

# Analysis of digital marketing trends in 2022-2023 of the global fuel and energy complex (experience for Ukraine)

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## Abstract

*The purpose of the study is to identify trends in the development of digital marketing among companies of the global fuel and energy complex in the current market economy. The article uses methods of analysis and synthesis in determining the characteristics of the implementation of digital marketing. The economic-statistical method was used to analyze the volume of global energy companies' expenditures on digital marketing technologies and to determine the level of their market capitalization of shares. The monographic method was used for a comprehensive and in-depth study of digital advertising activities, and causal links between the implementation of such an advertising campaign and the overall performance of companies. The abstract-logical method was used to generalize and form conclusions. The essence and importance of digital marketing in the promotion of energy brands, taking into account the results of scientific research and practice of global energy companies. Determined the key promising trends in the development of digital marketing in the fuel and energy complex. Investigated the dynamics of the volume of costs for marketing digital technologies and investigated the dynamics of the value of market capitalization of energy companies in the world. An econometric regression model was developed to quantify the impact of the costs of marketing digital technologies on the market value of shares of energy companies around the world. It was found that an increase of 1 bln.\$ in the cost of marketing digital technologies increases the value of the market capitalization of energy companies' shares by an average of 14270.84 bln.\$.*

**Key words:** digitalization, marketing, fuel, energy market, internet of things.

## Introduction

About 25 years ago, brands were spending huge budgets on offline advertising - radio, TV, big boards, etc. But in 1994, there was a breakthrough in the advertising market - the first banner appeared in front of Internet users with the phrase: "Have you ever clicked with your mouse right here? Now you will." The first digital advertising campaign was launched by the agency EURO RSCG and was the beginning of the digital era of marketing. A few years later there was a race among the developers of the first search engines. Global companies, as part of their branding policies, began to create and promote websites on the Internet. The next breakthrough in digital marketing was the emergence of social media, which began to

be used as a new tool for effective brand promotion. Today, the competition has grown a hundredfold and it has become very difficult to win your market niche. Marketers are constantly working on new promotional tools. There are millions of companies online offering their products around the clock. Therefore, brand marketers need to keep track of all the digital marketing trends and understand which tools work, and which are no longer relevant in the changing external environment.

## Literature Review

In today's digital age, the importance of digital marketing is increasing year after year. In particular, digital marketing is seen by researchers as a way to provide new properties to

inform, engage, and sell services and products to customers (Ghorbani et al., 2021).

The evolution of digital shopping and information technology give rise to new challenges. Internet marketing and social media have a significant impact on consumer behavior, and companies are forced to find new ways to influence the consumer at every stage of their decision-making process. Marketing today focuses on understanding people's motivations and using these insights to create content and advertising campaigns that attract and engage relevant users in the global online marketplace (Bilkova, 2021).

Digital marketing refers to the marketing of a product or service in digital form. For example, marketing with smartphones, computers, laptops, tablets, or any other digital devices. Digital marketing is a form of direct marketing that connects consumers with sellers electronically through interactive technologies such as email, websites, online forums and newsgroups, interactive television, mobile communications, etc. (Prajapati, 2020).

Digital marketing is also an integral part of the digital business transformation process. It includes new marketing methods based on information and communication technologies. Therefore, its application in practice is a prerequisite for successful business development in today's market conditions (Veleva and Tsvetanova, 2020).

Researchers also identify promising directions for the development of digital marketing, such as: artificial intelligence, virtual reality, digital content management, mobile marketing and advertising, B2B marketing, electronic WOM, and ethical aspects. That said, the social media component of digital marketing is worthy of attention (Dwivedi et al., 2021).

Among the most important tools of digital marketing stand out - social media and branded applications. These two mobile services marketing mechanisms have the goal of effectively promoting products and services to consumers in the current business environment (Vieira et al., 2021).

At the same time, we agree with the opinion of D. R. Putri that digital marketing is a marketing strategy that a company needs for the current era. A company needs a marketer with up-to-date knowledge of digital marketing tools and their application, such as website, email, mobile, and interactive TV, to succeed. One factor that has accelerated the transition of strategic marketing to a digital marketing strategy is the COVID-19 pandemic (Putri, 2021).

Digital marketing conceptualizes a one-size-fits-all digital campaign that delivers multiple customer benefits in a single click. It is not just marketing products and services using digital technology, but achieving efficiency and effectiveness through digital advertising campaigns, operations, and management (Pradhan and Nigam, 2018).

The shift away from online for shopping has become so real that marketers must create online strategies to compete and survive. Researchers Umami and Darma (2021) note the choice of digital marketing content, which acts as an effective digital marketing tool through positive audience feedback.

In the process of digital marketing, the integration of computer and communication technologies, innovative implementation of digital tools, interactive digital marketing research, and supporting market makers with data-driven marketing solutions is a new direction of future development. In

the industrial market, some studies have put forward a method to evaluate the marketing effectiveness of industrial enterprises through correlation analysis, optimize communication effectiveness through digital marketing, and increase sales opportunities in the industrial market through statistical data analysis (Li, 2022).

Consequently, the existence of scientific publications on the importance of using digital marketing demonstrates the extreme relevance of this marketing tool in today's business environment. At the same time, the importance of our for the scientific community and the practice of companies is also based on the relevance of the use of digital technologies in the activities of companies of the global fuel and energy complex of the world and Ukraine.

## Methods

In the process of research, the methods of analysis and synthesis were used to determine the specifics of the application of digital marketing. The economic-statistical method was used to analyze the volume of expenditures of global energy companies on digital marketing technologies and to determine the level of their market capitalization of shares. The monographic method was used for a comprehensive and in-depth study of digital marketing, cause-effect relationships between the implementation of such activities, and the overall performance of companies. The abstract-logical method was used to generalize and form conclusions.

For the study selected data on the cost of marketing digital technology and the level of the market capitalization of the shares of 15 companies in the world, based on the world ranking of these companies on the indicator of the value of the company according to Statista.

The research was carried out according to the following stages:

1. Collection of materials from scientific, periodic, and statistical sources of information in accordance with the specific topic of the study.
2. Formulation of the essence and tools of digital marketing by scientific interpretation of the position of scientists.
3. Finding out the significance of the embodiment of digital marketing in modern market conditions.
4. Systematization of the characteristics of the market value of global energy companies and the cost of marketing digital technologies.
5. Development of a regression model of the dependence of the market value of energy companies on the costs of marketing digital technologies and description of its indicators and results of the dependence.
6. Development of recommendations to modern business entities on the application of digital marketing.
7. Outlining the trends in the development of digital marketing in the fuel and energy complex in the near future.

## Results

The capabilities of marketing information systems are constantly improving under the pressure of market, technological and social factors. At the same time, in terms of the application of digital marketing, the following main directions of development of marketing information systems can be distinguished: new methods of data collection and

# GENERAL MANAGEMENT

processing based on information and communication technologies; extensive use of technologies, resources, and services of the Internet; development and implementation of specialized systems of support and automation of marketing business processes within the framework of marketing information systems (CRM, PLM, Internet portals, marketing geoinformation systems, etc.); new means and methods of data analysis based on modern approaches to knowledge management; integration of marketing information systems with corporate and external information systems, creation of marketing knowledge systems.

New approaches and methods of data collection and processing based on information and communication technologies have significantly increased the volume and efficiency of information used. It is worth noting the use of new technologies in contact centers when data are received by phone, fax, e-mail, Web, WAP, IVR, and then there is their processing and integration. Electronic vending terminals and other devices based on barcode scanning technology, including RFID technology In marketing research CATI (devices for computerized telephone surveys), CAPI (devices for computerized personal interviews), Peplemeters (devices

for assessing the popularity of various television programs), Internet technologies and mobile technologies (WAP, etc.) .) for surveys, focus groups, panels have been widely used. Thanks to the use of modern information and communication technologies and systems, the quality and speed of obtaining data have increased.

In this case, with regard to the fuel and energy complex, the main areas of work and services in the field of digital marketing are as follows (Table 1).

At present, the marketing of energy companies in social media is actively developing, such players as Google+, Pinterest, LinkedIn, city guides, and mobile applications-catalogs are developing. Sales through social media and mobile programs, geoinformation services, and gamification are growing in importance. The most important trend is the development of advertising analytics tools.

Customer support is also important - providing services to customers before, during, and when they buy a product. Good user support will help to smooth out the shortcomings and reduce the level of negativity.

No	List of works	Description
1	Standard services	Website creation, media, and contextual advertising, design, and production;
2	Development of a comprehensive strategy for the company's development in the digital environment	expertise and promotion;
3	Working with social media	promotion in social networks, blogs, forums, and specialized sites;
4	Organization of events and contests	Strategy, creativity, execution, and performance analysis in combinations of online/offline promotion;
5	Additional services	QR codes, geolocation services, RFD, Wow calls, virtual reality, etc.

Table 1. The main areas of work and services in the field of digital marketing of fuel and energy companies

Source: compiled by the author based on (Bilkova, 2021; Dwivedi et al., 2021; Izakova et al., 2021; Iovino and Migliaccio, 2020).

Today, great importance is attached to such a concept as user experience - any aspect of human interaction with a product, including the interface, graphics, design, content, and physical interaction. Maximum user engagement and targeted action should be achieved. Especially, as in the case of energy products, if the product is not unique in the market, the user experience will be one of the main indicators influencing the choice. Don't forget about strategic partnerships - mutually beneficial relationships with other companies that work in the same industry but don't compete with the product. It is possible to increase brand awareness, expand the audience, and increase user loyalty through cooperation with other companies. The exchange of affiliate links, joint promotions, and marketing campaigns can reduce advertising costs and increase audience reach. It is useful to use the affiliate marketing channel - the model of promotion with the help of other companies: resellers, distributors, and marketing companies.

An already traditional digital marketing tool is sending out product information via email to a specific person or group of recipients. If it is set up correctly and the right recipients are found, this tool can become quite an effective method of implementation.

Advertising networks - another tool of online promotion, close to affiliate marketing. Its essence is to provide traffic/users to the customer and get paid for a specific user action. This is one of the most accurate and simple tools.

Influencer marketing is also a valuable promotional tool in the energy field. It is based on the creation or use of human authority and can change the attitude of customers to the product and its perception. The principles of a strategic partnership with non-competitive firms should also be considered: it can be joint promotions, presentations, and other events. By choosing a worthy organization, you can attract more potential customers.

Contextual, banner, targeting, and native advertising are also effective. Contextual advertising is another tool that is closely related to SEO optimization. In the latter case, there is an automatic sampling of the user's search queries, based on which a list of ads is generated. Targeted ads are usually placed on social networks. This is essentially a link that takes the user to the advertiser's website. Very effective viral advertising: users themselves distribute videos or links that interest them, sending them to their friends or just posting them on your page on a social network. In the case of native advertising, the product is mentioned organically in the text of

the article. Native ads have a stronger impact on the reader than annoying ad windows. And finally - advertising in mobile applications. It is embedded in games and applications for smartphones, tablets, and other digital media.

New technologies, resources, and services of the Internet are actively used in marketing and influence the development of marketing information systems. Corporate portals and other Internet resources of a company that are part of marketing information systems are tools for external and internal marketing communications, branding, providing opportunities for e-business, customer and business partner relationship management, marketing business process management, development of professional social networks and information communities. The company's value proposition can be significantly expanded to include additional Internet services. The Internet portal provides ample opportunities for partnership marketing: participation of customers and business partners in the development of the company's value proposition, and development of loyalty programs (for example, at gas stations). Interactive marketing and database marketing have been

successfully developed using the Internet to move from mass marketing to target marketing and to individual consumers. With the development of technologies and services of the Internet, marketing information systems are increasingly being used not only for informational support of marketing decision-making but also for automation of marketing business processes. Examples include web surveys; automated online direct marketing campaigns via e-mail, web feeds, and other tools; automated web content syndication; automated management of online media and contextual advertising campaigns, electronic marketplace distribution management (automated interaction with online marketplaces and other partners), dynamic pricing management based on customer IP data, etc. The Internet is actively used in primary and secondary market research. Mobile Internet technologies, resources, and services are developing rapidly.

To quantify the impact of digital marketing on the value of the shares of energy companies around the world, we use the market capitalization data of the international statistical resource Statista (Fig.1).

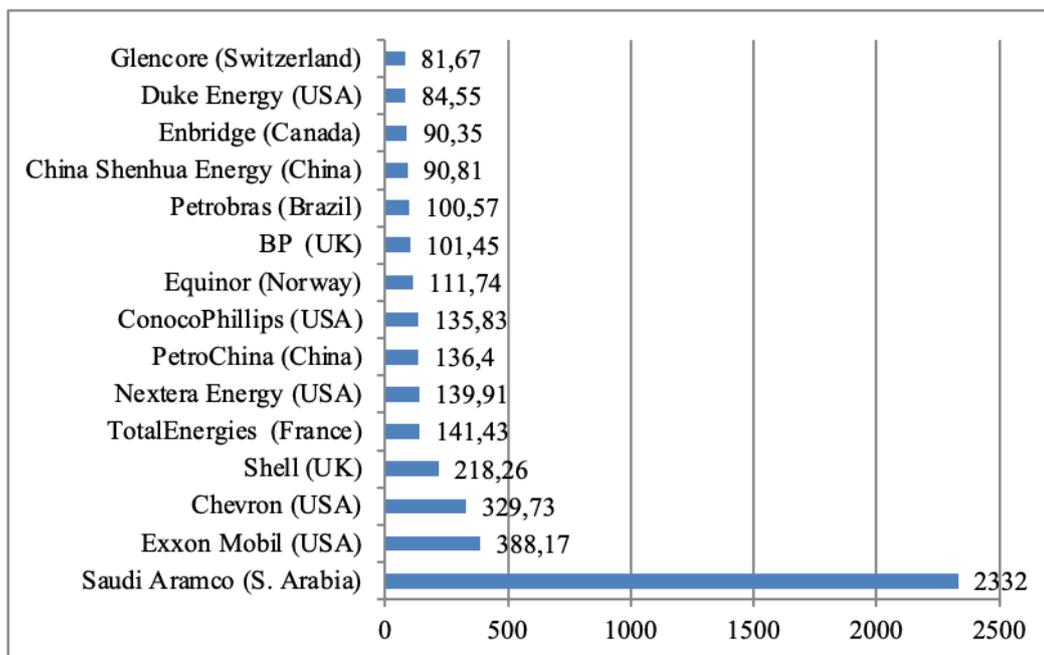


Fig. 1. The market value of the world's fuel and energy companies as of 2022 according to Statista, bln. \$  
Source: compiled by the author based on (Statista)

So, as can be seen from the above data, the highest value in 2022 is owned by Saudi Aramco (2332 bln. \$). And it is advisable to note that among the 15 companies studied there are the most American business entities.

Also, to determine the specified influence the actual statistical data on the cost of digital technologies used by the selected companies of the world were collected (Fig. 2).

## GENERAL MANAGEMENT

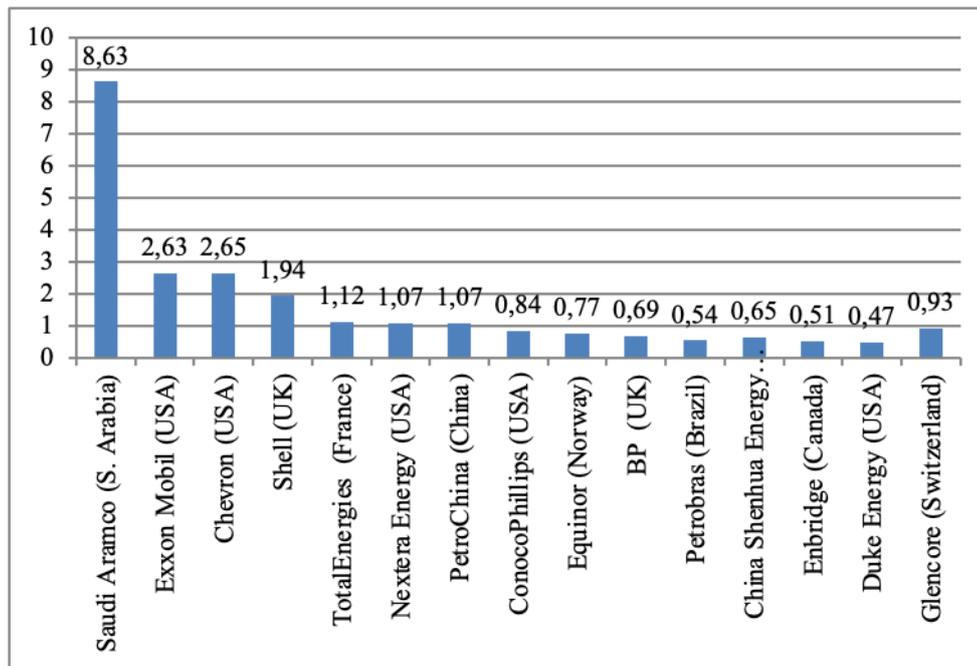


Fig. 2. Spending on marketing digital technology by global energy companies in 2021 according to Statista, bln. \$  
Source: compiled by the author based on (Statista)

Based on the above data, we can observe the importance of implementing digital marketing activities for the world's leading energy companies, because a lot of money is spent to promote brands by these means.

To calculate the quantitative impact of the application of digital marketing technologies (X) on the market value of shares of energy companies (Y) based on the data we build a regression model of dependence (Fig. 3).

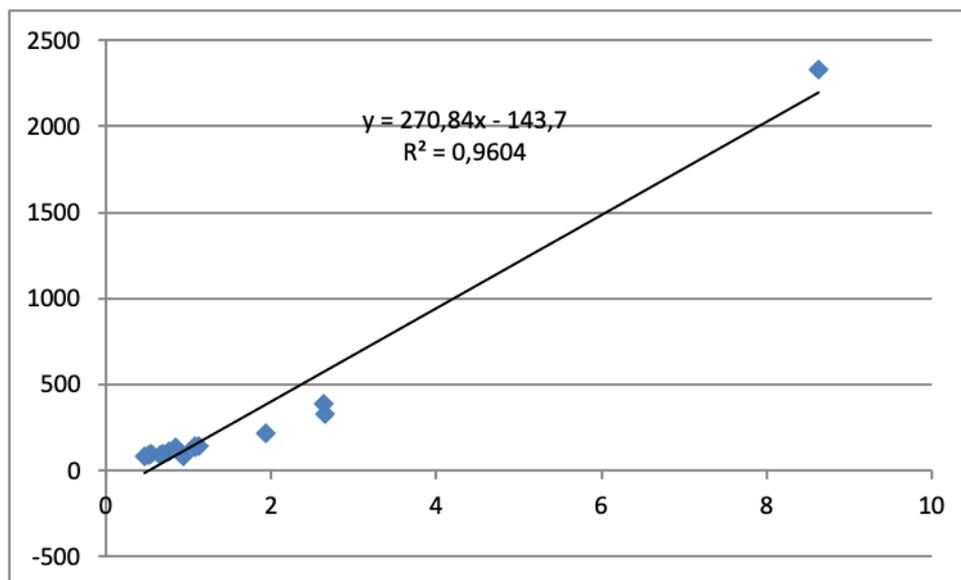


Fig. 3. Regression relationship between marketing digital technology costs and the market value of the world's energy companies  
Source: compiled by the author using MS Excel tools

This method of research is used to visually depict the form of the relationship between the studied economic indicators. The set of points of the resultant and factor attributes form a correlation field. From the correlation field, it is possible to hypothesize (for the general population) that the relationship between all possible values of X and Y is linear. The estimated

equation of regression (built on sample data) will look like

$$y = bx + a + \epsilon, \quad (1)$$

where  $\epsilon_i$  – error value (estimates)  $\epsilon_i$ , a, and b, observed according to the estimation of parameters  $\alpha$  and  $\beta$  of the

# GENERAL MANAGEMENT

regression model, which should be found.

The regression equation (empirical regression equation) in our case looks like this:

$$y = 14270,84x - 143,7 \quad (2)$$

The determined coefficient of determination of the regression model is  $R^2 = 0.9604$ , i.e., in 96.04% of cases configurations X (prices of marketing digital technologies) lead to changes in Y (market value of capitalization of companies' shares). In other words - the fitting accuracy of the regression equation is high.

The coefficients of the linear regression equation can be given economic sense. The regression coefficient  $b =$

14270,84 indicates the average change of the result indicator (in bln.\$) with the increase or decrease of the factor x value by 1 bln.\$. In our model with the increase by 1 bln.\$ of the costs of marketing digital technologies the value of the market capitalization of the companies' shares increases on average by 14 270,84 bln.\$.

Thus, we can observe not only a qualitative but also a direct quantitative relationship between the application of digital marketing and the market capitalization of global energy companies.

Let us also outline the trends of digital marketing in the fuel and energy complex, which will be relevant in the near future (Table 2).

No	Trend name	Details
1.	Content visualization is becoming increasingly important	The popularity of online videos is growing rapidly. During TV rush hour, YouTube captures a huge influx of 18- to 25-year-olds. Every day a video posted on Facebook gets more than 8 billion views. Advertisers who book TV ads during prime-time shows can get 56% more audience. High-quality video content will grow even more.
2.	Using native advertising	Native advertising has replaced obtrusive traditional advertising. With native advertising, information is presented naturally and unobtrusively. Data from Polar and BI intelligence analysts showed that native ads on mobile devices have four times more clicks than any other ads.
3.	The importance of personalized content is very important in digital marketing	All content sent to potential and existing customers should be different from each other. The solution can be to create a dynamic site that differentiates a new user from an old one and show them different information. For example, a new visitor would see a standard page with a list of products or services, while an existing user would see a presentation of a new product. HubSpot called this approach Smart Content - content that is personalized to the customer's needs. It's important to understand that one approach doesn't work for everyone. The company also conducted a survey, which gave them data that a personalized call to action was 41% more effective than a standard call to action. In turn, Smart Insights conducted research and found that over 60% of users trust companies that create personalized content more.
4.	Using live broadcasts	It hasn't been long since such a method of communication in social networks as live streaming appeared. But you can already see thousands of users making the most of them. The advantage of live streaming for business is instant communication online. The user can produce a video presentation of a product or share their experience, instantly answering questions from viewers. Already this year, the flow of online broadcasts accounted for more than 70% of all traffic on the network.
5.	Chatbots	Gartner reported that in 2022, more than 80% of user interactions will be with chatbots. Their main advantages are attracting user attention and speeding up feedback, ensuring an increase in site conversion.
6.	Adaptability on mobile devices	This trend is as relevant a few years ago as it is now. Most users access the Internet via smartphones. All content created for the audience must necessarily be adapted to all types of devices. Convenient and fast access to the required information will help to win the trust of customers and establish long-term relationships.
7.	Useful content	Also, one of the trends that have been around for a long time. Creating useful and interesting content will attract the audience's attention to you and build brand loyalty. The popularity of text content is declining in favor of video, which activates the corresponding types of digital promotion.

Table 2. Trends in the development of digital marketing in the fuel and energy complex in the near future

Source: compiled by the author based on (Pradhan et al., 2018; Putri, 2021; Prajapati, 2020; Umami and Darma, 2021).

Consequently, given the results of the study, it is advisable to apply the tools of digital marketing in Ukrainian energy companies based on the need to adapt to the global era of digitalization.

## Discussion

Koronen et al. (2019) confirm the results of the study.

According to them, digitalization, high-speed wireless networks, new data-intensive technologies, and the growing demand for cloud computing have led to the development of data centers from a few enterprise computing centers into a large-scale power-consuming industry. The potential growth of large-scale data centers and the associated demand for power should be viewed in light of rapidly changing energy systems with an increasing share of variable renewable energy

Smart grid technologies will make it possible to be more

efficient in terms of using energy sources and optimizing them when necessary given environmental or power system constraints. In doing so, a variety of energy strategies can be implemented to create benefits for all system users and provide them with clean, cheap energy at all times (Strielkowski et al., 2019).

At the same time, through their web marketing, energy companies carry out a significant differentiation through additional services and marketing policies implemented through the Internet. Thus, the rate of switching energy sources increases mainly due to savings goals (Iovin and Guido, 2020).

It is also advisable to take into account the results of studies on the digital platform of energy companies by Giraldo et al. (2021). The main benefits derived from the implementation of digital transformation are related to the changing nature of the market, the growing and diverse expectations of customers, and the uncertain environment that characterizes decision-making in commercial energy enterprises. All of these factors have been covered by a digital platform aimed at strengthening the customer relationship for an energy company whose main asset is a hydroelectric power plant.

Market dynamics based on falling electricity prices are forcing existing energy companies to develop new business models. At the same time, the use of a large part of renewable energy allows new players to explore ways to better integrate into the existing market. Business models based on digitalization can work for both energy sources and integration, such as in joint ventures between existing companies and new entrants (Loock, 2020).

Kloppenburg and Boekelo's (2019) research also supports the prospects of applying digital marketing through the use of digital platforms. By providing new kinds of exchange, digital platforms reconfigure how people can access, sell, and buy green energy. Given that energy is such an abstract exchange, how platforms make such actions visible and meaningful to users is crucial.

Smart grids and smart metering are prime examples of the effective application of digital marketing technologies to the energy sector. Clearly, digital technologies offer many opportunities to improve the performance of the new energy system, such as allowing active consumer participation in the system, while at the same time it will be possible to use energy more efficiently; or by promoting and optimizing the use of energy based on renewable sources (Duch-Brown and Rossetti, 2020).

Current methods and data infrastructures for industrial energy savings have been comprehensively reviewed to demonstrate the potential for a more accurate and efficient digital twin infrastructure for the industry. That said, it is only a matter of time before the energy industry finally transitions to a digital twin, such as 5G developments, Internet of Things (IoT) standardization, artificial intelligence (AI), and the use of blockchain 3.0 (Teng et al., 2021).

Researchers Li, et al. (2020) also propose the use of FeneChain, a blockchain-based energy trading scheme to oversee and manage the energy trading process to create a secure energy trading system and improve energy quality for Industry 4.0. It proposes anonymous authentication to protect user privacy and a mechanism based on the time commitment to guarantee fairness that can be verified during energy

trading.

At the same time, digital applications affect all stakeholders in the energy value chain, including the environment, society, and the national economy. Most digital applications not only bring benefits but also risk downsides. Thus, a good understanding of both benefits and risks from the perspective of all stakeholders early in development is important to find solutions to mitigate risks and fully exploit benefits (Weigel and Fishedick, 2019).

So, the key results of our study regarding the prospects of applying digital marketing technologies in the fuel and energy complex are supported by the positions of scientists in this field of knowledge.

## Conclusions

In the last few years, we can observe that digital marketing is a new trend in global marketing that is actively and rapidly pushing traditional advertising to the sidelines. The more channels an energy company uses to attract customers, the stronger the effect will be. Integration of marketing information systems with corporate information systems, external systems, and information sources involves the transition to marketing knowledge systems. These systems allow you to monitor the external environment and automate business processes of marketing in the expanded value chains, including business partners (suppliers, sales channels) and customers. Such systems are a powerful tool to support the decision-making process of the managerial staff of an energy company. Modern trends in the development of digital marketing are aimed at creating new options for interaction with consumers, and the user experience. At the same time, advertising in social networks is gradually losing popularity. Mobile messengers are replacing social networks as a simpler and more convenient way to communicate. Competition in search engines is increasing. More and more Internet users are searching for product information on commercial sites. The key advantages of using digital marketing in the fuel and energy complex are the coverage of online and offline consumers using tablets and cell phones, playing games, downloading applications; the ability to collect clear and detailed data, because almost all user actions in the digital environment are recorded by analytical systems, which allows drawing accurate conclusions on the effectiveness of different promotion channels, as well as compiling an accurate portrait of the buyer; flexible approach - digital marketing allows advertising activities to a wide audience that an energy company would be unlikely to gather with offline promotion. Prospects for further research are to find and improve the effectiveness of using existing methods of using digital marketing to maintain a strong competitive position and gain new competitive advantages.

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