

Goran Mladenović¹
Anđelija Đukić

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THE QUALITY AND COMPETITIVENESS OF THE SERBIAN DEFENSE INDUSTRY ON THE GLOBAL ARMS AND MILITARY EQUIPMENT MARKET

Abstract: This paper focuses on examining the quality and competitiveness of Serbian defense industry in the global market for weapons and military equipment, with the aim to perform a structural and functional analysis of the global market of weapons and military equipment, to review its characteristics and to determine the place and role of the defense industry of the Republic of Serbia on it. The Covid-19 pandemic along with active and intense armed conflicts between Russia and Ukraine, Armenia and Azerbaijan, in the Middle East, in the north of the African continent and in the Sahel contributed to the sale of weapons and military services reaching record amounts in 2020. The activities of the USA, China and India on the international political scene and in the development and improvement of defense technologies will influence them to be dominant forces on the market of weapons and military equipment by 2030. The paper also gives a review of the quality and competitiveness of the Serbian defense industry.

Keywords: armament and military equipment, market, defence industry, quality, competitiveness, Republic of Serbia.

1. Introduction

This study focuses on examining the quality and competitiveness of Serbian defense industry in the global arms and military equipment market, where the market conditions are influenced by various participants, including the United States, Russia, and China. The objective of this research is to analyze and present the key characteristics, quality, and competitiveness of Serbia's defense industry using relevant scientific and professional literature that is publicly available. The research primarily adopts a qualitative research approach and

utilizes methods such as analytical-synthetic method, generalization method, statistical method, comparative method, as well as graphical and tabular analysis.

In order to study the specifics of the arms and military equipment market, we must start from a more general category - the market. In the economic literature, the term market, as a general category of the commodity economy, means the totality of supply and demand relationships that are established in a certain space and at a certain time due to the exchange of goods and services. The market can be categorized using various factors, such as spatial

¹ Corresponding author: Goran Mladenović
Email: goran.mladenovicgmd@gmail.com

locations, product types, volume, and exchange conditions (Dragišić et al., 1999). Correspondingly, a large number of factors of different nature and importance affect the creation of market relations. The totality of all those factors on the basis of which concrete exchange relations are formed constitutes the morphology, that is, the structure of the market. Determining the morphology of the market implies the identification of its spatial and temporal dimensions, material determinants (size and structure of the total supply), commodity components of the market structure (inventories of unsold goods) and cash flows.

When we talk about the specifics of the arms market, we must keep in mind that it is as old as human civilization. Its development went along with the development of wars. The more intense the wars were, the more lethal the weapons were, and thus the intensity of the production and trafficking of weapons. At the same time, the development of weapons encouraged wars, armed conflicts and crises, in a feedback loop. The arms trade thus became one of the world's most successful corporate enterprises. Not only has it created an economic system that grows regardless of the consequences, it has normalized war and security responses to every social crisis.

On the arms market, there are certain principles of price formation of those products, so it can be said that it is a so-called regulated monopoly. Namely, companies registered as manufacturers of weapons and military equipment undertake to adhere to the principles of price formation established by the authorities that provide them with this monopoly position when setting the prices of their products and services. The price is not a given size but comes from the buyer-seller contract. The equilibrium in such a market cannot be determined by the mechanism of supply and demand. The final price is determined by non-economic factors, such as bargaining power, the skill of the negotiator, and the

urgency of obtaining specific types of goods and services (Đorđević, 1993). The acquisition of weapons is aimed at the need to ensure supremacy on the battlefield, to exert political and economic pressure on the opponent and to build and strengthen national and collective security (if we are talking about certain military-political alliances such as North Atlantic Treaty Organization - NATO and The Collective Security Treaty Organization - CSTO). The specific type of goods, the urgency, confidentiality and secrecy in the purchase of the goods, the security and dominance that it provides to an individual state or alliance in a certain time and space frame initiates not only high profits in the military industry, but also great political power and influence for the countries that produce and sell weapons and military equipment.

In such a market, along with other countries, the defense industry of the Republic of Serbia also has its place, adapting to the existing laws and market conditions. The focus of this study is on the research of the quality and competitiveness of the Serbian defense industry, as manifested in the global market of weapons and military equipment, and under the conditions dictated by the market and other (more powerful) market entities. The aim of this study is to analyze and present the significant characteristics of the Serbian defense industry's quality and competitiveness, based on relevant and publicly available scientific and professional literature, and by applying specific scientific methods.

2. Literature Review

Different definitions of the arms and defense industry are encountered in the literature. The defense industrial base "consists of those industrial assets which provide key elements of military power and national security: such assets demand special consideration by government" (House of Commons, 2007). The nation's defense industry encompasses all defense suppliers that contribute to the

creation of value, employment, technology, or intellectual assets within the nation (The UK Ministry of Defence MoD, 2002). Defense industrial base constitutes those companies which provide defense and defense related equipment to the defense ministry (Dunne, 1995). The defense technological and industrial base of the Republic of Serbia is a collection of entities connected to defense and/or basic technologies. It includes manufacturers of weapons and military equipment belonging to the Defense Industry of Serbia group, specialized military-technical institutions that are organizationally affiliated with the Ministry of Defense and the Serbian Armed Forces, manufacturers of weapons and military equipment not belonging to the Defense Industry of Serbia group, subcontractors of weapons and military equipment manufacturers, and service providers in the field of weapons and military equipment production (Uredba o grupaciji Odbrambena industrija Srbije, 2019).

The arms trade refers to a dynamic model in which a limited number of suppliers are primarily focused on the profits generated by selling arms and the security implications of these sales. On the other hand, there is a substantial number of buyers who engage in interactions and are primarily concerned with enhancing their security in comparison to neighboring or regional competitors (Levine & Smith, 1995). Dunne & Tian (2016) provided a model of market structure in the global arms industry that links concentration, military procurement, international trade, and regional conflicts, while the economic aspect of the arms trade and the analysis of the relationship between arms transfers and foreign policy were provided by Anderton (1995). Brauer (2007) explores the involvement of developing states in the production and trade of major conventional weapons and their integration into the global arms industry, examining the industrial factors. Some authors deal in their works with the dramatic increase in military

expenditures and examine their impact on the economic growth of countries, regions, alliances (Dunne et al., 2005; Omitoogun & Skons, 2006; Ali, 2007; Brauer, 2007; Grimmett, 2010; Holtom & Bromley, 2010; Ahmed & Ismail, 2015; Cavatorta & Smith, 2017; Smith, 2017; Arshad, Syed & Shabbir, 2017; Dunne & Tian, 2016; Fleurant et al., 2017; Tan, 2020).

In addition to the above, two primary sources traditionally used for analyzing arms trade markets are the Stockholm International Peace Research Institute (SIPRI) and the World Military Expenditure and the Arms Trade (WMEAT), previously provided by the US Arms Control and Disarmament Agency (ACDA, 2000) and more recently by the Bureau of Verification and Compliance of the State Department. SIPRI offers annual data on the volume of transfers of major weapons systems, excluding small arms, and it's a volume measure that factors in quantities multiplied by trend indicator values, not the actual prices paid. WMEAT provides the value of transfers, considering the prices actually paid, and includes small arms. While WMEAT's data reports were discontinued in 2003, the reports from the US Congressional Research Service (CRS) can be used as an alternative. These reports provide current data on arms transfers to developing nations in terms of value.

Additionally, for the purpose of analyzing arms exports and imports in the Western Balkans region, annual reports from The South Eastern and Eastern Europe Clearinghouse for the Control of Small Arms and Light Weapons (SEESAC) have been used. SEESAC works to strengthen the capacities of national and regional stakeholders to control and reduce the proliferation and misuse of small arms and light weapons, advance gender equality, facilitate regional cooperation, and thus contribute to enhanced stability, security, and development in South Eastern and Eastern Europe (SEESAC, 2019).

3. Methods

In accordance with the projected research subject, a methodological framework for the study has been established. The research was conducted predominantly using a qualitative research approach. The analysis of relevant and publicly available scientific and professional literature contributed to the analysis and drawing conclusions about the quality and competitiveness of the Serbian defense industry, as well as about its position in the global market of weapons and military equipment. The fundamental methods of scientific knowledge applied in this research include the analytical-synthetic method, used to study the global market of weapons and military equipment and obtain findings on the most significant market entities, as well as to examine the position of the Serbian defense industry in this market. The generalization method was primarily used to study dominant entities in the global market and draw conclusions. Statistical and comparative methods were employed to analyze individual participants in the global market and to observe the position, role, and relationships of the Serbian defense industry with other entities in the global market and the market itself. Graphical and tabular methods were used to present the results and perform comparisons of entities in the global market.

4. Results and discussion

4.1. Relations on the global arms and military equipment market

For the world's largest arms producing countries, production and sale of weapons and military equipment is an important foreign policy tool. According to Fleurant et al. (2017), the five largest arms exporters are the USA with a share of 33% of the total volume of arms exports in the world, Russia with 23%, China - 6.2%, France - 6% and Germany - 5.6%. The arms industry in these countries plays a key role in their economies

and represents a significant lever in industry and technology as a generator of research and innovation processes. Technologies in the defense sector are tightly controlled as strategic assets of companies and governments, which closely monitor their transfer. Most of these companies have financial support from their domicile countries, in the form of various incentives and subsidies. The importance of research and development in the production of weapons is also indicated by the data, according to which the US Ministry of Defense allocated 141 billion dollars for the procurement of weapons and combat systems in fiscal year 2021, and almost 106 billion dollars were spent on research and development of weapons and equipment. The US spent \$754 billion on national defense in 2021, which was 11% of federal spending. Such spending indicates that lawmakers have prioritized national defense as a key part of the budget (National defense budget basics, 2022).

Thanks to the method of even distribution of budget funds and continuous investment in research and development of weapons and military equipment, until the end of the Cold War, the USA was one of the largest arms manufacturers in the world, and since the beginning of the nineties of the 20th century and the Gulf War, it has become the absolute leader in that area. After the Gulf War, policymakers in the United States and abroad condemned the existing unregulated arms market that facilitated Iraq's accumulation of over 80% of its arsenal from the Soviet Union, France, and China between 1980 and 1990 (Anderson, 1991). That is the reason why a very strong link between the military, politics, economy, and technology has been created in the USA. The synergy of the state structures of the USA and domestic companies from the defense industry, together with the significant foreign political activities of the American diplomacy in the world, influenced that the world market of weapons and military equipment, after a decline characteristic of

the end of the 20th century, began to grow continuously to reach a record volume of 2.113 billion dollars in 2021. The growth of arms trade at the global level was not affected by the Covid-19 pandemic either. Namely, in the second year after the start of the pandemic (February 2022), the European Parliament passed a resolution on financing the European Defense Fund to support joint defense research and development, with a budget of 8 billion euros. In the period from 2021 to 2027, the stated amount will be distributed in such a way that 2.6 billion euros will be allocated for financing research in new technologies and 5.3 billion euros for the development of joint defense projects (European Defence Agency, 2022). The increase in financial contributions of the European Union (EU) and NATO to the common defense and security system represents the response to the consequences caused by the Covid-19 pandemic and the crisis in Ukraine, which was escalated by the special armed action of the Russian Federation (RF) in that country.

Since the beginning of the 21st century, global military expenditures have increased by 75%. According to SIPRI data (Stockholm International Peace Research Institute [SIPRI], 2021a), the five largest military spenders in 2021 were the USA, China, India, the United Kingdom and Russia, thus accounting for 62% of the total global military spending as shown in Figure 1. Over the past decade, China has increased its military spending by 83%.

Sales of arms and military services done by the world's 100 largest arms companies reached a record \$531 billion in 2020, an increase of 1.3% in real terms compared to the previous year. The reduction of the global economy as a result of Covid-19 did not affect the operations of the world's largest companies that are engaged in the production of weapons and that remained protected in the conditions of the global crisis. Thanks to this, the profit in the defense industry in 2020 recorded growth for the sixth year in a row. Total sales in 2020

were 17% higher than in 2015 when, for the first time, data from Chinese arms and military equipment manufacturers were included in SIPRI and ACDA statistics. Arms sales have soared in much of the world and some governments have even accelerated payments to the arms industry. US firms continue to dominate the defense industry, with total sales of \$285 billion from 41 companies, accounting for about 54% of total arms sales among the world's 100 largest companies (Al Jazeera, 2021).

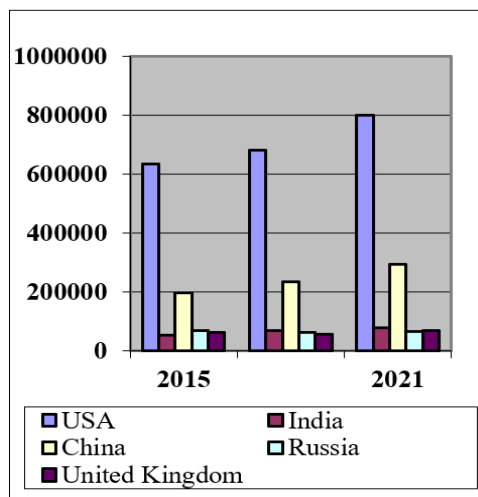


Figure 1. The ratio of allocations for defense needs of the five largest consumers in the arms market (USD millions), (SIPRI, 2021a).

The question arises, who are the biggest buyers on the world market of weapons and military equipment? The answer lies in regions of armed conflict and political tension. From the EU alone, 22% of arms exports were intended for countries involved in armed conflicts, and 25% for countries experiencing political tensions. Sub-Saharan Africa region, Middle East, The Eastern Mediterranean, East Asia, Australia and Oceania lead the way in arms imports. The Middle East accounted for 43% of US arms traffic. The increase in arms deliveries to Saudi Arabia, by 106%, is especially important for the growth of American arms

exports. In the period from 2017 to 2021, the five largest arms importers in Africa were Angola, Nigeria, Ethiopia, Mali and Botswana, while arms imports increased in Israel by 19% and in Egypt by 73%. Arms are regularly exported to Saudi Arabia, the United Arab Emirates (UAE), Turkey, Iraq and Afghanistan (SIPRI, 2021b). On an individual basis, India was the largest arms importer with imports accounting for 12% of global purchases.

The Swedish Institute estimates that by the 2030, the countries with the largest defense expenditures will be the USA with over 1 trillion dollars, China with 736 billion dollars and India with 213 billion dollars (SIPRI, 2022). With such growth dynamics of the arms market, the world's military arsenals are expected to double by 2030 compared to 2016. By 2045, India's defense spending could reach \$654 billion, roughly the same as all EU countries combined. The growth trend of the global arms and military equipment market was also detected by numerous global financial institutions (banks, insurance companies, etc.) that invest significant funds in the financing of the defense industry in the form of loans, credits, bond issues, shares and the entire range of banking products that enable their business. According to the "Worldwide Armed Banks Database", part of the "Military Economic Cycle database of the Center Delàs for Peace Studies" (Centre Delas, 2022), the world's 37 largest arms manufacturing companies, the most important of which are Boeing, Honeywell, Lockheed Martin and General Dynamics, received \$903 billion from more than 500 banks in 50 countries to finance research, development and production of defense technologies. The main financial institutions involved in the arms trade are located in the US, France and the UK. In addition to financial institutions, numerous international companies, institutions and organizations lobby governments and they have a huge influence on security and defense, among them stand out: Atlantic Council, Belfer

Center for Science and International Affairs, Brookings Institution, Carnegie Endowment for International Peace, Center for a New American Security, the Council on Foreign Relations, Heritage Foundation and RAND Corporation (US), the International Institute for Strategic Studies and the Royal United Services Institute (UK), the European Union Institute for Security Studies (France), the National Institute for Defense Studies (Japan), the Institute for National Security Studies (Israel), the Australian Strategic Policy Institute and Institute for International Strategic Studies in China (Centre Delas, 2022).

4.2. Quality and competitiveness of the Serbian defense industry

The importance of the defense industry is reflected in the fact that arms transfers are widely treated as a political issue even as they promote economic growth and development. Arms sales affect bilateral and multilateral relationships between suppliers, recipient countries, non-state actors and taxpayers (Avila, Souza & Guedes, 2017). The development of the arms industry increases the degree of national security and the security of political allies, limits the activities of adversaries, creates opportunities for arms transfers to influence the internal or external behavior of governments, and creates the scale of the economy necessary to support domestic industry (Thomas, 2017).

In the previous part, we performed a structural and functional analysis of the global arms and military equipment market, looked at its characteristics and identified the key players on it. In accordance with the positive growth of the arms market and the influence that arms manufacturers have at the regional and global level, arms production is an activity of strategic interest for Serbia, which includes: research and development of weapons and military equipment; development and acquisition of defense technologies; production, testing,

repair and improvement of weapons and military equipment; demilitarization and utilization of weapons and military equipment, construction and equipping of capacities for the production of weapons and military equipment and preparation of technical documentation (Zakon o proizvodnji i prometu naoružanja i vojne opreme, 2018). The Republic of Serbia has recognized the importance of the defense industry, and 2% of the budget is allocated to defense needs, which is in line with the percentage allocated by the most developed countries in the world (percentage at the level of allocations by EU and NATO members). In the period from 2008 to 2015, there was a downward trend in the allocation of funds to finance defense needs, but from 2016, that trend began to rise, which is shown in Figure 2 (National Assembly of the Republic of Serbia, 2022).

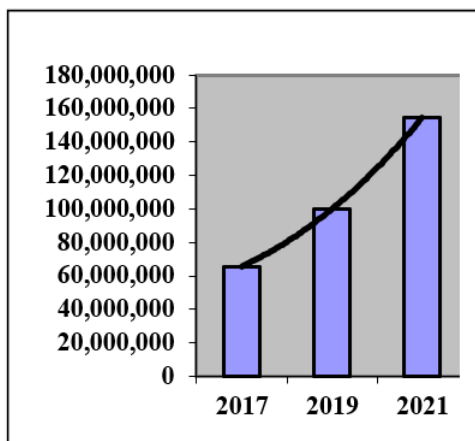


Figure 2. Allocation for defense purposes in the Republic of Serbia (in thousands of dinars) (National Assembly of the Republic of Serbia, 2022).

As for the normative legal regulation related to arms trade, the Republic of Serbia harmonized the legislation in the field of export control with EU standards and ratified the Arms Trade Treaty (ATT) 29 October 2014 (Republic of Serbia Ministry of Foreign Affairs, 2022). The ATT is an internationally legally binding document

that, at the global level, defines the criteria, principles, parameters and new standards that member states should take into account when approving permits for the transfer of conventional weapons. According to data from the Ministry of Defense, in 2021, the Republic of Serbia exported weapons worth about 500 million dollars (Zakon o uvozu i izvozu naoružanja i vojne opreme, 2014). That's a 30% increase compared to 2020, which saw \$384.25 million. In the period from 2015 to 2020, Serbia exported weapons to Bangladesh, Cameroon, Cyprus, Nigeria, Saudi Arabia and Turkmenistan. Among the types of weapons that were sold, the most attractive are howitzers "Nora" and the armored vehicle "Lazar 3" (SIPRI, 2021b), which is shown in Table 1. The delivery of the C-295W version of the Spanish transport aircraft is planned for 2023.

Table 1. Types and quantities of weapons and military equipment that Serbia exported in the period from 2015 to 2020, (SIPRI, 2021b).

Recipient	Ordered/ Delivered	No. designation
Bangladesh	18	Nora-B-52 155mm
	18	Nora-B-52 155mm
Cameroon	40	UBM-52 120mm
Cyprus	14	BOV M11
	24	Nora-B-52 155mm
Nigeria	100	M-75 120mm
Saudi Arabia	5	M-63 Plamen 128mm
	847	UBM-52 120mm
	50	OT-64A
Turkmenis.	9	Lazar-3
UAE	31	Type-63 107mm
Unknown recipient(s)_	36	M-56/33 105mm

On the other hand, Serbia invested significant funds in the analyzed period for the modernization of its existing armed

systems or the acquisition of new, modern and sophisticated types of weapons. The suppliers are companies from Russia, China, Canada, France, Germany, Belarus and Cyprus. The subject of procurement are various types of aircraft (attack and transport aircraft, combat and transport helicopters and unmanned aerial vehicles), tanks, combat reconnaissance vehicles, anti-aircraft defense systems shown in Table 2 (SIPRI, 2021b).

Table 2. Types and quantities of weapons and military equipment that Serbia imported in the period from 2015 to 2020, (SIPRI, 2021b).

Supplier	Ordered/Delivered	No. designation
Belarus	8	MiG-29S
Canada	4	PW100
China	9	CH-92
	50	FT-8
Cyprus	11	Mi-24P/Mi-35P
France	50	Mistral
Germany	6	EC145
	11	EC145
Russia	2	Mi-8MT/Mi-17
	30	BRDM-2
	1	MiG-29
	5	MiG-29S
	30	T-72
	150	57E6
	6	96K9 Pantsyr
	4	Mi-35M
	3	Mi-8MT/Mi-17
	150	57E6
	6	96K9 Pantsyr
	250	Kornet
	4	Mi-35M
Spain	2	C-295

Furthermore, Serbian defense industry forms a system that includes more than 20 companies which have specially developed capacities for the production of weapons and military equipment. Serbian defence industry has the necessary capacities for the production and development of the following types of weapons and military equipment (SEESAC, 2022):

- Smooth-bore weapons with a calibre of less than 20 mm,
- Smooth-bore weapons with a calibre of 20 mm or more,
- Ammunition and fuze setting devices,
- Bombs, torpedoes, rockets, missiles, other explosive devices and charges and related equipment and accessories,
- Fire control, and related alerting and warning equipment, and related systems, test and alignment and countermeasure equipment, specially designed for military use,
- Ground vehicles and components,
- Chemical agents, biological agents, riot control agents, radioactive materials, related equipment, components and materials,
- "Energetic materials", and related substances
- "Aircraft", "lighter-than-air vehicles", "Unmanned Aerial Vehicles" ("UAVs"), aero-engines and "aircraft" equipment,
- Armoured or protective equipment, constructions and components,
- Imaging or countermeasure equipment, specially designed for military use, and specially designed components and accessories therefor,
- Forgings, castings and other unfinished products.

Although it inherited a good portion of the defense industry of the Socialist Federal Republic of Yugoslavia (SFRY), and in the last period the state invests considerable financial resources in it, the Serbian defense industry is far from the success of the former country, which was among the ten largest producers of weapons and military equipment in the world in the eighties of the last century. A large number of development

projects were interrupted by the collapse of the SFRY in 1991, when there was a devastation of production capacities, the outflow and natural aging of professional staff, and a technological lag in the mechanical metal industry. The current capacities of the Serbian defense industry enable the production of a sufficient amount of infantry and artillery ammunition, while it lacks the human and material resources necessary for the development and serial production of complex combat systems.

It is a fact that the developed armies of the world pay extremely high attention to the development and improvement of the quality of products and services. The concept of quality in the defense industry should be understood as an integral process of construction and application in all functions of the organization based on the development and application of multidisciplinary knowledge as the basis of quality improvement. Quality management, environmental protection management, occupational health and safety management and information security management system are integral parts of an integrated management system (IMS) that should contribute to the competitiveness of the Serbian defense industry. The defense industry has established an integrated management system, parts of which are certified according to: ISO 9001, ISO 14001 (environmental management system), OHSAS 18001 (health and safety management system), Serbian Army Standard SORS 9000/05 and SRPS ISO/ IEC 17025 (General requirements for the competence of testing laboratories and calibration laboratories) (Misita & Marjanovic, n.d.).

However, the products of the domestic defense industry after the collapse of the SFRY are not technologically competitive with Western weapon systems, which is why their placement is directed mainly to third world countries, to customers who are oriented towards purchasing recognizable weapons at low prices. In addition to the

technological obsolescence of production capacities, the domestic defense industry is characterized by an unfavorable age structure of personnel, a low level of investment in research and development, insufficient use of the results of civil projects for defense purposes, insufficient application of modern ecological standards in production and poor energy efficiency (Zrnić, n.d.).

Nevertheless, the domestic defence industry has its chance in the development of certain specific types of weapons, such as the self-propelled howitzer marked "NORA-B52K1". The project was finalized in the company "Lola-sistem", with full engagement and cooperation with several leading Serbian defense industry companies ("Milan Blagojević - Namenska" a.d. Lučani, "Sloboda" a.d. Čačak, "Prva petoletka namenska" a.d. Trstenik, etc.). Beneficiaries of the aforementioned funds are the Ministry of Defense of the Republic of Serbia (12 delivered self-propelled howitzers, the delivery of additional 6 is in progress), Myanmar (30), Kenya (36 ordered self-propelled howitzers), Bangladesh (18 delivered self-propelled howitzers), Cyprus (24 ordered self-propelled howitzers). Potential users are Pakistan and the United Arab Emirates, where testing has been carried out and there is interest in purchasing the asset. But certainly, the most notable potential customer is the USA, where during 2021, testing of "Nora" and several other competitive foreign howitzers was carried out. The winning howitzer will be a new asset of the American "striker" brigades. In addition to "Nora", the airplane "Lasta", armored combat vehicle "Lazar", mortars, all types of infantry ammunition and rockets, ballistic protection equipment, explosives and powders are looking for their place on the market (Zrnić, n.d.).

5. Conclusion

The volume of sales of weapons and military services on the global market of weapons and military equipment has recorded

constant growth for the sixth year in a row. The current Covid-19 pandemic has not affected the operations of the world's largest companies engaged in the production of weapons. Quite the contrary, in the current defense strategies of the USA, EU and NATO, the viral pandemic is identified as another threat such as terrorism, violent extremism, armed conflicts, proliferation of weapons of mass destruction, organized crime, cyber attacks, climate change, irregular migration, etc.

Conflicts, wars, crises and pandemics initiate a faster development of technologies in the defense industry and increase the allocation of states to strengthen national security. For illustrative purposes, the global war on terrorism, which was launched in Afghanistan in 2001 to end the terrorist threat posed by Al Qaeda after 9/11, continued in Iraq in 2003 and is still ongoing in the Sahel. The fight against terrorism has led to terror on a larger scale than that perpetrated by members of the Islamic State (IS). In that struggle, a part of Asia, the Middle East and North Africa was engulfed, only to be transferred to the central part of the African continent with no indication of an imminent end to the armed conflicts. At the same time, the Covid-19 pandemic is entering its third year. In the period since 2019, numerous European countries have mobilized their defense capacities in addition to civilian ones in order to fight the consequences of the global pandemic.

At the beginning of the 21st century, numerous authors were skeptical about the appearance of war on European soil. Today, we are witnessing the war between Ukraine and Russia, which is being waged on European soil. Potential new hotspots are the Eastern Mediterranean due to unresolved relations between Turkey and Greece, Taiwan due to relations with China, North Africa and the Sahel, the Democratic People's Republic of Korea, Iran, Yemen, Armenia and Azerbaijan. One thing is certain, and that is that there is no better field for testing new weapons than the battlefield.

The largest sales of weapons followed armed conflicts. Profits from the conflict between Armenia and Azerbaijan go to the Turkish company "Baykar", which developed the unmanned remotely controlled aircraft "Baryaktar (TB 1 and TB 2)", "Baryaktar Akinci" and "Baryaktar Kizilelma". The use of the products of the Turkish defense industry is now seen in Ukraine, in the area where the characteristics and capabilities of Western (American) and Eastern (Russian) weapons are tested in the mutual conflict between the two states.

For the largest arms manufacturers, the current international political situation not only enables safe further growth of the arms market and profits in the defense industry, but also represents an important foreign political tool for placing influence and dominance on a global level. In the "struggle" with the major world powers on the arms and military equipment market, Serbian defense industry doesn't have much space. The sale of special products in the region is minimal due to the presence of NATO and the alliance's monopoly on arms sales. A chance for the development of the Serbian defense industry should be in the countries of the third world, in the development and improvement of specific types of weapons, research and development, training of professional staff and modernization of weapons for the needs of the domestic defense and security system. It is particularly important to ensure the development of the capabilities and potential of the defense industry in the field of research and development of weapons and military equipment, in order to establish an adequate technological basis for the defense system, as well as the placement of domestic products of the defense industry on markets in Europe and the world. The technological modernization of the armed forces will have a significant impact on the physiognomy and course of future armed conflicts and will greatly contribute to the achievement of the capabilities necessary to counter security threats.

To succeed in the worldwide market for weapons and military equipment, it is vital for the defense industry of the Republic of Serbia to establish a robust connection between the military, politics, economy, and technology, similar to what has been accomplished in the United States. The collaboration between government structures and domestic defense companies should be encouraged, while also actively participating in foreign political activities to promote Serbian defense products on the global stage. By utilizing the combined strengths of the military, politics, economy, and technology, Serbia can establish itself as a competitive

player in the global defense market. This entails investing in research and development to improve technological capabilities, fostering partnerships between the public and private sectors, and actively engaging in international defense exhibitions and diplomatic endeavors.

Moreover, it is crucial to closely monitor market trends and adapt to changing demands. By continuously evaluating the needs and preferences of potential customers, Serbia can customize its defense products to meet international standards and expand its customer base.

References:

- ACDA. (2000). World military expenditures and arms transfers 1999-2000. Washington, D.C: U.S. Dept. of State.
- Ahmed, S. & Ismail, S. (2015). Economic growth and military expenditure linkages: A panel data analysis. *International Economic Policy*, 2(23), 48-72.
- Al Jazeera. (2021). Weapons trade booms as profits hit record \$531bn in 2020. Retrieved from <https://www.aljazeera.com/news/2021/12/6/weapons-trade-booms-as-profit-hits-record-531bn>.
- Ali, H. E. (2007). Military expenditures and inequality: empirical evidence from global data. *Defence and Peace Economics*, 18(6), 519-535.
- Anderson, D. G. (1991). The international arms trade: regulating conventional arms transfers in the aftermath of the Gulf War. *American University International Law Review* 7(4), 749-805.
- Anderton, C. H. (1995). Economics of arms trade. *Handbook of defense economics*, 1, 523-561.
- Arshad, A., Syed, S. H., & Shabbir, G. (2017). Military expenditure and economic growth: a panel data analysis. *Forman Journal of Economic Studies*, 13(1-12), 161-175.
- Avila, C. F. D., Souza, D. R. de, & Guedes, M. A. (2017). Arms transfer policies and international security: The case of brazilian-swedish co-operation. *Contexto Internacional*, 39, 135–156.
- Brauer, J. (2007). Arms industries, arms trade, and developing countries. *Handbook of defense economics* 2, 973-1015.
- Cavatorta, E. & Smith, R. P. (2017). Factor models in panels with cross-sectional dependence: an application to the extended SIPRI military expenditure data. *Defence and Peace Economics*, 28(4), 437-456.
- Centre Delas. (2022). No business without enemies: War and the arms trade. Retrieved from <https://centredelas.org/actualitat/no-hay-negocio-sin-enemigos-la-guerra-y-el-comercio-de-armas/?lang=en>.

- Dragišić, D., Pavlović, M., Ilić, B., & Medojević, B. (1999). *Politička ekonomija*. Beograd: Ekonomski fakultet.
- Dunne, J. P. (1995). The defense industrial base. *Handbook of defense economics 1*, 399-430.
- Dunne, J. P., & Tian, N. (2016). Military expenditure and economic growth, 1960–2014. *The Economics of Peace and Security Journal*, 11(2).
- Dunne, P., Garcia-Alonso, M. D. C., Levine, P., & Smith, R. (2005). Military procurement, industry structure and regional conflict. Department of Economics Discussion Paper, No. 05, 02.
- Đorđević, D. (1993). *Teorija i praksa formiranja cena u vojno-industrijskom kompleksu*. Ekonomika.
- European Defence Agency. (2022). Retrieved from [https://eda.europa.eu/what-we-do/EU-defence-initiatives/european-defence-fund-\(edf\)](https://eda.europa.eu/what-we-do/EU-defence-initiatives/european-defence-fund-(edf)).
- Fleurant, A., Wezeman, P. D., Wezeman, S. T., & Tian, N. (2017). Trends in international arms transfers, 2016. Stockholm International Peace Research Institute.
- Grimmett, R. F. (2010). *Conventional Arms Transfers to Developing Nations, 2001-2008*. DIANE Publishing.
- House of Commons, P. G. (2007). Westland plc: The defence implications of the future of westland plc. The government's decision-making. Government response to the third and fourth reports from the defence committee, session 1985-86, hc 518 and 519. House of Commons.
- Holtom, P., & Bromley, M. (2010). The International Arms Trade. *Arms Control Today* 40(8), 8-14.
- Levine, P., & Smith, R. (1995). The arms trade and arms control. *The Economic Journal*, 105(429), 471-484.
- Misita, M., & Marjanović, M. (n.d.). *Stručna praksa holding korporacija "Krušik" A. D.* Beograd: Mašinski fakultet, Univerzitet u Beogradu, Katedra za industrijsko inženjerstvo.
- National Assembly of the Republic of Serbia. (2022). Retrieved from <http://www.parlament.gov.rs/>
- National defense budget basics. (2022). Retrieved from <https://www.pgpf.org/budget-basics/budget-explainer-national-defense>.
- Omitoogun, W., & Skons, E. (2006). Military expenditure data: a 40-year overview. Stockholm International Peace Research Institute, SIPRI Yearbook.
- Republic of Serbia Ministry of Foreign Affairs. (2022). Arms Control. Retrieved from <https://www.mfa.gov.rs/en/foreign-policy/security-policy/arms-control>.
- SEESAC. (2019). Regional report on arms exports for 2019. Retrieved from <https://www.seesac.org/> (15 September 2022).
- SEESAC. (2022). Report of performed activities of export and import of arms, military equipment and dual-use goods, brokerage services and technical assistance, 2014. Retrieved from https://www.seesac.org/f/docs/Serbia-2/ENG_GIZV14_eng-09-12-web_out-bookmarks-002.pdf.
- Smith, R. P. (2017). Military expenditure data: theoretical and empirical considerations. *Defence and Peace Economics*, 28(4), 422-428.
- Stockholm International Peace Research Institute (SIPRI). (2021a). Retrieved from <https://www.sipri.org/yearbook/2021>.

- Stockholm International Peace Research Institute (SIPRI). (2021b). Transfers of major weapons: Deals with deliveries or orders made for 1990 to 2021. SIPRI Arms Transfers Database.
- Stockholm International Peace Research Institute (SIPRI). (2022). World military expenditure passes \$2 trillion for first time. Retrieved from <https://www.sipri.org/media/press-release/2022/world-military-expenditure-passes-2-trillion-first-time>.
- Tan, A. T. (2020). *Understanding the arms trade*. Cheltenham, UK: Edward Elgar.
- The UK Ministry of DefenceMoD. (2002). *Defence industrial policy. Policy Paper 5*. London: MoD.
- Thomas, C. (2017). *Arms sales in the Middle East: Trends and analytical perspectives for US policy* (Vol. 44984). Washington, DC: Congressional Research Service.
- Uredba o grupaciji Odbrambena industrija Srbije. Regulation on the Defense Industry Group of Serbia. *Službeni glasnik RS*, Nos. 96/2019-3, 4/2020-18. Retrieved from <http://www.pravno-informacioni.sistem.rs/SlGlasnikPortal/eli/rep/sgrs/vlada/uredba/2019/96/1>.
- Zakon o uvozu i izvozu naoružanja i vojne opreme. Law on the Export and Import of Weapons and Military Equipment. (2014). *Službeni glasnik RS*, Nos. 107/2014-3. Retrieved from <http://www.pravno-informacioni-sistem.rs/SlGlasnikPortal/eli/rep/sgrs/skupstina/zakon/2014/107/1/reg>.
- Zakon o proizvodnji i prometu naoružanja i vojne opreme. Law on production and trade of weapons and military equipment. (2018). *Službeni glasnik RS*, Nos. 36/2018-17. Retrieved from <https://www.pravno-informacioni-sistem.rs/SlGlasnikPortal/eli/rep/sgrs/skupstina/zakon/2018/36/4/reg>.
- Zrnić, B. (n.d.). Odbrambena idustrija Srbije – Oslonac u procesu reindustrijalizacije. Retrieved from <https://srpskaekonomija.rs/biznis-i-finansije/10/1/clanak/19/naslovna>.

Goran Mladenović

Faculty of engineering,
University of Kragujevac
Kragujevac,
Republic of Serbia
goran.mladenovicgmd@gmail.com
ORCID 0000-0002-0717-9715

Andelija Đukić

Strategic Research Institute,
University of Defense in
Belgrade,
the Ministry of Defense of the
Republic of Serbia,
andelija.djukic@mod.gov.rs,
ORCID 0000-0002-6052-846X
