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PORTFOLIO ANALYSIS – A USEFUL MANAGEMENT TOOL

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Subject review

This paper briefly represents the methods that have been developed to assist a company's portfolio analysis. The core of this review consists in the presentation of two most important business portfolio matrices - ADL and DPM. Large companies are often an agglomeration of complex organization of strategic business units with various production and marketing programs. The aim of this article is to point out the positive synergy of portfolio analysis on a company's market growth, competition and future business planning.

***Key words**: formulation of strategy, portfolio analysis, strategic business unit*

Analiza portfelja kao koristan alat strateškog menadžmenta pri formuliranju strategije

Pregledni članak

Središnji dio pregleda ovog članka su strateške metode predstavljene s dvije najznačajnije matrice: ADL i DPM. Velike kompanije su obično sastavljene od strateških poslovnih jedinica s različitim proizvodnim i marketinškim programom. Cilj ovog članka je naglašavanje poželjne sinergije analize portfelja na tržišni rast tvrtke, suparničke odnose i buduće poslovno planiranje.

***Ključne riječi:** formuliranje strategije, analiza portfelja, strateška poslovna jedinica*

1
Uvod
Introduction

Portfolio analysis had a major contribution in facilitating the problem of a company's strategic planning. These techniques, which can be found in many different variations, are developed to satisfy the emerging needs for a centralized decision about crucial strategic issues in industrial companies. The great advantage of those techniques was seen in the fact that they provided a means of comparing numerous business activities in relation to each other, establishing the priorities and deciding between winners and losers.

Large companies have often complex situations in several different activities and a lot of Strategic Business Units (SBU). For that reason, the analysis of strategic options is necessary to be completed with the portfolio analysis. Portfolio matrices as a powerful analysis method tool help in optimizing the strategic managerial decision-making. Analytical studies approach with matrices explains how the strategies of individual SBU have to fit into the overall strategy of the joined company, i.e. corporation.

One of the most important ideas of portfolio analysis is to understand the current position of a product life cycle (PLC). The model of the industry life cycle, shown in Figure 1, represents an industry with the introduction, growth, maturity and decline stages. Life cycle of different industries has different length. In modern, highly technological industries it is possible to analyze, shape and control the strategy by the use of industry life time cycle. Because some products or services produce considerable amount of profit while others do not, beside PLC, cash-flow data are in the central focus of object researching.

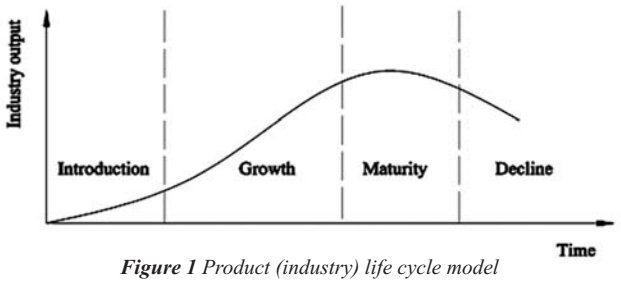

***Figure 1** Product (industry) life cycle model*
***Slika 1.** Model životnog ciklusa proizvoda (industrije)*

2
Types of portfolio matrices
Vrste portfelj matrica

Creation of portfolio matrix starts by examining the positions of products considering relevant categories. Those categories can be attractiveness, growth or maturity of an industry, strength of a business unit to operate competitively within market, business strength or technological skills etc. [1]

To visualize the mix of various SBU (products) positions, the strategy manager uses two dimensional diagrams (matrix). For instance, the ADL matrix uses $4 \times 5 = 20$ cells system and DPM uses $3 \times 3 = 9$ cells system. Both matrices use circles to indicate a SBU's position, with the area of circle being proportional to the product sales volume ratio.

The Boston Consulting Group (BCG) portfolio matrix as the first model provides a means of rating products and/or services in order to assess the future probable cash contributions and demands of each product or service. The model assigns product or market strategies on the basis of a product's industry growth and its market share relative to the common industry competitors, as two main dimensions [2].

The following General Electric matrix (GE) as a multi factor matrix was designed to overcome some of the negative limitations in considering the market share and industry growth. GE matrix includes different variables

such as business strength or industrial attractiveness categories. The factors of business strength can be market share, cost of competitiveness, technological skills etc. The factors of industrial attractiveness can be industry growth, inflation sensitivity, cyclicality- seasonality market etc.

The large company Shell wanted to include more qualitative variables, because GE matrix had a lot of variables that were difficult to measure objectively. Consequently, Directional Policy Matrix (DPM) came as a powerful tool with better quantities assessment of Critical Success Factors ratings (CSFs). Dimensions on axes are the company's competitive capabilities and prospects for sector profitability [3, 4].

The ADL matrix has a major advantage in young and embryonic industries with new products or industries with "winners" in a mature stage of PLC. The market of those segmented SBUs is quite homogenous with mostly one product. The ADL dimension's categories are the competitive position and industry maturity in a PLC.

On one hand, the intention of this paper is to give the reader an insight into the portfolio analysis approach. On the other hand, this paper shows the relationships of various data (for example external risk, price competitive) considering the concepts of industry strategy formulation. The values and pitfalls of the portfolio analysis concept will be presented in the following chapters.

3
The ADL matrix
ADL matrica

Arthur D. Little, Inc. (ADL), one of the best-known consulting firms, developed in the late 1970s a structured methodology for consideration of strategies which are dependent on the life cycle of the industry.

The ADL portfolio management approach uses the dimensions of environmental assessment through competitive position and business strength assessment through industry maturity category. Its application is particularly suited to smaller industrial companies and for strategic business units of large companies [5].

3.1
Competitive position
Konkurentski položaj

Company's competitive position is determined by strategic actions and competitor's strategies. Quality and strength of competitive position are indicators of company's strength. The ADL matrix categorizes every segment of company according to its position which can be dominant, strong, favorable, tenable or weak.

3.2
Industry maturity
Industrijska zrelost

Industry maturity could almost be renamed into "Industry life cycle". Of course not only industries should be considered here but also segments. There are four categories of industry maturity: embryonic, growth, mature and aging. Positioning into one of the four categories is a very sophisticated procedure and depends on many factors.

Creation of ADL Matrix is done step by step strictly following a defined and consistent methodology. Four steps have to be the following [6]:

- Determining the SBUs of the company (strategic segmentation done by clearly defined procedures).
- Identifying phases of an industrial maturity for each SBU (this should be done for each business in all SBUs).
- Determine SBUs competitive position (company's competitiveness in specific, narrowly defined industry).
- Plotting the sizes and positions of SBUs on ADL Matrix.

3.3
ADL matrix plotting
Izrada ADL matice

The position of SBU is represented by the circle sizes proportionate to the size of the industry where they belong. On the matrix can be seen relative relations between the sizes of all the industries in which the company is active. Company's market share is represented by slices. ADL matrix with industry sizes is shown in Figure 2.

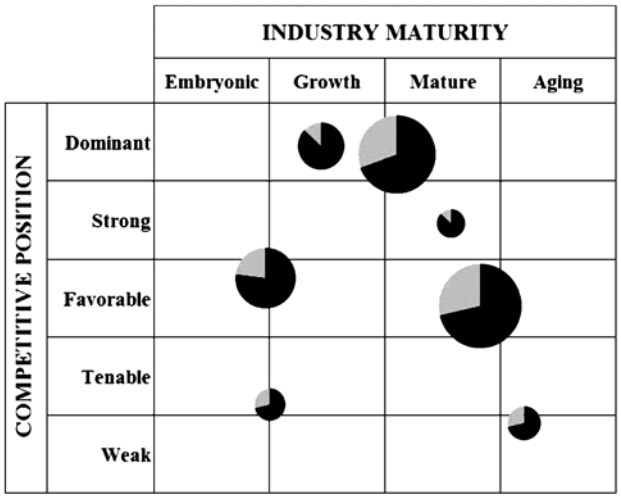

Figure 2 *ADL Matrix with the industry sizes*
Slika 2. *ADL matrica s veličinama industrija*

The analyst must constantly review the phase's determination in the life cycle of the industry for each strategic centre of the company. In ADL matrix competitive industries should be analyzed and compared with specific industry by the use of Porter's industrial model structures [7].

Developed industrial companies have ADL Matrix similar to one shown in Figure 3. It can be seen that most products/industries with biggest shares are in the area of growth or in mature stage meaning that these companies can make significant profit and revenues.

Comparisons should be very narrow and must include both comparison of business units and comparable products. Strategies for each Industry Maturity and Competitive position are shown in Table 1. A company's analyst and management should be very careful but also intuitive when choosing the right strategic movement.

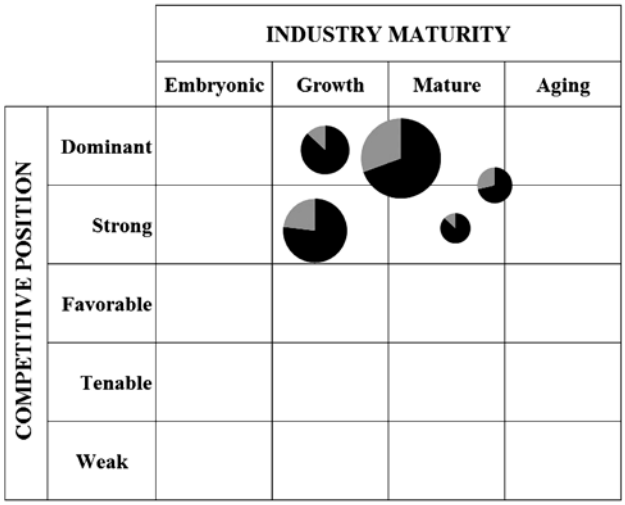

Figure 3 *ADL Matrix of developed industrial companies*
Slika 3. *ADL matrica razvijenih industrijskih tvrtki*

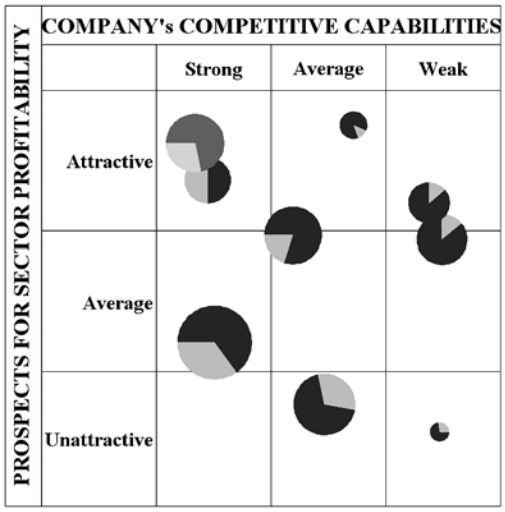

Figure 4 *DPL matrix*
Slika 4. *DPL matrica*

Table 1 *ADL Matrix with strategies for each combination*
Tablica 1. *ADL matrica s strategijama za svaku mogućnost*

COMPETITIVE POSITION	INDUSTRY MATURITY			
	EMBRYONIC	GROWTH	MATURE	AGING
DOMINANT	• Aggressive push for market share •Invest faster than market share dictates	• Maintain position and market share • Invest to sustain growth	• Maintain position, grow market share • Reinvest as necessary	• Maintain position • Reinvest as necessary
STRONG	• Aggressive push for market share • Improve competitive advantage • Invest faster than market share dictates	• Aggressive push for market share • Improve competitive advantage • Invest	• Maintain position, grow market share as the industry grows • Reinvest as necessary	• Maintain position • Cut expenses to maximize profit • Minimum reinvestment
FAVORABLE	• Moderate to aggressive push for market share • Improve competitive advantage • Invest selectively	• Improve competitive advantage and market share • Selectively invest	• Develop a niche • Minimum or selective reinvestment	• Cut expenses to maximize profit or withdraw • Get out of current investment
TENABLE	• Look for ways to improve industry position • Invest very selectively	• Develop a niche and maintain it • Invest selectively	• Develop a niche or plan a withdrawal • Selective reinvestment	• Phased withdrawal or abandon market • Divest
WEAK	• If benefits do not outweigh costs get out of market • Invest or divest	• Improve position, or get out of the market • Invest or divest	• Improve position or plan withdrawal • Selectively invest or divest	• Abandon market • Divest

4
The DPM matrix
DPM matrica

The Directional Policy Matrix (DPM) was developed by the "Shell" in mid-seventies of the twentieth century. It is an improved version of the GE matrix of industrial attractiveness and business strength, because Shell wanted to incorporate more qualitative variables.

The purpose of DPM is the synchronizing of the cash-flows obtained in large companies with the proviso that it is especially appropriate in companies that have activities in the capital strong industries.

Like the GE, the DPM also uses multivariate dimensions to measure attractiveness and capabilities. Two diagram dimensions are the horizontal company's competitive capabilities on the abscissa, and the vertical prospects for sector profitability on the ordinate, as it can be seen in Figure 4.

Both categories comprise a set of Critical Success sub Factors (CSFs). The choice of CSF's depends entirely upon the company and environment, from which strengths/ weakness and opportunities/threats arise.

The position of a strategic business unit on each axis is determined bay weighting numerous sub factors. Company's competitive capabilities sub factors include for example: market share, production capability, product research and development. The Prospects for sector profitability sub factors include market quality and growth, risk, environmental factors, industry feedback situation etc.

Additionally, an Environment risk factor instead of the vertical prospects for sector profitability dimension has been included as an additional hybrid form of DPM matrix. This is done because the original DPM matrix had less elaborated influences across environmental factors on SBUs.

Position of specific SBU on a matrix diagram is obtained by calculation. Calculation of total CSFs weighting for specified SBU across both dimensions should be done by following steps:

- Identifying and selecting company's important CSFs for one dimension.
- Ordering and weighting them in terms of their relative importance from 0 to 1.
- Absolute scoring with CSFs scoring system, for example from 1 to 10.
- Calculating each CSF with the formula:
  Weight x score = total CSFs weighting.

Table 2 *Calculation of total CSFs weighting for one specified SBU* [8]
Tablica 2. *Proračun ukupne važnosti kritičnih činitelja uspjeha za određenu SPJ-u* [8]

COMPANY'S COMPETITIVE CAPABILITIES CSF'S FOR SPECIFIED SBU				
No.	**CSF**	**Weight**	**Score**	**TC'SW**
1.	Market share	0,2	7	1,4
2.	Production capability	0,1	5	0,5
3.	Product research and develop.	0,5	4	2,0
4.	Customer relations	0,2	8	1,6
	TOTAL SUM:	1,0	-	**5,5**

Total sum for plotting one dimension is obtained by summing of individual total CSFs weighting of SBU's.

After calculations all data are ready to be plotted on DPM matrix diagram (see short example in Table 2). The first dimension is to be plotted on the abscissa and the second on the ordinate.

As it can be seen, company's competitive capabilities dimension for specified SBU is 5,5 out of total 10.

It means that the average total is 5,5 and will be plotted on the DPM grid on the abscissa. The same procedure will be conducted for the second dimension.

Interpretations, strategic recommendations and options used in the DPM matrix are much more detailed and comprehensive than those used in the GE matrix. They are clearly prescribed through nine cells as additional mini analyses.

Each cell strategy is indicated by a key word, for example SBU located in the position 9 has strategy "Leader", i.e. the best position. The SBU located in the position 1 has strategy "Disinvest", i.e. the worst position. Their appearance is shown in Figure 5 [9].

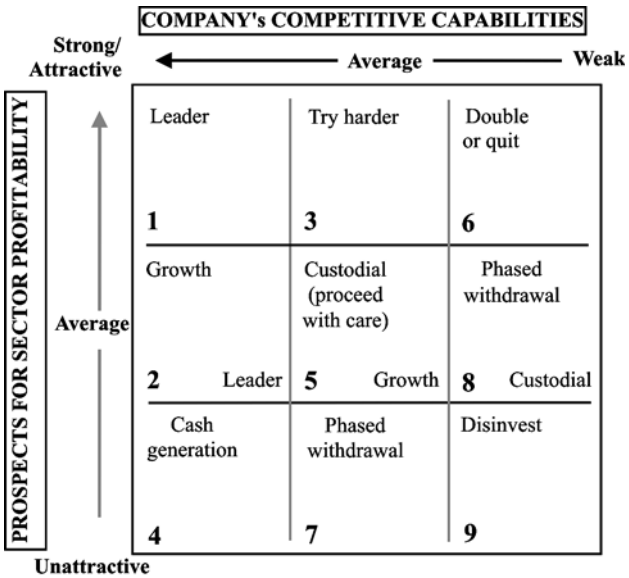

Figure 5 *The DPM matrix strategic recommendations*
Slika 5. *Strateške preporuke DPM matrice*

5
Conclusions
Zaključci

Positive aspect of portfolio matrix models is easy to use. The benefit of using such models is to get an idea of the profile of strong or weak products or services in an industrial or marketing mix. Furthermore, it can give insights into many strategic situations. For instance, one purpose is to look at activities within organization's business units relative to each other, so that strategic issues can be noticed within company on time. The second purpose is to make the analysis more future oriented by the next two effects. The one is to look at the likely positive and/or negative movements across the portfolio. The second is the impact of the actions which company or competitors can stimulate through planned strategy. To achieve these goals, the portfolio analysis requires an approach that generates a deep understanding of the factors which really influence business success, and which can be related to other analytical approaches.

The DPM has better recommendations about strategy through matrix cells and better review of environment risk as opposite to GE matrix.

Great advantages of ADL matrix are that it includes PLC dimension and is especially suitable for segmented market, for instance for one product. Due to that, the ADL matrix instead of SBUs shows the combination of products/market positions (strategic centers) on a matrix.

Negative aspects of portfolio matrix models may cause an organization to put too much stress on market growth and access into high growth business activities. They may also cause companies to pay insufficient attention to operation management with the current business activities. Respectively, the attention is focused mostly toward the strategic management.

DPM matrices are responsive to the scores, weights and ratings (quantitative methods with CSFs) and can be manipulated to assume desired results. Further, since an averaging process is taking place, several SBUs may end up in the same cell location, but could vary considerably in terms of their ratings against specific factors. It means that many products or services will end up in the middle of the matrix and this makes it difficult to suggest an appropriate strategy option.

The matrix models do not accommodate the synergy between two or more products/services (SBUs) and this suggests that making strategic option for one in isolation from the others may be short sighted. The ADL matrix PLC dimension is a questionable factor in a corporation strategic decision, so it is advisable to use ADL matrix after implementation of GE matrix.

However, the portfolio matrix models are useful strategic management tools. Precautionary measures require more formal and detailed planning techniques and schemes to complete the corresponding portfolio analysis. To achieve that, it is wise to include other strategic matrices like Ansoff, Product/market evolution, B2B customer/ supplier matrix etc.

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7
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