

**MARKETING EFFICIENCY: A SPATIAL EVALUATION MODEL****Kaliuzhna I.V., Raev E.Yu.***Zaporizhzhia National University  
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**Key words:**

marketing, marketing efficiency, economic efficiency, space of efficiency, spatial model.

The article addresses the issues of evaluating the effectiveness of business marketing, which is an essential process for understanding the feasibility of a marketing strategy, its prospects and shortcomings. There are many methods of evaluating marketing effectiveness, but not every method can identify and solve the problems of the company. The authors propose an approach according to which the effectiveness of enterprise marketing depends on the following factors: the speed of the company's reaction to the actions of competitors; the effectiveness of the company's funds used for marketing activities in the market; the price of the product and its competitiveness in the market. The article proposes an evaluation method that reflects marketing effectiveness as a space. It has been suggested to describe the state of marketing activity with the help of such quantitative indicators as the price of the goods, the cost of the marketing activities, the speed of the company's response to the actions of competitors. The importance of calculating quantitative indicators for evaluating the effectiveness of marketing activities has been outlined: the indicator of the growth of the market volume, the indicator of the growth of revenues from additional investment in marketing, the profitability of marketing expenses, the effect of the money spent. The paper identifies that existing methods of assessing marketing effectiveness are not universal. The article develops an approach to assessing the marketing effectiveness, which has been presented as a space of dependence of three factors that affect the marketing effectiveness of the company. It has been concluded that it is necessary to measure not only the economic efficiency of marketing expenditures, but also the indicators of the speed of the company's response to the actions of competitors, the cost of products, the costs spent by the company marketing activities.

**ЕФЕКТИВНІСТЬ МАРКЕТИНГУ: ПРОСТОРОВА МОДЕЛЬ ОЦІНЮВАННЯ****Калюжна Ю. В., Раєв Є. Ю.***Запорізький національний університет  
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маркетинг, ефективність маркетингу, економічна ефективність, простір ефективності, просторова модель.

Розглядаються питання оцінювання ефективності маркетингу підприємств, яке є невід'ємним процесом для розуміння доцільності маркетингової стратегії, її перспективності та недоліків. Існує багато методів оцінювання маркетингової ефективності, але не кожен метод дозволяє визначити та вирішити проблеми діяльності компанії. Запропоновано підхід, за яким ефективність маркетингу підприємства залежить від таких чинників: швидкість реакції компанії на дії конкурентів; ефективність використаних коштів компанії на маркетингові заходи на ринку; ціна товару та її конкурентоспроможність на ринку. Запропоновано метод оцінювання, який відображає маркетингову ефективність як простір. Стан маркетингової діяльності пропонується описувати за допомогою таких кількісних показників, як ціна товару, вартість проведених маркетингових заходів, швидкість реакції компанії на дії конкурентів. Окреслено важливість розрахунку кількісних показників оцінювання ефективності маркетингової діяльності: показник зростання обсягу ринку, показник зростання доходів від додаткових вкладених витрат на маркетинг, рентабельність витрат на маркетинг, ефект від витрачених коштів. Визначено, що існуючі методи оцінювання маркетингової ефективності не є універсальними. У статті розроблено підхід до оцінювання маркетингової ефективності, представлений як простір залежності трьох факторів, які впливають на маркетингову ефективність компанії. Зроблено висновок про необхідність вимірювання не тільки економічної ефективності витрат на маркетинг, але й показників швидкості реакції компанії на дії конкурентів, вартості продукції, витрат проведених компанією маркетингових заходів.

**Statement of the problem**

There are many methods of evaluating marketing effectiveness today, but not every method can identify and solve a company's problems. Constant changes in the market, the actions of competitors, development of products - this indicates that the Ukrainian market is highly intensive and in order to achieve efficiency, enterprises need to introduce constant monitoring, analysis and evaluation of the company's capabilities for continuous improvement and development all company structures. There is currently no perfect method for evaluating marketing effectiveness, existing methods have some disadvantages, so the problem of identifying and finding ways to improve marketing is a scientific problem [1, 3].

**Analysis of recent studies and publications**

The issues of evaluating the effectiveness of marketing strategy are devoted to the work of many prominent Ukrainian and foreign authors. O.V. Kitova, for example, proposes to evaluate the effectiveness of marketing based on the formation of a balanced scorecard (BSC), based on the approach of target management of the company (Balanced Scorecard, Stern Stewart Integrated EVA Scorecard, Baldrige Criteria, Tableau de Bord, etc.) [4].

So, S.A. Lednev [6] proposes to evaluate marketing effectiveness on the basis of brand "valency" and argues that by tracking the dynamics of brand strength by comparing competing brands, one can conclude on the level of marketing management.

The evaluating marketing performance based on determining the financial return of non-monetary marketing resources is another approach. This approach, unlike the previous one, takes into account the fact that marketing efforts may not always be financially evaluated. For example, N.A. Nagapetyants, E.E. Tarasova offers such performance indicators as profit per marketing employee, sales per unit of negotiation [7].

M.M. Ivanov [8] examines the features of the digital economy, proposes to pay attention to the dynamism of the processes in the economy and emphasizes the need for rapid analysis of multidimensional data to determine marketing effectiveness. Since none of the proposed methods allow to evaluate marketing effectiveness taking into account the factor of speed of reaction of the company to the actions of competitors, an improved methodical approach to evaluation is proposed in the paper.

**Objectives of the article**

The purpose of the study is to develop a methodological approach to determine the effectiveness of marketing as a space that takes into account the speed of the reaction of the company to the actions of competitors, the cost of

production, costs spent by the company marketing activities.

**The main material of the research**

It is necessary to distinguish between "economic effect from marketing" and "marketing effectiveness". From ancient times there is a well-established definition of effect as a result, consequence of causes, forces, actions, measures. The high economic effect gives more room for improvement of the enterprise or profit.

The efficiency means the efficiency of a process, operation, project, defined as the ratio of the effect, the result to the costs that led to its receipt.

There are several marketing effects that need to be addressed: social, psychological and most important in our case - economic.

The authors propose an approach according to which the effectiveness of enterprise marketing depends on the following factors:

the speed of the company's response to competitors' actions

effectiveness of the company's funds used for marketing activities in the market;

price of the product and its competitiveness in the market.

The impact of the above factors on marketing effectiveness is suggested to be presented in the form of space. This space sets the potential area for changing the parameters of a specific product or group of goods, which are carried out within the framework of a price management strategy developed by each enterprise; the effectiveness of the company's money spent on marketing measures to promote the product in the market and the ability to quickly adapt to the challenges of a competitive market.

The following procedure for working with Marketing Performance Space (for one specific entity) is suggested:

Stage 1. Determining the parameters of the object of analysis. Data on costs and prices for certain products are obtained from the planning and economic department of the enterprise. The quality assessment has been proposed by the Bayes formula (allows to "rearrange cause and effect": on the known fact of the event to calculate the probability that it was caused by this reason) [3]. Thus, we get some point with coordinates E (effectiveness of measures), R (reaction), P (price).

Stage 2. Defining marketing performance options. Expertly, using engineering calculations and on the basis of market research, the values of Emax, Emin, Rmax, Rmin, Pmax, Pmin have been recognized. Thus, we obtain the coordinates of the extreme points of the space - A (Emax, Rmin, Pmax), B (Emin, Rmin, Pmax), C (Emin, Rmax, Pmax), D (Emin, Rmin, Pmin) [4].

Table 1 - Characteristics of parameters that form the space of marketing effectiveness of the company (based on [4])

Options	Characteristic
Minimum product price level (Pmin)	The minimum acceptable price below which the production of this product at a given level of profitability is impossible at this stage of development of technology and technology
Maximum product price level (Pmax)	It is characterized by a marginal price that does not satisfy buyers

continuation of Table 1

Maximum level of effectiveness of marketing activities (E <sub>max</sub> )	Higher level of efficiency, the excess of which is impossible at this stage of development of technology and technology
Minimum level of effectiveness of marketing activities (E <sub>min</sub> )	A lower level of efficiency beyond which a product cannot be used for its intended purpose
Maximum speed of the company's response to competitors' actions (R <sub>max</sub> )	The fastest response of the company that directly determines the effectiveness of marketing for the manufacturer
Minimum speed of the company's response to competitors' actions (R <sub>min</sub> )	Lower than speed of response rate estimate of a company, beyond which the company becomes not competitive.

Stage 3. Description of marketing effectiveness. Consider the individual case where marketing effectiveness is limited to four planes, as shown in Fig. 1. One of these planes is parallel to the EP plane (ABD plane), the second

is parallel to the RP plane ((ABC plane), the fourth plane is at an angle (plane ACD). We set the equation for each of the four planes that make up the marketing effectiveness space using the known plane equation [4].

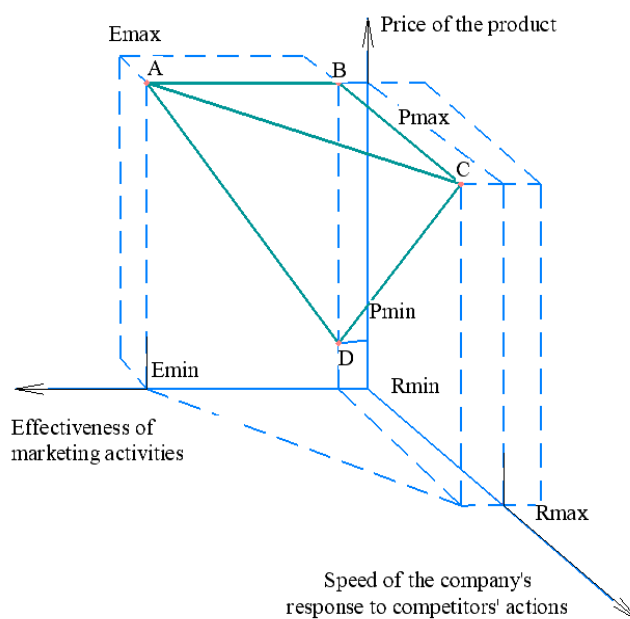


Fig. 1. The space of formation of marketing effectiveness of the company (made by the author based on [4])

We set the equation for each of the four planes that make up the marketing effectiveness space of the company, using the well-known plane equation passing through three points:

the plane ABC is set by the equation (formula):

$$\det \begin{bmatrix} E - E_{max} & R - R_{min} & P - P_{max} \\ E_{min} - E_{max} & R_{min} - R_{min} & P_{max} - P_{max} \\ E_{max} - E_{max} & R_{max} - R_{min} & P_{max} - P_{max} \end{bmatrix} = 0 \quad (1)$$

Solving this equation, we obtain the equation of the following form (formula 2):

$$P = P_{max} \quad (2)$$

2) the plane ABD set by the equation (formula 3):

$$\det \begin{bmatrix} E - E_{max} & R - R_{min} & P - P_{max} \\ E_{min} - E_{max} & R_{min} - R_{min} & P_{max} - P_{max} \\ E_{min} - E_{max} & R_{min} - R_{min} & P_{max} - P_{max} \end{bmatrix} = 0 \quad (3)$$

Solving this equation, we obtain the equation of the following form (formula 4):

$$R = R_{min} \quad (4)$$

3) the plane BCD is given by the equation (formula 5):

$$\det \begin{bmatrix} E - E_{max} & R - R_{min} & P - P_{max} \\ E_{min} - E_{max} & R_{max} - R_{min} & P_{max} - P_{max} \\ E_{min} - E_{min} & R_{min} - R_{min} & P_{min} - P_{max} \end{bmatrix} = 0 \quad (5)$$

Solving this equation, we obtain the equation of the following form (formula 6):

$$E = E_{min} \quad (6)$$

4) the plane ACD is set by the equation (formula 7):

$$\det \begin{bmatrix} E - E_{max} & R - R_{min} & P - P_{max} \\ E_{min} - E_{max} & R_{min} - R_{min} & P_{max} - P_{max} \\ E_{min} - E_{max} & R_{min} - R_{min} & P_{max} - P_{max} \end{bmatrix} = 0 \quad (7)$$

This equation will take the following form (formula 8):

$$(E - E_{max})(R_{max} - R_{min})(P_{min} - P_{max}) - (P - P_{max})(R_{max} - R_{min})(E_{max} - E_{min})(R - R_{min})(E_{max} - E_{min})(P_{min} - P_{max}) = 0 \quad (8)$$

$$(E - E_{max})(R_{max} - R_{min})(P_{min} - P_{max}) - (R - R_{min})(E_{max} - E_{min})(P_{min} - P_{max}) =$$

$$(P - P_{max})(R_{max} - R_{min})(E_{max} - E_{min}) \quad (9)$$

$$(E - E_{max})(R_{max} - R_{min})(E_{max} - E_{min}) = (E - E_{min})(R_{max} - R_{min})(P_{min} - P_{max})$$

$$(R - R_{min})(E_{max} - E_{min})(P_{min} - P_{max}) \quad (10)$$

$$(P-P_{\max})=(E-E_{\max})(R_{\max}-R_{\min})(P_{\min}-P_{\max})-(R-R_{\min})(E_{\max}-E_{\min}) \quad (P_{\min}-P_{\max})/(R_{\max}-R_{\min})(E_{\max}-E_{\min}) \quad (11)$$

Therefore, the optimal price can be determined by the formula 12:

$$P_{opt}=(E-E_{\max})(R_{\max}-R_{\min})(P_{\min}-P_{\max})-(R-R_{\min})(E_{\max}-E_{\min})(P_{\min}-P_{\max})/(R_{\max}-R_{\min})(E_{\max}-E_{\min})+P_{\max} \quad (12)$$

Thus, equation 12 allows you to determine the competitive price for the product under investigation based on information about competitors' products, setting the price on equal terms will allow you to reach the necessary market share and the corresponding position on it.

In forming the marketing strategy of the enterprise and forming a management system, it is necessary to perform a few more steps.

Stage 4. Positioning of the object of analysis on the space of marketing effectiveness of the company (Fig. 1).

Stage 5. Changing the parameters of the object of analysis depending on the results obtained in stage 4, as well as the goals and the current market situation [4].

The parameters of the marketing environment can vary in three directions and accordingly make up 27 possible combinations, 8 of which consider inappropriate, because they do not ensure that the products enter the competitive space. Accordingly, there remain 19 pricing options leading to competitive advantage. If an enterprise manages to ensure that its goods are moved to the area of "efficiency prospects", this means a shift in the parameters of the existing space in the direction of providing better quality or service at lower costs. And it is possible that a number of products of competing companies will be outside the competitive space, which will provide certain competitive advantages to the enterprise, forming a new

competitive space. The vector of increasing marketing effectiveness should be defined as following (formula 13):

$$\bar{a} = (E, R, P), \text{ where } E_{\min} < E < \infty, R_{\min} < R < \infty, 0 < P < P_{\max}. \quad (13)$$

As a result:  $E \rightarrow \infty, R \rightarrow \infty, P \rightarrow 0$  the effectiveness of marketing activities and the speed of response of the company increase while reducing prices for goods. An important advantage of the technique is its versatility: the ability to apply it to industrial enterprises in different industries.

### Conclusions

The authors propose an approach according to which the effectiveness of enterprise marketing depends on the following factors: the speed of the company's reaction to the actions of competitors; the effectiveness of the company's funds used for marketing activities in the market; the price of the product and its competitiveness in the market.

As a result of the researches, the article improves the spatial model of estimation of marketing effectiveness with the maximum orientation on marketing principles. The general model of management of marketing efficiency of the enterprise is formed, which will allow to pay attention to the measures aimed at achievement of strategic goals of the enterprise and will also make it possible to control in real time the state of fulfilment of marketing tasks.

By applying the proposed model, the enterprise will be able to approach the strategic marketing planning process, not only on the basis of own costs, but also on the basis of the level of consumer (tangible) value, demand trends and other non-financial indicators, which allows to adjust the cost of the proposed marketing to maximize the effect of marketing.

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