

The Transformation of Marketing Management in the Industry 4.0 Era: A Study of Digital Marketing Strategies

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Abstract

Digital transformation in the Industry 4.0 era has shifted the marketing management paradigm from conventional approaches towards marketing strategies based on digital technology. Changes in consumer behaviour, rapid advances in information technology, and the increasing use of the internet require organisations to adopt digital marketing as an integral part of their marketing strategy in order to maintain business competitiveness. This study aims to analyse the transformation of marketing management in the Industry 4.0 era through the implementation of digital marketing and to identify its strategic role in enhancing marketing effectiveness. The study employs a qualitative approach using the library research method. Data were obtained from various secondary sources, including books, academic articles, and relevant literature on marketing management, Marketing 4.0, and digital marketing, and were subsequently analysed using content analysis. The findings indicate that digital marketing has evolved into a key strategy in modern marketing management through the utilisation of social media, websites, search engine optimisation (SEO), content marketing, email marketing, and digital analytics. The implementation of these strategies is capable of expanding market reach, increasing brand awareness, strengthening customer engagement, optimising the cost-efficiency of promotional activities, and supporting data-driven marketing decision-making. Furthermore, the success of marketing transformation depends not only on the adoption of digital technology but also on an organisation's ability to develop marketing strategies that are adaptive, innovative, and customer-oriented. This study confirms that digital marketing is a strategic element in marketing management transformation that contributes to enhancing competitive advantage and business sustainability in the digital economy era.

Keywords: Marketing management, Industry 4.0, Marketing 4.0, Digital marketing, Digital transformation.

Introduction

The rapid development of information and communication technology has driven transformation across various sectors of life, including the worlds of business and marketing. The Fourth Industrial Revolution, characterised by the integration of digital technology, the internet, big data, artificial intelligence (AI), cloud computing and the Internet of Things (IoT), has transformed the way companies create, communicate and deliver value to consumers. These changes have not only affected production processes but have also altered consumer behaviour, with consumers increasingly relying on digital media to search for information, compare products and carry out transactions. This

situation requires companies to transform their marketing strategies in order to remain competitive in an increasingly dynamic business environment.

Changes in consumer behaviour in the digital age are driving companies to move away from conventional marketing approaches towards strategies that are more interactive, personalised and technology-driven. The concept of Marketing 4.0 emphasises the importance of integrating online and offline marketing to create a better customer experience. In this context, digital marketing has become one of the key tools enabling companies to establish two-way communication with consumers, expand their market reach, increase customer engagement, and strengthen brand loyalty.

Digital marketing is no longer viewed merely as a promotional medium, but has evolved into a business strategy capable of enhancing the effectiveness of marketing decision-making through the utilisation of digital data. Various platforms such as social media, websites, search engine optimisation (SEO), search engine marketing (SEM), content marketing, email marketing, and marketplaces provide opportunities for companies to reach a wider audience at a relatively lower cost compared to conventional marketing. Consequently, a company's ability to integrate digital technology into its marketing management has become a key factor in creating sustainable competitive advantage.

Previous research has shown that digital marketing makes a positive contribution to improving marketing performance. Mashuri (2019) explains that the implementation of digital marketing strategies in micro, small and medium-sized enterprises (MSMEs) can expand market reach and enhance the effectiveness of promotions. Wati et al. (2020) also emphasise that the use of digital media enables companies to establish more effective communication with consumers through various digital platforms. Furthermore, Alim et al. (2025) demonstrate that the quality of digital services and customer satisfaction play a crucial role in building customer loyalty on e-commerce platforms.

Nevertheless, the majority of previous research has still focused on the implementation of digital marketing to boost sales, customer loyalty, or promotional effectiveness within specific sectors. Studies that comprehensively discuss the transformation of marketing management as a result of the development of Marketing 4.0 and the integration of digital marketing from a conceptual perspective remain relatively limited. Yet, an understanding of this transformation is essential as a foundation for organisations to formulate marketing strategies that are adaptive to technological developments and changes in consumer behaviour.

Given this context, this study aims to analyse the transformation of marketing management in the Industry 4.0 era through the implementation of digital marketing, as well as to explain the strategic role of digital marketing in enhancing marketing effectiveness and business competitiveness. The research employs a qualitative approach using library research methods; consequently, the discussion focuses on synthesising various theories, findings from previous studies, and relevant academic literature concerning marketing management, Marketing 4.0, and digital marketing. It is hoped that the research findings will make a conceptual contribution to the development of marketing management as a discipline, whilst also serving as a reference for academics and practitioners in designing innovative, adaptive and customer-oriented marketing strategies in the digital economy era.

2. Literature Review

Marketing Management:

Marketing management is the process of planning, implementing, organising and controlling various marketing activities to create value for customers whilst achieving organisational objectives. According to Philip Kotler and Kevin Lane Keller (2022), marketing management is the art and science of selecting target markets and acquiring, retaining and enhancing customer relationships through the creation, delivery and communication of superior customer value.

The concept of marketing management has evolved significantly alongside the development of information technology. Whereas companies were previously solely sales-oriented (the 'selling concept'), the focus has now shifted to customer-oriented marketing, which centres on customers' needs, desires and experiences.

From a modern management perspective, the functions of marketing management include:

1. Market opportunity analysis;
2. Segmentation, targeting and positioning (STP);
3. Product development;
4. Pricing;
5. Distribution;
6. Marketing communications;
7. Customer Relationship Management (CRM).

According to Armstrong and Kotler (2021), marketing success is measured not only by an increase in sales, but also by a company's ability to build long-term relationships with customers. Marketers must be able to innovate and be creative with products, such as by creating new products or developing existing ones, in order to ensure the long-term sustainability of the business. Furthermore, marketers must also be able to implement marketing plans and strategies (Fachrurazi et al., 2022).

Marketing 4.0

Marketing 4.0 is an evolution of marketing that integrates online and offline interactions to build relationships with customers. Marketing 4.0 emerged in response to developments in the Fourth Industrial Revolution, characterised by digitalisation, the Internet of Things (IoT), Artificial Intelligence (AI), Big Data and social media.

According to Philip Kotler, Hermawan Kartajaya, and Iwan Setiawan (2017), Marketing 4.0 is a marketing approach that combines digital interactions with human interactions to create a better customer experience.

Marketing 4.0 has several key characteristics, namely:

1. customer engagement;
2. connectivity;
3. omnichannel marketing;
4. social media marketing;
5. personalised marketing;
6. customer experience.

In Marketing 4.0, customers act not only as buyers but also as brand promoters via social media and digital communities. One of the key concepts of Marketing 4.0 is the 5A Customer Path, namely:

1. Aware
2. Appeal
3. Ask
4. Act
5. Advocate

This concept outlines the customer journey, from first becoming aware of a brand to recommending it to others.

Digital Marketing

Digital marketing encompasses all marketing activities that utilise digital technology to reach consumers effectively. According to Chaffey and Ellis-Chadwick (2022), digital marketing is the use of digital media, data, technology and online platforms to achieve marketing objectives and build long-term relationships with customers. Digital marketing has several advantages over conventional marketing, including:

1. lower promotional costs;
2. a wider market reach;
3. two-way communication;
4. measurable marketing results;
5. more specific targeting;
6. increased customer engagement.

Digital marketing channels include:

1. Websites
2. Search Engine Optimisation (SEO)
3. Search Engine Marketing (SEM)
4. Email Marketing
5. Content Marketing
6. Social Media Marketing
7. Marketplaces
8. Influencer Marketing
9. Video Marketing
10. Mobile Marketing

The success of digital marketing is heavily influenced by the quality of content, consistency of communication, ease of access to information, and a company's ability to build customer trust.

Digital Marketing Strategy

A digital marketing strategy is a series of decisions formulated by a company to utilise various digital media in order to achieve its marketing objectives. According to Chaffey (2022), a digital marketing strategy encompasses:

1. digital branding;
2. content marketing;
3. search engine optimisation;
4. social media marketing;
5. email marketing;
6. digital advertising;
7. web analytics.

Meanwhile, Kotler et al. (2017) explain that a digital marketing strategy must be able to connect the customer's online and offline experiences in order to foster customer loyalty. Some commonly used digital marketing strategies include:

1. Defining the target market.
2. Establishing brand positioning.
3. Creating high-quality content.
4. Optimising SEO.
5. Utilising social media.
6. Using influencers.
7. Measuring performance using Google Analytics and various Key Performance Indicators (KPIs).

These strategies must be evaluated regularly to ensure they remain aligned with changes in digital consumer behaviour.

The Role of Digital Marketing in Improving Marketing Performance

Digital marketing plays a vital role in enhancing a company's marketing effectiveness. According to Tiago and Veríssimo (2014), digital marketing can improve a company's communication with customers through various digital platforms, thereby boosting customer satisfaction and brand loyalty.

Furthermore, digital marketing also offers the following benefits:

1. expanding market reach;
2. increasing brand awareness;
3. boosting customer engagement;
4. accelerating the dissemination of product information;
5. increasing sales;
6. strengthening customer relationships.

In the digital economy, companies are required not only to have a presence on digital media but also to be able to manage customer data to develop more targeted marketing strategies.

3. Research Methods

This study employs a qualitative approach using the library research method. The qualitative approach was chosen because the study aims to describe and analyse the concept of marketing management in the 4.0 era through the implementation of digital marketing, based on various relevant academic sources. A literature review enables the researcher to gain a comprehensive understanding of the development of digital marketing concepts without conducting field data collection.

The data sources in this study consist of secondary data obtained from various literature, including books, national and international journal articles, conference proceedings, and scientific documents discussing marketing management, Marketing 4.0, digital marketing strategies, and the development of digital technology in the business world. Priority was given to literature from sources with academic credibility and relevance to the research objectives.

Data collection was carried out through a documentary study, involving the identification, collection, reading, review and recording of key information from various references related to the research topic. The literature was then selected based on thematic relevance, the recency of publication and its contribution to the discussion.

Data analysis utilised content analysis, carried out through several stages, namely: (1) identifying the research problem; (2) collecting relevant literature; (3) grouping information by theme, such as marketing management concepts, Marketing 4.0, digital marketing, and digital marketing strategies; (4) analysing and interpreting the findings; and (5) compiling a synthesis as the basis for drawing conclusions. The analysis was conducted descriptively to provide an overview of the role of digital marketing in supporting the effectiveness of marketing management in the era of the Fourth Industrial Revolution.

To ensure the validity of the data, the study employs source triangulation, which involves comparing information obtained from various academic references to ensure conceptual consistency and minimise potential bias in interpretation. Consequently, the research findings are expected to possess sound validity and provide a comprehensive overview of the application of digital-based marketing management.

4. Result and Discussion

The Transformation of Marketing Management in the Industry 4.0 Era

The development of the Fourth Industrial Revolution has brought about fundamental changes to marketing management practices. Whereas marketing activities were previously carried out mainly through conventional media, marketing has now evolved into an activity that utilises digital technology as the primary medium for building relationships with consumers. This shift indicates that companies are no longer solely focused on product sales, but also on creating value (customer value), delivering a positive customer experience, and fostering long-term relationships with customers.

According to Kotler and Keller (2022), marketing management is the process of creating, communicating, and delivering value to customers in order to gain a competitive advantage. In the era of Industry 4.0, this concept has undergone a transformation through the use of the internet, social media, artificial intelligence, big data, and various digital platforms capable of accelerating the communication process between companies and consumers.

This transformation demonstrates that a company's success is no longer determined solely by the size of its capital or production capacity, but also by its ability to manage digital information and understand consumer behaviour in real time. Consequently, digitalisation has become an integral part of modern marketing strategy.

As technology advances, economic activities will adapt accordingly. Economic activities in the technological era are shifting from manual to digital processes. In this all-digital era, the government is

playing its part by facilitating access via satellites, enabling access to all information and facilitating digital economic activities such as online digital marketing. This facilitation through satellites also provides opportunities for companies to expand their businesses by utilising technology. Consequently, the 4.0 era has given rise to a digital economy capable of delivering new innovations in marketing activities. These marketing activities are subsequently referred to as digital marketing.

Digital marketing is a marketing term that refers to targeted, focused, and interactive approaches utilising digital technology. The objectives of digital marketing include promoting products, increasing sales traffic, and shaping consumer preferences or tastes regarding the products on offer (Wati et al., 2020). Digital marketing encompasses various types, both online and offline, as follows:

1. Search Engine Optimisation (SEO) is a technique used to optimise websites with the aim of facilitating search engine queries and ensuring web pages appear at the top of search results by incorporating relevant keywords into the website's content. Website optimisation increases the website's appeal by securing a top position in search results, meaning the website will be frequently visited by people searching for what they need online. This can be utilised by businesses or companies to market their products on the website. This is achieved by selecting the right keywords—such as in titles, providing a description, ensuring relevant website content, and including relevant backlinks.
2. Content Marketing is a form of digital marketing that utilises content to attract the target market or consumers. The content created may take the form of videos, blogs, e-books, and so on.
3. Social Media is an online platform used to obtain information in a virtual format. Social media is useful in supporting marketing activities, particularly in digital marketing (Kamhar & Lestari, 2019).
4. Pay-per-click is a form of online advertising partnership whereby website owners display an advert and are subsequently paid for every person or visitor who clicks on that advert on their website or blog.
5. Email marketing is a method that utilises email as a promotional tool for consumers. The aim is to continuously build good relationships with consumers.
6. Radio advertising refers to marketing activities, specifically promotions, conducted via radio broadcasts.
7. Television advertising refers to marketing conducted via television, usually in the form of videos

Digital Marketing as an Implementation of Marketing 4.0

Marketing 4.0 is an evolution of the marketing concept that integrates online and offline interactions to create customer experiences. This concept places the customer at the centre of marketing activities, thereby requiring companies to establish more personalised, interactive and sustainable communication.

Digital marketing serves as the practical implementation of Marketing 4.0, as it enables companies to utilise various digital platforms, such as websites, social media, email marketing, search engine optimisation (SEO), search engine marketing (SEM), marketplaces, and mobile applications. The use of these various media makes it easier for companies to reach a wider market at a relatively lower cost compared to conventional marketing.

In addition to expanding market reach, digital marketing also makes it easier to measure the effectiveness of promotions through various indicators, such as website visitor numbers, social media engagement rates, conversion rates, and customer engagement. Therefore, digital marketing serves not only as a promotional medium but also as a source of strategic information for marketing decision-making.

The 4.0 era has ushered in a fully digital world, which will significantly influence and impact human activities. This can be considered a key factor in business operations. Businesses in the 4.0 era must adapt to digital developments in order to survive. One option for doing so is digital advertising.

The internet makes it easier for people to access and search for information digitally, which is a key point to capitalise on for promotional activities. The advent of the internet has transformed marketing activities, which were previously conducted solely through conventional (offline) methods, into digital or online marketing. Online digital marketing is a promising marketing strategy because consumers can easily obtain information about products. Consequently, the era of digital marketing makes it easier for businesses to market their products, whilst consumers can access product-related information with great ease.

Digital Marketing Strategies for Enhancing Business Competitiveness

A digital marketing strategy is a series of activities designed to achieve marketing objectives through the use of digital technology. Based on a review of the literature, there are several key strategies that companies can implement.

Firstly, companies must establish a digital identity through an official website and professional social media accounts. A digital identity serves as a means of communication whilst enhancing the company's credibility in the eyes of consumers.

Secondly, companies need to develop content marketing that is informative, educational and engaging. High-quality content can increase consumer engagement, build trust and strengthen brand image.

Thirdly, Search Engine Optimisation (SEO) is a crucial strategy to ensure that information about products or services is more easily found by potential customers via search engines. The higher a website ranks in search results, the greater the company's chances of acquiring new customers.

Fourthly, utilising social media as a two-way communication channel enables companies to receive direct feedback, thereby improving service quality and customer loyalty.

Fifthly, the use of data analytics is a vital component in evaluating marketing strategies. Through the analysis of digital data, companies can gain insights into consumer behaviour, market preferences and the effectiveness of promotional campaigns, enabling them to devise more targeted marketing strategies.

The findings of the study indicate that digital marketing strategies not only enhance the effectiveness of promotions but also accelerate the managerial decision-making process through the utilisation of digitally available data.

Marketing in the 4.0 era combines online and offline approaches. In this context, digital marketing is always able to maximise both the style and substance of a product. Furthermore, branding can consistently create a positive impression through content that is relevant, up-to-date and engaging. As cited in (Kotler, Kertajaya and Setiawan, 2017), there are five 'A's' that must be considered in digital marketing: first, 'Aware', meaning that consumers are becoming aware of our product or brand; second, 'Appeal', meaning that consumers are already interested in searching for our product; Thirdly, 'ask', meaning that consumers have come to like the product. Fourthly, 'act', the stage at which consumers make a purchase of our product. And fifthly, 'advocate', meaning that consumers can recommend our product. These five concepts are vital for business owners to bear in mind so that they can run their businesses to the fullest. Furthermore, understanding these concepts enables the creation of good relationships with consumers.

A digital marketing strategy is one in which all business operators optimise all ongoing digital marketing activities within their business. There are several types of marketing strategies, which can sometimes make it confusing for business operators to determine which should be prioritised. Business owners must have a thorough understanding of marketing strategies and possess a broad perspective on their business, products and demographics to identify the most efficient digital marketing strategy for their products. Every company has a different digital marketing strategy tailored to its specific needs and desired objectives.

For beginners, the steps involved in a digital marketing strategy are as follows:

1. Digital Asset Development : Firstly, business owners can establish their digital identity. This includes creating a website and setting up social media accounts.
2. Increasing Website Traffic : Website traffic can be increased through SEO (Search Engine Optimisation). Additionally, CPC (Cost Per Click) adverts can be placed on Google AdSense, amongst other methods.
3. Optimising Social Media Accounts: Social media optimisation involves increasing engagement on these platforms as a means of interacting with and building relationships with consumers; therefore, this optimisation should focus on creating content that is as engaging as possible. Furthermore, placing adverts on social media can also be considered to maximise marketing efforts.
4. Email marketing activities
Email can also be utilised as a communication tool. Smartphone users have email accounts, so these can be utilised for product marketing activities.
5. Broadcast messages
Broadcast messages are the transmission of messages to promote or introduce a product via communication channels such as WhatsApp, SMS, or social media direct messages (Fachrurazi et al., 2022).

By studying these five digital marketing strategies, business owners can see that there is a distinct marketing approach in the digital age, namely digital marketing. With these digital marketing strategies, business owners can more easily reach a wider audience and market their products quickly and efficiently.

The Role of Digital Marketing in Improving Marketing Performance

Digital marketing offers a range of benefits for companies, both from an operational and a business strategy perspective. From an operational standpoint, digital marketing reduces promotional costs as the majority of marketing activities are carried out online. Furthermore, the dissemination of product information becomes faster, more flexible and able to reach consumers without geographical limitations.

From a strategic perspective, digital marketing enables companies to build long-term relationships with customers through ongoing communication. Intensive interaction via social media, email marketing and other digital platforms can enhance customer satisfaction, which ultimately influences customer loyalty.

The findings of this study also indicate that digital marketing supports an increase in a company's competitiveness by enhancing brand awareness, customer engagement and customer trust. The better a company utilises digital technology, the greater its chances of sustaining its business presence amidst increasingly fierce competition.

Managerial Implications

The findings of this study have several implications for businesses. Firstly, companies need to undertake a comprehensive digital transformation of their marketing activities, not only in terms of promotional media but also in customer relationship management and data analysis. Secondly, enhancing the digital marketing skills of human resources is a key factor in ensuring that marketing strategies are implemented effectively. Thirdly, companies must continue to adapt to technological developments and changes in consumer behaviour in order to maintain a competitive advantage in the long term.

Overall, this study demonstrates that digital marketing is not merely a promotional tool, but a marketing management strategy that plays a role in creating customer value, enhancing the effectiveness of marketing communications, expanding market reach, and strengthening business competitiveness in the Industry 4.0 era. The findings of this literature review are consistent with the focus of the article, which emphasises the importance of integrating digital technology into modern marketing management.

5. Conclusion

The development of the Fourth Industrial Revolution has driven a transformation in marketing management practices, shifting from conventional approaches towards those based on digital technology. The findings of this study indicate that digital marketing is no longer merely a promotional medium, but has evolved into an integral part of marketing management strategies focused on creating customer value, enhancing the customer experience, and building long-term customer relationships. This concept aligns with the Marketing 4.0 paradigm, which integrates online and offline interactions to foster customer engagement.

This study also indicates that the implementation of digital marketing through various digital platforms—such as social media, websites, search engine optimisation (SEO), content marketing, email marketing, and digital analytics—makes a significant contribution to enhancing marketing effectiveness. The use of digital technology enables companies to reach a wider market, improve the cost-efficiency of promotional activities, strengthen brand awareness, build customer engagement, and support data-driven marketing decision-making.

Furthermore, the success of marketing management transformation in the Industry 4.0 era is determined not only by the utilisation of digital technology, but also by an organisation's ability to formulate marketing strategies that are adaptable to changes in consumer behaviour and technological developments. Therefore, companies need to integrate digital innovation, the development of human resource competencies, and the utilisation of customer data as part of a sustainable marketing strategy to enhance business competitiveness in the digital economy era.

This study makes a conceptual contribution by affirming that digital marketing is a strategic instrument in supporting modern marketing management transformation. However, as this study employs a literature review approach, the findings remain conceptual and have not yet empirically tested the relationships between variables. Consequently, further research is recommended to utilise quantitative, qualitative fieldwork, or mixed-methods approaches to examine the impact of digital marketing implementation on marketing performance, customer loyalty, and competitive advantage across various industrial sectors.

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