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DIGITAL PLATFORMS AS TOOLS FOR MODERN DIGITAL MARKETING

ЦИФРОВІ ПЛАТФОРМИ ЯК ІНСТРУМЕНТ СУЧАСНОГО ДІДЖИТАЛ-МАРКЕТИНГУ

Approaches have been analysed for essential identification of digital platforms as a digital marketing tool, ensuring interaction in implementing digital technologies within the framework of existing business models. The research has identified factors for intellectual capital growth at digital companies that use digital platforms for business processes and use the potential of digital transformations to change the structure of assets with the dominance of intangible assets over tangible ones. Taking into account radical changes in technological processes and introduction of new digital management tools, firstly, the place of the digital platform in the integrated marketing communications of companies has been determined. Secondly, algorithms for its implementation in these systems in conditions of increasing uncertainty and unpredictability of modern international markets, and changes in methods for calculating added value (EVA) under the influence of digitalization. It has been proven, firstly, that the use of modern business models by the world's leading digital companies is based on the controversial process of asset dematerialization. Nevertheless, this process brings companies income and growing capitalization, as it is accompanied by the introduction of digital platforms. Secondly, when ensuring guaranteed profitability of platforms as a digital marketing tool, it is necessary to take into account the ratio of material and intellectual assets and their contribution to the capitalization of dematerialized assets. It is substantiated that the main condition for the use of a company's digital platforms is the effectiveness of procedures for achieving results arising from the implemented technologies based on digital, information and analytical platforms, taking into account criteria and requirements for their inclusion in the specified platform.

Key words: digital marketing, digital platform, digital technologies, digitalization, business model, asset valuation.

Проведено аналіз підходів до сутнісної ідентифікації цифрових платформ як інструменту діджитал-маркетингу, що забезпечує взаємодію при реалізації цифрових технологій у рамках існуючих бізнес-моделей. Визначено чинники зростання інтелектуального капіталу цифрових компаній, які для бізнес-процесів формують цифрові платформи, що використовують потенціал цифрової трансформації при домінуванні нематеріальних активів над матеріальними. Врахування радикальних змін у технологічних процесах та адаптації нових цифрових інструментів управління дозволило визначити, як місце цифрової платформи в інтегрованих системах маркетингових комунікацій компаній, так і алгоритми її імплементації в ці системи в умовах зростання невизначеності та непередбачуваності сучасних міжнародних ринків під впливом цифровізації. Доведено, по-перше, що використання сучасних бізнес-моделей провідними світовими цифровими компаніями ґрунтується на суперечливому процесі дематеріалізації активів і впровадженні цифрових платформ. По-друге, що при оцінці потенційної прибутковості платформ як інструменту діджитал-маркетингу необхідно враховувати співвідношення матеріальних та інтелектуальних активів. Проаналізовані сучасні умови формування ресурсного портфеля діджитал-маркетингу на основі інтелектуального капіталу з точки зору: а) оцінки його вартісних і невартісних показників; б) виділення у його структурі людського капіталу (цифрові компетенції та доступність цифрових технологій), споживчого капіталу (комунікаційні платформи зі споживачами та постачальниками) і організаційно-процесного капіталу, до якого належить технічне та програмне забезпечення (ІТ та інформаційні системи, цифрові платформи); в) ресурсного інструменту структуризації інформації для відносин компанії з суб'єктами зовнішнього середовища. На прикладі використання цифрових платформ як інструменту діджитал-маркетингу компаній *Apple* і *Uber* доведено, що, по-перше, їх ефективність визначається можливостями моделі розподіленої взаємодії управління у межах компанії (за функціональною, регіональною, продуктовою і мережевою ознаками), а ніж моделлю ієрархічного управління. По-друге, вони виникають не хаотично, а є частиною певних закономірностей розвитку цифровізації та економічних трендів, а також пов'язані з особливостями розвитку міжнародного ринку діджитал-технологій

загалом. Обґрунтовано, що основною умовою використання цифрових платформ компанії є ефективність процедури інтеграції результатів, отриманих від реалізації технологій на базі цифрових та інформаційно-аналітичних платформ з критеріями та вимогами їх включення до зазначеної платформи.

Ключові слова: діджитал-маркетинг, цифрова платформа, цифрові технології, цифровізація, бізнес-модель, оцінка активів.

Statement of the problem. The key motive for the development of digital marketing is currently the continuous search for assets that generate above average profitability income and are associated with technological breakthroughs and innovative solutions. New industries of the sixth technological order based on the combination and complementarity of NBIC technologies (nano-, bio-, information and cognitive) contribute to the integration into the digital ecosystem of companies participating in value chains, focused on the digital format of interaction. Mass custom production with the possibility of interactive exchange of ideas is leading to:

a) implementation of infocommunication technologies (5G networks, cloud technologies and communications), production technologies (digitalization of production systems and creation of platforms for interaction between consumers, manufacturers and sellers), logistics technologies (information flows and physical movement of people and goods);

b) dissemination of developments based on the development of 3D design and 4D printing using additive technologies;

c) creation of new organizational forms and business models *sharing* economy and *on-demand* economy.

In this regard, the analysis of modern companies' digital platforms as a digital marketing tool in the context of the efficiency and profitability models used is particularly important.

Analysis of recent research and publications. The works of A. Bechmann, D. Bell, V. Heater, S. Thanuskodi are devoted to the issue of modeling management structures in conditions of digitalization; evaluations of the interaction of companies with consumers within various information platforms of digital marketing are devoted to the works of P. Kennan, P. Burke, T. Davenport, P. Doyle, D. Schultz, Fornes G. Despite a significant amount of scientific and practical research devoted to the digitalization of the economy [1–3], digital platforms have been studied primarily as a 'technical application' of the marketing communication apparatus, rather than in terms of their contribution to a company's potential for efficiency and profitability. Moreover, in the absence of a sufficient number of facts and manifestations of the influence of digital platforms on the functionality of a company's digital marketing, it is too early to talk about theoretical and conceptual constructs. The formation of new hypotheses and their testing requires analysis, first of all, of modification of the existing (known) theories to suit the new economic conditions of digitalization. That is, there is some lag between theoretical concepts and rapidly changing practice, which must be taken into account in the current dynamics of technological change.

Formulation of the research task. The purpose of the article is to analyse digital platforms as modern digital marketing tools for companies' strategies in the conditions of Industry 4.0. The theoretical part is based on fundamental marketing, theories of profit, marketing communications and company management.

Summary of the main research material. Although modern possibilities of a 'digital breakthrough' are accumulated in digital platforms as tools that ensure interaction in the implementation of digital technologies, there is no generally accepted concept of a digital platform. The reason is that this is a purely practical tool, and the existing individual approaches only allow only forming an idea of their essence. Thus, O. Hanseth and K. Lyytinen define a digital platform as a design context that is subject to a wide range of changes due to their heterogeneous, growing user base and the constant addition of new IT capabilities and additions [4]; P. Spagnolletti, A. Resca and G. Lee see it as an architecture that must be collectively supported by a combination of three different types of interaction (information exchange, cooperation and collective action) [5]; K. Corsi, D. Mancini and G. Piscitelli designate it as a system of hardware and software solutions that unite people in a social safe environment and present tools useful for creating, organizing, searching and exchanging information, documents, ideas, etc. [6].

In general, summarizing the presented characteristics, a digital platform can be defined as an infrastructure of algorithmised mutually beneficial relationships of a significant number of users for exchanging information, working with data and protecting it, as well as the effectiveness of functionality through the use of applications. The main types of digital platforms are: a) instrumental (as a software and hardware-software solution); b) infrastructure (as presentation of IT services and information for decision making); c) applied (for the exchange of certain economic values in given markets). Their use helps reduce transaction costs through the use of a package of digital technologies in a unified information environment.

According to an annual MIT survey, '10 Breakthrough Technologies' include commercially available technologies as well as those that are not yet widespread [7]. *Imperial Tech Foresigh* has developed a 'periodic table' of the latest technologies (similar to D. Mendeleev's table), where 100 elements are 100 advanced technologies, divided into four 'colour' categories depending on the likelihood of their implementation [8]:

– 16 green elements – technologies that are currently being implemented or that will soon be accessed (for example, cryptocurrencies, autonomous cars, solar energy, artificial meat, wireless energy transfer, etc.);

– 33 yellow elements – technologies (experimental developments) that have the potential to spread in the next 10-20 years (for example, unmanned ships, water extraction from the air, smart dust, 3D printing of human organs, etc.);

– 32 red elements – technologies that exist conceptually and which will not be introduced earlier than in 20 years (for example, four-dimensional materials, implant phones, colonization of other planets, combat robots with artificial intelligence, etc.);

– 19 grey elements – technologies that are theoretically feasible, but with a low probability of implementation (head transplant, space elevator, etc.).

Also interesting is the 'spiral of high technologies of the future' by J. Burke [9], which identifies basic technologies (Internet, 3D printers, Internet of things, nanotechnology, and robotics), which can evolve into technologies accelerating innovation or contributing to the formation of fundamentally new technologies. Looking at any of the studies (reports or surveys) conducted by scientific institutes or high-tech companies [7; 10], one can see that in the structure of the latest technologies, infocommunication technologies, the Internet, cloud technologies, the Internet of things, blockchain, Big-data, cybersecurity, etc. received digital status, i.e. combining information, computing and communication technologies.

Today, cloud technologies are already implemented in the format of platforms which make it possible to provide a ready-made infrastructure of information and communication technologies and have the following features:

- technological innovations spread quite fast, reducing the duration of the development cycle and increasing the duration of implementation on the market;
- penetrate into all sectors of the economy at a fairly high speed;
- contribute to creation and development of new areas of activity, their convergence in the production sector and the service sector (as a technological core);
- are aimed at providing services to the user, and sometimes they are replaced not only as a performer, but also as a generator of ideas.

In addition, cloud technologies in platform format significantly reduce the risk of data loss and significantly reduce the costs of data duplication and archival storage (distributed databases further reduce the costs of storing information). Therefore, according to expert estimates, the cloud technology market is currently growing faster than the IT market as a whole due to such categories as *PaaS* (platform as a service), *SaaS* (software as a service), *IaaS* (infrastructure as a service), *DRaaS* (disaster recovery as a service), *SecaaS* (security as a service), *BaaS* (backup as a service).

Since digital platforms are the foundation for digital transformation of industries and markets and development of technological and infrastructural business environment, they are in the area of close attention of digital marketing departments of modern companies. We are talking about open and prompt collection and processing of data on the personnel potential, customer needs, supplier capabilities, intellectual capital of companies and business processes forming digital platforms. An analysis of approaches to identifying intellectual capital and its transformation in the context of companies operating in a digital environment shows that, unlike physical capital, which is assessed by the value of tangible assets, intellectual capital is assessed using both cost and non-cost indicators. Wherein, its structure includes: a) human capital (digital competencies and accessibility of digital technologies); b) consumer capital (communication platforms with consumers and suppliers); c) organizational and process capital, which includes hardware and software (IT and information systems, digital platforms).

In fact, this is a digital marketing resource portfolio that allows taking into account digital technologies as a resource tool for structuring information for the company's relations with subjects of the external environment (consumer audience). Today, a clear trend has been identified

towards an increase in the contribution of intellectual resources to business value: according to data on companies whose shares are included in the *Standard & Poor's 500* index, the contribution of tangible assets to the value of these companies averaged up to 62% in the 1980s, it decreased to 38% in the 1990s, and up to 16% by the 2010s [11]. Despite the difference in opinions, the authors agree that "the digital revolution is encouraging every company to move from a business model based on products and services to a business model that is based on networks and platforms" [12].

Apple is an example of the effective use of platforms in digital marketing. In the mid-2000s the top 5 mobile phone manufacturers (*Nokia*, *Samsung*, *Motorola*, *Sony Ericsson* and *LG*) controlled 90% of the industry's global profits, and by 2015, *Apple's iPhone* (introduced in 2007) alone accounted for 92% of the industry's global profits. In 2018, *Apple's* value was 1 trillion dollars (the most valuable company in the world), which (together with the competing *Android* system from *Google*) formed new rules of competition in the IT market through the operation of platform companies whose main assets are information and interaction between application developers and consumers.

In fact, *Apple's iPhone* and its operating system have become not just a product or sales channel, but a business model in the form of a platform, creating value as the 'network effect' of the platform. In 2018, the App Store offered 1.4 million applications and collectively generated approximately \$26 billion in revenue for development companies [13]. Each application created in *iOS* (for example, *Angry Birds*, *Netflix*, etc.) in its entirety turned into a unique one for consumers, which creates the value of the platform both for the company's digital marketing system and for application developers, making the purchase of the product more attractive.

Another example of the active, successful and effective use of digital platforms in digital marketing is founded in 2009 the *Uber* company, which has practically no tangible assets. Today, its quarterly revenue growth attracts investors more than *General Motors*, the flagship of the American economy founded in 1908. The main business strategy of *Uber's* digital platform was built on the effects of mass distribution and economies of scale for a specific market niche – *VIP* transport services and increasing the volume of services provided. This has allowed both reduction in the cost of travel and further capture of the urban passenger transport market on a global scale.

While companies like *Uber* focused on classic strategic advantages (product differentiation, trusted brands, leading operating systems, efficient logistics, and large *R&D* budgets), *Uber's* use of digital platforms has provided itself with a competitive advantage and has become the basis for business models in other types of businesses. Thus, it is participating in the design of a new market for unmanned vehicles (concentrating the benefits from the development of a platform for self-driving cars), and is developing the cargo transportation market together with *Tesla*, *DHL* and *Amazon.com* – modern companies of the same format that are actively using the potential of digital technologies and platforms.

The modern demand for the use of digital platforms as a business model for companies is also associated with their product cost reduction as innovations are mastered. Firstly, labour productivity in production increases up to 55% (due

to automation of intellectual and physical labour) and quality assurance costs reduce up to 20% (through introduction of digital quality management). Secondly, unforeseen costs are reduced by lowering equipment downtime by 30-50% (through organization of remote monitoring and control of production equipment and augmented reality in maintenance). Thirdly, the cost of storing inventory/products is reduced by 20-50% (through optimization of batch sizes and organizing supply chains in real time) and after-sales service is optimised by 10-40% (through the use of remote service technology) [14].

Due to the lack of methods for taking into account the inflation component on the value of digital transformation assets, the use of the discount rate indicator and *WACC* (*Weighted Average Cost of Capital*) for an integral assessment of the value of digital assets is not possible and requires a separate study. In addition, in the structure of the company's assets and liabilities, it is impossible to accurately determine the so-called *Equity Equivalents* – the company's reputation, download of the digital platform, tokenization of operations, customer loyalty, etc. A paradoxical situation arises when the dematerialization of assets brings profit to a company operating in the conditions of digital transformation and increases shareholder profitability, but introduces changes in the operation of the 'classical' laws of increasing marginal utility and marginal productivity.

The use of special fintech tools creates cross-customer financing schemes, provides opportunities for lending, participation in bonus programs, virtual payments through Internet wallets or online banking platforms, which changes approaches to accounting for the performance of a company. The structuring elements of this process are: a) material access/transformation devices; b) software; c) information. At the same time, the value of the user for the digital platform is determined, on the one hand, by the external appearance of a zero price for information – through the natural exchange of "information about the user" for "information for the user". On the other hand, its ability to form information reserves, the value of which depends on the recognition of information as public or private good.

Thanks to digital platforms and business models, the importance of valuing assets in the digital environment is increasing, in particular informal assets (*Equity Equivalents*), and especially a company's goodwill which symbolizes a certain market dominance of the company taking into account the development of the digital technology sector. As for the return on sales based on net cash flow, for a digital company it is interpreted similarly in the context of the importance of generating income from operating segments and their dynamics in comparison with the growth rate of cash flow from operating activities themselves. And although for a digital company this indicator cannot be assessed unambiguously as an indicator of the effectiveness of its activities, the determination of *FCF* (*Free Cash Flow*) is part of the calculations.

Today, a new type of business models that are implemented by digital companies within the framework of the *VBM* (*Value Based Management*) concept involves, on the one hand, value-based assessments of the effectiveness of their activities (on their basis, decisions are made within corporate governance). On the other hand, the interpretation of these indicators to analyse changes in business pro-

cesses when adapting them to assess the overall effectiveness of the company's digital business. At the same time, the main indicators for providing a unified basis for calculations and solving selection problems are:

– *EVA* (*Economic Value Added*) is residual profit whose calculation is based specifically on operating profit (profit from sales by operating segments) as a priority when assessing the performance of a digital company. When determining *EVA* for a digital company, the following is calculated: a) dependence of the company's net operating profit on the correct distribution of business projects of the digital company; b) revenue by operating segments (including experimental activities in the business portfolio); c) actual and planned profitability (taking into account additional income from operating lease of digital assets and information security costs); d) the relationship between the company's operating profit and the costs of operating the *IC* capital invested in the company, averaged over the weighted average *WACC* cost; e) the cost of financing instruments for the activities of a digital company (issues of shares and bonds, bank lending of various maturities, settlements with counterparties, etc.); f) operational risks for each digital business segment to level them out.

– *MVA* (*Market Value Added*), which is calculated based either on determining the difference between the market value of the company's invested capital and its book value (a prototype of the company's market valuation), or as the sum of discounted *EVA* values. However, both the first and second options for calculating this indicator, firstly, do not exempt the digital company from future market uncertainty and the business models used. Secondly, it involves erroneous judgments in making decisions within the framework of corporate governance and assessing its effectiveness (even under scenario planning conditions).

– *CVA* (*Cash Value Added* – added value in the form of cash flows) – this indicator is almost similar to the *EVA*, but instead of net operating profit, net cash flow from operating activities is calculated. It is focused on assessing the monetary value of the value created in a digital business in excess of the cash flow required to repay the capital employed in this business. The *NOCF* assessment takes into account the outgoing flow from the operating activities of a digital company as much as possible, but makes it difficult to objectively assess intangible assets and can be misleading when analysing the effectiveness of corporate governance. At the same time, as an additional indicator in assessing the effectiveness of a specific operating segment of a digital company, *CVA* may well be useful as a criterion for assessing the usefulness (increasing value) of strategic investment.

– *SVA* (*Shareholder Value Added*) reflects the trajectory of a digital company to create digital business value – increasing shareholder value through future investment relative to the shareholder value created by past investment. This indicator assumes, firstly, a retrospective analysis of the value of share capital (revenue, profit from sales, cash flow from operating activities, etc.), which makes it possible to identify factors that form value and, accordingly, the effectiveness of managing a digital company. Secondly, forecasting: a) selection of exactly those assets that will be involved in digital business; b) needs for non-current assets (including informal assets), working capital, taking into account external/internal corporate risks and the financial condition of the company. Thirdly, the correct use of

calculations of cash flow from operating activities NOCF (or free cash flow FCF) in order to most accurately reflect the degree of influence of specific projects of a digital company on its efficiency.

– *TBR (Total Business Return)* is an indicator for assessing the change in the market value of a specific operating segment (a project in the company's digital business) for a certain period (in the reporting and previous periods) in relation to free cash flow. It is an additional indicator for decision-making within the framework of corporate governance. We are talking, on the one hand, about justifying the feasibility of selling part of a digital business as a project to extract maximum income as an investor company; on the other hand, about taking into account the costs of ensuring the functioning of the digital platform and possible reorganization of the business (at the stage of its maximum value).

Conclusions. Indeed, nowadays, functioning of digital marketing based on digital platforms is introducing conceptual changes in the categories of profit, profitability, net income, asset valuation and net (free) cash flow. Profit is primarily generated through integrated marketing com-

munication systems and special infocommunication tools (social networks and user support information resources), corresponding digital platforms (business model carriers) and digital sales of goods/services. This is exactly what (including income and revenue per employee in the company) is the basis for increasing the economic potential of the company, its capitalization and formation of competitive advantages. The relative return on equity indicator is modified for the digital environment in the context of clear structuring of revenue by operating segments. Net profit, which is used for calculations, takes into account not only the operating result, but also non-operating income and expenses (a significant part of the investment is allocated for acquisition of new digital services from innovative companies or for acquisition/merger of start-up companies). In addition, the use of platforms as a digital marketing tool is also based on the use of a project approach. It is this feature that allows both to justify the use of classical criteria for assessing the effectiveness of projects (identifying advantages/profitability) and to carry out a high-quality selection of innovative projects for the portfolio of a digital company.

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