Technological Innovation in Marketing and its Effect on Consumer Behaviour

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ABSTRACT

In this modern era, the role of technology in marketing has undergone significant development along with advances in information and communication technology. Technological innovation has dramatically influenced companies’ marketing strategies and has had a great impact on consumer behaviour. The purpose of this study is to investigate the relationship between technological innovation in marketing and how it affects consumer behaviour, with the aim of providing valuable insights for marketing practitioners and business researchers. The method used is a qualitative literature review that focuses on an in-depth understanding of the topic in the time span from 2001 to 2023. The main objective of this method is to identify, analyse, and synthesise relevant scientific literature that has been published in various journals, conference papers, and other academic sources accessible through Google Scholar. The results of this study have highlighted the important role of technology in changing the marketing landscape and consumer behaviour. In the ever-evolving digital age, such changes have a significant impact on the way companies interact with consumers, create value, and maintain their competitiveness.

1. INTRODUCTION

In the contemporary landscape, the role of technology within the realm of marketing has experienced substantial evolution, paralleling the strides made in the domain of information and communication technology (Sudirjo, 2023). These technological innovations have not only exerted a substantial influence on the strategies adopted by companies in their marketing endeavors but have also left an indelible mark on the behaviors exhibited by consumers. Consequently, the research dedicated to exploring the subject of ‘Technology Innovation in Marketing and Its Far-reaching Influence on Consumer Behavior’ emerges as increasingly pertinent and imbued with profound significance.

The march of technological progress has endowed businesses with an abundant array of innovative...
These transformative innovations encompass a diverse spectrum, spanning from the vast realm of social media and the expansive realm of online advertising to the intricacies of advanced data analytics (Mouhardhani, 2023). This dynamic infusion of technology into the marketing landscape has unfurled a vibrant tapestry of fresh opportunities, enabling the realization of more efficient and laser-focused outreach strategies tailored to target markets (Sutrisno, Kuraesin, et al., 2023). Furthermore, it has ushered in an era of hyper-personalization, wherein consumer experiences are meticulously sculpted to resonate with individual preferences, thereby culminating in a profound and lasting connection. In this era, the very essence of marketing campaigns has been redefined, and their effectiveness has been amplified manifold, creating a fertile ground for cultivating brand prominence and fostering deeply-engaged customer relationships that were hitherto unparalleled.

The shifts in consumer behavior are a direct outcome of the profound influence of technology in their daily lives (Hopia et al., 2023; Wikansari et al., 2023). Modern consumers are increasingly intertwined with technology, affording them greater access to information, products, and consumer reviews (Dwivedi et al., 2021). Within this context, consumers are redefining how they search, compare, and ultimately purchase products or services. These transformations encompass a shift from offline to online purchasing, the substantial impact of online reviews, as well as heightened expectations for swift and efficient delivery services. This evolving landscape underscores the pivotal role of technology in reshaping the consumer journey, leading to a dynamic and ever-changing marketplace where digital experiences and convenience reign supreme.

Personalization in marketing is a multifaceted and dynamic concept that has been profoundly shaped by technological advancements (Chaudhuri & Holbrook, 2001). Leveraging the power of cutting-edge technologies such as Artificial Intelligence (AI) and robust data analytics tools, companies have unlocked the ability to not only collect but also meticulously analyze vast troves of consumer data (Dwivedi et al., 2023). This newfound capability empowers marketers to embark on a journey towards creating exceptionally tailored experiences for consumers. This encompasses a wide range of strategies, including the art of finely honed ad targeting that ensures messaging reaches its intended audience with pinpoint accuracy. Additionally, it extends to crafting personalized product recommendations, meticulously aligned with individual consumer preferences, further enriching the overall consumer journey.

Social media also plays a pivotal role in the evolution of marketing. It serves not merely as a tool for engaging with customers but as a dynamic platform for brand cultivation and influencing consumer perceptions (Cheung et al., 2020). The impact of social media on purchase decisions and the influential role of users have become subjects of significant research focus (Ausat, 2023; Rijal, 2023). Social media has transcended its initial function of facilitating customer interactions, evolving into a robust channel for brand building and shaping consumer sentiment (Azzaakiiyyah, 2023; Ohara, 2023). Its reach and influence extend far beyond what was once considered traditional marketing boundaries. Researchers have dedicated substantial efforts to understanding the multifaceted ways in which social media shapes consumer behavior and informs purchasing decisions. As social media platforms continue to evolve, they are proving to be invaluable sources of insights into consumer preferences, sentiment, and trends (Appel et al., 2020). Brands are leveraging these platforms not only to engage with their audience but to meticulously craft their brand narratives and position themselves favorably in the eyes of their target market (Roggeveen et al., 2021). Consequently, the realm of marketing is experiencing a profound transformation, driven by the ever-expanding capabilities and reach of social media.

While technological innovation has undeniably ushered in numerous advantages within the realm of marketing, it has concurrently given rise to a burgeoning apprehension concerning ethical considerations (Lee & Jin, 2019). Among the pivotal concerns that necessitate meticulous attention within the marketing landscape are the expansive accumulation of consumer data, the preservation of privacy, and the looming specter of potential manipulation through the intricate web of technology. These multifaceted issues not only merit comprehensive examination but also demand judicious and proactive measures to ensure the ethical integrity of marketing practices.

The ever-evolving landscape of technology continues to usher in further transformations within the field of marketing. Recent advancements, such as augmented reality (AR), virtual reality (VR), and the Internet of Things (IoT), have significantly enriched the array of marketing strategies available (Dwivedi et al., 2022). Consequently, conducting recent studies on the impact of these technologies on consumer behavior becomes increasingly crucial in comprehending the current marketing trends. These technologies not only
Offer novel avenues for engagement but also necessitate an in-depth exploration of their ramifications on consumer preferences and decision-making processes, underlining the significance of ongoing research in this domain.

In this continuously evolving technological era, a profound understanding of the impact of technological innovations on consumer behavior has become essential for companies striving to maintain their relevance and competitiveness within the ever-changing market landscape. The research project titled “Technological Innovation in Marketing and Its Influence on Consumer Behavior” is primarily focused on delving deeply into the existing relationship between technological innovation in the marketing context and how these changes affect consumer behavior. The primary objective of this research is to provide valuable and practical insights for marketing practitioners while also serving as a valuable knowledge resource for business researchers seeking to comprehend the complex dynamics between technology and the ever-evolving consumer behavior.

2. THEORETICAL FRAMEWORK AND HYPOTHESES

Technology Innovation
Technology innovation refers to the development, use, or implementation of new concepts, methods, devices, or processes aimed at enhancing or changing the way existing work, products, or services function (Farida & Setiawan, 2022). It involves the introduction of new ideas that have the potential to add value, improve efficiency, enhance quality, or create significant changes in various aspects of human life, including business, science, healthcare, education, and more (Azzaakiyyah et al., 2023; Said Ahmad et al., 2023). Technology innovation can take various forms, including:

1. Product Innovation: This involves the development of new products or significant improvements to existing ones. Examples include the launch of the latest smartphones with new features or the development of new drugs in the pharmaceutical industry.

2. Process Innovation: This encompasses changes in the way a process or activity is performed to improve efficiency, reduce costs, or decrease the required time. For instance, the implementation of automation in manufacturing production lines.

3. Business Model Innovation: This relates to changes in how a business operates, including the discovery of new business models that alter how a company generates revenue or delivers value to customers. Examples include subscription-based models like Netflix or platform-based business models like Uber.

4. Organizational Innovation: Involves changes in the structure, culture, or processes of an organization to better support innovation capabilities. It often includes efforts to encourage cross-departmental collaboration and facilitate idea exchange.

5. Information Technology (IT) Innovation: Pertains to the development or implementation of new or enhanced information technology, such as software, systems, or network infrastructure, to improve a company's ability to process and manage information effectively.

Technology innovation plays a crucial role in driving economic growth, enhancing company competitiveness, and creating solutions for social and environmental challenges (Xiao & Su, 2022). They can also create new opportunities, transform industries, and influence lifestyle and societal interactions. It's essential to note that technology innovation is not only about creating cutting-edge technology but also creatively leveraging existing technology to solve problems and improve the quality of life.

Marketing
Marketing is a series of activities conducted by an organization or individual with the aim of promoting, selling, or distributing products or services to consumers or potential customers (Wilkie & Moore, 2007). Marketing aims to fulfill customer needs and desires while achieving specific business objectives, such as increasing sales, growing market share, or brand awareness (Rizvanović et al., 2023). Here are some key elements associated with the concept of marketing:

1. Understanding Consumers: Marketing begins with a deep understanding of consumer needs, wants, and behaviors. This involves market research to identify market segments, analyze consumer behavior, and understand customer preferences.

2. Product or Service: The product or service to be marketed must align with customer needs and wants. This can involve developing new products, improving existing ones, or customizing products for specific markets.
3. Price: Determining the appropriate price is a crucial part of marketing. Pricing should reflect the product or service's value to customers while generating adequate profits for the company.

4. Promotion: Promotion includes all forms of communication used to inform and influence consumers about products or services. This includes advertising, sales promotions, digital marketing, public relations, and more.

5. Place (Distribution): How products or services reach consumers is also vital. Efficient and effective distribution, including selecting the right distribution channels and supply chain management, must be considered.

6. Customer Value: Marketing focuses on creating value for customers. It's not just about making sales but also about building long-term customer relationships, providing after-sales support, and ensuring customer satisfaction.

7. Brand and Business Identity: Branding is the identity of a company or product that can influence customer perception (Sutrisno, 2023). A strong brand can help differentiate products or services from competitors and build customer loyalty.

8. Analysis and Measurement: Modern marketing involves using data and analytics to measure campaign performance, identify opportunities, and make evidence-based decisions.

Consumer Behavior

Consumer behavior refers to the actions, decisions, and mental processes undertaken by individuals or groups of individuals when they consider, purchase, use, or dispose of products, services, or ideas (Andaleeb & Latiff, 2016). The study of consumer behavior aims to understand how people process information, form preferences, make purchasing decisions, and influence their interactions with the market (Roy, 2022).

Here are some key concepts related to consumer behavior:

1. Understanding Needs and Wants: Consumer behavior begins with an understanding of what consumers need and want. Needs reflect basic necessities like food, clothing, and shelter, while wants are more related to individual preferences and aspirations.

2. Decision-Making Process: When consumers are faced with purchasing decisions, they go through a series of steps. These include problem recognition, information search, alternative evaluation, purchase, and post-purchase evaluation. Factors such as price, product quality, brand, and previous experiences can influence this process.

3. Social Influence: People are often influenced by others in their purchasing decisions. Social influence can come from family, friends, online reviews, celebrities, or social media. It can affect consumer perceptions of specific products or brands.

4. Cultural and Value Influence: Cultural values, norms, and beliefs also play a significant role in consumer behavior. For instance, local culture, religion, or ethical values can influence product or service choices.

5. Perception and Brand Image: How consumers perceive a brand or product can significantly impact purchasing decisions. Positive or negative brand image, brand reputation, and previous customer impressions play a role in influencing consumer choices.

6. Customer Experience: Positive or negative customer experiences can affect consumer loyalty and decisions to return to a particular business. Friendly service, product quality, and an easy purchasing process are essential factors in creating a positive customer experience.

7. Post-Purchase Behavior: After a purchase, consumers may experience satisfaction or dissatisfaction depending on how well the product or service meets their expectations. Customer satisfaction can influence future purchasing decisions and whether consumers recommend a product or brand to others.

Understanding consumer behavior is crucial for companies and marketers because it helps them design more effective products, marketing campaigns, and sales strategies. By understanding the factors that influence consumer decisions, companies can better meet market needs and build stronger relationships with their customers (Ferine et al., 2023).

3. RESEARCH METHOD
In this research, the method employed is a qualitative literature review focusing on a deep understanding of the topic of technological innovation in marketing and its impact on consumer behavior within the time frame from 2001 to 2023. The primary objective of this method is to identify, analyze, and synthesize relevant scholarly literature published in various journals, conference papers, and other academic sources accessible through Google Scholar. The research follows a series of key steps. Firstly, the researcher begins by identifying a specific and relevant research topic, along with a clear understanding of the background and research objectives. Subsequently, well-defined and clear search criteria are established to guide the literature search using Google Scholar. The search period covers the years from 2001 to 2023. Once the search results are obtained, the researcher conducts a literature selection process by examining abstracts and summaries of each article or source found. Literature that is irrelevant or does not meet the research criteria is excluded from the analysis. The selected literature is then analyzed in-depth, with a focus on identifying key findings, concepts, theories, and trends present in the literature. A qualitative approach is utilized to gain a deep understanding of the research topic. The results of the literature analysis are then synthesized and interpreted by the researcher to construct a holistic understanding of the research topic. Furthermore, these findings are organized into a detailed research report with an organized and clear structure. The report includes the main findings, analysis, and in-depth interpretations. The research concludes with the formulation of conclusions that summarize the primary findings and implications of the literature review on the research topic. This method allows researchers to acquire a comprehensive and in-depth understanding of the research topic without the need for primary data collection. By relying on existing literature, this research can make a valuable contribution to the development of theories, problem-solving, or decision-making in various fields of science, particularly in the context of technological innovation in marketing and its influence on consumer behavior.

4. DATA ANALYSIS AND DISCUSSION

In this contemporary era, marked by the relentless and ever-accelerating advancement of information and communication technology, the landscape of marketing has undergone a profound evolution, manifesting itself as an exceptionally dynamic and formidable arena (Suherlan, 2023; Wanof, 2023). The relentless surge of technological innovation has surged to the forefront, assuming the role of a paramount catalyst orchestrating a comprehensive transformation within the marketing paradigm. The ramifications of this seismic shift resonate deeply, permeating the intricate web of consumer behavior. This all-encompassing phenomenon has brought forth a multitude of novel challenges and beckoning horizons, beckoning both enterprises and marketing professionals to embark on a transformative journey. Their mission encompasses not only the task of engaging consumers but also extends to the art of wielding substantial influence over purchase decisions and nurturing the cultivation of enduring and robust connections that stand the test of time (Sari, 2023).

Undoubtedly, one of the most remarkable and profound manifestations of technological innovation within the realm of marketing is none other than the digital revolution (Radicic & Petković, 2023). This seismic shift, powered by the relentless evolution of the internet, the omnipresence of social media, the ubiquity of mobile devices, and the advent of cutting-edge data analytics, has not merely tweaked, but rather completely redefined the landscape of marketing. Within this emerging ecosystem, the contemporary consumer experiences an era of unprecedented convenience and empowerment. They possess the remarkable ability to access an extensive repository of information, an array of diverse products, and a multitude of services, all at the mere click of a button or tap of a screen. In mere seconds, they can traverse a virtual marketplace, comparing prices, delving into comprehensive reviews, and receiving tailored product recommendations. In the midst of this digital maelstrom, consumer behavior has been subject to a profound and irrevocable transformation, leaving an indelible mark on the marketing landscape (Wang, 2015).

One of the most striking and consequential transformations in the realm of consumer behavior revolves around the paradigm shift from traditional offline purchasing to the increasingly prevalent domain of online commerce (Constantinides, 2004). In the contemporary landscape, consumers wield a remarkable power—the ability to embark on shopping journeys from the sanctuary of their own homes, transcending geographical boundaries to explore the vast expanse of global markets without so much as rising from their seats. This momentous transition has triggered a fervent and heightened competition within the e-commerce sector, acting as a catalyst for traditional brick-and-mortar businesses to confront and navigate this transformative tide (Ausat & Suherlan, 2021; Purnomo, 2023). As the once-clear demarcation lines between physical and digital retail continue to blur and overlap, enterprises across various industries find themselves...
standing at a pivotal crossroads. They are not only prompted but compelled to embark on a journey of innovation, strategic reinvention, and substantial investments in cultivating a formidable online presence to maintain their competitiveness and relevance within the ever-evolving and dynamic commercial landscape.

Social media, too, has played a pivotal role in shaping consumer behavior. Platforms such as Facebook, Instagram, Twitter, and TikTok have emerged as crucial arenas for brands to engage with their audience (Maitri et al., 2023; Tarigan et al., 2023). They have transcended their roles as mere promotional tools for products and have evolved into dynamic spaces for brand awareness, customer engagement enhancement, and the cultivation of communities intertwined with the brand ethos. The influence wielded by influencers or influential users is another significant facet that exerts considerable sway over consumer purchasing decisions (Chen & Yang, 2023). These influencers, who often possess a substantial following and credibility within specific niches, hold the power to sway opinions, steer preferences, and inspire trust among their engaged audiences. In this age of digital connectivity, the interplay between brands, social media, and influential figures has become a multifaceted force, driving consumer behavior in new and unpredictable directions.

Personalization has evolved into a cornerstone element of modern marketing, bolstered by technological innovations (Rathore, 2018). Thanks to Artificial Intelligence (AI) and data analytics, companies are now able to collect and analyze consumer data with unprecedented depth and precision. This capability empowers them to deliver highly personalized experiences to their customers. Precise ad targeting and tailored product recommendations based on individual preferences serve as tangible examples of how technological innovations have facilitated this era of personalization (Schreiner et al., 2019). In this age of hyperconnectivity and data-driven decision-making, personalization transcends a mere marketing tactic. It has become an integral part of forging deeper connections between brands and consumers, enhancing customer satisfaction, and ultimately driving business growth. As technology continues to advance, the potential for personalization in marketing is poised to further expand, ushering in a new era of tailored, individualized experiences for consumers across the digital landscape.

However, these transformations also give rise to a set of challenges, and among the most pressing is the issue of data security and consumer privacy. In the pursuit of gathering ever more data for refining their operations, companies are compelled to take a highly serious stance on preserving the privacy and security of consumer information. High-profile data breaches have triggered a profound erosion of trust among consumers, serving as poignant reminders of the potential pitfalls in the quest for data-driven insights (Whitler & Farris, 2017). As the information age continues to burgeon, the safeguarding of data privacy and security is no longer a mere regulatory requirement; it has emerged as a critical component of corporate responsibility and brand integrity. Businesses must tread a fine line, seeking to harness the potential of data while respecting the boundaries and trust of their customers. Striking this balance is not just a matter of compliance but an imperative for long-term sustainability and the maintenance of positive relationships with consumers.

It is paramount to bear in mind that technological innovation in marketing is not solely about the evolution of technology itself; it encompasses the manner in which companies and marketers respond to these advancements. How they seamlessly integrate novel technologies into their strategies, how they comprehend the evolving patterns of consumer behavior, and how they promptly address the evolving needs and desires of their customer base are pivotal factors that stand to influence their success in this digital age. The dynamic interplay between technology and marketing strategy has transcended mere adoption and now hinges on the art of adaptation. Successful enterprises are those that not only harness the capabilities of emerging technologies but also cultivate an acute understanding of the shifting consumer landscape. Moreover, they are astute in their ability to respond swiftly and adeptly to the evolving preferences and expectations of their customers. Thus, the path to triumph in this era of rapid technological evolution demands a combination of technological acumen, consumer-centricity, and nimble adaptability.

Marketing has transcended its traditional boundaries, no longer confined to the realm of creating creative ad campaigns or mailing brochures to customers. It has metamorphosed into an intricate art of comprehending the shifts in consumer behavior propelled by technology and, more importantly, how companies can harness these technological innovations to curate value for consumers while maintaining their competitive edge. In this ever-evolving context, the significance of in-depth research and understanding of Technology Innovation in Marketing and Its Impact on Consumer Behavior cannot be overstated. It serves as the guiding light for marketing practitioners and enterprises navigating the complex currents of the digital era. As we stand on the precipice of an age where every interaction is shaped by technology, the insights gleaned...
from such research hold the key to steering marketing strategies toward achieving their objectives in this brave new digital world.

5. CONCLUSION, IMPLICATION, SUGGESTION, AND LIMITATIONS

The conclusion drawn from this research clearly reveals that technology plays a central role in reshaping marketing paradigms and consumer behavior. In the context of the ever-evolving digital era, these changes have a profound impact on the dynamics of how companies interact with consumers, creating significant added value and ensuring the enhancement and sustenance of their competitiveness in an increasingly complex market. This transformation is not merely a fleeting phenomenon but represents a fundamental shift that will continue to influence how businesses operate and engage with their stakeholders in the long term.

Furthermore, this has significant implications. Firstly, companies should prioritize personalized marketing by harnessing data analytics and artificial intelligence to deliver a more individualized consumer experience. Secondly, social media emerges as a crucial platform in modern marketing, and firms need to understand how to leverage it to build their brands, engage with customers, and influence positive perceptions of their products. Additionally, safeguarding consumer data and privacy must take precedence, with companies adhering to relevant regulations to maintain customer trust. Finally, marketers and marketing professionals must develop their digital competencies, as a deep understanding of technology and data analytics becomes a highly valuable asset in contemporary marketing.

Recommendations stemming from this research include conducting further studies to delve into the specific impacts of technological innovations on consumer behavior. Moreover, companies should invest in the training and development of their employees to keep pace with technological advancements. This will enable employees to better navigate market changes.

However, it is important to acknowledge certain limitations. Firstly, the rapid and continuous evolution of technology means that the findings of this research may have limitations in terms of long-term applicability. Secondly, the collection of consumer behavior data can be challenging and costly, potentially affecting the depth of analysis in the research. Lastly, the research findings may vary depending on the industry, type of product, or specific geographic location, making them not universally applicable to all types of businesses or markets.

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