

## 2. NONMILITARY SECURITY

# RELATIONAL CAPITAL IN POLISH DEFENCE INDUSTRY

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### ABSTRACT

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Relational capital is one of vital intangible assets of any organization. It helps the organization to navigate in competitive business environment and increases chances of success. Relational capital is important for defence industry as it contributes to its objectives. But more important is the link between relational capital of defence industry and national security. The article discusses issues related to development and maintaining relational capital in Polish defence industry. Author's critical assessment of challenges and opportunities tied to relational capital in Polish defence industry are offered.

### KEY WORDS

Defence industry, relational capital, Poland, national security.

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## Introduction

The Polish defence industry is the sector of economy which is the most closely inter-linked with the structures and the policy of the state bodies due to the fact that this is the technical base and a vital element of the state defence system. The relational capital of the armament sector entails the array of network relations between the defence or armament industry and the military (as the recipient of its products), the industry and the cooperating organizations (supplying semi-finished goods), the industry and foreign organizations, the industry and foreign states, as well as the industry and the society or the industry and the science-research-development centres. Thus, the military equipment should provide for the proper position and the possibility of operation for the armed forces at the time

of peace and menace. The government's policy towards its own defence industry should stem from a consistent defence policy based on an obvious relation between the up-to-date technical equipment of the army and the development of the national industry production.

Thus, it is vital to adopt a diligent and careful approach to the issue of relational capital with the awareness of its meaning, role, and the ways of its fashioning as the element of organization's intellectual capital.

The article aims at presenting how vital it is to build coherent relations and skilful management of knowledge stemming from the possessed relational capital in the armament sector in order to modernize the Polish Armed Forces and to create a modern army of the future in accordance with

the requirements of the economy based on knowledge.

## 1. European armament sector as a background of operations in Poland

Relational capital and knowledge about contractors constitute an extremely important intangible asset as the element of intellectual capital of each unit, organization or a country. The creation and fashioning of relational capital should be perceived as a natural role of any organization which functions in the surrounding environment and cooperates with one another in the form of interaction. The care of relations, of their quality, stability, and reliability is able to strengthen its position in the environment among other players on the market. The building of economic relations and their fashioning increases the organization's flexibility, and this exerts a significant influence on the increase of competitiveness through effective utilization of resources, faster identification and taking advantage of the emerging market opportunities (Perechuda, Chomiak-Orsa, 2013, 308). The focus is here put not only on commercial organizations but also on public organizations, non-profit entities or the states themselves.

Relational capital, as it has been mentioned earlier, entails building relations with contractors, customers, and other units with whom the cooperation already exists or is planned, taking care of the relations, their quality based on reliability, trust, and loyalty, constancy of rules and reciprocal realization of the signed contracts as well as meeting the mutual expectations. This is also a diligent and skilful practical application of the knowledge gained about customers in order to meet their needs to the greatest extent at the same time making them reliant on us for as long as possible. A diligent care of the inter-organizational

relations creates a network of cooperation, agreement, and when the network is strong and stable it attracts new units to cooperate, and relational capital with partners on the market is getting more and more extensive. Additionally, an efficient management of knowledge concerning the cooperating units allows sometimes to predict their behaviour or needs and be prepared for different scenarios of the market reality. It is worth to stress that the development of relational capital is not fully possible without the engagement into the creation of intellectual capital, care of its every element and treating them as integral and co-dependent resources, perceiving them from the systemic perspective.

Relational capital of companies of the armament sector, entails first of all identification of the needs of contractors, customers, and other stakeholders with the aim to fully meet their needs. This type of capital is also perceived as ability to satisfy the needs in the conditions of the economy based on knowledge, political, economic, and social conditioning. Relational capital focuses on familiarization with the intentions of a competitive organization as well as the conditioning of the domestic and foreign market. While building and maintaining relational capital it is important to understand the rules of law, procedures, as well as other regulations, and at the same time adapt to those rules. Relational capital in defence industry should contribute to proper management of human resources and the increase of the employees' intellectual potential. It should also reinforce activities aiming at the integration, strengthening, and increasing the value of organization's intellectual capital as well as abilities and qualifications in the scope of the realization of defence industry objectives, as well as of the tasks and goals set by the Ministry of National Defence. While discussing

relational capital one has to bear in mind also competencies of managers in the scope of establishing, building, sustaining, and extending relations with stakeholders. Finally, relation capital aims at taking care of already established relations, and maintaining them on a basis of trust, respect, stability, and reliability of cooperation.

In terms of relational capital, cooperation within the European community based on synergy effect and exchange of experiences is crucial. Cooperation in the European Union entails common goals, aspirations heading for the same direction, coordination of activities, and coherence of plans. Defence and security of the whole European community should be the priority. Presently, the USA is invariably the pattern to follow in terms of defence policy and armament sector, cooperation in the scope of companies and units building the industry, although Russia, Saudi Arabia, and China are gaining ground.

In the context of the discussed issue, it is worth to notice that in November 2016 the European Commission published a document including the directions of financial activities of the community in the perspective of the coming years. It entails activities in the scope of a plan for building new technical-defence capabilities of member states as well as new possibilities of the EU defence industry. The European Defence Action Plan puts emphasis on the role of the coherent offensive strategy of EU states. The aim is to concentrate the resources on multinational, technologically advanced defence projects, rebuilding the research-development and technical capabilities of the community. The so-far divergent interests of the EU member states, evident lack of cooperation nor coherent goals lead to the situation in which the funds possessed by each country were not used effectively (Łuczak, 2017). It seems

that Poland has a weaker position in the whole EU than other countries, but in reality it has unique abilities and capabilities (e.g. as the producer of automatic mortars, the producer of self-propelled howitzers or mine hunters, the producer of explosive materials, operationally used combat UAVs, the owner of a barrel manufacturing facility). With a skilful direction of its activity in the Alliance and management of the possessed knowledge concerning the planned projects and activities it is able to work out a privileged position.

In November 2017 Poland together with twenty two other European Union states signed agreement on the Permanent Structured Cooperation in the framework of the European Union. The goal is to achieve the synergy effect of the national defence industries through the mechanism of financing common research projects and armament programmes. The created European Defence Fund (EDF) is to become a decision-financial tool and a fit follower of the so called EDAP (Defence Action Plan). Still, remarkable changes in the field of defence in the EU are to be visible in the nearest fifteen to twenty years. Talks and decisions concerning the aforementioned undertakings are ongoing and are planned for Spring 2018. Then, the way of acting and administering the fund, as well as the mechanism of money distribution will attain the full force of an official regulation of the European Parliament and the EU Council in the form of the European Defence Industrial Development Programme (EDIDP) (Łuczak, 2017). Alongside with signing the declaration, the countries which decided to access the PESCO also took a substantive obligation concerning the building of defence programmes or undertaking foreign operations. According to experts in the armament branch starting the aforementioned Permanent Structured Cooperation

should lead to convergence between the strategic points of view and the industrial implications (EDA, 2017).

The overall cooperation inside any alliance is however a complex system of communicating vessels, and a successful capstone of the whole complex EU plan must be preceded by hard work within particular countries. Observing Polish activity in the scope of defence policy, the work should be strongly intensified and at the same time difficult. Without coordination and a clear common goals inside the country, no agreement with allies will be effective, and cooperation with the surrounding environment will be constricted, since the internal forces within the country will head for the opposite directions aiming at the realization of particularistic goals, at the same time failing to achieve understanding, a strong common ground.

### Companies of defence industry and relational capital

In the National Security Strategy of the Republic of Poland approved in 2014 attention is paid to the fact that it is necessary to strengthen competitiveness and innovation of the domestic defence industry as well as the interlinked scientific-research sector. Thus, the activities of both parties should concentrate on the creation of a high-quality production in accordance with the expectations of the Polish Armed Forces, as well as on the achievement of such level of competitiveness that would enable a partnership cooperation with European companies and the world armament concerns (SBN, 2014, p. 47). If it is not possible to develop a stable and strong position within the country, it will be even more difficult to achieve it outside the borders of Poland. Also the Strategic Defence Review 2016 takes it as a priority and emphasises how

important it is to equip the army with vehicles and weapons of the new generation, developed in cooperation with European partners as well as the creation of communications and command-support systems. In the time perspective up to year 2032, it is intended to equip the Polish army with the modern weapons, enhance the defence potential and provide new measures of radio-electronic warfare, improve the ability to run operations in cyberspace as well as to assure new supportive measures (SPO, 2016). The realization of all those plans and intentions requires undoubtedly close cooperation between the defence industry and other state institutions, organizations, research and development centres, as well as the units with innovative and prospective perception of the process of creating the state defence potential. The creation and fashioning of relational capital between the enumerated links of the market will require a lot of attention, diligence, intuition, as well as engagement. Still, this is the work which in the future intends to create the PGZ as an intelligent organization with effective knowledge management and one which will be the basis for the creation of a strong defence potential of Poland.

Prior to the consolidation of the armament sector the author carried out interviews among the chosen employees of the National Defence University (presently War Studies University) concerning the perception of a modern organization of the defence industry with reference to the requirements of the knowledge-based economy. An assumption has been made that the goal of an institution of the defence sector is to attain the status of a strong, competitive organization being able to compete with other European companies or even with those from beyond Europe. After the analysis of the obtained opinions, it can be assumed that an organization of defence industry, in the

context of the requirements of the 21<sup>st</sup> century, should be characterized by a number of specific features. Subject matter experts in general agree that defence industry companies should function in a way that is innovative and open on the market of new technology and related fields of science. They should be able to implement modern technological and managerial solutions, as well as constantly follow the changes and undertake activities on the defence market observed among the competitors or contractors. Defence industry companies should be inspired by other market players, and closely cooperate with the armed forces, analyze its needs. There is a strong requirement for defence industry companies to stay in touch with the state authorities, show care of the interests of their own sector and support it. According to subject matter experts the defence industry should possess, but at the same time constantly enrich the organizational forms of intelligence, and invest in the development of employees, train them, educate, and encourage to share the knowledge they possess or have gained. For the defence industry to develop its relational capital it is important to appreciate the knowledge of its employees and take into consideration their opinions as well as ideas in terms of modernization which facilitates the development of the company. Finally, defence industry companies should possess a well developed motivation system maximally adjusted to the needs of a given labour group. One has also to realize the need for defence industry companies to be characterized by a simple and logical organizational structure providing for an order and effective interpersonal communication.

As we discuss relational capital issues we need to take into consideration the fact that during the several years, the defence industry in Poland has undergone a spec-

tacular change. The question is whether we have today such an organization as presented above? Is there a lot of transformation except consolidation and structural as well as personal change and is the defence industry heading for a proper direction? On the basis of numerous observations one can draw a conclusion that there are none major, spectacular changes in this scope.

Still the Polska Grupa Zbrojeniowa (PGZ) emphasizes that it intends to become the leader of the development of the economy based on knowledge and reindustrialization (Defence 24, 2017). The statements of the representatives of the defence industry at the conference Public Management 2017 in Rynia included lofty slogans and references to the points of well-known and valuable concepts, but only known in theory. The results of the reality observations indicate that the changes are proceeded but very slowly and carefully and they are more described, discusses, and implemented in a formal manner (on paper) than in the real activities. During the aforementioned conference the representatives of the industry presented their ideas on how to improve the running, updating, and modernization of the Polish defence industry which involved talent management, project management, creating competence centres, ad hoc task teams. They also mentioned the need for the development of team work linked with brainstorming in order to generate ideas and share knowledge. However, it is still thought-provoking how much of it remains in the sphere of theory and wishful perception of their organizations as well as in the sphere of ambitious goals, and how much of it is realized? Relational capital is a delicate issue which requires constant monitoring and fashioning. In the context of the ongoing discussions there are some doubts concerning the capital's retention and keeping it at a proper level.

It should be emphasized that in the context of relational capital of the discussed environments, there are some limitations and deficiencies in the building and sustaining of relations. That in turn results in gaps observed in development, advancement, and the gained knowledge as well as in the gathered information. In a strategic document *The Strategy of Development of the National Security System of the Republic of Poland 2022* there is an emphasis put on the role of close cooperation with non-governmental organizations and other social partners. It is believed that it is necessary for the armed forces to recognize the potential of such organizations in more detail and treat them as partners in the execution of the common defence tasks. Additionally, the development of the state defence ability is hampered by a slender analytical background for the defence branch, which results a feeble flow of knowledge to the defence sphere. The most probable reason for that is a small number of expert centres which deal with the defence issues as well as seeing the defence area as a hermetic one (MON, SRSNB, 2013, p. 30). The above presented arguments prove the validity of the concerns expressed by the author about the future of relational capital in Polish defence industry.

When asked a question how to make the ideas and concepts of our homebred scientists got faster to the military in the form of new weapons or specialist equipment, the key officers from the discussed environment emphasize in their presentations that most of all there is a need to create an organization which would constitute a single functional pillar in the Ministry of National Defence and be responsible for everything starting from the idea, through its acquisition, implementation, up to its withdrawal. Moreover, the present system of financing the programmes and research projects, as

well as the development works concerning state defence and security by the national defence industry does not help to execute the tasks in an efficient and timely manner. The interlocutors reasonably stress the obvious fact that one of the basic issues to create a product which would meet the expectations of users is a direct contact with them and they immediately point to the fact that in Poland for many years the relations with the military and the representatives of the defence industry have been seriously limited by the rules of law (Borkowski at al. 2017, 14).

However, the awareness of the weight of relational potential render that some activities concerning cooperation with scientific centres are gradually introduced. In September 2017 a scientific consortium has been formed under the name "COP – Tradycja, Obronność" with the aim to support the defence industry. The contract concerning the matter was signed by the Rectors of Rzeszow University of Technology, Kielce University of Technology, as well as of Kazimierz Pulaski University of Technology and Humanities in Radom. The main objective of the consortium includes inter alia the exchange of experience, knowledge, and potential as well as cooperation in the process of the realization of scientific-research projects in the scope of military equipment production. At the same time, the PGZ signed an agreement on the cooperation in the scope research, development, and the realization of projects in the sphere of defence with the Military University of Technology and the Military Institute of Armament Technology. The agreement on cooperation with the Polska Grupa Zbrojeniowa has been signed by another eight universities including the War Studies University. If it comes to the War Studies University, except the analysis of the scope and direction of innovative technologies'

development, the staff of the University will also share with the specialists of PGZ their experiences concerning inter alia software supporting the command and control with particular attention paid to the solutions devoted to the Territorial Defence Force. The Secretary of State in the Ministry of National Defence Bartosz Kownacki aptly noticed in his speech that *a good cooperation between the industrial party, in this case Polska Grupa Zbrojeniowa, and the scientific environment is a prerequisite without which the creation of the highest class armament is not possible*. This utterance clearly points to the necessity of sustaining, building, and fashioning of relational capital.

The Association of Entrepreneurs and Employers of the Defence Industry (ZPP-PO) (*Pl. Związek Przedsiębiorców i Pracodawców Przemysłu Obronnego*) believes that research and development works should be consistent with the possibilities of the industry and should be effect-oriented, and the positive completion of the development work should be inextricably linked with the promissory note concerning the order from the Polish Armed Forces. Of course, prior to the decision on the contest announcement concerning a given scientific-research project, a technical dialogue as well as a market diagnosis should take place. ZPPPO believes that the National Centre for Research and Development (NCRD) and the Inspectorate for Implementation of Innovative Defence Technologies (I3TO) of the Ministry of National Defence should jointly monitor the development works in the scope of defence, financed by the allied states, as well as financially support Polish companies interested in the participation in international projects.

In the Concept of Defence of the Republic of Poland there is a note that the system of acquisition and exploitation of the military equipment will be simplified, and the

procedure itself will be optimized. The analytical-conceptual stage will be shortened and the number of subjects involved in the process will be reduced. At the same time it will aim at the improvement of the equipments' exploitation management through the analysis of the whole lifecycle of its usage (MON, KORP, 2017, p. 57). The presented information allows to draw a conclusion that in the future relational capital will play a much bigger role than in the present situation.

It should be remembered that the acquisition of military equipment is not only about the choice of an offer that is the best on the basis of tactical and operational capabilities, but this is also a political and economic decision. The transfer of modern technologies as well as the bidders of the equipment into the Polish defence industry would be extremely vital in the process of its modernization. In some cases, a big part of works connected with the building of units could be done in our country, obviously with the participation and under the surveillance of a strategic partner (Ciastoń, 2017, p. 73). Undoubtedly, it would be a big opportunity for the development of Polish defence industry as well as for building valuable relations with foreign contractors.

For some time already, the experts of the Ministry of National Defence have been paying attention to the lack of technical-technological infrastructure which allows to move from the stage of a prototype, often at the highest world level, to batch production. Additionally, there is an organizational obstacle in the way of budget settlement in the defence ministry. Because of that a significant part of financial resources for technical modernization is unfortunately spent every year not on the purchase of the armament – in the physical meaning by acquiring new vehicles, weapons, planes, etc. but on a years-long development-implemen-

tion works, modernization of the old models, the purchase of ammunition, and even spare parts to the earlier bought systems, as well as more and more for the up-front money for weapons which have not been delivered yet (Bączyk, 2017, p. 39).

It is important to mention that in October 2017 the President of the Republic of Poland signed an act on the amendment of the act on the reconstruction and technical modernization of the Polish Armed Forces as well as of the act – Public Procurement Law. The head of the armed forces decided that Poland needs *more money for the modernization of the Polish army, its reconstruction, the increase of its strength in numbers. At the same time we need very good legal regulations so that we could realize our allied obligations in a transparent manner on the basis of well formulated rules of law.*

Analyzing the results of the global armament market, in the comparison of the incomes of one hundred biggest defence companies, the leading positions are mainly occupied by companies from the United States and Western Europe, but defence companies from Russia, the Republic of Korea, Japan, and Israel are also extremely important. It is worth to mention at this point that the USA has the biggest defence budget in the world, and Pentagon places the biggest orders for goods and services. Some long-term contracts are worth tens of billions of dollars and provide the suppliers with high income for years. For that reason, the American market is important for many foreign companies, and especially for the European and Israeli ones. At the same time the USA is the biggest global exporter of goods and services in the defence branch. As a result of that, 42 US companies are placed on the list among the first one hundred companies (Wróbel, 2017, p. 32). The biggest recipient of special products from Poland is the USA (152,5

mln Euro), other very important recipients include the United Arab Emirates, Jordan, Spain, Algeria and Canada. The number and diversity of defence companies with whom Poland cooperates is another argument pointing to the role of relational capital in the Polish defence industry. Still, looking at the plans, settlements, and objectives, thus, comparing the value of the issued export permissions and the real value of export it can be noticed that there are significant differences – to the disadvantage of their real realization in the amount of a few or several dozens of millions of euro. The Ministry of Foreign Affairs believes that the differences can be partly connected with the relocation of the contracts for the next calendar year (Łuczak, Likowski, 2017, p. 62). However, it is thought-provoking what percentage of the unrealized projects results from the lack of proper talks, failure to keep up the relations or crave for orders – in other words incompetent management of relational capital and the management of an organization aiming at an ambitious, aforementioned goal to function in the knowledge-based economy.

Based on the outcomes of the observation of the defence market, the PGZ's activities, as well as the cognitive effects attained in interviews and broad commentaries concerning the topic issues, it is clearly visible that there is lack of cooperation between units of the Ministry of National Defence, the defence industry, and all participants of the market (science, research, development ones, etc). There are a lot of proposals how to improve the state of affairs, a lot of tasks which are planned for the future, a lot of ambitious goals to be achieved, however, many groups feel and notice that there is no strive for agreements, striking cooperation, and seeking ways to find a common accommodating solution.



It is worth noticing that the efforts for the benefit of changes in the defence sector can make the Polish defence industry highly competitive on the international market. Positive aspects of changes are looming in an article on the activities of the Ministry of National Defence within the last two years (MON, 2017). It is also advised to look into the report of NCSS: Security and Competitiveness – recommendations for the Polish defence industry strategy of year 2016 (NCSS, 2016). The authors point to the trends in defence technology, identify the most auspicious branches of technology (e.g. photonics, information and telecommunication technologies (C4I), automatics, robotics, and mechatronics), they also provide some recommendations and suggestions for changes for the development of the Polish defence industry and the increase of export.

Thus, in the present situation we should believe that PGZ, as a matter of its declarations and the undertaken activities, will implement effective procedures for the fashioning of relational capital. As a proof for such thesis let us cite the words of the President of PGZ that *the concept of a technological leap, planned in the PGZ strategy, is mostly about proper usage of the possessed potential, but also about the development of new concepts so that our companies were ready for new challenges outstanding for them in the future* (Kaleta, 2016, n.p.).

## Conclusions

The ability to build, create and sustain relations based on mutual trust is the prerequisite for the development of any organization. Through such cooperation it is possible to exchange experiences, information, knowledge, and other resources, which brings bilateral benefits. This way, the whole organization and its individual mem-

bers can learn a lot and create higher organizational intelligence. However, in order for such activities to bring the aforementioned effects, they should be undertaken with the full awareness of the role of relational capital as the element of intellectual capital, which in turn, in the present market and social conditioning, is the main consolidated resource and is able to provide the organization with a long-term increase and strong market position as well as to form the basis for its transformation into an intelligent organization. The arguments gathered so far in the research process do not constitute the basis for ascertainment that relational capital of the defence industry is till now exploited according to the rules of an intelligent organization operating in the knowledge-based economy. Shaping the national armed forces according to the market conditioning and the allied arrangements into a model of the so called army of the future requires a lot of effort and engagement of not only people in the leadership of the sector, but also of a lot financial expenditure for the modernization of the army. However, it is impossible to attain that without care of relations with contractors as well as without possessed skills to sustain, extend, and strengthen them.

Relational capital is an important element of intellectual capital, whose creation and development is a prerequisite for success in a knowledge-based economy. The capital of the Polish defence industry companies is a unique and difficult asset to manage, because of its wide dependence and social, economic and political conditions. The paper tried to discuss the significance of building relations and creating the capital of the Polish defence industry for the modernization of the Armed Forces of the Republic of Poland and transforming the PGZ into an intelligent organization.

## References

- Bączyk R. Finansowanie modernizacji technicznej – iluzja i rzeczywistość in: RAPORT, Wojsko Technika Obronność 7/17.
- Ciastoń R., Czas na decyzję, „Orka” – program ważny nie tylko dla marynarki wojennej, Polska Zbrojna nr 9, październik 2017.
- European Defence, from a corporate view, Interview with Philippe Camus is CEO of Keynolt Inc. (earlier: Executive Director of EADS – Airbus France), Internet website: <http://www.escpeurope.eu/nc/media-news/news-newsletter/news-single/article/european-defence-from-a-corporate-view/>, accessed: December 2017.
- Kaleta W., Polska Grupa Zbrojeniowa przedstawia zwrotnicę. Cel: Najnowocześniejsze technologie, Internet website: [http://logistyka.wnp.pl/polska-grupa-zbrojeniowa-przestawia-zwrotnice-cel-najnowocześniejsze-technologie,306146\\_1\\_0\\_3.html](http://logistyka.wnp.pl/polska-grupa-zbrojeniowa-przestawia-zwrotnice-cel-najnowocześniejsze-technologie,306146_1_0_3.html), accessed: October 2017.
- Koncepcja Obronna Rzeczypospolitej Polskiej, MON 2017.
- Kozina A. (ed.), Wybrane problemy zarządzania relacjami w przedsiębiorstwie, Mfiles, Kraków 2015.
- Łuczak W. Fundusz nadziei zbrojeniowej Europy, Raport Wojsko Technika Obronność 11/2017, <http://www.altair.com.pl/>
- Łuczak W., Europa potrzebuje inwestycji, Raport Wojsko Technika Obronność 1/2017, <http://www.altair.com.pl/>
- Łuczak W., Likowski M., Jeszcze o polskim eksporcie specjalnym, [in:] RAPORT, Wojsko Technika Obronność 10/17
- Perechuda K, Chomiak-Orsa I., Znaczenie kapitału relacyjnego we współczesnych koncepcjach zarządzania, Prace i Materiały Wydziału Zarządzania Uniwersytetu Gdańskiego, Internet website: [http://www.pim.wzr.ug.edu.pl/pim/2013\\_4\\_2\\_23.pdf](http://www.pim.wzr.ug.edu.pl/pim/2013_4_2_23.pdf), accessed: August 2017.
- Raport Bezpieczeństwo i Konkurencyjność Rekomendacje Dotyczące Strategii Przemysłowo – Obronnej RP, Narodowe Centrum Studiów Strategicznych, 2016, Internet website: <http://www.ncss.org.pl/images/PDF/Raport-SPO.pdf>, accessed: October 2017.
- Strategia Bezpieczeństwa Narodowego RP 2014.
- Strategia rozwoju systemu bezpieczeństwa narodowego Rzeczypospolitej Polskiej 2022.
- Strategiczny Przegląd Obrony 2016, Prezentacja Pełnomocnika Ministra Obrony Narodowej Ds. Strategicznego Przeglądu Obronnego, Ministerstwo Obrony Narodowej.
- Wróbel T., Strategiczni gracze, Polska Zbrojna nr 9, wrzesień 2017,
- Z laboratorium na poligon, J. Borkowski, M. Sęk, H. Kowalczyk, Polska Zbrojna nr 9, wrzesień 2017.