

## The Defense Industry at the Beginning of the Twenty-first Century: A European Perspective

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### **Abstract**

The processes of internationalization and globalization are present across all fields of human activity, including arms production. Political and economic changes following the end of the Cold War have led to the increasingly globalized production of armaments and trade in weapons. Yet not all defense firms across all regions are poised to compete well in this environment. The trend towards globalization has been exploited by American arms manufacturers to the greatest possible extent, given that U.S. firms are among the most powerful and best prepared for operation on the global market. American arms manufacturers also make good use of critical support from the U.S. government, which perfectly understands the rules according to which the industry operates.

Recently, one can observe a rapid shift towards collective European defense research efforts and an integrated defense market. However, the capabilities of the European defense industry lag far behind those of the United States. It is worth remembering that the distance between Europe and the rest of the world is narrow. Finding a solution to the problem of globalization in the defense industry is of strategic importance for European companies. Without reform, Europe's defense industry will lose its ability to compete – a warning that holds particularly true for East European countries.

The situation faced by the Polish defense industry at the beginning of twenty-first century typifies the experience of other Central European countries. Until the end of the Cold War, the Polish defense industry ranked among the most powerful within the Eastern Block. However, after 1989, the situation changed. Owing to a number of factors (the collapse of the Warsaw Pact market, the advent of the new market economy, the shrinking global market on weapons, the lack of a cogent development strategy), the early 1990s proved extremely difficult for that industry in Poland.

This paper thus traces the development of the Polish defense industry in the post-Cold War period, with special emphasis on restructurization process and export possibilities.

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## **I. Introduction<sup>1</sup>**

Internationalization and globalization<sup>2</sup> are interpreted in diverse manners, referring to different areas of human activity, with various definitions that apply to politics, culture, and economics, for example. Scholars of internationalization and globalization have attempted not only to define these concepts, but also to analyze their various aspects – thereby presenting diverse and often contradictory views and interpretations.

Within the sphere of economics, for example, extremely different views on the subjects of internationalization and globalization exist. B. Rychnowski defines globalization as the entirety of the phenomena and processes related to the creation of the new socio-economic order, which is supposed to function based on the principle of maximum mobility and free flow of production factors (Pietrasiak and Mierzejewski 2010: 176). The globalization of the world economy is a process of expanding and strengthening the correlations between countries and regions as a result of increasing international flows and the activity of transnational corporations; this process, in turn, leads to new relations between companies, markets, and economies in terms of quality.

Regardless of differences in perceptions of internationalization and globalization, there is no doubt that, as processes, they occur with varying intensity in numerous areas of the global economy and the economies of individual countries. The nature and status in the international armaments industry provides a good illustration for this. In comparison to civil industries, the pace and course of internationalization of the industry is quite different. The internationalization of this industry proceeded significantly more slowly until a certain historical moment, which was brought about principally by political factors. The end of the Cold War became an impulse: inspiring thorough changes within the armaments market and accelerating its globalization. Naturally, not all countries were able to take advantage of the situation that was created at the beginning of the 1990s to the same extent, and this unequal state has been maintained virtually until today (Nawolski 2010).

The aim of this paper is to present the internationalization process of the European defense industry, its considerations and effects. It is also significant to compare the positions of individual countries in this field and their manner of functioning in the globalized twenty-first century.

## **II. The internationalization process for the armaments industry**

The second part of the nineteenth century brought about rapid developments in armaments production, resulting from the Industrial Revolution. The modern arms

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<sup>2</sup> In this paper both of the terms of internationalization and globalization are used. Globalization refers to a final stage of the process of internationalization.

industry owes its origins to that period. Yet despite the technological advances brought about by new manufacturing techniques, at the turn of both the nineteenth and twentieth centuries, armaments production was dominated by a small group of enterprises (e.g., Krupp and Vickers) that exported a large portion of their products.

After the end of World War I, arms production declined. Cartels – which divided the global market – were established in the interwar period. In the 1930s, companies such as Krupp, Ford, and Vickers participated in creating national armaments industries under state control. Turnover on the international armaments market increased, and international cooperation on armaments production began developing at that time. The World War II era once more brought about a significant increase in arms production. Trade in arms, in turn, occurred mainly among the Allied countries and those forming the so-called Axis.

After 1945, both arms production and trade were dominated by the U.S. and the Soviet Union. Both superpowers used the armaments industry as an instrument of foreign policy and as a point of competition, which was one of the characteristic features of the bipolar division of the world. This led to the arms race, which furthered the development of advanced military technologies. Cooperation within the scope of armaments production was also developed within each of the opposing blocks. Although these cooperative arrangements undoubtedly internationalized arms production to some extent, this type of internationalization was carried out under specific conditions. Both the Americans and the Russians controlled the extent and nature of the cooperation of their allies. This was particularly visible in the case of the Warsaw Pact countries.

The end of the Cold War brought with it significant political and economic changes, which transformed the image of both the armaments industry and the international trade in arms. The emergence of the Central European countries from Soviet influence, the liquidation of the Warsaw Pact, and the disintegration of the U.S.S.R. resulted in the United States remaining as the only superpower. As a result of the end of the arms race and the accompanying decrease in military threats, the demand for armaments fell. This caused greater competition among producers and exporters, and there was an observable increase in the costs related to the research and development of new armaments systems. It must also be noted that, in the 1990s, a new strong trend emerged within the arms production industry: armaments became a complex product and demand existed not for individual weapons, but entire weapons systems. These systems require not only greater integration, but also the incorporation of diverse mechanical, electronic, or optical equipment. Therefore, engineering entire weapons systems requires technological know-how across numerous areas of knowledge. Necessarily, there were higher costs involved for arms producers in developing such systems, but manufacturers also faced the need to employ foreign specialists and cooperate with entities from abroad to design such complex systems.

In the case of armaments production, two basic forms of internationalization can be observed within the industry (George 1998: 41-43):

- The first form involves cooperative plans carried out jointly by several countries (represented by national companies). In the case of these projects, each partner company is asked to share its resources – its technologies, funds, and material and human resources. This form of cooperation requires the establishment of appropriate cooperative relations, often melding different organizational cultures, and necessitates each partner's involvement in the operationalization of the plan. Given the challenges posed by these requirements, not all projects are successfully accomplished, and negative experiences may act as a certain barrier against such a form of internationalization down the line.

In the case of European armaments companies, the kind of internationalization achieved by executing multinational projects has been guided by the creation of appropriate institutional bases. In 1995, the Western European Armaments Organisation (WEAO) was created, the aim of which was to coordinate the activities of member countries' armaments industries to execute common projects related to armaments production. In 2005, WEAO was replaced in function by the European Defence Agency, operating under the aegis and institutional structure of the European Union. The Organisation for Joint Armament Cooperation (OCCAR) also plays an important role currently; as an intergovernmental organization, it coordinates numerous armaments projects, such as the Airbus A400M transport aircraft, Boxer transporter, FREMM frigate, and Eurocopter Tiger attack helicopter.

It should also be noticed that actions of this type are related to the proceeding European integration process and the development of the common European Security and Defence Policy (ESDP). Its integration policy has enhanced further multinational cooperative efforts.

- The second type of internationalization applicable to the armaments industry involves business combinations (e.g., mutual holdings of shares, mergers, and acquisitions). This type requires greater commitment of companies' own resources, mainly in the form of capital. In multiple cases, political factors may constitute critical barriers to internationalization along these lines.

The example of the British company, Westland, provides an appropriate illustration. In the mid-1980s, Sikorsky, an American potentate in the helicopter production sector, was interested in acquiring Westland. However, a group of British politicians, whose leader was Defence Secretary Michael Heseltine, advocated instead for the sale of the Westland production plant to a European company. The dispute between the politicians led by Secretary Heseltine and the proponents of the company's sale to the Americans was so fierce that it ultimately saw the Defence Secretary dismissed from office.

Although such extreme situations are not typical, it should be remembered that the problems of the armaments sector are strongly tied up with national

security concerns, and for this reason, arms industry conflicts stir up strong reactions. Such a form of internationalization, however, has been successfully applied by American (e.g., Lockheed Martin, Boeing, and General Dynamics) and European (e.g., BAE Systems and Thales) arms producers, thus contributing to their globalization.

When evaluating the internationalization of the armaments sector, it is noted that the course of this process is largely influenced by two phenomena that deserve a more thorough analysis: privatization and concentration. These factors may be seen to influence and enhance internationalization and globalization processes, although they are not necessary conditions. The examples of Chinese and Swedish enterprises (and not only armaments-related ones) prove that entities that are owned by the state may also be active participants in the international market. It seems, however, that both privatization and consolidation facilitate internationalization and globalization.

### **III. Privatization of the armaments industry**

Despite the strong impact of states and their institutions on the operation of the armaments industry, private enterprises have always been present in this sector. Obviously, their numbers and roles vary within individual countries and with time. In the interwar period, private enterprises, such as Renault, Messerschmitt A.G., and Vickers-Armstrong, played a crucial role in the European armaments industry. With the onset of World War II, however, the role of the state in the industry expanded for the majority of countries.

After the end of World War II, the process of reducing the state's control over the armaments industry began in certain Western countries (particularly in America). In that period, numerous defense industry enterprises were transformed into private companies. At the same time, in some Western European countries (notably France and Great Britain), many enterprises producing military equipment were nationalized. A symptomatic example here was the Renault production plants, the internationalization of which represented a kind of a punishment for Germany's arms production in the period 1940-44. For political reasons, the nationalization of the armaments industry was widely carried out in the Central European countries (Czechoslovakia, Poland, Romania, and Hungary).

The privatization of arms manufacture was first accomplished in the U.S. during the early 1990s. This does not mean, however, that the state lost its control over this part of the economy. The research and development works financing system, the procedure of procurement for the American army, and the U.S. government's leadership role in organizing the international trade in arms still provide the possibility for the state to exercise strict control over the industry.

In Western Europe, the privatization of the armaments industry proceeded in a

different manner than in U.S. As was already mentioned, after 1945, nationalization activities, which were supposed to ensure greater control of the state over the arms sector, intensified in many countries. Nonetheless, in subsequent years, certain countries began the privatization of domestic armaments companies, and it was in Great Britain and Germany where such activities were carried out on the largest scale. Other leading European armaments producers (namely, France, Italy, and Spain) retained a significant portion of their respective armaments industries under strict state control. In the case of France, for example, the second half of the 1980s saw the participation of the state in the armaments sector increase to as much as 86% (Dussauge 1985: 16).

The change in the perception of the role of the state in the armaments sector by the Western European countries occurred only because of the prospect of production integration at the European level. This shift triggered privatization across the majority of the Western European countries. In the case of France, the main armaments groups were subjected to this process in the years 1998-99, with the French government still having large shares in the most crucial companies. In Italy of 1990, all armaments production plants (except those belonging to Fiat) were owned by the state. The privatization of the greatest armaments group – Finmeccanica – began in 1993. In Spain, the privatization of the armaments sector began at the end of the twentieth century; Spain's privatization was motivated by a desire to join the broader and internationalizing European armaments industry. As a result of these changes, at the beginning of the twenty-first century, private enterprises occupied the dominant position in the armaments sector in Europe.

The privatization process has also proceeded in other countries that act as key players on the international armaments market. The collapse of the Eastern Bloc proved to be a heavy blow for the Russian armaments industry, which found itself on the verge of bankruptcy. It was decided that the only rescue was to commence a process of through transformations and to reconstruct and restructure the armaments sector entirely. President Yeltsin's Decree No. 2096 of December 1993 created the basis for such restructuring, including privatization. Three categories of armaments enterprises were established (Sanchez-Andres 1998): companies under full state control, companies with the participation of private capital, but which remained under state control and fully privatized enterprises.

It was assumed that within several years, 75% of over 2,000 armaments production plants would be privatized. Although this level was not reached, the appearance of private capital in the sector was a breakthrough. It is beyond doubt that the most crucial enterprises still remain in the ownership of the state (for example, the largest private company, Irkut, is a member of the UAC group, which is under state control). It is worth adding that the Russian armaments industry has attracted foreign capital to an increasingly large extent. The first attempts to enter the Russian arms production market were made as early as the 1990s. EuroMil, a company established by the European group Eurocopter, and the largest Russian helicopter producer, the company Mil, may serve as a relevant example here. Another example is the Indian and Russian joint-venture company Brahmos, which operates in the rocket missile segment. Recently, large European

armaments groups, the French Thales (among others), have shown interest in the Russian market.

Privatization processes have also been undertaken in countries of lesser global significance within the armaments industry, such as the Czech Republic, Poland, and Hungary. Despite the fact that in Poland's case privatization did not produce the expected effects, privatization activities did influence the internationalization of the domestic armaments industry. However, the price of Eastern European privatization efforts generally appears to be high: in the form of the bankruptcy of numerous enterprises and the decrease in the production volume of the entities which survived.

It bears mention that some countries approach the privatization of the armaments industry at great distance. China is such an example. Virtually the whole armaments industry in this country is owned by the state. Even if Chinese armaments groups establish companies, they are controlled by the state. Actions within the 863 Program are characteristic of this approach to privatization. The program that was founded by Chinese government intended to stimulate the development of advanced technologies and had encouraged greater participation of private companies operating mainly in IT sector in military projects. (*National High-Tech R&D Program* 2010; Nazarov 2009). However, it is currently difficult to foresee how the process of privatization Chinese defense industry will proceed.

#### **IV. Consolidation of the armaments industry**

Numerous authors rightly observe that the consolidations of individual national industries may be treated as an introduction to the internationalization of armaments production. The consolidation processes presently underway stretch beyond national borders.

The consolidation of European armaments enterprises began as early as in the 1960s. This phenomenon was most visible in the case of British, French, and German aviation companies. In the early 1960s, there were merely three enterprises active in aircraft production in Great Britain: British Aircraft Corporation, Hawker Siddeley Group, and Westland Helicopters. The following years witnessed consolidation in other countries (such as in Italy, the Netherlands, and Switzerland) and in other production areas (such as the shipbuilding industry and among companies producing equipment for ground forces). However, it was not before the late 1990s when a reorganization of the sector on a pan-European scale began. This was also an impulse for consolidation beyond the borders of individual countries. Such actions were aimed at ensuring that European companies could enjoy an appropriately strong position and could compete on the global market.

The most important integration processes took place within aviation, since the largest armaments groups come from this branch of production. In late 1998, six major European companies from this sector – the French Aerospatiale and Matra, the British

BAe, the German DASA, the Italian Finmeccanica, and the Swedish Saab – suggested the establishment of an integrated group, which was to be called EADC (European Aeronautic Defence and Space Company). However, due to significant discrepancies between the companies, the project was not launched. Therefore, the two largest companies, BAe and Aerospatiale, started to search for partners among other companies in order to boost their competitive advantage in Europe. DASA was the most desired partner. As a result of negotiations, the German company agreed to merge with BAe. However, after both British and German governments approved the transaction, in January 1999, BAe bought out another British company, Marconi Electronic Systems, thus establishing BAE Systems. As a result of this acquisition, a merger with the British group became less appealing to the Germans, who soon withdrew. The German company then turned to the French group, Aerospatiale Matra. The new company – European Aeronautic, Defence and Space (EADS) – was established in October 1999, and in December, the Spanish company CASA joined it. In 2000, the group was joined also by the Italian company Finmeccanica (Zukrowska and Gracik 2006: 188-189).

Although these two European groups – BAE Systems and EADS – are believed to be competitors, the consolidation processes described above has also increased the multinational ties between armaments companies in Europe. This finding is mainly related to the projects that have been carried out jointly by both groups. The Tornado, Eurofighter, and Airbus aircraft ought to be enumerated as examples of such cross-group collaboration (Zukrowska and Gracik 2006: 189).

Consolidation has also dynamically proceeded among other enterprises producing vessels and their armaments and equipment. This process has been most visible with respect to Great Britain, Spain, the Netherlands, France, and Germany. France currently has two main shipyard companies (DCNS and CMN), which ensure self-sustainability with this respect. The largest armaments producer for the French navy is DCNS, a group established in 2007 as a result of business combination of the DCN arsenal and the shipyard companies belonging to the Thales group. On the British market, two enterprises are important players today: BAE Systems and Babcock International. In Germany, vessel production has been dominated by Thyssen Krupp Marine Systems AG. In Spain, the basic producer of equipment for the navy is Navantia. In the case of the Netherlands, after a rather unsuccessful consolidation attempt beginning in the early 1970s, only one vessel manufacturer has remained: Damen Schelde Naval Shipbuilding (European Shipbuilding Industry 2010; Niemiecki przemysl stoczniowy 2010).

In the 1990s, European multinational projects were carried out in the shipbuilding industry, but they played a smaller role in the overall consolidation process than in the aviation industry. The projects were mainly concerned with producing lighter equipment, in particular torpedo systems and missiles. In this area, France still cooperates with Germany, Sweden, and Spain.

One of the characteristic features of the consolidation of the armaments industry has been its so-called transatlantic dimension. The need for stronger military integration within NATO has forced the participating states to consider the compatibility of their



defense systems and to prevent the doubling of their efforts in the area of military technological and scientific research. Establishing closer connections between the armaments industries of the United States and Western Europe constitutes, a greater challenge than mere integration on the European continent, however.

The Americans were the first to carry out consolidation of the defense and aviation industries at the end of the twenties century. Such actions were possible because of its highly innovative economy, oriented toward improving its competitiveness. Other factors, such as the end of the Cold War and the resulting reduction of U.S. defense budgets, favored consolidation. The more so that such actions were supported by the Washington administration. In 1993, Deputy Defense Secretary William J. Perry explicitly advocated consolidation at a meeting with various representatives of the armaments industry. Since the statement took place during an official supper, it was affectionately dubbed “the last supper” (Bitzinger 2009: 17).

The main phase of American defense industry consolidation ended before 2000. The lack of consent to merge the Lockheed Martin and Northrop Grumman groups in 1997 was a signal indicating that consolidation had progressed far enough. As a result of this first round of consolidation, the number of the companies with strategic significance in U.S. arms production decreased from around 50 in the early 1980s, to just five a decade later. Renowned companies, such as General Motors, Ford, and McDonnell Douglas, withdrew from the armaments sector entirely or were acquired by other groups.

From the European point of view, strengthening cooperation with American companies has consistently been of strategic significance due to the fact that the American market is extremely large. Accordingly, some European groups (BAE Systems, Thales, and Finmeccanica) have actively acquired American companies. American groups, in turn, have shown a slightly weaker interest in the European market due to its much smaller demand potentials and its continuous and significant atomization into national markets.

Cooperation in executing joint ventures has been developing significantly better. Establishing relations of this type between the largest enterprises across the Atlantic has often been the result of cooperation between governments in a particular area. Notable partnerships include: Boeing and BAE Systems, Lockheed Martin and EADS, Northrop Grumman and EADS, as well as Raytheon and Thales. As a result of the cooperation between the latter entities, Thales Raytheon Systems – which integrates the production of anti-aircraft defense systems – was established as the first joint European-American project covering an entire segment of the market. Another crucial collaboration began when BAE Systems joined the American Joint Strike Fighter project in the beginning of the twenty-first century.

## V. Globalization of the armaments industry at the beginning of the twenty-first century

The changes that occurred after 1989 accelerated the internationalization of the armaments industry. It can be said today that arms production has become truly global. However, the term “globalization” itself is obviously interpreted in a variety of manners and provokes all manner of disputes and controversies accordingly. If this notion is taken to mean the most advanced form of internationalization, which signifies operation on the global market, it is worth contemplating which companies and which countries take the greatest advantage of the globalized armaments market. The issues related to the effects of this globalization process are also important.

The United States has undoubtedly been the greatest beneficiary of the globalization of the armaments market to date. This country perfectly exploits its position as the only superpower by dominating both in the production and sale of armaments. Globalization is also used to good effect by the largest American armaments groups, such as Lockheed Martin, Boeing, Raytheon, and L-3 Communications. Table 1 presents the 20 largest armaments companies in 2010. The position of a company in the ranking list is determined by its sales volume calculated in US\$ billions for that year. Seven American entities are to be found among the top ten largest armaments companies worldwide, and as many as 14 make the top twenty. At the beginning of the twenty-first century, the largest American armaments companies accounted for approximately 60% of global arms production (*SIPRI Yearbook 2010*: 254; Nowak 2011).

Table 1. Top 20 Arms-producing Companies in 2010

Rank	Company	Country	Arms sales [in USD m.]	Total sales [in USD m.]	Arms sales as % of total sales	Total profits [in USD m.]	Total employment [ in t.]
1.	Lockheed-Martin	USA	35.7	45.8	78	2.92	132.0
2.	BAE Systems	UK	32.9	34.6	95	1.67	98.2
3.	Boeing	USA	31.4	64.3	49	3.30	160.5
4.	Northrop Grumman	USA	28.1	34.6	81	2.05	117.1
5.	General Dynamics	USA	23.9	32.5	74	2.62	90.0
6.	Raytheon	USA	23.0	25.2	91	1.88	72.4
7.	EADS	Europe	16.4	60.6	27	0.73	121.7
8.	Finmeccanica	Italy	14.4	24.8	58	0.74	75.2
9.	L-3 Communications	USA	13.1	15.7	83	0.96	63.0
10.	United Technologies	USA	11.4	54.3	21	4.71	208.2

11.	Thales	France	9.9	17.4	57	0.06	63.7
12.	SAIC	USA	8.2	11.1	74	0.62	43.4
13.	Oshkosh Truck	USA	7.1	9.8	72	0.79	12.4
14.	Computer Sciences	USA	5.9	16.0	37	0.76	91.0
15.	Honeywell	USA	5.4	33.4	16	2.02	130.0
16.	Safran	France	4.8	14.52	34	0.67	54.3
17.	Rolls-Royce	UK	4.3	16.8	26	0.84	38.9
18.	General Electric	USA	4.3	150.2	2	11.64	287.0
19.	ITT Corporation	USA	4.0	11.0	36	0.65	40.0
20.	Almaz-Antei	Russia	3.9	4.43	89	0.02	88.7

Note: The table does not include Chinese companies, because of the lack of comparable and sufficiently accurate data.

Source: *SIPRI Yearbook 2012*: 251-256.

The strong performance of American groups is owing to two factors: first, their better preparation for operation on the global market than their competition (as was already mentioned, the consolidation and privatization processes in the American armaments industry ended earlier than in the case of European countries); and second, the active assistance they receive from state institutions. Despite the change of relations between U.S. armaments companies and the state, political decisions influence the operation of the sector to a large extent.

It must also be noted that entities related to the aviation industry play a crucial role among the leading American armaments producers. Such companies include Lockheed Martin, Boeing, Northrop Grumman, and Raytheon. The aviation industry stands as one of the most innovative branches of the modern economy, thus it wields significant influence within both the armaments industry and civil sectors of the economy.

Certain European armaments companies – BAE Systems, EADS, Finmeccanica, Thales, and Rolls-Royce – prove that there is space not only for the Americans on the global market. However, only the largest and the most efficiently managed entities successfully compete with their transatlantic counterparts. It needs to be added that the cause of the very good results obtained by the British BAE Systems resides in its strong position on the American market. This was possible due to the company's active investment policy geared towards acquiring American enterprises.

During recent years, Russian entities have been gaining an increasingly stronger position on the global armaments market. Although the armaments industry in this country has still been experiencing serious problems (mainly ones related to financing and organization), groups such as Almaz-Antei, United Aircraft Corporation (UAC), Tactical Missiles Corporation (KTRW), and Russian Helicopters have been increasingly stronger competitors for American and European companies due to the consolidation process.

Chinese companies are a big mystery on the global armaments market. The relevant literature provides merely single pieces of reliable information on the organizational structure and the operation of the Chinese armaments industry. Very frequently, only fragmentary information concerning individual enterprises is published. This makes it difficult to construct an overall image of the armaments industry in China. Due to the lack of reliable data related to sales volumes and the obtained profits, Chinese firms are not usually accounted for in the comprehensive global ranking lists of armaments companies. However, it more than probable that entities such as Aviation Industries of China (AVIC), China North Industries Group Corporation (NORINCO), and China State Shipbuilding Corporation (CSSC) have enormous potential. These are gigantic, state-controlled entities, employing hundreds of thousands of employees. The changes that China has introduced to date all aim to increase the competitiveness of its national armaments enterprises. Therefore, the fields of aviation production, rocket and astronautic equipment, ground armaments, the military shipbuilding industry, and nuclear energy are each assigned two entities, which are supposed to cooperate and compete with one another (Skulski 2008: 402). In more recent years, the Chinese have been mainly interested in building a strong presence at the regional level (in Asia and Africa, in particular). However, there is much evidence that in the near future they will show increasingly more interest in the global market. This is indicated by fact that the Chinese armaments industry has upgraded its offerings substantially, so as to target buyers beyond the Third World. The so-called J-20 stealth fighters (test flown in 2010) and J-31 (test flown in 2012) stealth fighters, may serve as examples here. This is an apparent signal that Chinese companies have been able to master even the most modern stealth technologies (with reduced radar visibility). The tender submitted by China's president Hu Jintao during his visit to the U.S. at the beginning of 2011 – consisting in supplying a president helicopter to the Americans (VXX program) and an advanced training airplane to the U.S. Air Force (T-X programme) – proves that the Chinese are more and more interested in the markets of the highly developed countries (Glowacki 2011).

Smaller companies operating in the armaments sector, which are concerned about maintaining their position, must prepare appropriate action strategies. This statement applies to entities such as those from Central-Eastern Europe, including Polish ones. By concentrating their resources, small enterprises may try to win a better competitive position with respect to the largest groups. Such concentration reduces the internal competitive struggle between companies from the same country, which usually leads to decreased development capacities (particularly in situations in which funds for research and development are limited). It should also be borne in mind that in the longer term, Polish enterprises may undergo consolidation with the Euro-Atlantic industry. This process will be advantageous only if the sector undergoes preliminary restructuring and consolidation. Actions in this direction have been undertaken in recent years, and a positive example of consolidation is the creation of two capital groups in the Polish defense industry. It is beyond all doubt that such actions were made too late (Nowak

2011; Jaworski 2006: 134-139). Early in 2013, the consolidation of the Polish defense industry faced another discussion. The proposed integration of all defense enterprises into one single national conglomerate was opposed by the idea of two large groups operating in parallel – with a separate “armoured holding” controlled by Huta Stalowa Wola S.A. (HSW) to counterbalance the position of Polski Holding Obronny holding (Rada, 2013). Finally in September 2013 Polish Prime Minister Donald Tusk announced creation of single national conglomerate under the name Polish Armaments Group (Konsolidacja, 2013).

The progressing internationalization of arms production and trade involves multiple threats, though, which may not be overlooked. They concern, above all, the uncontrolled spread of military technologies and arms trade irregularities. The globalization of the armaments industry has exposed serious gaps in all currently applicable regulations governing arms export, thereby sanctioning the sale of arms to organizations or groups that violate human rights and to countries subject to embargoes. This problem is addressed by the report “Arms without borders,” which reveals that companies from the EU, U.S., and Canada circumvent existing arms sale regulations and export components of weapons or have them manufactured abroad. Multiple armaments groups already have a global range; by contrast, applicable regulations do not. Therefore, it is possible that weapons reach regimes that violate human rights.

Currently two main gaps in law may be identified that allow armaments companies to legally circumvent the applicable regulations (Bron kontrolowana 2010):

- If weapons are prohibited to be sold in whole, it is possible to sell individual components thereof. EU member states, the U.S., and Canada refuse to sell attack helicopters to China, but at the same time the new Chinese Z-10 attack helicopters would not fly without the parts and technologies shared by the following companies: Augusta Westland, Pratt & Whitney Canada, and Eurocopter. AH-64 Apache helicopters, used by Israel during the Lebanon crisis, for example, are composed of thousands of elements manufactured around the world – including in Great Britain, the Netherlands, and Ireland. According to the Code of Conduct of the European Union as to the export of weapons, such countries should refuse to export such parts directly to Israel.
- If it is prohibited to sell weapons from one’s own country, the transaction may be carried out from another country. In May 2006, governmental security forces opened fire on demonstrators while suppressing riots in Uzbekistan, killing hundreds of people. During that massacre, Land Rover military vehicles were used, built 75% from British parts. The structural components for those vehicles were first sent to Turkey, where they were subsequently assembled and adapted for military purposes. Finished vehicles were purchased by the Uzbekistani government. The British government had no control over the transaction since the vehicles were not assembled and adapted for military purposes in United Kingdom itself.

It goes without saying that the currently applicable legal regulations do not sufficiently regulate the operation of the global weapons market. Many existing gaps in law can be relatively easily exploited in this age of the globalized armaments industry. In addition, regulations pertaining to dual use technologies are debatable. If, in the case of weapons of mass destruction, the weapons are appropriately constructed under observation, then the situation with respect to conventional weapons is totally different. Therefore, it seems necessary to prepare a completely new international treaty that regulates the issues related to both arms production and trade. This is in the interest of all people, except for armaments manufacturers and exporters. The opposition of these latter has resulted in the very slow progress made on the Arms Trade Treaty.

## **VI. The Polish defense industry at the beginning of the twenty-first century: a case study**

The situation faced by the Polish arms industry at the beginning of the twenty-first century provides a good illustration of comparable situations across the Central European countries. Up until the end of the Cold War, the Polish defense industry ranked among the most powerful within the Communist bloc. Poland was a leading producer of military vehicles (tanks and armored transporters), aviation equipment (helicopters and transport and combat aircraft), ships, small arms, and light weapons. After 1989, four factors dampened the long-term perspectives of the Polish arms industry: first, the collapse of the Warsaw Pact market; second, the advent of the new market economy in the region; third, the shrinking global arms market in the post-Cold War era; and finally, the lack of a cogent development strategy for the Polish defense industry. As a result, the beginning of the 1990s was extremely difficult for that branch of Polish industry.

The last 20 years have left deep marks upon the Polish arms industry, which has undergone extensive restructuring due to drastic reduction of military procurement<sup>3</sup>. The shipbuilding industry suffered the worst and was indeed almost wiped-out, but army and air force suppliers survived – barely – by undergoing ownership changes or by being incorporated into larger state-owned holding companies. Despite these intense challenges, still more than 20,000 people are presently employed in Polish defense-affiliated companies – despite the fact that Polish Army procurement, for a long time, ceased to be these companies' sole or main source of income.

At the beginning of the twenty-first century, Polish governments were implementing a series of reorganization plans, written into subsequent restructuring strategies, for 2002-2005 and then 2007-2012. These strategies were mostly successfully implemented, and they have shaped the current landscape of the Polish defense industry. Nowadays the defense sector may be divided into four basic segments (*Polish Defence Yearbook 2012*:

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<sup>3</sup> It is worth to consider that the Polish Army has shrunk fourfold over this period.

18):

- state-owned companies under the umbrella of the national holding company;
- state-owned companies outside holding, slated to remain state property;
- state-owned companies slated for privatization; and
- private-owned companies.

The defense industry in Poland is now composed of over 100 companies, offering products and services, or dealing in defense products, to cater to the security and military needs of the state. Cooperating with these companies is almost another 100 companies required to meet specific demands of the law governing trade in Armament and Military Equipment (A&ME). Of the state-owned companies, most belong to the national holdings.

The largest Polish defense company is Polski Holding Obronny (Polish Defense Holding; earlier known as Bumar Group). This group offers wide assortment of military products (small arms and light weapons, military electronics, military vehicles, ammunition) and is shared into four capital sub-units or “product divisions”: Bumar Amunicja (Bumar Ammunition), Bumar Zolnierz (Bumar Soldier), Bumar Elektronika (Bumar Electronics), and Bumar Lad (Bumar Land). Each of these divisions is organized around a nucleus, or “leading entity,” and is mostly the foremost company in any given area of Polish arms production.

Among the second group, companies which are part of state-owned holding companies, are those connected with Agencja Rozwoju Przemyslu S.A. (Industrial Development Agency S.A.). The most important component of this group is Huta Stalowa Wola S.A.

A separate group within the Polish defense industry consist of the Wojskowe Przedsiębiorstwa Remontowo-Produkcyjne (Military Repair and Manufacturing Plants), owned by the Ministry of National Defence. This segment is made up of 11 plants employing roughly 3,500 workers, and it plays an important role still in maintaining the material readiness of the Polish Army<sup>4</sup>.

The Polish defense industry is still mostly state-owned. Foreign capital has taken over a relatively limited number of Polish companies, mostly in the aerospace industry. Examples of foreign arms companies active on the Polish market are: EADS, Agusta Westland, Sikorsky Corporation, and Pratt & Whitney. Despite the ongoing presence of state-owned entities, the last two decades have seen the entrance of a brand new player into the Polish defense sector scene: independent, privately owned domestic manufacturers. These are mostly small and medium-sized companies, offering highly specialized high-tech products. Among the most active are DGT, W.B Electronics S.A,

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<sup>4</sup> As mentioned before, in September 2013 the Polish government started consolidating its defense industry by creating the Polish Armaments Group. This new group will bring together state-owned companies, including Huta Stalowa Wola, Polish Defense Holding and Wojskowe Przedsiębiorstwa Remontowo-Produkcyjne.

TELDAT, AMZ Kutno, and Szczesniak.

After 1989, Poland lost its position on the international armaments market. In the 1980s, Poland had ranked among the top ten biggest arms exporters. However, in the twenty-first century, Poland's position has thus far been much lower. From 2006-2010, Poland ranked seventeenth among global arms exporters (*SIPRI Yearbook 2011*: 302). The value of Polish arms exports over the period 2002-2010 can be estimated at about US\$ 300-400 million per year. The only exception to this occurred in 2009, when Polish arms export rose to US\$ 1,932 billion (see Table 2). The main recipients of Polish military products and services are the following countries: the U.S., Canada, India, Malaysia, Algeria, Denmark, Norway, Italy, Vietnam, and Great Britain. To improve arms export, in mid-2012, the Polish government inaugurated a new program promoting the military products of the Polish defense industry. It is a fitting step, but its results will be appreciable only in the future.

Table 2. Polish Arms Exports 2002-2010

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010
Value (in m. of US \$, in 2009 prices)	95	241	371	396	367	406	537	1932	457

Source: Export values based on statistics provided by the Polish Ministry of Foreign Affairs.

The future of the Polish defense industry clearly is tied to that of the European arms industry. The problem for Poland, however, is how to find and occupy the most profitable position – not as a subcontractor, but as an active participant in European armament programs and projects.

## VII. Conclusions

The changes brought about by the end of the Cold War have furthered the globalization of arms production and the weapons trade. Those changes have, to the greatest extent, been exploited by the American armaments groups. U.S. firms have been the most powerful and best prepared for operation on the global market. These companies also make good use of the support of the American administration, which perfectly understands the rules according to which the industry operates.

Only the largest Western European groups can presently compete with the Americans on the global market. It seems that Europe does not use its potential in this respect, because it should be noted that the European armaments companies are internationalized to a greater extent than their American competitors, in particular with respect to advanced forms of international cooperation, such as creating subsidiaries and branches abroad and acquiring foreign enterprises. Three European groups, BAE Systems, EADS, and Thales, have been exceptionally active and successful in this area.



The future of minor entities, both in Western and Central Europe, does not look quite so bright. Their fate is tied to their ability to become involved in the nascent trans-European armaments industry. When acting in isolation and without coordination, they will lose the chance even to supply their own armies. For the rule “big is beautiful” is unconditionally true with respect to the armaments market.

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