

Harnessing information systems for crafting and enhancing marketing strategies in promoting products and services effectively



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Abstract The tendency of comprehensive digitalization with the active use of information technologies is currently a necessary component of marketing policy for the effective promotion of goods and services. The volume and properties of information arrays primarily influence the process of forming a relevant marketing strategy. The purpose of the academic paper is to study the role of modern information systems with the use of digitalization potential in optimizing marketing strategies for the formation of competitiveness and effective promotion of goods and services. The study was conducted using general scientific methods, namely: logical, structural and functional analysis, theoretical modeling, induction, deduction, specification, generalization and abstraction, tabular and graphical interpretation of theoretical information. In the course of the research, the main aspects of the formation of the enterprise's marketing strategy under the influence of the trend of developing Internet marketing have been investigated. The structure of digitalized marketing and the fundamentals of information systems in the overall business strategy have been analyzed. The specifics of modern information systems and their promising areas of involvement in marketing processes have been considered. The potential of marketing in the hypermedia environment has been substantiated. The necessity of introducing digital technologies in the process of forming and improving the marketing strategy has been identified. Typical algorithms for searching, collecting, accumulating, classifying and processing marketing information for the effective promotion of goods and services have been highlighted. Directions for improving marketing activities based on the potential of modern information systems have been proposed, and the expedient tools for Internet marketing in the context of market dynamics have been specified. The practical significance of the research results lies in the possibility of their application in order to optimize the activities of market participants, which will result in the stable development of the company and the formation of competitive advantages in the promotion of goods and services.

Keywords: marketing information system, automation, digital marketing, strategy, market, Internet communications

1. Introduction

The effectiveness of the modern market entities is currently determined by a set of marketing measures within the framework of forming a targeted strategy and its operational adjustment. This concept provides for timely analysis of the possibilities of optimizing certain links of the information system to obtain high-quality and comprehensive information, as well as effective promotion of goods and services. The formation of a marketing strategy requires an assessment of market dynamics in order to find competitive advantages with the available resource potential. Consequently, this determines the relevance of modernizing the enterprise information system in order to intensify the efficiency of activities, formulate effective management decisions and gain an advantage in the market.

Numerous relevant publications are devoted to the use of information systems in the processes of forming and improving marketing strategies. Some modern scientists (Losheniuk et al., 2023; Vynohradova et al., 2021) study the features of the transformation of enterprise management information systems in the conditions of digitalization. The scientific works of several scientists (Mostova, 2022; Petropavlovska & Kovtun, 2021) reflect the issues of forming a marketing strategy for an enterprise. Other researchers argue that innovative technologies have significantly reduced the expenses connected with searching and storing a significant amount of information, as well as expanded the information field (Melnychenko, 2023; Zemko, 2021).



The general problems of the development of the information society, digital economy, globalization processes that necessitate the involvement of digital marketing have been thoroughly studied in the publications of some contemporary scholars (Losheniuk et al., 2023; Palamarchuk & Korkach, 2023). Particular issues of transforming the role of information as a specific resource in economic management systems are reflected in the studies of leading researchers in the field (Burlittska & Sholomeychuk, 2023). At the same time, as scientists emphasize, the very concept of digital marketing is constantly and continuously evolving, forming conditions for the effective development of business competitiveness (Severin & Solntsev, 2020; Niziaieva et al., 2022). However, the issue of developing a marketing strategy in the era of digitalization of economic processes has been considered by scientists in a selective format since it is a relatively new and dynamic concept that remains insufficiently explored as of today and requires further scientific consideration. Additional attention should also be paid to the formation of practical information technology algorithms in the process of marketing decisions to promote goods and services because companies ignoring the current requirements of modern times lose the opportunity to attract a wide target audience with significant demand and opportunities. The purpose of the research is to substantiate the role of information systems and develop effective tools for the formation of an integrated marketing strategy for the effective promotion of goods and services.

2. Literature review

The theoretical and methodological basis of the research is formed by the scientific works of Ukrainian and foreign scholars. They consider a number of problematic issues of digital marketing, the involvement of digital marketing technologies in the process of forming the company's image, promoting services and goods on the global network, and identifying the role of information systems in modern marketing strategies.

The topic of digital marketing development and its role in promoting goods and services have gained considerable relevance in modern scientific circles. Most of the studies of Ukrainian scientists (Sadoviak et al., 2023) are devoted mainly to the methodological and technical aspects of the implementation of Internet marketing, classification of search engines, description of digital advertising technologies. At the same time, the scientific achievements of foreign authors (Wang, 2021; Grewal et al., 2020) provide an obvious advantage since they offer a comprehensive approach that covers the technical aspects of digital marketing, analytics, and evaluation of its tools from the perspective of effectiveness for market promotion.

Considering the role of information systems in modern management strategies, researchers (Tong et al., 2020) assure of the power and multifactorial impact of digital tools with innovative capabilities on the development of business processes and successful market positioning of companies. The scholars (De Bruyn et al., 2020) emphasize the relevance of the role of digital marketing in promoting goods and services. Along with this, some researchers (Vlačić et al., 2021) devote their studies to analyzing successful experiences of marketing digitalization.

The publications of several scholars (Verma et al., 2021; Behera et al., 2020) suggest that modern digitalized information systems provide maximum opportunities for the effective promotion of goods and services in the market. Some researchers (Alzoubi et al., 2022) believe that the effects of the global pandemic have accelerated transformational changes, and businesses that ignore digital business transformation are now at risk of losing many opportunities.

Scientists (Peñalba-Aguirrezabalaga et al., 2020) also thoroughly describe the basic approaches to the implementation of digital marketing tools by companies and their effectiveness in promoting goods and services in the market. At the same time, without undermining the scientific significance of modern researchers' achievements, it is necessary to note the relevance of the issues of practical implementation of digitalized information systems in practical marketing strategies, identification of the level and vectors of their influence on the process of promoting goods and services in the market. Several issues remain unresolved regarding the formation of a universal management concept that can quickly respond to dynamic market changes and the ongoing development of digitalization. Such circumstances necessitate further scientific explorations in the field under study, their deepening and detailing.

3. Methods

The methodological basis for the research included a number of general scientific and special methods of cognition, in particular, methods of logical, functional and structural analysis, abstraction, synthesis, generalization, specification, induction, deduction and theoretical modeling.

In the course of the research, a comprehensive systematic approach was applied, which allowed to study the object of the research as a system in a complex of interconnections and interdependencies.

Methods of various types of analysis and synthesis were used to identify the factors of development of the object under study, its defining functional elements and transformational capabilities in relation to modern marketing strategies. Induction is used in the process of implementing a predictive analysis of the expected efficiency of digitalized information systems. The conceptual fundamentals of the integrity of the market economy's digitalization process as a structural and consequential system of interconnections were established by means of abstraction. The generalization method is applied at the stage of determining the priority directions for optimizing the marketing strategy for managing competitiveness on the basis of digitalization.

4. Results

The formation of marketing strategies and the implementation of decisions on promoting goods and services take place in a dynamic market, uncertain economic conditions and an increasingly competitive marketing environment. Currently, companies should develop a strategic approach to business activities, quickly adapt to changes in the market environment, minimize risks and increase their competitiveness. This concept involves the use of tools from modern information systems based on digital optimization of activities. The innovative capabilities of information systems contribute to the effective study of consumers’ demands and needs, reduce the cost of promoting goods and services, and improve the logistics structure.

Active development of the IT sphere encourages the business sector to modernize the mechanism of using information systems in order to increase the level of competitiveness by transforming marketing activities and changing the architecture of the paradigm of information support for the company’s functioning. Making effective marketing decisions now requires perfect algorithms for collecting, accumulating and analytically processing arrays of reliable and productive information. In addition, the effective operation of companies is not possible without the implementation of the systematic analysis of the internal and external environment and an effective monitoring system. Information systems create opportunities for providing relevant and up-to-date information in a dynamic market environment in terms of customers’ segments, regional disparities, and relevant niches for offering services and goods (Alekseieva et al., 2023).

The basic functionality of the information system within the marketing strategy nowadays is the filtering of information arrays from the perspective of the main processes of information transformation, in particular, aggregation and selection of information arrays. At the same time, the filtering of input information arrays should be studied from the aspect of direct or indirect impact on the efficiency of the information system. The major principles of forming information for further filtering and analytics are actuality, relevance, reliability, objectivity and compliance with the goals of information search.

Various types of information systems are being improved due to the rapid development of the IT sector, performing a number of other important functions in addition to standard information generation (Figure 1).

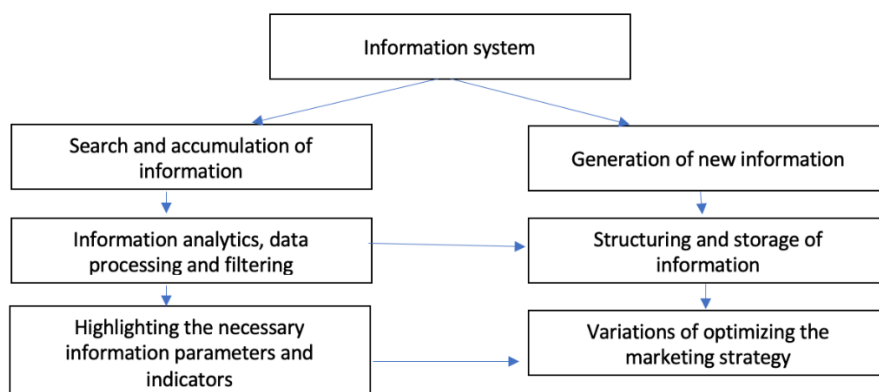


Figure 1 Functionality of modern information systems in marketing strategy. Source: the author’s development.

It should be noted that information systems function as a component of the company’s overall management system within the marketing strategy. At the same time, their effective use involves considering the characteristic features of marketing information. The main purpose of information systems as part of the management strategy is to optimize the quality of marketing activities, including Internet marketing, to form the necessary information bases for the generation of management decisions, to optimize the communication system, which enables the company to function as efficiently as possible.

The introduction of Internet technologies in the marketing process plays a significant role, influencing the formation and development of the market, the orientation of the company’s production and sales activities toward the consumer. The advantages of incorporating Internet technologies into a company’s marketing strategy include the ability to respond effectively to market demand and needs, expanding its boundaries; simultaneous interaction with a large customer audience, automating its service; reducing the cost of advertising and promotion of goods and services, and minimizing labor costs. Therefore, digital technologies in companies’ marketing strategies are a basic component of the advertising system and the implementation of product policy, as well as a key factor in intensifying the promotion of goods and services in the market and stimulating sales (Koshova et al., 2022; Al Sharari et al., 2022).

Innovative technologies as part of marketing information systems ensure the implementation of automated search, collection and accumulation of information, its prompt processing for further practical use in business processes. Considering the rapid development of economic processes, active market dynamics, and the tendency to shorten the life cycle of marketing strategies, the practical use of web technologies in marketing is a prerequisite for the successful promotion of goods and

services on the market. The resources and tools of the global Internet make it possible to effectively implement the company's marketing policy, carry out effective communication, and conduct practical marketing studies. Internet marketing creates the best conditions for studying the target audience, identifying the optimal cost of a product or service and the means of its sale, and launching an advertising campaign. The emergence of new tools for implementing communication campaigns makes it possible to synergize interactivity and personalization, which contributes to the formation of a fundamentally new marketing strategy (Makarenko et al., 2023; Klochan et al., 2021).

One of the basic functional properties of the Internet environment is its hypermedia nature, the specificity of which is significant efficiency in presenting and assimilating information data.

At the same time, the tools of modern Internet marketing are constantly and dynamically developing, being replenished with new opportunities (Table 1). It is important to note that the company's website, content marketing, and advertising procedures are the most successful of the primary Internet marketing instruments. A corporate website today must meet the generally accepted usability criterion, which implies comfort of use, efficiency and ergonomics. Social networks, blogs, chats with the current customer base, online presentations, and webinars can serve as platforms for content. One of the current trends in the development of marketing strategies is the use of social media, which ensures effective targeting and efficient advertising while covering the share of potential customers for whom classical types of advertising are ineffective.

Table 1 Digital marketing tools for promoting goods and services on the Market.

Tool	Characteristics and application features
Corporate website	Implementation of the company's communication process with the target audience, product promotion.
Search engine marketing	Optimization aimed at increasing website traffic from search engines, attracting paid traffic to the site from external sources, placing contextual advertising.
Video marketing and media advertising	It is implemented through electronic video newsletters, video search engine marketing, video business cards, streaming video, posting information that influences the consumer on a subconscious level.
Mobile marketing	Promotion through mobile communication, applications, sending advertisements to gadgets and mobile devices of the target audience
Retargeting	Effective digital marketing for customers who have previously shown interest in goods or services. It serves as a reminder of the company and re-engages the audience.
SEO (social media optimization)	Search engine promotion, adaptation of the site to the requirements of search engines, which involves the creation of a thematic group and its development through content placement. The goal is to attract the customer's attention for the purpose of two-way communication.
Contextual advertising	Creation of context-sensitive text or banner advertisements according to users' requests.
Teaser advertising	Teasers are created at the start of an advertising campaign to provoke interest, and after a certain period of time, full-fledged advertisements for a product or service are implemented.
QR-codes	Engaging the target audience, implementing the analytical function by collecting feedback.

Source: the author's development.

Information systems, as part of the management strategy for promoting services and goods in the market, also include procedures for analyzing information data, involving web analysis of the website's functioning, analysis of performance indicators, return on investment, and a number of other performance criteria. Based on the analytics conducted, it becomes possible to identify profitable digital marketing channels in order to intensify investment, as well as identify problem areas of the marketing strategy.

It should be noted that the digitalization of marketing information systems is a relatively long process that requires competent strategy development, staff adaptability, and risk readiness. At the same time, digital marketing is positioned as a much broader concept than Internet marketing, involving the comprehensive capabilities of digitalization tools in the system of promoting goods and services. Companies can extend their sales market, boost efficiency by cutting operating expenses, improve communication with the target audience, and draw in new investors with the assistance of digital information systems. Segmentation of the online environment, in-game advertising, remarketing, collaboration, user behavior analytics, and influencer marketing have proven to be the most effective digital marketing tools. Digital innovative tools make it possible to record user activity in real time with the help of various applications for the purpose of advertising in accordance with the audience's needs, as well as to track the effectiveness of this advertising, respond to changes in the client's position, and develop the company's image. The main achievement of the era of digital transformation of marketing information systems is the emergence of Web2.0 applications used to promote goods and services (Potwora et al., 2023; Bondarenko et al., 2022).

Currently, digital marketing is considered to be an opportunity for a company to position itself relevant to market requirements, analyze the results of the promotion, and respond promptly to consumers' needs by transforming a product or

service. This concept ensures stable dynamics of the company's growth and achievement of marketing goals, as well as provides constant communication with the end user of a product or service.

The issue of identifying the most effective digital technologies as part of modern information systems of marketing strategies for the effective promotion of goods and services requires careful study since digital marketing is currently positioned as an important tool for shaping competitiveness in the market. The modern information system is interactive interaction marketing based on introducing the latest information Internet technologies for the purpose of efficiently forming an offer and implementing an integrated approach to developing a new methodology for promoting goods and services on the market.

5. Discussions

The transformation of the economic potential of a modern participant in the market requires, first of all, radical dynamics of the communication model, which, according to scientists (Rust, 2020), involves the adaptation of information systems to the requirements of digital optimization of the marketing process. Rust, R. T. believes that promoting a product for a specific demand or consumption variation requires the availability of relevant established processes of communication with the target audience. We should fully agree with the authors.

According to the results of scientific explorations conducted by modern researchers (Semeradova & Weinlich, 2020), replacing outdated management algorithms with digital process optimization, ensuring effective communication, and leveraging the capabilities of artificial intelligence technologies are essential components of the process of forming and improving marketing strategies to create competitive advantages in the market. At the same time, researchers (Benbya et al., 2020) argue that the use of functional chatbots, mobile applications, and media products for advertising and analytical purposes is currently a promising means of increasing the efficiency of promoting goods and services in the market, and this trend should not be ignored.

Some scientists (Chylinski et al., 2020) claim that visualization is a basic requirement for modern marketing processes, which guarantees efficiency and versatility for a wide customer audience. Scientists believe that nowadays there is a growing need to optimize information systems by implementing integrated software.

In their scientific works, scientists (Reham, 2020; Kalaiganam et al., 2021) argue that the effectiveness of a strategy for promoting services or goods in the market in a highly competitive environment depends on the implementation of an integrated process of managing various forms of interaction. At the same time, scholars emphasize that information modeling is an analytical and effective tool for processing large amounts of information. The researchers' conclusions are synergistic with the results of the current study, which proves that modern marketing information systems should provide coordinated data management, automation of information exchange operations, timely response to demand dynamics and prompt adaptation of the marketing strategy to new market conditions.

Based on the aforementioned scientific research findings, a few contemporary scholars (Ma & Sun, 2020; Varadarajan, 2020; Bartosova et al., 2023) have developed the primary prerequisites for the anticipated efficacy of the digital transformation of information systems in the management strategy for product and service promotion in the marketplace. These include the rational use of tangible and intangible resources, minimization of human factor risks in information and analytical systems, availability for investment, reduction of targeted advertising costs, and coordination of information flows. According to the standpoint of Varadarajan, R., the result of the implementation of such a concept is the optimal satisfaction of the customer's demand and needs while increasing the company's competitiveness. The scientists' conclusions are similar to the results of the present research.

The modern process of forming a marketing strategy for market players should be focused on optimizing the availability, completeness and speed of obtaining information and generating a relevant offer with further active promotion using digital tools. Many modern scholars are convinced of this idea (Choi et al., 2020; Wedel et al., 2020). Scholars assure of the need to introduce new interactive tools and expand the scope of communication with different categories of consumers.

The results of scientific studies of modern scientists are identical to the conclusions of the present research, especially in terms of actualizing the need to optimize information systems for increasing their impact on the process of forming and improving marketing strategies aimed at promoting goods and services in the market. It can be argued that the conceptual principles outlined are the basic vectors of optimization of the information marketing environment.

At the same time, the number of studies on the digitalization of marketing information systems remains relatively small, characterized by limited practical developments. Most of the scientific articles are devoted to theoretical aspects of digital transformation, description of algorithms for modeling management processes and methods for assessing the effectiveness of transformation. Studies on the potential applications of artificial intelligence in marketing information systems are similarly limited (Bilan et al., 2023; Kruhlov et al., 2023).

Based on the results obtained in the research, it is necessary to emphasize the growing role of the digital information system in the modern management strategy by developing the company's competitive advantages, increasing the efficiency of the advertising system, intensifying communication processes, which, in the aggregate, raises the level of productivity and efficiency of economic activity. Prospects for further studies are seen in developing an effective arsenal of digital marketing at

enterprises of various activities, which will allow to implement an individualized approach to the process of promoting goods and services in the market, minimizing the risks of non-adaptation to the end user's needs.

6. Conclusions

In the course of the research, the role of modern information systems with the involvement of digitalization potential in optimizing marketing strategies for the formation of competitiveness and effective promotion of goods and services was analyzed. The research proved that the use of innovative digitalization capabilities in marketing information systems allows intensifying the promotion of goods and services in the market and significantly increases companies' competitiveness. A universal algorithm for enhancing the effectiveness of marketing information systems' operation has been proposed as a consequence of determining the priorities for the digital optimization of these systems. The multifactorial possibilities of modern digitalization of information systems in promoting goods and services in the market are revealed, including optimization of the quality of communication processes, increasing competitiveness, prompt adaptation of supply to the dynamics of demand, and enhancing the company's investment attractiveness.

The research proposes several optimization measures in the framework of the general trend of digitalizing market processes, in particular, the active use of content marketing, web advertising potential, social media capabilities, chatbots and mobile applications, analytical programs. A universal digital marketing model to intensify the promotion of goods and services has been developed. Effective tools for automating marketing processes that help optimize sales and increase profitability have been described. Priority directions for further scientific exploration on the subject matter under study have been proposed, including the development of practical functionality of sectoral information systems for marketing activities.

The research proved that digital marketing is currently positioned as an integral component of an effective marketing strategy; its main advantages include a high degree of personalization and interactivity, a significant speed of information receipt, processing and feedback. Such processes, in turn, make it possible to quickly study large amounts of information on market trends, consumer audience dynamics, and existing competition. Currently, the success of companies is determined by the effectiveness of implementing an integrated marketing strategy, timely analysis of its effectiveness and adjustment of the relevant tools.

Moreover, it is necessary to further study the variations of practical digitalization of marketing information systems in order to optimize the promotion of goods and services in the market in conditions of increased competition. This concept will create opportunities for identifying and releasing untapped reserves to expand the customer base as well as diversify management communication strategies and increase profitability and investment attractiveness.

Ethical considerations

Not applicable.

Conflict of Interest

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