Influence of External Environment Analysis on the Competitiveness of Business Operations of an Industrial Enterprise (Evidence from Mining and Metallurgical Industry)

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Abstract. The aim of the study was to analyze the influence of environmental factors on the effective activities of an organization. The objectives of the paper was to study environmental factors and evaluate methods and approaches to analyze the state of the external environment of the organization. An integrated and holistic mechanism of understanding the problems associated with the analysis of enterprise external environment that can be used in the practical activities of companies in various industries has been formed.

Design/methodology/approach: The methodological framework of the study was the provisions of economic theory, organization economics, a dialectical approach to the study of the stated problem, as well as management systems in business structures in a rapidly changing external environment. The methods that were used in this analysis can be combined into two main groups: methods for collecting data on the external environment and analysis methods. The latter include the following methods: PEST analysis, EFAS, industry analysis, SNW analysis, SWOT analysis. The information framework of the study included the scientific and methodological publications of domestic and foreign authors, statistical, informational, analytical, reference sources, materials from current publications and periodicals, reporting data of enterprises in industrial entrepreneurship, expert assessments of domestic and foreign analysts.

Findings: In the course of study, methods and approaches were analyzed that allow analyzing the state of enterprise external environment and draw conclusions about the competitive position of the enterprise. Based on the results of the analysis, a calculation and economic justification for increasing competitiveness was presented using the example of the activities of PJSC MMC NORTILSK NICKEL. The proposed activities will allow the company to monitor changes in the external environment, thereby responding faster to them. That will allow the company to occupy a leading position in the market.

Research/practical implications: Theoretical and practical findings related to determining the impact of the analysis of enterprise external environment on the competitiveness of the enterprise's business can be used by industrial enterprises in the process of managing competitiveness risks, in terms of assessing and developing the competitiveness of the enterprise structures, and developing organizational mechanisms to create favorable conditions for the business environment. Methodological and practical results of the study are of scientific interest to scientists, post-graduate students, students and practitioners in assessing the factors that
determine the competitive advantages and the competitiveness of industrial enterprises, while developing measures to identify and mobilize reserves to improve their competitive positions. Individual recommendations provided in the study were used in practice by the enterprises of mining and metallurgical industry.

**Originality/value**: The scientific novelty of the study lies in complementing and developing scientific provisions related to the analysis of the enterprise external environment on the competitiveness of the enterprise’s business. The most significant results associated with the scientific novelty include the following: key methods for diagnosing the enterprise external environment are examined, which allow analyzing the state of the environment of the enterprise and drawing conclusions about its competitive position. A mechanism for practical application of methods through the example of a particular enterprise and a portfolio of managerial decisions to minimize the risks that arise is proposed.

1. Introduction

The relevance of the study is due to the fact that the modern external environment of enterprises is characterized by a high degree of uncertainty, complexity and dynamism. One of the conditions for the survival of the enterprise and its development is the ability of the enterprise to adapt to changes that occur in the external environment, i.e. the enterprise must be aware of the new nature of environmental changes and respond effectively to them.

Analysis of the external environment is the initial process of strategic management, as it provides the basis for determining both the mission and goals of the organization, and for developing strategies of behavior that allow the organization to fulfill the mission and achieve its goals. It gives time to predict opportunities, time to plan for unforeseen circumstances, time to develop an early warning system in case of possible threats, and time to develop strategies that can turn old threats into various kinds of profitable opportunities. Determination of positions in the external environment is part of a systematic approach to the development of the enterprise's competitive behavior.

External environment of the enterprise is a set of factors (conditions and organizations) that affect the activities of the company. The external environment is divided into factors of indirect (macroenvironment) and direct (microenvironment) effects.

Macroenvironment includes factors of indirect influence on the whole on all organizations operating in a particular industry. These include factors characterizing the development of the national economy as a whole:

- economic environment means factors determining the development of economic processes in the national economy (GDP growth rates, external debts, etc.), the influence of the state budget and tax policy on the solvency of the population, the investment attractiveness of the national economy, the stability of the national currency, inflation, tax rates, etc.;
- political environment means factors determining the development of political processes, the stability of legislative norms in the national economy, political ideology that determines the government policy, the degree of social discontent with the government, etc.;
- technological environment (methods of converting resources into a result) involves factors that determine the development trends of scientific and technological progress and the associated changes in the technological basis of production;
- social environment involves factors determining the demographic structure of the population and development trends, norms, customs and values of the population, people's attitude to work and quality of life, population growth rates, etc. The social environment largely determines the state of the labor market and the number of able-bodied population. Changes in the social environment may affect certain markets for goods or services.

M. Mescon identifies such environmental characteristics as complexity, mobility, uncertainty.

Complexity of the external environment is the number of factors that enterprises need to respond to. Mobility of the environment is the speed with which changes occur in the environment of the enterprise. Many researchers and managers note that in modern conditions the external environment of
organizations is changing with increasing speed, and there are organizations around which the external environment is especially mobile.

Uncertainty of the external environment is a function of the amount of information that the organization has about a specific factor, as well as confidence in the reliability of this information. If there is little information or there are some inaccuracies, doubts about its origin, then the environment becomes more uncertain than in a situation where there is adequate information, and there are grounds to consider it reasonable, highly reliable.

There are factors that cannot be managed by one enterprise. In this regard, it is extremely important to respond to all changes in the environment in a timely manner. Responsiveness of the external environment is determined by a number of concepts that will be discussed below.

Interconnectedness of environmental factors is the level of force with which a change in one factor affects other factors.

Complexity of the external environment is the number of factors that enterprises need to respond to, as well as the variability of each factor.

2. Methods and approaches to analyze the state of the external environment of the enterprise

As a result of increased competition, there is a need for an adequate assessment of the competitive environment. To do this, we use the world’s leading practices to assess the capabilities and weaknesses of the enterprise, analyze the strengths in the development of which the company can increase its competitiveness.

To diagnose the external environment of the enterprise, there are a number of methods and approaches that allow analyzing the state of the enterprise external environment and draw conclusions about the competitive position of the enterprise. Let us consider the key methods:

- PEST analysis (qualitative and quantitative)
- EFAS
- Industry analysis
- SNW analysis
- SWOT analysis

PEST analysis is used to analyze the macro environment of the enterprise, that is, the external environment. A simple and convenient method for analyzing the macro environment (external environment) of an enterprise. PEST analysis is a tool for long-term strategic planning and provides forecasts for 3-5 years in advance, with an annual update of information. The name of this technique is an acronym of four parameters of the enterprise external environment: P - Political factor; E - Economical factor; S - Social factor; T - Technological factor. Let us consider the meaning of each parameter separately.

Political factor is a set of conditions determined by the state of the country in which the enterprise operates. This may include business tax treatment, government subsidies and benefits, existence or absence of protectionism policies. The situation in the international political arena is also significant.

Economical factor is quite an extensive indicator which includes all the economic aspects relating to the enterprise. Thus, this part of the PEST analysis examines the state of the economy and its impact on the enterprise. For example, the degree of saturation of the market with competitors or the currency volatility.

The social factor covers the state of society and public sentiment, including in terms of the enterprise.

The technological factor describes the degree of development of technology used in the industry of the enterprise or related to it. For example, the rate of emergence of innovative approaches to the production of goods or services, the possibility of improving the quality of products through innovation, the level of technological development of competitors.

Depending on the tasks of the analysis, PEST analysis may be supplemented by factors. For example, legal and environmental factors may be included. These factors are useful in diagnosing companies that produce tobacco products or products that could be harmful to human health. In general, this type of analysis is quite flexible and open for modifications, which is both an advantage and a disadvantage.
The complexity of PEST analysis lies in its interpretation, this technique is quite subjective and relies heavily on the human factor. The analyst conducting this analysis should be a highly qualified expert, able to independently review the maximum aspects of external environment.

EFAS analysis or External Factor Analysis Summary is used to summarize the results of the analysis of strategic environmental factors.

Analysis of industries and markets allows the company to:
• identify other industries in which it will be able to apply its core competencies;
• study the buyers and the nature of their needs;
• identify new markets in which its core competencies can be used;
• identify threats from existing and potential competitors in its own industry and other industries;
• identify markets in which it will obtain its resources.

The next type of analysis under consideration is SWOT analysis. SWOT stands for Strengths, Weaknesses, Opportunities, and Threats.

Currently, in world management practice, SWOT analysis is the most common method for developing strategies for the development of enterprises and types of economic activity based on the analysis of internal and external economic environment. This method includes the study of development trends, the analysis of resources, the possibilities of using advantages and disadvantages, the determination of goals and objectives, the study of the external environment to identify opportunities and threats. Knowing the strengths will allow using the market opportunities more effectively and avoiding threats, understanding the weaknesses will allow building protection on time, as well as planning activities to minimize them.

This type of analysis is used both to assess the external and internal environment of the enterprise. It involves the ability to assess the actual situation and strategic prospects of the company, obtained as a result of studying the strengths and weaknesses of the company, its market opportunities and risk factors. The internal situation of the company is reflected in S and W, and the external environment is reflected in O and T. SWOT analysis has managerial and strategic value if it combines the factors of the internal and external environment and shows what resources and opportunities the company will need in future.

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SNW analysis is an analysis of strengths, neutrals, and weaknesses of an enterprise. SWOT analysis. SWOT stands for Strengths, Weaknesses, Opportunities, and Threats. This type of analysis is used both to assess the external and internal environment of the enterprise. It involves the ability to assess the actual situation and strategic prospects of the company, obtained as a result of studying the strengths and weaknesses of the company, its market opportunities and risk factors. The internal situation of the company is reflected in S and W, and the external environment is reflected in O and T. SWOT analysis has managerial and strategic value if it combines the factors of the internal and external environment and shows what resources and opportunities the company will need in future.

3. Practical application of external environment analysis models
We consider the methods and approaches that allow analyzing the state of the external environment in the context of operations of PJSC MMC NORILSK NICKEL, one of the global leaders in the mining and metallurgical industries producing nickel and palladium, as well as platinum and copper. The results of qualitative PEST analysis for PJSC MMC NORILSK NICKEL are given in Table 1.
Table 1. Qualitative PEST Analysis for PJSC MMC NORILSK NICKEL.

| Political factors                                      | Economical factors                                      |
|--------------------------------------------------------|---------------------------------------------------------|
| 1. Politically volatile environment                    | 1. Increase in inflation                                |
| 2. Tighter environmental law                           | 2. Depreciation of ruble                                |
| 3. Tighter antitrust laws                              | 3. Continuing crisis in the Russian economy             |
| 4. Introducing a tough sanctions policy by Russia and Western partners | 4. Tax increase                                         |
| 5. Anti-dumping policy of foreign countries             |                                                         |

Sociocultural factors

| Technological factors                                  |
|-------------------------------------------------------|
| 1. Outflow of economically active population from the regions |
| 2. Improvements in urban infrastructure (construction of hospitals, provision with fiber optics) |
| 3. Improving the company's image in the eyes of the population |
| 4. Environmental degradation                          |

Comments on factors:

Political:

1. Politically volatile environment in Russia can change the vector of development of the company. It is no secret that Norilsk Nickel works in close cooperation with the current Russian government (obtaining special rights, licenses for the development of deposits).

2. The government has repeatedly raised the issue of toughening the legislation in ecology and environmental protection. Currently, Norilsk is recognized as the “dirtiest” city in Russia. At the same time, the penalty for violation of environmental laws is negligible for a company with an emission permit.

3. Tighter antitrust laws may affect this company in the first place. Indeed, Norilsk Nickel accounts for 100% of platinum, 96% of nickel, 95% of cobalt, 55% of copper mined in the Russian Federation.

4. Introduction of strict sanctions policies by Russia and Western partners actually affects the profits of Norilsk Nickel company in an ambivalent manner. On the one hand, the level of export may decrease, but on the other hand, a sharp depreciation of ruble may lead to large revenues due to the difference in the exchange rate.

Economical:

1. An increase in inflation rates may lead to various negative consequences, for example, to the necessity of indexing wages, to social problems, as well as to a drop in competitiveness compared to foreign companies in the global market.

2. Despite the fact that the country is affected by economic crisis, the enterprise, like the industry as a whole, feels comfortable. Norilsk Nickel exports 90% of its output abroad, with capital being converted in rubles. However, it is impossible to say that the Russian corporation will be able to maintain its position against the background of a general deterioration in the economic situation, - this is a paradox.

The results of quantitative PEST analysis for PJSC MMC NORILSK NICKEL are given in Table 2.
Table 2. Quantitative PEST Analysis for PJSC MMC NORILSK NICKEL.

| Significance for the Industry (X) | Impact on the Enterprise (Y) | Direction of Influence (Z) | Degree of Significance S=X*Y*Z |
|---------------------------------|-----------------------------|---------------------------|-------------------------------|
| 3                               | 2                           | -1                        | -6                           |
| 2                               | 1                           | -1                        | -2                           |
| 1                               | 2                           | -1                        | -2                           |
| 3                               | 3                           | -1                        | -9                           |
| 3                               | 2                           | -1                        | -6                           |
| 2                               | 2                           | +1                        | +4                           |
| 3                               | 2                           | -1                        | -6                           |
| 2                               | 1                           | -1                        | -2                           |
| 2                               | 1                           | -1                        | -2                           |
| 1                               | 2                           | +1                        | +2                           |
| 1                               | 3                           | +1                        | +3                           |
| 2                               | 2                           | -1                        | -4                           |
| 3                               | 2                           | +1                        | +6                           |

In general, this analysis allows assessing the risks of the enterprise and classify them. The greatest threat to the enterprise will be:

- Politically volatile environment;
- Maintaining a strict sanctions policy of the state;
- Tighter antitrust laws;
- Tighter environmental laws.

Having consolidated the results, the most dangerous group is political factors. This finding can be explained by the fact that the enterprise and its activities are of strategic importance for the Russian Federation; therefore it is closely connected with political decisions and the external arena. In addition, 90% of Norilsk Nickel products are exported to countries of economic partnership (Asia, Europe). Thus, the company depends on the demand of foreign consumers.

The results of EFAS - External Strategic Factors Analysis Summary for PJSC MMC NORILSK NICKEL are given in Table 3.

Table 3. EFAS for PJSC MMC NORILSK NICKEL.

| External strategic factors | Weight | Score | Weighted Score |
|----------------------------|--------|-------|----------------|
| **Opportunities**          |        |       |                |
| 1. Improvements in urban infrastructure (construction of hospitals, provision with fiber optics) | 0.1    | 3     | 0.3            |
| 2. Improving the company's image in the eyes of the population | 0.1    | 4     | 0.4            |
3. Emergence of environmentally friendly methods of ore mining and processing 0.2 4 0.8

**Threats**

1. Politically volatile environment 0.01 4 0.04
2. Tighter environmental law 0.01 1 0.01
3. Tighter antitrust laws 0.01 2 0.02
4. Introducing a tough sanctions policy by Russia and Western partners 0.01 5 0.05
5. Increase in inflation 0.01 3 0.03
6. Depreciation of ruble 0.01 3 0.03
7. Tax increase 0.01 2 0.02
8. Continuing crisis in the Russian economy 0.01 1 0.01
9. Outflow of economically active population from the regions 0.01 1 0.01
10. Environmental degradation 0.01 1 0.01

**Summary Score** 1.0 1.83

Analysis of industries and markets allows the company to:
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- identify new markets in which its core competencies can be used;
- identify threats from existing and potential competitors in its own industry and other industries;
- identify markets in which it will obtain its resources.
Figure 1. Chart of Strategic Groups in Relation to Price/Quality Ratio of PJSC MMC NORILSK NICKEL.

Figure 2. Chart of Strategic Groups Regarding Vertical Integration of PJSC MMC NORILSK NICKEL.
It should be noted that this industry is sufficiently reserved and the barriers for entering into it are great. In addition, in view of the difficult foreign policy circumstances, the market environment is undergoing constant changes. On the one hand, a rather large percentage (90% only for Norilsk Nickel Corporation) of manufactured products is exported. So, industry enterprises do not experience big difficulties and, in general, feel comfortable. On the other hand, if the sanctions policy of other countries with respect to Russia tighten, the profitability of the industry may drop.

Summarizing the conducted SNW analysis, we can conclude that a group of corporate weaknesses may be attributed to “innovative” ones. This is the conventional name of this group. While analyzing the analysis matrix, it can be noted that the weaknesses are most often those aspects being associated with something new, for example, the development of new products or resilience to market trends.

A monopoly corporation, in general, is not fast and flexible in responding, but in the reality of the modern world, what matters is not the size of the company or the market share, but technology.

SWOT analysis allows comprehensively assessing the position of the corporation in the market. The analytics process identifies the company's strengths (S), weaknesses (W), as well as opportunities and threats (O and W, respectively). The analysis examines both the external and internal environment of an enterprise. SWOT analysis allows, along with other factors, to directly identify the threats (W) the enterprise is facing. It can also offer options to counter these threats. The results of SWOT analysis for PJSC MMC NORILSK NICKEL are given in Table 4.

**Figure 3. Chart of Employment of PJSC MMC NORILSK NICKEL.**

For Table 4:

| S                      | W                      |
|------------------------|------------------------|
| 1. High level of scientific, logistic and marketing autonomy | 1. High social risks |
| 2. Rich raw material base | 2. Very low environmental friendliness of production |
| 3. Branches in 5 countries | 3. Remoteness of bases and quarries |
| 4. Low cost of production compared to foreign producers | 4. High level of equipment wear |
| 5. Efficient dividend policy. |                       |
5. Depletion of deposits on the Kola Peninsula assigned to the company

O
1. Highly attractive investment environment
2. Creation of an international partnership program for the recruitment and exchange of highly qualified specialists
3. Cost reduction through modernization of production and supply chains
4. Search and development of new deposits
5. State support

T
1. Falling demand for metal in major producing countries
2. Depletion of explored deposits within the Russian Federation
3. Politically volatile environment in the world

In this case, a rather large block of risks is associated with society, environmental problems and equipment wear.

Analysis of the external environment of PJSC MMC Norilsk Nickel led to several conclusions:
1. The mining industry is limited by a number of international companies - holdings;
2. The competitive model of this market is oligopolistic. There are no analogues of PJSC MMC Norilsk Nickel in the domestic market;
3. Barriers to entering into the market are extremely high and require large-scale investments or a unique innovative offer;
4. The external environment of the enterprise feels a strong influence of the political and technological factor.

4. Conclusion
In a modern economy, the situation of industrial enterprises depends, first of all, on the adaptation of enterprises to prevailing market conditions. An industrial enterprise is a complex socio-economic open system created for certain purposes, which is influenced by numerous environmental factors. The external environment carries threats, and avoiding them represents an adaptation process.

The classification of environmental factors due to their diversity is quite different and can be based on various principles. But in the management, the classification of factors that is adopted, and mostly adhered to, is the one of the factors of direct and indirect impact.

Qualitative analysis of the external environment of an enterprise allows making objective conclusions regarding the competitiveness of the enterprise. The existence of the enterprise involves the development of unique competencies that allow the company to quickly adapt to changes in the external environment and create common values with counterparties. Consequently, in current circumstances, increasing the competitiveness of an enterprise should be based on such intangible assets that fully take into account the influence and change of the external environment and contribute to creating value for counterparties together with the enterprise.
5. References

[1] Bondarenko S I 2013 Competitiveness of products of the metallurgical complex in Russia: monograph (M.: Scientific Book) pp 104

[2] Krupornitskaya I A 2018 Competitiveness of multinational gas companies in the context of globalization (M.: Science) p 348

[3] Morgunova E P, Morgunova M K 2016 Improving the supply activities of integrated industrial group Research and Development. Company Economics Vol 5 1 pp 38-43

[4] Olekhnovich S A 2016 Organization and management of business processes (St. Petersburg: ITMO University) p 165

[5] Osadchuk E V 2013 Competitiveness on the Internet. How to make your project successful: monograph (M.: Binom. Laboratory of Knowledge) p 152

[6] Paramonova T 2016 Competitiveness of the retailer (M.: KnoRus) p 958

[7] Paramonova T N 2016 Competitiveness of the retailer Textbook (M.: KnoRus) p 120

[8] Paramonova T 2016 Competitiveness of the retailer (M.: KnoRus) p 887

[9] Fatkhutdinov R A 2011 Global competitiveness Reference book of the modern manager (M.: Standards and Quality) p 464

[10] Fidelman G 2014 Alternative Management. Path to global competitiveness (M.: Alpina Publisher) p 192

[11] Official website of Norilsk Nickel Corporation URL: http://www.nornik.ru/