



# Electronic Marketing in a Pandemic with Respect to the Impact of Technology and Business Adaptation

Ayed Moh'd Al Mual<sup>1</sup>, Akef Yousef Alzyadat<sup>1</sup>, Hassan Ali Al-Ababneh<sup>2\*</sup>, Husam Ananzeh<sup>3</sup>, Barween Al Kurdi<sup>4</sup>, Tatyana Ibragimkhalilova<sup>5</sup>, Fawaz Mohd Salim Barhoush<sup>6</sup>

<sup>1</sup>Department of E – Marketing and Social Communication, Irbid National University, Irbid, Jordan, <sup>2</sup>Department of Electronic Marketing and social media, Zarqa University, Zarqa, Jordan, <sup>3</sup>Department of Accounting, Irbid National University, Irbid, Jordan, <sup>4</sup>Department of Marketing, School of Business, The University of Jordan, Amman, Jordan, <sup>5</sup>Department of Marketing and Logistics, Donetsk National University, Donetsk, Russia, <sup>6</sup>Department of Business, Liminus Technical University College, Amman, Jordan.  
\*Email: [Hassan\\_ababneh@zu.edu.jo](mailto:Hassan_ababneh@zu.edu.jo)

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## ABSTRACT

The purpose of this article is to study the transformation of electronic marketing caused by the COVID-19 pandemic, with an emphasis on the impact of technology and innovation on business adaptation. The acceleration of the implementation of digital tools in marketing strategies by the pandemic crisis is substantiated, and the technologies that have become the main drivers of transformation are highlighted. The main objective of the study is to substantiate the trends in marketing transformation in the context of the pandemic, identify areas for the prompt adaptation of companies' marketing strategies taking into account technologies and the use of extrapolation tools for short-term forecasting. The research methods include extrapolation of current digital marketing trends, analysis of the use of technologies and innovations, such as artificial intelligence, big data analytics and process automation, as well as their impact on changing consumer preferences and strategic management of companies. The importance of a prompt business response to changes in the market environment is emphasized, the effectiveness of extrapolation tools for forecasting consumer preferences and forming strategies is emphasized. The results obtained will allow companies to more effectively adapt their marketing efforts and use technology to increase business resilience in times of crisis.

**Keywords:** Marketing, Strategy, Digital Technologies, Pandemic, E-commerce

**JEL Classifications:** C00, M310, M21, M31

## 1. INTRODUCTION

The article will also examine examples of successful marketing strategies and technologies that allowed companies not only to survive the crisis, but also to significantly strengthen their positions in the market. The intensive development of the processes of globalization and internationalization lead to the global digitalization of society in all spheres of activity, which in turn lead to the conceptual need for constant changes and modernization of existing business models and strategies. An innovative approach to the management of modern companies under the influence of

the implementation of information technologies in the conditions of the spread of uncertainty caused by the pandemic is quite relevant and necessary in modern conditions (Vasudevan, 2024; Zahra, 2024). Uncertainty causes a negative impact on political, socio-economic and other business processes, including marketing, which emphasizes the need for further research and determining digital marketing trends under the influence of information technology in a pandemic. Technologies in the business segment expand the boundaries of communications with the target audience and improve profitability. Digitalization of marketing, its change in conditions of increased risk of doing business caused by the

pandemic and the implementation of IT technologies led to the development of a digital marketing strategy focused on online services (Ahmed et al., 2021). Taking into account the above, it should be noted that it is conceptually necessary to define the key directions of formation of digital marketing in modern conditions and its tools for increasing efficiency in order to optimize the business processes of modern companies (Alquqa et al., 2023; Ozturk, 2024). Since there is no single approach and methodology for determining of features in the development of digital marketing under the influence of information technologies in the context of a pandemic, which necessitates an in-depth study and further research of this issue. The necessity and relevance of the subject of this research is determined by modern trends and the transformation of existing marketing strategies, which lead to the need to review the marketing policies of companies, taking into account the uncertainty and global digitalization expressed by the spread of the COVID-19 pandemic in the world. Information technologies and their implementation in the digital marketing strategy act as a driving mechanism that ensures the efficiency of management of modern companies in the conditions of uncertainty generated by the pandemic.

The COVID-19 pandemic has had a profound impact on all areas of the economy, including companies' marketing strategies (Alameeri et al., 2021; Alshurideh et al., 2023). In the context of a global crisis, restrictions on physical interactions, and a sharp increase in online activity, businesses have been forced to adapt to new conditions. One of the most significant changes has been the widespread adoption of digital technologies in marketing processes, which has accelerated the shift to e-commerce and online sales. E-marketing, which was already an important tool for reaching consumers before the pandemic, has become even more important in the context of the crisis. New technologies such as artificial intelligence, big data analysis, marketing automation, and the use of social media have become key tools for maintaining contact with customers and promoting products and services. During the pandemic, companies have used these technologies to develop personalized offers, improve customer service, and increase the effectiveness of advertising campaigns. The purpose of this article is to explore how the pandemic has affected the development of e-marketing, which new technologies have become key to successful business adaptation, and how extrapolation forecasting methods help companies adapt to rapidly changing conditions.

## 2. REVIEW OF LITERATURE

Global transformational processes of all segments of the world economy accompany the modern development of innovations and information technologies. The implementation of information technologies in modern digital marketing strategies is due to the need to optimize business processes, improve management, develop remote service channels, and ensure the competitiveness and efficiency of modern companies in the conditions of uncertainty caused by the spread of the COVID-19 pandemic. The practical introduction of digital technologies into the digital marketing strategy provides ample opportunities to ensure the effectiveness of the management system of a modern company: The development

of remote sales channels and customer service; online services and tools for positioning and advertising for the growth of loyalty and recognition of the company's brand, which is conceptually necessary and relevant in the conditions of uncertainty caused by the spread of the pandemic. A large number of studies are due to the relevance of this issue, which is mainly focused on the specifics of the development of information technology; argumentation of the role of information technology in the concept of marketing and the features of their popularization, however, the issue of argumentation of the features of development in digital marketing trends under the influence of information technology in the context of the COVID-19 pandemic has not been resolved, which needs to be studied in depth. In the context of the worsening coronavirus infection in the world, the situation has become significantly more complicated, which in turn negatively affects the economic growth of both individual industries and individual countries.

This literature review focuses on the impact of the pandemic on digital marketing strategies, identifying key trends, and analyzing the adoption of new technologies such as artificial intelligence, big data, personalized marketing campaigns, and automation. The literature examines both the positive and negative aspects of the shift to digital marketing, focusing on the challenges that companies face during this transformation. It is also worth noting that many studies emphasize the importance of business adaptation and rapid response to changes in consumer behaviour, which is especially relevant in uncertain times. This review examines various approaches, methods, and concepts proposed by leading researchers and practitioners in the field of digital marketing, allowing for a deeper understanding of how the pandemic has accelerated changes in marketing strategies and the technological landscape.

Research study (Akhtar et al., 2020; Campbell, 2020) describes how the pandemic has accelerated the digital transformation of businesses. It examines the shift from traditional marketing to the use of digital platforms, social media, and personalized content, which has become the basis for successful strategies. The author focuses on the growing role of technology in marketing. Research study Carter and Berg (2021) analyses how technology influences customer engagement. The importance of data analysis and personalization in the process of building loyalty is argued and emphasized, which is especially relevant in a crisis. Research study Claudy and Peterson (2020) argues that the pandemic has dictated the need to change marketing strategies, including the use of online platforms and social media. These changes have contributed to the growth of e-sales and changes in consumer preferences. Research study Dube and Maritz (2021) focuses on changes in consumer experience associated with the transition to digital channels in a pandemic. It emphasizes the role of technology in monitoring and optimizing this experience. Research approach (Hall et al., 2020; Al-Ababneh et al., 2024) argues for key aspects of video marketing, marketing automation, and content marketing in the digital era. The article discusses how the pandemic has affected the use of these technologies to support online commerce. Study Kim (2020) examines the role of digital marketing in the context of global changes such as the pandemic. The authors emphasize that the digitalization of marketing has allowed brands to adapt

faster and operate effectively in unstable conditions. In the context of the pandemic, the emphasis is on the need to maintain a high level of customer service through digital channels. The synergy between online and offline marketing channels is revealed in Study Al-Ababneh et al. (2024), especially through social media, which has become a critical element in the context of the pandemic. Study Laato and Islam (2020) examines the impact of the pandemic on marketing strategies, including an emphasis on the increased use of e-commerce, social media, and online advertising. A scientific approach Mehta and Saxena (2020) examines the impact of changes in consumer behaviour in the context of the pandemic on digital marketing strategies, focusing on the importance of adapting marketing to new consumer expectations. Article Al-Ababneh et al. (2024), examines the role of social media as a key channel for marketing and communication in the context of the pandemic. The importance of quickly adopting these platforms to maintain customer engagement is highlighted. A scientific approach Pantano and Pizzi (2020) highlights how companies have begun to leverage digital platforms and new technologies to adapt their marketing strategies in the face of uncertainty. Roggeveen and Sethuraman (2020) explore how marketing technologies are helping brands adapt to changing market conditions during the pandemic and assesses the prospects for their future use. A scientific approach Al-Ababneh (2024) highlights the importance of technology in improving customer experience and increasing loyalty during the pandemic. Sarkis (2020) examines the impact of the pandemic on digital marketing strategy and highlights the importance of flexibility in adapting strategies in response to rapidly changing external environments. The analysis of the presented works shows that the impact of the COVID-19 pandemic on marketing has been extremely significant. The main conclusion that can be drawn from the literature is that e-marketing has become not just an important, but a necessary element in business strategies. This is due to changes in consumer behaviour, the growth of online platforms, and changes in communication channels with customers. In the context of global uncertainty, companies using technology to automate and personalize marketing were able to quickly adapt and maintain their competitiveness. In addition, it should be noted that digitalization of marketing helps companies not only improve their efficiency, but also develop new relationships with customers. Technologies such as artificial intelligence, data analytics, and automation have become indispensable tools in adapting strategies in the context of the pandemic. Research benefits:

- Identify key trends such as the growth of online platforms and the importance of personalization
- Help identify technology solutions that support effective communication with customers
- Contribute to understanding changes in consumer preferences in times of crisis.

Research limitations:

- Often focus on large companies and do not always take into account the needs of small and medium-sized enterprises
- Insufficient attention is paid to problems with access to technology for some categories of businesses.

As a result of a critical analysis of the literature, it can be argued that research in the field of electronic marketing in the context

of a pandemic provides valuable information for businesses seeking to adapt to new conditions. In the future, it is important to continue researching the impact of new technologies on consumer behavior and developing new strategies for different categories of companies, especially for small and medium-sized enterprises. It is also worthwhile to deepen the analysis of long-term changes associated with the introduction of new technologies into marketing practices. The COVID-19 pandemic has had a significant impact on all areas of business, including marketing. Digital marketing, in particular, has become a key tool for survival and growth for many companies. The transition to digital channels of customer interaction has become an integral part of business strategies. The use of new technologies, such as artificial intelligence (AI), big data, and process automation, has become a necessity to maintain competitiveness in the crisis. A literature review found that the pandemic has accelerated digital transformation processes in marketing strategies, including increased use of social media, online advertising, and personalized offers, as well as the growth of mobile shopping and e-commerce. At the same time, many organizations have faced difficulties in quickly implementing new technologies and adapting their business processes

### 3. RESEARCH METHODOLOGY

In the conditions of the COVID-19 pandemic and the rapid development of technologies, electronic marketing has undergone significant changes. Digital transformation accelerated, and companies began to look for new ways of interacting with consumers. This study is aimed at identifying the level of transformation of marketing strategies under the influence of the pandemic and technological changes, as well as at building a forecast of the development of marketing strategies over a 5-year horizon. The conceptual goal of the study is to study the transformation of electronic marketing strategies under the influence of the pandemic and new technologies, to make a forecast of changes in marketing strategies for 5 years and to offer recommendations for business. To achieve the presented goal, it is necessary to implement the following tasks:

- Assessment of the impact of the pandemic on the strategic development of electronic marketing
- Analysis of the role of technologies in changing marketing strategies
- Construction of a forecast for the development of marketing strategies for 5 years, taking into account current and expected trends
- Identifying changes in consumer preferences that could affect marketing approaches
- In order to argue the results of the study, their value and practical significance, the following hypotheses were formed
- The pandemic became a catalyst for digital transformation, accelerating the process of transitioning business online
- The use of technologies (artificial intelligence, data analytics, automation) significantly increased the effectiveness of marketing strategies
- Predictable changes in consumer preferences (more attention to security, convenience of online shopping, personalization of content) will lead to the evolution of marketing strategies in the next 5 years.



- Advances in technologies such as machine learning and big data will provide more accurate targeting and personalized marketing campaigns.

The study of the influence of the pandemic and technologies on electronic marketing is extremely relevant, since the global changes caused by the COVID-19 pandemic have had a significant impact on all areas of the economy, including marketing. For several years, enterprises and organizations around the world have faced new challenges associated with the transition to the online format, changing consumer preferences and needs in digital communication channels.

The study of trends in marketing, as well as their changes under the influence of the pandemic and new technologies, requires the application of complex, multifaceted methods. The following key requirements should be taken into account in the study:

- **Interdisciplinarity:** the research should combine theories from the fields of marketing, economics, technology and social sciences to reveal the complex impact of the pandemic and technology on marketing strategies
- **Use of modern methods of analysis:** this includes both qualitative and quantitative methods. For example, trend analysis, time series methods, machine learning and other analytical tools that allow you to accurately predict changes in the market
- **Flexibility in the application of forecasting models:** it is necessary to take into account rapidly changing conditions, such as changes in consumer preferences or new technological innovations, so that the forecasting methodology is flexible and dynamic
- **Reasonableness of forecasts:** an important aspect is the ability to justify conclusions made on the basis of data and forecasting models by including external and internal factors in the model
- **Long-term analysis:** the study should take into account both current and future trends in the field of digital marketing, as well as their possible changes in response to technological or socio-economic challenges.

Parametric forecasting is a method of forecasting in which future values of trends are calculated on the basis of available historical data, using mathematical models that include certain parameters specific to the given area. In the case of analyzing the impact of the pandemic and technologies on marketing, parametric forecasting allows you to identify and predict changes based on previous data on marketing strategies, advertising expenditures, changes in consumer preferences, and technological trends. The method can be used to create forecasts for the next few years, taking into account current trends Shamim and Shin (2021). The process of applying parametric forecasting:

- **Data collection:** analysis of historical data on digital marketing, as well as data on technological innovations and consumer trends
- **Defining the model parameters:** defining the key factors (for example, the level of online sales, marketing costs, changes in consumer preferences) that will be used for the forecast
- **Building a model:** using statistical methods, such as regression analysis, to determine the relationships between key parameters and predict their future values

- **Construction of a forecast:** based on the built model, a forecast is created for a certain period (for example, for 5 years), which allows you to assess possible changes in marketing strategies and technological trends.

Parametric forecasting includes several key steps:

- **Regression analysis:** allows you to identify linear or non-linear dependencies between variables and predict future values based on existing trends
- **Time series models:** used to forecast changes in marketing costs, consumer preferences, and technological indicators based on historical data
- **Assessment of forecast errors:** it is important to analyze the degree of forecast error in order to determine the level of accuracy and the possibility of its application Al-Ababneh et al., (2022), Alnsour (2024).

The linear regression model for analyzing the transformation of digital marketing under the influence of the pandemic and technologies has the following form:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_n X_n + \epsilon_t \quad (1)$$

$Y_t$  - dependent variable (for example, spending on digital marketing in period  $t$ );  $X_1$  - the level of technological adaptation (for example, the fate of online sales or the introduction of new technologies in marketing);  $X_2$  - the impact of the pandemic (for example, changes in demand for goods/services, transition to an online format);  $X_3$  - other external factors (for example, the economic situation),  $a$  is a constant (intercept);  $\beta_1, \beta_2, \beta_3$  - regression coefficients showing how strongly each of the factors affects marketing expenses;  $\epsilon_t$  - forecast error.

This method accumulates all the main factors and expresses them in line with the trend. The real mechanism of influx to values equal to the dynamic series is obviously not guaranteed. To ground scientific and methodological approaches, it is essential to predict trends in the evolution of digital marketing under the influx of information technologies in the minds of the pandemic analytical trend verification has been established. The extrapolation of the trend may be limited by the fact that the developments of the phenomenon are quite well described by the impulses of peers and minds, which indicate the evolution of the trend in the past, but do not recognize significant changes in the future Al-Ababneh et al. (2024). Keeping these minds in mind, extrapolation works by substituting the equal trend, and the value of the independent variable  $t$ , which indicates the value of the forecast horizon:

$$\overline{Y_{t+p}} = f(t_{n+p}) \quad (2)$$

Where,  $f_t$  - deterministic non-random component of digital marketing evolution trends under the influence of information technologies in a pandemic;  $p$  - is the value of the mid-line forecast horizon (the period for which the forecast is made).

The method of parametric medium-term forecasting was applied based on trend analysis, aimed at analysing features of evolution

in digital marketing trends under the influence of information technology in a pandemic in the time to determine patterns and trends with the subsequent construction of a forecast for the next 5 years. The reliability and adequacy of the results of parametric forecasting of features of evolution in digital marketing trends under the influence of information technologies in a pandemic is confirmed by the quality of the model and the determination indicator. Parametric forecasting using linear regression tools allows us to predict how changes in technological adaptation, external economic factors, and the impact of the pandemic may affect digital marketing spend. Forecasting helps organizations plan budgets and strategies based on more accurate and informed data. The predicted results show that increasing technological adaptation, despite the reduced impact of the pandemic, continues to be an important factor in increasing marketing spend, confirming the trend of increasing digital investment in the long term. Thus, using a linear regression model to analyze and forecast digital marketing transformation allows us to create a basis for making strategic decisions in the face of uncertainty and dynamic change.

## 4. ANALYSIS AND DISCUSSION

### 4.1. Argumentation of the Main Aspects of Digital Marketing, Consumer Behavior under the Influence of a Pandemic and Technologies

$H_1$ : Digital marketing is mainly a mechanism for optimizing business processes of companies under the influence of many factors

$H_2$ : Consumer behavior is key in the strategies of modern companies and has a significant impact on the strategic goals and objectives of companies

The developed scientific approach proves that marketing is a key element of anti-crisis management of companies during a pandemic and requires a constant search for new strategic initiatives by moving online. Attention is focused on the need to improve marketing tools by switching to digital tools that will optimize marketing and increase the financial well-being of companies. However, it is important to state that despite the fact that in the scientific literature there are many hypotheses regarding the study of the characteristics of the functioning of various sectors of the economy, enterprises and organizations, the issue of determining the development in digital marketing trends under the influence of IT technologies in the context of the COVID pandemic has not been resolved, which confirms the need to formulate key aspects for improvement and in-depth research in order to form scientific aspects and methodological approaches to parametric forecasting based on trend analysis. The coronavirus pandemic has significantly accelerated the transformation processes of modern brands and their global transition to the digital space, which has led to an immediate rethinking of the digital marketing initiative and the features of its implementation. The main symbols of digital marketing during the pandemic have become savings and efficiency. It should be noted that the first quality implies the automation of new and optimization of existing business processes, and the second – more accurate targeting of advertising, its optimization and the development of digital channels for promoting goods, services and the brand itself. An important tool in this are innovative technologies aimed

at audience analytics and content production, as well as expanding the practices of existing tools. It should be noted that during the pandemic, according to Word Stream, Facebook and Instagram experienced a significant decrease in CPM of approximately 12-14% per month Tran and Keng (2021). The key areas of digital marketing development under the influence of the pandemic and technologies are presented in Table 1.

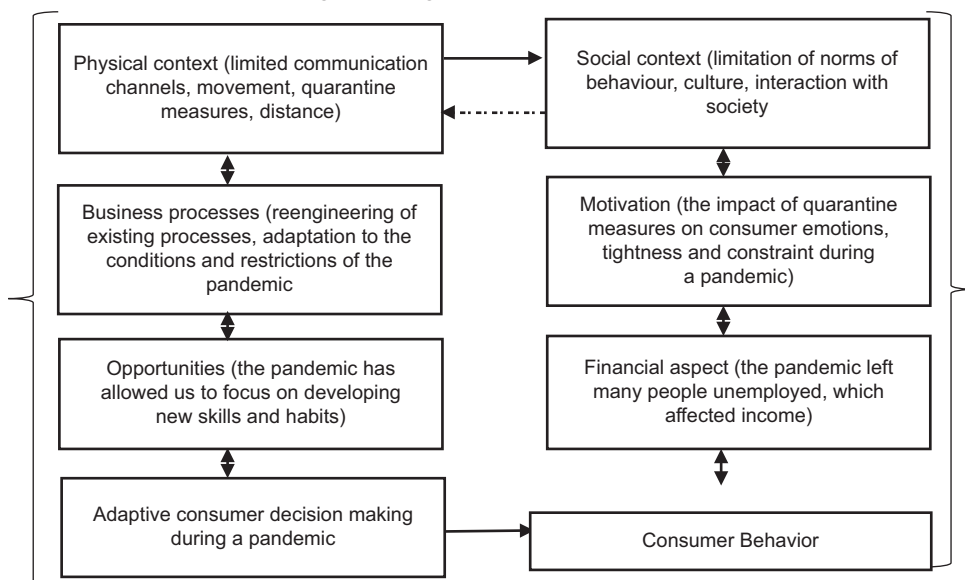
**Increased Digital Advertising:** The pandemic has pushed companies to leverage online channels as much as possible, as offline advertising (such as TV and outdoor advertising) has become less effective due to restrictions. **E-commerce:** Many businesses, especially in the retail industry, have been forced to move online, which has spurred the development of e-commerce platforms and new ways of reaching customers. **Marketing Automation:** The pandemic has required a quick response to changing market conditions. Companies have begun to implement automated solutions to streamline processes and improve the efficiency of marketing efforts. **Use of Data and Analytics:** In the face of uncertainty, it has been important to accurately track user behavior, analyze changes in demand, and quickly adjust strategies. **Content Marketing:** With the shift to remote work and social distancing, companies have begun to create more content, including videos, webinars, and live broadcasts, to stay connected with customers. **Personalized Experiences:** Personalized offers have become especially important during the pandemic, as consumers have sought products that meet their changing needs. **Social media and Influencer Marketing:** The pandemic has led to an increase in social media activity. People have started actively searching for information and entertainment through platforms such as Instagram and TikTok, which has opened up new opportunities for marketers. **Mobile Marketing:** Mobile devices have become the main channel for shopping, working, and communicating, which has required content and marketing campaigns to be optimized for mobile platforms Zwanka and Buff (2021).

### 4.2. Structure of the Main Elements Influencing the Management of Consumer Behavior and Behavioral Decisions in Times of Pandemic

The pandemic and technological advances have significantly changed the digital marketing landscape. Key trends include the increased use of digital channels, the growing role of social media, the rise of personalization and automation, and the introduction of new technologies such as artificial intelligence, AR/VR, and chatbots. These changes present new opportunities for businesses but require marketers to be flexible and respond quickly to changes in consumer behavior and market conditions Kirk et al., (2020). In the context of the pandemic, managing consumer behavior and behavioral decisions has become especially important, as external conditions and audience needs have changed dramatically. Let's consider the structure of the main elements that influence consumer behavior and decisions. The structure of the main elements influencing the management of consumer behavior and behavioral decisions in the context of a pandemic is conceptualized by the author in Figure 1.

Based on the Figure 1, it is necessary to conceptualize the main categories of factors that have radically changed consumer

**Figure 1:** Structure of the main elements influencing the management of consumer behavior and behavioral decisions in times of pandemic



Source: Compiled by the authors

preferences and approaches in the context of the transformation of electronic marketing concepts:

- Psychological factors: The pandemic has had a profound impact on the psyche of consumers, changing their behavioral attitudes. Concerns about the future and the desire for safety have led to a more critical approach to the choice of goods and services.
- Economic factors: Economic uncertainty has forced many people to reconsider their expenses and priorities. It is important for businesses to adapt to changing purchasing power by offering affordable and practical products.
- Social factors: Social connections and environment have begun to play a more significant role. Trust in local brands has strengthened, and social networks have become an important platform for shaping consumer decisions and receiving recommendations.
- Technological factors: The pandemic has accelerated digital transformation. Consumers have come to expect more convenient and faster service from businesses, including online ordering options, personalization, and interactions via digital channels.
- Behavioural changes: The pandemic has changed consumer habits, giving new meaning to the concept of “conscious consumption”. People are looking for smarter and more sustainable purchases, are interested in health products, and are choosing online services.
- Brand factors: Consumers have become more conscious about choosing brands, valuing transparency, social responsibility, and the ability of companies to adapt to new conditions. The social responsibility of businesses and their actions during the pandemic have become critical factors for customer loyalty.

These elements provide businesses with guidelines for building marketing strategies and managing consumer behavior in times of crisis and uncertainty. Adapting to new consumer demands requires brands to be flexible, ready to innovate, and genuinely

care about customers and society as a whole Deloitte (2021) and McKinsey and Company (2020).

### 4.3. Trends and Dynamics of Digital Marketing and Consumer Behavior under the Influence of Information Technology and the Pandemic

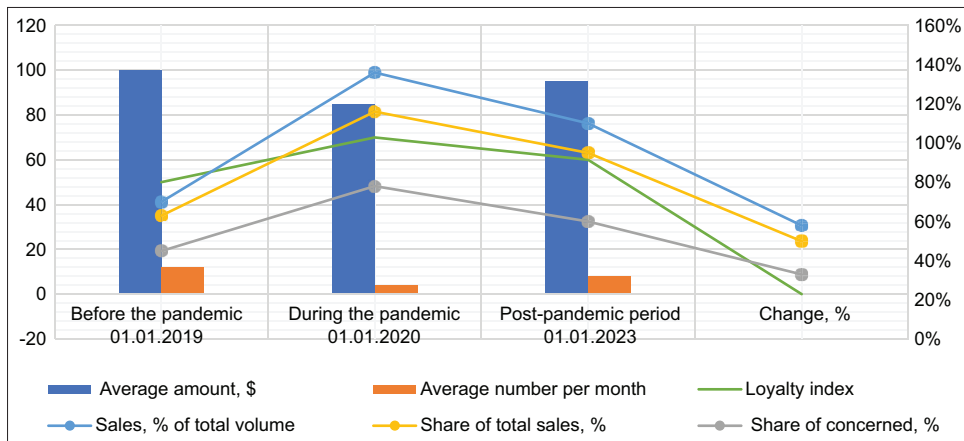
The key trends in the influence of the pandemic and technologies on consumer behavior in the context of marketing strategies are structured in Figure 2.

The cyclical nature of the economy was caused by the COVID-19 pandemic, provoked a modification of consumer demand and influenced the structure of the global market. Marketers are faced with the difficult task of rethinking the company’s strategy and the way it works with customers McKinsey and Company (2020) and Statista (2021).

To determine modern trends in the development of digital marketing in the world, it is worth considering a comparison of the indicators of the dynamics of the development of the main areas of digital marketing under the influence of information technology and the pandemic in the world in Figure 3.

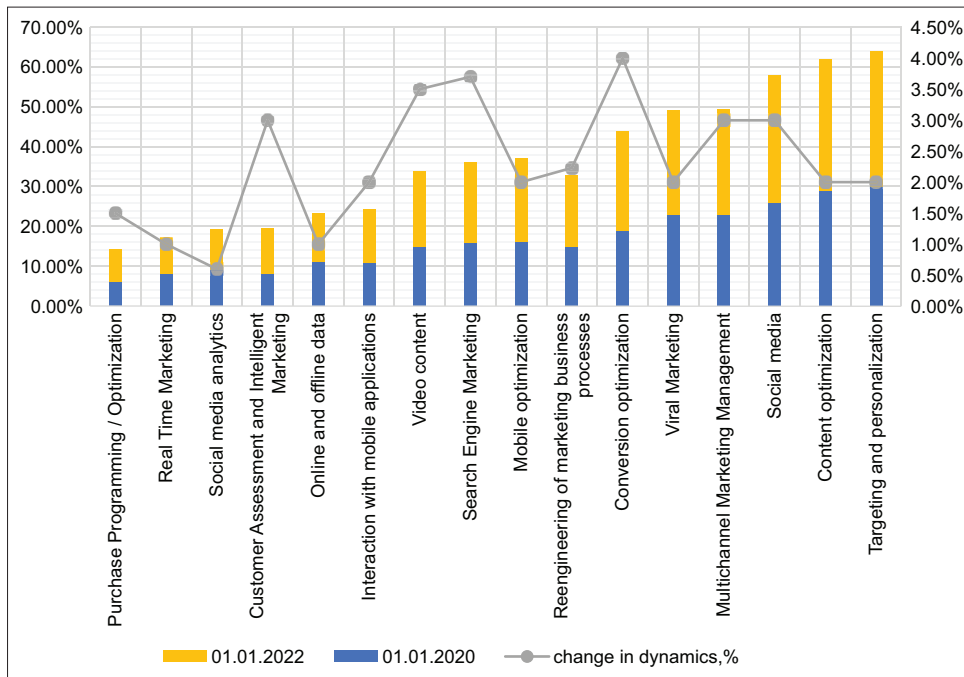
The specifics of digital marketing development under the influence of information technologies in the context of a pandemic are indeed related to trends aimed at expanding and optimizing marketing strategies Sheth (2020). The use of information and digital technologies in the digital strategy of modern companies in a pandemic significantly simplifies the process of sales and purchases, which have become most popular during the pandemic. Based on certain trends in the generation of digital marketing and conducting a detailed analysis of trends, parametric medium-term forecasting tools were used for the next 5 years. Key results of the medium-term parametric forecasting of the transformation of digital marketing development trends under the influence of the pandemic, technologies and business adaptation are presented in Figure 4.

**Figure 2:** The key trends in the influence of the pandemic and technologies on consumer behavior in the context of marketing strategies



Source: Compiled by the authors

**Figure 3:** Dynamics of the development of the main areas of digital marketing under the influence of information technology and the pandemic in the world



Source: Compiled by the authors

The adequacy and reliability of the obtained forecast of trends in the modification of digital marketing, determined by key indicators of sales volumes and the share of sales using digital technologies, is confirmed by the obtained coefficient of determination  $R^2$ , equal to which is confirmed by the fact that e-commerce is at the level of 97%. The basic results of parametric forecasting of digital marketing development trends under the influence of information technology in a pandemic based on learning analysis confirm previously identified growth trends, and by 2027 the share of sales in digital channels will increase will be 25%, and total sales will be within \$50 billion. USA Amankwah-Amoah and Khan (2021). The resulting dynamics confirm the validity of theoretical aspects concerning the strategic role of information technology in the marketing strategy of modern companies and confirms the fact that the growth of uncertainty and risks leads to global

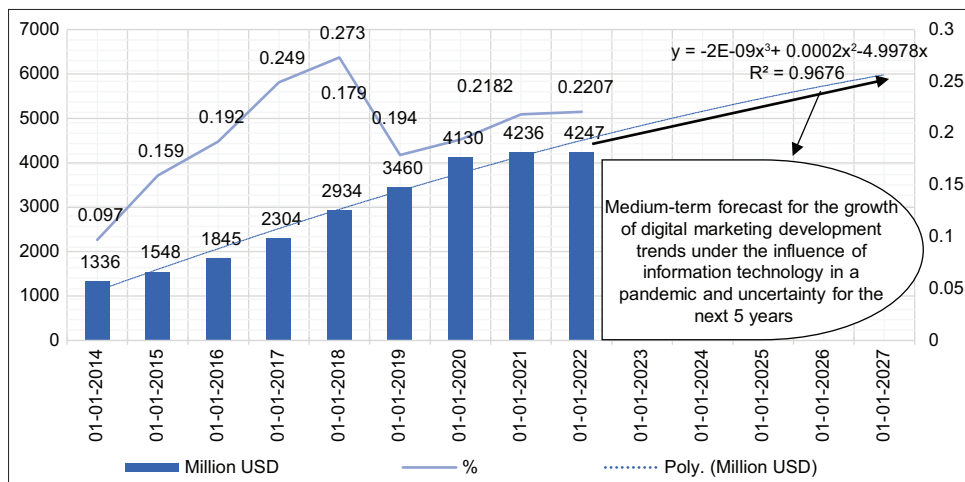
transformations and the formation of companies reaching a new level of management taking into account all influencing factors.

#### 4.4. Key Aspects of the Pandemic’s Impact: The Transformation of Digital Marketing and Consumer Behavior

Uncertainty characterized by the spread of the pandemic led to transformations in the global business segment: acquisitions, bankruptcy and maximum optimization of activities with subsequent reorganization and digitalization of business processes through automation. Self-isolation has increased the share of the digital environment, which is characterized by the implementation of IT in the life of every person, so 74% of the world’s population tried a new online service for the first time during the pandemic. Business transformation caused by



**Figure 4:** Key results of the medium-term parametric forecasting of the transformation of digital marketing development trends under the influence of the pandemic, technologies and business adaptation



Source: Compiled by the authors

**Table 1: Key directions of digital marketing formation under the influence of the pandemic and technologies**

Marketing direction	Impact of the pandemic	The impact of technology	Examples of tools and strategies
The rise of digital advertising	A sharp decline in offline advertising due to lockdowns and restrictions. Transition to online.	Development of targeting and personalization technologies.	Increased costs of digital advertising. Google Ads, Facebook Ads, contextual advertising, interest targeting, retargeting.
E-commerce	Increased demand for online shopping due to store closures and travel restrictions.	E-commerce innovations, improved platforms and systems.	Adaptation of businesses to the online format. Shopify, WooCommerce, Amazon platforms, creation of online stores.
Marketing automation	Increased workload on marketing teams due to remote work.	Need for automation. Development of AI, machine learning and marketing platforms for process automation.	CRM systems, email marketing (Mailchimp, HubSpot), chatbots, personalized newsletters.
Use of data and analytics	Increased need for accurate data for decision-making in unstable conditions.	Development of analytical platforms, Big Data and artificial intelligence for user behavior analysis.	Google Analytics, Power BI, Tableau, user behavior analysis systems (e.g. Hotjar).
Content marketing	Transition to online communications with consumers. Growing popularity of video content and online events.	Development of content formats: video, virtual events, live broadcasts.	Interactivity and engagement. Video platforms (YouTube, TikTok), webinars, online courses, podcasts, infographics.
Personalization of experience	Personalized customers looking for convenience in online shopping.	Using artificial intelligence and machine learning to create personalized offers.	AI platforms for personalization (e.g. Dynamic Yield), personalized product recommendations.
Social Media and Influencer Marketing	Increased activity on social media, user engagement in isolation.	Development of social platforms	Instagram, TikTok, YouTube, cooperation with micro- and macro-influencers.
Mobile Marketing	Increased use of mobile devices for shopping, work and communication.	Development of mobile applications and mobile advertising, optimization for mobile devices.	Mobile applications, push notifications, mobile advertising campaigns.

Source: Compiled by the authors

digitalization is due to uncertainty and restrictions caused by the pandemic are accelerating this process many times over. The development of digital marketing in the world is characterized by the increased influence of information and digital technologies, which radically change the way people interact with each other using online services. Innovative digital marketing tools under the influence of information technology in a pandemic in realities today are the following: (1) Remote quality service is based on artificial intelligence and bots; (2) Native advertising using influencers; (3) Video marketing is a key direction during the pandemic; (4) Search assistants – an innovative tool, simple and

effective to use; (5) Adaptive and mobile searches; (6) Social platforms and networks that are in demand during a pandemic and social distance; (7) Protection of personal data and ensuring their safety and information security. It is important to note that a huge breakthrough in this direction of development has been observed in connection with the spread of the pandemic, when remote channels are key tools for interaction, He and Harris (2020).

The pandemic has accelerated the implementation of digital technologies in marketing and changed consumer behavior, which has led to a number of key areas and changes in approaches:



- Adaptation to changing consumer behavior: With the growth of online shopping and changing consumer priorities, companies are introducing tools to monitor and predict behavior. The increasing importance of data analysis allows you to customize marketing campaigns and select personalized offers based on user needs in real time.
- Omnichannel strategies: The development of omnichannel strategies to connect online and offline experiences has become one of the main tasks of digital marketing. Brands strive to create seamless transitions between channels in order to retain consumer attention and provide a convenient and holistic experience of interaction with the product.
- Accelerated digitalization and the use of artificial intelligence (AI): AI technologies are actively used to create chatbots, recommendation systems, and marketing automation. AI helps optimize communications with consumers, as well as analyze data, predict trends, and develop personalized strategies (Donthu and Gustafsson, 2020).
- The growing importance of content marketing and video formats: With more time spent online, the demand for video and interactive content has grown. Video content and streaming have become popular formats for brands looking to increase audience engagement and retention.
- The use of social media and micro-influencers: The role of social media in brand promotion has increased significantly during the pandemic. Micro-influencers and UGC (user-generated content) have become important tools for building trust and increasing interaction.
- Increased investment in analytics and automation: Companies are actively investing in digital analytics and automation of marketing processes, including automated mailings, targeted advertising, and loyalty management. Automation allows for more efficient use of budgets and increases the speed of response to changes Baker and Bloom (2020).

These areas help businesses adapt to new realities, effectively interact with their audience, and remain competitive in a changing market. The identified trends suggested that the global market for the use of innovative digital marketing tools for sales during the COVID-19 pandemic grew by 17.9% and amounted to \$3.46 billion McKinsey and Company (2020) and Statista (2021). This confirms the theoretical premises and allows us to assert that digital marketing is intensively developing and being introduced into all segments of the world under the significant influence of information technology. Intensive trends in the features in the formation of digital marketing trends under the influence of information technology in a pandemic are characterized by the fact that they contribute to an increase in the share of e-commerce and sales through online services.

## 5. CONCLUSION

The COVID-19 pandemic has brought unprecedented changes to the global economy, and the marketing sector is no exception. With lockdowns and restrictions on social interaction, businesses have been forced to adapt, and digital marketing has become a vital tool to keep businesses going. This article looks at how technology and new digital tools have helped businesses continue to operate, and

how changes in consumer behaviour have led to new approaches to marketing strategies. One of the key aspects discussed in the article is the impact of new technologies such as artificial intelligence (AI), process automation and big data analytics on companies' marketing strategies. The pandemic accelerated the adoption of these technologies, allowing companies to quickly adapt to changing conditions. Artificial intelligence and machine learning have become indispensable tools for predicting consumer behavior, which ensures a personalized approach and increases the effectiveness of advertising campaigns. The emergence and development of chatbots and virtual assistants has become an important step in automating customer interactions, increasing the speed of service and accessibility of brands. However, it is worth noting that despite many positive aspects, the use of high technologies is also associated with risks, such as data privacy violations or dependence on technology. The article emphasizes the importance of adhering to data security standards and transparency in their processing, especially in the context of increasing digitalization. The COVID-19 pandemic has been a major catalyst for change in digital marketing. Technology has played a key role in ensuring business continuity as well as changing consumer preferences. Omnichannel strategies, process automation, and the increasing importance of social and ethical aspects are all key trends that will shape the future of digital marketing. However, it is important to consider that amidst technological changes, challenges remain, such as data protection, the need to maintain a balance between automation and a personal approach to the customer. In the future, successful companies will be those who can find the optimal combination of technology, marketing strategies, and social responsibility to meet consumer demands and remain competitive in the market.

The COVID-19 pandemic has led to dramatic changes in digital marketing, accelerating the implementation of new technologies and the need for businesses to adapt to the changed conditions. This article examines the key changes that have occurred in the field of marketing and their impact on companies' marketing strategies. One of the most striking aspects is the accelerated digitalization of business processes. The use of artificial intelligence, automation, and data analytics has become an integral part of the strategies of successful companies. Technologies such as chatbots, recommendation systems, and personalized content allow companies not only to increase efficiency, but also to significantly improve the user experience. It is especially important to note that thanks to these technologies, companies were able to quickly respond to changes in consumer preferences and provide an individual approach to each client. Another important trend was the development of omnichannel, which ensured the integration of various channels of interaction with customers, allowing brands to offer a seamless experience. Consumers increasingly expect to be able to start interacting with a brand in one channel and finish in another. This requirement has become especially relevant in the context of restrictions caused by the pandemic. The pandemic has also dictated a change in consumer preferences, with an emphasis on convenience, safety, and transparency. Companies that were able to quickly adapt to these changes have established closer and more trusting relationships with customers. An important aspect has been the strengthening of brands' social responsibility and

raising their ethical standards. Thus, the pandemic has become a powerful catalyst for change in digital marketing, accelerating the adoption of new technologies and transforming consumer expectations. In the future, successful companies will be those that can integrate innovations and maintain high standards of customer interaction.

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