

Marketing Technology in the Context of Digitalization: Features and Trends in Ukraine

Received: 15.02.2022

Available online: 30.06.2023

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Abstract

Advances in high technology have changed the approaches to business by shifting it to the global interactive space and transforming the marketing technology. This fact and the need to increase the competitiveness and efficiency of these enterprises make the issue under research relevant. The article aims to study marketing technology in the context of features of its development within the global interactive space and to determine priorities in this sphere for Ukraine. The leading method of the study is a systematic approach used to explain the integrity of marketing technology development in the global interactive space, distinguish the principal links between its individual elements, and examine them as part of the culture of the information society. This method also helps to study factors which influence the implementation

of such technology, and outline the future possibilities of digital transformations of marketing technology. Based on the features of marketing technology development studied, we identified challenges that accompany and prevent the use of digital technologies in marketing. The priorities for the development of digital marketing technology are suggested and aimed at increasing marketing efficiency.

Keywords: digital innovations; data flow management; online/Internet economy; marketing activity; global network.

JEL: O30

1. Introduction

Advances in high technology which have become a global trend open a new era, characterized by the digitalization of almost all spheres of life, the creation of a digital society, digital economy, and a global interactive space. It is worth noting that digitalization is recognized as a “key driver in GDP growth” and countries’ development (European Commission, 2021).

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The World Economic Forum emphasizes that digitalization has immense potential for world economic growth and estimates additional revenues of more than 30 trillion dollars by 2025 (World Economic Forum, 2021). Digital transformations, the development of the global Internet infrastructure, and its commercialization have led to noticeable changes in the traditional branches of the economy and the development of brand new ones. These changes involve new approaches to business and its shift to the online sphere, the emergence of e-markets based on the principles of online or Internet economy.

Global innovative transformations change traditional ways to obtain new information and communication in society and make corrections in consumer tastes and preferences. It is generally assumed that modern technologies are an integral part of the life of generation Z, born between the second half of the 1990s and the second half of the 2000s and the so-called Google babies. Researchers characterize them as the “instant generation” who “need digital technologies” and show ignorance about “how to function in an analog environment without immediate response to their every whim” (Turkel, 2016). The generation born after 2010 (the so-called Alpha generation) will soon become independent customers, and they have already demonstrated skills in using digital technologies and living in the interactive space. This situation shows that their consumer needs, behavior, and culture will considerably differ from previous generations. It is worth noting that websites, social networks, Internet services, marketplaces, blogs are used widely for transmitting or discussing some information.

A Google study (2019) proved the above trends. The results showed that mobile

search for “better” and “now” has increased by more than 125% over the past two years, while such searches as “where to buy” and “near me” – by more than 200% (Leap, 2020). The increased consumer activity was due to the COVID-19 pandemic and quarantine restrictions, which prevented ordinary shopping for a while and changed consumer culture (Ahluwalia & Merhi, 2020). We note that marketing does not stand aside from these processes and should develop in line with modern demands, adapting to the needs and opportunities of society and business. Therefore, the above factors (the spread of digital technologies, the shift of many types of business to interactive space, the change of consumer culture and behavior) expose the need to develop marketing technology. This marketing technology should be based on digital innovations and make it possible to disseminate information effectively, communicate with your audience in the interactive space and win its favor, form loyal groups, run business, and flexibly respond to customer needs.

2. Literature Review

T. Mesenbourg (2001), D. Tapscott (2009) and other scholars developed the theoretical aspects of digitalization in their works. In their research, Ye. Krykavskyy (2020), O. Merlo and A.B. Eisingerich (2014), F. Nwaiwu (2018), L. Sandys (2020) examine features of enterprise development, taking into account digital transformations and the creation of the global informational space. It is worth noting that the issues of the organization and management of the marketing activity of economic entities under digital development are of great scientific interest. P. Drucker (2019), Ph. Kotler and I. Setiawan (2010), D. Gangeshwer (2015), S. Hoge and C. Cecil

(2015) study the conceptual foundations of marketing 4.0, called “marketing revolution” or a shift to “next level” marketing, and this marketing stresses the need to use digital tools in developing effective strategies. Scholars from different countries considered the main digital marketing tools and features of their introduction in business under various conditions. P. Ahluwalia and M.I. Merhi (2020), Y. Chen and L.T. Wang (2019), G.M. Eckhardt (2019), A. Galkin (Galkin et al., 2019), P.K Kannan and H.A. Li (2017) explored the preconditions and mechanism of the introduction of e-commerce and digital marketing, taking into account the national context. In their works, R. Govers (2015), H. Hakala (Hakala et al., 2017), A. J. Rohm (Rohm et al., 2018) and other scholars developed the main methodological principles of using separate marketing tools under digital transformations.

Suffice it to say that the issue of digitalization is recognized globally as one of the priorities. A lot of research conducted by different international organizations proves that transformation processes in the economy, including marketing activity, attract significant attention. As a result, there is an identification of the cardinal problems and obstacles in digital transformations, propositions of measures to address them, and suggestions of recommendations which aim at developing innovative approaches to data and data flow management, the development of relevant infrastructure, investment activities, etc. Among them are the European Commission (2021), United Nations Conference on Trade and Development (UNCTAD, 2021), World Bank (2021), World Economic Forum (2021). We should note that digitalization processes, including those in the marketing activity, are subject of the research made by different

companies that publish their studies on this issue and identify the main problems and approaches to their solution. These companies include App Annie (2021), Boston Consulting Group (Alm et al., 2016), Cisco, PwC & SAP (The New Digital Economy, 2018), McKinsey & Company (2021), StatCounter (2021), and more.

However, the marketing activity is developing dynamically in the modern globalized world, the role of the digital environment for company development is increasing, and the requirements for their competitiveness are transforming under the influence of digital advances. Therefore, the research issue of features of the marketing technology development in the global interactive space requires further elaboration and consideration of the problem from different angles, which makes this research different from the existing ones.

3. Methodological Framework

This article offers the study of features of the marketing technology development in the global interactive space. Digitalization involves shifting from analog to digital transmission of information and building a new informational space, which is happening on a global scale in today's world. These processes produce the following results in the business environment (compared to the traditional economy): cost reduction of services, growth of workforce productivity, and additional value-creating opportunities in various spheres. Marketing does not stand aside from these processes. Advances of the Fourth Industrial Revolution and their introduction in this sphere allow us to talk about digital marketing as a particular activity and a new stage in its evolution.

Its tools and technologies (digital platforms, social networks, blogs, forums, mobile apps, numerous resources for sharing reviews, video and photo materials, etc.) have proved to be more effective than the traditional (analog) ones due to the targeted digital channels. These channels allow for the constant dual-sided personified dialogue with every consumer. Thus, large databases allow for reaching many potential consumers simultaneously and make promotion more targeted. Moreover, the interaction with the audience is optimized by using information about consumer behavior in real-time mode and ensuring feedback. Generating information about consumers creates additional opportunities for segmenting and personalizing the target audience and responding to its needs and preferences quickly. The use of highly accurate targeting in the advertisement increases its effectiveness.

However, the use of modern marketing technology in the global interactive space is associated with challenges faced by both companies and consumers. Among the main ones are the following: transaction security, insufficient development of particular infrastructure, lack of proper technical support, not enough bandwidth, imperfect legal framework, and existing restrictions. Therefore, if features of the development of digital marketing technology in the global interactive space are determined, enterprises can choose the most effective among them, identify possible challenges in their introduction in Ukraine, and suggest priority directions for their development. It is expedient to follow these priority directions at different levels in order to increase the competitiveness and the effective performance of enterprises and the economy in general.

The methodological framework of the study consists of conceptual provisions of marketing, mass communication theory, social network theory, general scientific principles of research, works of the leading foreign scientists in the field of digitalization and marketing technology. The major method of the study is a systematic approach used to explain the integrity of marketing technology development in the global interactive space, distinguish the principal links between its individual elements, and examine them as part of the culture of the information society. This method also helps to study factors which influence the implementation of such technology, and outline the future possibilities of digital transformations of marketing technology. The study applies the following approaches and methods: monographic and comparative analyses (when studying features of the marketing technology development in the global interactive space); integrated approach (when suggesting priority directions for marketing technology development); statistical analysis (when examining trends in the development of interactive space and media audience). The legal framework of the study involves legislative and regulatory acts of developed countries in the field of digital development.

The methodology of the study encompasses the following sequential stages (Fig.1):

1. The spread of the global network is analyzed by calculating such indicators as share of Internet users in the world, penetration rate, and an analysis of time series. It functions as a factor of interactive space development and forms the basis for further digital transformations.
2. Based on statistical data, the level of providing people with technical devices, including mobile ones, is studied.
3. Through statistical methods, media

audience is considered, social networks are rated, and leaders are determined.

4. The features of digital marketing technology introduced in developed countries are studied, and their efficiency for increasing a company’s competitiveness is defined. It is noted that there is a need for technical transformations, changes in the management system, implementation of new approaches to the formation of corporate culture and the digital culture of society. The study involves the conducted analysis of the main challenges which accompany digital transformations in marketing and

prevent the use of technologies in the global interactive space.

5. Priority directions for the development of digital marketing technology are suggested, which are expedient to follow at different levels in countries with developing economies and economies at the early stages of digitalization.

The information base consists of legislative and regulatory acts, research of App Annie, Boston Consulting Group, Cisco, Eurostat, Internet World Stats, StatCounter, Statista, The World Bank Group, works of foreign scholars.

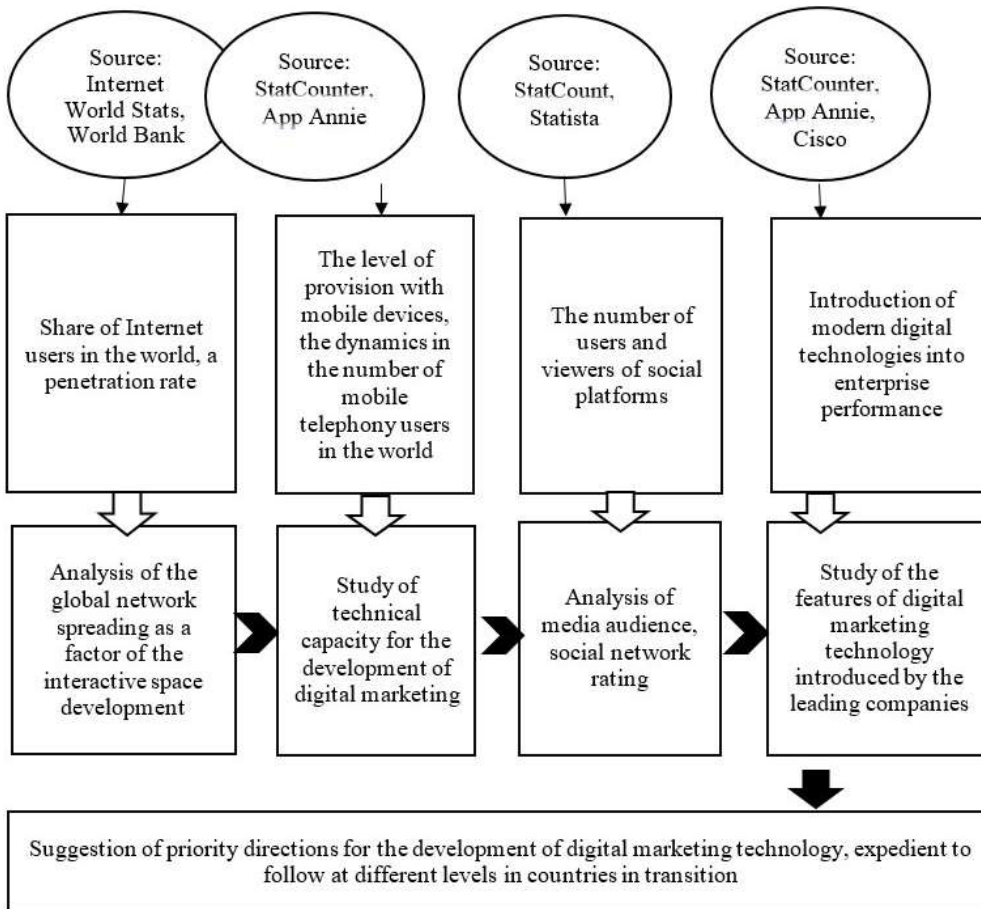


Figure 1. The main stages which form the research methodology
 Source: compiled by authors

4. Results

4.1. Study of preconditions for marketing technology development in the global interactive space

We should note that the development of the interactive space and the relevant marketing technologies is only possible under

the spread of the global network. Spreading all over the world, it has covered 65.6% of the whole population. As of the end of the first quarter of 2021, the global number of Internet users increased to 5.168 billion people. It has led to its accessibility to the general public and contributed to the formation of the information society (Table 1).

Table 1. Use of the Internet in the world (as of March 21, 2021)

	Population	Users	Relative share of users, %	Penetration rate (% to population)	Growth rate 2000-2021, %
African countries	1373486514	594008009	11.5	43.2	13058.0
Asian countries	4327333821	2762187516	53.4	63.8	2316.5
European countries	835817920	736995638	14.3	88.2	601.3
Latin America	659743522	498437116	9.6	75.6	2638.5
Middle Eastern countries	265587661	198850130	3.9	74.9	5963.6
North America	370322393	347916627	6.7	93.9	221.9
Australia/ Oceania	43473756	30385571	0.6	69.9	298.7
Total in the world	7875765587	5168780607	100	65.6	1331.9

Source: compiled by authors according to the data of Internet World Stats (2021)

The highest Internet penetration rate is observed in Europe (88.2%) and North America (93.9%), while the lowest one is in Africa (43.2%). We should mention that the common trends related to the penetration rate of the global network are also typical of Ukraine. From the research results, we can

state that the share of users has dramatically grown up to 70.1% (according to data as of 2019). The share has exceeded the worldwide average number, and this in turn promotes the Internet business and makes the country part of the global interactive space (Fig.2).

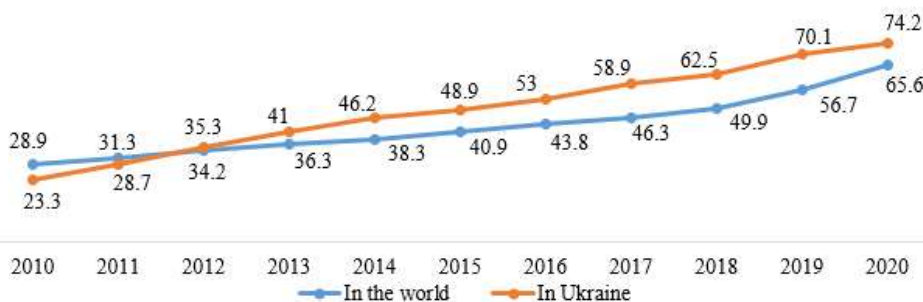


Figure 2. Comparison of the share of Internet users in Ukraine and the world, %

Source: compiled by authors according to the data of The World Bank Group (2021)

However, the data obtained by Eurostat (2021) show a larger share of World Wide Web users in Ukraine, which reaches 93.4%. The reason is that most people use several devices (mobile phones and desktop computers) to go online at different times and for various purposes, which increases the indicator. The research results obtained by StatCounter (2021) also prove the above and reveal that $\frac{3}{4}$ of World Wide Web users aged 16 to 64 access the Internet through laptops and personal computers despite the wide spread of mobile devices and the global growth of mobile subscribers. As of the 1st quarter of 2021, it increased by 2.5% compared to the same period of the previous year and reached 5.27 billion. According to statistics, 53% of all Internet searches are via mobiles, and 44% still count for computers.

It is worth noting that the increased number of mobile users and the time they spend in the Internet (more than 50% of the total time spent online) adds to the increased interest in various applications used virtually in all spheres of life. It boosts the role of mobile communication as an essential instrument for attracting customers and increasing business competitiveness. In this context, the results of the research conducted by App Annie (2021) are of particular interest. Thus, ten of every eleven minutes of mobile use are spent on

mobile apps, while browsing takes only 9% of our “time for mobile”. Therefore, it is necessary to build the marketing strategy on a complex approach that focuses on both mobile and stationary devices, is based on the study of different situations of use and features of the device, and adheres to a certain balance.

A significant impact on the development of modern marketing technology has the activity observed in social networks. In the first quarter of 2021, its audience increased by 13% compared to the same period of the previous year and reached 4.33 billion people. At the same time, the average amount of time per day spent on social networks and messengers amounts to 2 hours and 22 minutes. It is also expedient to consider the popularity of these platforms and their traffic as they are of considerable interest for building the marketing strategy for enterprise development (for example, brand). Facebook heads the top five of the most popular social networks, which has increased the number of users by 94 million people in a year. The top five have changed slightly (Fig.3). Thus, Instagram, which had been in the sixth place, took the fourth place and left behind Facebook Messenger. WeChat left the top five after the failure to reach a wider audience during the year.

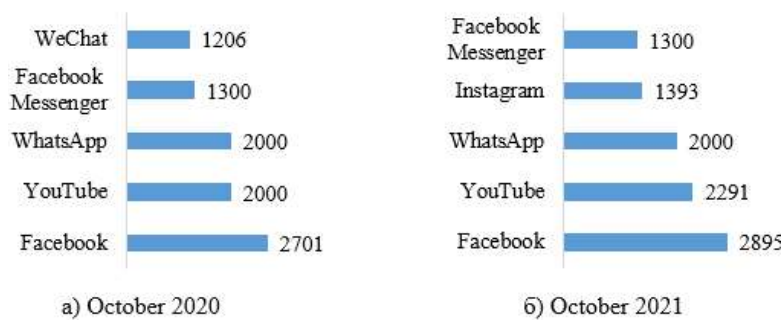


Figure 3. Top-5 of the social networks in the world, million people

Source: compiled by authors according to the data of StatCounter (2021) and Statista (2021)

As for the website rating, the leaders are as follows (as of October 2021):

1. Google (75.1 billion browsings);
2. YouTube (21.9 billion browsings);
3. Facebook (16.4 billion browsings);
4. Wikipedia (14.3 billion browsings);
5. Yahoo (5.4 billion browsings).

4.2. Features of the development of digital marketing technology

The rapid growth of digital technology and the global spread of transformation processes made these innovations an integral part of competitive business and changed approaches to the organization and management of marketing activity, promoting evolution and digitalization of marketing. Scientific discourse (Nwaiwu, 2018; Gangeshwer, 2015) draws attention to the consumer omnichannel, which means the possibility to buy online and offline often in combination. Actions taken in business reflect the above as there are efforts to use duality in creating communication channels with consumers, both physical and digital. Suffice it to say digital marketing is broader than Internet marketing. Its specificity lies in the introduction of an integrated approach. This approach presupposes using both global networks and digital channels, including offline, to promote the product and attract and retain customers (social networks, mobile applications, street displays, digital television, POS materials with QR code, etc.).

Since these channels are targeted and combine technology with sales and customer service, they allow experts to keep a constant dual-sided personified dialogue with every consumer. The basis for such communication is the data obtained in last communications with a customer and information about their behavior in real-time

mode. It ensures feedback and improves the interaction with a customer (Fig.4). Particular digital marketing tools ensure the functioning of information transmitting channels. These tools are specific and change depending on a device used for transmitting the content to a consumer, business goals, and opportunities. Among others, it is necessary to highlight the following tools:

- for any devices that have access to the World Wide Web (personal computers, laptops, tablets, etc.) - Search Engine Marketing; search engine optimization; social media marketing; advertisement, content for viral or passive promotion of sales and services; banner or contextual advertising; publishing expert and independent opinions in social networks; targeting and retargeting; native advertising; advertising windows on thematic platforms; newsletters;
- for mobile gadgets (smartphones, smart-gadgets such as watches or internet-ready fitness trackers, mobile phones) – text messages (SMS); interactive voice response (IVR); multimedia message (MMS); Bluetooth; wireless application protocol (WAP); mobile coupon and voucher code; technology for convenient software load (Location Based Services); QR codes, a picture on printed products for a quick transition to a virtual environment or mobile applications;
- for local networks – viral and guerrilla advertising;
- via digital television – short promotional video, running letters; augmented reality; use of interactive screen; 3D-mapping, which allows the image projection on natural environment location;
- for interactive screens (in shops, restaurants, cafes), POS-terminals – video

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clips, pop-up windows, native advertising, interactive screens; biometrical technologies that allow automated

identification of consumers according to particular features (physiological and behavioral).

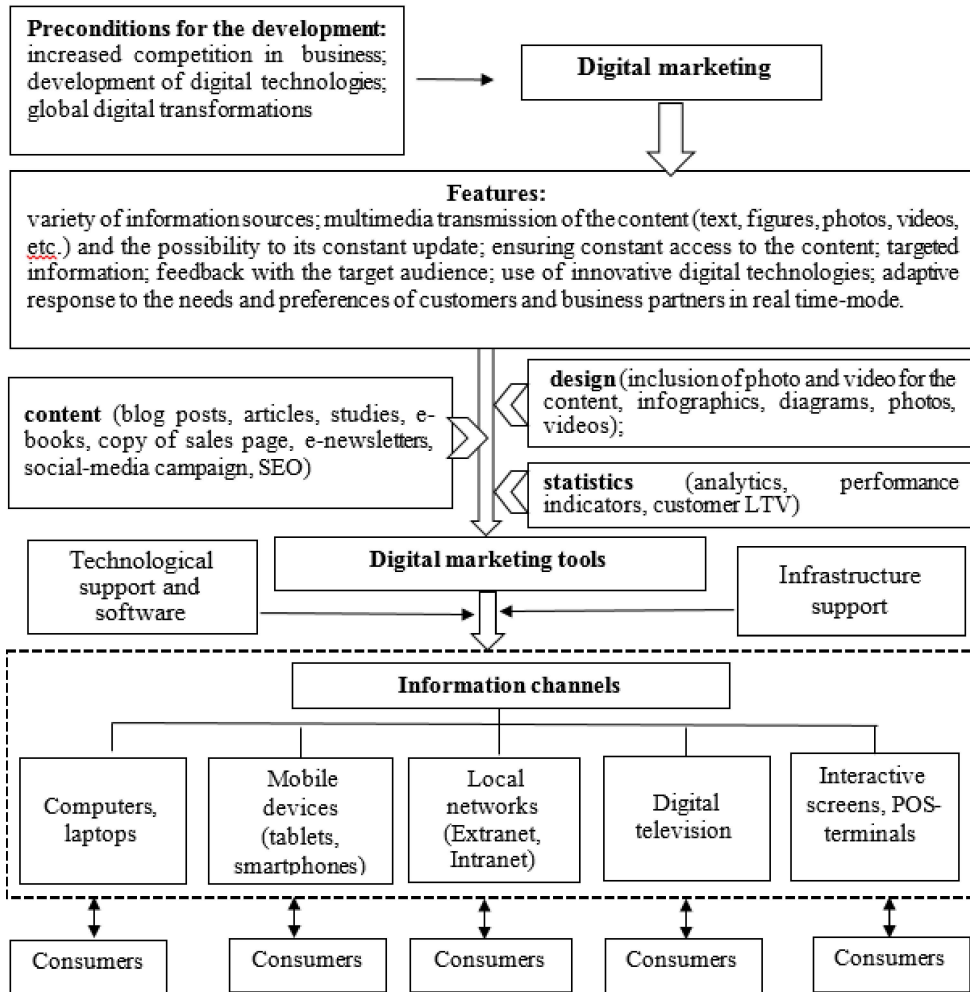


Figure 4. Digital marketing model
Source: compiled by authors

The realization of digital marketing capacity and use of the above tools require an appropriate technological support, software, and infrastructure development. We should highlight the following technologies among those that represent interest:

- wireless (Bluetooth, Wi-Fi, RFID, NFC);

- Big Data, Blockchain (data-driven marketing, programmatic advertising, marketing engineering, dynamic pricing);
- Automated Systems Operations (CRM-software, MRM-system, automated self-service systems).

It is necessary to stress that the efficiency of the use of digital technologies depends

on the infrastructure development level and interconnection and complementarity between components. In this context, we should pay attention to the studies by Gangeshwer (2015), who singles out hard and soft infrastructure. Hard infrastructure includes information and communications technology and provides

access to digital technologies, while soft infrastructure pertains to digital technologies. Figure 5 represents the main components of digital infrastructure in the field of digital marketing development that are of particular interest.

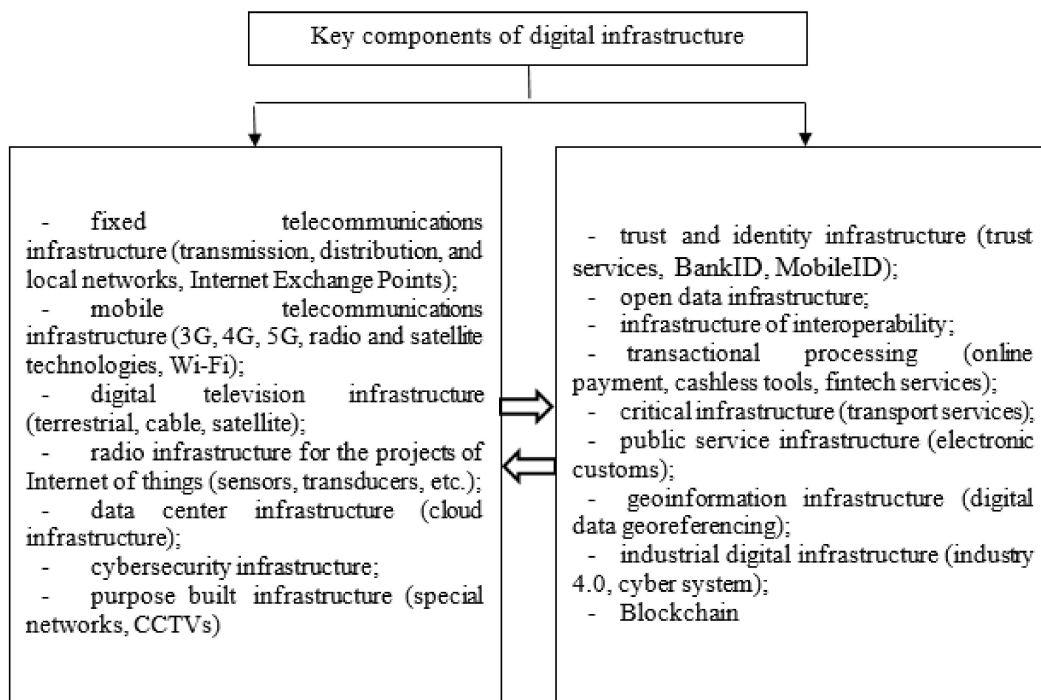


Figure 5. Key components of digital infrastructure in marketing

Source: compiled by authors according to the data of Gangeshwer (2015) and Hoge & Cecil (2015)

The examination of the features in the development of digital marketing technology of companies that run the business in highly digitalized countries, allows for identifying particular trends in this sphere. The need to collect and process a large bulk of data is reasonable to emphasize when speaking about the role of marketing research in the improvement of enterprise performance. Digital transformations, data mining development, big data, image recognition technology, and artificial intelligence

have brought progressive changes in this sphere, which has led to the availability of appropriate software and infrastructure and has increased the requirements for digital skills and staff competencies. Thus, digital screen software and tableau software are used instead of standard spreadsheets. Data analysis, handling, and presentation are used for statistical modeling. Data handling has transformed into data engineering and big data analytics. All of the above creates additional opportunities

for data accumulation and the formation of the necessary database, analysis of the main trends in the market development, forecast, and development of a company's marketing strategies.

We should argue that the practices of personalized marketing have been formed in the field of customer and partner relationship management, implemented through the corresponding technological environment at enterprises. They are as follows: automated customer communications systems (CRM - Customer Relationship Management) and automated partner communications systems (PRM - Partner Relationship Management). This personalized approach manages to obtain a maximum of customer or partner information during communication due to the use of digital tools (chatbots, contextual advertising, call center software, etc.). Among the tools of interest in this context, it is necessary to highlight technologies of conversational marketing, identity resolution, and consent and preference management. Significant developments in personalized customer communications exist in the field of social media marketing (SMM), where modern algorithms of search systems pick up advertising content following the browsing history and preferences of a customer. Various communities have conducted to the crowd technology development, aimed at managing user recommendations and feedbacks and promoting sales by the recommendations of the target Internet audience. Crowd marketing adds to the site's reputation and rating on search platforms.

A sphere of advertising has also experienced significant changes due to digital technology development. Adblocking and ad verification are advancing. Blockchain for

advertising is gradually being introduced. Noteworthy are the following tools:

- native advertising, which may take the form of an article, infographics, photo, video or audio information, corresponds to the format and content of a platform on which it is placed. Native advertising becomes integrated with web-page design, social media, or mobile app, merging with the main content. It neither represents a product nor contains a product offer or information about advantages and disadvantages but fully meets consumer interests;
- influencer and advocacy marketing, which presupposes a person who has an influence on the target audience to recommend the company's products;
- automated emotion reading or artificial emotional intelligence, based on AI technologies capable of understanding, modeling, and responding to human emotions. Therefore, they play a prominent role in communication and are used in advertising, automated systems of user feedback;
- programmatic advertising, used in purchase and sale of any advertising media. Automation of these processes and the ability to avoid a human factor help to achieve maximum compliance between the format, content, and situation in which a user is.

The introduction of digital technologies has contributed to the spread of storytelling, which relies on psychological aspects and basics of human behavior management and uses natural empathy of an individual to life stories. Unlike advertising, this tool is aimed at building a long-term relationship with the enterprise's customers through discussions and communication without

the direct incentive to buy. Moreover, the development of social networks and their traffic growth have shifted the emphasis towards personalized marketing. They provide a choice of acceptable methods and platforms for messaging (digital television, Facebook, Instagram, Telegram, etc.). With these social networks, one can react immediately to events, correct information, and spread the news, and they have caused a new trend, called by Google Zoo director Mike Yapp “hypertelling” (Campaignlive, 2016). Under this term, the audience in the global interactive space is no longer just an observer but participates actively in writing content by making up their stories and materials based on known events. A significant role in these processes is assigned to the spread and availability of AR technology (augmented reality), which allows combining the real world with the world of a company.

Marketing technologies in the global information space will continue to develop, being associated with further digitalization and the emergence of digital innovations. However, the research results show that the practical implementation of such technologies requires the resolution of problems related to digital ethics, personal data security, development of digital workplaces, system platforms, software, and corresponding infrastructure.

4.3. The suggestion of priority directions for the development of digital marketing technology in countries with transitional economies

The study of the features of the marketing technology development in the global information space and the problems which hinder these processes in countries with economies in transition, showed the need for comprehensive solutions to these issues at

different levels – in the form of public policy and business. The priority directions for the development of digital marketing technology in Ukraine are aimed at increasing business competitiveness and marketing efficiency. Among the main ones are the following:

- expansion of the fixed broadband Internet infrastructure and mobile Internet (4G, 5G); development of a strategic document and implementation at the state level, which is aimed at developing broadband access to the Internet and defines ways to this problem solution and state obligations in this sphere;
- formation of the appropriate regulatory framework for the digital technology development in the field of business, work on its compliance with international standards;
- cooperation intensification with the European Union (within projects and programs in the field of business digitalization);
- a creation of program documents and their implementation at a national level, aimed at the development of digital infrastructure, including those based on public-private partnership;
- a creation of favorable conditions for investment activities in the field of digital innovations, software, the Internet of things, etc.;
- state support and promotion of digital transformations in business; implementation of modern projects, use of the potential of concession models, investment attraction;
- introduction of new technologies in the field of cybersecurity and cyber protection;

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- an increase of the trust level to digital transformations among the participants of business processes;
- state support of the development of the scientific base and research in the field of digitalization;
- an increase of public awareness about the advantages of digital technologies, the establishment of a dialogue concerning key issues in digitalization, personal data protection, and respect for the rights of digital technology users; online learning and increase of digital literacy by using appropriate services (video lectures, educational clips, movies), designed for a particular target audience;
- improvement of the staff training and retraining for various industries and regarding transformation processes, increase of their digital competencies, cultivation of digital culture (pieces of training, seminars, international internships, potential of online business services such as specialized platforms for obtaining digital knowledge and skills).

5. Conclusion

The relevance of the research is due to advances in high technology that have changed approaches to business by shifting it to the global interactive space and transforming marketing technology. It is expedient to argue that digital transformations are considered as one of the key conditions for increasing competitiveness since they create new growth points for business and act as a crucial factor for business success. We systematized new trends in the field of digitalization and studied features of marketing technology development in the global interactive space. It allowed us to assume that their introduction requires a solution of problems that accompany and prevent the

use of digital technologies in marketing. We offered priority directions for the development of digital marketing technology by enterprises located in Ukraine and other countries with economies in transition. These directions aim at raising competitiveness and enhancing enterprise performance, namely:

- overcoming institutional and legislative barriers and forming the regulatory framework in the field of business digitalization;
- attracting investments;
- promoting innovations and the development of digital infrastructure;
- increasing the level of trust in digital transformations among the participants of business processes;
- preventing, eliminating, and managing related risks in cyberspace, introducing new cybersecurity technologies;
- state support of the scientific research in the field of digital innovations;
- staff professional development and acquisition of appropriate digital competencies;
- intensifying educational activities and raising public awareness about advantages of using digital technologies, etc.;

However, their practical implementation requires the appropriate implementation mechanisms based on a programmatic approach with a specification of action plans and identification of funding sources, and this represents the prospects for further research. This piece of research is of interest to various governing bodies (state and industry) in the development and implementation of digital policy and enterprise management (marketing strategy for development).

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