# THE MATRIX OF McKINSEY AS A TECHNIQUE IN STRATEGIC ANALYSIS OF ORGANIZATION POTENTIAL

*Paweł Żukowski*[1]
*Dariusz Reśko*[2]

## Summary

The most advanced among the many techniques of portfolio analysis is the multi-factorial, "9-cell" McKinsey Management Consultants matrix, also known as General Electric (GE) matrix. It allows to analyze and assess the market position of the test object. In McKinsey's matrix (technique) the market position of the test object (e.g. a product, i.e. manufacture good or offer service) is determined by the analysis of two groups of factors: the market (industry) attractiveness and the business unit strength. This technique provides the basis for strategic decisions and introduces subjective evaluation criteria.

**Key words:** organization potential, strategic analysis, McKinsey matrix

## Introductory remarks

One of the techniques of strategic analysis of the activity of an organization is the portfolio analysis. The most advanced among the many techniques of portfolio analysis is the multi-factorial, "9-cell" McKinsey Management Consultants matrix, also known as General Electric (GE) matrix. It allows to analyze and assess the market position of the test object (e.g. an SBU – strategic business unit, a product, a supplier, etc.). In McKinsey's matrix (technique) the market position of the test object (e.g. a product, i.e. manufacture good or offer service) is determined by the analysis of two groups of

[1] Prof. PhD, The State Vocational School of Jacob of Paradyz, Gorzow Wlkp, Poland.
[2] Assistant Prof. PhD., School of Business – National-Louis University in Nowy Sącz, Poland.

factors: the market (industry) attractiveness and the business unit strength. This technique provides the basis for strategic decisions and introduces subjective evaluation criteria. Moreover, it is also more static than dynamic, which means that it assesses the current business strength of the organization better than the future one [Ansoff, McDonnell 1990; Berliński, Penc-Pietrzak 2004; Rawski 1997; Żukowski 2010]. Efficient use of the McKinsey technique (matrix) in practice requires knowledge and compliance with certain rules when creating an image of the analyzed objects in the system (matrix): market attractiveness – business unit strength. It is therefore necessary to understand and skillfully use the appropriate methodological knowledge with these issues. The procedure so takes the following steps here: defining the problem, Selection of variables, determination of weightings, valuation of analyzed objects, aggregation of partial information, recognition of the object's position in the coordinate system [Hadrian 1996; Penc 2010; Rawski 1997; Żukowski 2006].

## Defining the problem

In order to consider the methodological issues of the McKinsey technique, the General Electric matrix, a coordinate system is adopted. In this arrangement, the Y-axis shows the change of attractiveness of the analyzed market linearly (low, average, high), and the X-axis shows (also linearly) the change of the business strength of the organization (low, average, high) in the market segment in question.

Methodological considerations of practical applications of the McKinsey technique on the basis of the adopted coordinate system (organization's business strength – market attractiveness) be reduced to the following main groups of activities:

- describing each of the coordinate axes – i.e. market attractiveness and business unit strength – one should determine what, and how many, specific variables to use (taking into account factors, characteristics, and criteria);
- each specified variable, given its importance in shaping a comprehensive picture of market attractiveness and business unit strength, should be given due weighting;
- each of the analyzed objects (e.g. the product) should be assessed in a specified way from the perspective of all the variables adopted in the study;
- one should aggregate partial information (factors, characteristics) concerning the test object, obtaining a single overall numerical information,

for each axis separately, allowing to clearly identify the position of the analyzed object in a coordinate system; this way, having the coordinates of a point, each analyzed object is plotted onto the coordinate system in the specified place of the plane;

- having the coordinate system with the designated positions of objects (depicted by points), a diagram (grid) of 9 cells can plot on it in such a way that each analyzed object is in one of the 9 cells of the matrix [Hadrian 1996; Rawski 1997; Thompson, Strcikland 1993; Żukowski 2006].

## Selection of variables

The selection depends on many external conditions in which the organization operates, on the goals of the organization, and its capacity (resources and skills). There is no universal list of variables describing the attractiveness of the market or the business unit strength. The combination of variables describing the attractiveness of the market depends primarily on the specific characteristics of the industry, market structure, demand for a given type of products, level of changes in the environment, etc. In turn, the combination of variables describing the business strength depends, above all, on the goal pursued by the organization, material, energy and financial resources, marketing, technology advancement, skills, etc.

Various organizations, depending on the dynamics of the environment (its components) and internal conditions (resources and competences), will choose a different list of variables for the analysis. For example, the attractiveness of the market can be described by such variables as: profitability of the market demand (size, change, cycles), competition, substitute products, level of technology advancement in the industry, customer type, and availability of raw materials. The business unit strength, on the other hand, can be described with the following list of variables: product quality, price, share in sales, investment level, staff qualifications, distribution channels, promotion, technology advancement, financial liquidity [Penc 1995, 2011; Rawski 1997; Żukowski 2006].

Despite the existence in literature of different lists of variables, it seems, however, that when creating a list of variables in one's own study, one should take into account such variables as: market size, its cost effectiveness, competition (structure, intensity), share in sales [Sharplin1985].

To determine the degree of intensity of the phenomenon described by a variable, one selects specific measures, which affects the final outcome of the analysis and the performance of the remaining sequences of the

procedure. For instance, the share in sales (describing the business unit strength) can be described using three measures: absolute share in sales, relative share in sales, share measured in terms of a comparison of sales to several leading entities in the industry. On the other hand, the profitability of sales (describing the attractiveness of the market) can be measured with the average rate of profit or with the gross margin ratio.

## Determination of weightings

It is possible that all variables shape the comprehensive picture of market attractiveness and business unit strength in an equal degree. In such a case, the question of selecting the weightings does not apply. Usually, however, the variables describing both coordinate axes are of different importance in the formation of the aforementioned picture. In this case, the individual variables (factors, features) are assigned specific weightings. Weightings reflect the importance that is adopted for each variable taking into account the aims of the organization and its potential. Therefore, they are subjective in character. The weightings for the variables of the market attractiveness axis and for the variables of the business unit strength axis are assigned separately.

The weightings can be determined in two ways: either the weightings constitute natural numbers from any interval, but mostly from the interval <1, 5>, or the they constitute proper fractions from the interval <0, 1>, so that their sum is 1 (or 100%). Both methods of determining the weightings give the same results, and therefore, we can choose the one which is easier for us [Rawski 1997].

## Valuation of analyzed objects

The valuation involves allocating to of each of the analyzed objects – from the perspective of all the variables used (for market attractiveness and business unit strength) – scores from a predetermined interval of natural numbers (usually <1, 5>). In such case, the score "3" is assigned to the analyzed object, if we believe that the state in terms of a given variable is identical to the adopted benchmark (e.g. ideal, desired, or average situation). Scores "4" and "5" are assigned when the state is better than the benchmark, and "1" and "2" if it is worse. Influence on the valuation of the state of intensity of a given variable for the analyzed object is subjective in nature, because it depends on individual feelings of the person conducting

the analysis. One of the attempts to minimize the impact of subjectivity in the valuation may be the application of heuristic methods in this process [Rawski 1997; Sharplin 1985; Żukowski 2006].

## Aggregation of partial information

Each of the analyzed objects has as many pieces of partial numerical information (separately for each axis), as the number of variables that have been used for its valuation. In order to explicitly map the object on the coordinate system, an aggregation of partial numerical information should be performed to obtain one value for each axis of the system.

Aggregation can be carried out in two ways: by calculating the sum or arithmetic average. Calculating the sum means adding all the scores (of the variables forming a given axis) allocated to the analyzed object, separately for each axis. This requires a modification of the scores assigned to the individual objects by multiplying the weightings of the variables by the scores given to those variables and then adding the values thus obtained. Calculating the arithmetic average of the weightings allocated to each variable and scores requires the weighted arithmetic mean i.e. adding the multiplied weightings and scores, and dividing by the number of variables [Rawski 1997; Thompson, Strickland 1993].

After the identification of two aggregate values of the coordinates for each analyzed object, their position in the coordinate system can be clearly determined in the form of a point.

## Recognition of the object's position in the coordinate system

As a result of the above-described steps, we obtain a picture of points in a coordinate system showing the positions of the analyzed objects. To plot the 9-cell scheme on a coordinate system, and thus determine the cell in which each of the analyzed objects (points) will be placed, you need to perform two sets of steps, namely: to determine the space of variation and divide it.

The point in a coordinate system that graphically represents the analyzed object occupies a specific place on the plane whose position is dependent on a predetermined interval of scores and the number of variables used for its valuation (the point – the object). The minimum and maximum numerical coordinate is determined, for each axis separately, within the assumed interval of scores and with the number of variables used in the analysis.

In adopting the interval <1, 5>, the minimum numerical coordinate will be "1" from the perspective of all the variables used to describe a given axis, while the maximum numerical coordinate will obtain score "5". (Hypothetical) objects valued in such a way require the counting of aggregated coordinates using the same method that was applied when counting the coordinates of the analyzed real objects. The segment connecting the minimum coordinate (score "1") and the maximum coordinate (score "5") creates an interval of variation. Such numerical interval contains the coordinates of all analyzed objects. We will obtain the space of variation (where the points – images of studied objects – are) by overlapping the intervals of variation defined separately for the two axes (Fig. 1) [Berliński, Penc-Pietrzak 2004; Rawski 1997; Żukowski 2006].

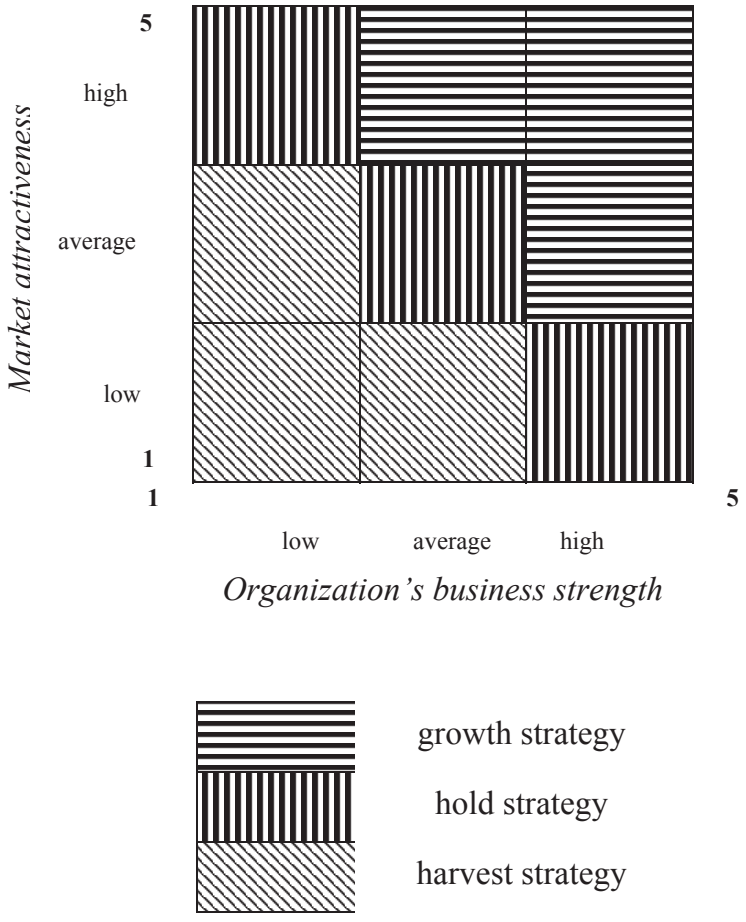


**Fig. 1.** McKinsey`s Matrix

Source: based on Rawski 1997; Żukowski 2006.

In the case of partial numerical information aggregation, the method for calculating the arithmetic mean of the space of variation, which will include all test objects, always takes the form of a square with the same marginal coordinates for both axes and equal values on the boundary of

the numbers interval used to valuate the objects (for the interval <1 5> the minimum coordinate will be "1", and the maximum – "5" for both axes). This follows directly from the properties of the weighted arithmetic mean. Thus, applying the aggregation method according to the calculating of the arithmetic mean, we do not need to determine the intervals of variation, because they are fixed [Rawski 1997; Sharplin 1985].

In the case of partial aggregation of numerical information by adding up, space of variation takes the form of a rectangle with different marginal coordinates for both axes. In this case of aggregation, for each analysis of an object, intervals of variation must be determined, because the boundary coordinates are always different (also for the axes).

In the second group of activities identifying the object's position in the coordinate system, a defined space of variation is divided into 9 cells, by assigning at each side of the space of variation space of variation (of the square or rectangle) two specific points. By drawing appropriate straight perpendicular lines through the marked points and parallel to the sides of the space of variation (of the square or rectangle), we obtain the space of variation divided into 9 cells.

In this way, each analyzed object (point) will be positioned in one of the cells in the created diagram. Transferring the characteristics and qualities of each cell of the diagram onto the analyzed objects (which are there), allows for an interpretation of the obtained image (e.g. market attractiveness of a given product may be low, average or high) (Fig. 1).

It should be noted that the determination of the division points of the space of variation can be made, in principle, according to various formulas. In practice, however, the commonly used one is the formula "divide equally", i.e. two points of division of a square or a rectangle (for each axis) are set in such a way that the three created segments are equal. If the values on the boundary of the variation intervals are 1, 5, then the coordinates of the points of division are known and are always: 2.33 and 3.67 [Rawski 1997].

## Practical application of the McKinsey technique

The primary task of the portfolio methods is to assess selected areas of an organization's activity (of the system: product – market) in terms of the analyzed variables. It allows one to analyze and identify the development opportunities as well as to define and implement appropriate courses of action (development) for the organization [Ansoff, McDonnell 1990; Berliński, Penc-Pietrzak 2004; Żukowski 2006].

Considering the construction of the McKinsey technique (matrix) from the perspective of the fundamental assumptions, it appears that a well--functioning organization is one whose activity is concentrated in the most favorable market segments, and whose products are characterized by great business strength. It is therefore unreasonable for the organization to operate in these market segments which are unattractive, or to invest in products that have a weak competitive position. These assumptions result directly from the strategies suggested by the McKinsey matrix concerning selected groups of products, located in certain cells of the matrix, which in turn are characterized by varying degrees of intensity of variables of the system (market attractiveness and business unit strength).

The McKinsey technique allows to diagnose on the basis of the environment analysis (external factor) and the analysis of competence and resources of the organization (internal factor) the current portfolio of production, to determine its strong and weak products, and to set out a strategy for each of their groups. The image of products in the system (matrix) indicates which groups of products should be left in one's portfolio – by applying the proper grow or hold strategy – and which should be abandoned (withdrawn from the market). The location of products in certain fields of the matrix indicates when to use the "harvest" strategy, which products require funding, what steps to undertake in order for the average products to become profitable, and finally, which of them should be withdrawn from the market [Berliński, Penc-Pietrzak 2004; Nogalski, Rybicki, Gacek-Bielec 1996; Rawski 1997].

## Conclusions

The main advantage of the McKinsey matrix is its flexibility in assessing the attractiveness of the market. It can be freely constructed depending on the situation on the market (in a particular segment). This creates more opportunities to apply in strategic analysis in comparison with the BCG (Boston Consulting Group) matrix, for example, and simultaneously broadens the area of study, as well as increases the chances for a balanced portfolio of production in the organization. An analysis of the product portfolio with the McKinsey matrix helps to develop appropriate recommendations that indicate for which products the organization should apply the growth, development or expansion strategy, and for which the strategy of withdrawal from the market.

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