УДК 519.86

MATHEMATICAL MODELING IN SMALL BUSINESS AND ENTREPRENEURSHIP

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Abstract: Discusses the problems of marketing small business. Evaluated management use of mathematical methods. The expediency of use of methods of economic-mathematical and econ-ometric modeling in small business. Describes the application of SWOT analysis in the operation of small businesses.

Key words: small business, economic-mathematical methods, econometric models, analysis.

Small business is an entrepreneurial activity carried out by subjects of a market economy under certain established by laws, government authorities or other representative organizations of the criteria stating the essence of this concept.

Small business is one of the leading sectors, largely determining the rate of economic growth, the state of employment, the structure and quality of the gross national product. Small business development responds global trends towards the formation of a flexible mixed economy, a combination of different forms of ownership and an adequate economic model, in which a complex synthesis of a competitive market mechanism and state regulation of large, medium and small production.

In countries with developed market economies in small business employs about 60% of the economically active population. Small business not only creates new jobs laces on the basis of self-employment of the population and increases the level of its consumption, but also reproduces the competitive environment necessary for the normal functioning development and development of a market economy and the formation its effective antitrust structure. Small and medium business is very important because it builds a normal market diversified, stable,

stable, developing emerging economy. Small and medium business is an opportunity for self-employment employment of millions of people and a very large part of the nationnal economy.

The purpose of the article is to justify the use of economico-mathematical methods in management work small business. In the current economic and political situation in Uzbekistan, small business become an important part of the economy. Therefore, study development of small business from the point of view of economic theory is highly relevant. One of small business study tools can be economic and mathematical modeling. To understand- development of small businesses can be use various mathematical models.

In countries with developed market economies, the main small business functioning problem is strong dependence of business on the external environment - on concurious environment and from the so-called STEP-factori. For successful functioning and development, small business must be able to adapt and good orientation in conditions of a high degree of certainty, i.e. small business marketing wears ri- steep character. To mitigate risks, a manager needs a high professionalism in the processing and analysis of economic information, efficiency in decision making in a changing environment.

That is, the manager, as a decision-maker, must be just as good a good marketer. Small business marketing has its own characteristics. For successful development and stable functioning small business marketing should be oriented primarily for the consumer with his individual queries, i.e. specialized marketing should be the main form that will allow concentration focus their resources on the highest priority areas niyah. Since a small business, as a rule, has a very limited financial resources for diversification their activities, the cost of a manager's mistake, the cost of making wrong decisions multiplies Xia.

Therefore, the most difficult and important issues Requests for the activities of the manager are:

- marketing research for market research;
- market segmentation;

- selection of the target segment;

- assessment of the potential power of the selected segment;

- risk assessment of the strength of potential competitors in the selected market segment. The successful solution of these tasks requires the manager sufficiently high training in the field of econometrics, since the involvement of consulting firms to solve Addressing these issues is quite expensive. At the same time, in order to promptly respond to respond to changes in the external environment, the manager must constantly monitor the market situation for the most significant parameters.

A critical success factor in marketing decision-making is the collection and operation effective use of the information received. For this- it requires certain knowledge and skills from the manager on the formation of databases and work with the received information formation. So, for small business managers the most methods of mathematical modeling are available studies and economic and statistical methods that allow you to quickly process operational information and use it in practice.

The most famous examples of the application of the method dov of economic and mathematical modeling (EMM) in marketing for structuring and analyzing marketing new information are models of marketing com- plex 4p (7p), product (firm) life cycle model, matrix "Boston Consulting Group", matrix of determining problems, SWOT analysis of competitors, etc. They can become the simplest tools for small businesses in marketing management and will allow you to quickly assess position of the organization in the market and its competitive advantages. EMM tools enable manager independently structure his own situation and use your own models to determining the optimal behavior of a small organization in the market under conditions of risk and uncertainty.

The development of a mathematical model of small business should be based on probabilistic and simulation methods and their comparison with statistical skim, characterizing the real situation in the analysis area of the economy. Methods of economic and mathematical modeling allow you to set and solve a variety of tasks

that rye arise in the marketing of a small organization. It is advisable to separate econometric methods and methods of economic and mathematical modeling, although this division is very arbitrary.

An example of eco nometric methods can be the method of selective study of consumers. This technology is close to technology for conducting sociological surveys, as well as has a lot to do with product quality management. When using the methods of economic and mathematical modeling uses models aimed for specific situations, as opposed to econometric models with the possibility of their application in various spheres work activities. An example is the model of op- optimal distribution of interchangeable resources, which will maximize the total efficiency the intensity of the work performed.

A set of such computer models should be a working tool for a small business manager. When using the apparatus of mathematical modeling in solving marketing problems of small business, methods of expert assessments, statistical methods and methods of simulation are used.

In marketing research for small business, interval and fuzzy estimates, qualitative indicators, etc. also play an important role. During the study of economic risks, for example, those associated with investment activities, it becomes necessary to model various uncertainties of the future and the present, which are described using probabilistic -statistical models used mainly for the analysis of mass phenomena, fuzzy (interval) models - for the analysis of single personal events.

When using mathematical models, an essential role is played by research on the stability of the results to the permissible deviations of the assumptions of the model and initial data. The model can be recommended for practical use if the conclusions obtained change slightly with such deviations.

Methods such as the Boston Consulting Group Matrix and SWOT analysis can be used to structure and analyze economic information during management decision-making. They will make it possible to effectively apply modern decision-making methods, including those based on the use of statistics of non-numerical

data.

When applying SWOT analysis, small business organizations are assessed (in qualitative or quantitative scales) according to the following groups of indicators: strengths and weaknesses, opportunities and threats. Private indicators are organized into group indicators, and group indicators are organized into a final (generalized) one.

Conclusions

Application of economic and mathematical modeling small business marketing has broad prospects tiva. Even more interesting possibilities are revealed in the field of theoretical research of problems of small business. Collaboration of specialists in the field of eco- nomics, econometrics, mathematics and practitioners Nedzherov can benefit theory and practice.

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