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STRATEGIC ANALYSIS OF THE ARMS COMPANY

ABSTRACT: The main objective of the article is to conduct a strategic analysis of an arms company from the defense industry sector selected from a group of companies belonging to Polska Grupa Zbrojeniowa S.A. The article attempts to verify the following research hypothesis: It should be presumed that the appropriate selection of methods of strategic analysis contributes to a more objective determination of the development potential of an entity from the arms industry. This can lead to stable company development and increase the competitiveness of arms companies. A strategic analysis of the company was conducted based on the PEST method, Porter's five forces method, strategic balance and SWOT/TOWS analysis. A synthesis of the findings of the research methods used was made.



KEYWORDS: strategic analysis, PEST method, Porter's five forces method, strategic balance, SWOT/TOWS analysis

INTRODUCTION

Today, strategic analysis is the main focus of every major business organization.

„The arms industry's central purpose is to design, produce and maintain the means to wage wars. Therefore, what it produces and how it is used is subject to significant

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controversy, both from a political-strategic point of view and from an economic perspective”¹

The arms industry in Poland is one of the areas of the industrial defense potential (PPO), which concentrates tangible and intangible resources whose task is to meet the requirements and expectations of the state in the field of defense activities. One of the entities that benefit from PPO is the Polish Armed Forces, which procures armaments and military equipment as part of PPO operations. The largest share in the industrial defense potential is currently held by: companies whose founding body is the Ministry of National Defense, companies whose scope of business activity is focused on national security and defense, and whose main stockholder or shareholder is the State Treasury, as well as research and development units and companies conducting foreign operations at a strategic level from the point of view of national security in the scope of trade in goods, services and technologies².

The main objective of the article is to conduct a strategic analysis of the arms company from the defense industry sector selected from a group of companies belonging to Polska Grupa Zbrojeniowa S.A.

The main research problem was formulated in the form of a question: What action strategy should the analyzed arms company Wojskowe Centralne Biuro Konstrukcyjno-Technologiczne S.A. adopt to further develop and enhance the competitiveness of arms companies?

The publication attempts to verify the following hypothesis: It should be presumed that the appropriate selection of methods of strategic analysis contributes to a more objective determination of the development potential of an entity from the defense industry. This can lead to stable company development and increase the competitiveness of arms companies.

The considerations undertaken in the publication were limited by the subjective and objective scope, place and time.

The subject of consideration is how a defense industry entity operates.

The subject of the undertaken consideration is the selected company from PGZ S.A., for the purpose of study called the arms company X and its environment, and the way it operates on the market.

¹ A-E. Fleurant, *The Economic of Arms*, p.75-77, Published online 15 Nov 2017, Taylor&Francis Online <https://doi.org/10.1080/03071847.2017.1401409>

² M. Tomczyk, *Znaczenie budżetowania w zabezpieczeniu finansowym przedsiębiorstwa z branży zbrojeniowej*, OBRONNOŚĆ. Zeszyty Naukowe no. 3(27)/2018, Wydawnictwo Akademii Sztuki Wojennej, Warsaw 2018, p.209.

The spatial scope of consideration has been limited in narrower terms to the area of Poland, while in broader terms to global space.

The period of the study covers the years 2016-2021.

The publication presents a comprehensive strategic analysis of company X belonging to PGZ S.A. based on selected methods and techniques. The company's macro environment was analyzed using the PEST method and its micro environment was analyzed using Porter's five forces method. The potential of the analyzed organization was determined based on the prepared strategic balance. The strategic position of the analyzed company was evaluated on the basis of the conducted SWOT/TOWS analysis.

LITERATURE REVIEW

Reliable and objective strategic analysis of the studied enterprise is a prerequisite for designing its effective strategy. In Polish and foreign literature we can find about 200 tools of strategic analysis³. It also presents numerous proposals for systematizing, classifying, and structuring approaches to the strategy. In Polish literature the most extensive review of strategic analysis, can be found in the works of Grażyna Gierszewska, Maria Romanowska (1997-2017)⁴, Krzysztof Obłój (2001-2007)(2017)⁵, Zdzisław Pierścionek (2011)⁶, Grażyna Gierszewska, Barbara Olszewska, Jan Skonieczny (2013)⁷ and Jerzy Niemczyk (2013)⁸. Interesting proposals relating to strategic analysis and security are presented by Piotr Daniluk (2015)⁹, P. Daniluk, Helena Wyligała (2021)¹⁰ and Andrzej Dawidczyk (2020)¹¹. Andrzej Kaleta (2016)¹², in turn, provides directions for change in strategic analysis. The classics in the foreign

³ J. Niemczyk, R. Trzaska, *Analiza strategiczna przedsiębiorstwa w układzie podejść do strategii*, Przegląd Organizacji, No. 12(971), 2020, p.4.

⁴ G. Gierszewska, Maria Romanowska, *Analiza strategiczna przedsiębiorstwa*, Polskie Wydawnictwo Ekonomiczne, Warszawa, cop.1997,1999,2002,2002,2007,2009,2017.

⁵ K. Obłój, *Strategia organizacji: w poszukiwaniu trwałej przewagi konkurencyjnej*, Polskie Wydawnictwo Ekonomiczne Warszawa, cop. 2001,2007; K. Obłój, *Praktyka strategii firmy: jak zarządzać przeszłością, radzić sobie z teraźniejszością i tworzyć przyszłość*, Wydawnictwo Poltext, Warszawa 2017.

⁶ Z. Pierścionek, *Zarządzanie strategiczne w przedsiębiorstwie*, Wydawnictwo Naukowe PWN, Warszawa 2011.

⁷ G. Gierszewska, B. Olszewska, J. Skonieczny, *Zarządzanie strategiczne dla inżynierów*, Polskie Wydawnictwo Ekonomiczne, Warszawa, 2013.

⁸ J. Niemczyk, *Strategia: od planu do sieci*, Wydawnictwo Uniwersytetu Ekonomicznego, Wrocław 2012.

⁹ P. Daniluk, *Bezpieczeństwo i zarządzanie: analiza strategiczna*, Difin, Warszawa 2015;

¹⁰ P. Daniluk, H. Wyligała, *Analiza zagrożeń sektorowych dla bezpieczeństwa*, Difin, Warszawa 2021.

¹¹ A. Dawidczyk, *Analiza strategiczna w dziedzinie bezpieczeństwa państwa*, Difin, Warszawa 2020.

¹² A. Kaleta, *Między tradycyjną a nowoczesną analizą strategiczną*, Przegląd Organizacji, Nr 3 (914), Towarzystwo Naukowe Organizacji i Kierownictwa, 2016, pp.4-9,

literature are the summaries proposed by Bill Richardson, Roy Richardson (1993)¹³, Henry Mintzberg, Bruce Ahlstrand, Joseph Lampel (2009)¹⁴. However, the literature lacks examples of practical proposals for strategic analysis. They are mostly only described theoretically.

STRATEGIC ANALYSIS USERS

The results of the strategic analysis can be used by the management and specialists of the company, banks financing the company, shareholders of the company, suppliers, buyers and cooperating parties of the company, competitors from the sector or strategic group, potential investors and other entities having some plans or expectations in relation to the company¹⁵.

Table 1. Strategic analysis users

USER	OBJECTIVE
Company executives and specialists	the need for strategy formulation and implementation
Banks financing the company	making a credit decision/restructuring program evaluation
Shareholders of the company	estimating the future value and level of risk of equity investments
Suppliers, buyers and cooperating parties of the company	defining one's own strategy in relation to the company
Competitors from the sector/strategic group	developing a competitive strategy or determining one's own strategic position relative to the company under study
Potential investors	identification of barriers to entry, attractiveness of the sector and the situation of individual sector participants
Other stakeholders	to create plans or expectations for the company, e.g., government agencies

Source: own study based on G. Gierszewska, M. Romanowska, *Analiza ...*, op.cit., pp.18-19.

The above-mentioned users will focus on different sets of information, with different levels of detail and processing, to perform the analysis. This information is necessary for the implementation of tasks to be fulfilled by strategic management, which according to Izabela Rącka and Zbyszek Szmaj "is a comprehensive, interdisciplinary, multi-phase, multi-level process of formulation and implementation of the organization's strategy"¹⁶, also identifying

¹³ B. Richardson, R. Richardson, *Business planning: an approach to strategic management*, Pitman, London 1993.

¹⁴ H. Mintzberg, B. Ahlstrand, J. Lampel, *Strategy safari the complete guide through the wilds of strategic management*, FT Prentice Hall, Harlow, 2009.

¹⁵ G. Gierszewska, M. Romanowska, *Analiza ...*, op.cit., pp.18-19.

¹⁶ I. Rącka, Z. Szmaj, *Zarządzanie strategiczne*, Wydawnictwo Państwowej Wyższej Szkoły Zawodowej im.

the individual elements of the definition presented by them, which are also the features of strategic management¹⁷: comprehensive, interdisciplinary, multi-phase, multi-level process .

According to Arthur A. Thompson and Alonzo J. Strickland, strategic management has five basic tasks to fulfill¹⁸:

1. Define the essence and specify the strategic mission of the organization, i.e., where the organization is going, what it can do, and what is its place in the market.
2. Establish strategic goals and objectives.
3. Formulate strategy as a tool for achieving goals and desired outcomes.
4. Implementation, which is the execution of the chosen strategic plan.
5. Controlling the degree of execution of the plan and making corrective decisions to adapt the strategy to changes in the external and internal environment of the organization.

Piotr Daniluk notes that “strategic analysis in the area of military and defense issues, as in strategic studies, is considered with an inextricable link to strategy.”¹⁹

„The most stable company, one of the leading defense concerns in the world, is Northrop Grumman”²⁰.

PGZ S.A. is a strategic element of Polish security and creates one of the largest defense concerns in Central Eastern Europe, and it aims to become in the future a leading manufacturer of technologically advanced equipment for modern armed forces. As the main industrial partner in the program of technical modernization of the Polish Armed Forces, it strives to rebuild the Polish defense industry and develop national competence in the arms sector.

The strategic goals of PGZ S.A. are²¹:

- Improvement of results and financial optimization of the PGZ Group;
- Maximizing the share of products from PGZ Group's offer in the purchases by the Polish Armed Forces
- Building an effective strategic management model for the PGZ Group;

Prezydenta Stanisława Wojciechowskiego w Kaliszu, Kalisz 2018, p.12.

¹⁷ Ibidem.

¹⁸ A. A.Thompson, A. J. Strickland, *Strategic Management. Concepts and Cases*, R.D. Irvin, Homewood, Illinois 1990, p.5.

¹⁹ P. Daniluk, *Bezpieczeństwo ...*, op.cit, p.30.

²⁰ J. Antczak, I. Horzela, A. Nowakowska-Krystman, *Influence of Financial Liquidity on the Competitiveness of Defense Industry Enterprises*, European Research Studies Journal Volume XXIV, Issue 2, 2021, p.272 DOI:10.35808/ersj/2125

²¹ PGZ Group strategy for 2019-2023 – update 2021, PGZ; <https://grupapgz.pl/wp-content/uploads/2021/11/strategia-grupy-kapitalowej-pgz-na-lata-2019-2023-aktualizacja-2021.pdf> (accessed: April 16, 2022)

- Building an effective organizational structure for the PGZ Group;
- Strengthening and expanding CT/IT capabilities in the PGZ Group;
- Optimization of the process of acquiring and managing R&D projects in the PGZ Group;
- Growth in the PGZ Group's revenue from exports of products and services;
- Increase in the PGZ Group's offerings and revenues from the domestic civilian market, particularly the homeland security market.

At present, PGZ S.A. comprises over 50 companies and holds shares in 32 other companies (defense, shipbuilding and new technologies industries)²².

The analyzed company belonging to the PGZ S.A. Capital Group is obliged to keep in mind in its activity the mission and general vision of the Group. According to this, its priority is to ensure its own safety as well as that of its customers and the environment, and to provide innovative solutions for the Polish Armed Forces.

The analyzed company is engaged in the design, construction and production of modern equipment for use in the field of national defense. Its primary business activity is aerodrome equipment for military aircraft support and training facilities for training tank and combat vehicle crews²³. It is the only company in Poland and one of the few in the world that comprehensively supplies military airports with aircraft ground support equipment. The equipment produced by the company is also supplied to the civilian market²⁴.

MACRO ENVIRONMENT ANALYSIS – PEST ANALYSIS

The company's macro environment, which is its further environment, is an important factor affecting the way of performing its activities and their level. Therefore, it is extremely important to accurately analyze and assess the macro environment and identify opportunities and threats coming from it.

In strategic management, the most popular method of preliminary macro environment analysis is PEST (P-political, E- economic, S-social, T-technological)²⁵. From a practical point of view, conducting a PEST analysis involves distinguishing the factors of each area of the further

²² <https://grupapgz.pl/o-nas/grupa-kapitalowa/> (accessed: April 16, 2022)

²³ D. Klimek D., *Zmiany strukturalne w polskim przemyśle zbrojeniowym*, Prace Komisji Geografii Przemysłu Polskiego Towarzystwa Geograficznego No. 32(3)/2018, Instytut Geografii Uniwersytetu Pedagogicznego im. Komisji Edukacji Narodowej w Krakowie, Kraków 2018, p.152.

²⁴ Unknown author, *WCBKT S.A. wspiera służby medyczne w walce z epidemią*, <https://www.defence24.pl/> (accessed: April 12, 2022)

²⁵ P. Daniluk, *Bezpieczeństwo...*, op.cit. p.64.

environment that affect or may affect the company's activities. The impact of each factor on the operation of the company is then determined. The next stage of the study determines the relations between the studied organization and the further environment using the assessment of the relevance of individual segments of the macro environment in terms of its functioning, predicting possible aspects of their further development and developing a forecast of the company's behavior in the situation of the occurrence of a trend²⁶. When PEST analysis is a stand-alone method, i.e. scenario analysis is not pursued further, a weighted evaluation of factors can be made in addition to specification²⁷.

The impact of each factor on the operation of the company was determined based on the impact strength rating scale adopted for the study, presented in Table 2.

Table 2. A subjective rating scale of the type and strength of the impact of a particular trend on the phenomenon under study

No.	Impact strength value	Verbal description of the impact strength	Features
1.	+5	Very good chance	Extremely strong positive impact on the subject/phenomenon studied, occurs with low frequency
2.	+4	Good chance	Strong positive impact on the subject/phenomenon under study as a result of systematic changes spread over time
3.	+3	Average chance	Significant impact on the subject/phenomenon under study with the ability to amplify its strength
4.	+2	Small chance	Strength of the impact at the level of the chance to improve the situation of the studied subject/phenomenon
5.	+1	Very small chance	Insignificant value of a positive nature – it can turn into a threat to the studied subject/phenomenon
6.	-1	Very low risk	Insignificant value of a negative nature

²⁶ E. Multan, E. Bombiak, M. Chyłek, *Analiza strategiczna w przedsiębiorstwie. Zagadnienia teoretyczne i studia przypadków*, Uniwersytet Przyrodniczo-Humanistyczny w Siedlcach, Siedlce 2014, pp.48-49.

²⁷ P. Daniluk, *Bezpieczeństwo ...*, op.cit., p.65.

			– it can turn into a chance to the studied subject/phenomenon
7.	-2	Low risk	The perceived level of a threat to the studied subject/phenomenon
8.	-3	Medium risk	Significant impact of a threat to the studied subject/phenomenon, which can amplify itself
9.	-4	High risk	High impact generating negative changes of the studied subject/phenomenon – crisis situation
10.	-5	Very high risk	Very strong negative impact – critical situation of the subject/phenomenon

Source: Own study.

Based on the above scale, an assessment of the strength of the impact of specific trends of each of the specified areas of the macro environment of the analyzed arms company was carried out, and then using the arithmetic mean, the overall score for each area was determined (Table 3).

Table 3. Assessment of the impact strength of the factors in each area of the macro environment of the arms company X

Factors in the political environment	Score
Government stability	+4
The government's attitude to the defense industry sector	+4
The policy of the Ministry of National Defense and the Ministry of State Assets	+4
Functioning of the state budget	+4
Restrictiveness of international and European Union regulations	+3
Overall score	3.17
Factors in the economic environment	Score
GDP level	+3
The amount of financial resources allocated to the development of the aviation sector of the Polish Armed Forces	+3
Competitiveness of expenditures on other areas of state functioning in relation to expenditures on the defense sector	+2
Availability of raw materials	+4
Inflation level	-1
Conducting state investment activities in accordance with the principle of sustainable development	+4
Overall score	2.50
Factors in the socio-cultural environment	Score

Demographic structure	+3
Educational attainment	+2
Consumerism	+2
Social mobility	+3
Public attitudes toward the defense industry sector	+2
Real public interest in military affairs	+3
Real public support for the development of the Polish Armed Forces	+3
Overall score	2.57
Factors in the technological environment	Score
Level of technological knowledge in the defense sector	+4
Level of research and development in the defense industry	+4
Technology life cycle dynamics	+2
Technological gap between the Polish Armed Forces and the armed forces of other countries	-1
Expenditures for development and implementation works in the defense sector	+4
Acquisition of new technologies for the exploration of new environments	+3
Overall score	2.66

Source: Own elaboration.

A summary of the overall scores for each of the analyzed areas of the company's macro environment is presented in Table 4.

Table 4. Summary of overall scores of individual areas of the macro environment of the arms company X

Macro environment area	Overall score
Political environment	3.17
Economic environment	2.50
Socio-cultural environment	2.57
Technological environment	2.66

Source: Own study.

As can be seen from the analysis, the most encouraging area of macro environment of the analyzed company is the political environment. The technological environment also has a visible impact. This is followed by the socio-cultural environment and then the economic environment.

The current policy of the government of the Republic of Poland is focused on the development of its own defense potential, which has a direct impact on creating opportunities for further development of the company. In addition, the Strategic Defense Review 2016

developed by the Ministry of National Defense postulates the construction of modern armed forces and assumes the main role to be played by “conventional” military equipment (tanks, armored personnel carriers, multi-role manned aircraft, etc.) in the perspective until 2032, and only in the longer term to acquire competence in the operation of UAVs (unmanned aerial vehicles) thus creating another real opportunity for further development for the analyzed company.

The technological environment poses challenges to the analyzed company in terms of keeping up and adapting the way of functioning of the company and the degree of advancement of products to the constantly developing technologies and new technological solutions that appear. The dynamics of technological development, as well as significant process computerization forces the company to constantly develop its products, aiming to achieve the best market standards.

The socio-cultural environment is also an important area. The analyzed company employs highly qualified employees with years of experience in designing and manufacturing equipment for military applications. The current employees of the analyzed company, with special attention to the direct production employees, are characterized by high experience and detailed knowledge. The process of gaining the experience, competence, skills and knowledge to do such a specific job is a long and demanding process. This consequently may cause difficulties in replacing such an employee in the future. Something to keep in mind at all times. Thirty years of transformation have seen unprecedented reduction of employment in the Polish defense industry. At the end of the 1990s, employment in this industry amounted to approximately 60,000, in 2001 it decreased to approximately 35,000, to reach a level of approximately 25,000 in the second decade of the 21st century, 70% of which are employees of PGZ S.A.²⁸.

The economic environment is affected by many factors. An important aspect is the plan to financially support the modernization of the Polish Armed Forces by NATO, which defense spending is expected to be among the highest in NATO. Funding is assumed to reach 2.5% of GDP by 2030, which will positively impact the company's ability to sell R&D work.

ANALYSIS OF THE COMPETITIVE ENVIRONMENT – M. E. PORTER'S FIVE FORCES ANALYSIS

²⁸ M. Marciniak, *Przemysł obronny (produkcja obronna)*, [in:] K. Stańczyk (scientific ed.), *Potencjał obronny Rzeczypospolitej Polskiej*, PWN, Warszawa 2019, p.268.

One of the basic methods of analyzing micro environment is “Porter's five forces method”, which analyzes the bargaining power of buyers, bargaining power of suppliers, industry rivalry, threat of new entrants and the threat of substitutes.

The use of this analysis is recommended for entrepreneurs, managers as well as investors. This analysis²⁹:

- makes it possible to determine the current and projected future profitability of the sector,
- provides an opportunity to understand the behavior of participants in the competitive environment and their impact on the position of the company,
- forms the basis for assessing the strengths and weaknesses of the analyzed company and the effectiveness of its strategies,
- is the basis for positioning the company and building a competitive strategy,
- allows for determination of the best time and way to enter or leave the sector,
- allows investors to look for industries and sectors with good prospects before they are reflected in stock prices.

In practice, the correct analysis and evaluation of a company's business sector using Porter's five forces method is descriptive, which means that each factor considered should be analyzed, an overall assessment should be made, and the impact on a given force should be determined. According to the creator of the method that will be used to analyze the sector, a sector is a part of the economy that includes companies that offer similar goods or services, selling the offered products or services on a common market³⁰.

The sector in which the analyzed company operates is primarily the defense industry, and to a lesser extent the civil market in the aviation domain, with specificity to the market of aircraft ground support equipment.

In the perspective of the EU economy, the arms sector is one of the leading industrial areas. In recent years, the annual turnover of the arms sector in the European Union has been at the level of EUR 100 billion. Looking at the EU arms sector in numbers, it is also worth noting that as many as 2,500 small and medium-sized enterprises operate in the sector, which can also be

²⁹ G. Gierszewska, M. Romanowska, *Analiza ...*, op.cit., p.76.

³⁰ J. Zelkowski, M. Gontarczyk, M. Kijek, P. Owczarek, *Implementacja metody pięciu sił Portera w aspekcie analizy i oceny usług kurierskich w Polsce*, Prace Naukowe Politechniki Warszawskiej. Transport, z. 124/2019, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2019, p.199.

expressed in the number of 0.5 million jobs in the European Union generated by the defense industry. It is also important to note that of the 100 largest arms companies in the world, 23 of them are based in the European Union³¹.

An analysis of reports from 2016 to 2020 prepared by consulting firm Deloitte shows that global revenues for the entire defense sector are growing at an average of about 3%. In 2016, Poland with the amount of spending at the level of 9.8 billion dollars was in 25th place among the countries that allocate the most money for defense. The world is investing in defense, and as a result, defense spending continues to increase³². The existing level of spending on the Polish defense in accordance with Article 7 of the Law on reconstruction and technical modernization and financing of the Armed Forces was to gradually increase from 2% of GDP in 2018-2019, to 2.1% of GDP in 2020, then 2.2% in 2021-2023, and then by 0.1 percentage point of GDP every two years. The target level was to be 2.5% of GDP in 2030, and the expenditure on national defense in 2022 is planned at the level of PLN 57.1 billion³³.

According to Sweden's Stockholm International Peace Research Institute (SIPRI), in 2018, Polish PGZ S.A. ranked 74th with \$1.25 billion in armament production revenue³⁴.

Information published by SIPRI on arms exports over the past five years indicates that in the years 2016 – 2020 Poland purchased arms from abroad with a value of 0.6% of the total arms imported globally³⁵.

The analysis of the competitive environment was conducted in the aerospace and defense sector in which the analyzed company operates. On the Polish military market, in the aviation domain, mainly companies belonging to PGZ S.A. operate, including Wojskowe Centralne Biuro Konstrukcyjno-Technologiczne S.A., Wojskowe Zakłady Lotnicze nr 1 S.A., Wojskowe Zakłady Lotnicze nr 2 S.A., Wytwórnia Sprzętu Komunikacyjnego "PZL – Kalisz" S.A.³⁶, as well as several entities owned by the largest defense companies from Western Europe and the United States³⁷.

³¹ M. Wieteska, J. Nowak (ed.), *Policy Paper 2/2019*, Polski Instytut Ekonomiczny, Warszawa 2019, p.4.

³² <https://www2.deloitte.com/pl/pl.html> (accessed April 8, 2022)

³³ M. Chądryński, *Wzrost wydatków na wojsko. Wszystko co trzeba wiedzieć o finansowaniu armii*, <https://300gospodarka.pl/explainer/wzrost-wydatkow-na-wojsko-wszystko-co-trzeba-wiedziec-o-finansowaniu-armii> (accessed: March 3, 2022)

³⁴ A. Fleurant, A. Kuimova, D. Lopes de Silva, N. Tian, P.D. Wezeman, S.T. Wezeman, *SIPRI Fact Sheet*, The SIPRI Top 100 Arms-Producing and Military Services Companies, 2018, SIPRI, Stockholm 2019, p.10.

³⁵ M. Szopa, *SIPRI: eksport uzbrojenia nadal kwitnie. Nowi światowi potentaci [Analiza]*, <https://defence24.pl/> (accessed April 7, 2021)

³⁶ PGZ, <https://grupapgz.pl/> (accessed: May 5, 2022)

³⁷ D. Klimek, *Zmiany strukturalne ...*, op.cit., p.151.

The diagnosis is based on the "five forces" assessment, which includes an analysis and evaluation of the partial factors that determine the formation of each of these forces. The level of significance and importance of each factor analyzed was determined by assigning it an appropriate weight, with the sum of all weights being equal to 1. The intensity of the influence of the factors will be evaluated based on the rating scale of -5 to +5 adopted for the study. Negative rating value decreases competitive power, while positive rating value enhances it. Assigning a rating of 0 indicates a neutral influence of the factor. By determining the product of the assessed value of the factor's impact strength and the weight established for it, a weighted score is obtained. In the next step, the values of the weighted scores are summed to determine a synthetic index that shows the power of each competitive force to influence an organization in the sector. The higher the score expressed in numerical value a force received, the greater the degree of its impact. The described procedure related to the analyzed company is presented in Table 5.

Table 5. Evaluating the competitive forces of the micro environment

Competitive force and the factors that determine it	Assessing the power of impact	Factor weight	Weighted score
Threat of new entrants	O	W	O-W
Economies of scale of production	-3	0.25	-0.75
Product differentiation	+3	0.15	0.45
Capital requirements	-5	0.20	-1.00
Control of distribution channels by existing companies in the sector	+2	0.10	0.20
The power of brands and brand awareness	-2	0.10	-0.20
Know-how	-4	0.20	-0.80
TOTAL		1	-2.1
Threat of substitutes	O	W	O-W
Availability of substitute products in the market	-2	0.10	-0.20
Technical advancement of the substitute	-3	0.15	-0.45
The utility of the substitute to the buyer	-4	0.10	-0.40
Quality level of the substitute	-4	0.20	-0.80
The willingness of potential buyers to buy the substitute	+3	0.25	0.75
Effectiveness of substitution of products by substitutes	-4	0.20	-0.80
TOTAL		1	-1.9
Bargaining power of buyers	O	W	O-W
Concentration of buyers in relation to the sector	+4	0.20	0.8

Purchase volume	+4	0.15	0.6
Existence of substitutes and competition	-5	0.20	-1.0
Threat of backward integration of buyers	-4	0.05	-0.2
High product evaluation by the customer	+2	0.25	0.5
Buyers' profit	+3	0.15	0.45
TOTAL		1	1.15
Bargaining power of suppliers	0	W	O-W
Concentration of suppliers in relation to the sector	-3	0.20	-0.6
Availability of substitute products	-2	0.15	-0.6
Importance of the sector as a customer to suppliers	+5	0.15	0.75
Threat of forward integration of suppliers	-3	0.05	-0.15
Importance of sales volume to suppliers	+4	0.20	0.8
Dependence of the quality of the final product on the purchased product	+5	0.25	1.25
TOTAL		1	1.45
Industry rivalry	0	W	O-W
Number of competitors	-4	0.15	-0.60
Growth rate of the sector	-3	0.15	-0.45
Price competitiveness	+2	0.20	0.40
Technological advantage	+3	0.20	0.60
Product offering differentiation	-2	0.10	-0.20
Brand reputation	+4	0.20	0.80
TOTAL		1	0.55

Source: Own study.

A summary of weighted scores for each of the competitive forces analyzed in the company X's sector is presented in Table 6.

Table 6. Summary of weighted scores of competitive forces in the sector

Competitive force	Weighted score
Threat of new entrants	-2.1
Threat of substitutes	-1.9
Bargaining power of buyers	1.15
Bargaining power of suppliers	1.45
Industry rivalry	0.55

Source: Own study.

The rivalry between organizations within the sector can be described as a competitive struggle, which in this case is difficult and ambiguous. In the military market, the studied company is the only supplier of aircraft ground support equipment that can meet the requirements and expectations set by the Polish Armed Forces. The international arena, on the other hand, poses greater challenges to the analyzed company in terms of competition in the form of companies with established and stable position in the market. These companies build their advantage through extensive product and service offerings in their home markets and by

offering competitive pricing. The analyzed company does not waste time and actively implements actions aimed at minimizing the risk of the Polish military using ground support equipment supplies from possible new suppliers. And that comes with the military's need for new models and categories of aircraft. One such action is conducting discussions with all bidders with the goal of inclusion in the so-called "logistics packages" that operate for aircraft delivery. From observation and analysis of available data, it appears that the Polish civil market is dominated by European entities. American manufacturers are visible on the Polish civilian market only to a small extent.

The risk from newcomers to the market is mainly seen from Asian manufacturers. Their strength is their competitive offerings in terms of offering lower product prices. Currently, Asian products do not meet certain quality standards, making their threat to enter the sector only a threat. On the other hand, from the point of view of Polish buyers, there is a fear of low quality of products offered by Asian manufacturers, which has a positive impact on the role of the analyzed company in the sector. In its favor is also the fact that the purchasers of the aircraft ground support equipment are institutional customers and state capital, as well as the policy pursued by the Polish government, which involves promoting the Polish defense industry.

The risk of substitutes is low. This is influenced by the high level of technological advancement and the high importance of the requirement to meet precisely defined expectations and quality requirements set by the military market. New aircraft models require complex, much more advanced technical and technological solutions to operate and secure them than typical aircraft.

The bargaining power of suppliers is quite high. This is primarily determined by the specific quality requirements for assemblies and components from which the equipment is manufactured in the company under analysis. Thus, suppliers are essential for the proper operation of the analyzed company. A disadvantage of the analyzed company's relationship with its suppliers is the specificity of the production of aircraft ground support equipment, which in most cases is realized in small batches or as piece production. And this has a significant impact on limiting the prospects relating to obtaining the estimated best pricing terms within the orders placed. The activity aimed at counteracting this situation is a concept of pursuing a purchasing policy aimed at achieving lower supply prices by aggregating the demand for materials for the production of equipment. In this area, the company under analysis cooperates mainly with leading European producers. Despite this, it continues to look for alternative

suppliers of manufacturing materials and equipment upgrades that would enable it to reduce production costs while maintaining the highest quality of manufactured equipment.

The bargaining power of buyers must be considered in two ways due to the fact that the company under analysis operates in the military and civilian markets. The military market is identified with the Polish Armed Forces, whose authorities make decisions regarding the assortment of products supplied for the needs of military units. These decisions are made on an annual basis, and depend not only on real needs, but also on the amount of the budget for the year planned by the Ministry of Defense (MON) and the priorities adopted by it. A civilian buyer, on the other hand, when making a choice during a purchase is primarily guided by the price and quality of a given product or service. Their goal is to acquire a modern, high-quality device at the lowest possible price. They also attach importance to the guarantee of servicing the purchased equipment throughout its lifetime and the efficiency of this service.

In light of the analysis of the sector presented and the conclusions drawn from it, it can be concluded that the sector is attractive. The conditions in the defense/arms industry for aircraft ground support equipment are favorable: threats of competition and substitutes are low, while offerings from suppliers are satisfactory and demand from buyers is great. The situation in the civil market is similar, although it is on a smaller scale, mainly due to the smaller scale of the analyzed company's operations in this area, which, however, is not synonymous with a lack of development opportunities. On the contrary. Both the military and civilian markets present growth opportunities for the company under analysis.

STRATEGIC POTENTIAL ANALYSIS – STRATEGIC BALANCE OF THE COMPANY

The company's strategic potential is nothing more than its skills and abilities properly selected and effectively utilized. This potential is created by its internal resources and by its competencies.

In practice, the use of the strategic balance method boils down to the identification of the strengths and weaknesses of the company based on the evaluation of the adopted criteria relating to the established areas of the company under study.

In order to analyze the structures and functioning of the analyzed company, the following areas have been identified for analysis: marketing/sales/distribution, production/logistics, research and development, finance, management control, human resources. For each of the areas presented, specific factors are listed to be evaluated according to a specified intensity

point scale. For the purpose of the study, a scale of 1 to 5 was adopted. The higher the score expressed in numerical value a factor received, the higher the intensity of that factor. On the basis of the adopted scale, the evaluation of factors affecting the functioning of each of the specified areas of activity of the analyzed company was carried out, and then, using the arithmetic mean, the overall score for each area was determined, as shown in Table 7.

Table 7. Strategic balance of the company X

No.	Advantages	Score
A.	Marketing/Sales/Distribution	
1.	Range of products	5
2.	Product quality	5
3.	After-sales service	5
4.	Pricing terms	4
5.	Price fluctuations	3
6.	Distribution channels	3
7.	Geographical coverage	3
8.	Adapting to the market	4
9.	Mastery of market knowledge	4
10.	External information flow	4
	Overall score	4.0
B.	Production/Logistics	
1.	Location	4
2.	Condition of buildings	3
3.	Possibility of expansion	4
4.	Transport links	4
5.	Customer proximity	4
6.	Supplier proximity	2
7.	Quality of production preparation	5
8.	Machine quality	4
9.	Degree of automation	3
10.	Quality of methods	5
11.	Production capacity	4
12.	Level of use of production capacity	4
13.	Continuity of cycle	3
14.	Ability to grow	5
15.	Production costs	3
	Overall score	3.8
C.	Research and development	
1.	Areas of research	4
2.	Patents	3
3.	Methods	4
4.	Agreements	4

5.	Budget for research and development	3
6.	Keeping up with technology news	5
	Overall score	3.83
D.	Finances	
1.	Own funds	4
2.	Liquid funds	4
3.	Balance sheet structure	4
4.	Current assets requirements	4
5.	Net result	3
6.	Gross result	3
7.	General expenses	3
8.	Debt	4
9.	Profitability	3
	Overall score	3.55
E.	Management control	
1.	Costs analysis	4
2.	Information systems	4
3.	Access to data banks	3
4.	Quality of computing	4
5.	Financing plan	3
6.	Liquid funds management plan	4
	Overall score	3.67
F.	Human resources	
1.	Social management	4
2.	Employment relations	4
3.	Recruitment/Integration	3
4.	Training/professional development	4
5.	Evaluation of achievements	4
6.	Incentive systems	3
7.	Promotion systems	4
8.	Earnings level	3
9.	Function definition	4
10.	Delegation of tasks, authority, responsibility	4
	Overall score	3.7

Source: Own study.

A summary of the overall score for each of the analyzed areas of operation of the analyzed arms company is presented in Table 8.

Table 8. Summary of overall score of areas of operation of the company X

Area of operation of the company	Overall score
Marketing/Sales/Distribution	4.0
Production/Logistics	3.8

Research and development	3.83
Finances	3.55
Management control	3.67
Human resources	3.7
Overall score of the company's performance	3.74

Source: Own study.

The overall assessment of the performance of the analyzed company, a score of 3.74, ranks as satisfactory (3-3.99). The differences between each area's scores are small and remain similar except for the Marketing/Sales/Distribution area, which received a good score of 4.0 (4-4.99). This is primarily due to high sales of products and services in its specificity, which is mainly based on the fulfillment of the demand of the Polish Armed Forces, for which the analyzed company is a leading supplier within the scope of the supply of aircraft ground support equipment.

The other two places on the podium belong to R&D (score of 3.83) and manufacturing/logistics (score of 3.8), which is not surprising given the importance of these areas to the company's operations. The range and quality of products and services offered by the company depends on its production capacity and logistics facilities, access to materials and energy.

The areas of management control (3.67) and human resources (3.7) remain at the same level. The company realizes the importance of controlling the situation of the company and continuously conducts audits and creates reports on its activities. Managers of the analyzed enterprise are aware of the importance of human work for its activity and the level of technical knowledge and competence that must be represented by its employees. Therefore, the company cares about the employees and appreciates their work.

The most deviating area from the leading one is the area of finance. The financial position of the company under analysis is good. However, due to the specific nature of its operations and the realization of its products and services for the needs of the Polish Armed Forces, it is necessary in the financial strategy to maintain adequate financial reserves and take into account the need to mobilize ad hoc bank loans. Also, the area of finance is affected by many factors independent of the company's operations e.g. Covid-19.

ASSESSMENT OF THE COMPANY'S STRATEGIC POSITION – SWOT/TWOS ANALYSIS

In fact, the procedure of the SWOT/TOWS method is carried out by determining the factors that affect the activities of the organization, classifying them into four categories: strengths, weaknesses, opportunities, threats, determining the relations between the factors, and developing results based on the identified relations, on the basis of which a development strategy is selected that meets the capabilities and needs of the company. The determination of relations is done by using a standard set of eight questions ³⁸:

- Will the strengths allow for taking advantage of the opportunities that arise?
- Will the strengths allow for overcoming the threats?
- Will weaknesses negatively impact the ability to capitalize on opportunities?
- Will weaknesses enhance the impact of threats?
- Will opportunities allow for overcoming the weaknesses?
- Will threats enhance weaknesses?
- Will opportunities magnify strengths?
- Are threats capable of weakening the strengths?

Managers often turn to this research method. When performed well, it provides a basis for developing a viable strategy of action and for making effective decisions³⁹.

The SWOT/TOWS analysis identified five key characteristics in each group (strengths, weaknesses, opportunities, threats). Each characteristic was given a weight according to which the evaluation was performed. The sum of the weights in each category is equal to 1. A summary of the internal and external factors and their assigned weights in the SWOT/TOWS analysis is presented in Table 9.

Table 9. Identification of factors and their weights in SWOT/TOWS analysis

Internal factors			External factors		
No.	Strengths (S)	Weight	No.	Opportunities (O)	Weight
1.	Wide range of products	0.30	1.	Development of the Polish Armed Forces	0.30
2.	High quality products	0.20	2.	Appearance of new regular customers	0.25
3.	Complexity of operations (from research to disposal)	0.15	3.	Large area of operation	0.15

³⁸ M. Ogórek, D. Strycharska, *Analiza strategiczna przedsiębiorstwa z sektora transportowego*, Gospodarka Materiałowa i Logistyka nr 12/2019, Polskie Wydawnictwo Ekonomiczne, Warszawa 2019, p.41.

³⁹ R. Tylińska, *Analiza SWOT instrumentem w planowaniu rozwoju*, Biblioteka Dobrego Nauczyciela, WSiP, Warszawa 2005, p.7.

4.	Highly developed research and development facilities	0.15	4.	Access to new technologies	0.15
5.	Dominant share in the domestic market of aircraft ground support equipment in the defense sector	0.2	5.	Global economic development	0.15
Internal factors			External factors		
No.	Weaknesses (W)	Weight	No.	Threats (T)	Weight
1.	High production costs	0.30	1.	Poor access to qualified workers	0.10
2.	Limited production and storage space	0.10	2.	Possibility of new entrants	0.25
3.	Small batch or piece production	0.30	3.	Strongly conditioned by the policy of the Ministry of National Defense	0.25
4.	High technology needs	0.15	4.	Reducing the budget for the Polish armed forces due to the epidemiological situation (COVID-19)	0.25
5.	High staffing requirements	0.15	5.	Increased prices by suppliers and cooperating parties	0.15

Source: Own study.

The SWOT/TOWS analysis took place in four consecutive steps designed to explore the relations that exist between the various factors. The occurrence of relations is determined by using a scale of 0-1, where 0 means no relation and 1 means the presence of relation. The number of emergent relations (interactions) was summed and then multiplied by appropriate weight values.

The first question to be analyzed was “Does the identified strength allow for seizing the opportunity?” Responses to this question are shown in Table 10.

Table 10. Relations between the strengths of the company X and external opportunities

Opportunities/ Strengths	O1	O2	O3	O4	O5	Weight	Number of interactions	The product of weights and interactions
S1	1	1	1	1	1	0.30	5	1.50
S2	1	1	1	1	1	0.20	5	1.00
S3	1	1	1	1	1	0.15	5	0.75
S4	1	1	1	1	1	0.15	5	0.75
S5	1	1	0	0	0	0.20	2	0.40
Weight	0.3	0.25	0.15	0.15	0.15			

Number of interactions	5	5	4	4	4			
The product of weights and interactions	1.5	1.25	0.6	0.6	0.6			
Sum of interactions	44							
Sum of products	8.95							

Source: Own study.

The second question analyzed is: “Does the strength allow for overcoming a given threat?”. The answers to this question provide a picture of relations that exist between the strengths of the company and the threats posed by the environment, as presented in Table 11.

Table 11. Relations between the strengths of the company X and external threats

Threats/ Strengths	T1	T2	T3	T4	T5	Weight	Number of interactions	The product of weights and interactions
S1	0	1	0	0	0	0.30	1	0.30
S2	0	1	0	0	0	0.20	1	0.20
S3	0	1	1	0	1	0.15	3	0.45
S4	0	1	1	1	1	0.15	4	0.60
S5	0	1	0	1	1	0.20	3	0.60
Weight	0.10	0.25	0.25	0.25	0.15			
Number of interactions	0	5	2	2	3			
The product of weights and interactions	0	1.25	0.5	0.5	0.45			
Sum of interactions	24							
Sum of products	4.85							

Source: Own study.

The results of answers to the next question: “Does the identified weakness negatively impact the ability to seize the opportunity?” is presented in Table 12.

Table 12. Relations between the weaknesses of company X and external opportunities

Opportunities/ Weaknesses	O1	O2	O3	O4	O5	Weight	Number of interactions	The product of weights and interactions
W1	0	1	0	0	0	0.3	1	0.3
W2	0	0	0	0	0	0.1	0	0
W3	0	1	0	0	0	0.3	1	0.3
W4	0	0	0	0	0	0.15	0	0
W5	0	0	0	0	0	0.15	0	0
Weight	0.3	0.25	0.15	0.15	0.15			
Number of interactions	0	2	0	0	0			
The product of weights and interactions	0	0.5	0	0	0			
Sum of interactions	4							
Sum of products	1.10							

Source: Own study.

Next, the relations between the weaknesses of the analyzed company and the threats generated by its environment were determined. The results of answers to the question: “Will the identified weakness enhance the impact of the threat?” is presented in Table 13.

Table 13. Relations between the weaknesses of the company X and external threats

Threats/ Weaknesses	T1	T2	T3	T4	T5	Weight	Number of interactions	The product of weights and interactions
W1	0	1	1	1	0	0.30	3	0.9
W2	0	0	0	0	0	0.10	0	0
W3	0	0	0	0	0	0.30	0	0
W4	0	0	0	1	1	0.15	2	0.3
W5	1	0	0	1	1	0.15	3	0.45
Weight	0.10	0.25	0.25	0.25	0.15			
Number of interactions	1	1	1	3	2			

The product of weights and interactions	0.10	0.25	0.25	0.75	0.30			
Sum of interactions	16							
Sum of products	3.30							

Source: Own study.

The next question analyzed, “Will a given opportunity allow for overcoming a given weakness?”, was to identify the relations between the opportunities created by the environment and the weaknesses of the arms company analyzed. The results of the analysis are presented in Table 14.

Table 14. Relations between external opportunities and weaknesses of the company X

Weaknesses/ Opportunities	W1	W2	W3	W4	W5	Weight	Number of interactions	The product of weights and interactions
O1	1	0	1	0	0	0.3	2	0.6
O2	1	0	1	0	0	0.25	2	0.5
O3	1	0	1	0	0	0.15	2	0.3
O4	1	1	0	1	1	0.15	4	0.6
O5	1	0	1	0	0	0.15	2	0.3
Weight	0.3	0.1	0.3	0.15	0.15			
Number of interactions	5	1	4	1	1			
The product of weights and interactions	1.5	0.1	1.2	0.15	0.15			
Sum of interactions	24							
Sum of products	5.40							

Source: Own study.

In the next step, the relations between the threats generated by the environment and weaknesses of the company are determined. The results obtained for answering the question “Will a given threat enhance a given weakness?” are presented in Table 15.

Table 15. Relations between external threats and weaknesses of the company X

Weaknesses/ Threats	W1	W2	W3	W4	W5	Weight	Number of interactions	The product of
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								weights and interactions
T1	1	0	0	0	1	0.10	2	0.2
T2	0	0	1	1	0	0.25	2	0.5
T3	0	0	1	0	0	0.25	1	0.25
T4	0	0	1	0	0	0.25	1	0.25
T5	1	0	0	0	0	0.15	1	0.15
Weight	0.3	0.1	0.3	0.15	0.15			
Number of interactions	2	0	3	1	1			
The product of weights and interactions	0.6	0.1	0.9	0.15	0.15			
Sum of interactions								14
Sum of products								3.25

Source: Own study.

Then the question "Will a given opportunity magnify a given strength?" was analyzed to determine the relations between the opportunities in the company's environment and the organization's strengths. The results of the analysis are presented in Table 16.

Table 16. Relations between external opportunities and strengths of the company X

Strengths/ Opportunities	S1	S2	S3	S4	S5	Weight	Number of interactions	The product of weights and interactions
O1	1	1	1	1	1	0.30	5	1.5
O2	1	1	1	1	1	0.25	5	1.25
O3	1	1	1	0	1	0.15	4	0.6
O4	1	1	1	1	1	0.15	5	0.75
O5	1	1	1	1	0	0.15	4	0.6
Weight	0.30	0.20	0.15	0.15	0.20			
Number of interactions	5	5	5	4	4			
The product of weights and interactions	1.50	1	0.75	0.6	0.8			
Sum of interactions								46

Sum of products	9.35
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Source: Own study.

The final step of the analysis asks the question, “Is a given threat capable of weakening a given strength?” The results of the relations that exist between the threats generated by the environment and the strengths of the organization are presented in Table 17.

Table 17. Relations between external threats and strengths of the company X

Strengths/ Threats	S1	S2	S3	S4	S5	Weight	Number of interactions	The product of weights and interactions
T1	1	0	1	1	1	0.10	4	0.4
T2	1	0	0	1	1	0.25	3	0.75
T3	1	0	0	1	1	0.25	3	0.75
T4	1	0	1	1	1	0.25	4	1
T5	0	1	1	1	1	0.15	4	0.6
Weight	0.30	0.20	0.15	0.15	0.20			
Number of interactions	4	1	3	5	5			
The product of weights and interactions	1.2	0.2	0.45	0.75	1			
Sum of interactions	36							
Sum of products	7.10							

Source: Own study.

Table 18 contains a summary including the summation of interactions and the summation of the products of weights and interactions for each of the eight stages of the analysis.

Table 18. Summary table for SWOT/TOWS analysis

Combination	SWOT analysis results		TOWS analysis results		Summary for SWOT/TOWS	
	Sum of interactions	Sum of products	Sum of interactions	Sum of products	Sum of interactions	Sum of products
Strengths (S)/ Opportunities (O)	44	8.95	46	9.35	90	18.3
Strengths (S)/ Threats (T)	24	4.85	36	7.10	60	11.95
Weaknesses (W)/ Opportunities (O)	4	1.1	24	5.4	28	6.5

Weaknesses (W)/ Threats (T)	16	3.30	14	3.25	30	6.55
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Source: Own study.

The choice of strategy for the analyzed company was made on the basis of the summary results of the analysis presented in the form of a strategy matrix.

Table 4.18. Strategy matrix

	Opportunities	Threats
Strengths	Aggressive strategy	Conservative strategy
	Number of interactions	Number of interactions
	90	60
	Weighted number of interactions	Weighted number of interactions
	18.3	11.95
Weaknesses	Competitive strategy	Defensive strategy
	Number of interactions	Number of interactions
	28	30
	Weighted number of interactions	Weighted number of interactions
	6.5	6.55

Source: Own study.

Based on the performed SWOT/TOWS analysis, the unambiguously indicated development strategy for the analyzed company is the aggressive strategy – maxi-maxi, which assumes strong expansion and diversified development. The company's strengths outweigh its weaknesses and there are many opportunities in the environment that it can and should seize. The company makes the most of its strengths and external opportunities. It is in the most comfortable position possible, where it has everything to continue to grow and expand.

SUMMARY

The importance of strategic analysis is a point of management particularly sensitive in the field of business entities of the defense industry, the functioning of which is all the more restrictive and determined by specific internal and external conditions. Analyses are not just a step in the strategic planning process. They are important tools for managing the implementation of a strategy into action. Ultimately, they affect decisions on modifying the functioning of the company or implementing new directions and methods of its operation.

The analyzed company pays great attention to the objective determination of development potential, resulting in stable development and increased competitiveness of the company.

Increasingly, companies operating around the world are beginning to conduct environmental analysis to assess the business environment that affects the entire industry. In defense industry entities such as arms companies, this would be advisable.

This aim of the article has been achieved.

The research hypothesis has been positively verified.

Detailed final conclusions are presented under each analysis. The analyzed company is in good situation. The environment is conducive to its development. However, it should focus on increasing the use of its assets in a favorable environment. The sector in which the analyzed company operates is attractive. The conditions in the analyzed period and in the future create growth opportunities for the analyzed company. Strategic potential, i.e. its skills and capabilities properly selected and effectively used, which is created by internal resources and competencies could be better, although the current rating is almost good. The strategic position of the analyzed company confirms that it takes advantage of its strengths and opportunities coming from outside. It has everything in place to continue its growth, such as employing highly qualified staff, providing high quality services, and responding positively to market demand. The chances for development and strengthening the position of the analyzed company on the market in the nearest future are very high.

In order to further develop and increase competitiveness, the analyzed arms company should follow an aggressive strategy – maxi-maxi.

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