

New technologies usher in an era of virtuous growth in the discipline of marketing

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Madison, Erasmus University Rotterdam, and University of Maryland introduce the special issue on "New Technologies in Marketing" in the *Journal of Marketing* and provide several frameworks for thinking

about how new technologies affect the marketing discipline. These frameworks identify potential gaps worthy of further study and propose an agenda for future research.

The editorial introducing the special issue is titled "The Rise of New Technologies in Marketing: A Framework and Outlook" and is authored by Donna Hoffman, Page Moreau, Stefan Stremersch, and Michel Wedel.

As a scholarly field, marketing has a long tradition of studying the adoption of new technologies. This attention is certainly warranted as studies demonstrate that firms investing heavily in [new technology](#) enjoy a competitive advantage compared to firms that do not. However, what has received less attention in the literature is how new technologies give rise to innovations in marketing techniques, tools, and strategies themselves. There is a need for marketing scholars to develop theoretical paradigms of how marketers use technologies to develop a competitive advantage.

This special issue presents cutting-edge scholarly research that recognizes the foundational role of a broad range of new technologies in driving marketing theory and practice. "We hope the papers in this special issue on "New Technologies in Marketing" will stimulate further research concerning new technologies in marketing and their applications in practice," says Moreau.

The editors observe that new technologies impact marketing in four broad, interconnected ways. Specifically, new [technology](#): 1) supports new forms of interaction among [consumers](#) and firms; 2) provides new types of data that enable new analytic methods; 3) creates marketing innovations; and 4) requires new strategic marketing frameworks. Different technologies can serve these multiple functions at the same time and to varying degrees.

New technology may enable new forms of consumer-to-consumer, consumer-to-firm, firm-to-consumer, and firm-to-firm interactions. Many firms now enable direct consumer-to-consumer interactions by engaging consumers around brands. New technologies have often been effectively deployed to improve firm-consumer interactions by providing new marketing tools.

Wedel explains that "By altering consumer-to-consumer and consumer-to-firm interactions, new technologies produce new forms of data. In turn, these new data forms often require the development of new methods or the adaptation of existing ones to process or analyze that data. New technologies have the potential to provide new marketing tools and techniques that lead to innovations in the marketing of products and services. Finally, new technologies enable new marketing strategies and strategic frameworks." The value of new strategic frameworks is in understanding the impact of new technologies on the marketing domain. They also provide guidance for how to formulate the most relevant research questions.

The editorial team offers thoughts for understanding how new technologies are improving marketing decision making and associated firm and marketplace dynamics. New technologies may enhance the richness, quality, and volume of market and consumer data. For instance, the explosive growth of digital devices and software applications has created data streams that capture how consumers think, feel, behave, and interact with other consumers and firms at various points along the customer journey. Some data that may have previously been out of reach for many firms, such as eye movement, speech and facial recognition, and genetic data, may become ubiquitous as the cost to collect and analyze them rapidly decreases. Digital data-capture technology, which produces data on consumer-firm interactions via images, video, speech, and text, amongst others, has also enabled large-scale field experiments and A/B tests that allow companies to assess the causal effects of their

marketing actions. With these experiments, marketers can optimize website designs, effectively retarget advertising, evaluate the effects of new marketing tools, and attribute effects to marketing actions throughout the customer journey.

The increased availability of rich data leads to new and better methods for consumer and firm decision-making. To a certain degree, data quality can be a substitute for model complexity. For instance, in A/B testing, the data-generating mechanism is controlled by the researcher or firm so that simpler models can sometimes be used. However, the idea that simpler models are always adequate is misguided. Increased data richness (e.g., reviews, search, blogs, location, images, video, speech, eye, hand, head and body movements, and genetic data) often requires more complex models or machine learning approaches. Further, greater data volume reduces sampling and measurement errors. Both the increased richness and volume of data enables superior predictive performance of machine learning methods. Better methods enable marketers to derive new and valuable insights.

Better insights derived from new technology can enable better and faster decision-making by both consumers and firms. For example, AR in retail can better inform and educate consumers and therefore improve their decision-making on products and services. Chatbots enable real-time interactions with the firm that can provide consumers with insights and information to improve their satisfaction, firm evaluations, and purchase intentions. These interactions, in turn, generate more and richer data to continue the cycle.

Technology-enabled interactions, methods, innovations, and frameworks, along with the [market](#) and marketing knowledge they generate, offer marketers the opportunity for real-time or automated decision-making. Stremersch says "For example, AI is beginning to play an important role in automatically generating tailored offerings based on

individual consumers' search behaviors and navigational histories. Similarly, AI is starting to play an important role in firms' new product development decisions. The current automation versus augmentation debate in AI suggests there is enormous opportunity for research on the types of human/AI collaborative teams that will be most effective in different marketing contexts."

Technology-enabled interactions also offer marketers opportunities to observe consumers engaged in new ways with products, brands, stores, firms, and other consumers. These observations provide a deeper understanding of consumers' relationships and preferences and give companies the opportunity to create new sources of value for both the consumer and the firm. Personalization and recommendation systems will remain a key area for future research. As the trend towards automated marketing decision-making accelerates, it seems important to establish the boundaries of increasingly popular machine learning and AI methods.

Technology is enabling consumers to interact with products, firms, and each other in virtual and augmented reality. While many of the well-established theories in consumer behavior may extend quite naturally into virtual worlds, many may need to be updated significantly in order to accommodate consumers' search, choice, and consumption practices.

Another important trend in consumer behavior involves the adoption of autonomous products. "Traditionally, consumers have purchased products that assist them in accomplishing particular tasks. Now, autonomous products are increasingly available that remove the consumer altogether from task accomplishment. Consumer researchers need to extend existing theories to understand how consumers perceive, feel about, and interact with these autonomous devices," says Hoffman. Consumers can increasingly actively interact with new technologies that now have their own capacity for autonomous action. To fully understand

consumer experiences with new technologies, researchers must consider that consumers' perceptions of new technologies go beyond internal subjective responses, but also are influenced by (and can influence) the agency, autonomy, and authority of technology itself.

As new technologies are integrated into marketing practice, questions emerge about the potential for bias in firms' decision-making. The editorial team stresses that "Research involving AI should explicitly address ethical aspects of the AI technology on the constituent populations. The potential for algorithmic bias across all digital applications, particularly social media, requires a clear understanding of the ways in which these systems may operate sub-optimally and negatively impact consumer welfare." They remind us that as we develop new marketing methodologies and populate them with richer and bigger data flows, we need to be aware that these 'improvements' in marketing decision-making may inadvertently harm stakeholders.

More information: Donna L. Hoffman et al, The Rise of New Technologies in Marketing: A Framework and Outlook, *Journal of Marketing* (2021). [DOI: 10.1177/00222429211061636](https://doi.org/10.1177/00222429211061636)

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