УДК 658.8:004

DOI: 10.32342/2074-5354-2024-1-60-15

### IRYNA KALINA,

Doctor of Science (Economics), Professor, Professor of Department of Marketing, Interregional Academy of Personnel Management, Kyiv (Ukraine) https://orcid.org/0000-0001-5662-6967

#### OKSANA SHKOLENKO,

PhD (Economics), Associate Professor, Associate Professor of the Department of Economics and Business Technology,
National Aviation University, Kyiv (Ukraine)
https://orcid.org/0000-0003-2792-1523

#### NATALYA SHULYAR.

PhD (Economics), Associate Professor, Associate Professor of the Department of Economics and Business Technology,
National Aviation University, Kyiv (Ukraine)
https://orcid.org/0000-0002-4109-5961

#### YULIIA MAZUR.

PhD (Economics), Associate Professor, Associate Professor of Department of Marketing, Interregional Academy of Personnel Management, Kyiv (Ukraine) https://orcid.org/0000-0002-4728-4640

# DIGITAL FUNCTIONS OF MARKETING RESOURCES AT THE ENTERPRISE IN CONDITIONS OF ECONOMIC UNCERTAINTY

The article examines the complex of digitization functions of marketing resources in conditions of economic uncertainty, their interrelationship, and the proven direct impact of the digitization process on the efficiency of enterprise management. It is concluded that modern business structures use digital technologies as a competitive advantage in all areas of their activity: operational processes, business processes, finance, marketing and interaction with market stakeholders. On the basis of the positive correlations summarized by the authors, it can be assumed that the efforts aimed at the digitization of processes can be considered as a managerial innovation that ensures the growth of innovations and increases the efficiency of the functioning of the business structure.

On the basis of a systemic approach, the authors substantiated and built a complex functionality of the process of digitization of the company's marketing resources. In the architecture of complex functionality, the digitization process is determined by the digitization functions of marketing resources, in particular: analytical (data collection and analysis), communication (Internet advertising), sales (sales via the Internet), and the function of regulation and control (regulates and controls the digitization processes of the marketing department). The synthesis of the theory of random processes together with the systemic approach enabled the authors to define marketing resources for enterprise activities as a complete functional dynamic system with a discrete state, in which for each moment of

time the economic security of the enterprise in the future depends on the current state of digitization and does not depend on how this state was reached.

The prognostic and transformational probabilistic method for determining the effectiveness of digitization of marketing resources of an enterprise's activities is proposed, which combines the potential of the enterprise's marketing resources and the functions performed by marketing and allows for taking into account factors of the internal and external environment, the influence of which causes the emergence of risky situations that lead to unjustified losses of the enterprise.

The authors have proven the effectiveness of using digital marketing tools within the scope of each marketing function to prevent the occurrence of risky situations in the company's activities. Within the framework of the analytical function of marketing, a study of the competitive environment has been carried out, the market share of the enterprise has been recognized, an estimate of costs for marketing research has been prepared. Indicators of the communication functionality of marketing activities in the total amount of marketing expenses complement and justify its decisive influence on the general state of not only marketing, but also the entire economic activity of the enterprise. Indicators of the sales function of marketing determine the elasticity of demand for manufactured products, as well as other sales costs. The marketing functionality of regulation and control allows to analyze the relationship between the costs of ensuring the movement of goods and the received income.

The markers defined by the authors of each element of the architecture of the process of digitization of the marketing business structure contribute to increasing the efficiency of evaluating the company's activity in accordance with the main goal and purpose of the company operating in a structured market space and supporting the marketing concept of development, obtaining profit (income) and satisfying the most demanding needs of consumers.

Keywords: digitalization, marketing, marketing resources, marketing functions, business processes, digital technologies, the Internet
JEL classification: L 86. M 31

У статті досліджується комплекс цифровізаційних функцій маркетингових ресурсів в умовах економічної невизначеності, їх взаємозв'язок та доведений безпосередній вплив процесу цифровізації на ефективність управління підприємством. Робиться висновок про те, що сучасні підприємницькі структури використовують цифрові технології як конкурентну перевагу в усіх напрямках своєї діяльності: операційні процеси, бізнес-процеси, фінанси, маркетинг і взаємодію зі стейкхолдерами ринку. На основі позитивних кореляцій, узагальнених авторами, можна припустити, що зусилля, спрямовані на цифровізацію процесів, можна розглядати як управлінську інновацію, яка забезпечує зростання інновацій і, таким чином, підвищує ефективність функціонування підприємницької структури.

На основі системного підходу авторами обгрунтовано та побудовано комплексний функціонал процесу цифровізації маркетингових ресурсів підприємства. В архітектурі комплексного функціоналу процес цифровізації визначений цифровізаційними функціями маркетингових ресурсів, зокрема: аналітична (збір та аналіз даних), комунікаційна (інтернет реклама), збутова (збут через інтернет) та функція регулювання та контролю (регулює та контролює процеси цифровізації відділу маркетингу). Синтез теорії випадкових процесів та системного підходу надав можливість авторам визначити маркетингові ресурси для діяльності підприємств як цілісну функціональну динамічну систему з дискретним станом, в якій для кожного моменту часу економічна безпека підприємства в майбутньому залежить від поточного стану цифровізації і не залежить від того, яким чином він цього стану дійшов.

Запропонована прогностично-трансформаційна ймовірнісна методика визначення ефективності цифровізації маркетингових ресурсів для діяльності підприємства, яка поєднує потенціал маркетингових ресурсів підприємства та виконувані маркетингом функції і дає можливість враховувати фактори внутрішнього і зовнішнього середовища, вплив яких, спричиняє виникнення ризикових ситуацій, що призводять до невиправданих втрат підприємством.

Авторами доведена ефективність використання цифрового маркетингового інструментарію в межах контуру кожної функції маркетингу для запобігання виникнення ризикових ситуацій у діяльності підприємства. В межах аналітичної функції маркетингу здійснюється дослідження конкурентного середовища, визнається ринкова частка підприємства, складається кошторис витрат на маркетингові дослідження. Індикатори комунікаційного функціоналу маркетингу

заходів у загальній сумі маркетингових витрат, доповнюють і обґрунтовують вирішальний його вплив на загальний стан не тільки маркетингу, але і всієї господарської діяльності підприємства. Показники збутової функції маркетингу визначають еластичність попиту на вироблену продукцію, а також інші збутові витрати. Маркетинговий функціонал регулювання і контролю дозволяє проаналізувати співвідношення між витратами на забезпечення товароруху й отриманими доходами.

Визначені авторами маркери кожного елементу архітектури процесу цифоровізації маркетингового функціоналу підприємницької структури сприяють підвищенню ефективності оцінювання діяльності підприємства відповідно до основної мети і призначення функціонування підприємства, діючого в структурованому ринковому просторі та підтримуючому маркетингову концепцію розвитку, — одержання прибутку (доходу) та задоволенню найвибагливіших потреб споживачів.

Ключові слова: цифровізація, маркетинг, маркетингові ресурси, маркетингові функції, бізнес-процеси, цифрові технології, інтернет

JEL classification: L 86, M 31

Problem statement. Digitization in the modern world is an actual process that affects many areas of the economy. In the century of mass introduction of high technologies into the country's economy, digitalization becomes not only a way to increase efficiency and achieve maximum convenience, but also simply a necessary factor that ensures the accelerated development of all its components. Developed countries support the process of digitalization throughout their territory, because, as research results show, the intensification of the implementation of digital technologies in the country leads to an increase in GDP by 1%. Digitization processes are extremely important for the Ukrainian economy. The main goal of digitization is to achieve the digital transformation of existing sectors of the economy into more progressive and modern ones. Such progress is only possible when ideas, actions, initiatives and programs related to digitalization are integrated, in particular, into national and sectoral development strategies and programs.

The economic situation of Ukraine in modern conditions is critical and needs a radical reboot. Every enterprise is looking for innovative tools to implement a new or improved strategy, new markets (including international ones), new approaches to the consumer, etc. The newest trend of this millennium is digitalization, which is applied at all levels of enterprise management. The combination of digitalization and marketing resources in an enterprise has a large impact

on the consumer, and these resources are individual for each enterprise. Every business conducts a marketing gradation to identify and group marketing resource tools that provide reputation, identification, visibility, market competitiveness, and quick feedback (to solve a problem). Thanks to the correct grouping of tools and a trending platform, social network or digitization system, the enterprise receives quick information for consumers (about a new product or service) and a large audience reach (perhaps even regional), which will lead to financial stability and growth of the enterprise.

Analysis of recent research and publications. Analyzing the research on functions of marketing at the enterprise, it can be noted that both Ukrainian and foreign scientists devote a lot of time to this issue, and have extensive works in the form of scientific articles, monographs, textbooks, etc. Among Ukrainian scientists, we can mention: I.A. Abramovych [1], D.V. Volovik [1], O.E. Hrechanyk, S.M. Yevtukhova, V.V. Zelich [2], S.T. Piletska, S.V. Petrovska [5], and the foreign ones are: U. Sigitas, D. Vytautas, K. Gindra [8], J. Wirtz, V. Kuppelwiser [9], S. Tuzovich [9]. Each scientific research is part of the contribution to the development of the enterprise. Today, the development of the enterprise is carried out at the expense of digital trends, which are strengthened by all components of the enterprise. Many researchers and scientists, both Ukrainian and foreign, pay attention to digitization technologies in marketing, which help to function successfully on the market. Seminal contributions have been made by Ukrainian scientists: J. Partanen [3], O.I. Datsii [6], I.I. Kalina S.M. Demydyuk, [6],V.P. Zaliznyuk, N.V. Kovalenko, O.J. Mogilevska, L.V. Romanova [7] and by foreign scientists: J. Cenamore, V. Parida, Wincent [10],N.J. Foss M. Kohtamäki, V. Parida [12], A.S. Acosta, A. Herrero, J.K. Agudo [13].

The aim of research is to justify the complex functionality of the process of digitalization of marketing resources of the enterprise in conditions of economic uncertainty based on a systemic approach.

**Results.** Marketing resources at the enterprise are represented by the following digitization functions (the most common marketing resources are presented): analytical (data collection and analysis)  $-F_1$ , communication (Internet advertising) – F<sub>2</sub>, sales (sales via the Internet) – F<sub>3</sub>, and the function of regulation and control (regulates and controls digitization processes of the marketing department) –  $F_4$ . So, if we consider their role in planning and implementing a plan for the creation, promotion and sale of goods (services) by satisfying the needs of individual consumers and enterprises, then, using the theory of random processes together with a system approach, we can note that marketing resources for the activities of enterprises is determined as an integral functional dynamic system with a discrete state, in which for each moment of time the economic security of the enterprise in the future depends on the current state of digitization and does not depend on how it reached this state [4, p. 29-34, 69-72]. Let us imagine that the marketing resources for the activity of the enterprise (M) as a system of interaction of subsystems  $(S_1 \div S_4)$  based on the functions performed by marketing (F<sub>1</sub>  $\div$  F<sub>4</sub>) in the form of (1):

$$M = \left\{ S_1 \Leftarrow F_1, S_2 \Leftarrow F_2, S_3 \Leftarrow F_3, S_4 \Leftarrow F_4 \right\}. \tag{1}$$

 $S_1$  corresponds to the subsystem of marketing resources for the enterprise's activities, regulated by the analytical function  $F_1$ , aimed at researching or monitoring the market where the enterprise operates or

intends to operate; the study of the consumer structure of the market; substantiation of the product nomenclature; the study of internal and external environments and the potential of digital marketing of the enterprise, that is, the analytical function of marketing is connected with a wide range of marketing research, including via the Internet.

The communication function of marketing  $F_2$  ensures the functioning of the  $S_2$  subsystem of the same name at the enterprise, in which uninterrupted information about the product (service) of the enterprise is organized for consumers, that is, the communication activity of the enterprise. As well as effective feedback, which today is an effective means of the company's communication policy.

The sales function of  $F_3$  marketing ensures the functioning of the  $S_3$  subsystem of the same name at the enterprise, in which appropriately organized demand formation and sales stimulation, the system of goods movement, product and price policies contribute to its break-even operation.

The marketing-controlling subsystem of the  $S_4$  enterprise, determined by the regulation and control function of  $F_4$ , provides for accounting, auditing, planning, forecasting, and information provision of all economic processes that take place at the enterprise, which operates according to the marketing concept.

The definition of marketing functions ( $F_1$   $\div F_4$ ) and their reflection in the corresponding types of marketing activities at the enterprise allows to reveal the essence of marketing resources in each of the subsystems ( $S_1 \div S_4$ ) to ensure the effective functioning of each of them and the marketing system as a whole.

The proposed differentiation of marketing functions in accordance with the performed economic activity with the separation of marketing subsystems in the formation of marketing resources for the enterprise's activities (M).

When moving from one marketing function to another, we use the conditional probabilities of a sequential transition, which in further work will be taken as *p*.

Ideally, marketing should be carried out in accordance with the logical sequence of

its functions, that is, marketing resources for the enterprise's activities should act from the formed subsystem S1 through intermediate  $S_2$ ,  $S_3$  to  $S_4$ , the functioning of which is justified by their corresponding functions  $F_1 \div F4$ . But in reality, such a sequence is unattainable, the objective reason for which is the specifics of business processes occurring at each enterprise. Therefore, an objective assessment of the effectiveness of marketing resources for the company's activities should include a set of measures represented by the specified subsystems, formed on the basis of the functions performed by marketing, but be adaptable to the digital conditions within the limits of an individual company.

transformational The process digitization (sequential or nonsequential) of marketing resources for an activity (or its separate subsystem) takes place at certain moments of time t, which we will call intermediate phases (stages) k [5]. If the efficiency E of the functioning of a certain marketing subsystem C<sub>i</sub> is known at some intermediate phase k in some current period of time t, then the probability of marketing resources being in any of the specified subsystems C at the time t (pi at i = 1, 4) reveals the meaning of this concept, which can be represented by formula (2):

$$\hat{A}(S_{i}(k) = C_{t}) = p_{i}(k), \text{ with}$$

$$\sum_{i=1}^{n} p_{i}(k) = 1; S, i = 1, 4; t \in [0; \infty), \qquad (2)$$

where  $E(S_i(k)=C_i)$  – the efficiency of the defined subsystem of marketing resources  $S_i$  at the researched stage C at the moment of time t at the intermediate phase k.

This needs an explanation. So, let us make calculations, in the first quarter of 2022, which we will consider as the reference point t = 0 (zero average step k=0), company number 1 is engaged in communications and sales. The marketing resources of its activity are substantiated in this way by the communication and sales functions of marketing ( $F_2$  and  $F_3$ ), that is, in the current period, the efficiency of the marketing

subsystems of the same name ( $S_2$  and  $S_3$ ) should be considered, which will be equal to the probability of the agricultural enterprise being at the communication stage according to the proposed approach  $E(S_2(0) = C_0) = p_2(0)$  and the probability of the enterprise being at the sales stage  $E(S_3(0) = C_0) = p_3(0)$  in the current period. If the efficiency of communications is 17%, and the efficiency of sales is 25%, then formula (4) is transformed in this case to the following form:  $E(S_2(0) = C_0) = p_2(0) = 0.17$  and  $E(S_3(0) = C_0) = p_3(0) = 0.25$ .

Company number 2 pays attention to the analytical and sales function of marketing resources. The marketing resources of its activity are justified by the analytical and sales functions of marketing  $(F_1 \text{ and } F_3)$ , that is, in the current period, the effectiveness of the marketing subsystems of the same name (S<sub>1</sub> and S<sub>3</sub>) should be considered, which will be equal to the probability of the agrarian enterprise being at the analytical stage according to the proposed approach  $E(S_1(0)=C_0)=p_1(0)$  and the probability of the agricultural enterprise being at the sales stage  $E(S_3(0) = C_0) = p_3(0)$  in the current period. If the efficiency of the analytical function is 21%, and the sales efficiency is 29%, then the formula (4) is transformed in this case to the following form:  $E(S_1(0) = C_0) = p_1(0) = 0.21$  and  $E(S_3(0) = C_0) = p_3(0) = 0.29$ .

Companies number 3, 4, and 5 pay attention to the sales function and the marketing-controlling function. The marketing resources of their activities are justified by the marketing and controlling functions of marketing (F<sub>3</sub> and F<sub>4</sub>), that is, in the current period, the effectiveness of the marketing subsystems of the same name  $(S_3 \text{ and } S_4)$  should be considered, which will be equal to the probability of agricultural enterprises being at the sales stage according to the proposed approach  $E(S_3(0) = C_0) = p_3(0)$  and the probability of agricultural enterprises being at the controlling stage  $E(S_4(0)=C_0)=p_4(0)$  in the current period. If the efficiency of the sales function of company number 3 is 22%, company number 4 and company number 5 is 21 and 19%. The sales efficiency of company number 3 is 36%, number 4 and number 5 are 34% and 32% respectively, so formula (4) is

transformed in this case to the following form: company number 3  $E(S_3(0) = C_0) = p_3(0) = 0.22$  and  $E(S_4(0) = C_0) = p_4(0) = 0.36$ , and company number 4 and enterprise number 5, then formula (6) is transformed in this case to the following form, respectively:  $E(S_3(0) = C_0) = p_3(0) = 0.21$ ,  $E(S_3(0) = C_0) = p_3(0) = 0.19$ ,  $E(S_4(0) = C_0) = p_4(0) = 0.34$ ,  $E(S_4(0) = C_0) = p_4(0) = 0.32$ .

Company number 6 pays attention to the communication function and the marketingcontrolling function. The marketing resources of its activity are justified by the communication and controlling functions of marketing ( $F_2$  and  $F_4$ ), that is, in the current period, the efficiency of the marketing subsystems of the same name (S2 and S<sub>4</sub>) should be considered, which will be equal to the probability of the agricultural enterprise being at the communication stage according to the proposed approach  $E(S_2(0)=C_0)=p_2(0)$  and the probability of the agrarian enterprise being at the controlling stage  $E(S_4(0)=C_0)=p_4(0)$  in the current period. If the efficiency of the analytical function is 24%, and the sales efficiency is 33%, then (formula 6) is transformed in this case to the

 $E(S_2(0) = C_0) = p_2(0) = 0.24$  and

following form:

 $E(S_4(0) = C_0) = p_4(0) = 0.33$ .

In order to find the expediency of the transformational process of digitization of marketing resources (or any of its subsystems) to another state (to another marketing subsystem) at the next intermediate phase k+1, that is, in the time period t+1, it is necessary to have information about the possibility of transformation from state  $C_t$ to state  $C_{t+1}$ , which is called the conditional probability  $p_{ii}$ , (i - circular marketing)subsystem, j is a marketing subsystem to which marketing resources strive in accordance with the economic processes being carried out). The effectiveness of the functioning of marketing resources for the activity of the enterprise, which will appropriately indicate the probability of its stay in the new state, can be calculated using the formula (3):

$$\hat{A}_{(S_i(k)=C_i)}(S_j(k+1)=C_{i+1})=p_j(k)$$
 with  $\sum_{i=1}^n p_i=1$ ,(3)

where n – the total number of components of the enterprise's marketing system. Given

that marketing resources consist of four subsystems (research, communication, sales, controlling), ideally n = 4. But the system can be adjusted depending on the presence of one or another subsystem. For example, a situation where n=2 is possible (in the given example: the company deals only with communication and sales). In order to find the effectiveness of the expediency of the transition from the communication to the sales marketing subsystem in the given example, we will use the fact that the conditional probability of such a transition will be 0.3. It is clear that conditional (transitional) probabilities  $p_{ii}$  form a square matrix  $\pi(k)$ , which ideally has the size 4 x 4 i can be presumed with formula (4):

$$\pi(k) = \| p_{ij}(k) \| = \| p_{11}(k) \quad p_{12}(k) \quad p_{13}(k) \quad p_{14}(k) \\ p_{21}(k) \quad p_{22}(k) \quad p_{23}(k) \quad p_{24}(k) \\ p_{31}(k) \quad p_{32}(k) \quad p_{33}(k) \quad p_{34}(k) \\ p_{41}(k) \quad p_{42}(k) \quad p_{43}(k) \quad p_{44}(k) \|$$
 (4)

The assessment of the effectiveness of the presence of marketing resources for the enterprise's activity in any state (in the specified subsystem) must take into account the possibility of delay, because in practice it is difficult to predict all random obstacles in the implementation of any marketing event. The probability of such a delay at any stage  $p_{ij}(k)$  we can count with a formula (5):

$$p_i(k) = 1 - \sum_{j \neq i}^{n-1} p_j$$
, with  $i, j, n \in [1; 4]$  (5)

The enterprise can engage in certain types of marketing activities, communications and sales without conducting marketing research and controlling, the probability of a delay at the production stage  $p_{22}$  will be counted with the formula in such a way (6):

$$p_{22} = 1 - \sum p_{21} + p_{23} + p_{24} .$$
(6)

This means that the company's future hopes should be linked to a marketing strategy aimed at supporting and building digitization.

It is possible to calculate the efficiency of the initial economic state of the enterprise on the basis of marketing M in a certain period of time t, which is considered the reference point (k = 0), according to the formula (7):

$$\vec{I} = \{S_1, S_2, S_3, S_4\}; \ \hat{A}(M) = \sum_{i=1}^{n} E(S_i(k=0)) = \|p_i(k=0)\| \\
\text{at } i \in [1, 4];$$

At each intersection phase k, the matrix of conditional probabilities is known  $\pi(k) = ||p_j(k)||$  (look formula 4).

In order to determine the effectiveness of the digitization of marketing resources for the enterprise's activities in the next intermediate phase  $p_i(k + 1)$ , that is, to predict the effectiveness of their functioning in the future, as well as the expediency of implementing certain digital marketing measures designed to improve the current state of affairs, we will resort to a hypothesis. As a hypothesis, let's assume the following situation: in a certain initial period (k=0), marketing resources are in one of the states  $(C(0) = S_1)$ ,  $(C(0) = S_2)$ ,  $(C(0)=S_2)$  or  $(C(0)=S_4)$  with corresponding levels of their effectiveness  $p_1(0)$ ,  $p_2(0)$ ,  $p_3(0)$ чи  $p_4(0)$ . Conditional probabilities are also known  $p_{ij}$  the course of marketing events from initial to any other state. Under such conditions, the effectiveness of the new state of marketing resources for the company's activity E(S(0)=Si) will be determined by the formula (8):

$$\hat{A}_{(S(0)=S_i)}(S(1)=S_j) = p_j(0), \text{ i.e.} \quad p_j(1) = \sum_{i,j=1}^n p_i(0) \times p_j(0)$$
or  $\hat{A}(1) = \hat{A}(0) \times \pi(0), \hat{A}(2) = \hat{A}(1) \times \pi(1) \text{ etc.}$  (8)

Continuing the transformation process in this way, it is possible to determine the effectiveness of marketing resources for activities at any stage in any time period according to formula (9):

$$\mathring{A}(k+1) = \mathring{A}(k) \times \pi(k) \tag{9}$$

An objective question arises: how to apply the proposed methodology for evaluating the effectiveness of digitization of marketing resources for the company's activities. Therefore, in order to determine the effectiveness of the digitization of marketing resources for the enterprise's activities at different intersecting phases (in a different

period of time), transition probabilities should be investigated each time, maintaining the order of priority determined by the nature and peculiarities of the management of a particular enterprise. But the transition to digitization should lead to the fact that the various stages of marketing resources, more precisely, the transition to each of the subsystems within a specific enterprise will cease to depend on the intersection phases, which will result in predictability and a greater probability of the effectiveness of the applied marketing strategies. Thus, marketing digitization processes, the effectiveness of which will not depend on the average phases, will become homogeneous. When determining their effectiveness, conditional (transitional) probabilities will become a constant value, i.e  $\pi(k)$  = const, which will simplify the assessment of the effectiveness of the digitization of marketing resources for the company's activities at any time, and will also allow saving significant funds for conducting additional marketing research.

The proposed prognostictransformational probabilistic method of determining the effectiveness of digitization of marketing resources of an enterprise's activities is supported by its unpretentiousness, simplicity of calculations, accessibility and comprehensibility of the results obtained. The theory of random processes corresponds to the probability of the course of processes, including marketing ones, which are extremely difficult to model, and even more so – to predict the consequences of their implementation. This is explained by the fact that the intersection of the factors of the internal and external environment of the enterprise causes the emergence of risky situations that can lead to unjustified losses. To prevent them, the company must effectively use marketing tools, the variety of which has already been described above. Within the analytical function of F<sub>1</sub> marketing, employees of the marketing service (marketers) must investigate the competitive environment, determine the market share of the enterprise, and estimate the costs of marketing research. The cost of communication activities (advertising, image-making, fairs, PR promotions) in the total amount of marketing costs, other indicators of the effectiveness of the communication and sales function of  $F_2$  marketing complement and justify its decisive influence on the general state of not only marketing, but also the entire economic activity of the enterprise.

Turnover, the specific weight of export products in it, the depth and breadth of the assortment, determining the elasticity of demand for manufactured products, as well as other sales costs - F<sub>3</sub>.

To assess the effectiveness of the regulation and control function of  $F_4$ , i.e. the marketing-controlling subsystem, it is necessary to analyze the ratio between the costs of ensuring the movement of goods and the income received.

The specified indicators should be analyzed from the standpoint of the main goal and purpose of the enterprise operating in a structured market space and supporting the marketing concept of development, which is to generate profit (income). However, a significant addition should be borne in mind: meeting the most demanding needs of consumers and expanding the number of customers, who, unlike consumers, are regular buyers, making a significant contribution to the development of a particular enterprise in the form of spending money on acquisition necessary goods, enjoys certain privileges.

**Conclusion**. Digitization opportunities in the global market help enterprises use many more tools, including marketing tools, to create, shape, optimize, and promote the ecosystem.

The proposed technique simplifies the process of making marketing decisions, which is used when studying information or diagnosing it, including digitization technologies, and optimizes the process of collecting and analyzing information on the basis of which a decision is made. On the basis of the adopted decision, enterprises distinguish and pay more attention to the function of marketing resources that ensure the promotion of products or services and making a profit.

Due to the transformation of the function of marketing resources at the enterprise, it became possible to expand sales markets, update the marketing strategy, expand the proposals of the marketing plan, radically improve the communication component, and strengthen its gaps in the control function of marketing.

Therefore, the digitization functions of marketing resources at the enterprise in conditions of economic uncertainty help to quickly scale the business in general and business processes at the enterprise in structural divisions, expand the audience of sales and interested parties, and reduce irrelevant costs.

#### **References:**

- 1. Abramovych, I.A., Volovik, D.V., (2020). *Marketynhova diialnist pidpryiemstva ta kontrol za yii realizatsiieiu* [Marketing activity of the enterprise and control over its implementation]. *Ahrosvit*. [Agrosvit], no. 10, pp. 52-56 (in Ukrainian).
- 2. Zelich V.V., Yevtukhova S.M., Hrechanyk, O.Ie. (2021). *Analiz pokaznykiv komunikatyvnoho menedzhmentu pidpryiemstva*. [Analysis of indicators of the enterprise's communicative management]. *Naukovi perspektyvy*. [Scientific perspectives], no. 9 (15). pp. 285–296. Available at: http://dspace.hnpu.edu.ua/handle/123456789/6676 (Accessed 15 June 2023) (in Ukrainian).
- 3. Zhluktenko V.I., Nakonechnyi S.I. (2000). *Teoriia ymovirnostei i matematychna statystyka: Navch. -metod. posibnyk. U 2-kh ch., Ch.I., Teoriia ymovirnostei.* [Probability theory and mathematical statistics: Teaching method. manual. In the 2nd part, Ch.I., Probability theory], 304p (in Ukrainian).
- 4. Kalina, I.I., Palii, S.A., Shulyar, N.M. (2022). *Vyznachennia osnovnykh priorytetiv realizatsii stratehii tsyfrovizatsii pidpryiemstv v umovakh voiennoho stanu*. [Determination of the main priorities for the implementation of the digitalization strategy of enterprises in the conditions of martial law]. *Ekonomichni nauky*. [Economic sciences]. Vol. 3 (66). pp. 63-69. DOI: 10.32689/2523-4536/66-9 (in Ukrainian).
- 5. Piletska S.T., Petrovska S.V. *Instrumenty marketynhu v antykryzovomu upravlinni*. [Marketing tools in anti-crisis management]. *Ekonomichnyi visnyk Donbasu* [Economic Herald of Donbass], no. 2 (60). pp 158-164 (in Ukrainian).

- 6. Aleinikova, O. V., Datsii, O. I., Kalina, I. I., Zavgorodnia, A. A., Yeremenko, Y., & Nitsenko, V. S. (2023). Digital technologies as a reason and tool for dynamic transformation of territory marketing. *Naukovyi Visnyk Natsionalnoho Hirnychoho Universytetu*, (1), pp.154-159. doi:10.33271/nvngu/2023-1/154 (in English).
- 7. Mohylevska, O.Yu. Romanova, L.V., Zalizniuk, V.P., Kovalenko, N.V., Demydiuk, S.M. (2020) Marketing mechanism for improving the efficiency of industrial enterprises. Scientific Bulletin of National Mining University. Dnipro: NSU, №1.pp. 165-170. DOI:10.33271/nvngu/2020-1/165 (in English).
- 8. Sigitas, U., Vytautas, D., Gindra, K. (2007) Importance of Marketing Functions in a Company. *ENGINEERING ECONOMICS*. no 3 (53) *COMMERCE OF ENGINEERING DECISIONS*. pp.71-76 (in English).
- 9. Wirtz J., Tuzovic S., Kuppelwieser V. (2014). The Role of Marketing in Todays' Enterprises. *Journal of Service Management*. 25. pp. 171-194 (in English).
- 10. Cenamor, J., Parida, V., Wincent, J. (2019). How entrepreneurial SMEs compete through digital platforms: The roles of digital platform capability, network capability and ambidexterity. *Journal of Business Research*, 100 (March), pp. 196-206. DOI: 10.1016/j. jbusres.2019.03.035 (in English).
- 11. Foss, N. J. (1999). Networks, capabilities, and competitive advantage. *Scandinavian Journal of Management*, 15(1), pp. 1-15. DOI: 10.1016/S0956-5221(98)00030-X (in English).
- 12. Kohtamäki, M., Partanen, J., Parida, V., & Wincent, J. (2013). Non-linear relationship between industrial service offering and sales growth: The moderating role of network capabilities. *Industrial Marketing Management*, 42(8), pp. 1374-1385. DOI: 10.1016/j. indmarman.2013.07.018 (in English).
- 13. Acosta, A. S., Herrero, Á., & Agudo, J. C. (2018). Effect of market orientation, network capability and entrepreneurial orientation on international performance of small and medium enterprises (SMEs). *International Business Review*, Vol.27, Issue 6. pp. 1128-1140. DOI:10.1016/j.ibusrev.2018.04.004 (in English).

## DIGITIZATION FUNCTIONS OF MARKETING RESOURCES AT THE ENTERPRISE IN CONDITIONS OF ECONOMIC UNCERTAINTY

Irvna Kalina, Interregional Academy of Personnel Management, Kyiv (Ukraine).

E-mail: kalinargz@gmail.com

Oksana Shkolenko, National Aviation University of Kyiv, Kyiv (Ukraine).

E-mail: oksana.shkolenko@npp.nau.edu.ua

Natalya Shulyar, National Aviation University of Kyiv, Kyiv (Ukraine).

E-mail: shulyarnm@gmail.com

Yuliia Mazur, Interregional Academy of Personnel Management, Kyiv (Ukraine).

E-mail: gy 89@ukr.net

DOI: 10.32342/2074-5354-2024-1-60-15

Keywords: digitalization, marketing, marketing resources, marketing functions, business processes, digital technologies, the Internet

JEL classification: L 86, M 31

The article examines the complex of digitization functions of marketing resources in conditions of economic uncertainty, their interrelationship, and the proven direct impact of the digitization process on the efficiency of enterprise management. It is concluded that modern business structures use digital technologies as a competitive advantage in all areas of their activity: operational processes, business processes, finance, marketing and interaction with market stakeholders. On the basis of the positive correlations summarized by the authors, it can be assumed that the efforts aimed at the digitization of

processes can be considered as a managerial innovation that ensures the growth of innovations and increases the efficiency of the functioning of the business structure.

On the basis of a systemic approach, the authors substantiated and built a complex functionality of the process of digitization of the company's marketing resources. In the architecture of complex functionality, the digitization process is determined by the digitization functions of marketing resources, in particular: analytical (data collection and analysis), communication (Internet advertising), sales (sales via the Internet), and the function of regulation and control (regulates and controls the digitization processes of the marketing department). The synthesis of the theory of random processes together with the systemic approach enabled the authors to define marketing resources for enterprise activities as a complete functional dynamic system with a discrete state, in which for each moment of time the economic security of the enterprise in the future depends on the current state of digitization and does not depend on how this state was reached.

The prognostic and transformational probabilistic method for determining the effectiveness of digitization of marketing resources of an enterprise's activities is proposed, which combines the potential of the enterprise's marketing resources and the functions performed by marketing and allows for taking into account factors of the internal and external environment, the influence of which causes the emergence of risky situations that lead to unjustified losses of the enterprise.

The authors have proven the effectiveness of using digital marketing tools within the scope of each marketing function to prevent the occurrence of risky situations in the company's activities. Within the framework of the analytical function of marketing, a study of the competitive environment has been carried out, the market share of the enterprise has been recognized, an estimate of costs for marketing research has been prepared. Indicators of the communication functionality of marketing activities in the total amount of marketing expenses complement and justify its decisive influence on the general state of not only marketing, but also the entire economic activity of the enterprise. Indicators of the sales function of marketing determine the elasticity of demand for manufactured products, as well as other sales costs. The marketing functionality of regulation and control allows to analyze the relationship between the costs of ensuring the movement of goods and the received income.

The markers defined by the authors of each element of the architecture of the process of digitization of the marketing business structure contribute to increasing the efficiency of evaluating the company's activity in accordance with the main goal and purpose of the company operating in a structured market space and supporting the marketing concept of development, obtaining profit (income) and satisfying the most demanding needs of consumers.

Одержано 11.08.2023.