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Wstęp

Z radością oddajemy w Państwa ręce pierwszy w 2024 r. numer czasopisma „Studia i Analizy Nauk o Polityce”. Profil periodyku zakłada podejmowanie tematyki z zakresu nauk o polityce, stosunków międzynarodowych czy też bezpieczeństwa. Prezentowany numer wpisuje się w ambitne założenia czasopisma. Poruszana przez Autorów problematyka dotyczy istotnych kwestii odnoszących się do wojny w Ukrainie i jej znaczenia dla ukraińskiej przedsiębiorczości, rozwoju przemysłu kosmicznego w Polsce oraz polsko-amerykańskiej współpracy społeczno-gospodarczej w czasie prezydentury Donalda Trumpa.

Niniejszy numer rozpoczyna artykuł *Impact of the War on Entrepreneurship in Ukraine* autorstwa Valentyny Smachylo. Autorka podejmuje rozważania nad przemianami, wyzwaniem i dylematami, przed którymi stoją ukraińscy przedsiębiorcy. Wojna w Ukrainie spowodowana agresją Rosji stwarza przestrzeń do szerokiej i wielowymiarowej dyskusji nad stanem przedsiębiorczości w Ukrainie, nie tylko w kontekście trwającej wojny, ale także w powojennej perspektywie. Valentyna Smachylo w swojej pracy prezentuje wyniki badań ankietowych zrealizowanych w latach 2022–2023 wśród przedsiębiorców z Ukrainy.

W artykule Krzysztofa Chochowskiego zatytułowanym *Rozwój polskiego przemysłu kosmicznego – szanse i zagrożenia* została przybliżona materia, która w polskich warunkach może wydawać się pojęciem abstrakcyjnym. Celem pracy jest przedstawienie polityki rozwoju rodzimego przemysłu kosmicznego, przy uwzględnieniu możliwości i przeciwności. W artykule zaprezentowano stan obecny oraz działania państwa w przedmiotowej kwestii, by finalnie określić szanse i zagrożenia stojące przed kluczową, zdaniem Autora, polityką publiczną Polski.

Z kolei Rafał Filip Dąbek w artykule *The Importance of Changes in the Field of Socio-Economic Cooperation in Polish-American Relations in the Era of Donald Trump's Presidency* dokonał analizy działań i decyzji podejmowanych przez prezydenta Donalda Trumpa w latach 2017–2021 w obszarze współpracy społeczno-gospodarczej w stosunkach polsko-amerykańskich. Autor wskazał na intensyfikację działań ówczesnej administracji prezydenckiej w porównaniu z poprzednimi.

Integralną część czasopisma „Studia i Analizy Nauk o Polityce” stanowią recenzje i sprawozdania. W bieżącym numerze recenzji publikacji *The EU Security Continuum. Blurring Internal and External Security* autorstwa Alistaira J.K. Shepherd podjął się Witold Mazurek. Zachęcamy także do lektury sprawozdania przygotowanego przez Urszulę Soler z IV Międzynarodowej Konferencji Naukowej „Cybersecurity Threats Disinformation in Contemporary Local Conflicts”, która odbyła się 10 kwietnia 2024 r.

Mamy nadzieję, że różnorodność zagadnień podejmowanych w prezentowanym numerze sprawi, iż każdy Czytelnik znajdzie dla siebie interesujący temat.

Zapraszamy do lektury
Grzegorz Tutak

Introduction

We are delighted to bring you the first 2024 issue of the journal “Studies and Analyses of Political Science.” The profile of the periodical assumes taking up topics in the field of political science, international relations or security. The presented issue fits into the ambitious assumptions of the magazine. The issues raised by the authors touch upon important issues related to the war in Ukraine and its importance for Ukrainian entrepreneurship, the development of the space industry in Poland and Polish-American socio-economic cooperation during the presidency of Donald Trump.

This issue begins with article *Impact of the War on Entrepreneurship in Ukraine* by Valentyna Smachylo. The author reflects on the changes, challenges and dilemmas faced by Ukrainian entrepreneurs. The war in Ukraine caused by Russian aggression creates space for a broad and multidimensional discussion of the state of entrepreneurship in Ukraine, not only in the context of the ongoing war but also in the post-war perspective. Valentyna Smachylo in her work presents the results of surveys conducted in 2022–2023 among entrepreneurs from Ukraine.

Krzysztof Chochowski’s article entitled *Development of the Polish Space Industry – Opportunities and Threats* takes a closer look at a matter that may seem like an abstract concept in Polish conditions. The aim of the work is to present the policy of development of the domestic space industry, taking into account opportunities and adversities. The article presents the current state and actions of the state in this issue in order to finally determine the opportunities and threats facing the key, in the author’s opinion, public policy of Poland.

In turn, Rafał Filip Dąbek, in his article *The Importance of Changes in the Field of Socio-Economic Cooperation in Polish-American Relations in the Era of Donald Trump’s Presidency* analysed the actions and decisions taken

by President Donald Trump between 2017 and 2021 in the field of socio-economic cooperation in Polish-American relations. The author pointed to the intensification of the activities of the then presidential administration in comparison with the previous ones.

An integral part of the journal "Studies and Analyses of Political Science" are reports. In the current issue, a review of publication *The EU Security Continuum. Blurring Internal and External Security* by Alistair J.K. Shepherd was undertaken by Witold Mazurek. We also encourage you to read the report prepared by Ursula Soler on the 4th International Conference "Cybersecurity Threats Disinformation in Contemporary Local Conflicts," held on April 10, 2024.

We hope that the variety of issues covered in this edition will ensure that every reader will find a topic of interest.

We invite you to read
Grzegorz Tutak


Impact of the War on Entrepreneurship in Ukraine*

Wpływ wojny na przedsiębiorczość na Ukrainie

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Abstract: The study analyzes the transformations, challenges, and issues faced by Ukrainian entrepreneurs due to Russia's war against Ukraine. The work is based on a comparative analysis of survey results from Ukrainian entrepreneurs over the period of 2022–2023 regarding the problems and challenges they encounter. This allowed for identifying the directions of transformation of business problems and creating a map of the issues faced by Ukrainian entrepreneurs. Additionally, an aggregated ranking of the problems and challenges of Ukrainian businesses in 2023 was developed. This foundation enables the modeling of strategic development for the Ukrainian economy as a whole and strategic management for individual business entities.

Keywords: entrepreneurship, Ukraine, problems of entrepreneurship, impact of the war, map of the problems, aggregate rating of the problems

Streszczenie: Niniejsze opracowanie analizuje przemiany, wyzwania i kwestie, przed którymi stoją ukraińscy przedsiębiorcy w związku z wojną Rosji przeciwko Ukrainie. Praca bazuje na analizie porównawczej wyników badań ankietowych ukraińskich przedsiębiorców w latach 2022–2023 dotyczących bieżących problemów i wyzwań. Przeprowadzone badania pozwoliły określić kierunki transformacji problemów biznesowych i stworzyć mapę problemów, z którymi mierzą się ukraińscy przedsiębiorcy. Dodatkowo opracowano zbiorczy ranking problemów i wyzwań ukraińskich przedsiębiorstw w 2023 r. Podstawa ta umożliwia modelowanie rozwoju strategicznego dla ukraińskiej gospodarki jako całości i zarządzania strategicznego dla poszczególnych podmiotów gospodarczych.

Słowa kluczowe: przedsiębiorczość, Ukraina, problemy przedsiębiorczości, wpływ wojny, mapa problemów, zbiorcza ocena problemów

* The research was carried out within the internship of the Ivan Vyhovsky award in 2023.

Our world is changing rapidly and relentlessly, leading to unforeseeable challenges in all aspects of human life, including entrepreneurial structures. War has become the catalyst that shattered the existing world and rules for businesspeople, primarily in Ukraine but undoubtedly affecting the entire entrepreneurial world. Certainly, the large-scale invasion of Russia into the territory of Ukraine on February 24, 2022, was a shock to the civilized world. But now, nearly two years have passed since the start of the war, which unquestionably has transformed the Ukrainian business landscape, and not only the Ukrainian one.

Studying and analyzing the transformations, challenges, and problems faced by Ukrainian entrepreneurs is unquestionably an essential task that allows for the groundwork to model the strategic development of both the Ukrainian economy as a whole and strategic management for individual entrepreneurial entities. It is customary to consider risks and challenges from both short-term and long-term perspectives.

Ukrainian researchers are conducting studies on the transformation of the Ukrainian economy as a whole and entrepreneurship in particular under the influence of the war. All the studies can be conditionally divided into several groups.

The first group of researchers focuses on the general trends in business development and business activity (Bilovska, Maistro 2023; Chernysh, Kuryliuk, Kolo-miiets, Tomchuk-Ponomarenko, Savchuk 2023; Melnyk 2023; Murovana 2023; Redziuk 2022). Their works emphasize the assessment of the current state, which is difficult to describe due to the lack of necessary statistical information for thorough analysis. They also identify effective methods of support from the state and government, including tax, customs, and financial support, deregulation, local support (particularly in aiding relocation), informational support, sector-specific support, and a list of state deregulatory measures to support entrepreneurial activity in Ukraine under martial law. It is noted that financial support is the most effective. Additionally, proposals and guidelines at the strategic level regarding the prospective development of the Ukrainian economy are offered.

The second group of researchers focuses on analyzing issues both at the level of the economy (Moskalenko 2022), as a whole and on the problems of conducting business in Ukraine during the war (Kazak, Sulyma 2023). They also highlight the stages of transformation of Ukrainian business over the year of the war.

Furthermore, we propose to distinguish several stages that Ukrainian businesses have already gone through or are going through, depending on the state of the war (*Stan ta potreby biznesu v umovakh viiny: rezultaty opytuvannia v serpni 2023* [n.d.]). Thus, the analysis of risks and challenges for entrepreneurship in

Ukraine should be viewed from short-term and long-term perspectives and divided into periods: before the war, the beginning of the war, the transition of the war into a protracted phase, and the end of the war (post-war reconstruction).

1. Transformations and problems of entrepreneurship in Ukraine

First and foremost, let's focus on the regional transformation of Ukraine's economy. If we analyze the contribution of each region to the country's GDP, over 33% of it comes from seven eastern regions. Moreover, each of these regions contributes over 5%. Consequently, before the war in Ukraine, there was a significant asymmetry in the industrial development of regions, with 154 major enterprises out of 342 located in the east. The total number of enterprises exceeded 250,000 units, with over 100,000 units located in the eastern part of the country (Sukhonos, Dymchenko, Smachylo, Rudachenko, Tararuiev 2023). This indicates that during the ongoing military aggression, these regions are experiencing the most significant losses. Accordingly, there is currently a transformation of industrial and economic development in these regions through the relocation of businesses from the east of Ukraine to the west.

In the one and a half years since the start of the major war, as of the end of September, 840 companies in Ukraine have relocated to safer regions under the business relocation program (Opendatabot 2023). Of these, 667 are already operational in their new locations. And these are just the businesses that have utilized the government support program. The majority of businesses have chosen the Zakarpattia and Lviv regions for their new workplaces, with 120 and 199 companies respectively. Chernivtsi region, with 78 relocations, and Ivano-Frankivsk region, with 70, have also become popular choices among entrepreneurs for safe regions. On the other hand, the Odessa region was the least popular with only 3 relocated businesses, followed by the Zhytomyr region with 6 companies, and the Kirovohrad region with 17 (Opendatabot 2023).

Often, the relocation of enterprises to western and central regions is hindered by the lack of conditions for establishing production due to certain infrastructure constraints, dependency on raw material resources, supply chains, and logistical issues. Consequently, as we can see, a significant number of displaced enterprises have been accommodated in the Dnipropetrovsk region (65 enterprises). This can be explained by several reasons:

The Dnipropetrovsk region is industrially developed, which creates favorable conditions for the relocation of enterprises with similar industrial characteristics; this region is safer than border areas, which are adjacent to industrially developed regions such as Kharkiv, Donetsk, and Luhansk, ensuring the speed of relocation; and the eastern regions, where the businesses are represented by industrial enterprises that often, being located in different regions, created a logical supply chain and production and even belonged to the same owner.

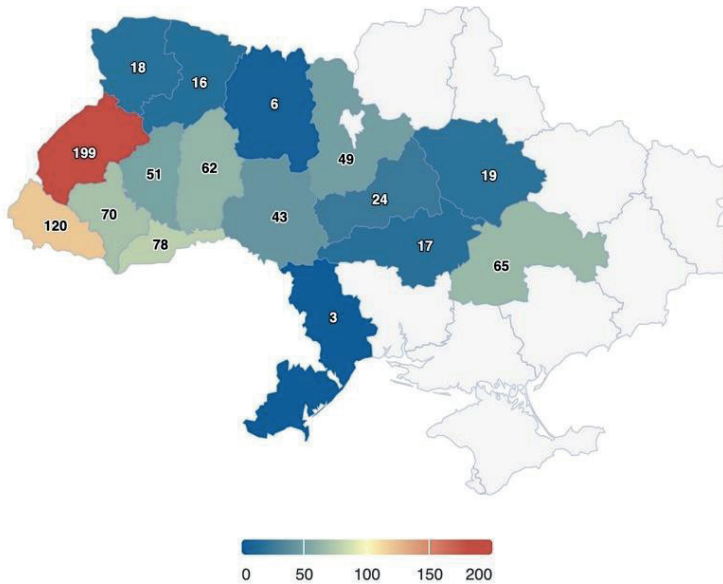


Figure 1. Relocated enterprises in Ukraine according to Opendatabot as of October 2023
Source: Opendatabot 2023.

An important aspect of the process of restoring entrepreneurial activity is the identification of problems, prioritizing them, and developing ways to address them. The current state of entrepreneurship in Ukraine, its status, needs, challenges, and development prospects, is characterized by rapid changes and complete uncertainty. The lack of timely, reliable statistical information, which would ensure the accuracy of decision-making at all levels of economic management, complicates the analysis in this field. Therefore, surveys become the primary information source, among which three main types can be distinguished:

1. Research on the state and needs of businesses in Ukraine (Dia.Business, Office of Entrepreneurship and Export Development, Advanter Group) – (1) (*Stan ta potreby biznesu v umovakh viiny* 12.09.2023);

2. Ukrainian Business During the War (Public Organization “Institute of Economic Research and Political Consultations”) – (2) (*Ukrainskyi biznes pid chas viiny*, veresen 2023);
3. Monthly Surveys of Ukrainian Enterprises (National Bank of Ukraine) – (3) (*Shchomisiachni opytuvannia pidprijemstvo Ukrainy*, zhovten 2023).

Based on the first survey – Research on the state and needs of businesses in Ukraine, let’s conduct a comparative analysis of the problems Ukrainian businesses faced in September 2022 and August 2023 (Figure 2). Such an analysis will allow us to identify the changes in problems and their significance from the beginning of the war (2022) to the point where the war had entered a protracted phase.

Study of the state and needs of business in Ukraine, September 2022	Study of the state and needs of business in Ukraine, August 2023
<p>Lack of a sufficient number of solvent customers in the domestic market – 64.0%</p> <p>Lack of sufficient capital – 51.2%</p> <p>Unpredictability of the development of the situation in Ukraine and the domestic market – 37.7%</p> <p>Unforeseen actions of the state that can worsen the state of business – 34.8%</p> <p>Unavailability of credit funds, including 5–7–9, credits 0% – 33.0%</p> <p>High taxes and fees – 27.3%</p> <p>Unavailability of grant programs announced by the government – 21.7%</p> <p>Customers (or retail networks) are not paid on time (or in principle) – 18.8%</p> <p>Obstacles from regulatory and/or fiscal authorities – 18.0%</p> <p>Lack of a sufficient number of qualified workers – 17.4%</p> <p>Dumping of competitors, overall decrease in market profitability – 16.0%</p> <p>Unfair competition – 15.1%</p> <p>Inefficient, long, expensive logistics – 13.1%</p>	<p>Unpredictability of the development of the situation in Ukraine and the domestic market – 56.2%</p> <p>Unforeseen actions of the state that can worsen the state of business – 47.7%</p> <p>Lack of a sufficient number of solvent customers in the domestic market – 47.6%</p> <p>Lack of a sufficient number of qualified workers – 34.3%</p> <p>Lack of sufficient capital – 30.7%</p> <p>Obstacles from regulatory and/or fiscal authorities – 30.1%</p> <p>High taxes and fees – 27.9%</p> <p>Dumping of competitors, overall decrease in market profitability – 25.2%</p> <p>Unavailability of credit funds, including 5–7–9, credits 0% – 20.2%</p> <p>Fatigue of the owner and/or management staff – 20.0%</p> <p>Lack of necessary support at the level of Ukraine – 16.9%</p> <p>Unavailability of grant programs announced by the government – 15.9%</p> <p>Unfair competition – 15.6%</p> <p>Customers (or retail networks) are not paid on time (or in principle) – 13.7%</p>

Figure 2. Comparative analysis of problems faced by Ukrainian business in 2022–2023
 Source: developed by the author on the basis of *Stan ta potreby biznesu v umovakh viiny: rezultaty opytuvannia u veresni 2022* [n.d.]; *Stan ta potreby biznesu v umovakh viiny: rezultaty opytuvannia v serpni 2023* [n.d.].

In Figure 2, identical problems are highlighted with the same colors, allowing for a visual emphasis on the changes in the priority of problems for Ukrainian entrepreneurs. Firstly, it should be noted that the top five problems for small and medium-sized businesses hardly changed in 2023 compared to 2022. What changed was their order – challenges related to uncertainty (inability to predict the situation and unpredictable actions of the authorities) take the top positions, preventing entrepreneurs from developing strategic business plans. On the third place are issues with sales in the domestic market, which are caused by the low purchasing power of the population. According to a recent World Bank report, the poverty rate in Ukraine in 2022 increased from 5.5% to 24.2%. This has resulted in an additional 7.1 million people falling below the poverty line (*Maizhe kozhen chetvertyi ukrainets opynyvsia za mezheiu bidnosti – Svitovyi bank 2023* [n.d.]). The absence of sufficient capital now ranks fifth, while the fourth position is occupied by the problem related to the lack of an adequate number of skilled workers.

Summarizing the change in the top problems for Ukrainian entrepreneurship in September 2022 – August 2023 based on surveys (1), it is presented in Table 1.

Table 1. The change in the top problems for Ukrainian entrepreneurship in September 2022 – August 2023 based on surveys (1)

Name of the problem	August 2023	September 2022	Change of position
The unpredictability of the development of the situation in Ukraine and the domestic market	56.2%	37.7%	+3↑
Unforeseen actions of the state that can worsen the state of business	47.7%	34.8%	+2↑
Lack of a sufficient number of solvent customers in the domestic market	47.6%	64.0%	-2↓
Lack of a sufficient number of qualified workers	34.3%	17.4%	+6↑
Lack of sufficient capital	30.7%	51.2%	-3↓
Unavailability of credit funds, including 5-7-9 loans and 0% loans	20.2%	33.0%	-4↓

Source: developed by the author based on *Stan ta potreby biznesu v umovakh viiny: rezultaty opytuvannia u veresni 2022* [n.d.]; *Stan ta potreby biznesu v umovakh viiny: rezultaty opytuvannia v serpni 2023* [n.d.].

As we can see in Table 1, the significance of problems related to the unpredictability of the situation in Ukraine and the domestic market, as well as unpredictable government actions, is increasing for Ukrainian entrepreneurs. Two years of turbulent conditions lead business leaders to search for an environment with lower levels of unpredictability than in Ukraine. This, coupled with the reduction in the number of financially capable buyers in the domestic market, leads Ukrainian businesses to enter foreign markets and promotes their scaling. The problem of a lack of skilled personnel with the necessary qualifications significantly increases (+6 positions in 2023 compared to 2022).

A comparative analysis of the problems faced by Ukrainian businesses in September 2022 and 2023, according to the research conducted by the Civil Organization Institute of Economic Research and Political Consultations, is presented in Figure 3.

Ukrainian business during the war, September 2022	Ukrainian business during the war, September 2023
<p>Increase in the price of raw materials and materials – 63.0%</p> <p>Difficulties with logistics (Difficulties with the transportation of raw materials/goods through the territory of Ukraine) – 41.0%</p> <p>Lack of working capital – 37.0%</p> <p>Disruption of supply chains – 33.0%</p> <p>Decrease in demand for products/services – 30.0%</p> <p>State regulation of exchange rates – 26.0%</p> <p>Dangerous to work – 18.0%</p> <p>Lack of labor due to conscription and/or departure of employees – 15.0%</p> <p>Corruption – 9.0%</p> <p>Lack of fuel – 8.0%</p>	<p>Increase in the price of raw materials and materials – 46.0%</p> <p>Dangerous to work – 40.0%</p> <p>Difficulties with logistics (Difficulties with the transportation of raw materials/goods through the territory of Ukraine) – 37.0%</p> <p>Lack of labor due to conscription and/or departure of employees – 37.0%</p> <p>Decrease in demand for products/services – 33.0%</p> <p>Interruptions with electricity, water or heat supply – 32.0%</p> <p>Disruption of supply chains – 30.0%</p> <p>Lack of working capital – 18.0%</p> <p>Lack of fuel – 12.0%</p> <p>State regulation of exchange rates – 11.0%</p> <p>Damage to property or goods as a result of war – 7.0%</p> <p>Blocking of tax invoices – 7.0%</p> <p>Corruption – 6.0%</p>

Figure 3. Comparative analysis of problems faced by Ukrainian business in 2022–2023
Source: *Ukrainskyi biznes pid chas viiny, veresen 2023; Ukrainskyi biznes pid chas viiny, veresen 2022.*

As we can observe from Figure 3, there have been significant changes in the top five problems according to the surveys in 2022–2023. In 2023, the problem of rising prices for raw materials and materials continues to rank first, just as it did in 2022. In the second position in 2023, there is a challenge related to security factors. Logistic difficulties take the third position in 2023, and a decrease in demand for products remains in the fifth position (unchanged compared to 2022). The fourth position is now occupied by the problem of a shortage of workforce due to conscription and/or emigration of employees, accounting for 37.0%, which was in the eighth position in 2022 (15.0%).

The change in the top problems for Ukrainian entrepreneurship in September 2022 – September 2023, based on surveys (2), is presented in Table 2.

Table 2. Change of the top problems of Ukrainian entrepreneurship in September 2022 – September 2023 according to surveys (2)

Name of the problem	September 2023	September 2022	Change of position
Rising prices for raw materials and materials	46%	63%	0
Dangerous to work	40%	-	-
Difficulties with logistics (Difficulties with the transportation of raw materials/goods through the territory of Ukraine)	37%	41%	-1↓
Lack of workforce due to conscription and/or employee emigration	37%	15%	+4↑
Reduced demand for products/services	33%	30%	0
Disruptions in electricity, water, or heating supply	32%	-	-
Supply chain disruptions	30%	33%	-3↓
Lack of working capital	18%	37%	-5↓

Source: developed by the author based on *Ukrainskyi biznes pid chas viiny, veresen 2023*; *Ukrainskyi biznes pid chas viiny, veresen 2022*.

As Table 2 demonstrates, the position of the problem regarding the price of raw materials and materials remains unchanged, and there is a significant increase in the issue related to the shortage of workforce (+4 positions).

Logistic and supply-related problems have significantly decreased, as well as issues related to a shortage of working capital.

A comparative analysis of the problems faced by Ukrainian enterprises based on the National Bank of Ukraine (NBU) survey results is presented in Figure 4.

Business expectations of enterprises of Ukraine (NBU) III quarter 2022	Business expectations of enterprises of Ukraine (NBU) III quarter 2023
Military operations and their consequences – 83.6%	Military operations and their consequences – 79.9%
Too high prices for raw materials and materials – 43.1%	Too high prices for raw materials and materials – 35.6%
Insufficient demand – 38.5%	Insufficient demand – 34.5%
Too high prices for energy carriers – 37.7%	Too high prices for energy carriers – 33.7%
Significant fluctuations of the hryvnia exchange rate against other currencies – 37.5%	Lack of qualified workers – 25.6%
Lack of working capital – 27.4%	Lack of working capital – 23.6%
Lack of qualified workers – 15.3%	Excessive tax pressure – 21.5%
Limited production capacity – 13.7%	Significant fluctuations of the hryvnia exchange rate against other currencies – 13.8%
Excessive tax pressure – 12.3%	Limited production capacity – 13.7%
Limited possibilities of obtaining a loan – 11.2%	Excessive regulatory pressure – 11.7%
Excessive regulatory pressure – 8.4%	Limited possibilities of obtaining a loan – 10.4%
Corruption – 3.3%	Corruption – 10.3%

Figure 4. Comparative analysis of problems faced by Ukrainian business in 2022–2023
Source: *Shchomisiachni opytuvannia pidpriemstvo Ukrainy*, zhovten 2023.

As we can see from Figure 4, the top problems have remained largely unchanged. Entrepreneurs in both 2022 and 2023 are concerned about the ongoing warfare and its consequences, excessively high prices for raw materials and materials, insufficient demand, and high energy prices. The significance of the problem of a shortage of skilled personnel has increased, moving from the seventh to the fifth position. This underscores the depth of this issue and its strategic nature.

The change in the top problems for Ukrainian entrepreneurship in the third quarter of 2022 to the third quarter of 2023, based on surveys (3), is presented in Table 3.

Table 3. Changes in the top problems of Ukrainian entrepreneurship in the III quarter 2022 – III quarter 2023 by survey (3)

Name of the problem	III quarter 2023	III quarter 2022	Change of position
Military operations and their consequences	79.9%	83.6%	0
Excessively high prices for raw materials and materials	35.6%	43.1%	0
Insufficient demand	34.5%	38.5%	0
Excessively high energy prices	33.7%	37.7%	0
Lack of qualified workers	25.6%	15.3%	+2↑

Source: developed by the author based on *Shchomisiachni opytuvannia pidprijemstv Ukrainy*, zhovten 2023.

From Table 3, we can see that the issue of a shortage of qualified personnel is becoming more prominent, consistent with previous surveys. All other problems have maintained their positions. Entrepreneurs remain most concerned about the ongoing warfare and its consequences, which contribute to unpredictability and uncertainty across all sectors.

Thus, we can create a map of the problems and challenges faced by entrepreneurs from Ukraine in 2023 (Table 4).

Table 4. Map of the problems of Ukrainian entrepreneurship in 2023

Dia.Business, Office of Entrepreneurship and Export Development, Advanter Group (1) August 2023	Ukrainian Business During the War September 2023 (2)	Business expectations of Ukrainian enterprises (NBU) for the third quarter of 2023 (increase in production volumes) (3)
1. Unpredictability of the development of the situation in Ukraine and the domestic market – 56.2%	1. Rising prices for raw materials and materials – 46.0%	1. Military actions and their consequences – 79.9%
2. Unforeseen actions of the state that can worsen the state of business – 47.7%	2. Dangerous to work – 40.0%	2. Prices for raw materials and materials are too high – 35.6%
3. Lack of a sufficient number of solvent customers in the domestic market – 47.6%	3. Difficulties with logistics (Difficulties with the transportation of raw materials/goods through the territory of Ukraine) – 37.0%	3. Insufficient demand – 34.5%
4. Lack of sufficient number of qualified workers – 34.3%	4. Lack of labor due to conscription and/or departure of employees – 37.0%	4. Too high energy prices – 33.7%

5. Lack of sufficient capital – 30.7%	5. Decrease in demand for products/services – 33.0%	5. Lack of qualified workers – 25.6%
6. Obstacles from regulatory and/or fiscal authorities – 30.1%	6. Interruptions with electricity, water, or heat supply – 32.0%	6. Lack of working capital – 23.6%

Source: developed by the author based on *Ukrainskyi biznes pid chas viiny*, veresen 2023; *Shchomisiachni opytuvannia pidpriemstv Ukrainy*, zhovten 2023; *Stan ta potreby biznesu v umovakh viiny: rezultaty opytuvannia v serpni 2023* [n.d.].

2. Aggregate rating of the problems of Ukrainian entrepreneurship in 2023

Based on the data from Table 4, we can identify problems that are highlighted in various surveys but share a similar nature. This will make it possible to build an aggregate rating of the problems of Ukrainian entrepreneurship in 2023. We present it in the form of Table 5.

Table 5. Aggregate rating of the problems of Ukrainian entrepreneurship in 2023

Number	Problems	Brief description of the problem
1.	Military actions and their consequences	Military actions, in fact, the war of Russia against Ukraine, have created a set of challenges that prevent businesses from operating normally and lead to unpredictability and uncertainty, the possibility of asset loss through occupation or destruction, and an unprecedented threat to the lives of employees
2.	The unpredictability of the situation in Ukraine and on the national markets	This problem is to a greater extent provoked by Russia's war against Ukraine (1), as well as other unforeseen actions that will affect the state of national markets
3.	Unforeseen actions of the state that can worsen the state of business	A separate problem is the actions of the state, which are difficult to predict and which provoke unpredictability and uncertainty for business
4.	Rising prices for raw materials and materials	The increase in prices, which is caused by inflationary processes, disruption of supply chains
5.	Reduction of demand in the domestic market	Reduction in demand for various types of products in the domestic market
6.	Lack of staff	There is a shortage of workers in various industries with different levels of qualification in all regions of the country
7.	Lack of capital (financing)	Lack of capital, financing for fixed and current assets due to the lack of own and difficult availability of the resources involved

Source: developed by the author.

Delving deeper into the top issues identified based on aggregated survey results, it is noted that the most significant is Russia's war against Ukraine, which alters the conditions for conducting business. Depending on the region in Ukraine, this problem can have varying manifestations and impacts on business. Generally, the regions of Ukraine can be divided into four categories: "partially occupied regions" (areas of active combat), "frontline regions" (under threat of invasion), "support regions" (playing a crucial role in logistics for defense and humanitarian cargos), and "safe regions" (regions that are relatively safe for business activities with minimal risk of invasion; Epravda [n.d.]). Therefore, the manifestations for entrepreneurs will vary - from the threat of asset loss due to occupation or destruction, unprecedented threats to employees' lives, and landmining, to disruptions in electricity, water, or heating supplies caused by ongoing warfare, jeopardizing stable operations.

The danger of operating varies depending on the region, with regions bordering temporarily occupied territories and the Russian Federation being the most affected. Specifically regions like Kherson and Kharkiv. For instance, a missile can reach Kharkiv in less than 1-2 minutes, depending on the type of missile, leaving no room for escape. The recent tragic incident involving the New Post terminal, where 7 people died and 22 were injured, underscores these security concerns.

The second problem is the uncertainty associated with military actions and their consequences, which prevents businesses from predicting their actions and the situation in the domestic market. It is difficult to develop a strategy in conditions of uncertainty within Ukraine, but it is easier to formulate a strategic vision of business scaling in foreign markets. Particularly, actions by neighboring countries (such as imposing trade restrictions on Ukraine, blocking, and closing borders) will also impact the domestic market. Additionally, demographic factors, which are difficult to predict due to natural and migratory movements, introduce an element of uncertainty for businesses regarding market conditions. The rapid change in demand for various types of goods due to the situation in the country - from generators and charging stations to long-lasting food products and clothing with elements expressing national identity - further complicates business planning.

Another aspect that increases uncertainty and is highlighted as problem number 3 is the unpredictable actions of the state that can worsen the business environment (47.7%). This is manifested by obstacles from regulatory and fiscal authorities (30.1%), high taxes and fees (27.9%), and lack of

necessary support at the national level (16.9%). Ukrainian entrepreneurs express distrust towards government actions due to the adoption of strategically important documents regarding the formation of the business climate in Ukraine. In particular, the National Revenue Strategy of Ukraine is a roadmap for reforming the tax and customs systems, as well as improving tax and customs administration procedures, which are necessary to meet fiscal needs in the medium term. It was developed without involving a broad range of entrepreneurs, and its published main provisions sparked vigorous discussion and outrage. Such opaque actions do not foster trust between business and government. Moreover, ongoing corruption scandals and reports of unplanned, and sometimes illegal, searches and inspections at the offices of large companies negatively affect trust in management decisions and complicate planning, especially strategic planning.

The next challenge identified by Ukrainian entrepreneurs is the rising cost of raw materials and materials. This situation is associated with both inflationary processes and significant transformations that have occurred in many industries, including supply chain disruptions, changing suppliers, and logistical issues. According to the survey (2), where this issue has topped the rankings for two years, there have been changes in the percentages of respondents for whom this issue is relevant. We see a reduction from 63% to 46%, which is explained both by entrepreneurs' adaptation to rising prices and the establishment of supply chains, as well as the emergence of other, more significant problems.

The next problem, which was present both in 2022 and 2023, is related to insufficient demand in the Ukrainian market due to a lack of sufficiently solvent customers in the domestic market – 47.6%. The reasons for this include the reduction in the territory of Ukraine due to occupation, a decrease in the population due to migration and occupation, as well as the purchasing power of the population due to a reduction in income levels.

As a result, Ukrainian entrepreneurs have no choice but to enter external markets, including the Polish market. The Polish government has created favorable conditions for initiating and conducting business for Ukrainians who found refuge in Poland due to the large-scale Russian invasion of Ukraine. These conditions are regulated by the Law of March 12, 2022, "On Assistance to Citizens of Ukraine in Connection with the Armed Conflict on the Territory of Ukraine" (Ustawa 2022/583). Previously, to open a business, Ukrainians had to obtain a permanent residence card or be a student – now only a passport and Pesel (identification code) are required (Buhaienko

2022). Thanks to this, in 2022, Ukrainians opened about 16,000 individual enterprises in Poland, and in the first half of 2023, there were almost 14,000, almost every tenth company created in Poland was Ukrainian, reports the Polish Economic Institute (Parsad 2023).

At the same time, Ukrainian entrepreneurs in Poland face a large number of challenges and problems, which are mentioned in the report of the Polish Economic Institute (Dymchenko, Smachylo, Tararuiev, Rudachenko 2023; Parsad 2023). Specifically: lack of experience in conducting business in Poland; insufficient financial resources; high costs associated with company operations; difficulties in recruiting employees with the right skills; strong competition in the industry; difficulties in accessing funds in Ukrainian banks; challenges in obtaining external financing; problems due to poor knowledge of the Polish language; difficulties in finding premises for business operations; weak demand for goods/services; challenges in establishing business contacts; absence of products, semi-finished products, or materials.

Special attention should be paid to a challenge that became significantly more relevant in 2023 compared to 2022 – the issue of workforce shortages. While this problem didn't make it to the top five problems in various surveys in the previous year, it now occupies the fourth or fifth position in 2023. The growing challenge of workforce availability is due to factors such as emigration, mortality, mobilization, injuries, and the departure of young people for education abroad. It's worth noting that this challenge is expected to continue growing in the long-term perspective, especially due to the loss of young talent. However, during the surveys, respondents have expressed their willingness to return.

In summary, the workforce shortage is becoming a more pressing issue for Ukrainian businesses, and addressing this challenge will be crucial for sustainable economic growth. Particularly, based on the research results (Centre for Economic Strategy [n.d.]), 49.9% of respondents in Poland definitely plan to return; 24.5% of respondents are more likely to plan to return; 15.7% – it is difficult to say; 8.8% – rather they do not plan; 1.1% definitely do not plan. At the same time, older people are much more likely to return than younger Ukrainians. This may be due to the fact that it is more difficult for older people to adapt to life abroad.

At the same time, the dynamics of such surveys indicate that the percentage of those willing to return gradually decreases, and uncertainty arises for many people. People adapt to their current situations, and for

many, there is simply no place to return to as long as the war continues. It becomes a closed circle – as long as the war continues, there is nowhere to return, and the longer it lasts, the less likely it is that people will return.

During my internship under the Ivan Vygovsky Award, I conducted research on the entrepreneurial intentions of Ukrainian students. One of the survey questions was indeed about returning to Ukraine. Ukrainian students studying in Polish universities in the field of “Management” or related fields predominantly lack confidence in returning to Ukraine (44.12%), have not made future plans – 11.76%, and do not plan to return – 8.82%. This accounts for over 60.0% collectively. Meanwhile, only 35.29% express a desire to return to Ukraine after their studies. This confirms the trend seen in surveys of Ukrainian refugees regarding their future intentions (*Entrepreneurial Intentions of Students from Ukraine 2023*).

The entrepreneurial intentions of Ukrainian students are present in 38.24% of the respondents, which is significantly lower than the results of similar studies conducted elsewhere (73.0% prefer entrepreneurship over employment). This figure is more in line with the inclination towards entrepreneurship among European students (39.0%), indicating a certain level of assimilation and acceptance of the European lifestyle (*Entrepreneurial Intentions of Students from Ukraine 2023*). The shortage of personnel is also leading to changes in how companies operate – there is an expanding practice of remote work, and companies are trying to relocate valuable employees along with their families, providing them with living conditions. Additionally, there is a negative psychological impact on employees and management. Moreover, the level of inclusivity among Ukrainian employers is gradually changing. There arises a need for mutual adaptation of employees returning from the war (veterans) to work and civilians.

The next challenge is financial, including a lack of working capital or insufficient capital in general. Access to affordable financial resources has never been easy for businesses in Ukraine, with interest rates on loans consistently exceeding 20%. Before the war, there was a preferential financing program at 5-7-9%, which was reinstated after the war. Unfortunately, it is not available throughout Ukraine primarily due to security issues. This is reflected in the assessment of the unavailability of credit funds, including 5-7-9, by 20.2% of respondents. A similar situation exists with government grants – 15.9% of respondents confirm the unavailability of government grant programs that have been announced by the government. For example, in the Kharkiv region, while these programs are

technically applicable, security factors come into play when deciding on financing approval, which does not favor entrepreneurs.

To attract foreign investments to the country, the government has developed the Advantage Ukraine platform (Advantageukraine [n.d.]), which includes the most priority sectors and investment-attractive projects. This platform comprises more than 500 investment projects in ten economic sectors.

The most desirable form of investment for the country is Foreign Direct Investment (FDI), which is defined as “long-term investments of material resources by non-resident companies” (Minfin [n.d.]). FDI enables the implementation of large-scale projects in construction, reconstruction, and the adoption of new production and management technologies.

The war-related risks indeed present a significant obstacle to attracting foreign investments, as there are no guarantees that newly constructed objects will not be damaged during missile attacks, and investors may not have time to realize the expected returns on their investments. Therefore, the Ukrainian government is in negotiations with various international insurance agencies regarding the insurance of investments against war risks in Ukraine, which is a necessary precondition for attracting foreign investments (Smachylo, Dymchenko, Tararuiev 2023). The required amounts for recovery vary, with different estimates ranging from \$411 billion to \$750 billion USD (*Strakhuvannia investytsii vid voennykh ryzykiv v Ukraini* [n.d.]), and they continue to increase. This requires the involvement of international partners and the adaptation of legislation to new requirements. As a result of negotiations to attract insurance companies, the M10 Lviv Industrial Park project obtained insurance from the Multilateral Investment Guarantee Agency (MIGA) of the World Bank, with which the Ukrainian government had been in negotiations for a long time. The insurance terms include coverage of war risks for 10 years with a guarantee of \$9.1 million USD (*Industrialnyy park u Lvovi otrymav strakhuvannya vid voennykh ryzykiv* [n.d.]).

Despite the war, entrepreneurship in Ukraine is continuing to develop, with the number of new entrepreneurs increasing. In the beginning of 2023, over 227,000 new entrepreneurs registered their businesses. The most popular sectors with demand for new businesses are retail and wholesale trade, as well as the provision of individual services.

The International Monetary Fund (IMF) expects Ukraine’s GDP to grow by 2% by the end of 2023, which is significantly different from the IMF’s April forecast for the year, which had a negative outlook of -3% for the war-affected country.

Conclusions

In summary, it can be said that Ukrainian businesses face numerous challenges and problems to which they quickly adapt. The research analyzed three main surveys conducted in Ukraine regarding the state of entrepreneurship, its needs, and the challenges entrepreneurs face. A comparative analysis of the change in problems in 2023 compared to 2022 was conducted, corresponding to the stages of the beginning of the war and the transition of the war into a protracted phase, which showed a shift in problem areas. The focus has shifted towards unpredictability and uncertainty, hindering businesses from forming development strategies and rendering activities inefficient. The prolonged nature of the war, as already characterized by the current state of military operations in Ukraine (unlike the past in 2022), prompts the revitalization of strategically oriented issues, including the shortage of personnel. This problem is increasing in all surveys and has its roots in the pre-war period.

A map of current problems for Ukrainian entrepreneurs in 2023 has been formed, summarizing a range of similar challenges.

Despite the war, entrepreneurship in Ukraine is developing – new businesses are being registered, existing ones are scaling, including on foreign markets, and production activities are adapting to the conditions of a state of war. This demonstrates the flexibility, resilience, and sustainability of Ukrainian businesses.

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Rozwój polskiego przemysłu kosmicznego – szanse i zagrożenia

Development of the Polish Space Industry – Opportunities and Threats

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Streszczenie: Niniejszy artykuł prezentuje rozważania dotyczące polityki publicznej Polski względem przemysłu kosmicznego. Zaprezentowano w nim m.in. stan rodzimego przemysłu kosmicznego i wskazano szanse oraz zagrożenia dla jego rozwoju. Całość rozważań kończą wnioski, których realizacja może przyczynić się do optymalizacji kondycji krajowego przemysłu kosmicznego i likwidacji niektórych barier dla jego rozwoju.

Słowa kluczowe: polski przemysł kosmiczny, polityka publiczna, technologie kosmiczne, bezpieczeństwo państwa

Abstract: This article presents considerations regarding Poland's public policy towards the space industry. Among other things, the state of the domestic space industry was presented and opportunities and threats to its development were identified. The considerations end with conclusions, the implementation of which may contribute to optimizing the condition of the domestic space industry and eliminating some of the barriers to its development.

Keywords: Polish space industry, public policy, space technologies, state security

Przemysł kosmiczny i technologie kosmiczne są motorem postępu technologicznego i gospodarczego państw nimi dysponujących. Przemysł ten to swoisty rozsądek rozwoju szeregu dziedzin życia społecznego i gospodarczego. Zaznaczyć trzeba również fakt postępującej militarystyki kosmosu. Satelity zapewniają siłom zbrojnym m.in. bezpieczną i niezakłóconą łączność oraz rozpoznanie terenu. Siłą rzeczy stają się kluczowym elementem gwarantującym sprawność łańcucha dowodzenia i pętli decyzyjnej.

Jak zatem widać, posiadanie własnych zdolności kosmicznych i przemysłu kosmicznego to dziś wręcz wymóg efektywnego funkcjonowania państwa w wielu jego dziedzinach, a w szczególności w sferze bezpieczeństwa.

Celem niniejszego artykułu jest przedstawienie polityki rozwoju rodzimego przemysłu kosmicznego, uwzględniając przy tym szanse i zagrożenia. Polityka ta winna być postrzegana jako jedna z istotnych polityk publicznych państwa polskiego.

W pracy jako wiodącą wykorzystano metodę dogmatyczną oraz metodę studiów literatury.

1. Stan polskiego przemysłu kosmicznego

Polski przemysł kosmiczny w ciągu ostatnich kilku lat znacznie się rozwinął i wzmocnił. Pomimo wysokiego progu wejścia przedsiębiorcy do tego sektora przemysłu obserwujemy stały wzrost liczby podmiotów wchodzących w jego skład. Mające miejsce przełomy techniczne obniżyły koszty wyniesienia 1 kg ładunku w kosmos, przez co usługi świadczone dzięki satelitom stają się coraz tańsze, a co za tym idzie – coraz bardziej dostępne. Dla przykładu, pod koniec lat 60. ubiegłego wieku koszt ten wynosił blisko 900 000 dolarów, obecnie zaś dzięki SpaceX oraz jej rakiecie wielokrotnego użytku Falcon 9 koszt wynoszenia ładunków na niską orbitę okołoziemską obniżył się do ok. 2700 dolarów. Już dziś wykorzystuje się satelity i dostarczane przez nich dane np. w rolnictwie, przy obsiewaniu pól lub ich nawadnianiu, w komunikacji i transporcie poprzez nawigację GPS (ang. Global Positioning System) czy też w zarządzaniu kryzysowym.

Aktualnie rodzimy przemysł kosmiczny oferuje szeroką gamę dóbr i usług, począwszy od oprogramowania, w tym tego, które wykorzystuje sztuczną inteligencję, poprzez specjalistyczne narzędzia i urządzenia, po produkcję nanosatelitów i satelitów oraz ich wynoszenie w kosmos. Zgodnie z danymi Polskiej Agencji Kosmicznej (POLSA) na nasz przemysł kosmiczny składa się przeszło 300 podmiotów państwowych i prywatnych o zróżnicowanym charakterze, tj. zarówno tych o naturze biznesowej, jak i badawczej. Zatrudnienie w nim znajduje ok. 12 tys. wysoko wykwalifikowanych pracowników.

Wśród czołowych polskich przedsiębiorców funkcjonujących w ramach przemysłu kosmicznego należy bez wątpienia wyróżnić: SatRev, Astronikę,

KP Labs, Thorium Space oraz Creotech Instruments. To czołowa piątka naszego przemysłu kosmicznego, aczkolwiek zaznaczyć trzeba, że inni przedsiębiorcy stale podejmują próby ich doścignięcia.

Krajowy przemysł kosmiczny poczyną sobie na globalnym rynku coraz śmieiej, działając zarówno samodzielnie, jak i we współpracy z zagranicznymi partnerami. Dostrzega to m.in. Europejska Agencja Kosmiczna (ang. European Space Agency – ESA), której zdaniem Polska podążą własną, unikalną ścieżką rozwoju tej branży, bazując przede wszystkim na małych i średnich przedsiębiorstwach. Sektor małych i średnich przedsiębiorstw łatwiej niż sektor przedsiębiorstw dużych adaptuje się do zmieniających się warunków prowadzenia działalności gospodarczej (Idea 3W 29.09.2023). Pomysłowość, kreatywność, innowacyjność i inicjatywność – to niewątpliwe zalety polskich przedsiębiorców działających w sektorze kosmicznym.

Nowe technologie kosmiczne już dziś generują szanse na gospodarczą eksplorację kosmosu. Jak trafnie stwierdza Kamil Muzyka, „surowce kosmiczne, tak jak zasoby naturalne Ziemi, stanowić będą podstawę dla rozwoju życia oraz jego możliwych, nieorganicznych odmian” (Muzyka 2022: 127). W szczególności mowa tu o górnictwie kosmicznym i pozyskiwaniu np. pierwiastków ziem rzadkich czy helu³, co może zrewolucjonizować przemysł i zapobiec kryzysowi energetycznemu związanemu z wyczerpywaniem się złóż węglowodorów. Kwestia ta jest już niejako na wyciągnięcie ręki i warto by nasz przemysł, w tym kosmiczny, uwzględnił to w swoich planach rozwoju. Konieczne więc staje się uchwalenie stosownej regulacji prawnej w postaci ustawy o działalności kosmicznej, na co wielokrotnie w swych pracach naukowych zwracali uwagę m.in.: Katarzyna Malinowska, Zdzisław Brodecki, Mariusz Tomasz Kłoda czy Małgorzata Polkowska (Kłoda, K. Malinowska, B. Malinowska, Polkowska 2022: 95–119; K. Malinowska, Brodecki 2019: 48–61). Zawarte w nich tezy autor zasadniczo podziela.

2. Polityka państwa polskiego wobec sektora kosmicznego

Rozwój sektora kosmicznego i wzrost jego znaczenia w realiach współczesnej gospodarki i przemysłu 4.0 każe zastanowić się nad rolą państwa w omawianym obszarze. Czy winno ono być pasywnym obserwatorem czy też może aktywnym graczem, inicjującym i wskazującym kierunki działań. W związku z powyższym jako zasadne jawi się pytanie, czy Polska ma

swoją politykę względem przemysłu kosmicznego, a jeśli tak, to jakie są jej założenia i czy można ją uznać za politykę publiczną.

Próbując odnieść się do powyższego zagadnienia, należy wspomnieć, że na podstawie ustawy z dnia 26 września 2014 r. utworzono Polską Agencję Kosmiczną (Ustawa 2014/1533), która to w myśl art. 3 przedmiotowej ustawy realizuje zadania w zakresie wspierania: (a) przemysłu kosmicznego; (b) badań; (c) użytkowania przestrzeni kosmicznej; (d) rozwoju techniki kosmicznej, w tym inżynierii satelitarnej; (e) wykorzystania badań i ich wyników do celów użytkowych, gospodarczych, obronnych, bezpieczeństwa państwa i naukowych. Ponadto Polska Agencja Kosmiczna może udzielać wsparcia m.in. na: (a) prace badawczo-rozwojowe; (b) wspieranie innowacyjności; (c) szkolenia; (d) doradztwo; (e) udział w targach, misjach gospodarczych oraz innych wydarzeniach. Wsparcie to jest udzielane: (a) osobom fizycznym nieprowadzącym działalności gospodarczej; (b) przedsiębiorcom; (c) podmiotom, do których zadań statutowych należy działalność w dziedzinie użytkowania przestrzeni kosmicznej; (d) partnerom społecznym i gospodarczym w rozumieniu art. 5 pkt 7 ustawy z dnia 6 grudnia 2006 r. o zasadach prowadzenia polityki rozwoju (Dz. U. z 2019 r. poz. 1295 i 2020 oraz z 2020 r. poz. 1378); (e) innym podmiotom działającym w dziedzinie użytkowania przestrzeni kosmicznej lub wspierającym tę dziedzinę.

Państwo polskie utworzyło zatem specjalny podmiot, wyposażając go w zasoby rzeczowe i osobowe oraz prawem określone kompetencje i zadania, który ma na celu wsparcie rozwoju sektora przemysłu kosmicznego. Wydaje się więc, że jest to przejaw polityki publicznej Rzeczypospolitej Polskiej (RP) w omawianym obszarze.

Pod pojęciem polityki publicznej doktryna rozumie wszelkie świadome działania – włączając w to świadome zaniechania – tych podmiotów czy aktorów, których obejmie zakres pojęcia rządu – również szeroko rozumianego (Szarfenberg 2016: 48). Podobne stanowisko zajmuje Andrzej Zybała, według którego pod pojęciem polityki publicznej należy rozumieć „[...] zracjonalizowane działania i programy publiczne, które oparte są na zgromadzonej, względnie zobiektywizowanej wiedzy i usystematyzowanym procesie projektowania i wykonywania tych działań” (Zybała 2012: 24). Jeśli więc uwzględnimy fakt, że Polska Agencja Kosmiczna podlega na podstawie art. 4 wspomnianej ustawy ministrowi właściwemu do spraw gospodarki i to, iż rzeczona Agencja realizuje działania i programy publiczne, dojdziemy do wniosku, że mamy do czynienia z polityką publiczną Polski w obszarze przemysłu kosmicznego.

Prowadząc rozważania w przedmiocie polityki państwa polskiego w obszarze przemysłu kosmicznego, konieczne jest także zwrócenie uwagi na uchwałę nr 6 podjętą dnia 26 stycznia 2017 r. przez Radę Ministrów w sprawie przyjęcia Polskiej Strategii Kosmicznej (Uchwała 2017/203). Strategia ta podkreśla rolę sektora kosmicznego, uznając, że jest on ważnym elementem polskiej gospodarki opartej na wiedzy i innowacyjności, a jego powiązania z innymi obszarami gospodarki sprzyjają zwiększaniu ich konkurencyjności.

W ramach strategii sformułowano trzy cele strategiczne do 2030 r., a mianowicie: (1) polski sektor kosmiczny będzie zdolny do skutecznego konkurowania na rynku europejskim, a jego obroty wyniosą co najmniej 3% ogólnych obrotów tego rynku (proporcjonalnie do polskiego potencjału gospodarczego); (2) polska administracja publiczna będzie wykorzystywać dane satelitarne dla szybszej i skuteczniejszej realizacji swoich zadań, a krajowe przedsiębiorstwa będą w stanie w pełni zaspokoić popyt wewnętrzny na tego typu usługi oraz eksportować je na inne rynki; (3) polska gospodarka i instytucje publiczne będą posiadały dostęp do infrastruktury satelitarnej umożliwiającej zaspokojenie ich potrzeb, zwłaszcza w dziedzinie bezpieczeństwa i obronności (Uchwała 2017/203).

Realizacja powyższych celów strategicznych odbędzie się poprzez osiągnięcie celów szczegółowych. Zalicza się do nich: (1) wzrost konkurencyjności polskiego sektora kosmicznego i zwiększenie jego udziału w obrotach europejskiego sektora kosmicznego; (2) rozwój aplikacji satelitarnych – wkład w budowę gospodarki cyfrowej; (3) rozbudowę zdolności w obszarze bezpieczeństwa i obronności państwa z wykorzystaniem technologii kosmicznych i technik satelitarnych; (4) stworzenie sprzyjających warunków do rozwoju sektora kosmicznego w Polsce; (5) budowę kadr dla potrzeb polskiego sektora kosmicznego (Uchwała 2017/203).

Uszczegółowieniem Polskiej Strategii Kosmicznej miał być Krajowy Program Kosmiczny na lata 2021–2026. Ten dokument rządowy w formie projektu określał cele programu, priorytety, kierunki interwencji czy narzędzia realizacji. Przewidywał również sposób, źródła i wielkość finansowania programu (Ministerstwo Rozwoju, Pracy i Technologii 2021).

Celem głównym programu była rozbudowa potencjału przemysłu i jednostek naukowych polskiego sektora kosmicznego do zaspokajania potrzeb państwa i gospodarki oraz skutecznego konkurowania na rynkach międzynarodowych. Natomiast cele szczegółowe programu odpowiadać miały celom strategicznym Polskiej Strategii Kosmicznej, a zaliczano do nich:

(a) rozbudowę kompetencji i zwiększenie konkurencyjności polskiego sektora kosmicznego; (b) zwiększenie wykorzystania danych satelitarnych przez administrację, naukę, przemysł i społeczeństwo; (c) wykorzystanie technologii satelitarnych do zwiększenia bezpieczeństwa i obronności kraju.

Z kolei do priorytetów Krajowego Programu Kosmicznego na lata 2021–2026 zaliczono: Priorytet I – Budowa zdolności konstruowania i wynoszenia obiektów kosmicznych; Priorytet II – Budowa Systemu Satelitarnej Obserwacji Ziemi; Priorytet III – Budowa Narodowego Systemu Informacji Satelitarnej; Priorytet IV – Rozbudowa Narodowego Systemu Bezpieczeństwa Kosmicznego.

Odnosząc się do kwestii materialnych, Krajowy Program Kosmiczny miał być finansowany z następujących źródeł: (a) środków budżetu państwa, w tym z części budżetu państwa poszczególnych ministrów zaangażowanych w realizację programu; (b) środków Unii Europejskiej, np.: Unijny Program Kosmiczny, Horyzont Europa; (c) środków Krajowego Planu Odbudowy i Zwiększania Odporności. Łączny budżet przewidziany na realizację zadań określonych w Krajowym Programie Kosmicznym został określony w przedmiotowym dokumencie na poziomie 2 568,87 mln zł.

Jak zatem widać, cele i priorytety Polskiej Strategii Kosmicznej i projektu Krajowego Programu Kosmicznego były spójne i zbieżne, co należy uznać za działanie pożądane ze strony administracji publicznej. Zaznaczyć należy, że program ten ostatecznie nie wszedł w życie, co stanowi istotną barierę w rozwoju rodzimego przemysłu kosmicznego.

Niejako na marginesie warto wspomnieć, że Polska Strategia Kosmiczna powiązania jest z innymi dokumentami o charakterze planistycznym i wykonawczym, tj.: (1) Strategią na rzecz Odpowiedzialnego Rozwoju do roku 2020 (z perspektywą do 2030 r.); (2) Strategią Produktywności 2030 (projekt); (3) Strategią Bezpieczeństwa Narodowego Rzeczypospolitej Polskiej; (4) Krajowym Planem Odbudowy i Zwiększania Odporności; (5) Strategią Kosmiczną dla Europy; (6) Unijnym Programem Kosmicznym; (7) Strategiczną Agendą Badań i Innowacji.

Spójność celów i zadań dowodzi istnienia przemysłanej polityki publicznej w obszarze przemysłu kosmicznego. To, czy jest (była) ona racjonalna, to już inna kwestia. Otwartym pytaniem jednak jest, czy zmiany w kierownictwie politycznym państwa polskiego nie spowodują wywrócenia przysłowiowego stolika. O ile naniesienie poprawek i aktualizacja polityki Polski względem sektora kosmicznego są zasadne, o tyle porzucenie

możliwości jej kreowania należałoby uznać za całkowicie błędne i chybione rozstrzygnięcie. Odpowiedź na powyższe pytanie przyniesie czas.

3. Szanse i zagrożenia polskiego przemysłu kosmicznego

Polski przemysł kosmiczny to trudny, wymagający, ale jednocześnie rokujący na dalszy rozwój sektor rodzimego przemysłu. Oczywiście przed nim stoją zarówno szanse, jak i zagrożenia.

Do szans polskiego przemysłu kosmicznego niewątpliwie należy zaliczyć liczną, wysoko wykwalifikowaną kadrę. Kolejno realne potrzeby na satelity i usługi satelitarne, w tym związane z uzyskaniem i obróbką danych satelitarnych, zarówno Sił Zbrojnych RP, jak i innych formacji wpisujących się w obszar szeroko pojmowanego bezpieczeństwa. Nie bez znaczenia jest także pojawienie się nowych technologii w ramach NewSpace, dzięki którym znacząco można obniżyć koszt wyniesienia 1 kg ładunku w kosmos, a także próg wejścia w biznes kosmiczny. Przemysł kosmiczny już dziś staje się rozsądnikiem innowacji, umożliwia więc multiplikację potencjalnych zysków. Dalsze szanse można upatrywać we współpracy z Europejską Agencją Kosmiczną i innymi podmiotami zagranicznymi oraz międzynarodowymi, a także w udziale w międzynarodowych projektach badawczych. Następne sytuacje są związane z rosnącymi możliwościami eksportowymi rodzimych przedsiębiorców branży kosmicznej. Dla przykładu, dnia 7 lutego 2024 r. w Kigali SatRev i Locus Dynamics podpisały umowę dotyczącą dostarczania kompleksowych rozwiązań satelitarnych służących do zbierania danych obserwacyjnych Ziemi w Afryce. Strony umowy będą współpracować w zakresie projektowania, produkcji i obsługi mikrosatelitów oraz odpowiednich czujników o wysokiej rozdzielczości do różnych zastosowań, utworzą powiązaną infrastrukturę w Rwandzie, a mianowicie satelitarną stację naziemną i centrum kontroli misji, a także udoskonalią możliwości analizy danych satelitarnych (Space24 8.02.2024). Kolejna szansa to lepsza koordynacja i planowanie potrzeb ze strony administracji publicznej i uzgadnianie ich z rodzimym przemysłem kosmicznym. Finansować zatem winniśmy realne potrzeby naszego państwa. Niejako w odpowiedzi na nie premier Donald Tusk poinformował o zatwierdzeniu pożyczki w wysokości 300 mln euro na polski komponent satelitarny do programu europejskiej

tarczy antyrakietowej. Pieniądze te mogą stać się nie tylko impulsem, ale wręcz lewarem rozwoju naszego przemysłu kosmicznego.

Z kolei do zagrożeń należy zaliczyć nieduże zainteresowanie administracji publicznej danymi satelitarnymi, co wydaje się wynikać z niskiej świadomości ich przydatności oraz błędnej kultury organizacyjnej. Pomocnym narzędziem zmiany tego stanu rzeczy może okazać się coaching biznesowy, który adresowany jest do różnych organizacji, w tym – jak trafnie podnoszą Anna Chochowska i Ewa Jasiuk – również do administracji publicznej i jej kadr (Jasiuk, Chochowska 2024: 440).

Innym dostrzegalnym zagrożeniem jest brak należytej edukacji dotyczącej zasadności gospodarczej eksploatacji kosmosu oraz promocji polskiego przemysłu kosmicznego.

Szereg zagrożeń rozwoju polskiego przemysłu kosmicznego zidentyfikowali kontrolerzy Najwyższej Izby Kontroli (NIK), które przedstawili w raporcie odnoszącym się do rozwoju sektora kosmicznego w Polsce (Najwyższa Izba Kontroli 2020). Zgodnie z nim wśród zasadniczych problemów i zagrożeń dla rodzimego sektora kosmicznego wyróżniono: (1) brak planu rozwoju sektora kosmicznego w Polsce; (2) ograniczenia finansowe; (3) ograniczenia systemowo-organizacyjne; (4) brak efektywnych mechanizmów finansowania działań; (5) preferencyjne podejście państwa do firm prywatnych; (6) ograniczenia legislacyjne; (7) brak spójnej konsekwentnie realizowanej długofalowej wizji rozwoju; (8) wybór polskich ekspertów do gremiów decyzyjnych ESA spośród urzędników resortowych; (9) niedostateczną grupę ekspertów oceniającą wnioski Narodowego Centrum Badan i Rozwoju; (10) wspieranie działań deklaracyjnych przez akceptację częściowych tematów badawczych realizowanych przez podmioty o znikomym doświadczeniu i kompetencjach oraz wspieranie i realizację działań spektakularnych o znikomym wartościach komercyjnych i niewielkim wpływie na rozwój kompetencji krajowych; (11) lokalizację Polskiej Agencji Kosmicznej w Gdańsku i niepotrzebne tworzenie oddziałów w różnych miejscach w kraju, co zmniejsza efektywność działania Agencji; (12) nieutworzenie przez ministra nauki i szkolnictwa wyższego dyscypliny naukowej: technologie lotnicze i kosmiczne, mimo starań i apeli środowisk badawczych z całego kraju; (13) brak doświadczenia i referencji pozwalających na zdobycie zleceń i kontraktów w zakresie realizacji misji; (14) brak odpowiedniej wiedzy i doświadczenia w zakresie programów kosmicznych; (15) brak odpowiednio wykształconej kadry na rynku pracy; (16) brak gotowości i wręcz

niechęć rządowej i samorządowej administracji do odbioru i operacyjnego wykorzystywania danych satelitarnych (Najwyższa Izba Kontroli 2020: 77).

W pewnym stopniu zbieżne poglądy zaprezentowano w trakcie Debaty Eksperckiej Portalu Obronnego, która miała miejsce dnia 18 kwietnia 2024 r. Wskazano na niedostateczne zainteresowanie i zrozumienie czynników administracyjnych i rządowych dla pewnej autonomii i określenia priorytetów Polski w sektorze kosmicznym. Odrębne zdanie prezentują w tym zakresie autorzy *Przeglądu realizacji wskaźników Polskiej Strategii Kosmicznej*, którzy wskazują na wzrostowy trend wykorzystania danych satelitarnych w pracach administracji publicznych. Istotną rolę w powyższym aspekcie przypisują warsztatom i szkoleniom prowadzonym przez POLSA, m.in. w ramach projektu Sat4Envi (PSPA marzec 2023: 7). Zwracają oni uwagę również na kwestię składki do ESA – tak obowiązkowej, jak i opcjonalnej. W przywołanym dokumencie sformułowana i wyrażona została obawa, że stosunek wysokości składki opcjonalnej względem składki obowiązkowej nie rośnie w tempie optymalnym (PSPA marzec 2023: 4).

Co więcej, wsłuchując się w zdanie uczestników Debaty Eksperckiej Portalu Obronnego, można wręcz odnieść wrażenie, że państwo prowadzi politykę kosmiczną całkowicie w oderwaniu od przemysłu kosmicznego, koncentrując się nie na jego rozwoju, a partycypacji w programach, np. Europejskiej Agencji Kosmicznej, jako poddostawcy i podwykonawcy dla koncernów mających przewagę w tym obszarze (Sabak 26.04.2024). Pogląd ten autor zasadniczo podziela.

Na podstawie powyższych uwag można stwierdzić, że polski przemysł kosmiczny nie jest swego rodzaju efemerydą. Zajmuje on trwale istotne miejsce w gospodarce krajowej. Stoi przed nim szereg wyzwań, a także szans i zagrożeń. Od tego, jak sprawnie uda się z owych szans skorzystać i jak zręcznie uniknąć zagrożeń, zależy jego przyszłość oraz pozycja Polski w świecie. Już dziś bowiem możliwe staje się aspirowanie naszego kraju do grupy państw najwyżej rozwiniętych, tj. do G20, w czym pomocny może być właśnie sektor kosmiczny ze swoimi innowacyjnymi technologiami. Technologie te mogą również znacząco przyczynić się do poprawy naszego bezpieczeństwa, tak w wymiarze wewnętrznym, jak i zewnętrznym, co w kontekście imperialistycznej polityki Rosji nabiera szczególnego znaczenia.

Wnioski

Prowadzona przez Polskę polityka względem przemysłu kosmicznego budzi pewne kontrowersje. To naturalne, biorąc pod uwagę rozległość i złożoność omawianego zagadnienia. Tym niemniej sam fakt jej istnienia działa pozytywnie na kondycję podmiotów funkcjonujących w wskazanym obszarze. Polityka ta winna być postrzegana jako jedna z istotnych polityk publicznych państwa polskiego. To zaś prowadzi do poniższych konkluzji:

1. Obecność Polski w kosmosie to wręcz dziejowa konieczność.
2. Rozwój przemysłu kosmicznego to szansa na skok cywilizacyjny dla całej gospodarki kraju.
3. Należy stworzyć i aktualizować racjonalną i spójną z innymi politykami publicznymi i programami politykę rozwoju przemysłu kosmicznego.

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Development of the Polish Space Industry – Opportunities and Threats

Rozwój polskiego przemysłu kosmicznego – szanse i zagrożenia

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Abstract: This article presents considerations regarding Poland's public policy towards the space industry. Among other things, the state of the domestic space industry was presented and opportunities and threats to its development were identified. The considerations end with conclusions, the implementation of which may contribute to optimizing the condition of the domestic space industry and eliminating some of the barriers to its development.

Keywords: Polish space industry, public policy, space technologies, state security

Streszczenie: Niniejszy artykuł prezentuje rozważania dotyczące polityki publicznej Polski względem przemysłu kosmicznego. Zaprezentowano w nim m.in. stan rodzimego przemysłu kosmicznego i wskazano szanse oraz zagrożenia dla jego rozwoju. Całość rozważań kończą wnioski, których realizacja może przyczynić się do optymalizacji kondycji krajowego przemysłu kosmicznego i likwidacji niektórych barier dla jego rozwoju.

Słowa kluczowe: polski przemysł kosmiczny, polityka publiczna, technologie kosmiczne, bezpieczeństwo państwa

The space industry and space technologies are the engines of the technological and economic progress of the countries that possess them. This industry is a kind of seedling for the development of a number of areas of social and economic life. There is also the growing militarization of space. Satellites provide the armed forces with, among other things, secure and uninterrupted communications and terrain reconnaissance. As a matter of fact, they become a key element in ensuring the efficiency of the command chain and the decision-making loop.

As you can see, having your own space capabilities and the space industry is today a requirement for the effective functioning of the state in many areas, in particular in the sphere of security.

The purpose of this article is to present a policy for the development of the domestic space industry, taking into account the opportunities and threats. This policy should be seen as one of the important public policies of the Polish state.

The dogmatic method and the literature study method were used as the leading methods in the study.

1. State of the Polish space industry

The Polish space industry has significantly developed and strengthened over the past few years. Despite the high threshold for entrepreneurial entry into this industry sector, we have seen a steady increase in the number of entrants. Technical breakthroughs have reduced the cost of carrying 1 kg of cargo into space, making satellite services cheaper and more accessible. For example, in the late 1960s, the cost was close to \$900,000, while today, thanks to SpaceX and its Falcon 9 reusable rocket, the cost of launching payloads into low Earth orbit has dropped to around \$2,700. Already today, satellites and the data they provide are used, e.g., in agriculture, in sowing fields or irrigation, in communication and transport via GPS (Global Positioning System) navigation or in disaster management.

Currently, the domestic space industry offers a wide range of goods and services, ranging from software, including those that use artificial intelligence, through specialized tools and devices, to the production of nanosatellites and satellites and their launch into space. According to data from the Polish Space Agency (POLSA), our space industry consists of more than 300 state and private entities of a diverse nature, i.e. both of a business and research nature. It employs around 12,000 highly skilled workers.

Among the leading Polish entrepreneurs operating in the space industry, SatRev, Astronika, KP Labs, Thorium Space, and Creotech Instruments should undoubtedly be distinguished. These are the top five of our space industry, although it should be noted that other entrepreneurs are constantly trying to reach them.

The national space industry is becoming increasingly bold in the global market, acting both independently and in cooperation with foreign partners. This is recognized, among others, by the European Space Agency (ESA), whose opinion is that Poland will follow its own unique path in the development of this industry, based primarily on small and medium-sized enterprises. The SME sector adapts more easily to changing business conditions than the large enterprise sector (Idea 3W 29.09.2023). Ingenuity, creativity, innovation and initiative – these are the undoubted advantages of Polish entrepreneurs operating in the space sector.

New space technologies are already generating opportunities for economic space exploration. As Kamil Muzyka aptly states, “cosmic resources, like the Natural Resources of the Earth, will form the basis for the development of life and its possible inorganic varieties” (Muzyka 2022: 127). In particular, we are talking about space mining and the extraction of, e.g., rare earths or helium³, which could revolutionize the industry and avert an energy crisis associated with depleting hydrocarbon deposits. This issue is already at hand and it is worth our industry, including space, to take this into account in its development plans. It therefore becomes necessary to enact an appropriate legal regulation in the form of an Act on space activities, which has been repeatedly pointed out in their scientific works by, among others: Katarzyna Malinowska, Zdzisław Brodecki, Mariusz Tomasz Kłoda or Małgorzata Polkowska (Kłoda, K. Malinowska, B. Malinowska, Polkowska 2022: 95–119; K. Malinowska, Brodecki 2019: 48–61). The theses contained in them are broadly shared by the author.

2. Policy of the Polish state towards the space sector

The development of the space sector and the growth of its importance in the realities of the modern economy and Industry 4.0 make us think about the role of the state in this area. Whether it should be a passive observer or an active player, initiating and pointing in the direction of actions. Given the above, the question arises of whether Poland has its own policy towards the space industry, and if so, what its assumptions are and whether it can be considered a public policy.

In an attempt to address the above issue, it should be mentioned that based on the Act of September 26, 2014, the Polish Space Agency was established

(Ustawa 2014/1533), which, according to art. 3 of the Act in question, performs tasks in the field of supporting (a) the space industry; (b) research; (c) the use of space; (d) the development of space technology, including satellite engineering; (e) the use of research and its results for applied, economic, defense, state security, and scientific purposes. In addition, the Polish Space Agency may provide support for, *inter alia*: (a) research and development; (b) support for innovation; (c) training; (d) consultancy; (e) participation in fairs, economic missions, and other events. This support shall be granted to (a) natural persons not conducting economic activity; (b) entrepreneurs; (c) entities whose statutory tasks include activities in the field of space use; (d) social and economic partners within the meaning of art. 5 point 7 of the Act of December 6, 2006 on the principles of development policy (Journal of Laws 2019, item 1295 and 2020 and of 2020 item 1378); (e) other entities operating in the field of space use or supporting this field.

The Polish state has therefore created a special entity, equipping it with material and personal resources and legally defined competencies and tasks, which aims to support the development of the space industry. Thus, it seems that this is a manifestation of the public policy of the Republic of Poland (RP) in this area.

By public policy, doctrine means all the conscious actions – including the conscious omissions – of those entities or actors that will be covered by the concept of government – also broadly understood (Szarfenberg 2016: 48). A similar position is taken by Andrzej Zybala, according to which the concept of public policy should be understood as “[...] rationalized public activities and programs that are based on accumulated, relatively objective knowledge and a systematized process of designing and implementing these activities” (Zybala 2012: 24). Thus, if we take into account that, on the basis of art. 4 of the aforementioned Act, the Polish Space Agency is subordinate to the minister competent for economy, and that the said Agency implements public activities and programmes, we shall come to the conclusion that we are dealing with Poland’s public policy in the area of space industry.

When considering the Polish state policy in the area of the space industry, it is also necessary to draw attention to Resolution No. 6 adopted on January 26, 2017 by the Council of Ministers on the adoption of the Polish Space Strategy (Uchwała 2017/203). The strategy emphasises the role of the space sector, recognizing that it is an important element of the Polish knowledge and innovation economy, and its links with other areas of the economy contribute to increasing their competitiveness.

The strategy formulates three strategic objectives by 2030, namely: (1) the Polish space sector will be able to compete effectively in the European market and its turnover will amount to at least 3% of the total turnover of this market (in proportion to Poland's economic potential); (2) the Polish public administration will use satellite data for faster and more efficient implementation of its tasks, and national enterprises will be able to fully satisfy internal demand for such services and export them to other markets; (3) the Polish economy and public institutions will have access to satellite infrastructure to meet their needs, especially in the field of security and defense (Uchwała 2017/203).

The implementation of the above strategic objectives will take place through the achievement of specific objectives. These include: (1) increasing the competitiveness of the Polish space sector and increasing its share in the turnover of the European space sector; (2) development of satellite applications – contribution to building a digital economy; (3) development of capabilities in the area of national security and defense using space technologies and satellite techniques; (4) creation of favorable conditions for the development of the space sector in Poland; (5) building human resources for the needs of the Polish space sector (Uchwała 2017/203).

The Polish Space Strategy was to be detailed in the National Space Programme for the years 2021–2026. This government document in the form of a draft sets out the objectives of the programme, priorities, directions of intervention, or implementation tools. It also provided for the manner, sources, and amount of funding for the programme (Ministerstwo Rozwoju, Pracy i Technologii 2021).

The main objective of the program was to expand the potential of industry and scientific units of the Polish space sector to meet the needs of the state and the economy and to compete effectively in international markets. Meanwhile, the specific objectives of the programme were to correspond to the strategic objectives of the Polish Space Strategy, and they included: (a) to expand the competence and increase the competitiveness of the Polish space sector; (b) to increase the use of satellite data by administration, science, industry, and society; (c) to use satellite technology to enhance the country's security and defense.

In turn, the priorities of the National Space Programme for 2021–2026 include Priority I – Building the capability to construct and launch space objects; Priority II – Building the Earth Observation Satellite System; Priority III – Building the National Satellite Information System; Priority IV – Expanding the National Space Security System.

With regard to material issues, the National Space Programme was to be financed from the following sources: (a) funds from the state budget, including the parts of the state budget of the individual ministers involved in the programme; (b) funds from the European Union, such as: EU Space Programme, Horizon Europe; (c) funds from the National Reconstruction and Resilience Plan. The total budget provided for the implementation of the tasks set out in the National Space Programme was set out in this document at the level of PLN 2,568.87 million.

As can be seen, the objectives and priorities of the Polish Space Strategy and the draft National Space Programme were consistent and convergent, which should be considered as a desirable action on the part of the public administration. It should be noted that this program ultimately did not enter into force, which is an important barrier to the development of the domestic space industry.

As an aside, it is worth mentioning that the Polish Space Strategy is linked to other documents of planning and implementing nature, i.e.: (1) Strategy for Responsible Development until 2020 (with an outlook until 2030); (2) Productivity Strategy 2030 (draft); (3) National Security Strategy of the Republic of Poland; (4) National Plan for Reconstruction and Increasing Resilience; (5) Space Strategy for Europe; (6) EU Space Programme; (7) Strategic Research and Innovation Agenda.

Consistency of objectives and tasks proves the existence of a well-thought-out public policy in the space industry. Whether it is (was) rational is another matter. An open question, however, is whether changes in the political leadership of the Polish state will not lead to the overturning of the proverbial table. While the application of amendments and updating of Poland's policy towards the space sector are justified, abandoning the possibility of creating it should be considered completely wrong and a missed decision. Time will bring the answer to this question.

3. Opportunities and threats of the Polish space industry

The Polish space industry is difficult and demanding but at the same time negotiating for further development of the domestic industry. Of course, it faces both opportunities and threats.

The opportunities of the Polish space industry undoubtedly include a large, highly qualified workforce. Next, the real needs for satellites and satellite services, including those related to the acquisition and processing of satellite data, both of the Armed Forces of the Republic of Poland and other formations falling within the area of broadly understood security. Not without significance is also the emergence of new technologies within NewSpace, thanks to which it is possible to significantly reduce the cost of carrying 1 kg of cargo into space, as well as the threshold for entering the space business. The space industry is already becoming a seedling of innovation, allowing potential profits to be multiplied. Further opportunities can be seen in cooperation with the European Space Agency and other foreign and international actors, as well as in participation in international research projects. Further situations are related to the growing export opportunities of domestic space entrepreneurs. For example, on February 7, 2024 in Kigali, SatRev and Locus Dynamics signed an agreement to provide end-to-end satellite solutions for the collection of Earth observation data in Africa. The parties to the agreement will cooperate in the design, manufacture, and maintenance of microsatellites and related high-resolution sensors for various applications, establish related infrastructure in Rwanda, namely a satellite ground station and Mission Control Centre, and improve satellite data analysis capabilities (Space24 8.02.2024). Another opportunity is better coordination and planning of needs on the part of public administration and coordination with the domestic space industry. We need to meet the real needs of our country. As if in response, Prime Minister Donald Tusk announced the approval of a €300 million loan for a Polish satellite component to the European missile shield programme. This money can become not only an impulse, but even a lever for the development of our space industry.

In turn, the risks include a low interest of public administration in satellite data, which seems to result from a low awareness of their usefulness and an erroneous organizational culture. A helpful tool for changing this state of affairs can be business coaching, which is addressed to various organizations, including – as Anna Chochowska and Ewa Jasiuk aptly point out – also to public administration and its staff (Jasiuk, Chochowska 2024: 440).

Another perceived threat is the lack of proper education on the economic feasibility of space exploitation and the promotion of the Polish space industry.

A number of threats to the development of the Polish space industry have been identified by the auditors of the Supreme Audit Office (NIK), which they presented in a report relating to the development of the space sector in Poland (Najwyższa Izba Kontroli 2020). According to it, among the fundamental problems and threats to the domestic space sector, the following were singled out: (1) lack of a development plan for the space sector in Poland; (2) financial constraints; (3) system and organizational constraints; (4) lack of effective mechanisms for financing activities; (5) preferential approach of the state to private companies; (6) legislative constraints; (7) lack of a coherent, consistently implemented long-term vision of development; (8) selection of Polish experts to ESA decision-making bodies from among ministry officials; (9) insufficient group of experts evaluating the applications of the National Centre for Research and Development; (10) support for declarative actions through acceptance of partial research topics carried out by entities with little experience and competence, and support and implementation of spectacular actions with little commercial value and little impact on the development of national competence; (11) the location of the Polish Space Agency in Gdansk and the unnecessary creation of branches in various locations around the country, which reduces the efficiency of the Agency; (12) the failure of the Minister of Science and Higher Education to create a scientific discipline: Aerospace Technologies, despite the efforts and appeals of the research communities from all over the country; (13) lack of experience and credentials to win orders and contracts for the implementation of missions; (14) lack of adequate knowledge and experience in the field of space programmes; (15) lack of adequately educated staff on the labour market; (16) lack of readiness and even unwillingness of the government and local self-government administration to receive and operationally use satellite data (Najwyższa Izba Kontroli 2020: 77).

To a certain extent, similar views were presented during the expert debate of the defense portal, which took place on April 18, 2024. Insufficient interest and understanding of administrative and governmental factors for a certain autonomy and determination of Poland's priorities in the space sector were pointed out. A separate opinion is presented in this respect by the authors of the *Review of the Implementation of Indicators of the Polish Space Strategy*, who point to an increasing trend in the use of satellite data in the work of public administration. They attribute an important role in the above aspect to the workshops and training provided by POLSA, e.g., as part of the Sat4Envi project (PSPA March 2023: 7). They also draw attention

to the issue of a contribution to the ESA – both mandatory and optional. The above-mentioned document formulated and expressed the concern that the ratio of the amount of the optional contribution to the mandatory contribution is not growing at an optimal pace (PSPA March 2023: 4).

Moreover, listening to the views of the participants in the Expert Debate of the Defence Portal, one might even get the impression that the state is pursuing a space policy completely detached from the space industry, focusing not on its development but on participation in programmes, e.g., of the European Space Agency, as a sub-supplier and subcontractor for concerns with an advantage in this area (Sabak 26.04.2024). This view is broadly shared by the author.

On the basis of the above comments, it can be concluded that the Polish Space Industry is not a kind of ephemera. It occupies a permanently important place in the national economy. It faces a number of challenges, as well as opportunities and threats. Its future and Poland's position in the world depend on how efficiently it manages to take advantage of these opportunities and how skillfully it avoids threats. It is already possible for our country to aspire to join the group of most developed countries, i.e. the G20, and it is precisely the space sector with its innovative technologies that can help. These technologies can also make a significant contribution to improving our security, both internally and externally, which is of particular importance in the context of Russia's imperialist policy.

Conclusions

Poland's policy towards the space industry is controversial. This is natural, given the scale and complexity of the issue. Nevertheless, the very fact of its existence has a positive effect on the condition of entities operating in the indicated area. This policy should be seen as one of the important public policies of the Polish state. This in turn leads to the following conclusions:

1. The presence of Poland in space is a historical necessity.
2. The development of the space industry is a chance for a civilizational leap for the entire economy of the country.
3. A rational policy for the development of the space industry, consistent with other public policies and programmes, should be developed and updated.

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The Importance of Changes in the Field of Socio-Economic Cooperation in Polish-American Relations in the Era of Donald Trump's Presidency

Znaczenie zmian w obszarze współpracy społeczno-gospodarczej w stosunkach polsko-amerykańskich w dobie prezydentury Donalda Trumpa

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Abstract: What did Polish-American cooperation in the socio-economic area look like during Donald Trump's presidency, and what was its significance? This article describes and analyzes the actions and decisions taken by a politician who favored the development and security of Poland and the Eastern European region, who, during his presidency in 2017–2021, concluded numerous agreements with Poland, deepened trade exchange, and abolished the visa requirement for Polish citizens, opening their country to a freer influx of Poles who have a definitely positive attitude towards the United States and its interests in the world. Based on the data from the XXI century regarding certain areas of trade between Poland and the United States, there was an increase in trade and the deepening of economic ties between both entities. The President of the United States responsible for these changes was Donald Trump. Comparing the decisions made by his office and the decisions of his predecessors, there can be seen intense activity to strengthen Polish-American relations and implement long-awaited visions of the past. Unfortunately for the then president, the abolishment of visas for Poles was not enough to sway the Polish diaspora in the United States to vote for Donald Trump and secure his victory in the 2020 elections.

Keywords: The United States, Poland, Donald Trump, Andrzej Duda, socio-economic relations

Streszczenie: Jak wyglądała współpraca polsko-amerykańska w obszarze społeczno-gospodarczym za prezydentury Donalda Trumpa i jakie miała znaczenie? W artykule opisano i przeanalizowano działania i decyzje podjęte przez polityka sprzyjającego rozwojowi i bezpieczeństwu Polski i regionu Europy Wschodniej, który podczas swojej prezydentury w latach 2017–2021 zawarł z Polską liczne umowy, pogłębił wymianę handlową oraz zniósł obowiązek wizowy dla obywateli Polski, otwierając swój kraj na swobodniejszy napływ Polaków, którzy mają zdecydowanie pozytywne nastawienie do Stanów Zjednoczonych i ich interesów na świecie. Na podstawie danych z XXI w. dotyczących niektórych dziedzin handlu pomiędzy Polską a Stanami Zjednoczonymi można zaobserwować wzrost wymiany handlowej i pogłębienie powiązań gospodarczych obu podmiotów. Prezydentem Stanów Zjednoczonych odpowiedzialnym za te zmiany był Donald Trump.

Porównując decyzje podejmowane przez jego urząd z decyzjami poprzedników, widać intensywne działania na rzecz wzmocnienia relacji polsko-amerykańskich i realizacji długo oczekiwanych wizji z przeszłości. Niestety, zniesienie wiz dla Polaków nie wystarczyło, aby przekonać Polonię w Stanach Zjednoczonych do głosowania na D. Trumpa i zapewnić mu zwycięstwo w wyborach w 2020 r.

Słowa kluczowe: Stany Zjednoczone, Polska, Donald Trump, Andrzej Duda, stosunki społeczno-gospodarcze

Due to the upcoming presidential elections in the United States in 2024, Donald Trump started his election campaign, running for president again. This is an introduction to a future analysis regarding the possibility of mutual economic and financial gains for Poland and the United States if D. Trump is allowed to participate in the elections and wins. The end of Joe Biden's presidency is a good start to recall D. Trump's achievements for Poland, which may help him gain the necessary support from Poles in the United States this year. It is also an opportunity to look at cooperation in the economic sphere from the 1990s to the end of D. Trump's presidency, comparing them to the previous presidents' achievements.

The article uses methods of comparative analysis and existing data analysis to assess the significance of Polish-American cooperation on a socio-economic level during D. Trump's presidency. These analysis methods will help answer a couple of questions, such as: how economic relations between Poland and the United States have changed, what were the most important socio-economic decisions made during D. Trump's term, and whether there is a correlation between the increase in interactions between the governments of both countries during the presidency of D. Trump and the increase in trade between Poland and the USA? The answers to these questions will allow us to confirm the thesis that during D. Trump's presidency, there were significant changes in the socio-economic cooperation in Polish-American relations. The first part of the article presents the decisions of important Polish and American politicians on the way to opening Poland to the global market through cooperation with the United States, in the next parts, data from trade exchanges during the presidency of Barack Obama and D. Trump are described and compared, and the importance for Polish-American cooperation is determined.

1. Polish-American socio-economic cooperation after the Cold War

After the fall of communism in Poland and the establishment of the first independent government of Tadeusz Mazowiecki, Finance Minister Leszek Balcerowicz traveled to the US capital to familiarize the US President with the economic reform project in Poland. An important step on the path to transformation was the initiation by the American side of the Stabilization Fund, to which the United States contributed 200 million US dollars. The convertibility of the Polish currency was implemented using the entire amount of the Fund. It was thanks to the USA that Poland's economic relations with the West were resumed, and the then head of state, George W.H. Bush, in a letter to the Polish Prime Minister announced the cancellation of the state debt of over \$2 billion. In March 1990, the Treaty Concerning Business and Economic Relations between the Republic of Poland and the United States of America was drawn up and ratified in May of the same year. As a result of signing this agreement and deepening cooperation, Polish elites sought to repay the United States. During the conflict in Iraq, Poland showed support for the American coalition and stopped trade with the Republic of Iraq as a sign of solidarity. Another sign of an attempt to repay the help was the abolition of visas for US citizens, only by the Polish side (Jakimowicz 2009: 46–47). The issue of abolishing visas for Polish citizens during the next terms of office of US presidents will become problematic and incomprehensible to the Republic of Poland.

Observing the decisions of Polish elites, the United States noticed the efforts of the vast majority of Polish governments in striving for a free market (Mix 2016: 2). For this reason, in the following years, it granted non-repayable loans and continued activities to deepen economic cooperation, mainly through investments.

This is reflected in the investment data from 1993, which shows that American investments accounted for approximately 2/5 of all foreign direct investments in Poland, while a year later this ratio increased to 1/3 of investments. The amount of invested capital in 1994 amounted to 1.5 billion US dollars. The corporations that invested the most include Pepsi, Coca-Cola, Boeing, City Bank, and the automotive company General Motors (Jakimowicz 2009: 47–48).

The above-mentioned companies are mainly entities from the food, banking, and automotive industries. Their investments in Poland improved

the availability of American products in the Polish market, which also became a sign of Poland's Westernization.

In 1997, trade between the Republic of Poland and the USA increased by almost a billion dollars compared to 1996 and reached over 2.5 billion dollars. During these years, Poland imported complex industrial goods from the United States, e.g., aircraft and other technologically advanced devices, and exported food products, wood processing products, and metal industry products (Jakimowicz 2009: 50–51).

Over the years, there has been a trend of increasing interest in trade between the United States and Poland. Exports of goods and services to Poland in 2004 amounted to almost one billion dollars (\$929 million), while imports from the Republic of Poland exceeded one billion dollars (\$1.8 billion), making them almost twice as large as exports. Eleven years later, exports to the US were more than four times higher than in 2004, and imports had more than tripled (Mix 2016: 11).

Table 1. Trade in food and live animals between Poland and the United States in 2006–2016

Years	Import (in thousands USD)	Export (in thousands USD)
2006	74171	125052
2007	101315	148112
2008	187001	155372
2009	144524	170881
2010	241429	217250
2011	161497	196031
2012	188232	229947
2013	365576	231842
2014	198299	310908
2015	218042	322821
2016	198449	337942

Source: GUS [2007–2017].

The table above illustrates the constantly growing trade exchange between Poland and the United States. Analyzing exports, we notice that only in 2011 we observed a slight decline, which could have been a late consequence of the financial crisis of 2008. However, the value of imported goods from the USA fluctuated every year, and only in the years 2006–2008 was a constant upward trend. In the following years, it fluctuated, increasing and decreasing. The mentioned trend continued until 2016.

Table 2. Trade exchange of machines, devices, and transport equipment in 2006–2016

Years	Import (in thousands USD)	Export (in thousands USD)
2006	1343781	888911
2007	1561583	844128
2008	1950536	1062582
2009	1400608	1340212
2010	1855321	1373216
2011	1975123	1619408
2012	2506161	1904722
2013	2725522	2522538
2014	2739695	2407364
2015	2577501	2128022
2016	2935222	2512154

Source: GUS [2007–2017].

It can be noted that trade in machinery, equipment, and transport equipment maintained an upward trend in the analyzed period. An important element of economic relations between Poland and the United States is trade in these goods because Poland imported the most products related to technology and mechanics, including planes and cars. Each year mentioned, Poland imported more and more goods in this category from the United States. During B. Obama's second term, trade exchange exceeded 2,000,000 thousand American dollars.

Polish-American relations also developed in the area of research and scientific cooperation. The Agreement on Scientific Cooperation signed by both parties in 2006 was a legal confirmation of the will of both countries to cooperate in this area. Another agreement on the scientific exchange of students was the agreement on the Polish-American Fulbright Commission, ratified in 2008. In 2007, a program for the exchange of Polish and American youth began to operate. In 2011, the then Minister of Foreign Affairs, Radosław Sikorski, visited the capital of the United States, where he signed a Memorandum of Understanding between the Government of the United States of America and the Government of the Republic of Poland on Cooperation in Clean and Efficient Energy, concerning the development of cooperation in the field of scientific, technical and political aspects of clean and efficient energy technologies (Czornik, Lakomy 2014: 423).

Poland acquired innovative patents and weapons as a result of military and economic cooperation with the United States. The cooperation resulted

in 2007 with the American decision to invest in Sikorsky Aircraft Corporation in PZL Mielec. The above-mentioned factory initiated the production of Black Hawk and S-70 helicopters (Grodzki 2012). The above-mentioned decision was made by the Republican administration of George W. Bush, with which the Republic of Poland had the best relations, mainly on the military level.

An important aspect of Polish-American relations is the social factor and the related presence of a large diaspora of Poles living in the United States, called the Polish diaspora. Based on various sources from 2009, there were between 9–10 million citizens of Polish origin living in the USA, which influenced relations between these two countries (Jakimowicz 2009: 45).

People of Polish descent in the United States work actively to support relations between these two entities. However, the very presence of many citizens with a common national heritage affects various issues in Polish-American relations.

After Poland became independent of the influence of the Russian Federation, the topic of Poland's accession to NATO was discussed by the Polish diaspora in the United States. One of the organizations working to turn Poland towards the West, especially the USA, was PAC (Polish American Congress). The vast majority of the Polish diaspora supported the development of cooperation and strengthening relations between their home country and the USA (Malendowicz 2013: 179). Among the supporters was Zbigniew Brzeziński, who joined the plan to expand the structures of the North Atlantic Alliance to countries in Central Europe (including Poland). Zbigniew Brzeziński also initiated the creation of the Polish-American Freedom Foundation in order to deepen the relations of both entities (Uchwała 2017/539). There were different opinions on the issue of Poland's inclusion in the EU, both opponents and supporters of accession to the group of member states. The opponents included Edward Moskal (president of the Polish American Congress). The EU market was found to be too competitive compared to the US market (Malendowicz 2013: 179). A conflict of interests has been noticed at the economic level in the case of Poland's membership in the EU.

Relations between the Republic of Poland and the USA cooled down after President B. Obama's decision in 2009. Then Poland organized a ceremony marking the 70th anniversary of the outbreak of World War II, to which the American president was invited. As a representative of his administration, B. Obama sent James Jones, his national security adviser, which was perceived by Polish political scientists and the public as downplaying the seriousness of the celebrations (Czornik, Lakomy 2014: 427).

According to Anna Czornik and Mirosław Lakomy, the foreign policy of G.W. Bush enjoyed greater trust among Poles compared to his successor. Based on a WPO survey conducted in 2011, the difference in the perception of the B. Obama administration by citizens of Western European countries and Poland was revealed. The vast majority of residents of Western countries sympathized and supported B. Obama, while only about half of the Poles surveyed trusted the foreign policy of the Democrat president (Czornik, Lakomy 2014: 425).

It can definitely be said that the attitude of Polish society towards the United States was caused by a shift in US policy during B. Obama's presidency towards the Pacific region at the expense of Europe, disregard for Eastern Europe, and too lenient policy towards the Russian Federation. During his term, Poles began to fear that the United States would gradually leave the Eastern European region, which would put Poland back under the influence of Russia pursuing imperial policy.

Polish-American relations in the post-Cold War period were mainly good and friendly. However, among the issues negatively affecting these relations was the issue of excluding Poland and its citizens from the American visa program. Some congressmen spoke in favor of Poland's inclusion in the above-mentioned program, but during the term of office of presidents before D. Trump, this was not possible (Mix 2016: 2).

According to the report of the Congressional Research Service from 2016, the Polish economy is described as one of the best functioning in this part of Europe (Mix 2016: 2), which is a distinction for Poland and a signal of the willingness of foreign investors to invest capital. There are many factors influencing the attractiveness of Poland for investors, including population potential, historical connections, strategic location of Poland in the center of Europe, and qualified staff. Poles also speak English at a high level among the non-Germanic population in Europe. Due to all the above-mentioned factors, further development of economic and social cooperation between Poland and the United States can be expected.

2. Main changes in socio-economic cooperation during the presidency of Donald Trump

In the current international order, the United States is among the countries that conduct the most trade on a global scale. These include, among others: countries

such as Brazil, India, Germany, and China, with which President D. Trump started a “trade war” and negatively influenced the image of the People’s Republic of China. In addition to trade, mass culture and leading American film productions influence the perception of US citizens, and social life and promote standard American values. The image of the United States is influenced primarily by the actions taken by the president and politicians who are responsible for conflicts, wars, and negative effects affecting the country.

This part will include information on how Poles perceive the United States and the President, and a short analysis of investments and trade between the Republic of Poland and the USA.

The way Polish society perceives the United States is influenced by various factors. Historical and family ties, widespread American mass culture, common political decisions, and military and economic cooperation influenced Poles’ sympathy towards the USA. The table shows data about the positive image of the United States among the vast majority of respondents.

Table 3. Perception of the USA in 2018

Poles’ perception of the USA in March 2018	Percentage of respondents
Very positive	46.21%
Positive	27.26%
Neutral	15.66%
Negative	4.45%
Very negative	6.42%

Source: Selectivv 2018.

According to a survey conducted by Selective Europe Sp. z o. o. in 2018, NATO was chosen as the greatest security guarantor for the Republic of Poland, while the United States came in second place. The respondents considered the European Union and the Polish army to be other guarantors of security. In March, there was an almost 8% increase in surveyed Poles considering the alliance as the main guarantor of security, while other entities, including the United States, recorded a slight decrease. The data presented in the table show that Polish citizens have greater confidence in the multilateral political-military alliance than in bilateral military relations. The relatively low level of confidence in the US in ensuring Poland’s security may have been caused by President D. Trump’s political unpredictability in making decisions.

Table 4. Public opinion on the most important guarantor of Poland's security in 2018

Entities	In January 2018	In March 2018
North Atlantic Alliance	29.70%	37.40%
United States	23.80%	22.50%
European Union	22.20%	18.40%
Polish Armed Forces	24.10%	21.60%

Source: Selectivv 2018.

Based on the same source, Polish citizens considered the United States to be the most important partner in the international arena. The next countries mentioned in the survey were Germany, Hungary, Great Britain, Lithuania, Ukraine, and France. Percentage points vary widely, and various factors influence the U.S.'s high ranking among the public. The most important of them are the geopolitical location of the United States, the assistance received in reforming the Republic of Poland, and the military and technological potential of the United States. Even though the United States is the only non-European country among the countries mentioned, it ranks first in the ranking, which shows that Poles perceive it as a guarantor of the balance of power in Europe and the world.

Table 5. Public opinion about Poland's most important ally in 2018

Entities	In March 2018
United States	35.30%
Germany	22.26%
Hungary	10.95%
Great Britain	7.30%
Ukraine	4.76%
Lithuania	4.19%
France	3.04%

Source: Selectivv 2018.

In the CBOS survey on the foreign politician who deserved to be named politician of the year, in 2017–2020, Poles chose the incumbent US President D. Trump. Angela Merkel, Donald Tusk, and J. Biden were indicated as other politicians deserving this name. In the first three years of D. Trump's presidency, there was an increase in the percentage of Poles surveyed who

indicated him as the most deserving of such a title. This is closely related to the tables described above, indicating the great sympathy of the Polish nation for the United States and its president. However, in 2020, there was a decrease in the percentage of respondents naming D. Trump as the “politician of the year.” This is due to the pandemic situation, the US withdrawal from international organizations, China being accused by the United States of deliberately spreading the virus, and the upcoming elections in the US. In the same year, respondents began to indicate J. Biden, who was to run for president from the Democratic Party.

Table 6. Which foreign politician active on the world stage deserves the title of politician of the year?

Years	Foreign politician of the year	There is no such politician	It's hard to say, I'm not interested in it
2017	Donald Trump – 12.00%; Angela Merkel – 7.00%; Donald Tusk – 3.00%	17.00%	51.00%
2018	Donald Trump – 14.00%; Angela Merkel – 5.00%; Donald Tusk – 3.00%	18.00%	49.00%
2019	Donald Trump – 15.00%; Donald Tusk – 6.00%; Angela Merkel – 4.00%	16.00%	54.00%
2020	Donald Trump – 10.00%; Angela Merkel – 6.00%; Joe Biden – 3.00%	18.00%	53.1700%

Source: CBOS 2021.

Based on Tables 3–6, it can be seen that the United States is in the spotlight of the Polish public opinion as are the international organizations of which it is a member. According to Polish public opinion, the United States is perceived by Polish citizens as an important ally and partner and constitutes an important and inseparable element of the international relations of Poland.

Trade between Poland and the United States is a very important issue, especially for Poland. Through signed contracts and the exchange of goods, Poland gains money from an external source, which is much wealthier and is among the largest economic entities. Through both military and political cooperation, the Republic of Poland signed more favorable trade agreements with the USA.

An example of this is the U.S.-Poland Joint Declaration on 5G signed on September 2, 2019, in Warsaw by Prime Minister Mateusz Morawiecki and Vice President of the United States Michael Pence. Strengthening cooperation in this area is an important aspect for both countries, due to the enormous importance of new technologies in the current conditions (Kancelaria Prezesa Rady Ministrów 2.09.2019). The development of the 5G network is seen as development at the civil level, strengthening Poland's national security, economic ties, and enrichment of both entities (U.S.-Poland Joint Declaration on 5G 2019).

Another important event was the visit of the President of Poland to the White House on June 24, 2020. President Andrzej Duda raised the issue of cooperation with the United States, starting from the economic level. The scope of this cooperation concerned the energy sector and the development of its security not only in Poland but also throughout Central Europe. The President of the Republic of Poland emphasized that, for this purpose, both entities strive to implement and expand current investments, including a gas port in Świnoujście, and discuss future plans. The public statement specified the end date of the concluded agreement regarding the supply of liquefied gas to Poland – 2023. It is also planned to sign an agreement on conventional and nuclear energy for the production of electricity in Poland. In his statement, A. Duda presented the interest and participation of the United States in the Three Seas Initiative, including the provision of financial resources for this project. To sum up, the satisfaction with economic cooperation and the certainty of joint development of Poland and the USA after the end of the SARS-CoV-2 pandemic were emphasized (Oficjalna strona Prezydenta Rzeczypospolitej Polskiej 24.06.2020). Both presidents mentioned the declaration on 5G signed in 2019, which excludes Chinese companies from the group of trusted suppliers who, according to the American authorities, do not comply with basic IT security standards. In return, the United States promotes its corporations operating in this area, including Microsoft and Google (Kacprzyk, Piotrowski 25.06.2020).

The decisions and agreements described above constitute an opportunity to deepen cooperation between Poland and Europe with the United States, to make Central Europe independent of energy supplies from Russia and to catch up with the level of the western part of the European Union. However, the exclusion of companies from China is related to the confrontational policy of the United States towards China, with which D. Trump conducted the so-called "trade war." The Republic of Poland, wanting to show good intentions and a jointly directed foreign policy with the USA, signed the above agreement.

An important issue for the Polish energy industry is the signing of the Agreement on the development of the Polish nuclear energy program by the American side on October 19, 2020, and the Polish side three days later. An indirect effect of joint cooperation in this area is to be the construction of the first nuclear power plant in Poland, but also the training of specialized staff in this field. The work on this matter would be supervised by a Steering Committee consisting of Polish and American officials and experts (Ministerstwo Klimatu i Środowiska Rzeczypospolitej Polskiej 2017). The above-mentioned agreement was signed for 30 years and is a sign of the United States' solidarity with Poland in the field of energy. The agreement is a step in the implementation of the declaration of D. Trump, who, at the beginning of his presidency and during his first visit abroad, assured the readiness of the United States to diversify sources of energy supplies for European countries, including Poland (Ministerstwo Klimatu i Środowiska Rzeczypospolitej Polskiej 2017).

In foreign trade, the basic goods imported and exported are animals and food. The tables below show an upward trend in both imports and exports of selected goods. Trade exchange between the Republic of Poland and the USA in the field of trade in food and live animals brings much greater profits for Poland. However, trade in machines, devices, and transport equipment was equal.

Table 7. Trade between Poland and the United States in 2017–2020

Trade in food and live animals	Import (in thousands USD)	Export (in thousands USD)
2017	207195	497693
2018	269491	521190
2019	313652	522279
2020	269414	503111

Source: GUS [2018–2021].

Table 8. Trade exchange of machines, devices, and transport equipment in the years 2017–2020

Years	Import (in thousands USD)	Export (in thousands USD)
2017	3264237	3247899
2018	3638099	4032963
2019	4345927	4171356
2020	3720115	4057242

Source: GUS [2018–2021].

To summarize the above data on the socio-economic level, the Republic of Poland and the United States have positive economic relations that have been developing each year. The scope of concluded agreements related to the development of this sector of relations is promising and deepening of economic relations can be expected. It is worth noting and emphasizing that the United States is still well-perceived by Polish society. This is evidenced by Poles selecting the American president and the USA in surveys regarding the guarantor of security, Poland's most important ally, and the politician of the year.

3. The importance of changes in the field of socio-economic cooperation in Polish-American relations during the presidency of Donald Trump

Socio-economic cooperation between the United States and the Republic of Poland was also an important area, similar to political and military cooperation, but of the least importance for Polish-American relations. During the presidencies preceding D. Trump's, economic cooperation was limited only to the exchange of goods and services, whereas during the D. Trump administration, an intensified nature of investments in various areas could be observed, including gas supplies, development of the 5G network, etc. In many speeches, D. Trump emphasized the need for American investments in the Eastern European region, arguing that they would strengthen their allies. They led to mutual benefits, primarily financial ones for the United States, and to making the energy security of the countries stronger in the region, etc.

The tables below contain information on trade between Poland and the United States during the B. Obama and D. Trump administrations. The totals for B. Obama's rule collectively cover his two terms, while for D. Trump they are limited to only four years of one term.

Table 9. Trade exchange of food products and live animals between Poland and the United States in 2009–2016 and 2017–2020

Time frame	The sitting President of the United States	Total Imports (in thousands of USD)	Total Exports (in thousands of USD)
2009–2016	Barack Obama	1716048	2017622
2017–2020	Donald Trump	1059752	2044273
Difference	-	656296	-26651

Source: GUS [2007–2021].

Table 10. Trade exchange of machines, devices, and transport equipment in the years 2009–2016 and 2017–2020

Time frame	The sitting President of the United States	Import (in thousands of USD)	Export (in thousands of USD)
2009–2016	Barack Obama	18715153	15807636
2017–2020	Donald Trump	14968378	15509460
Difference	-	3746775	298176

Source: GUS [2007–2021].

Tables 9 and 10 show general information from which, if several factors were not taken into account, incorrect conclusions could be drawn. To show more reliable data, the amounts for B. Obama's first term should be summed separately and the same for the second term, and only at the very end compared to the turnover during D. Trump's presidency.

Comparing the data obtained from the calculations, taking into account the difference in the number of terms in office and the lack of available data on trade turnover for the first 20 days of January of the last days of the term, it can be concluded that trade in selected goods during the four years of D. Trump's term was much greater than during the first and B. Obama's second term. It can also be noted in Table 9 that during one term of D. Trump's presidency, the export of food products and live animals was greater than after adding up the amounts from both terms of office of B. Obama. The combination of these data leads to predictions and assumptions that if D. Trump were elected for another term, trade in this area would be twice as large as trade during both B. Obama terms. In the years 2017–2020, the amount of import of food and live animals to Poland was lower than after the re-election of B. Obama.

Table 11. Trade exchange of food and live animals between Poland and the United States in the years 2009–2016 and 2017–2020

Time frame	The sitting President of the United States	Import (in thousands of USD)	Export (in thousands of USD)
2009–2012	Barack Obama	735682	814109
2013–2016	Barack Obama	980366	1203513
2017–2020	Donald Trump	1059752	2044273

Source: GUS [2007–2021].

Table 12. Trade exchange of machines, devices, and transport equipment in 2009–2016 and 2017–2020

Time frame	The sitting President of the United States	Import (in thousands of USD)	Export (in thousands of USD)
2009–2012	Barack Obama	7737213	6237558
2013–2016	Barack Obama	10977940	9570078
2017–2020	Donald Trump	14968378	15509460

Source: GUS [2007–2021].

In the foreign policy of the USA and Poland, one can notice asymmetrical relations between the entities, due to the decisive position of the United States in the world and the marginal position of the Republic of Poland. Relations between countries are also determined by the economic situation of given countries, which in a given case is completely different. The influence of the American economy in the international arena is much greater, which results in weaker economic entities, such as Poland, being subordinated to stronger entities, such as the United States. The Polish and American authorities strive to jointly strengthen economic cooperation and show the links between Poland's foreign policy and the United States, leading to increased purchases of weapons and raw materials from the United States, especially energy resources (Kretek 2019).

In the second part of this article on socio-economic cooperation, you can see a positive image of the United States, which most often ranks first among the most positively perceived countries. President D. Trump also finished first in a poll of foreign politicians worthy of being named politician of the year. All data contained in the above-mentioned fragment create an outline of trust and positive relations between Poland and the United States. The reasons for this position of the majority of Polish citizens can be seen in the similar attitude of Americans and Poles towards the past and patriotic duties, the large Polish community in the USA, the brotherhood in arms of US and Polish citizens, common threats, etc. The policy towards Poland conducted during the D. Trump administration, which is reflected in numerous signed agreements important for Poland, proved the sensitivity of the American administration in this aspect.

One of the most important issues for ordinary Polish citizens was the criterion of having a visa to travel to the United States. After many years of efforts by the Polish authorities and verbal assurances from US presidents, on November 11, 2019, visa requirements for Polish citizens were abolished. The final decision to include Poland in the Visa Waiver Program was made

by D. Trump, who announced the abolition of visas during his election campaign preceding his presidency (Embassy of the Republic of Poland in Washington, DC 11.11.2019).

The date of the above event was not accidental, because November 11 is Poland's Independence Day. The American side, taking into account the importance of this day for the Polish nation, decided to choose this date symbolically. This decision was of a strategic and political nature due to the approaching end of D. Trump's term of office, and due to the upcoming election campaign and elections. In this way, the then president hoped to win the majority of votes from the electorate of Polish origin, which constitutes a large percentage of voters and the US society.

This was D. Trump's most important decision in terms of public cooperation, and the topic of visa waiver was discussed during the terms of presidents preceding D. Trump. However, it was not until many years later, with his decision, that the requirement was abolished.

Table 13. Assessment of the impact of Donald Trump's presidency on Polish-American relations of Poles in August 2021

The opinion of Polish respondents in August 2021	Percentage of respondents
Definitely favorable	18%
Rather favorable	29%
Neutral	23%
Rather unfavorable	18%
Definitely unfavorable	7%
I don't know, it's hard to say	5%

Source: PISM styczeń 2022.

The 2022 report of the Polish Institute of International Affairs contains information confirming the positive image of cooperation between Poland and the United States during the presidency of D. Trump, a year after his term ended. When Polish respondents were asked how they assessed the impact of Republican President D. Trump's presidency on Polish-American relations, 47% of respondents answered "definitely favorable" (18%) and "rather favorable" (29%), while 23% of respondents chose "neutral," "rather unfavorable" 18%, and "definitely unfavorable" 7% (PISM 2022: 22). This concludes that almost a half of Polish respondents saw the impact of Polish-American relations as positive, while only a quarter of respondent saw the impact as negative and almost a quarter of respondent perceived the impact as neutral.

Conclusion

To sum up, it is fair to say that it was during D. Trump's presidency that socio-economic cooperation developed very quickly. Trade exchange also increased and scientific and technical cooperation developed. Trade turnover increased compared to previous periods. Donald Trump was able to skillfully use the deep-seated sympathy of Poles for the American nation to achieve his goals. However, the decision to abolish the visa requirement for Poles was not convincing enough to win the vast majority of the Polish electorate in the autumn 2020 US presidential elections.

Based on the data collected and presented in all the tables in this article, the conclusion is that the Polish-American trade has intensified bringing profit to both international actors and there is a correlation between the increase in interactions between the governments of both countries during the presidency of D. Trump and the increase in trade between Poland and the USA. The prediction for 2021–2025 would be that if D. Trump won the elections in 2020, the outcome of trade would be double the amount of both terms of office of B. Obama. This is the result of a common interest shared between the two presidents, which led to deepening and strengthening cooperation.

As a result of many declarations, agreements, and contracts, such as the U.S.-Poland Joint Declaration on 5G and the Agreement on the Development of the Polish Nuclear Energy Program, the ties between Poland and the United States have tightened. In many surveys, Poles have indicated the importance of Polish-American relations, identifying the US as the biggest guarantor of Poland's security and the most important ally of Poland, and choosing President D. Trump as the foreign politician of the year. It seems that Polish-American cooperation in the socio-economic area under D. Trump's presidency was of great importance.

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Charakter zagrożeń dla bezpieczeństwa, przed którymi stoi Unia Europejska (UE), jest coraz bardziej złożony, wzajemnie powiązany i transgraniczny. W różnym stopniu wykraczają one poza granice geograficzne i biurokratyczne, jeszcze bardziej zacierając różnicę między bezpieczeństwem wewnętrznym i zewnętrznym. Jako podmiot głoszący wieloaspektowe i zintegrowane podejście do bezpieczeństwa w odniesieniu do kompleksowego zakresu instytucji i zdolności, przeformułowanie bezpieczeństwa UE jako powiązania wewnętrzno-zewnętrznego wpływa na nią na dwa sprzeczne sposoby. Połączenie bezpieczeństwa wewnętrznego i zewnętrznego daje UE możliwość skonsolidowania swojej odrębności i zapewnienia wartości dodanej jako podmiotu bezpieczeństwa poprzez połączenie różnorodnych i rozległych (przynajmniej teoretycznie) instytucji i zdolności. Unia Europejska jest jedyną organizacją międzynarodową z potencjałem prawdziwie wielowymiarowego podejścia do wyzwań bezpieczeństwa. Kontinuum bezpieczeństwa, choć wydaje się wymuszać koordynację i podnosić znaczenie bardziej zintegrowanego podejścia, stwarza również przeszkody. Należą do nich głównie kwestie biurokratyczne potęgujące tarcia towarzyszące walce o wpływy toczonej przez różne frakcje polityczne. Problemy te oddziałują na postrzeganie odrębności i legitymizacji UE jako gwaranta bezpieczeństwa, stawiając jednocześnie znaczące znaki zapytania co do jej wartości dodanej dla państw członkowskich.

Z biurokratycznego punktu widzenia reakcje UE zostały ukształtowane przez jej aspiracje do bardziej kompleksowego, a ostatnio zintegrowanego podejścia do konfliktów i kryzysów. Pierwsze z nich miało na celu wielowymiarową reakcję poprzez spójne wykorzystanie wszystkich odpowiednich polityk i instrumentów pozostających w dyspozycji UE.



Podejście zintegrowane rozszerzyło powyższe ujęcie o następujące podejścia: (a) wielofazowe, działające na wszystkich etapach konfliktu lub kryzysu – od zapobiegania do pojednania i transformacji po zakończeniu konfliktu, (b) wielopoziomowe, działające od poziomu lokalnego do globalnego, (c) wielostronne, współpracujące z innymi krajami.

Zdaniem Alistaira J.K. Shepherd, autora książki *The EU Security Continuum. Blurring Internal and External Security*, UE powinna teraz wprowadzić zmianę w sposobie myślenia i praktykach, aby opracować konsekwentnie „połączone” podejście, oparte na „kulturze koordynacji” między podmiotami i instrumentami bezpieczeństwa wewnętrznego i obrony zewnętrznej UE. W tym celu należy zająć się trzema kluczowymi kwestiami. Po pierwsze, państwa członkowskie muszą rozwinąć wolę polityczną, aby przezwyciężyć nie tylko swoją ciągłą wrażliwość na wykorzystywanie UE do wspierania krajowych polityk bezpieczeństwa, ale także niechęć do zapewnienia UE dodatkowych kompetencji, uprawnień decyzyjnych, informacji i zdolności do pełnego wdrożenia uzgodnionych polityk i działań. Po drugie, osobistości, instytucje i agencje UE powinny pokonać swój naturalny instynkt obrony „biurokratycznego terytorium” i skupiania się na własnych możliwościach instytucjonalnych, a zamiast tego zapewnić wspólne, wielonarodowe i wielowymiarowe podejście do bezpieczeństwa, do którego formalnie zobowiązały się jej państwa członkowskie, biorąc pod uwagę wartość dodaną wynikającą z możliwości korzystania z wiedzy specjalistycznej, zdolności i zasobów 27 państw. Po trzecie, trzeba, by UE wzmocniła swoją kompleksowość, aby spójnie i konsekwentnie wykorzystywać wszystkie dostępne jej instrumenty, a następnie wyjść poza tę koordynację w celu opracowania podejścia, które odpowiednio zintegrowałoby te zdolności, w tym cywilne.

W odniesieniu do wyzwania w zakresie bezpieczeństwa, jak trafnie zauważa Autor, najbliższym wyzwaniem transgranicznym pod względem charakteru zagrożenia i reakcji UE jest terroryzm. Charakteryzuje się on wysokim stopniem rozmycia geograficznego, średnim lub wysokim stopniem rozmycia biurokratycznego oraz średnim poziomem rozmycia funkcjonalnego, ponieważ więcej instrumentów jest wykorzystywanych w UE i poza nią, ale nadal raczej oddzielnie. Bezpieczeństwo cybernetyczne pozostaje, co nie powinno dziwić, najbardziej transnarodowym wyzwaniem dla bezpieczeństwa. Pokazuje średni poziom biurokratycznego rozmycia w zakresie wysiłków na rzecz wzajemnych połączeń między instytucjami w UE i poza nią oraz z sektorem prywatnym, ale z nadal widoczną fragmentacją,

podczas gdy rozmycie funkcjonalne jest stosunkowo niskie, zwłaszcza że elementy cywilne i wojskowe pozostają oddzielone.

Obawy i debata na temat zarządzania bezpieczeństwem w UE koncentrują się na dwóch kluczowych obszarach. Pierwszy z nich to zakres, w jakim architektura instytucjonalna i ustalenia dotyczące zarządzania bezpieczeństwem państw wspólnoty dostosowały się do zmieniającego się środowiska bezpieczeństwa oraz kontinuum bezpieczeństwa wewnętrznego i zewnętrznego. Drugi odnosi się do implikacji tych dostosowań instytucjonalnych i zarządczych dla odpowiedzialności, nadzoru i przejrzystości w kształtowaniu i wdrażaniu polityki bezpieczeństwa UE.

Praca A.J.K. Shepherd, pomimo miejscami zbyt obszernie prowadzonego wykładu, pozostaje interesująca i przydatna nie tylko dla znawców tematu, lecz także dla każdego czytelnika pragnącego poznać aktualny stan badań poświęconych szeroko pojętemu bezpieczeństwu.

**Sprawozdanie z IV Międzynarodowej Konferencji Naukowej
„Cybersecurity Threats Disinformation
in Contemporary Local Conflicts”
10 kwietnia 2024 roku**

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Dnia 10 kwietnia 2024 r. odbyła się IV Międzynarodowa Konferencja Naukowa „Cybersecurity Threats Disinformation in Contemporary Local Conflicts”. Organizatorami konferencji byli Katolicki Uniwersytet Lubelski Jana Pawła II (Instytut Nauk o Polityce i Administracji), Cybersecurity&Law Foundation oraz ITSTIME Italian Team for Security, Terroristic Issues & Managing Emergencies z Università Cattolica del Sacro Cuore z Mediolanu. Konferencja została zarejestrowana na platformie MS Teams.

Konferencja stanowi już czwartą odsłonę cyklu konferencji poświęconych dezinformacji. W tym roku tematem wiodącym była dezinformacja w świetle współczesnych, lokalnych konfliktów. Otwarcia konferencji dokonali: dr hab. Katarzyna Chałubińska-Jentkiewicz, prof. ASzWoj z Cybersecurity&Law Foundation, prof. Marco Lombardi z ITSTIME Italian Team for Security, Terroristic Issues & Managing Emergencies oraz dr hab. Beata Piskorska, prof. KUL – prorektor Katolickiego Uniwersytetu Lubelskiego Jana Pawła II.

W konferencji udział wzięło trzydziestu czterech badaczy dezinformacji reprezentujących wiele różnych ośrodków, zarówno akademickich, jak i tych ze świata biznesu, z ośmiu krajów: Polski, Włoch, Hiszpanii, Słowenii, Ukrainy, Republiki Czech, Izraela i Węgier. Głównym organizatorem konferencji była dr hab. Urszula Soler, prof. KUL, z Katedry Teorii Polityki i Studiów Wschodnich KUL.

Konferencja podzielona została na sześć paneli – każdy poświęcono innemu obszarowi związanemu z dezinformacją. Pierwszy panel „Building and Destroying Social Resilience” skoncentrowany został na problematyce powiązanej z zagadnieniami dotyczącymi społeczeństwa: Jak budować

społeczną odporność na dezinformację? Jak *fake news* i *deepfake* wpływają na odbiór naszej rzeczywistości? Jak te kwestie regulować prawnie? Jakie wyzwania związane z dezinformacją stoją przed współczesnymi społeczeństwami? Między innymi na te pytania starali się odpowiedzieć paneliści.

W drugim panelu „Significance of AI” główny ciężar położony został na wyzwania związane z rozwojem sztucznej inteligencji (ang. Artificial Intelligence – AI). Profesor Francesco Pira z Università degli Studi di Messina we Włoszech przedstawił główne formy nowych zagrożeń w sieci, których wpływ na odbiór informacji był następnie przedstawiany przez innych uczestników panelu. Sztuczna inteligencja staje się obecnie jednym z podstawowych problemów w przekazie informacji i w przyszłości stać się może zasadniczym narzędziem dezinformacji, które wymagają pilnych, prawnych regulacji.

Tematyka trzeciego oraz szóstego panelu „Russian Proxy War” skoncentrowana została na rosyjskiej inwazji na Ukrainę. W tym obszarze badacze podejmowali bardzo aktualne problemy związane z trwającą u naszych wschodnich sąsiadów wojną. Naukowcy z włoskiego centrum badawczego ITSTIME poddali analizie m.in. media społecznościowe, w tym Telegram. Podkreślano, że dezinformacja stanowi niezwykle istotny element wojny hybrydowej toczonej przez Rosję. Ponadto wskazano, iż strategia Federacji Rosyjskiej jest dalekofalowa, i w związku z tym omówiono niebezpieczeństwa z tym związane. Dużo uwagi poświęcono także zagadnieniu rozpoznawania z ogólnodostępnych źródeł (ang. Open Source Intelligence – OSINT) oraz dyskutowano nad sposobami walki z dezinformacją, podkreślając przy tym rolę Unii Europejskiej.

W czwartym panelu „Disinformation in Local Conflicts” badacze z Hiszpanii, Izraela, Włoch i Polski przedstawili rolę dezinformacji w najbardziej palących, bieżących międzynarodowych konfliktach, poddając refleksji myśl, czy istnieje sposób, by zmniejszyć zagrożenia związane z tym zjawiskiem i zniwelować ich wpływ na fizyczny przebieg samych konfliktów. Podkreślano, iż wnioski wyciągnięte z sytuacji w jednych krajach powinny być wykorzystane w innych. Dyskusje toczne w ramach tego panelu wzbudziły wiele naukowych emocji, dlatego rozmowy kontynuowano także później.

Piąty panel „Current Information Security Challenges”, niejako podsumowujący konferencję, poświęcony został bieżącym wyzwaniom bezpieczeństwa informacji. Analizie poddane zostały media i AI, a także omówiono wizualną warstwę dezinformacji, nie mniej istotną w przekazie dezinformacyjnym.

Przedstawiono także badania dotyczące wpływu dezinformacji na społeczeństwa na przykładzie Polski, jak i wiele uwagi poświęcono osobom starszym, o których często zapomina się w dyskusjach o walce z dezinformacją.

Konferencja co roku wzbudza coraz większe zainteresowanie badaczy z całego świata. Jej forma online pozwala na uczestnictwo w niej z każdego miejsca na Ziemi, a niezwykle aktualna tematyka skłania do refleksji. Wniośki płynące z IV Międzynarodowej Konferencji Naukowej „Cybersecurity Threats Disinformation in Contemporary Local Conflicts” nie są optymistyczne. Dezinformacja jest wszechobecna i dotyka coraz wrażliwszych aspektów ludzkiego życia, jak zdrowie czy bezpieczeństwo. Intensywne badania nad nią są niezwykle istotne w XXI w., a walka z nią powinna się stać głównym celem rządów wszystkich krajów. Jak jednak pokazuje praktyka, tak nie jest. Dlatego jakże istotna jest rola badaczy i popularyzatorów w tym, by w sposób efektywny i skuteczny docierać do różnych grup społecznych, tworząc społeczeństwa odporniejsze i silniejsze, a tym samym bezpieczniejsze.

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