the same concepts can be by luxury jewelry brands to help specify the customer segments and serve them better.

Managerial implications

The retail sector's defense mechanism has adapted to safety after facing the pandemic's direct hit, which has proved that digitalization is the future for maintaining safe customer engagement strategies. First, the focus should be on providing contactless services incorporated with AI tools allowing step-by-step purchase guidance. Companies can operate day and night with flexible working hours to support customer's needs, including easy navigation of websites, secured password logins, pattern recognition systems, combination recommender systems and digital virtual experience. Adopting advanced technologies like face recognition systems, password-protected payment gateway details are preferred regarding security strategies. As the online facilities share with other customers, it is essential to give each customer personalized attention. Second, providing appropriate information to the customers of electronic products regarding the post-purchase services strategies is a must. The brands can provide automated reminders to the customers for the post-purchase services for building trust. Therefore, the brands need to keep the customers informed about new technologies to help them get the best available option without leaving their homes' comfort. Even brands can cut down on their rental and other expenses to maintain a brick-and-mortar store and work more on the online business model.

Third, marketers can reduce employees' workload and build their trust in technologies as they have fewer chances to incur errors than human beings. COVID-19 has provided the need to move toward contactless delivery. In transportation, Uber and Ola, in the food industry, Zomato and Swiggy have also opted for contactless delivery. The retailers should also shift toward no-touch practices and strategies demanded by present-day customers who want to purchase without physically visiting them.

Fourth, employees learn routine tasks, memorize relevant information, to use technology systems. To achieve this, employees need timely training and assistance for solving problems using technology. Further connecting employees to knowledge bases and customer relationships, management set-ups require more time and effort. In contrast, AI provides service per the situation, with pretested algorithms ([Beverungen et al., 2019](#)). This is where shopper bots can help make purchase decisions optimal relative to their user's requirements, preferences, and budgets.

Fifth, as mentioned by [Campbell et al. \(2020\)](#), the service interaction space (SIS) theory, with AI-assisted service interactions, can analyze conversations using NLP. To detect signs of customer agitation and frustration and, if detected, cue human service agents in real time with suggestions to realign with the customer, SIS framework highlights the relationship

between interfaces and interactions in customer engagement. It proposes the integration of trust and perceived sacrifice as mediating factors between an AI-enabled customer experiences with other personalization factors: convenience, AI-enabled service quality and relationship commitment.

Reinforcing
customer
journey

Agenda for future research

This article section is scheduled for future research to show that digital marketing applications influence customer behavior. (1) With the help of AR, it is possible to provide the buyer with a highly personalized and immersive environment that allows for interaction between the customer and the brand. Technology-based models support customer's immediate needs and provide expert digital assistants (Przegalinska *et al.*, 2019). Researchers can follow the same approach to understand other technologies apart from AR. (2) Prior and Keränen (2020) showed AI revolution in business and society has been showing across the nine stages of the marketing planning process. Future studies can be made across different retail sectors, showing the application of AI in the retailing industry for customers purchasing processes. (3) AI's adoption increases year after year, from providing service assistance during customer interactions to identifying optimal promotion strategies (Desouza *et al.*, 2020). Practitioners can research the effect of AI-equipped promotional strategies from customer's perspectives and focus on trust and privacy issues. (4) AI in cognitive computing systems, including chatbots, helps the customer navigate websites and predictive analytics systems for fraud detection and augmented decision-support management (Rust, 2020). Researchers can study the ease of use, trust and convenience of voice bots further. (5) AI-enabled transformation projects require marketers to make an archival data analysis by following three steps: the conceptual phase, the refinement and development phase and the assessment phase (Wamba-Taguimdje *et al.*, 2020). All three-phase can be put to use in the customer decision-making process in future studies. (6) Contemporary issues present in B2B marketing research like customer value, governance models and sustainability can use AI in marketing research in central areas such as integrating complex offers with solutions, integrating functional activities, and understanding B2B marketing in information-deficient environments can be future discussed (Hoyer *et al.*, 2020). (7) There are visibly many customer demand changes after COVID-19 (Hoyer *et al.*, 2020; Lee *et al.*, 2021). Therefore, future research can inquire into the relevance of applying AI to personalize online customer journeys pre- and post-COVID-19. (8) With the growing use of AI in the retail sector, there is a need to develop business intelligence and big data-driven analytics in the retail industry (Libai *et al.*, 2020). Researchers are increasingly interested in the application of BDA in healthcare, particularly in the fields of information management and health care studies (Arun *et al.*, 2021). Another research direction, particularly in epidemics, can be understanding how online websites may want to utilize and generate real-time data that can aid the development of forecasting, alarm system and big data. (9) Future studies can also explore how AI interface and ML can reduce employees' stress levels connected with repetitive tasks (Lemon *et al.*, 2016). Further, it would also be helpful to investigate how a better understanding of new technologies impacts managerial work routines in emerging countries (Kumar *et al.*, 2020). Another significant aspect the researchers can look upon is the apprehension of modalities on marketing outcome of AI on attitude and customer purchase intent (Pagani *et al.*, 2019). (10) Apart from the above, it is also critical to learn the role of ethics in adopting AI and ML algorithms in retail. The present paper also calls for research toward AI's impact on the online customer journey assisted with AI compared to the traditional online customer journey.

Discussions

Customer journey is a metaphor for the conceptualization of customer experience during the whole purchase cycle. During the purchase process, there is a sequence of stages a customer passes to gather different experiences. Table 5 shows the various stages of the customer journey, which have been discussed in the different research articles, and the same is shown in Figure 2.

Each customer has unique needs, and the marketers have to consider many factors like psychographic characteristics of the buyer, demographics of the buyer to understand and satisfy each customer's wants (Lemon *et al.*, 2016). Marketers need to identify the customer's buying purpose, the total duration of the customer journey and different touchpoints used during the search (Bigné *et al.*, 2016). Consumers are the generator of both structured and unstructured behavioral data. With AI's help, institutions can gather consumer data online and off-line information provides insights about their purchasing behavioral data (Arco *et al.*, 2019). The framework (see Figure 2) shows the application of AI's tools in the customer journey based on Table 5. Under the prepurchase stage, the customer's entire experience before the actual purchase is noted (Arco *et al.*, 2019). In the usual scenario, the "journey" begins with the consumer's intention to buy something they desire. In the traditional method of off-line purchase, the customers had issues in finding alternatives. Today the problem has shifted from no alternative options to too many options.

The challenges of emerging markets are significant; therefore, customer centricity and customer engagement are essential for any organization wishing to enter and development of new technologies (Yerpude and Singhal, 2021; Hagen *et al.*, 2020). In customer need recognition and customer knowledge, RS and AI are acting as touchpoints. RS is helping in improving the travel journey of the customer by providing more accurate and personalized offers in the aviation sector (Dadoun *et al.*, 2021). The beverage industry (beer) is also using RS to offer personalized recommendations to the customers (Chinchanchokchai *et al.*, 2021). AI is helping the tourism industry by investigating the customer's individual differences and attitudes while providing trip advice (Martin *et al.*, 2020). For example, future research in this area could examine the negative effects of technology on employee stress or motivation using different theories, such as, technology threat avoidance theory (Tandon *et al.*, 2021a, b). Chatbots, voice bots, VR and ML are helping in customer engagement in online relating focusing on customer convenience and cost effect interaction among brands and customers (Jiménez-Barreto *et al.*, 2021; Klaus and Zaichkowsky, 2020). In the financial sector, the application of chatbots helps in improving the web visibility and understanding of particular customer segments (Rajaobelina *et al.*, 2021). Mobile applications, real estate, online retailing all the implementing VR and VR to engage customers (Pleyers and Poncin, 2020; Regt *et al.*, 2021; McLean and Wilson, 2019). AR interactivity in mobile applications allows customers to view the product in 3D by which the customer is actively involved in the experience and engages customers cognitive processing (McLean and Wilson, 2019). ML algorithms help to train a chatbot in frequently asked customer queries and generating apt responses to these queries, enhancing customer interaction in e-commerce (Campbell *et al.*, 2020). Even AI helps in customer acquisition and segmentation in retailing (Libai *et al.*, 2020; Kumar *et al.*, 2019; Bhardwaj, 2021) in understanding the personality of art collectors (Pitt *et al.*, 2020) and in customer value co-creation in the insurance sector, chatbots are used (Riikkinen *et al.*, 2018).

The second stage of the customer journey is the purchase. As per Bradlow *et al.* (2017), this stage "covers all customer interactions with the brand and its environment during the actual purchase event itself. Characterised by behaviors such as choice, ordering, payment." Chatbot helps customers make online purchasing processes in the insurance sector by categorizing the customers into segments and providing apt responses to each segment (Rajaobelina *et al.*, 2021). Chatbots' social presence and interactiveness help purchase processes and decision-making in e-commerce (Yen and Chiang, 2020). AI bots help in the

marketing of brands and can take customer conveniences to another level; bots allow the customers to outsource customer's decision-making processes. Chatbot-enabled customer experience by online service providers helps understand the customer's feelings and analyses the data in real time (Sidaoui *et al.*, 2020). Retailing with AR, VR and MR has helped integrate technology with physical and virtual connections leads to behavioral interactivity to customers (Flavian *et al.*, 2021). Immersive technologies focus on cocreating and managing customers' experiences in retailing (Claudia and Danny, 2021). "Try before you buy," the concept of immersive technologies, has affected the customer booking intentions of the hotel room with ease of imagination and visual displays (Orus *et al.*, 2021).

As highlighted by George and Wakefield (2018) the post-purchase stage encompasses customer's interactions with the brand and its environment following the actual purchase. This stage includes interactions with the brand and its environment following the actual purchase and outlines behaviors such as usage and consumption, post-purchase engagement and services request. Theoretically, "customers evaluate the gap between their expectations and their consumption experience during and after consumption" (Arco *et al.*, 2019). Hence, electronic word of mouth (E-WOM), customer reviews, social media impressions, Twitter tweets and customer's shared pictures or videos with the product help produce knowledge about customer satisfaction, attitude, loyalty and commitment. A future researcher should pay attention to both external and internal technology capabilities and firm digital infrastructure to develop user attitudes toward new technology applications. Some previous studies support this view, based on literature review study, find that infrastructure developments are relevant to provide long-term insightful business intelligence to decision makers. Understanding customer's views about product features and service experience, whether satisfied or not, leads to brands and companies' sustainable competitive advantage (Arco *et al.*, 2019). Future research studies may also explore how behavioral resistance theory differs in adopting new technologies, such as AI applications, to explain individual user experiences (Tandon *et al.*, 2021a, b). AI helps in customer retention and online returns suggested by Yang *et al.* (2020). AI helps the marketers to make better return policies for the customers and lowers the risks of leftovers, also AI communicate the way human do, algorithms can send a personalized message to customer's helping the long-term retention and customer relationship management (Libai *et al.*, 2020; Kumar *et al.*, 2019).

Conclusion

The review of the literature concluded that AI tools are gaining popularity among marketers and consumers. The evidence provided in the literature states that AI in the customer journey as a concept has evolved. The overall interest in AI in the customer journey is heading northward; there is a lot of untapped scope in its experimental evolution in marketing's varied aspects. AI techniques are limited to specific product categories, such as consumer goods only; extending to industrial products is still undiscovered. There is a lot of scope of AI's contribution to the theorizing customer journey, its methods and context. From the marketers' perspective, when the competition is intensifying sky-high, there is a crying need for AI to provide the fillip. Marketers have been successful in understanding customer preferences through AI. This review has provided a window to look back toward the impact of AI on customers. The limitation of the study is that the authors have only referred to the database of Scopus only. This article's research plan suggests excellent ways in which AI tools are expecting to affect the various industries and customer experience. Researchers need to move ahead of the conventional perspectives of antecedents and outcomes of the traditional ways to product delivery process and quickly dive into customer's perception of contactless delivery and ensure the buyers' health and wellness. It is significant for

researchers to take an analytical view and foster insights into the obstacles and possibilities of introducing AI in different business areas. The accessibility to evolving techniques of big data like image analytics and text mining could instigate novel methods for extracting valuable data from the customers, allowing them to study their journeys and introduce new touchpoints for the betterment shortly. Future research could contemplate utilizing big data and analytics regarding AI in retail practices from retailers' contexts to analyze the industry's growing digital transformation. Therefore, it would be beneficial to explore how digital transformation in the retail sector reduces potential service disruptions and evade service failure. Customers feel more attracted to visual representations such as biometric technology. Lenskart takes numerous photographs of customers to determine the contours of the customer's face. The frames matched the face cut of the customer. The marketers should allow the customers to give ratings to the visual-based experience to know the return on investment. Researchers can study customer's attitudes related to the online retailing industry and explore AI's role in future research services.

References

- Akter, S., Motamarri, S., Hani, U., Shams, R., Fernando, M., Mohiuddin Babu, M. and Ning Shen, K. (2020), "Building dynamic service analytics capabilities for the digital marketplace", *Journal of Business Research*, Vol. 118, pp. 177-188, doi: [10.1016/j.jbusres.2020.06.016](https://doi.org/10.1016/j.jbusres.2020.06.016).
- Ameen, N., Tarhini, A., Reppel, A. and Anand, A. (2021), "Customer experiences in the age of artificial intelligence", *Computers in Human Behavior*, Vol. 114, doi: [10.1016/j.chb.2020.106548](https://doi.org/10.1016/j.chb.2020.106548).
- Anshu, k., Gaur, L. and Singh, G. (2022), "Impact of customer experience on attitude and repurchase intention in online grocery retailing: a moderation mechanism of value Co-creation", *Journal of Retailing and Consumer Services*. doi: [10.1016/j.jretconser.2021.102798](https://doi.org/10.1016/j.jretconser.2021.102798).
- Arco, M.D., Presti, L., Marino, V. and Resciniti, R. (2019), "Embracing AI and Big Data in customer journey mapping: from literature review to a theoretical framework", *Innovative Marketing*, Vol. 15 No. 4, pp. 102-115.
- Arsenijevic, U. and Jovic, M. (2019), "Artificial intelligence marketing: chatbots", in *Proceedings - 2019 International Conference on Artificial Intelligence: Applications and Innovations, IC-AIAI 2019*, Institute of Electrical and Electronics Engineers, pp. 19-22.
- Arun, T.M., Dhir, A., Talwar, S., Singh, G. and Escobar, O. (2021), "Business to Business(B2B) alliances in the Healthcare Industry. Past achievements and future suggestions", *Journal of Business and Industrial Marketing*. doi: [10.1108/JBIM-01-2021-0060](https://doi.org/10.1108/JBIM-01-2021-0060).
- Awan, U., Shamim, S., Khan, Z., Zia, N.U., Shariq, S.M. and Khan, M.N. (2021), "Big data analytics capability and decision-making: the role of data-driven insight on circular economy performance", *Technological Forecasting and Social Change*, Vol. 168, p. 120766, doi: [10.1016/j.techfore.2021.120766](https://doi.org/10.1016/j.techfore.2021.120766).
- Batat, W. (2021), "How augmented reality (AR) is transforming the restaurant sector: investigating the impact of 'Le Petit Chef' on customers' dining experiences", *Technological Forecasting and Social Change*, Vol. 172, p. 121013, doi: [10.1016/j.techfore.2021.121013](https://doi.org/10.1016/j.techfore.2021.121013).
- Bellis, E. and Johar, G.V. (2020), "Autonomous shopping systems: identifying and overcoming barriers to consumer adoption", *Journal of Retailing*, Vol. 96 No. 1, pp. 74-87.
- Beverungen, D., Müller, O., Matzner, M., Mendling, J. and Brocke, J. (2019), "Conceptualizing smart service systems", *Electronic Markets*, Vol. 29 No. 1, pp. 7-18.
- Bhardwaj, B.R. (2021), "Adoption, diffusion and consumer behavior in technopreneurship", *International Journal of Emerging Markets*, Vol. 16 No. 2, pp. 179-220, doi: [10.1108/IJOEM-11-2018-0577](https://doi.org/10.1108/IJOEM-11-2018-0577).
- Bigné, E., Llinares, C. and Torrecilla, C. (2016), "Elapsed time on first buying triggers brand choices within a category: a virtual reality-based study", *Journal of Business Research*, Vol. 69 No. 4, pp. 1423-1427.

-
- Bradlow, E.T., Gangwar, M., Kopalle, P. and Voleti, S. (2017), "The role of big data and predictive analytics in retailing", *Journal of Retailing*, Vol. 93 No. 1, pp. 79-95.
- Bruyn, A., Viswanathan, V., Beh, Y.S., Brock, J.K.U. and Wangenheim, F. (2020), "Artificial intelligence and marketing: pitfalls and opportunities", *Journal of Interactive Marketing*, Vol. 51, pp. 91-105, doi: [10.1016/j.intmar.2020.04.007](https://doi.org/10.1016/j.intmar.2020.04.007).
- Campbell, C., Sands, S., Ferraro, C., Tsao, H.Y. and Mavrommatis, A. (2020), "From data to action: how marketers can leverage AI", *Business Horizons*, Vol. 63 No. 2, pp. 227-243.
- Cheng, Y. and Jiang, H. (2021), "Customer-brand relationship in the era of artificial intelligence: understanding the role of chatbot marketing efforts", *Journal of Product and Brand Management*, Vol. ahead-of-print No. ahead-of-print, doi: [10.1108/JPBM-05-2020-2907](https://doi.org/10.1108/JPBM-05-2020-2907).
- Cheng, Y., Awan, U., Ahmad, S. and Tan, Z. (2021), "How do technological innovation and fiscal decentralization affect the environment? A story of the fourth industrial revolution and sustainable growth", *Technological Forecasting and Social Change*, Vol. 162, p. 120398, doi: [10.1016/j.techfore.2020.120398](https://doi.org/10.1016/j.techfore.2020.120398).
- Chinchanachokchai, S., Thontirawong, P. and Chinchanachokchai, P. (2021), "A tale of two recommender systems: the moderating role of consumer expertise on artificial intelligence based product recommendations", *Journal of Retailing and Consumer Services*, Vol. 61, p. 102528, doi: [10.1016/j.jretconser.2021.102528](https://doi.org/10.1016/j.jretconser.2021.102528).
- Chung, M., Ko, E., Joung, H. and Kim Jin, S. (2020), "Chatbot e-service and customer satisfaction regarding luxury brands", *Journal of Business Research*, Vol. 117, pp. 587-595.
- Claudia, M.T.D. and Danny, H. (2021), "The role of immersive technology in Customer Experience Management", *Journal of Marketing Theory and Practice*. doi: [10.1080/10696679.2021.1891939](https://doi.org/10.1080/10696679.2021.1891939).
- Cooke, P., Yun, J.J., Zhao, X. and Kim, Y. (2019), "The digital, quaternary or 4.0 web economy: aspects, effects and implications", *International Journal of Knowledge-Based Development*, Vol. 10 No. 3, pp. 193-212, doi: [10.1016/j.jretconser.2021.102528](https://doi.org/10.1016/j.jretconser.2021.102528).
- Dadoun, A., Defoin-Platel, M., Fiig, T., Landra, C. and Troncy, R. (2021), "How recommender systems can transform airline offer construction and retailing", *Journal of Revenue and Pricing Management*, Vol. 20 No. 3, pp. 301-315.
- Davenport, T., Guha, A., Grewal, D. and Bressgott, T. (2020), "How artificial intelligence will change the future of marketing", *Journal of the Academy of Marketing Science*, Vol. 48 No. 1, pp. 24-42.
- Desouza, K.C., Dawson, G.S. and Chenok, D. (2020), "Designing, developing, and deploying artificial intelligence systems: lessons from and for the public sector", *Business Horizons*, Vol. 63 No. 2, pp. 205-213.
- Diederich, S., Brendel, A.B. and Kolbe, L.M. (2020), "Designing anthropomorphic enterprise conversational agents", *Business and Information Systems Engineering*, Vol. 62 No. 3, pp. 193-209.
- Dwivedi, Y.K., Ismagilova, E., Hughes, D.L., Carlson, J., Filieri, R., Jacobson, J., Jain, V., Karjaluoto, H., Kefi, H., Krishen, A.S., Kumar, V., Rahman, M.M., Raman, R., Rauschnabel, P.A., Rowley, J., Salo, J., Tran, G.A. and Wang, Y. (2020), "Setting the future of digital and social media marketing research: perspectives and research propositions", *International Journal of Information Management*, Vol. 59, p. 102168, doi: [10.1016/j.ijinfomgt.2020.102168](https://doi.org/10.1016/j.ijinfomgt.2020.102168).
- Flavian, C., Ibáñez-Sánchez, S. and Orús, C. (2021), "The influence of scent on virtual reality experiences: the role of aroma-content congruence", *Journal of Business Research*, Vol. 123, pp. 289-301, doi: [10.1016/j.jbusres.2020.09.036](https://doi.org/10.1016/j.jbusres.2020.09.036).
- Frank, B., Herbas-Torrico, B. and Schvaneveldt, S.J. (2021), "The AI-extended consumer: technology, consumer, country differences in the formation of demand for AI-empowered consumer products", *Technological Forecasting and Social Change*, Vol. 172, 121018 doi: [10.1016/j.techfore.2021.121018](https://doi.org/10.1016/j.techfore.2021.121018).
- Gaur, L., Afaq, A., Singh, G. and Dwivedi, Y. (2021), "Role of artificial intelligence and robotics to foster the touchless travel during a pandemic: a review and research agenda", *International Journal of Contemporary Hospitality Management*. doi: [10.1108/IJCHM-11-2020-1246](https://doi.org/10.1108/IJCHM-11-2020-1246).

-
- George, M. and Wakefield, K.L. (2018), "Modeling the consumer journey for membership services", *Journal of Services Marketing*, Vol. 32 No. 2, pp. 113-125.
- Goyani, M. and Chaurasiya, N. (2020), "A review of movie recommendation system: limitations, survey and challenges", *Electronic Letters on Computer Vision and Image Analysis*, Vol. 19 No. 3, pp. 18-37.
- Grewal, D., Guha, A., Satornino, C.B. and Schweiger, E.B. (2021), "Artificial intelligence: the light and the darkness", *Journal of Business Research*, Vol. 136, pp. 229-236.
- Hagen, L., Uetake, K., Yang, N., Bollinger, B., Chaney, A.J.B., Dzyabura, D., Etkin, J., Goldfarb, A., Liu, L., Sudhir, K., Wang, Y., Wright, J.R. and Zhu, Y. (2020), "How can machine learning aid behavioral marketing research?", *Marketing Letters*, Vol. 31 No. 4, pp. 361-370.
- Hasan, R., Shams, R. and Rahman, M. (2020), "Consumer trust and perceived risk for voice-controlled artificial intelligence: the case of Siri", *Journal of Business Research*, Vol. 131, pp. 591-597, doi: [10.1016/j.jbusres.2020.12.012](https://doi.org/10.1016/j.jbusres.2020.12.012).
- Hinsch, C., Felix, R. and Rauschnabel, P.A. (2020), "Nostalgia beats the wow-effect: inspiration, awe and meaningful associations in augmented reality marketing", *Journal of Retailing and Consumer Services*, Vol. 53, p. 101987, doi: [10.1016/j.jretconser.2019.101987](https://doi.org/10.1016/j.jretconser.2019.101987).
- Hoyer, W.D., Kroschke, M., Schmitt, B., Kraume, K. and Shankar, V. (2020), "Transforming the customer experience through new technologies", *Journal of Interactive Marketing*, Vol. 51, pp. 57-71, doi: [10.1016/j.intmar.2020.04.001](https://doi.org/10.1016/j.intmar.2020.04.001).
- Huang, M.H. and Rust, R.T. (2021), "Engaged to a robot? The role of AI in service", *Journal of Service Research*, Vol. 24 No. 1, pp. 30-41.
- Jiménez-Barreto, J., Rubio, N. and Molinillo, S. (2021), "Find a flight for me, Oscar!" Motivational customer experiences with chatbots", *International Journal of Contemporary Hospitality Management*, doi: [10.1108/IJCHM-10-2020-1244](https://doi.org/10.1108/IJCHM-10-2020-1244).
- Kaartemo, V. and Nyström, A.G. (2021), "Emerging technology as a platform for market shaping and innovation", *Journal of Business Research*, Vol. 124, pp. 458-468, doi: [10.1016/j.jbusres.2020.10.062](https://doi.org/10.1016/j.jbusres.2020.10.062).
- Kautish, P., Paul, J. and Sharma, R. (2021), "The effect of assortment and fulfillment on shopping assistance and efficiency: an e-tail servicescape perspective", *Journal of Retailing and Consumer Services*, Vol. 59, doi: [10.1016/j.jretconser.2020.102393](https://doi.org/10.1016/j.jretconser.2020.102393).
- Khanra, S., Dhir, A., Islam, N. and Mäntymäki, M. (2020), "Big data analytics in healthcare: a systematic literature review", *Enterprise Information Systems*, Vol. 14 No. 7, pp. 878-912, doi: [10.1080/17517575.2020.1812005](https://doi.org/10.1080/17517575.2020.1812005).
- Kim, J., Giroux, M. and Lee, J.C. (2021), "When do you trust AI? The effect of number presentation detail on consumer trust and acceptance of AI recommendations", *Psychology and Marketing*, doi: [10.1002/mar.21498](https://doi.org/10.1002/mar.21498).
- Klaus, P. and Zaichkowsky, J. (2020), "AI voice bots: a services marketing research agenda", *Journal of Services Marketing*, Vol. 34 No. 3, pp. 389-398.
- Kull, A.J., Romero, M. and Monahan, L. (2021), "How may I help you? Driving brand engagement through the warmth of an initial chatbot message", *Journal of Business Research*, Vol. 135, pp. 840-850.
- Kumar, V., Rajan, B., Venkatesan, R. and Lecinski, J. (2019), "Understanding the role of artificial intelligence in personalised engagement marketing", *California Management Review*, Vol. 61 No. 4, pp. 135-155.
- Kumar, S., Verma, P., Patel, P. and Rajesh, J.I. (2020), "Perceptions of Indian managers on the impact of convergent technologies on work and resultant organisational performance in service industry", *International Journal of Emerging Markets*. doi: [10.1108/IJOEM-06-2020-0658](https://doi.org/10.1108/IJOEM-06-2020-0658).
- Lavuri, R. (2021), "Intrinsic factors affecting online impulsive shopping during the COVID-19 in emerging markets", *International Journal of Emerging Markets*. doi: [10.1108/IJOEM-12-2020-1530](https://doi.org/10.1108/IJOEM-12-2020-1530).

-
- Lee, L.W., Dabirian, A., McCarthy, I.P. and Kietzmann, J. (2020), "Making sense of text: artificial intelligence-enabled content analysis", *European Journal of Marketing*, Vol. 54 No. 3, pp. 615-644.
- Lee, M., Kwon, W. and Back, K.-J. (2021), "Artificial intelligence for hospitality big data analytics: developing a prediction model of restaurant review helpfulness for customer decision-making", *International Journal of Contemporary Hospitality Management*, Vol. 33 No. 6, pp. 2117-2136, doi: [10.1108/IJCHM-06-2020-0587](https://doi.org/10.1108/IJCHM-06-2020-0587).
- Lemon, K.N. and Verhoef, P.C. (2016), "Understanding customer experience throughout the customer journey", *Journal of Marketing*, Vol. 80 No. 6, pp. 69-96, doi: [10.1509/jm.15.0420](https://doi.org/10.1509/jm.15.0420).
- Libai, B., Bart, Y., Gensler, S., Hofacker, C.F., Kaplan, A., Kötterheinrich, K. and Kroll, E.B. (2020), "Brave new world? On AI and the management of customer relationships", *Journal of Interactive Marketing*, Vol. 51, pp. 44-56, doi: [10.1016/j.intmar.2020.04.002](https://doi.org/10.1016/j.intmar.2020.04.002).
- Malodia, S., Islam, N., Kaur, P. and Dhir, A. (2021), "Why do people use Artificial Intelligence (AI)-enabled voice assistants?", *IEEE Transactions on Engineering Management*, available at: <https://ore.exeter.ac.uk/repository/handle/10871/126990> (accessed 10 october 2021).
- Martínez, A., Schmuck, C., Pereverzyev, S., Pirker, C. and Haltmeier, M. (2020), "A machine learning framework for customer purchase prediction in the non-contractual setting", *European Journal of Operational Research*, Vol. 281 No. 3, pp. 588-596.
- Martin, A.S.B., Seung Jin, H., Wang, D., Nguyen, H., Zhan, K. and Xian, Y. (2020), "The influence of consumer anthropomorphism on attitudes towards artificial intelligence trip advisors", *Journal of Hospitality and Tourism Management*, Vol. 44, pp. 108-111.
- McLean, G. and Osei-Frimpong, K. (2019), "Hey Alexa . . . examine the variables influencing the use of artificial intelligent in-home voice assistants", *Computers in Human Behavior*, Vol. 99, pp. 28-37, doi: [10.1016/j.chb.2019.05.009](https://doi.org/10.1016/j.chb.2019.05.009).
- McLean, G. and Wilson, A. (2019), "Shopping in the digital world: examining customer engagement through augmented reality mobile application", *Computers in Human Behavior*, Vol. 101, pp. 210-224, doi: [10.1016/j.chb.2019.07.002](https://doi.org/10.1016/j.chb.2019.07.002).
- Molina-Carmona, R., Pertegal-Felices, M.L., Jimeno-Morenilla, A. and Mora-Mora, H. (2018), "Virtual Reality learning activities for multimedia students to enhance spatial ability", *Sustainability (Switzerland)*, Vol. 10 No. 4, p. 1074, doi: [10.3390/su10041074](https://doi.org/10.3390/su10041074).
- Nagdev, K., Rajesh, A. and Misra, R. (2021), "The mediating impact of demonetisation on customer acceptance for IT-enabled banking services", *International Journal of Emerging Markets*, Vol. 16 No. 1, pp. 51-74.
- Neuhofer, B., Magnus, B. and Celuch, K. (2020), "The impact of artificial intelligence on event experiences: a scenario technique approach", *Electronic Markets*. doi: [10.1007/s12525-020-00433-4](https://doi.org/10.1007/s12525-020-00433-4).
- Orus, C., Ibanez-Sanchez, S. and Flavian, C. (2021), "Enhancing the customer experience with virtual and augmented reality: the impact of content and device type", *International Journal of Hospitality Management*, Vol. 98, p. 103019, doi: [10.1016/j.ijhm.2021.103019](https://doi.org/10.1016/j.ijhm.2021.103019).
- Oskam, J. and Boswijk, A. (2016), "Airbnb: the future of networked hospitality businesses", *Journal of Tourism Futures*, Vol. 2 No. 1, pp. 22-42.
- Pagani, M., Racat, M. and Hofacker, C.F. (2019), "Adding voice to the omnichannel and how that affects brand trust", *Journal of Interactive Marketing*, Vol. 48, pp. 89-105, doi: [10.1016/j.intmar.2019.05.002](https://doi.org/10.1016/j.intmar.2019.05.002).
- Paschen, J., Kietzmann, J. and Kietzmann, T.C. (2019), "Artificial intelligence (AI) and its implications for market knowledge in B2B marketing", *Journal of Business and Industrial Marketing*, Vol. 34 No. 7, pp. 1410-1419.
- Payne, E.H.M., Dahl, A.J. and Peltier, J. (2021a), "Digital servitization value co-creation framework for AI services: a research agenda for digital transformation in financial service ecosystems", *Journal of Research in Interactive Marketing*, Vol. 15 No. 2, pp. 200-222, doi: [10.1108/JRIM-12-2020-0252](https://doi.org/10.1108/JRIM-12-2020-0252).

-
- Payne, E.H.M., Peltier, J. and Barger, V.A. (2021b), "Enhancing the value co-creation process: artificial intelligence and mobile banking service platforms", *Journal of Research in Interactive Marketing*, Vol. 15 No. 1, pp. 68-85, doi: [10.1108/JRIM-10-2020-0214](https://doi.org/10.1108/JRIM-10-2020-0214).
- Perez-Vega, R., Kaartemo, V., Lages, C.R., Borghei Razavi, N. and Männistö, J. (2020), "Reshaping the contexts of online customer engagement behavior via artificial intelligence: a conceptual framework", *Journal of Business Research*, Vol. 129, pp. 902-910, doi: [10.1016/j.jbusres.2020.11.002](https://doi.org/10.1016/j.jbusres.2020.11.002).
- Pitt, C.S., Bal, A.S. and Plangger, K. (2020), "New approaches to psychographic consumer segmentation: exploring fine art collectors using artificial intelligence, automated text analysis and correspondence analysis", *European Journal of Marketing*, Vol. 54 No. 2, pp. 305-326, doi: [10.1108/EJM-01-2019-0083](https://doi.org/10.1108/EJM-01-2019-0083).
- Pleyers, G. and Poncin, I. (2020), "Non-immersive virtual reality technologies in real estate: how customer experience drives attitude towards properties and the service provider", *Journal of Retailing and Consumer Services*, Vol. 57, p. 102175, doi: [10.1016/j.jretconser.2020.102175](https://doi.org/10.1016/j.jretconser.2020.102175).
- Poushneh, A. (2021), "Humanizing voice assistant: the impact of voice assistant personality on consumers' attitudes and behaviors", *Journal of Marketing Theory and Practice*, Vol. 58, p. 102283, doi: [10.1016/j.jretconser.2020.102283](https://doi.org/10.1016/j.jretconser.2020.102283).
- Prior, D.D. and Keränen, J. (2020), "Revisiting contemporary issues in B2B marketing: it's not just about artificial intelligence", *Australasian Marketing Journal*, Vol. 28 No. 2, pp. 83-89.
- Przegalinska, A., Ciechanowski, L., Stroz, A., Gloor, P. and Mazurek, G. (2019), "In bot we trust: a new methodology of chatbot performance measures", *Business Horizons*, Vol. 62 No. 6, pp. 785-797.
- Rai, A. (2020), "Explainable AI: from black box to glass box", *Journal of the Academy of Marketing Science*, Vol. 48 No. 1, pp. 137-141.
- Rajaobelina, L. and Ricard, L. (2021), "Classifying potential users of live chat services and chatbots", *Journal of Financial Service Marketing*, Vol. 26, pp. 81-94, doi: [10.1057/s41264-021-00086-0](https://doi.org/10.1057/s41264-021-00086-0).
- Rajaobelina, L., Prom Tep, S., Arcand, M. and Ricard, L. (2021), "Creepiness: its antecedents and impact on loyalty when interacting with a chatbot", *Psychology and Marketing*. doi: [10.1002/mar.21548](https://doi.org/10.1002/mar.21548).
- Ramadan, Z.B. (2021), "Alexafying' shoppers: the examination of Amazon's captive relationship strategy", *Journal of Retailing and Consumer Services*, Vol. 62, p. 102610, doi: [10.1016/j.jretconser.2021.102610](https://doi.org/10.1016/j.jretconser.2021.102610).
- Rangaswamy, A., Moch, N., Felten, C., Bruggen, G., Wieringa, J.E. and Wirtz, J. (2020), "The role of marketing in digital business platforms", *Journal of Interactive Marketing*, Vol. 51, pp. 72-90, doi: [10.1016/j.intmar.2020.04.006](https://doi.org/10.1016/j.intmar.2020.04.006).
- Rauschnabel, P.A., Felix, R. and Hinsch, C. (2019), "Augmented reality marketing: how mobile AR-apps can improve brands through inspiration", *Journal of Retailing and Consumer Services*, Vol. 49, pp. 43-53, doi: [10.1016/j.jretconser.2019.03.004](https://doi.org/10.1016/j.jretconser.2019.03.004).
- Regt, A., Plangger, K. and Barnes, J.S. (2021), "Virtual reality marketing and customer advocacy: transforming experiences from story-telling to story doing", *Journal of Business Research*, Vol. 136, pp. 513-522, doi: [10.1016/j.jbusres.2021.08.004](https://doi.org/10.1016/j.jbusres.2021.08.004).
- Riikinen, M., Saarijärvi, H., Sarlin, P. and Lähteenmäki, I. (2018), "Using artificial intelligence to create value in insurance", *International Journal of Bank Marketing*, Vol. 36 No. 6, pp. 1145-1168.
- Rust, R.T. (2020), "The future of marketing", *International Journal of Research in Marketing*, Vol. 37 No. 1, pp. 15-26.
- Sands, S., Ferraro, C., Campbell, C. and Tsao, H.-Y. (2021), "Managing the human-chatbot divide: how service scripts influence service experience", *Journal of Service Management*, Vol. 32 No. 2, pp. 246-264, doi: [10.1108/JOSM-06-2019-0203](https://doi.org/10.1108/JOSM-06-2019-0203).
- Sengupta, K., Ke, M., Menger, R. and Kumar, C. (2018), "Hands-free web browsing: enriching the user experience with gaze voice modality", in *Proceedings of the 2018 ACM Symposium on Eye Tracking Research and Application*, pp. 1-3, doi: [10.1145/3334480.3381057](https://doi.org/10.1145/3334480.3381057).

-
- Seyyedamiri, N. and Tajrobehkar, L. (2021), "Social content marketing, social media and product development process effectiveness in high-tech companies", *International Journal of Emerging Markets*, Vol. 16 No. 1, pp. 75-91, doi: [10.1108/IJOEM-06-2018-0323](https://doi.org/10.1108/IJOEM-06-2018-0323).
- Sharma, S., Singh, G. and Aiyub, A. (2020), "Use of social networking sites by SMEs to engage with their customers: a developing country perspective", *Journal of Internet Commerce*, Vol. 19 No. 1, pp. 62-81.
- Sidaoui, K., Jaakkola, M. and Burton, J. (2020), "AI feel you: customer experience assessment via chatbot interviews", *Journal of Service Management*, Vol. 31 No. 4, pp. 745-766.
- Singh, J., Nambisan, S., Bridge, R.G. and Brock, J.K.U. (2021), "One-voice strategy for customer engagement", *Journal of Service Research*, Vol. 24 No. 1, pp. 42-65, doi: [10.1177/1094670520910267](https://doi.org/10.1177/1094670520910267).
- Sujata, J., Aniket, D. and Mahasingh, M. (2019), "Artificial intelligence tools for enhancing customer experience", *International Journal of Recent Technology and Engineering*, Vol. 8 No. 2 Special Issue 3, pp. 700-706.
- Talwar, S., Kaur, P., Fosso Wamba, S. and Dhir, A. (2021), "Big Data in operations and supply chain management: a systematic literature review and future research agenda", *International Journal of Production Research*, Vol. 59 No. 11, pp. 3509-3534, doi: [10.1080/00207543.2020.1868599](https://doi.org/10.1080/00207543.2020.1868599).
- Tandon, A., Dhir, A., Islam, N., Talwar, S. and Mäntymäki, M. (2021a), "Psychological and behavioral outcomes of social media-induced fear of missing out at the workplace", *Journal of Business Research*, Vol. 136, pp. 186-197, doi: [10.1016/j.jbusres.2021.07.036](https://doi.org/10.1016/j.jbusres.2021.07.036).
- Tandon, A., Kaur, P., Mäntymäki, M. and Dhir, A. (2021b), "Blockchain applications in management: a bibliometric analysis and literature review", *Technological Forecasting and Social Change*, Vol. 166, p. 120649, doi: [10.1016/j.techfore.2021.120649](https://doi.org/10.1016/j.techfore.2021.120649).
- Terragni, A. and Hassani, M. (2018), "Analyzing customer journey with process mining: from discovery to recommendations", in *Proceedings - 2018 IEEE 6th International Conference on Future Internet of Things and Cloud, FiCloud 2018*, pp. 224-229.
- Wamba-Taguimdje, S.L., Fosso Wamba, S., Kala Kamdjoug, J.R. and Tchatchouang Wanko, C.E. (2020), "Influence of artificial intelligence (AI) on firm performance: the business value of AI-based transformation projects", *Business Process Management Journal*, Vol. 26 No. 7, pp. 1893-1924.
- Wedel, M., Bigné, E. and Zhang, J. (2020), "Virtual and augmented reality: advancing research in consumer marketing", *International Journal of Research in Marketing*, Vol. 37 No. 3, pp. 443-465.
- Yang, G., Ji, G. and Tan, K.H. (2020), "Impact of artificial intelligence adoption on online returns policies", *Annals of Operations Research*, doi: [10.1007/s10479-020-03602-y](https://doi.org/10.1007/s10479-020-03602-y).
- Yen, C. and Chiang, M.C. (2020), "Trust me, if you can: a study on the factors that influence consumers' purchase intention triggered by chatbots based on brain image evidence and self-reported assessments", *Behaviour and Information Technology*, Vol. 40 No. 11, pp. 1177-1194.
- Yerpude, S. and Singhal, T.K. (2021), "Custolytics: internet of Things based customer analytics aiding customer engagement strategy in emerging markets – an empirical research", *International Journal of Emerging Markets*, Vol. 16 No. 1, pp. 92-112.

Corresponding author

Gurmeet Singh can be contacted at: gurmeet.singh@usp.ac.fj

For instructions on how to order reprints of this article, please visit our website:

www.emeraldgrouppublishing.com/licensing/reprints.htm

Or contact us for further details: permissions@emeraldinsight.com