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EVALUATION OF EFFICIENCY OF MARKETING STRATEGIES OF ENTERPRISES BY FACTOR ANALYSIS METHODS

Topicality. The urgency of the article is explained by the need for an objective assessment of the effectiveness of the marketing strategy, which would enable the company not only to compete effectively in the market, but also to influence the duration and variability of life cycles of both the enterprise itself and its products. Marketing strategy is the main tool for ensuring compliance between the internal environment of the enterprise, its potential and the requirements of the environment. The diverse nature of these requirements creates significant barriers for their accurate and reliable identification and accountability. As these requirements are set according to future (expected) characteristics of the environment, the important task is to predict and foresight them. To assess the reality of such forecasts and to investigate the possibility of different types of risks to implement the strategy - one of the most important tasks, the solution of which will depend on the reaction of the company to the factors of the environment in the long run, that is, the effectiveness of its marketing strategy. The use of factor analysis methods allows to get maximum consideration of the influence of factors on the effectiveness of the marketing strategy of the enterprise.

Aim and tasks. The purpose of the article is to search and adapt the methods of factor analysis to their application in the field of assessing the effectiveness of marketing strategy to maximize their qualitative and quantitative characteristics of factors and obtain reliable results. The tasks, which realize the stated purpose, are the research of a wide spectrum of methods and models of factor analysis, estimation of possibilities of their application in the chosen sphere, analysis of the advantages and disadvantages received.

Research results. The result of the study is the choice and adaptation of methods and models of factor analysis for application in the field of evaluation of the effectiveness of marketing strategy, as well as an analysis of the advantages and disadvantages that the enterprise will receive from this.

The proposed methods will allow to evaluate the effectiveness of marketing strategies of enterprises by indicators of the amount of resources involved to implement the strategy and the speed of obtaining the desired result. The application of the proposed methodology provides significant advantages at the stage of perspective analysis for the development and selection of an optimal marketing strategy. At the final stage of the retrospective analysis, namely at the stage of evaluating the effectiveness of the strategy after its implementation, methods are more effective, which will allow to detect the mistakes made at the stages of its development and implementation, in order to take them into account in the future period.

Investigating the possibilities of using of factor analysis methods in the case of stochastic dependencies between the indicators characterizing the influence of environmental factors on the efficiency of the marketing strategy of the enterprise, it was possible not only to design the corresponding models, but also to evaluate the influence of these factors and the relationship between them.

Conclusion. The proposed methodological approaches allow us to assess the effectiveness of a marketing strategy that fully takes into account the diverse and multi-directional effects of rapidly changing environmental factors, to analyze the possible results before they are received and to compare them with the volumes of planned resources for use, to assess the level of achievement of the strategic goal, reliability and flexibility of the strategy, its ability to reorganize and develop. The prospect for further research is the formulation of methodological approaches to determining the required level of the indicator of the effectiveness of the marketing strategy of the enterprise, the value of which would be able to predict the main performance indicators of the enterprise.

Keywords: efficiency of marketing strategy of the enterprise, methods of factor analysis of efficiency, influence of factors of external and internal environments, deterministic and stochastic models of determination of marketing strategy effectiveness.

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ОЦІНЮВАННЯ ЕФЕКТИВНОСТІ МАРКЕТИНГОВИХ СТРАТЕГІЙ ПІДПРИЄМСТВ ЗА ДОПОМОГОЮ МЕТОДІВ ФАКТОРНОГО АНАЛІЗУ

Актуальність. Актуальність статті пояснюється потребою об'єктивного оцінювання ефективності маркетингової стратегії, яка дала б змогу підприємству не тільки результативно конкурувати на ринку, але й впливати на тривалість і змінність життєвих циклів як самого підприємства, так і його продукції. Маркетингова стратегія – основний інструмент забезпечення відповідності між внутрішнім середовищем підприємства, його потенціалом і вимогами зовнішнього середовища. Різноманітність цих вимог створює істотні перепони для їх точного і достовірного визначення та врахування. Оскільки ці вимоги встановлюються згідно майбутніх (очікуваних) характеристик зовнішнього середовища, то постає важливе завдання: їх передбачити і спрогнозувати. Оцінити реальність таких прогнозів і дослідити можливості виникнення різного типу ризиків реалізації стратегії – це одне з найважливіших завдань, від вирішення якого залежатиме реакція підприємства на фактори зовнішнього середовища у довгостроковій перспективі, тобто ефективність його маркетингової стратегії. Застосування методів факторного аналізу дає змогу отримати максимальне врахування впливу факторів на ефективність маркетингової стратегії підприємства.

Мета та завдання. Метою статті є пошук та адаптація методів факторного аналізу до застосування їх у сфері оцінювання ефективності маркетингової стратегії для максимального врахування їх якісних і кількісних характеристик факторів та отримання достовірних результатів. Завданнями, які реалізують зазначену мету, є дослідження широкого спектру методів і моделей факторного аналізу, оцінювання можливостей їх застосування в обраній сфері, аналіз отриманих переваг та недоліків.

Результати. Результатом дослідження є вибір і адаптація методів і моделей факторного аналізу для застосування у сфері оцінювання ефективності маркетингової стратегії, а також аналіз переваг та недоліків, які отримує підприємство від цього.

Запропоновані методики дадуть змогу оцінити ефективність маркетингових стратегій підприємств за показниками обсягу залучених ресурсів для реалізації стратегії та швидкості отримання бажаного результату. Застосування запропонованої методики надає істотні переваги на етапі перспективного аналізу для розробки і вибору оптимальної маркетингової стратегії. На завершальному етапі під час ретроспективного аналізу, а саме на етапі оцінювання ефективності стратегії після її реалізації, більш дієвими є методи, які дадуть змогу виявити допущені помилки на етапах її розроблення і впровадження, з метою їх врахування у майбутньому періоді.

Дослідження можливостей застосування методів факторного аналізу у випадку стохастичних залежностей між показниками, що характеризують вплив факторів зовнішнього середовища на ефективність маркетингової стратегії підприємства, дало змогу не тільки спроектувати відповідні моделі, але й оцінити вплив цих факторів та взаємозв'язок між ними.

Висновки. Запропоновані до використання методичні підходи дають змогу оцінити показник ефективності маркетингової стратегії, який повною мірою враховує різноманітні та різноспрямовані впливи швидкозмінних факторів зовнішнього середовища, проаналізувати можливі результати ще до їх отримання і співставити їх з обсягами запланованих для використання залучених ресурсів, оцінити рівень досягнення стратегічної мети, надійність та гнучкість стратегії, її здатність до реорганізації та розвитку. Перспективою для подальших досліджень є формулювання методичних підходів до визначення необхідного рівня показника ефективності маркетингової стратегії підприємства, значення якого дало б змогу спрогнозувати основні показники ефективності діяльності підприємства.

Ключові слова: ефективність маркетингової стратегії підприємства, методики факторного аналізу ефективності, вплив факторів зовнішнього і внутрішнього середовища, детермінована та стохастична моделі визначення ефективності маркетингової стратегії.

Problem statement and its connection with important scientific and practical tasks. The marketing strategy of the company is the main tool for ensuring compliance between the internal environment of the enterprise, its potential and the requirements of the environment. The diverse nature of these requirements creates significant barriers for their accurate and reliable identification and accountability. As these requirements are set according to future (expected) characteristics of the environment, the important

task is to predict and foresight them. To assess the reality of such forecasts and to investigate the possibility of different types of risks to implement the strategy - one of the most important tasks, the solution of which will depend on the reaction of the company to the factors of the environment in the long run, that is, the effectiveness of its marketing strategy. The research of the indicator of the effectiveness of the marketing strategy will not only provide the company with the choice of an optimal long-term plan of effective actions that are necessary to ensure its strategic development, but will also enable those factors that influence will be decisive in many factors of the external and internal environment.

The efficiency indicator evaluation creates significant opportunities for the enterprise, since it allows to analyze the possible results before they are received and compare them with the volumes of resources planned for use. The need to take into account all internal and external factors at the stage of strategy development maximizes the role of a perspective analysis of these factors and the interconnection between them. The application of factor deterministic or stochastic analysis methods will provide an opportunity to get the predicted effectiveness of the marketing strategy. In the retrospective analysis it is equally important to compare the results with the goals and expenses of different types of resources, indicators of reliability and competitiveness, dynamism of development and the possibility of reorganization.

In general, the role and significance of factor analysis methods in strategic planning practice is due to the fact that their application allows not only to predict certain indicators but also to evaluate the obtained indicator characterizing the activity that has already taken place. Significant opportunities in the formation and selection of optimal strategy are provided by the use of methods of trend comparison, linear and non-linear programming, etc. However, the use of factor analysis methods enables to combine quantitative and qualitative evaluation criteria, as well as to finally evaluate the effectiveness of the marketing strategy in quantitative and qualitative interpretation.

Analysis of recent publications on the problem. The research of strategic indicators of the activities of enterprises is devoted to the work of foreign and domestic scientists such as Aaker D.A., Ansoff I.H., Baranchev V.P., Volodkin M.V., Gordienko P.L., Kirichenko O.S., Kindratska G.I. Kovalchuk M.I., Levika I.S., Mizyuk B.M., Mnych O.B., Parasi-Vergunenko I.M., Pastukhova V.V., Podolchak N.Yu., Raikovskaya I.T., Redchenko K.I., Striklenda A.J., Thompson A.A., Utkina E.A., Shershnyova Z.Ye., Chukhra N.I. and others. Most of the aforementioned scientists reasonably believe that it is impossible to select an optimal strategy without a selection of criteria and a detailed analysis of alternative options according to these criteria. Such an analysis is considered to be the basis for the correct choice of strategy [1-2, 5-8, 10, 12, 15]. Others believe that the purpose of strategic analysis is to transform the information obtained from the analysis of the environment into the strategy of the enterprise [4, 9, 13]. However, how it should take place and how to turn information about the external environment into a strategic plan of action is not mentioned. Determination of the strategic direction of the development of marketing activities of the enterprise in all these works is considered an important process, the effectiveness of which will depend on the implementation of the purpose of the enterprise and the fulfillment of his mission.

A distinctive feature of the provisions set forth in foreign works on the subject is the perception of the effectiveness of marketing strategy, as a generalization indicator, characterizing the long-term result from the attraction of funds in marketing activities, the consequence of increasing competitiveness and profitability of the enterprise. The research of the effectiveness indicator is considered inappropriate without an analysis of investing in marketing activity. Is the effect of this particular factor decisive, how close is the relationship between it and the indicators of the effectiveness of the marketing strategy, or are there other interactions of factors? What form and character is the relationship between these indicators in different stages of the company's life cycle? As you can see, a number of questions remain unanswered. That is why the chosen topic is relevant and requires further research.

Allocation of previously unsolved parts of the general problem. The need for an objective evaluation of the effectiveness of a marketing strategy that would enable an enterprise not only to compete effectively in the market, but also to influence the duration and variability of life cycles of both the enterprise itself and its products, indicates the relevance of the chosen topic.

Accordingly, the important task is: to evaluate the effectiveness of the marketing strategy with maximum consideration of the effects of factors, to assess the existence of the relationship of factors with the performance indicator, its nature and density, to determine this form of relationship, to group factors according to these characteristics, to investigate the change in the effectiveness of marketing strategy as a result of changes in these factors.

Formulation of research objectives (problem statement). The purpose of the study is to search and adapt the methods of factor analysis to their application in the field of assessing the effectiveness of marketing strategy to maximize their qualitative and quantitative characteristics of factors and obtain reliable results. The tasks, which realize the stated purpose, are the research of a wide spectrum of methods and models of factor analysis, estimation of possibilities of their application in the chosen sphere, analysis of the advantages and disadvantages received.

An outline of the main results and their justification. The method of applying deterministic factor analysis methods to analyzing the effectiveness of marketing strategies is simple enough to use and fully based on a well-established relationship between factors and performance. Such an addition can be represented in an additive form (as an algebraic sum of various types of performance indicators (economic, organizational and social) that form an integral indicator of the effectiveness of a marketing strategy):

$$EF_{ms} = EF_{economic} + EF_{organizational} + EF_{social}, \quad (1)$$

where EF_{ms} - overall indicator of the effectiveness of the marketing strategy;

$EF_{economic}$ - economic component of the effectiveness of marketing strategy;

$EF_{organizational}$ - organizational component of the effectiveness of marketing strategy;

EF_{social} - social component of the effectiveness of marketing strategy.

The multiplicative relationship between the factors and the effectiveness of the marketing strategy should be presented as:

$$EF_{ms} = I * P, \quad (2)$$

where I - the importance of the indicator of the effectiveness of the marketing strategy;

P - indicator of the effectiveness of the marketing strategy.

The multiple dependence between the factors and the effectiveness of the marketing strategy should be presented as:

$$EF_{ms} = R / C, \quad (3)$$

where R - expected result of application of marketing strategy;

C – cost of the attracted resources for the implementation of the strategy.

The mixed relationship between factors and the effectiveness of a marketing strategy should be presented as:

$$EF_{ms} = (EF_{economic} + EF_{organizational} + EF_{social}) / C, \quad (4)$$

For research aforementioned models it is enough to use one of the methods of the elimination method (for example, by the method of chain substitutions or the integral method). However, the methods of deterministic factor analysis do not allow to evaluate the entire spectrum of factors of direct and indirect influence of the environment, to assess the adequacy of the response to them by the enterprise through the resources involved and the implementation of appropriate corrective measures.

Since environmental factors in most cases have a random and rapidly changing nature, in order to analyze their impact on the effectiveness of the marketing strategy, it would be advisable to choose the stochastic relationship between the indicators that characterize this effect and are the result of this effect. Establishing the fact of the relationship between the factors and the indicator, representing the result, as one of the primary tasks of the use of stochastic analysis. If this fact is confirmed, then the next task is to find out its density.

The advantage of using stochastic analysis in the study of the effectiveness of marketing strategies is the ability to study the indirect relationships between indicators. Therefore, this analysis often serves as a tool for deepening the results of deterministic analysis of factors that cannot be combined into a deterministic model.

The expediency of the use of stochastic analysis to assess the effectiveness of marketing strategies is conditioned by the need to study the influence of factors external and internal environment, which is

inherent:

- uncertainty of indicators characterizing the influence of factors;
- a significant part of the indicators is measured only by approximated values;
- complete lack of deterministic connection between indicators;
- indicators cannot be combined in one deterministic model;
- qualitative character of indicators, which is difficult or impossible to express with the help of certain quantitative indicators.

Another important advantage of using stochastic systems in the field of marketing strategy research in forecasting future indicators is that they are built on the basis of calculation of probability in sequential time segments. The main condition for the construction of such systems is the dependence of a particular state or reaction in the present period on the states achieved in previous periods, which can be considered as incentives for possible states in future periods.

The main objectives of the use of stochastic analysis of interrelations in assessing the effectiveness of marketing strategies are:

- study of the availability, direction and intensity of the relationship between the indicators characterizing the selected factors and the effectiveness of marketing activities;
- assessment of qualitative factors that have a determining influence on the effectiveness of marketing strategy;
- construction of a model of the stochastic dependence of factors and indicator of the effectiveness of marketing strategy.

To examine the density of the relationship between two or more independent indicators will allow a correlation analysis. Exploring the nature of the relationship between the random factor and the indicator of the effectiveness of the marketing strategy is advisable by constructing the regression line. To study the dependence of performance indicators on the influence of one or more factors in order to identify the most important and study the structure of this value, use the tools of dispersion analysis.

It should be noted that the use of stochastic analysis to assess the effectiveness of marketing strategies requires the following conditions:

- presence of a certain set of measurements, that is, it must be possible to re-measure the parameters of the same indicator in different conditions;
- construction of a real system of stochastic interconnections requires the coincidence of the quantitative characteristics of the ties between the factors for each measurement;
- quantity of measurements, which provides a sufficient level of objectivity of the results of analysis;
- reliability of the information on the indicators, the accuracy of their calculation and measurement;
- formation of the model on the basis of quantitative analysis of the initial data.

Since the factors affecting the effectiveness of the marketing strategy are quite large, the main problem of constructing a stochastic system in this case is to determine the type of analytic function that reflects the structure of the relationship of the indicator of efficiency with factor indicators. Since the relationship between the variables in the factor system is no longer in each case, but in the aggregate of the same cases, it is reflected in the change in the average values. These links are investigated using correlation-regression analysis. Its use in the study of the effectiveness of marketing strategies will allow the evaluation of indicators to identify the relationship between them, establish with a correlation coefficient its density, as well as determine the analytical form of this connection using the regression equations.

The use of correlation analysis in the research of the effectiveness of marketing strategies enables to determine changes in the indicator of the effectiveness of marketing strategies under the influence of one or more factors, as well as the relative level of dependence of this indicator on each factor and the role of each factor in the formation of the indicator. After establishing a connection between the indicators, the general nature of this connection should be determined.

The application of correlation-regression analysis in the field of evaluating the effectiveness of marketing strategies will enable the following tasks to be implemented:

- to determine the change in the performance indicator under the influence of one or more factors (how much will this indicator change when the factor is changed per unit);
- the establishing of the relative level of dependence of the indicator of the effectiveness of marketing strategy on each factor;
- assessment of the nature and density of the relationship between the indicators that characterize the

factors and indicator of the effectiveness of marketing strategy.

It should be noted that the relationship between the indicators that represent the factors and effectiveness of the marketing strategy, can take the following forms:

- factor is directly related to the efficiency indicator;
- indicator of the effectiveness of the marketing strategy is determined by a set of factors;
- one factor induces a change in several performance indicators at once (for example, the effectiveness and competitiveness of a marketing strategy).

To evaluate the effectiveness of marketing strategies, it is advisable to use both single-factor and multi-factor models. It is logical that in the case of the first study, one-factor correlation-regression analysis is used, the important characteristic of which is the regression line, that is, the graphical representation of the regression equation, which is used to express the relationship between the size of the indicator-factor and the effective indicator in a typical condition under certain conditions.

In the case of applying a one-factor model to study the effectiveness of marketing strategies, it is advisable to use the equation of pair regression - a function that binds the mean of the factor and the efficiency indicator:

$$EF_{ms} = f(x) + \xi, \quad (5)$$

where $f(x)$ - regression line;

ξ - the residual component (random variable), whose value is determined by the action of other factors and is equal to the sum of the explained and unexplained variation, does not depend on the chosen factor x and is defined as $\sum (E\phi_{mc} - \overline{E\phi_{mc}})^2$.

The determination coefficient characterizing the correlation of the explained variation, which is determined by the linear regression equation, and the total, shows how the variation of the indicator of the effectiveness of the marketing strategy is due to variations in the factor. A significant disadvantage is that its value does not reflect the link between the investigated indicators.

In the case of a linear form of communication, the efficiency indicator varies evenly under the influence of the indicator factor, so it can be represented as a straight line equation:

$$y = ax + b, \quad (6)$$

where y - smoothed average value of the result (efficiency indicator);

x - factor indicator,

a and b - parameters of the regression equation.

Parameter a , being a regression coefficient, indicates how the indicator of the effectiveness of the marketing strategy changes as a result of the factor x change per unit. Its positive meaning means a direct connection between the indicators, and the negative - the connection between the indicators is inverse. Free member of regression, parameter b characterizes the value of the indicator of the effectiveness of the marketing strategy, if the influence of the factor is terminated. These parameters can be determined by the least squares method, solving the system of equations:

$$\begin{cases} nb + a \sum x = \sum y \\ b \sum x + a \sum x^2 = \sum xy \end{cases}, \quad (7)$$

where n - number of members in each of the two comparable rows.

The regression coefficient is a dimensionless variable that varies from -1 to +1. If the parameter a is zero, then the relationship between the indicators is not linear (non-linear dependency is not excluded).

If $|a|$ close to one, then the linear relationship between the indicators is more dense and the probability of the existence of a linear relationship between them is reduced.

The obtained values of the regression parameters enable to calculate partial correlation coefficients between the indicator of the effectiveness of the marketing strategy and the factors by excluding the influence of all other factors. Calculating the value of a , it is expedient to calculate the elasticity coefficient. This indicator characterizes the percent change in the effective indicator in the case of a change in the factor of 1 %.

The technology of applying one-factor correlation-regression analysis to assess the effectiveness of a marketing strategy involves the following sequence of steps:

- 1) evaluation of the relationship between the factor and the indicator of the effectiveness of the marketing strategy by building a correlation field;
- 2) calculation of the correlation coefficients a and b according to the measurements of the factor;
- 3) formation of the regression equation (the relationship between the factor and the indicator of the effectiveness of the marketing strategy);
- 4) calculation of the error of the regression coefficients and the approximation coefficient, in order to evaluate the regression equation for inapplicability for analysis and forecasting;
- 5) analysis of the relationship between the factor and the indicator of the effectiveness of the marketing strategy using the correlation coefficient (the closer it is to 1, the less the role of factors not taken into account in the model and the more reason to conclude that the model is complete and adequately describes the investigated efficiency indicator, and found in such the way secondary factors are rejected) and the determination coefficient characterizing the completeness of the factor's influence;
- 6) calculation of the coefficient of elasticity between the factor and the indicator of the effectiveness of the marketing strategy.

One of the main benefits of correlation-regression analysis is the ability to estimate the level of relationship density between the factor and the indicator of the effectiveness of the marketing strategy, their orientation and forms. Since the factor has the ability to positively influence some indicators, it negatively affects others.

Since it is obvious that the effectiveness of a marketing strategy affects not only one, but several interrelated factors, their impact on the performance indicator is complex, and can not be determined simply by the sum of isolated effects.

In this case, it is expedient to use multivariate correlation-regression analysis for its evaluation of methods, which, in contrast to the one-factor analysis, takes into account the effect on the predicted index of the aggregate of factors, that is, it is used for the study of multiple regressions (the relationship between the indicators, which include more than one independent variable). In fact, one can estimate the magnitude of the influence on the effective index of each of the factors introduced in the model with a fixed mean of other factors. However, the condition for the absence of a functional link between factors must be preserved.

Multi-factor correlation-regression analysis allows you to formulate an expression that represents the relationship between factors and the indicator of the effectiveness of the marketing strategy, that is, the function of the type:

$$EF\ ms = f(x_1, x_2, x_3, \dots, x_n). \quad (8)$$

On the basis of these factors, one can determine the indicator of the effectiveness of a marketing strategy, as a function of several variables, which, however, better than others, reflects the real relationships between the investigated indicators. These relationships between indicators can be represented as the equation of multiple linear regression:

$$y = a_0 + a_1x_1 + a_2x_2 + \dots + a_nx_n, \quad (9)$$

where y - estimated values of the effective indicator (effectiveness of the marketing strategy);

x_1, x_2, \dots, x_n - value of factors;

$a_0, a_1, a_2, \dots, a_n$ - Equation parameters that can be computed by the least squares method.

The given parameters of the linear model characterize the marginal increase of the indicator of the effectiveness of the marketing strategy, depending on the marginal increase of each factor per unit, provided the sustainability of other factors. These parameters indicate the level of influence of the relevant factor. The specified parameters of the equation are calculated by the least squares method. Regarding the free term of the equation of multiple regression, it has no economic meaning.

It should be noted that it is practically impossible to visualize the links between the indicators in the multivariate model in order to substantiate the form of communication. This task can be implemented by selecting a different type of function. However, significant advantages in this case is that any function of many variables can be reduced to a linear form by logarithm or replacement of variables.

Thus, the regression equation of the relationship between the selected indicators of market share, the level of expenses for marketing strategy implementation, consumer demand, the number of competitors in the market and the indicator of the effectiveness of marketing strategy can be represented as:

$$y = 0,37 - 1,29x_1 - 0,85x_2 - 0,12x_3 \quad (10)$$

The practical application of the developed model involves assessing the effectiveness of the marketing strategy of the enterprise, determining the influence of factors on the change of this indicator, identifying reserves for its improvement, planning and forecasting its level.

If the results of the evaluation are not quantitative measurements, as in the case of the study of certain criteria of the effectiveness of the marketing strategy (creativity, reliability, flexibility, ability to reorganize, etc.), then it is expedient to use a variance analysis, which allows to estimate the rate, depending on various simultaneously acting factors, to make a choice of the most important of them, to evaluate their influence and to establish the structure of the connection between them and this indicator.

It is the result of the use of the dispersion analysis to answer the question about the significance or the insignificance of the factors influence on the efficiency indicator of the marketing strategy. It is important that the dispersion analysis is particularly effective in the study of several factors, since each study is the basis for simultaneous evaluation of the impact of all factors and their interaction. This feature, in contrast to the elimination method, which is based on the gradual study of each particular factor for the unchangeability of others, allows us to evaluate the interaction of factors while simultaneously changing them.

Since the dispersion analysis consists in the allocation and evaluation of the factors causing change in the investigated quantity, its method is reduced to the expansion of the sum of squares of the deviations of the investigated values of the indicator of the effectiveness of the marketing strategy from the general average to the individual parts, which determine the change in this indicator.

Characteristics of the connection between the investigated factors and the indicator of the effectiveness of the marketing strategy can be estimated by determining the determination coefficient, which characterizes the level of influence of the factor on the formation of general changes in the efficiency index and is defined as the ratio of the intergroup variance to the total. To test the hypothesis of equality of group average is expedient using a statistical criterion. In the case of non-confirmation of such a hypothesis for a factor at the selected level of significance with a given confidence probability, the effect of this factor is considered significant. In this case, the part of the overall variance is determined by the variation of the significant factor, and its value is equal to the particle of the intergroup variance, which falls on the factor whose influence is analyzed. It is expedient to confirm or reject the existence of a pair or combination of factors by determining the proportion of the total dispersion associated with such interaction, subject to the effect of two or more factors, if their mutual condition is assumed. The analysis of the relationship between the investigated indicators in this case should be done using the determination coefficient.

So, as we see, despite all the complexity of calculations, the formation and research of the model of the relationship between the indicators in the case of factor stochastic analysis, the results of its application are practical, which creates the possibility of their use in determining the effectiveness of the marketing strategy of enterprises.

Conclusions and perspectives of further research. The use of factor analysis methods to solve practical problems in order to investigate the effectiveness of marketing strategies of enterprises is of great importance as the results of this are:

- Significant deepening of the analysis by establishing the place and role of each factor in shaping the effectiveness of the marketing strategy;
- deepening the knowledge of the interconnection and mutual influence of the factors presented in the factor model, the nature and form of these ligaments;
- assessment and identification of certain regularities of the factors influence on the formation of the indicator of the effectiveness of the marketing strategy;
- accurate, detailed and objective evaluation of the results of marketing strategy implementation and the definition of hidden reserves for improving these results.

The result of the research is the choice and adaptation of methods and models of factor analysis for application in the field of evaluation of the effectiveness of marketing strategy, as well as an analysis of the advantages and disadvantages that the enterprise will receive from this.

The proposed methods will allow to assess the effectiveness of marketing strategies of enterprises by the indicators of the amount of resources involved in implementing the strategy and the timing of obtaining the desired result. The application of the proposed methodology provides significant advantages at the stage of perspective analysis for the development and selection of an optimal marketing strategy. At the final stage of the retrospective analysis, namely at the stage of evaluating the effectiveness of the strategy after its implementation, methods are more effective, which will allow to detect the mistakes made at the stages of its development and implementation, in order to take them into account in the future period.

Investigating the possibilities of the using of factor analysis methods in the case of stochastic relationships between the indicators characterizing the influence of environmental factors on the effectiveness of the marketing strategy of the enterprise, allowed not only to design the relevant models, but also to evaluate the influence of these factors and the interrelation between them.

The proposed methodological approaches allow us to assess the effectiveness of a marketing strategy that fully takes into account the diverse and multi-directional effects of rapidly changing environmental factors, to analyze the possible results before they are received and to compare them with the volumes of planned resources for use, to assess the level of achievement of the strategic goal, reliability and flexibility of the strategy, its ability to reorganize and develop. The prospect for further research is the formulation of methodological approaches to determining the required level of the indicator of the effectiveness of the marketing strategy of the enterprise, the value of which would be able to predict the main performance indicators of the enterprise. It is assumed that on the basis of the proposed provisions, a multifactorial model for assessing the effectiveness of marketing strategies of enterprises will be developed and practically implemented in the future, which, due to its versatility, will enable them to react effectively to the fast-changeability of the external environment in real-time.

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