



Matrix Approach to Forming a Strategy for the Development of Industrial Enterprises

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ABSTRACT

Strategic planning is an integral part of the organization's functioning system. Successful development of the enterprise is impossible, and effective strategic planning is also impossible without matrix tools. The matrix method used in strategic planning allows you to visually present the information being studied, as well as determine the correct line of behavior in a particular situation. Matrix tools, for developing an enterprise development strategy is a set of economic forecasting tools that allow to fully implementing the enterprise strategy in a market economy.

ARTICLE INFO

Article history:

Received 10 July 2023

Received in revised form

13 Aug 2023

Accepted 25 Sep 2023

Keywords: Strategy, strategic planning, matrix, enterprise, portfolio analysis, competition, business units, matrix tools, BCG matrices, PIMS, SPACE, GE / McKinsey, Shell / DPM.

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Introduction

The market orientation of the industrial sector increasingly requires managers to be able to see prospects and make effective strategic management decisions in the current economic environment. At the same time, the growing instability of the conditions for entrepreneurial activity, the specific features of the branches of activity objectively require the development of an integrated system of strategic positioning of the enterprise. Development of a development strategy for the enterprise is based on the use of economic matrices. The matrix approach claims universality - it allows you to visualize and conveniently present the information necessary for strategic management.

Analysis of the literature on the topic

Currently, some well-known scientists have developed a number of analytical methods and models that can be useful in making strategic decisions. The most famous among them are the Ansoff matrix, approaches to the analysis of competition by M. Porter, the portfolio analysis matrix of the Boston Consulting Group (BCG), the consulting firms McKinsey and Arthur D. Little. In addition, the PIMS (Profit Impact of Market Strategies) project should be highlighted.

So, for example B. Karloff characterizes the BCG matrix as a matrix with a high degree of simplification [1]. But in our opinion, one can agree with the professor at Harvard Business School M. Porter, who criticized this model, stressing that the market share of companies and the growth of the industry market are by no means the only criteria for profitability and prospects. According to Porter M., all strategies for creating sustainable competitive advantages, one way or another, fit into three standard options:

- minimization of production costs;
- product differentiation;
- concentration on a specific market segment.

Each typical strategy promises only relative success, since it has not only advantages, but also is fraught with risks [2]. The main problem of “typical” strategic planning is the hope of a constant situation for a long time. When the situation suddenly changes, formal schemes built on the principle of “from analysis to action” turn out to be useless.

In the 60-70s, As part of research at Stanford University, Albert Humphrey, a business and management consultant, developed a SWOT analysis technique. The idea is widespread and today it is presented in the works of many other authors. [3]. A SWOT analysis (consideration of the company's strengths and weaknesses, opportunities and risks) models the existing and potential position of the company depending on the given strengths and weaknesses, as well as external opportunities and risks. He identifies the key components of marketing information from a wealth of marketing audit data. This allows the company to identify external opportunities and risks and compare them with its strengths and weaknesses.

In strategic planning, a lot of matrices of one or another orientation are used. In this regard, it becomes necessary to systematize the matrices used in strategic planning, as well as the phased implementation of the matrix approach at all stages of strategic planning. Figure 1 shows the classification of matrices proposed by G. Loginov. [4]

Among the recognized and most common methods of strategic analysis are strategic positioning models. Models based on the use of expert assessments: GE / McKinscy, Shell / DPM, Hofer / Schendel and ADL, have many differentiated assessments of the state of the organization's business [5].

However, even more concreteness can be achieved if, when determining the strategic position of the business and developing recommendations, it is necessary to take into account not only integral assessments of the attractiveness of the market and the strengths of the organization as a whole, but also the differentiated assessments on the basis of which they were determined. Taking into account the state of external factors of market attractiveness contributes to the development of specific strategic orientations for realizing current opportunities and overcoming threats. Taking into account characteristics reflecting the degree of business success contributes to the formation of strategic orientations towards the development of the relevant sides of the enterprise.

To implement this approach, Kulikov V.I. a matrix of differential strategic analysis (DSA) is proposed [6]. This 3 * 3 matrix, as well as the GE / McKinsey matrix, is formed on the basis of expert evaluations of the individual differentiated characteristics of market attractiveness and business success.

However, unlike the GE / McKinsey matrix, the main purpose of the DSA matrix is not integral, but a differentiated analysis of the strategic position of the business. And this involves the construction of not only a common integrated matrix, but also many differentiated matrices for individual businesses. Each positioned business is brought to its own matrix field and is considered in a differentiated way:

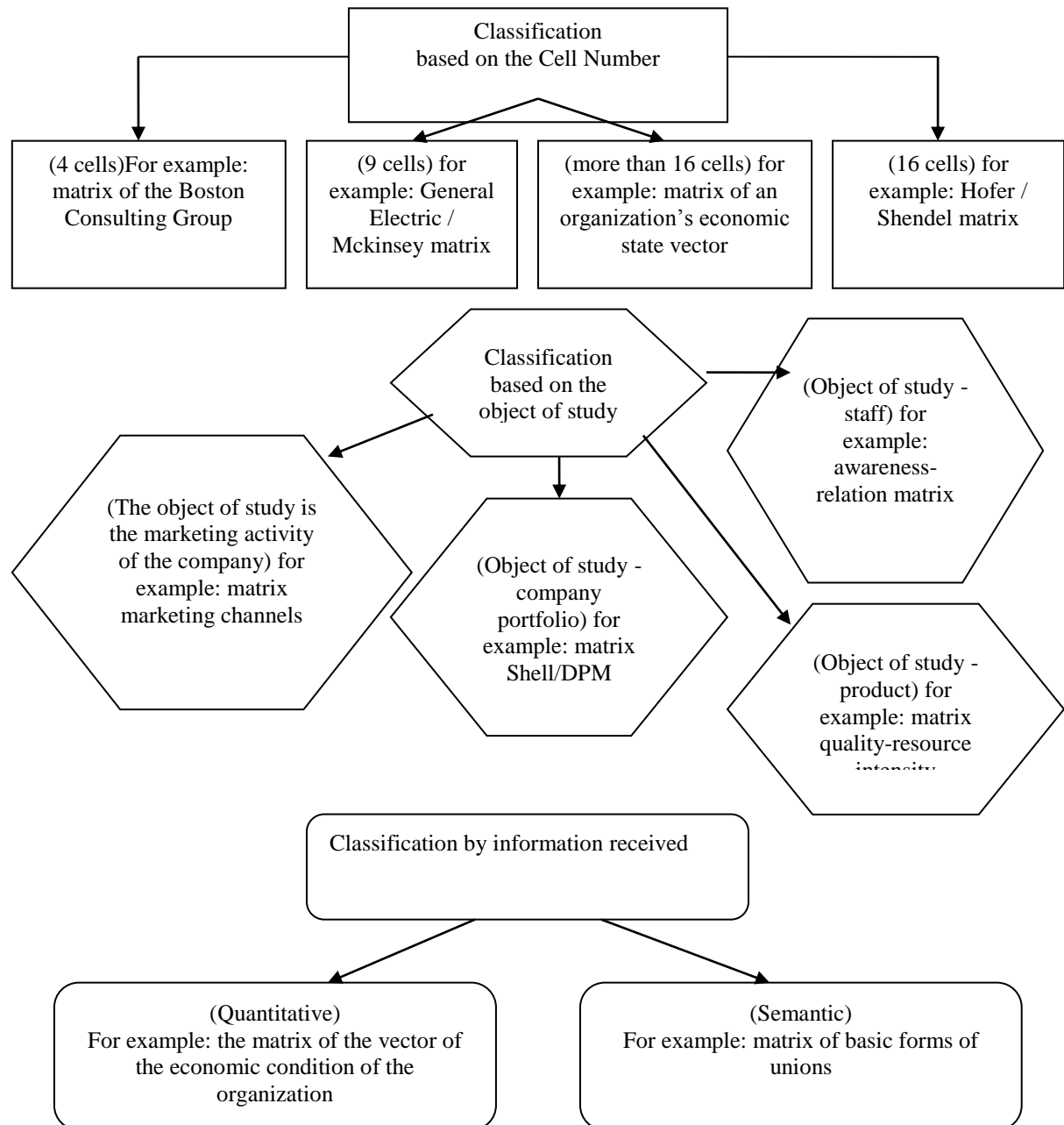


Fig. 1. Classification of strategic planning matrices [4]

specific characteristics of the market attractiveness and the organization's strengths. But for this it is necessary that a certain characteristic of the organization's business strength corresponds to a certain characteristic of the attractiveness of the market. Thus, the composition of the differentiated characteristics of the DSA matrix should be formed on the basis of the principle of pairing in each area of assessment: size and growth rate of the market — market share, industry rate of return — comparative profitability, etc. (Table 1).

According to V.I. Kulikov, the market is all the more attractive, the more and with less effort the organization can achieve its strategic goals. Therefore, an attractive capacious and rapidly growing

market, with a high profit margin, with a high commitment of the buyer of relevant products and, at the same time, with a significant predominance of new opportunities over threats, less intense competition and a lower technological level of production, which makes it easier to enter technology leaders.

The high attractiveness of the market in certain valuation areas means that the organization has significant opportunities in this business. But their implementation requires the development of the organization's respective strengths.

Given the low market attractiveness, opportunities are transforming into threats. And this implies either a strategic retreat (up to leaving the market), or counteracting the emerging threats also due to the development of the organization's strengths. So the decline in the market can be offset by an increase in the share of the organization on it.

Table 1

Characteristics of the attractiveness of the market and the strengths of the organization's business, taken into account when constructing the DSA matrix [6]

Assessment Area	Market attractiveness characteristics	Characteristics of the strengths of an organization's business
volume of sales	market size and growth rate	market share
business profitability	industry rate of return	comparative profitability
competition	intensity of competition	ability to compete in price and quality of goods
customer commitment	customer commitment to this product	customer commitment to company products
change of situation	new opportunities and threats	competency to respond to changing situations
technology	technological level of production in the industry	company technological capabilities

And the high technological level of this sphere of production with the technological leadership of the organization from the threat becomes an opportunity, creating a significant entry barrier for less technologically advanced competitors.

Thus, both high and low attractiveness of the market in certain valuation areas makes an active strategy for developing the corresponding strengths of the organization relevant.

Using the DSA matrix allows you to significantly expand the capabilities of matrix strategic analysis, make it more specific, increase the justification for the formation of strategic alternatives and choose a development strategy for the organization.

Research methodology

Theoretical and methodological foundations of the study are based on the findings and suggestions of scientists in the field of strategic planning. The methodological basis for solving these problems is the concept of strategic planning. In the course of the study, such methods as portfolio analysis, matrix method, strategic tools for identifying enterprise potential, SWOT analysis described in the works of economists were used.

Analysis and research results

The two-dimensional matrix developed by the Boston Consulting Group, known as the Boston Consulting Group matrix, or BCG matrix, is widely used in the practice of strategic choice. This matrix allows the company to classify products according to their market share in relation to the main competitors and annual growth rates in the industry. It makes it possible to determine which product of the enterprise occupies a leading position in comparison with competitors, what is the dynamics of its markets, allows the preliminary distribution of strategic financial resources between products. This matrix is based on the well-known premise - the larger the share of the product on the market (the larger the volume of production), the lower the unit costs per unit of production and the higher the profit as a result of relative savings from production volumes.

As is known, the purpose of portfolio analysis methods is to help managers understand the business, create a clear picture of the formation of costs and profits in a diversified company.

This, in turn, requires a thorough analysis of the opportunities and threats for each business unit (business unit). Portfolio analysis provides managers with a tool for analyzing and planning portfolio strategies to determine the reasonable diversification of a diversified firm. It also helps to introduce a common terminology and management structure in order to facilitate communication within the company. One of the most important areas of using the results of portfolio analysis is making decisions on the restructuring of the company in order to use the opportunities that arise both within the company and outside it. Approximately 75% of Fortune 500 companies and many smaller companies with a wide range of products and services use some form of portfolio analysis to shape their strategy.

The main method of portfolio analysis is the construction of two-dimensional matrices with which business units or products can be compared with each other according to criteria such as sales growth rates, relative competitive position, life cycle stage, market share, industry attractiveness, etc. principles of market segmentation (allocation of the most significant criteria based on the analysis of the external environment) and analysis of the enterprise and coordination (pairwise comparison of criteria). It should be noted that although different sets of variables are used in the matrices of different consulting firms, they are still two-dimensional matrices, in which the values of internal factors are fixed along one axis and external factors are recorded on the other.

However, portfolio analysis is designed to solve the following problems:

- coordination of business strategies or strategies of business units of the enterprise. It is designed to ensure a balance between business units with quick returns and directions that prepare the future;
- distribution of human and financial resources between business units;
- portfolio balance analysis;
- establishment of executive tasks;
- carrying out restructuring of the enterprise (merger, acquisition, liquidation and other actions to change the management structure of the enterprise, expand or reduce the business).

In all portfolio analysis matrices, the assessment of market development prospects is determined on one axis, and the assessment of the competitiveness of business units on the other. Typically, the process of portfolio analysis goes according to one scheme.

1. All activities of the enterprise are divided into strategic business units. The task of identifying or identifying business units is quite complicated, especially for large corporations. It is believed that a business unit should:

- to serve the market, and not work for other departments of the enterprise. Empirical studies of Western experts, in particular, the data of the PIMS project, indicate that if more than 60% of the production unit's products are used inside the company by another production unit, it is advisable to consider these two units as one object for strategic analysis purposes 1;

- have their customers and competitors;
- the management of the business unit must control the key factors that determine success in the market.

2. The relative competitiveness of these business units and the development prospects of the respective markets are determined. At the same time, different consulting firms offer different criteria for assessing the prospects for market development and the activities of business units in these markets.

3. A strategy is developed for each business unit (business strategy), and business units with similar strategies are combined into homogeneous groups.

4. The management evaluates the business strategies of all divisions of the enterprise in terms of their compliance with the corporate strategy, measuring the profits and resources required by each division. Based on such a comparative analysis, it is possible to make decisions on adjusting business strategies. This is the most difficult stage of strategic management, where the influence of the subjective experience of managers, their ability to predict and anticipate the development of environmental events, market conditions and other factors is great.

Portfolio matrices allow you to summarize the results of strategy development and present them in a visual form. The seeming simplicity of these methods is misleading, since they require complete and reliable information about the state of the market, about the strengths and weaknesses of the enterprise and its main competitors. The construction of portfolio matrices involves a lot of work on market segmentation, on collecting information that may not be explicitly available.

The main drawback of portfolio analysis is the use of data on the current state of the business, which can't always be predicted in the future. The differences in portfolio analysis methods are in approaches to assessing the competitive positions of strategic business units and market attractiveness. The best known approaches are those proposed by the Boston Consulting Group (BCG portfolio matrix) and the McKinsey consulting firm ("business screen"). However, in any portfolio matrix, various types of business are evaluated according to only two criteria, while many other factors (product quality, investment, etc.) are ignored.

The Boston matrix, or the growth / market share matrix, is based on the product's life cycle model, according to which the product goes through four stages in its development: entering the market (product is a "problem"), growth (product is a "star"), maturity (commodity- "cash cow") and recession (commodity- "dog"). At the same time, cash flows and profit of the enterprise also change: negative profit is replaced by its growth and then a gradual decrease. Thus, the Boston matrix focuses on the positive and negative cash flows that are associated with the various business units of the enterprise or its products.

Therefore, the analysis based on the BCG matrix allows us to draw the following conclusions:

- identify a possible strategy for business units or goods;
- assess their financing needs and profitability potential;
- assess the balance of the corporate portfolio.

• When conducting portfolio analysis in practice, enterprise management may encounter many problems of the methodological plan. In particular, in multi-product companies it is difficult to identify business units, as well as to choose a limit dividing fast and slowly growing types of business, it is difficult to group business units in order to develop a unified development strategy, etc. Nevertheless, portfolio analysis is used in the formation of corporate strategy due to its inherent advantages. Portfolio analysis has a positive effect in the following areas:

- stimulates senior management to separately evaluate each type of business of the enterprise, set goals for it and reallocate resources;
- provides a simple and clear picture of the comparative “strength” of each business unit in the corporate portfolio;
- shows how the ability of each business unit to generate a revenue stream, and its need for funding;
- stimulates the use of environmental data;
- raises the problem of matching financial flows to the needs of business expansion and growth.

In our opinion, the main drawback of the Boston Consulting Group approach is as follows:

- only two dimensions are provided in the matrix - market growth and relative market share; many other growth factors are not considered;
- the position of a strategic business unit substantially depends on determining the boundaries and scale of the market;
- in practice, it is not always clear how the growth of the market / market share affects the profitability of the business;
- the interdependence of business units is ignored;
- A certain cyclical development of commodity markets are ignored.

The effectiveness of applying the BCG matrix lies in the ability to compare the positions of enterprises in a single portfolio. With its help, you can identify the winners of the "market leaders" and establish the degree of balance between enterprises in the context of four quadrants of the matrix. Theoretically, enterprises operating in fast-growing industries need a constant inflow of capital to expand their capacities. Units operating in slowly growing industries, on the contrary, must have a surplus of cash [1].

This matrix is often used to assess the financing needs experienced by diversified corporations and helps manage complex diversified associations. However, it should be noted that it is not intended to identify criteria for success or a competitive situation in various industries.

Traditionally, the SWOT analysis was presented in the form of a 2×2 matrix, which is currently improved and includes more elements, in particular, a summary of the reasons for good and bad work. SWOT analysis is the basis for determining goals and strategies, and should be carried out at several levels: organization, each main market segment, each main product / service, as well as competition. Information is included in the SWOT analysis, depending on its significance and probability of use.

As it is known, the SPACE matrix is the best method for analyzing the competitive position of an enterprise, which determines the strategic position of an enterprise in the industry using two internal indicators (financial stability and competitive advantage) and two external indicators (industry stability and stability of external conditions)[7]. Each of these indicators can be characterized by a set of criteria. For example, the “competitive advantages” group will include criteria such as market share, product quality, its life cycle, and others. The authors of the methodology propose to evaluate each of them on a six-point scale, and based on this, derive the average statistical score of the indicator.

Thus, the strategic position of a company is generally classified as aggressive (the market is growing, the economy is stable), competitive, conservative (the market is stagnating or shrinking, but the economic conditions are stable) or defensive. The SPACE matrix can be used on its own or as a basis for another analysis (for example, SWOT analysis, industry analysis or evaluation of strategic alternatives).

The GE / McKinsey matrix (for analyzing the business portfolio) - a multifactorial approach to strategies based on the structure of the asset portfolio, is a response to the BCG matrix. The criteria for this two-dimensional matrix are the attractiveness of the industry and the sustainability of the enterprise, which depend on many factors. Table 2 summarizes the criteria for industry attractiveness and enterprise sustainability for GE and McKinsey.

It should be noted that regardless of the selected criteria, an assessment should be made on them, allowing to determine the degree of attractiveness of the industry and the significance of the advantages of the enterprise. The circles representing individual strategic business units of the company’s portfolio are entered into the matrix depending on their location on the axes of enterprise stability and industry attractiveness. The size of the circles is proportional to the size of the industry, and the parts of the circle that are in the shadow are proportional to the share of the strategic business unit on the scale of the industry in which it competes.

Table 2
Variables Used in the McKinsey Model [7]

Characteristics of the organization's strengths (X axis)	Market appeal characteristics (Y axis)
<ul style="list-style-type: none"> ● relative market share ● market share growth ● distribution network coverage ● distribution network efficiency ● staff qualifications ● customer loyalty to the company ● technological advantages ● patents, know-how ● marketing benefits 	<ul style="list-style-type: none"> ● market growth rates ● product differentiation ● competition features ● industry profit margin ● customer value ● consumer brand loyalty

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| • flexibility | |
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To study the current situation, the company can put its product or company in the matrix. Forecasts for the future can be compared with the current situation and thus determine the difference between the desired and possible results. For all combinations of market attractiveness and competitive advantage, at least one strategy can be chosen. Depending on the results of the analysis, the company has four options for strategies: investment in conservation, investment in development, investment in restoration and investment in self-elimination. Markets of goods, characterized by both good attractiveness and stability of the enterprise, are most promising for profit.

At the corporate level, they analyze the businesses within the corporation, i.e. help to carry out portfolio analysis, as well as analysis of the situation in the corporation as a whole, to solve global issues. The business level includes diagnostics, which is related to a competitive business unit and most often refers to one product, analyzes the properties of this product, the situation on the market for this product, etc. The functional level examines the factors affecting the functional areas of the enterprise, of which the most important are marketing, personnel management [8,9].

Analysis at the corporate management level of the enterprise includes solving global issues related to the company's strategy, mergers and acquisitions, staff reductions, the introduction of a new information system, etc. At this managerial level, it is possible to diagnose the use of resources in various activities of the enterprise. For example: an analysis of an information resource from the point of view of three types of company activities at the corporate level in a particular case allows us to establish that the company needs a new information system. Exploring this resource at a business level, i.e. at the level of a separate unit, it is established that in this unit, to ensure effective activity, it is necessary to develop new components of the information system. At the next functional level (be it marketing, personnel management), the diagnostics of the use of the information resource is also carried out and the component of the information system that is required specifically for this functional area is determined [10].

For example, timely monitoring of the use of labor resources at the corporate managerial level from the point of view of the production type of activity allows us to justify the need to attract new specialists to this industry, to improve the skills of existing specialists. At the business level, monitoring proves that at the level of the analytical type of activity of the enterprise, there are not enough specialists to provide an effective analysis of the situation on the market of a particular business unit.

Conclusions and offers

Based on the foregoing, we can draw the following conclusions: at the corporate level, to ensure the efficiency of the production activity of the enterprise, it is necessary to develop a program for ensuring the raw material safety of the enterprise; at the business level, it is advisable to develop a program to reduce raw materials costs at all stages of production activity; at the functional managerial level (personnel management) ensure timely and effective communication of information to employees.

Along with this, it should be noted that in order to ensure the effective development of the enterprise, the monitoring process should be carried out regularly. By analyzing the components of the matrix, you can see the full picture of the enterprise's activities, the processes of using resources, determine the development strategy of the enterprise, ensure the best use of resources, reduce costs,

improve mutual understanding of management and ordinary members of the team.

Matrix tools is one of the most effective means of analyzing an enterprise, as well as forming an enterprise development strategy. The three-dimensional complex of matrix tools for strategic planning of an industrial enterprise is a visual object for determining the applicability of matrices. Using the example of this complex, we can understand which areas of the matrix tools are promising, which are currently almost unexplored, and which should be paid attention.

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