Defense industrial bases (DIB) in six small NATO post-communist countries

Bohuslav Pernica, Jaroslav Dvorak, Zsolt Lazar, Balázs Taksás, and Alex Maskalík

Bohuslav Pernica is Senior Lecturer at the University of Pardubice, Pardubice, Czechia and may be best reached at bohuslav.pernica@upce.cz. Jaroslav Dvorak is full Professor at Klaipėda University, Klaipeda, Lithuania and may be best reached at jaroslav.dvorak@ku.lt. Zsolt Lazar is Senior Research fellow at the Centre for Euro-Atlantic Integration and Democracy, Budapest, Hungary and may be best reached at zsoltlazar@zsoltlazar.se. Balázs Taksás is Senior Lecturer at the Ludovika University of Public Service, Budapest, Hungary and may be best reached at taksas.balazs@uni-nke.hu. Alex Maskalíkis Senior Researcher at the Institute of Military History (Ministry of Defense), Bratislava, Slovakia and may be best reached at maskalikalex@gmail.com.

Abstract

This article investigates the changes in the defense industrial base (DIB) of the small NATO post-communist countries: Czechia, Slovakia, Hungary, Lithuania, Latvia, and Estonia. It considers the historical development of their industries from the Soviet era and the developments caused by the Crimea and Ukraine conflicts. It finds that exports to the markets of the former communist Czechoslovakia continued for Czechia with the DIB owned and controlled by oligarchs—who have been able to leverage this power to influence defense policy. In Slovakia, the DIB is insignificant and mainly under the influence of Czechia. The Hungarian DIB is being redeveloped by the richest members of Hungarian society, through international joint ventures, with the aim of expanding exports. The DIBs of Estonia, Latvia, and Lithuania produce only what is needed by their national armed forces—which seems unlikely to change.

The Crimea crisis in 2014 and the Russo-Ukrainian war commenced in 2022 triggered the rapid modernization of the armed forces in many NATO countries. Small post-communist countries in the Baltic region (Lithuania, Latvia, Estonia) and in Central Europe (Czechia, Slovakia, Hungary) responded to Russian aggression by raising defense spending. As well as increasing demand for arms imports, this provided a stimulus for the development of domestic defense industrial bases (DIBs) in these countries. So far, little is known about what happened as the literature has dealt only with Western DIBs. Markowski *et al.* (2009) considered small NATO member nations in the West and found that they did not challenge the economic transition and collapse of their product markets and have integrated their defense industry within the European Union, e.g., Sweden[1], Belgium, and the Netherlands.[2] The Russian aggression may have encouraged DIBs in the post-communist European Union to cooperate yet more intensively across Europe.

This article provides an exploratory analysis of the changes that have taken place in the DIBs of these small post-communist countries. It considers the historical background and the functioning of national DIBs, with close attention to the structural features of the DIB in each country. A number of challenges exist, such as the lack of transparency of post-communist defense institutions and more limited access to essential data.[3] In addition, international sources are limited, for example the SIPRI collection of national reports on arms exports does not include Lithuania and Latvia, and the Hungarian report is only available in the Hungarian language. Czech and Slovak reports provide

1 Stenlas (2015, pp. 258–259)
2 Markowski et al. (2009, pp. 313–317)
3 As noted by Young (2017) and Transparency International (2015, 2020, 2022)

Vol. 18, No. 1 (2023) | doi:10.15355/epsj.18.1.53

detailed information, but based on the regulation of the arms trade introduced in Czechoslovakia.

The term *national DIB*[4] is taken to mean all companies and other legal entities organized in a national association of producers and traders of products and services for defense and security institutions (police, fire brigades, etc.); it also includes the national defense and security industry association, as a central entity lobbying for the interests of its members. An assessment of ownership and structure, status in the economy and society, relationship with the defense institution, and success of products provides valuable information and,, at the very least, a starting point for more detailed research.

Most of the literature deals with Western European countries and little is known about the evolution of the post-communist countries' Eastern European defense industrial bases (DIBs) and in light of the Ukraine conflict this does seem an oversight. An analysis of developments in Czechia, Slovakia, Estonia, Latvia and Lithuania and find considerable changes have taken place, with Czechia and Hungary the main players, focusing upon expansion of the defense industry, but with governance concerns. The DIBs of Estonia, Latvia, and Lithuania produce only what is needed by their national armed forces.

The next section provides some historical background, providing a picture of the DIBs during their time in the Eastern bloc. This is followed by an analysis of the changes that took place after the end of the Soviet Union. The next section considers more recent developments and issues of governance, influence, and corruption, followed by some consideration of prospects for the countries DIBs. Finally, some conclusions are presented.

Historical background

Lithuania, Latvia, Estonia, Czechia, Slovakia, and Hungary are small nations that before 1990 had national economies subservient to the military interests of the Soviet Union (USSR). These interests were dictated by three institutions. First, the Kremlin and the Soviet communist party via communist parties in the nations that were either integrated directly into the USSR (Lithuania, Latvia, Estonia) or which constituted the Soviet bloc (Czechoslovakia, Hungary) after the second world war. Second, the Council for Mutual Economic Assistance (1949–1991), an economic organization established by the USSR for the purposes of integration of centrally planned economies in the communist countries. Third, the Warsaw Pact (1955–1991), a defensive alliance established by the USSR in response to the enlargement of NATO in Europe after 1949.

The main center of power influencing the DIB in communist countries was the Supreme Defense Council of the USSR, which had "authority over the Party, the administration, the armed forces, and the whole of the Soviet Union and the Soviet bloc".[5] It was responsible for "the standardization, modernization, and normalization of weapons and all other technical military aspects of the Joint Armed Forces", as well as "for coordinating armament production planning and research and development (R&D) in the Warsaw Pact countries". Both bodies worked "in close cooperation with the Military-Industrial Commission of the Council for Mutual Economic Assistance (COMECON) and the Soviet Deputy Defense Minister for Armament."[6] The DIBs were assigned a specialization within COMECON[7] and produced Soviet weapons under license. They were allowed to develop new functionalities of Soviet weapons by means of national R&D and some (e.g., Czechia and Slovakia) served the USSR as auxiliary capacity.[8] Only military materiel which was vital to military readiness but not to imperial Soviet interests (e.g., battle dress, ammunition, etc.), and small weapons, could be developed and produced without Soviet surveillance.

These countries would have been the front line for conflict with NATO.[9] The Baltic countries hosted the Baltic

4 Markowski et al. (2009); Chovančík (2018); Reis (2021); Reis et al. (2022)
5 Sadykiewicz (1988a, p. 2)
6 ibid p. 13
7 Štaigl and Turza (2013a, 2013b)
8 Pernica (2020)
9 Sadykiewicz (1988b, p. 11)

Vol. 18, No. 1 (2023) | doi:10.15355/epsj.18.1.53

Military District, with 231,000 troops under the command of Soviet headquarters[10], and the Baltic fleet.[11] Czechoslovakia was to establish a national front by mobilization of its armed forces[12], and Hungary was to counterattack toward the Po Plain in Italy. The DIBs were supposed to support any offensive operation conducted by the Warsaw Pact nations with Soviet strategic military plans determining the production capacity of the national DIBs.

The Czechoslovakian DIB was a legacy of the Habsburg monarchy[13] and was further developed by democratic Czechoslovakia in 1918–1938[14], Nazi Germany (1939–1945), and communist Czechoslovakia (1948–1989). Production had been moved from the western part of Czechia to Slovakia as early as the 1930s in response to the threat of Nazi Germany[15]—this continued during the communist period with production of advanced military hardware continuing in Czechia. At the end of the 1980s, around 61% of Czechoslovakian weapons were produced in Slovakia, with 32% of national production for the Czechoslovak People's Army. Arms exports to other Warsaw Pact countries accounted for 52% of the total, with a further 17% to developing countries.[16] International trade with all military hardware and services was a monopoly of OMNIPOL, the state-owned foreign trade corporation.[17] The share of the defense industry in the economy as a whole peaked at 11% in 1987, but subsequently fell to 6% in 1990 due to the implementation of the Treaty of Conventional Forces in Europe.[18] At the end of the Cold War, 120,000–150,000 mainly Slovak workers lost their jobs with "the federal government only plan[ning] to assist 13 of 111 factories engaged in weapons production during their conversion process".[19]

Loyalty to the Soviet military-industrial complex was rewarded by lucrative COMECON projects. Czechoslovakia held a monopoly in the production of training aircraft, small aircraft (air taxis), cabin flight simulators, medium amphibious rope transporters, and tank periscopic lenses. Production of other items was done in cooperation with either Poland or Hungary. The basic production for the Slovak DIB was concentrated in 25 companies and all production of military electronics was shared with Hungary.[20] Czechoslovakia was also allowed to develop military applications for civil production, such as heavy lorries and radars. The breakup of Czechoslovakia in 1992 did not result in the collapse of the DIB in Czechia, despite their production chain being linked with the Slovakian DIB.

Hungary's losses at the end of world war I reduced its industrial strength and defense capabilities.[21] The DIB was re-developed in the second world war[22] when Hungary became a German ally[23] and in the early 1950s, when Hungary became a Soviet satellite. It saw a high rate of investment in heavy industry and the military[24], but the Hungarian Revolution of 1956 saw a significant reduction in the military program.[25] The DIB mainly supplied the military with hardware, such as cannons, truck components, etc. The only competitive sub-sector within COMECON was ICT. Furthermore, Hungary exported communication, signal, and electronic warfare equipment to non-Soviet Warsaw

10 Sadykiewicz (1987, p. vii)
11 Sadykiewicz (1988a, p. 15)
12 Sadykiewicz (1987, p. vii)
13 Jindra (2021)
14 Pavel (2004, 2006)
15 Zavadil (2021)
16 Szayna (1992, pp. 56–57)
17 Štaig and Turza (2013a)
18 Štaigl and Turza (2013b)
19 Szayna (1992, p. 56)
20 Štaigl and Turza (2013a)
21 Sadecki (2020)
22 Dombrády (2003)
23 Bíró et al. (2006)
24 Gunst (2002)
25 Germuska (2014)

Vol. 18, No. 1 (2023) | doi:10.15355/epsj.18.1.53

Pact members and third world countries, e.g., Libya, India, etc.[26] These capabilities vanished with the collapse of communism.[27] Although the Hungarian DIB employed 18,000 people in 1988, it had fallen to 1,900 by 1998.

Lithuania, Latvia, and Estonia depended upon military production from Great Britain, Germany, Sweden, and Czechoslovakia in the interwar period. They did strive to build up their national capacities for the production of vital military materiel, such as ammunition, mines, explosives, battle dress, gas masks, light weapons (under license), and armored vehicles[28] and Latvia produced aircraft for the national air force.[29] After the Soviet occupation in 1945, the capacities of the DIBs were integrated into the Soviet military-industrial complex whereby Lithuania and Latvia repaired tanks and warships, produced radio, electrical and telecommunication equipment, airplane black boxes, and listening devices, e.g., the chips installed in the communication hardware of the Soyuz spacecraft.[30]

Altogether, it is of note that the Soviet Union allocated only 3.7% of its DIB capacity to the Baltic states.[31]

Post Cold War developments

At the end of the Cold War (1990), the 1992 Treaty on Conventional Forces in Europe set national ceilings[32] for military hardware produced in the Warsaw Pact countries, as shown in Table 1. This affected sales for the mainly privatized DIBs in the countries under study and only the Czech DIB has continued the production it had developed earlier (with a significantly reduced market potential). NATO enlargement meant military equipment not produced in the country had to be replaced by equipment from NATO countries that were enemies during the Cold War.[33] Domestic production had to meet NATO standards while the size of the armed forces fell significantly under ceilings set by the 1992 treaty.[34]

Certain products became unmarketable due to market liberalization and the countries not being able to afford investment into national DIB development.[35] Some hope came with NATO enlargement (1999 and 2004), the global war against terrorism (2001–2021), and the Arab spring (2010–2022). Czech and Slovak DIBs could export refurbished military surpluses of Soviet equipment and supply post-communist NATO countries with traditional products, such as military training aircraft. While the NATO and European Union enlargements offered opportunities for regional cooperation with allies, they did not have an adequate R&D base for the development of complex military products, having only provided components and produced Soviet weapons under license. Since advanced military hardware had been produced in Czechia and was mainly a spin-off from civilian production, the Czech DIB managed to recover by the 1990s.[36] Military products developed and manufactured in communist Czechia until 1990 continued to be exported to the other post-communist countries. In contrast, the Baltic countries became recipients of military equipment manufactured in Western NATO countries.

Mass privatization of DIBs in the 1990s contributed to a rise in economic power of owners operating DIB entities and their power to affect national defense and security policy.[37] With the Russo-Ukrainian war, these oligarchs have gained significant control over military production in Central Europe. Across all of the countries, the ownership structure is mainly private and in production industries, as shown in Table 2.

26 ibid
27 Kiss (2014)
28 Pociūnas (1993); Vaičenonis (2000); Jokubauskas (2011)
29 Nõmm (2004)
30 Prikulis (1996)
31 Leanovich (2012)
32 Sharp (1993)
33 Pernica (2020)
34 Dvorak and Pernica (2021)
35 Kiss (1993); Štaigl and Turza (2013a, 2013b)
36 Pernica (2020)
37 Dvorak and Pernica (2021); Pernica and Ženka (2022)

Table 1: Conventional Forces in Europe (CFE) ceilings and equipment reported in 2014

		Tanks	*ACVs*	*APs*	*CAC*	*AHs*	*Manpower*
Czechia	**ceilings**	**957**	**1,367**	**2,262**	**230**	**50**	**93,333**
	2014	123	442	179	39	17	33,907
Slovakia	**ceilings**	**478**	**683**	**383**	**100**	**40**	**46,667**
	2014	30	319	67	18	12	15766
Hungary	**ceilings**	**835**	**1,700**	**840**	**180**	**108**	**100,000**
	2014	154	597	30	25	18	22,593
Lithuania	**ceilings**	**(184)**	**(1591)**	**(253)**	**(46)**	**(0)**	**16,400**
	2014	0	126	48	0	0	**10,950**
Latvia	**ceilings**	**(138)**	**(100)**	**(81)**	**(183)**	**(23)**	**5,310**
	2014	3	8	76	0	4	**5,310**
Estonia	**ceilings**	**(184)**	**(201)**	**(29)**	**(153)**	**(10)**	**5,750**
	2014	0	144	376	0	0	**5,750**

Sources: Sharp (1993, p. 471), IISS (2015).
Notes: ACVs: armored combat vehicles, Aps: artillery pieces, CAC: combat aircraft, AHs: attack helicopters. The ceilings in brackets for Lithuania, Latvia, and Estonia are not from the Treaty on Conventional Forces in Europe, but treaty-limited equipment declared on their territory in February 1991.

Table 2: The ownership and branch structure of the DIB, 2022

Country	*Private ownership*	*Public ownership (with state-owned entities)*	***Total***	*Producers*	*Dealers, Resellers, etc.*	*R&D (with state-owned entities)*
Czechia	118	8(7)	**126**	118	4	4(3)
Slovakia	40	8(5)	**48**	42	2	4(2)
Hungary	38	7(5)	**45**	43	2	0
Lithuania	58	6(3)	**64**	52	6	6(4)
Latvia	88	7(6)	**95**	82	7	6(5)
Estonia	125	3(1)	**128**	116	9	3(1)

Sources: Authors' own research based on national defense industry associations' home pages.
Notes: Private ownership means enterprises. Public means different actors such as institutes, universities, and state-owned companies (entities integrated into defense institutions). Producers include both industry and services. The table presents only the members of the national defense industry associations.

Vol. 18, No. 1 (2023) | doi:10.15355/epsj.18.1.53

While the core of the Czech DIB was developed from the Czechoslovakian DIB, some firms focus mainly on trade (Omnipol, Glomex) and are resellers of Western products. They often employ retired officials from the Ministry of Defense and General Staff officers who were involved in planning and procurement.[38] A distinct feature of the Czech DIB was that firms such as SAAB AB, Honeywell, and Siemens established joint ventures with Czech entities to gain access to Ministry of Defense tenders. The main domestic actor is the Czechoslovak Group (CSG), owned as a family business by billionaire M. Strnad, which recently expanded into the Western Europe.[39] Defense R&D is supported by the government and 64 of the 126 DIB members in Czechia have received some form of public R&D subsidy.[40] R&D in advanced military technologies is also linked with the employment of retired senior officers.[41] As well as these links, the Defense and Security Industry Association (DSIA) lists among its members the University of Defense (UOD) in Brno, an inherent part of the military sector. UOD hosts International Defense and Security Technologies (IDET) Fair conferences and provides academics and Ministry of Defense (MOD) staff to comment on policy. DSIA also includes CEVRO, a private academy, which offers a haven to retired members of the political and military elites. [42] Some of them are also official agents of American arms companies[43] and have a direct access to ministerial officials.[44] The involvement of national universities of defense is a legacy of communism, where military technical academies (one in Czechia and another in Slovakia) educated specialists for the defense industry in regions with high concentrations of defense industry enterprises.

Such an involvement of interest groups is less apparent in the Slovakian DIB, though the Security and Defense Industry Association of the Slovak Republic (SDIA) includes the national defense academy as well as public and private colleges. Firms focusing only on the arms trade in the SDIA are rare and many act as subcontractors to Czech companies. The Slovak DIB has a dependence on the Czech economy similar to that prior to 1992.[45]

The Hungarian DIB is small but ambitious. Before the Orbán government's defense reindustrialization program in 2015, four state-owned companies mainly provided outsourced services for the military. When launching the Defense Industrial Strategy in 2021, the government decided that the best course of action was to entice direct investments from conventional actors in the defense industry and form joint ventures with them.[46] The strategy calls for six clusters, each headed by a flagship company, including joint ventures (with Airbus, Rheinmetall), recent state acquisitions (Hirtenberger Defense), state domestic private companies (4iG), and Government-owned contractor-operated (GOCO) entities.[47] The strategy aims to integrate as many domestic enterprises into the clusters' value chains as possible.[48] The Defense Industry Association of Hungary is not an important actor of this reindustrialization plan, as these new flagship companies are not members of it (so they do not appear in Table 2).

As well as differing in size, the national DIBs also differ in their significance to the domestic economy and society. The Czech DIB makes the most significant contribution to national exports—however it is not state-of-the-art products but the refurbishment of tanks, armored personnel carriers (APCs), and artillery systems sold to national producers as military surplus in the 1990s and 2000s.[49] It is also not clear how important the companies are.

38 Frič and Pernica (2022)
39 ČTK (2022)
40 Štampach (2022)
41 Májek and Šlouf (2015); Constantinescu (2016)
42 Pernica (2018, p. 75)
43 Frič and Pernica (2022), CEVRO, presenting itself as the Centre of Transatlantic Relationship propagating NATO in Czechia, employed prime minister P. Nečas43 who was involved in a misuse of the Military Intelligence Service (Novotný, 2016).
44 Pernica (2018, p. 75)
45 For instance, there was a subsidy of Tatra national company in Bánovce and Bebravou where heavy military tracks were produced. CSG reestablished this production as Tatra Defense Slovakia in 2021. Adamowski (2021)
46 Notably from Germany, whose companies certainly welcome the much more permissive Hungarian weapons export policy.
47 Taksás and Hegedűs (2022)
48 Gosselin-Malo (2023)
49 Pernica (2020)

Vol. 18, No. 1 (2023) | doi:10.15355/epsj.18.1.53

Consultants Ernst &Young estimated that one CZK spent on defense with CSG generates CZK 2.8 for the national economy.[50] However this evidence is open to question as CSG benefited from the wars in Iraq and Ukraine by selling surplus Czechoslovakian military equipment bought cheaply in the 1990s (the government sold them at scrap value to help it meet NATO targets). It was devised by oligarch Strnad's father-in-law, who was the deputy director of the Ministry of Defense Office of Armament and Logistics.[51] In Slovakia, the DIB collapsed in the 1990s and defense policy is mainly influenced by traders operating out of the national association, who have been close to the left-wing populist party SMER. In Czechia, owners back more right-wing parties and populist individual leaders.

In recent decades, Hungary has not been a large exporter of defense goods, but its defense reindustrialization policy is likely to mean an export push. Many traditional domestic defense enterprises are still trying to determine how they fit within the new national DIB structure, with its international joint ventures. The government has put in place mentorship programs for small and medium-sized enterprises that wish to enter this sector, but there are barriers that are mostly caused by Hungary's relatively weak innovation ecosystem and labor shortage.[52]

Lithuania, Latvia, and Estonia are small countries with minimal experience in military production, but their DIBs include as many entities as in Czechia and Slovakia and contain defense education institutions. Most production is intended for their growing national military forces and thus have low levels of exports[53], but they do collaborate with other countries.[54] Their DIBs have not yet gained any significant share in the international arms trade and none of them has the potential to produce a cutting-edge military product, vital though they are to national defense.

Governance corruption and influence

Governments in post-communist countries have struggled to control corruption.[55] Too-close relationships among defense industry, politics, and the defense institutions have resulted in institutional corruption[56]; a problem exacerbated by the power of special interest groups.[57] As Table 3 shows, the production of strategic documents protecting the Czechia DIB is comparable only with Hungary. The Czechian Defense Review facilitates access to media without any screening by the political elite with an editorial board composed of 64 members.[58] In addition, the employment of retired generals has been common.[59] Owners (families) of vital companies in the DIB became sponsors for presidents and defense ministers[60], many of whom were included on the Forbes list of the 172 wealthiest families in Czechia in 2022. Czechia is one of the few European Union members where there is no regulation of lobbying activity.[61] Transparency International judged the Czech Tatra as the only company doing business on a global scale and gave it an anti-corruption index of 'poor'. In contrast, Slovakia's only notable support for its DIB is the IDEX fair in Bratislava, close to the Czech, Austrian, and Hungarian borders. Its heavy defense industry was subsidized during the Czechoslovak period, but its neoliberal governments have not been keen on providing such support.

50 The multiplier for Czech defense expenditures spent in Czechia is estimated to be 3.2. HRB (2022).
51 Dolejší and Koděra (2016)
52 Budavári et al. (2022)
53 SIPRI (2022)
54 Markowski et al. (2009)
55 Transparency International (2022)
56 Caiden (1988)
57 This situation arose in Czechia where the DIB benefited from special status in defense policy as early as the 2000s. For example, the government entered into a contract with the DSIA to support the DIB by means of economic diplomacy (Pernica, 2020; Dvorak and Pernica, 2021).
58 Pernica (2018, pp. 77–78)
59 Frič and Pernica (2022)
60 ČTK (2017)
61 Kverulant.org (2022)

Table 3: The relationship between the DIB and defense institutions

	the MOD supports the DIB by			*DIB´s activities*	
	Organizing (subsidizing) trade fairs	*Organizing (subsidizing) conferences, forums, popularization*	*Special documents*	*Commercial review*	*Special sponsorship*
Czechia	IDET, Brno (in odd years)	Future Forces, Prague (annually)	Yes (2001, 2004, 2011, 2017)	Defense Review (4 issues in a year)	The Czech Armed Forces ball
Slovakia	IDEX, Bratislava (in even years)	None	None	None	None
Hungary	Planned in the future	Wide range of activities for popularization	Yes (2012, 2016, 2021)	None	None
Lithuania	-	Baltic MilTech Summit, Vilnius and Drone days, Vilnius district (annually)	Yes (2017)	None	fireworks festival
Latvia	-	Industry Day at National Army Forces Day (annually), different cites	None	None	award for researchers
Estonia	EWLive2.0, Tartu (annually)	EWLive2.0 conference, Tartu (annually)	Yes (2012)	None	None

Sources: Authors' own research based on national defense industry associations' home pages and Pernica 2020.
Notes: Special documents are those which set out the exclusive position of the national DIB in the economy (years of issue of such documents in brackets).

In Hungary, the push to develop arms production is part of an industrialization policy that restricts competition and promotes high levels of collaboration and cooperation among economic actors. It means that in the Hungarian defense industrial sector, political decision-makers heavily affect corporate behavior and decisions. This state-driven economic approach has contributed to the decline of the nation's standing in corruption rankings.[62]

Lithuania, Latvia, and Estonia are not as prone to corruption as their fellow post-communist countries Czechia, Slovakia, and Hungary.[63] The DIBs are supported by defense policy, but the extent of such support is relatively small, though there is some evidence of influence from vested interest groups, as found in Lithuania.[64]

Prospects

Only Czechia and Hungary are recognized as producing state-of-the-art products that meet the standards of the armed forces in NATO and the European Union. The best-known military product is the VERA passive radar manufactured by ERA, owned by Omnipol.[65] The best-known post-communist trademark in the European Union is Tatra. The first NATO country to opt for cooperation with Tatra was Denmark, which procured Caesar self-propelled howitzers

62 Transparency International (2022)
63 World Bank (2022)
64 Palavenis (2022)
65 Turnbull (2018)

Vol. 18, No. 1 (2023) | doi:10.15355/epsj.18.1.53

produced by the French Nexter to be mounted on Tatra chassis.[66] Hungary currently lacks well-known products, but this will change soon when joint venture projects will be produced in the country, including Rheinmetall's Lynx modular medium weight combat vehicle, the Turkish-German-Hungarian co-produced Gidran tactical vehicle, the former Czech Aero Vodochody training aircraft[67], and the former Austrian Hirtenberger mortar,.

There are no significant military products produced in Lithuania, Latvia, and Estonia with no continuity from the Soviet era, when large electronics companies existed in Latvia and Lithuania (VEF, Komutators Alfa, the Vilnius Institute of Radio Measuring Devices and the Kaunas Radio Measurement Institute).[68]

All of the countries are involved in the Permanent Structured Cooperation. This is the part of the European Union's security and defense policy where 25 of the 27 national armed forces pursue structural integration. As would be expected, given the developments above, the focus of the countries differ. The Baltic countries are looking to participate in disruptive weapon projects, Slovakia is looking to participate in projects developing machinery, while Czechia and Hungary are to participate in projects involving the production of sensors and the development of artificial intelligence.[69]

Conclusion

The Crimea crisis in 2014 and the Russo-Ukrainian war in 2022 led to security concerns in the smaller countries in the Central European region (Czechia, Slovakia, Hungary) and the Baltic region (Lithuania, Latvia, Estonia). Except for Czechia, all of them had seen a decline in military production since the collapse of the Warsaw Pact in 1991. The Baltic countries have developed their DIB capacities to cover the needs of their armed forces and opted for a strategy of cooperation and collaboration with Western arms companies for weapon systems. Arms production links between the post-communist countries collapsed and have not recovered.

All the DIBs have consisted mostly of private capital, but state-owned entities still exist, usually to maintain Soviet military equipment. Companies have been privatized or are used to support equipment from Western allies. In Czechia and Slovakia, state-owned companies are involved in defense R&D activities, much as they were during the communist period—also defense universities continue to play a central role in the DIB, providing officers with military higher education closely integrated with the defense industry. DIB activities in Central Europe are often affected by corruption more than in the Baltic and Western Countries. Czechia seems to be the worst, with powerful interest groups and oligarchs owning military industrial capacities in the DIB. Private owners of firms organized in the DSIA influence defense policy and represent the wealthiest members of society. A growing military budget has given them opportunities and the oligarchs are now seeking international collaboration across the European Union. The Slovak DIB is linked with the Czech DIB and the war in Ukraine gave Slovakia the opportunity to export artillery systems based on the Tatra—the only state-of-the-art product left after the collapse of the production of tanks and APCs under Soviet license in the 1990s. Hungary is showing similar features as it develops its national DIB as part of its modernization strategy.

With the present security environment, it is likely that the respective country's DIBs continuing to develop along similar lines, with Czechia and Hungary dominating the group, but with the others increasingly engaged in arms production and maintenance across the European Union and NATO.

66 Tran (2017)
67 ČTK, iDNES.cz (2021)
68 Prikulis (1996)
69 EU (2020)

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