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# Guest editorial: Artificial intelligence as a market-facing technology: getting closer to the consumer through innovation and insight

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## Introduction

Artificial intelligence (AI) is rapidly transforming how consumers and businesses interact. AI involves the use of smart technologies to perform and collaborate on tasks requiring human intelligence, including learning, action and flexibly adapting to fast-paced marketplaces. Marketing has been recognized as the business domain in which AI can contribute the most value, through hundreds of real business cases (Chui *et al.*, 2018). The estimated value of AI in marketing worldwide is expected to rise from \$20.82bn in 2020 to \$108bn in 2028 (The Insight Partners, 2021). More broadly, PwC (2017) estimates that AI will make \$15tn potential contribution to the global economy by 2030. AI can help to understand markets more clearly and can be incorporated into every step of the consumer's journey (e.g. reach, act, convert and engage), understanding needs, matching to company offerings and persuading consumers to purchase; overall, AI can considerably improve the customer journey, creating capturing and sustaining value (Kietzman *et al.*, 2018).

AI is more far-reaching in marketing than most people think. It goes well beyond chatbots, programmatic advertising, and obvious applications to include thousands of smaller applications have been the standard practice in marketing for some time, particularly in automating tasks and making predictions (Marr, 2021). The big change in recent years is the shift from a primary focus on automating and augmenting tasks to deeper involvement in core marketing functions that hitherto required human input and decision-making. Nevertheless, AI also presents potential risks for society, consumer autonomy and individual well-being, the implications of which are not yet well understood and often unintended consequences surface (André *et al.*, 2018). Questions are emerging concerning the ethics around the use of dominant algorithms by marketers and consumers, the threat of super-intelligence and in upholding appropriate international customer data protection and privacy.

AI in marketing is not entirely new – research emerged with the development of robotics and expert systems in the 1980s (Davenport, 1998). AI as a field is even older than that, emerging in the mid-20th century in computer science as a research area focusing on the simulation of human learning (the term “artificial intelligence” was coined by John McCarthy in 1954; Cukier, 2019). Notwithstanding, with the growth of computational power and big data, and advancement in AI techniques, in the past five years or so, AI in marketing has come of age and experienced significant tailwinds in its further development. The past few years have seen a plethora of papers aimed at capturing and synthesizing the state-of-the-art of AI in marketing, particularly through bibliometrics, expert surveys and structured review. According to Vlacic *et al.* (2021), much of the research can be divided into behavioral profiling vs strategic intelligence



system and technology-oriented approaches vs client-oriented relationship. The authors point to the multidisciplinary nature of publications across marketing, information systems and data science, and the key themes of marketing strategy, marketing channels, performance and STP (Vlacic *et al.*, 2021). Similar findings have been found in other bibliometric studies (Feng *et al.*, 2021; Varma *et al.*, 2021).

What is clear is that AI can assist in the development of more effective marketing strategies (Davenport *et al.*, 2021). Indeed, Huang and Rust (2021) demonstrate the strategic application of AI across marketing research, marketing strategy (i.e. STP) and marketing action (4Ps/4Cs). In particular, they point to the progression of AI from mechanical AI that is typically used for standardization, to “thinking AI” that is suited to personalization, to the highest level, “feeling AI,” that can be used for relationalization – personalized relationships via recognizing and responding to emotions (Huang and Rust, 2021). Davenport *et al.* (2021) make a further distinction regarding the integration of AI applications, distinguishing stand-alone vs integrated and task-automation vs machine-learning apps in marketing, heralding integrated machine-learning applications as the key areas for value gains. To deliver on such potential, there is a pertinent need for an in-depth understanding of AI as a market-facing technology.

The aim of this special issue is to examine the current and future impact of AI and machine learning technologies in marketing. This special issue showcases novel, contemporary research into the application of AI in marketing. The papers in this collection help to bridge the gap between managerial and technical perspectives by taking a strategic view on AI as a market-facing technology. The papers are multidisciplinary, including multiple points of view and collaborations between academics in marketing and information systems, data science and other disciplines to advance our understanding of AI on the front line. The papers cover three main aspects of AI in marketing: advertising, retailing and online agents. Let us examine the contributions in each of these three areas in turn.

### **Artificial intelligence in advertising**

The first paper, “Using AI predicted personality to enhance advertising effectiveness,” written by Michael Shumanov, Holly Cooper and Mike Ewing, provides some very novel insights into whether algorithms can be used to predict consumer personality using contextual data (rather than social media data, as is more typical) from natural language, and furthermore, the factors that impact the persuasiveness of psychologically targeted advertisements. This comprehensive work uses a mix of quantitative methods on a large sample of retailing banking customers and a small number of targeted in-depth interviews. Interestingly, the authors find that matching consumer personality with congruent advertising messages can lead to more effective consumer persuasion for most personality types, with specific recommendations for customers with neurotic personality traits and extroverted consumers. The data used in the study capture an authentic persona, rather than an artificial one, and provides explanations as to why some personality traits exhibit differences in purchasing behavior from expected theoretical explanations.

The second advertising-focused paper is titled “Predicting crowdfunding success with visuals and speech in video ads and text ads” and is authored by Osamah Al-Qershi, Junbum Kwon, Shuning Zhao and Zhaokun Li. The paper focuses on content feature extraction for the purposes of prediction, concentrating on the elements of text and video that are able to predict successful crowdfunding ads. The study extracts more than a thousand features from a large data set of US Kickstarter campaigns and tests prediction

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accuracy using a variety of machine-learning model types, finding XGBoost to be the most accurate. Notably, the research finds that the presence of humans (including campaign founders) is more important than visual objects (such as the actual products) in predicting success, while words related to experience, perception and future time are also significant predictors. Elements such as speech aids and positive tone were also found to be valuable aspects of the best advertisements. Overall, the authors recommend that the context of text and video ads is scrutinized more rigorously and subsequently improved before launch to increase the probability of successful crowdfunding.

### **Artificial intelligence in retailing**

The first paper on the topic of AI in retailing is focused on the physical retailing environment. “Just walk out: The effect of AI-enabled checkouts” by Gina Cui, Patrick van Esch and Shailendra Jain examines the impact of AI-enabled checkouts on consumers’ assessment of the retailing atmosphere and purchase intentions. This substantial body of work includes three pilot studies, two field studies and a large online experiment and offers novel insights into how and when AI-enabled checkouts are likely to generate more favorable consumer responses. Importantly, the authors find that, under certain conditions, AI-enabled checkouts create a higher level of consumer arousal, subsequently manifesting in more favorable store atmosphere evaluations and higher purchase intentions. Noteworthy is the moderating effect of consumers’ innovativeness importance on the positive effect of AI-enabled checkouts. The authors recommend that marketers and practitioners further use AI-enabled checkouts to improve consumers’ store assessment and patronage in the future, particularly for the most innovative consumers.

The second paper on the topic of AI in retailing takes a quite distinct perspective, focusing on voice-activated artificial intelligent devices (VAIs) for online grocery purchases. “Hey Alexa—order groceries for me’ – The effect of consumer-VAI emotional attachment on satisfaction” is authored by Reema Singh and consists of two survey studies that test theories of anthropomorphism, trust, emotional attachment, self-connection and self-disclosure to understand the impact of VAIs on grocery purchase satisfaction and intention to repurchase. The results demonstrate that trust and anthropomorphism positively predict consumer–VAI emotional attachment, moderated by consumer self-disclosure. The findings also demonstrate that consumer–VAI emotional attachment results in extensions of consumers’ self-identity, resulting in purchase satisfaction and repurchase intention using VAIs. Overall, the research underlines the future strategic importance of VAIs for marketers in grocery purchases and repurchases.

### **Artificial intelligence-enabled online agents**

Following a topic touched-upon in the last paper, the papers in this section focus specifically on AI-enabled online agents and their implications for marketing. The first paper in this area, “Unreal influence: Leveraging AI in influencer marketing” by Sean Sands, Colin Campbell, Kirk Plangger and Carla Ferraro, examines consumers’ reactions to AI influencers versus human influencers in the social media context. The research uses two online experiments on Instagram to examine the efficacy of AI social media influencers, examining the effects of social psychological distance, agency and influencer type on consumer perceptions, along with the moderating effect of consumer need for uniqueness. Interestingly, the authors find that consumers are impartially open to following either AI or human influencers, perceiving very similar levels of

personalization in each influencer type. Indeed, AI influencers can generate greater word-of-mouth intentions and are particularly effective for consumers seeking greater uniqueness. Notwithstanding, there is clear evidence that AI influencers evoke less trust than their human counterparts, partly due to the mediating effects of social distance. A lack of agency was found to have a negative effect on consumer perceptions. Overall, although the authors' point to some similarities in the effectiveness of both influencer types, they draw attention to the lack of trust in AI influencers in cautioning marketers in replacing their human equivalents.

The final paper in the special issue focuses specifically on chatbots and underlying and prominent issues in establishing trust via these revolutionary, interactive service agents. The paper, "Antecedents and consequences of chatbot initial trust," is authored by Rania Mostafa and Tamara Kasamani and aims at understanding the antecedents and consequences of chatbot initial trust. Based on a survey sample, the research finds that three key factors, ease of use, social influence and compatibility, significantly enhance customers' initial trust toward chatbots. As a result, initial trust in chatbots leads to increase consumers' brand interactions and chatbot use intention. Overall, the authors' study provides important insights for marketers on how to garner trust in chatbots, which, once developed, can lead to growth in consumers' brand engagement.

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#### **Further reading**

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