

# LABOUR ECONOMICS, PERSONNEL MANAGEMENT AND MARKETING

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## ANALYSIS AND CLASSIFICATION OF THE MARKETING 4.0 SYSTEM

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**Key words:**

Marketing 4.0, digital marketing,  
Big Data, digital technologies,  
SEO, Internet Marketing.

In this paper analyzes the systems Marketing 4.0 as the main source of information for the development strategy of an enterprise or firm. The paper also offers a classification of Marketing 4.0 systems based on the use of Internet technologies. The application of Internet technologies in Marketing 4.0 is considered. A classification of the Marketing 4.0 systems is proposed based on the analysis of digital marketing strategies.

## АНАЛІЗ І КЛАСИФІКАЦІЯ СИСТЕМ МАРКЕТИНГ 4.0

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**Ключові слова:**

Маркетинг 4.0, цифровий  
маркетинг, Великі Дані,  
цифрові технології, SEO,  
Інтернет-маркетинг.

У даній статті аналізується система Marketing 4.0 як основне джерело інформації для стратегії розвитку підприємства або фірми. У статті також пропонується класифікація систем Marketing 4.0, заснована на використанні Інтернет-технологій. Розглянуто застосування інтернет-технологій в маркетингу 4.0. Пропонується класифікація систем «Маркетинг 4.0» на основі аналізу стратегій цифрового маркетингу.

### Statement of the problem

The modern economy is characterized by the widespread use of information technology (cloud technology, big data, artificial neural networks and fuzzy sets, robot programs – bot programs) for doing business (B2B), automation and information exchange in production technologies. The basis of these economic relations is the Marketing 4.0 system. It should be noted that there are different approaches to defining and measuring the digital economy, and it is difficult to estimate its size. It is estimated (<https://www.emarketer.com/topics/topic/b2b>) that the share of the digital segment of the world economy in 2020 could reach 23% (\$ 17 trillion). In the largest countries of the world the share of digital economy makes: in the USA about 34%, in China about 11%. This leads to the expansion and rapid development of the Internet market with the use of modern technologies in marketing management, namely Marketing 4.0 systems. Therefore, for the successful management of economic facilities in modern conditions, an important role is given to systems Marketing 4.0 [1].

### Analysis of recent studies and publications

Systems Marketing 4.0 is a new direction in marketing. In many sources [2, 3, 4] this area is also called digital

marketing, which solves the main functions of marketing [5]. These functions include: analytical – the study of the market, consumers, product structure, competitors; production – the organization of production and logistics, the introduction of new technologies, ensuring high quality and competitiveness of products; distribution – sales – organization of sales channels, transportation and storage systems, product and pricing policy, advertising; management – planning at the tactical and strategic levels, marketing information support, control in the Internet environment. All these features are united by the fact that they are implemented on the Internet using cloud and Big Data technologies. These technologies provide ample opportunities for interaction between consumers and producers, from the simple exchange of information to the implementation of financial transactions, transactions and delivery of goods. Digital marketing can be divided into two areas. The first is related to the use of Internet tools to expand the marketing system of traditional enterprises: the organization of information interaction between company employees, customers, partners; conducting marketing research [6]; promotion and sale of goods via the Internet and more. The second direction is related to the emergence of new types of business models, which are based directly

on the Internet itself and for which it plays a major role in the relationship of B2B. For these areas, the Internet plays not only the role of a new tool for service systems [7], which aims to increase the efficiency of business processes and reduce costs, its task – to make a profit. Therefore, Marketing 4.0 systems today are considered as a system of decision-making and management strategy for enterprises and firms. The strategic development of enterprises is associated with the formation of consumer interest, assessing the purchasing power of consumers, its transformation into real demand for goods or services, as well as bringing these goods and services closer to consumers to maximize profits through the Internet.

### Objectives of the article

The paper is devoted to the analysis and classification of Marketing 4.0 systems in modern economic conditions taking into account the prospects of technology development.

### The main material of the research

The basis of the Marketing 4.0 system is supply and demand analysis. The basis of the Marketing 4.0 system is supply and demand analysis. This analysis is provided by a continuous process of determining the needs and desires of individual economic entities and consumer groups. This direction is based on two complementary approaches: – the first – a thorough and comprehensive study of the Internet market, demand, needs, the orientation of production to these requirements, the targeting of products; – the second – an active influence on the Internet market and existing demand, on the formation of needs and purchasing preferences. Integrated application of models and methods has found its application in existing digital analytical systems and economic management systems. In these systems the analysis of financial and economic indicators with the subsequent decision of problems of optimization, forecasting, decision-making and all levels of planning is carried out. Economic and mathematical models and methods for making managerial decisions are used in the processing of economic information in an economic object. With the development of the Internet market, it is expected that in the near future marketing will undergo constructive changes. Markets and their structures will operate based on new principles of cloud technology and big data. The digital economy, which has replaced industrial society, will change almost every aspect of life. The buying and selling process will become automated, and a new space of the digital market will emerge. Business facilities will communicate with their customers and with each other through a virtual network. It will be easier for sellers to find potential buyers, and buyers will be able to choose the best product and the best seller without any problems. Time and distance, which were barriers to trade, will no longer matter. Internet markets have a number of advantages over traditional markets: the ability to make purchases daily and around the clock; the buyer does not need to go to the store, walk and choose the product; less time is spent on the purchase. The modern economy opens new directions, among which digital marketing occupies one of the leading

places. Traditional marketing focused on target industrial groups and created a positive image of the product for them. The first transfer of information was carried out through advertising and other means of promoting the product, which took place only in one direction [5].

Therefore, marketing departments cannot receive and respond instantly to consumer needs. In today's market conditions, when the dynamics of processes in the economy is quite high, you need operational data, where goods, strategies, prices – it all depends on customer needs. All aspects of the economic object are consumer-oriented. Customer requests directly affect product design, marketing strategies, pricing. Therefore, Marketing 4.0 systems have direct connections with the consumer and the information that comes in real time from the customer allows you to respond quickly to changing demand. The Internet allows economic objects (enterprises) to meet the needs of literally every single consumer [8]. Therefore, digital marketing has become a standard way for consumers to communicate on the Internet. Digital marketing with the development and application of new technologies has received new opportunities for storage (Big Data [9]) and processing (cloud technology [6]) of a large amount of information in real time. Thus, the Internet today is a unique environment where digital marketing systems reduce costs due to the specifics of the Internet environment. In addition, the Internet today is needed by business because it offers: inexpensive communications (4G, 5G); new and operational information; reduction of technological costs; access to world resources. The rapid growth of information systems on the Internet [10] is also explained by its decentralization. None of the companies owns the Internet and do not control it. Therefore, there is a new, virtual (existing only in the electronic space) world, where each person or company can easily form their own information image, to reflect in sufficient detail their capabilities and intentions. And this information in a matter of minutes can become available to a certain group of people and the world. In such a virtual world, millions of groups of economic objects, people, can exchange ideas, opinions and come to joint decisions much faster than before. It is already clear that the Internet is becoming a prototype of the global information infrastructure of the new economy. Such infrastructure has a significant impact on the business of economic facilities. Thus, digital marketing systems affect the activities of economic entities in terms of innovation, marketing research, production management, logistics and others.

Therefore, in the first place came the Internet as a tool for interaction with the information space. In addition, the Internet has brought business to a new stage of development. This allowed, on the one hand, economic objects to reach the maximum audience of consumers, and on the other – to give consumers the opportunity to inform the manufacturer about their individual preferences [11].

Digital marketing at the level of an individual firm, enterprise is aimed at organizing the activities of relevant services to create a focused market that meets the needs of current and potential consumers. Therefore, digital marketing is seen as a system of market influence and

management of market processes. Its activities are aimed at market research, development, distribution and promotion of goods for the implementation of sales agreements, which best achieve the goal of the economic object and meet the needs of consumers. The economic meaning of digital marketing is to accelerate the return of fixed and working capital, increase the mobility of production and circulation, the level of competitiveness of goods and their producers, timely creation of new goods and their acceleration in those markets where the maximum possible economic effect. The basic principles of digital marketing include the need [10]: – constant study of the state and dynamics of the market; – adaptation to its conditions taking into account the requirements and capabilities of end users; – active influence on the market to form it in the necessary directions for the organization.

The classification of systems by input and output information used in digital marketing is presented in Fig. 1.

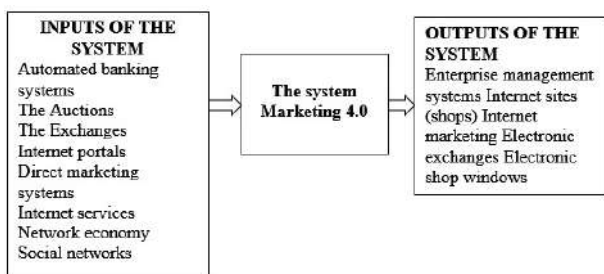


Fig. 1. Classification of systems Marketing 4.0 on input and output information

Since digital marketing is based on information technology, it involves: access to the Internet, opening an enterprise website and a virtual store, the availability of enterprise management system, the use of Internet advertising, the use of production management models. The operation of Marketing 4.0 systems involves the use of services and Internet technologies (Fig. 2). These technologies allow to obtain marketing information and to promote the product on the Internet market and to carry out trade operations [10].

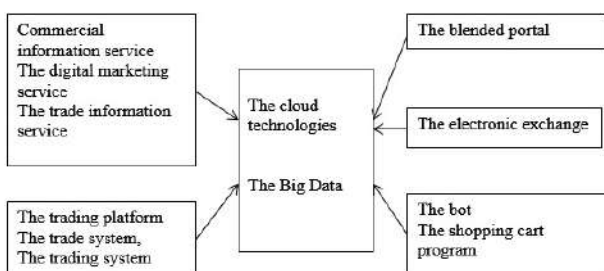


Fig. 2. Applied Internet technologies in Marketing 4.0 systems

In Marketing 4.0 systems, each service and technology has its own characteristics and performs its functions. The trade information service or digital marketing service (The trade information service) is an information network service provided in the field of business, which

includes: – information on applications for the purchase or sale of certain types of goods; analysis of data on the state of trade and risks; – analysis of products, reports on the state of enterprises and prospects for their development; – information about the organizations that form the business infrastructure; – texts of laws, standards and other normative documents; – news, statistics, reviews and forecasts. The blended portal technology combines the functions of e-commerce and classic help service. The technology of the trading system or platform (The trade system, The trading system) is a virtual system for trading operations in the mode of dialogue between the consumer and the trading system (e-shop). Typically, the trading system provides expert advice, infrastructure services and other additional features. The electronic exchange is a virtual exchange that trades using the Internet. Purchase and sale operations are carried out by users using subscriber systems connected to the Internet. Work programs or bot programs (The roBot – Bot, The shopping cart program), as well as Internet-Bot, www-bot are special programs that run automatically or according to a given algorithm. These bots are designed to perform monotonous and repetitive tasks, with the maximum possible speed. Bots are also used in situations where a quick decision is required, such as an online exchange or auction. Cloud technologies allow you to perform cloud computing, which is divided into three levels. Low level or “Infrastructure as a service” (IaaS). At this level, users receive basic computing resources on the Internet. The next level is “Platform as a service” (PaaS, platform as a service). At this level, users have the ability to install their own applications on the platform provided by the service provider. Higher level of cloud computing or “Software as a service” (SaaS). This level is of the greatest interest to marketing systems. In this case, the “cloud” stores not only data, but also related programs needed by the consumer to work with web applications. The BigData technologies allow storing and processing large amounts of both structured and unstructured data, systematize them, analyze and identify economic patterns.

The main functions are:

Big Data – the actual arrays of raw data in the task, which includes the storage and management of large amounts of information, which is constantly updated;

Data mining technologies for data processing, structuring and analytics to identify patterns;

Machine learning technologies for the process of machine learning of neural networks and fuzzy sets based on the identified links and patterns in the analysis process to solve problems of forecasting analytics and obtain both short-term and long-term forecasts and management decisions;

- Optimization;
- Pattern recognition;
- Simulation modeling;

Visualization of economic data in the form of drawings, diagrams, using interactive features.

The application of these technologies involves the implementation of the following strategies of Marketing 4.0 systems, which are presented in Fig. 3.



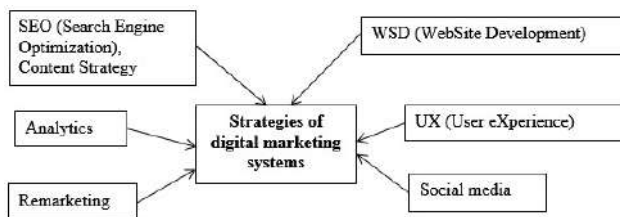


Fig. 3. Strategies of digital marketing systems.

SEO (Search Engine Optimization), Content Strategy. This strategy aims to solve the problem of search engine optimization, which takes into account a set of internal and external optimization measures to improve the site in the results of search engines for certain user requests, in order to increase the speed of information exchange and maximum revenue from this traffic. This strategy takes into account the approaches of marketing content strategy (Content Strategy), which allows you to develop a general concept of the user’s work with content. Marketing thematic strategy both determines the goals, content, style and presentation of content, the order of its production, and solves the problem of promotion and control. SEO strategy can be focused on different types of search, including search for images, videos, information retrieval (UX – User eXperience).

The UX strategy allows you to take into account the user experience and user experience. How to analyze and respond to actions that arise from the use of products or services. This strategy takes into account the user’s emotions, beliefs, preferences, feelings that arise before, during and after using the product or service. This strategy also takes into account the brand, method of product presentation, functionality, reliability, system performance, interactivity, individuality and others.

WebSite Development (WSD) is used as a strategy for creating new objects – web applications based on web design approaches. Remarketing is seen as a strategy to increase sales or service delivery, ie re-marketing is aimed at personalizing communication with the target audience.

Social media – social media. This strategy considers the type of social media communication via the Internet. Social media provides the creation and exchange of information, ideas, interests through virtual communities and social networks.

Analytics is seen not only as a strategy, but also as a service for analyzing the behavior of users of websites and applications. In addition, it is seen as a tool for Internet marketers to analyze and promote the site. Based on the analysis, the classification of digital marketing systems (Fig. 4) by types, basic methods of construction and methods of interaction with information systems and communication networks is proposed.

In the Marketing 4.0 system, mobile marketing is aimed at informing (advertising) and interviewing potential customers via telephone mobile communication (telephone networks, mobile Internet: social networks,

messengers, SMS, etc.). Mobile marketing is used: to identify potential buyers of goods or services; to study the opinion of consumers about a product or service; to study consumers’ perceptions of the optimal properties of a product or service. The Secondary Phone Marketing is aimed at surveys on mobile phones or providing information to the e-mail addresses of those customers to whom the goods were previously delivered.

Secondary telephone marketing is also used: to confirm receipt of goods; for the analysis of the commodity market with application of cloud technologies; for communication with consumers via the Internet.

The Television Marketing today takes on new forms and is carried out through television by showing direct response advertising with confirmation on mobile phones, or using special television commercial channels designed only for the transmission of commercial and advertising information, after which the consumer can order goods at reasonable prices without leaving home.

The Internet Marketing direction, which is rapidly developing today due to modern Internet technologies, which are based on the use of Internet resources using social networks Google +, Twitter and others, Instagram – an application for sharing information and videos with elements of social network, Viber, WhatsApp – messenger application that allows you to send messages, make video and voice calls using the Internet.

The Online Marketing has its components based on the use of computer networks: commercial online channels and the Internet. Using channels, buyers receive marketing information and carry out trade transactions. Micromarketing solves marketing problems at the level of individual organizations. Interactive marketing is aimed at solving the problems of marketing of the service organization, based on the fact that the quality of the service includes the quality of the relationship between seller and customer.

The Direct Marketing continues to perform the functions provided by mail, and today carries out the solution of marketing problems by sending e-mails, SMS messages, advertisements sent to potential consumers. Recipients are selected on the basis of lists of the most active users of web pages and potential buyers of certain groups of goods.



Fig. 4. Classification of the system Marketing 4.0

Catalog marketing is carried out using electronic catalogs selected by users or provided in electronic stores on the Internet.

The integrated approach used in modern digital marketing is MultiLevel Marketing – MLM. Therefore, MLM is seen as a concept of network marketing, which is designed to promote goods and services from producer to consumer, using direct contact between the enterprise – the consumer through modern technology. In multilevel marketing, the sale of goods or services is based on the use of the Internet, where each user of the network, in addition to marketing products, also has the right to attract partners who have similar rights. As a result, each individual consumer is registered in the database during the acquaintance with the product. It is unconventional that in MLM a distributor usually makes the first contact.

The development of digital marketing systems has been greatly influenced by the emergence of new information

technologies (cloud technologies, big data, neural networks, etc.), the development of information systems and, above all, information systems for managing economic objects.

Thus, there are three main areas in this area: the development of management methodology for economic objects, the development of Internet capabilities and the development of approaches to the implementation of digital marketing systems.

### Conclusions

The paper offers an analytical overview of the solutions of Marketing 4.0 systems. The paper offers a classification of Marketing 4.0 systems based on the use of Internet technologies. The paper analyzes the use of Internet technologies in the implementation of strategies for the application of Marketing 4.0 systems. Based on the analysis carried out, the paper proposes a classification of Marketing 4.0 systems.

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