



INTEGRATED ARSENALS? MAPPING DEFENCE INDUSTRIAL RELATIONS BETWEEN EUROPE AND UKRAINE

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ABSTRACT

Since Russia's war on Ukraine, defence industrial cooperation between the European Union and Ukraine has been put high on the agenda. In addition to the armament deliveries being made to Kyiv, there is now the ambition to integrate Ukraine within the EU and the European Defence Technological and Industrial Base. To this end, governments and firms have engaged in interesting forms of industrial cooperation such as joint ventures and co-production. The task of this paper is to assess the extent and nature of this defence industrial cooperation. It conducts a mapping exercise of 21 EU member states to size up the extent of cooperation, and to analyse the political and industrial objectives of this cooperation. The paper assesses the types of technology being developed, but it also highlights some of the political and industrial challenges that hinder deeper cooperation.

Keywords : Ukraine DTIB | Defence Industry | EDTIB | Ramp up | Cooperation | Military aid | Technology transfer | EDIP | EU-Ukraine forum

One of the many consequences of Russia's war on Ukraine, and the resulting need to help arm Kyiv with basic ammunition and long-range weapons, is the growing interest in closer defence industrial relations between Ukraine and the European Union (EU). Indeed, following the first-ever EU-Ukraine Defence Industries Forum that took place in Brussels on 6 May 2024, the two partners underlined the mutually beneficial need to foster defence industrial cooperation. At the Forum, EU leaders were clear to underline that defence industrial relations with Ukraine were a way for European industries to learn how military technologies can be developed and deployed in times of war¹. Ukrainian leaders present at the Forum stressed the importance of developing the Ukrainian and European defence technological and industrial bases (DTIB) as part of a longer-term strategy of deterring Russian aggression². This EU-Ukraine Forum was certainly not one of a kind, with the Ukrainian government having organised multiple iterations of the International Forum of Defence Industries – for example, some 252 companies from more than 30 countries participated in the first such Forum in September 2023³.

Clearly, the war in Ukraine has offered a perspective on defence industrial cooperation, but such cooperation has been framed by the EU and Ukraine as part of a broader effort for future EU accession and Ukraine's eventual economic recovery. While it will take time to fully integrate Ukraine's defence industry into Europe's DTIB, Ukraine's defence sector is seen to contribute to deterring Russia and paving the way for European integration⁴. We have already witnessed European companies rush to Ukraine to conduct business in the defence sector, despite the risks of doing so in wartime. German companies such as Rheinmetall have taken a risk on engaging with Ukrainian counterparts, but many European and international firms have sought to strike up joint ventures in Ukraine. Clearly, there is a political dimension to such relations as Ukraine has been keen to sign multiple bilateral agreements (including with the EU directly⁵) on defence industrial cooperation. Although it remains unclear to what extent such bilateral agreements will lead to deeper defence industrial cooperation with key

¹ European Commission, "Joint Press Release: EU-Ukraine Defence Industries Forum Bolsters Cooperation Between Ukrainian and European Defence Industries", 6 May 2024. See: https://neighbourhood-enlargement.ec.europa.eu/news/joint-press-release-eu-ukraine-defence-industries-forum-bolsters-cooperation-between-ukrainian-and-2024-05-06_en

² Ibid.

³ Ukraine Government, "Arsenals of the Free World: Results of the First International Defense Industries Forum", 30 September 2023. See: <https://www.kmu.gov.ua/en/news/arsenal-vilnoho-svitu-pidsumky-pershoho-mizhnarodnoho-forumu-oboronnykh-industrii>

⁴ Fiott, D. "War Economy: Ukraine, the European Union and the Defence Technological and Industrial Base", *CSDS Policy Brief*, 11/2024, 23 April 2024. See: <https://csds.vub.be/publication/war-economy-ukraine-the-european-union-and-the-defence-technological-and-industrial-base/>

⁵ Council of the EU, "Joint Security Commitments Between the European Union and Ukraine", 27 June 2024. See: <https://www.consilium.europa.eu/media/oredhmis/eu-ukraine-security-commitments-en.pdf>

partners⁶, Ukraine has spared no efforts in advertising the added-value of their defence firms and the need for cooperation with Europe.

Ukraine's openness to European partners in the defence sector comes at a time when the EU and its member states are also undergoing shifts in defence industrial policy. Not only has the EU move rather swiftly in developing funding streams for ammunition production (i.e. the European Peace Facility (totalling €17 billion to 2027⁷) and the Act in Support of Ammunition Production (worth €500 million until 2025⁸)), but the Union has made it clear that Ukraine is to be involved in their plans for joint procurement. The EU has made clear that it 'will work with Ukraine to strengthen the protection of technology and intellectual property rights in the defence industry', and that it sees cooperation with Ukraine's defence sector as a way to enhance security of supply and the timely availability of defence products⁹. Not only does the EU's 2024 Defence Industrial Strategy stress that the Union will use the windfall profits of frozen Russian assets to jointly purchase military equipment for Ukraine, but it is clear that the EU wants Ukraine to participate in its future joint defence procurement initiatives through the European Defence Industrial Programme (EDIP)¹⁰. Furthermore, the EU has also taken the step to open an EU Defence Innovation Office in Kyiv in order to help foster cross-border cooperation in R&D and to ensure closer ties between Ukraine and the EDTIB, especially regarding start-ups.¹¹

Understanding the motivations behind EU-Ukraine defence industrial cooperation is the main focus of this paper. In particular, this paper conducts a mapping of how European defence firms are engaging with Ukrainian partners. It does so to analyse the different commercial and political rationales behind such cooperation. The paper looks at the activities of firms and governments, and it attempts to discern differences in the logic and rationale for engagement. Given that Ukraine's defence sector is still heavily influenced by the state, and acknowledging that it is a country still at war, this paper concludes that government support in the EU is vital

⁶ Boswinkel, L. "Arming Ukraine: Can Europe's Bilateral Defence Agreements Make the Difference?", *CSDS Policy Brief*, 4/2024, 28 February 2024. See: <https://csds.vub.be/publication/arming-ukraine-can-europes-bilateral-defence-agreements-make-the-difference/>

⁷ Council of the EU, "European Peace Facility". See: <https://www.consilium.europa.eu/en/policies/european-peace-facility/>

⁸ European Commission, "The Commission allocates €500 million to ramp up ammunition production, out of a total of €2 billion to strengthen EU's defence industry", 15 March 2024. See: https://ec.europa.eu/commission/presscorner/detail/en/ip_24_1495

⁹ Op.Cit., "Joint Security Commitments Between the European Union and Ukraine".

¹⁰ "A New European Defence Industrial Strategy: Achieving EU Readiness through a Responsive and Resilient European Defence Industry", JOIN(2024) 10 final, Brussels, 5 March 2024. See: https://defence-industry-space.ec.europa.eu/document/download/643c4a00-0da9-4768-83cd-a5628f5c3063_en?filename=EDIS%20Joint%20Communication.pdf

¹¹ European Commission, "Defence Cooperation with Ukraine Strengthened as EU Defence Innovation Office Opens in Kyiv", 27 September 2024. See: https://defence-industry-space.ec.europa.eu/defence-cooperation-ukraine-strengthened-eu-defence-innovation-office-opens-kyiv-2024-09-27_en

for defence industrial cooperation. Without the backing of EU member state governments, it becomes harder – but not impossible – for EU-based firms to engage with Ukrainian counterparts. The paper also outlines the nature of cooperation, with many European firms seemingly willing to take a political and security risk to engage in joint ventures, co-production, localisation, basic technology transfers and more. Finally, the paper also briefly assesses the strategies of non-EU defence firms and actors in Ukraine’s defence sector, and it points to the remaining challenges facing the EU and Ukraine as they develop their defence industrial cooperation.

The analysis is divided into three main sections. Part one undertakes a mapping exercise of 21 EU member states and how they have engaged Ukraine in the defence sector since the war began in early 2022. The mapping exercise draws on available information such as official partnership agreements and news on how individual defence firms in the EU have engaged Ukrainian counterparts. The mapping exercise will help us to contextualise the extent and nature of defence industrial cooperation between Europe and Ukraine. It will help us to assess the differences between the rhetoric and reality of defence industrial cooperation between Europe and Ukraine.

Part two of the paper then digests and analyses the mapping exercise. It does so to probe questions such as: 1) what is the current extent of the defence industrial cooperation – is it a deep or superficial form of cooperation?; 2) what is the form of defence industrial cooperation between Europe and Ukraine – what technology areas are favoured and how does cooperation function?; 3) what are the main commercial and political rationales behind such cooperation?; 4) how do the interests and dynamics of states and firms diverge and converge over defence industrial cooperation with Ukraine?; and 5) how is the current level of cooperation influencing the level of defence sector reform in Ukraine – are European firms and governments able to influence this reform?

In part three of the paper, we look at some of the challenges associated with growing Ukraine-European defence industrial cooperation. This section dwells on the limits of defence industrial cooperation, plus it assesses how far cooperation with Europe is helping Ukraine modernise their defence sector. We also consider in this part of the paper some of the challenges of integrating the Ukrainian DTIB into the wider EDTIB, especially in relation to how defence industrial cooperation feeds into the EU accession process. Furthermore, we also consider how competition between EU and non-EU based firms is effecting relations between Ukraine and Europe. The paper concludes by assessing some of the challenges for future EU-Ukraine defence industrial cooperation.

MAPPING EUROPEAN DEFENCE INDUSTRIAL COLLABORATION WITH UKRAINE

Understanding the extent to which European producers have engaged with the Ukrainian DTIB since the war is a key question that helps us to understand how, why and how far European governments and defence firms are engaging with Ukraine. In what follows, we conduct a mapping exercise of a range of European countries that have already sought to increase defence industrial cooperation with Ukraine. To delimit the mapping exercise, we look at 21 EU member states that have so far demonstrated a willingness and taken practical steps to set up collaboration with Ukrainian industry since war with Russia broke out in February 2022. On the basis of the mapping exercise, it will be possible to return to some of the overarching questions raised at the start of the analysis including: 1) what is the nature of the cooperation with Ukrainian industry?; 2) how advanced is the cooperation with Ukraine?; 3) what are the key military and technological domains where cooperation is most intense? and 4) what are the European political and industrial motivations for defence industrial cooperation with Ukraine?

The data presented is based on open source information derived from reputable news organisations, defence firms, defence industry association groups and international organisations. The mapping exercise does not include every EU member state due to a lack of access to available information or because of the specific strategic/constitutional aspects of the EU member states involved (21 EU member states are analysed overall). For example, neutral countries such as Austria and Malta have not engaged on defence industrial relations with Ukraine (also due to the small size or non-existence of industry in the defence sector in these countries), although Ireland – as a neutral EU member state – has signed a bilateral security agreement with Ukraine (albeit without a reference to defence industrial cooperation¹²). Other EU member states have taken a different strategic approach to the war on Ukraine when compared to other EU partners. For example, both Hungary¹³ and Slovakia¹⁴

¹² Ukraine Government, “Agreement on Support for Ukraine and Cooperation between Ukraine and Ireland”, 4 September 2024. See: <https://www.president.gov.ua/en/news/ugoda-pro-pidtrimku-ukrayini-ta-spivrobotnictvo-mizh-ukrayin-93005#:~:text=In%202022%20and%202023%20Ireland,lethal%20military%20support%20to%20Ukraine.>

¹³ Hungarian Government, “PM Orban and Zelensky propose bilateral agreement to overcome disagreements”, 3 July 2024. See: <https://abouthungary.hu/news-in-brief/pm-orban-and-zelensky-propose-bilateral-agreement-to-overcome-disagreements>

¹⁴ Pavluik, O. “Ukraine’s foreign minister proposes security agreement with Slovakia”, *Ukrainska Pravda*, 18 September 2024. See: <https://www.pravda.com.ua/eng/news/2024/09/18/7475750/>

have been reluctant to develop concrete defence industrial ties with Kyiv and have not signed bilateral security agreements with Ukraine, as yet¹⁵.

Belgium

Belgium seeks to improve Ukraine's military forces, assist with strategic stockpiles and collaborate on defence production. A security cooperation and long-term support agreement between Belgium and Ukraine was signed on 28 May 2024, where the defence industry featured prominently as an area of cooperation.¹⁶ Belgium wants to see Ukraine integrated into the EDTIB so as to allow EU member states to increase production and avoid fragmentation. Brussels seeks to lower barriers to cooperation in the defence sector, boost technology cooperation and explore joint defence production. Belgium is interested in working with Ukraine to boost production volumes of the Ukraine defence industry and to eliminate supply chain bottlenecks. The Belgian government seeks opportunities for Belgian defence firms for technology transfers, partnerships, joint ventures and investment opportunities.¹⁷ There is evidence to suggest that Belgian defence firms do see opportunities in Ukraine, with Thales Belgium helping Ukraine produce anti-drone systems in Ukraine¹⁸. In terms of political motivations for closer defence industrial ties to Ukraine, the Belgian government wants to enhance Ukraine's deterrence and military edge in order to ensure its sovereignty. Belgium also seeks to integrate Ukraine's defence industry into EU and NATO frameworks.¹⁹

Bulgaria

A joint statement was published by Ukraine and Bulgaria on 28 February 2024, outlining the need to ensure Ukraine's integration into the EU and NATO and restore Ukraine's territorial integrity and sovereignty. Interestingly, the joint statement also underlined the importance of strengthening Ukraine's defence capabilities and industry, and for Bulgaria and Ukraine to seek joint production of armaments and military equipment²⁰. Despite the basic language of the joint statement, however, it should be recognised that Bulgarian defence firms were

¹⁵ Ukrainian Government, "Hungary's EU Presidency, Security Issues, and the Bilateral Relations Agreement", 2 July 2024. See: <https://www.president.gov.ua/en/news/golovuvannya-ugorshini-v-yes-pitannya-bezpeki-ta-ugoda-pro-d-91913>

¹⁶ Belgian Government, "Agreement on Security Cooperation and Long-Term Support for between Ukraine and Belgium", 28 May 2024. See: <https://www.premier.be/sites/default/files/articles/Agreement%20on%20Security%20Cooperation%20BE%20UKR.pdf>

¹⁷ Ibid.

¹⁸ Ukrainian Government, "Ministry of Strategic Industries: THALES extends cooperation with Ukrainian defence companies", 2 November 2024. See: <https://www.kmu.gov.ua/en/news/minstratehprom-thales-rozshyriuie-spivpratsiu-z-ukrainskymy-oboronnymy-pidpriemstvamy>

¹⁹ Op.Cit. "Security Agreement between Belgium and Ukraine".

²⁰ Ukrainian Government, "Joint Statement of the Prime Minister of Ukraine and the Prime Minister of the Republic of Bulgaria", 26 February 2024. See: <https://www.kmu.gov.ua/en/news/spilna-zaiava-premier-ministra-ukrainy-ta-premier-ministra-respubliky-bolhariia>

among the first to join the Ukraine Defence Industries Alliance²¹. Bulgaria has also sought to facilitate cooperation between Balkan and Ukrainian defence industries by hosting a dedicated forum in Plovdiv in June 2024²². While the forum focused mainly on ways to increase ammunition production, it also focused on military technology domains that could give Ukraine and its partners a military edge.

We should recognise that Bulgaria's defence industry has undergone a period of adjustment and modernisation in recent years, and the war on Ukraine has meant that the industry's main focus is on ramping up production in basic weapons categories such as ammunition²³. Such a context may mean that countries such as Bulgaria may fall behind in developing deeper defence industrial ties in high-tech areas, although we should also acknowledge that Bulgarian companies such as Arsenal had an industrial footprint in Ukraine before the war in 2022²⁴. Nevertheless, there is a sense in which the full potential of Bulgarian-Ukrainian defence industrial cooperation has not been realised, not least because cooperation with Ukraine's defence producers may be of great benefit to the Bulgarian DTIB as it seeks to modernise. Ukraine has called on Bulgaria to intensify its defence industrial cooperation with Ukrainian producers, but thus far cooperation has been unstructured²⁵. Still, the hope is that the ongoing negotiations for a Bulgaria-Ukraine bilateral security agreement will pave the way for closer defence industrial collaboration²⁶.

Croatia

An agreement on long-term bilateral security cooperation between Croatia and Ukraine was signed on 9 October 2024.²⁷ Croatia seeks joint defence production, joint projects and defence localisation in Ukraine. In particular, there is an interest on cooperating in the domains of digitalisation and cyberdefence.²⁸ Furthermore, there is already evidence of Croatian defence firms engaging with Ukrainian counterparts. Firms such as DOK-ING – a Croatian firm

²¹ "Bulgarian firms among founders of Ukraine's Defence Industries Alliance", *The Sofia Globe*, 1 October 2024. See: <https://sofiaglobe.com/2023/10/01/bulgarian-firms-among-founders-of-ukraines-defence-industries-alliance/>

²² Karagyozov, K. "Balkan-Ukrainian Defence Industries Forum Held in Plovdiv", *Bulgarian News Agency*, 7 June 2024. See: <https://www.bta.bg/en/news/economy/686120-balkan-ukrainian-defence-industries-forum-held-in-plovdiv>

²³ Vodenova, Y. "Defence Minister Tagarev: Bulgarian has Provided Ukraine with over 7,000 tonnes of Material, Over 140 Machines on Their Way", *Bulgarian News Agency*, 8 March 2024. See: <https://www.bta.bg/en/news/bulgaria/632015-defence-minister-tagarev-bulgaria-has-provided-ukraine-with-over-7-000-tonnes-o>

²⁴ Arsenal, "Arms and Security", 2015. See: <https://www.arsenal-bg.com/c/events-139/arms-security-kiev-ukraine-220>

²⁵ "Ukraine interested in joint arms production with Bulgaria – Zelenskyy", *Ukrainska Pravda*, 26 February 2024. See: <https://www.pravda.com.ua/eng/news/2024/02/26/7443797/>

²⁶ Ukrainian Government, "Ukraine and Bulgaria Launched Negotiations on Bilateral Security Agreement", 25 October 2024. See: [https://www.president.gov.ua/en/news/ukrayina-ta-bolgariya-rozpochali-peregovori-pro-pidpisannya-94073#:~:text=Ukraine%20and%20Bulgaria%20have%20started,region%2C"%20emphasized%20Ihor%20Zhovkva](https://www.president.gov.ua/en/news/ukrayina-ta-bolgariya-rozpochali-peregovori-pro-pidpisannya-94073#:~:text=Ukraine%20and%20Bulgaria%20have%20started,region%2C).

²⁷ Ukrainian Government, "Agreement on Long-Term Cooperation and Support between Ukraine and the Republic of Croatia", 9 October 2024. See: <https://www.president.gov.ua/en/news/ugoda-pro-dovgostroke-spirobitnictvo-ta-pidtrimku-mizh-uk-93733>

²⁸ Op.Cit. "Ukraine and Croatia Security Agreement".

specialising in robotics and autonomous systems – opened a new office in Kyiv in September 2024 to stimulate bilateral collaboration in the area of critical infrastructure protection, demining and technological innovation²⁹. Croatia supports Ukraine’s independence, sovereignty and territorial integrity. Based on its history, Croatia understands Ukraine’s war experience. Croatia seeks to assist Ukraine rebuild its economy and to integrate with the EU and NATO. Croatia believes that Ukraine’s defence industry could become a powerful asset for Euro-Atlantic security.³⁰

Czechia

In July 2023, Czechia and Ukraine signed an MoU on defence industrial cooperation – the agreement centred on maintenance, repair and overhaul (MRO), armoured vehicles, demining and weapons and ammunition development³¹. The hope was that the MoU would pave the way for deeper cooperation in the aviation sector for aircraft and helicopters, as well as an industrial partnership in the area of electronic warfare³². A year later on 18 July 2024, Czechia and Ukraine signed a bilateral security agreement that paved the way for deeper cooperation³³. The agreement made clear that Czechia would permit Ukrainian firms to produce defence materiel on Czech territory until a time when they can relocate back to Ukraine. The agreement also underlined Czechia’s ambition to engage with Ukrainian industry on joint ventures, help Ukraine secure funding for its industry, protect intellectual property rights (IPRs) and technology transfers, fully integrate Ukraine’s defence industrial integration into NATO and EU frameworks and to limit dependencies on third markets where Russia has political and economic influence³⁴.

There is already evidence of growing defence industrial ties between Czechia-based firms and Ukraine. For example, in October 2024 the Czechoslovak Group (CSG) set up a partnership with Ukraine’s *Ukrainska Bronetehnika* to produce 155-mm ammunition locally in Ukraine. CSG will help transfer know-how and technology to its Ukrainian partner with the aim of

²⁹ DOK-ING, “DOK-ING opens new office in Kyiv to support Ukraine’s reconstruction and demining efforts”, *Defence Industry Europe*, 14 September 2024. See: <https://defence-industry.eu/dok-ing-opens-new-office-in-kyiv-to-support-ukraines-reconstruction-and-demining-efforts/>

³⁰ Op.Cit. “Ukraine and Croatia Security Agreement”.

³¹ Czech Government, “Additional MoUs to support defence industrial cooperation with Ukraine”, 19 July 2023. See: <https://www.mo.gov.cz/en/ministry-of-defence/newsroom/news/additional-mous-to-support-defence%20-industrial-cooperation-with-ukraine-245253/>

³² Defence Industry Europe, “Czech Republic and Ukraine sign memorandum to strengthen defence industry cooperation”, 7 July 2023. See: <https://defence-industry.eu/czech-republic-and-ukraine-sign-memorandum-to-strengthen-defence-industry-cooperation/>

³³ Ukrainian Government, “Agreement on Security Cooperation and Long-Term Support Between Ukraine and the Czech Republic”,. See: <https://www.president.gov.ua/en/news/ugoda-pro-spivrobitnictvo-u-sferi-bezpeki-ta-dovgostrokovu-p-92237#:~:text=The%20Czech%20Republic%20intends%20to,to%20its%20people%20and%20to>

³⁴ Ibid.

producing 100,000 pieces of ammunition in 2025³⁵. However, Czech defence firms such as Aero Vodochody, Czechoslovak Group, Česká zbrojovka, Sellier & Bellot, and Military Repair Enterprise are already engaged in Ukraine in the areas of small arms and ammunition production, as well as tank repairs³⁶. We should keep in mind that CSG was already engaged with Ukraine before the war started in 2022, with CSG providing infantry vehicles and howitzers to Ukraine in 2018³⁷. This reflects the fact that Czechia was an early entrant in Ukraine following Russia's invasion, with the Czech AMOS Agency and then Ukroboronprom signing industrial agreements in mid-2023 on a joint defence cluster to lead the way to joint Czech-Ukrainian ventures. Such a venture was initially centred on MRO for fighting vehicles and Soviet-era tanks, but the aim is to expand this cooperation to new high-tech areas such as defence R&D³⁸. Joint ventures between Czech and Ukrainian defence companies are already underway, with the joint venture UAC already producing Ukrainian drones (i.e. Leleka LR drones made by Ukraine's DeViro) in Czechia³⁹.

Denmark

Denmark and Ukraine signed a bilateral security cooperation and long-term support agreement on 23 February 2024⁴⁰. The agreement outlines the ambition of both sides to develop defence industrial cooperation, with the aim of securing Ukraine's territorial integrity and to ensure long-term self-defence against Russian aggression. Denmark and Ukraine are keen to lower barriers to defence cooperation, identify and overcome any supply chain bottlenecks and protect IPRs and technology transfers. Denmark has pledged to exchange information with Ukraine, secure investments and engage in joint defence R&D and production. As is the case with many other European partners, Denmark wishes to help develop Ukraine's defence industry in preparation for its integration into NATO and EU security and defence frameworks⁴¹.

³⁵ CSG, "CSG and Ukrainska Bronetehnika signed an agreement for the production of artillery ammunition in Ukraine", 3 October 2024. See: <https://czechoslovakgroup.com/en/news/csg-ukrainska-bronetehnika-agreement-artillery-ammunition-ukraine>

³⁶ CZ Defence, "Opportunity for Czech industry: Confident Ukrainian arms factories are going all out and looking for partners for cooperation", 15 October 2024. See: <https://www.czdefence.com/article/opportunity-for-czech-industry-confident-ukrainian-arms-factories-are-going-all-out-and-looking-for-partners-for-cooperation>

³⁷ Op.Cit. "CSG and Ukrainska Bronetehnika signed an agreement".

³⁸ CZ Defence, "Arms industry companies of the Czech Republic and Ukraine will jointly produce military material", 10 October 2022. See: <https://www.czdefence.com/article/arms-industry-companies-of-the-czech-republic-and-ukraine-will-jointly-produce-military-material>

³⁹ Op.Cit. "Opportunity for Czech industry".

⁴⁰ Ukrainian Government, "Agreement on security cooperation and long-term support between Ukraine and Denmark", 23 February 2024. See: <https://www.president.gov.ua/en/news/ugoda-pro-spivrobotnictvo-u-sferi-bezpeki-ta-dovgostrokovu-p-89185>

⁴¹ Ibid.

Furthermore, Denmark and other Northern European countries have met at successive iterations of the Ukraine-Nordic Summit to pledge support to Ukraine, including in the defence industrial sphere.⁴² Denmark even organised a defence industrial forum with Ukraine in August 2024 to scope out further defence industrial opportunities⁴³. Such events should be viewed in the wider context of Danish endeavours, including the 29 September 2024 letter of intent between Denmark and Ukraine on defence industrial support. The letter of intent precisely seeks to provide Ukrainian industry with US\$ 628 million in support to help the indigenous defence industry procure arms directly from global markets⁴⁴. Additionally, in October 2024 the Danish government established a defence industry hub in its embassy in Kyiv to scope out further opportunities for collaboration on military capabilities and defence innovation⁴⁵.

Estonia

Estonia and Ukraine signed a bilateral security agreement on 27 June 2024, and the agreement makes clear that Estonia seeks Ukraine to be integrated into NATO and EU frameworks based on a modern defence industry⁴⁶. Estonia and Ukraine are interested in lowering barriers in the supply chain, protecting IPRs and technology transfers, ensuring co-production in remotely piloted air and ground vehicles and developing software for military systems. Estonia will also help Ukraine gain access to EU and other funds, with a view to jointly developing high-tech defence and innovation projects with Ukraine⁴⁷. There has been contact and collaboration between Estonian and Ukrainian defence firms. In January 2024, the Estonian defence industry association signed a cooperation agreement with the government of Ukraine. The industrial cooperation agreement therefore allows Estonia to directly partner with Ukraine in

⁴² Ukrainian Government, “Joint Statement of the fourth Ukraine - Nordic Summit in Reykjavik”, 28 October 2024. See: <https://www.president.gov.ua/en/news/spilna-zayava-chetvertogo-samitu-ukrayina-pivnichna-yevropa-94093>

⁴³ Danskindustri, “Danish-Ukrainian Defence Seminar 2024”, 20 August 2024. See: <https://www.danskindustri.dk/medlemsforeninger/foreningssites/fos/arrangementer/events/2024/august/dudic-2024/>

⁴⁴ Ukrainian Government, “Denmark expands support for Ukrainian defence industry”, 29 September 2024. See: <https://www.kmu.gov.ua/en/news/daniia-rozshyriuie-pidtrymku-ukrainskoi-oboronnoi-promyslovosti#:~:text=Denmark%20will%20finance%20the%20production,on%20behalf%20of%20the%20EU>

⁴⁵ Danish Government, “Denmark establishes defence industry hub in Kyiv”, 1 October 2024. See: <https://ukraine.um.dk/en/news/denmark-establishes-defence-industry-hub-in-kyiv>

⁴⁶ Ukrainian Government, “Agreement on Security Cooperation and Long-term Support between Ukraine and Estonia”, 27 June 2024. See: <https://www.president.gov.ua/en/news/ugoda-pro-spivrobitnictvo-u-sferi-bezpeki-ta-dovgostrokovu-p-91793>

⁴⁷ Ibid.

the defence sector, whereas before the agreement Estonia's defence relations with Ukraine were largely mediated by other European countries⁴⁸.

So far, the Estonian Defence Cluster (EKTL) calculates that at least 10 Estonian defence firms are already working in Ukraine on sensor, observation, field hospitals and unmanned technologies⁴⁹. Earlier in 2024, the Estonian Defence Cluster signed a cooperation agreement with the Ukrainian Ministry of Strategic Industries and in April 2024 the cluster met with Ukrainian counterparts to discuss drone production⁵⁰. What is more, Estonian firm Milrem Robotics has already entered into an agreement with Ukraine's UDI to jointly develop the next-generation of robotic defence systems⁵¹. Interestingly, Estonia has expressed its interest to directly procure equipment from the Ukrainian DTIB, especially in terms of Ukraine's long-range missile systems⁵². This is noteworthy as many EU member states have not made an explicit move to procure directly from the Ukrainian DTIB in the same way. This suggests that Estonia is seeking to procure from Ukraine those military systems that have proven their worth in battle against Russia, and that can be used by Tallinn to further advance its own defence and deterrence against Moscow.

Finland

Finland and Ukraine signed a bilateral security agreement on 3 April 2024. The agreement outlines that Finland seeks tighter defence industrial relations with Ukraine, with a focus on encouraging Finnish firms to invest in Ukraine's DTIB. Like its EU partners, Finland wants to reduce barriers to cooperation and to identify sources of funding for Ukraine's defence sector. What is more, Finland sees the integration of Ukraine's defence industry into the European defence sector as an important element of Ukraine's integration into NATO and EU security frameworks⁵³. Furthermore, Finland and other Northern European countries have met at successive iterations of the Ukraine – Nordic Summit to pledge support to Ukraine, including

⁴⁸ Defence Industry Europe, "Estonian defence industry strengthens cooperation with Ukraine", 13 January 2024. See: <https://defence-industry.eu/estonian-defence-industry-strengthens-cooperation-with-ukraine/>

⁴⁹ Defence Estonia, "A cooperation agreement between the EKTL and the Ministry of Strategic Industries of Ukraine was signed yesterday", 12 January 2024. See: <https://defence.ee/news/a-cooperation-agreement-between-the-estonian-defence-and-aerospace-industry-association-and-the-ministry-of-strategic-industries-of-ukraine-was-signed-yesterday/>

⁵⁰ Defence Estonia, "The first Business Forum in Kyiv, organized in collaboration with the Ministry of Defence of Estonia, EKTL and Defence Estonia Cluster, focused on defense sector issues and took place on April 3rd-4th", 3 April 2024. See: <https://defence.ee/news/the-first-business-forum-in-kyiv-organized-in-collaboration-with-the-ministry-of-defence-of-estonia-ektl-and-defence-estonia-cluster-focused-on-defense-sector-issues-and-took-place-on-april-3rd-4th/>

⁵¹ Estonian Government, "Estonian company Milrem Robotics partners with the Ukrainian Defence Industry to forge next-generation robotic systems", 7 February 2024. See: <https://kyiv.mfa.ee/en/2024/02/estonian-company-milrem-robotics-partners-with-the-ukrainian-defence-industry-to-forge-next-generation-robotic-systems/>

⁵² ERR News, "Estonia mulling which defense equipment to buy from Ukraine", 30 October 2024. See: <https://news.err.ee/1609506343/estonia-mulling-which-defense-equipment-to-buy-from-ukraine>

⁵³ Finnish Government, "Agreement on security cooperation and long-term support between the Republic of Finland and Ukraine", 3 April 2024. See: <https://www.presidentti.fi/en/agreement-on-security-cooperation-and-long-term-support-between-the-republic-of-finland-and-ukraine/>

in the defence industrial sphere⁵⁴. The available data would suggest that Finnish companies have not necessarily been able to develop close partnerships with the Ukrainian defence sector. In 2023, there were reports that Finnish firm Patria was exploring the possibility of producing combat vehicles in Ukraine⁵⁵, although the firm’s CEO made clear that without Finnish government support it would be “very risky” to licence production or engage in co-production in Ukraine⁵⁶.

France

On 16 February 2024, France and Ukraine signed a security cooperation agreement and it included several elements of interest in the defence sector⁵⁷. The two parties pledged to restore Ukraine’s territorial integrity and to help Ukraine prepare for any potential future attacks. France and Ukraine seek to ensure the development of Ukraine’s defence sector in line with European and Euro-Atlantic standards, especially in capability areas such as artillery, air defence, armoured vehicles, maritime security, medical support, information technologies and demining. The basis for cooperation in the agreement is to stimulate French-Ukrainian defence industrial collaboration, free from third party restrictions, through joint production, localisation and joint ventures for MRO and more. The partners also seek to address supply chain bottle necks, to identify sources of funding for Ukraine’s DTIB, to facilitate IPR and technology transfers and to ensure critical materials necessary for the defence sector to function⁵⁸.

France’s post-war defence industrial cooperation with Ukraine began in late 2023, when the two countries signed a letter of intent between the Direction générale de l’armement and the Defence Procurement Agency of Ukraine⁵⁹. This letter of intent – later revamped in July 2024⁶⁰ – paved the way for closer cooperation. In September 2023, GICAT organised a first Franco-Ukrainian industrial cooperation seminar in Kyiv, which brought together 30 French companies with 80 counterparts from Ukraine. GICAT have underlined the potential for cooperation between France and Ukraine in domains such as armoured vehicles, artillery,

⁵⁴ Op.Cit. “Nordic Summit in Reykjavik”.

⁵⁵ Gosselin-Malo, E. “Finland’s Patria weighs making combat vehicles in Ukraine”, 4 September 2023. See: <https://www.defensenews.com/global/europe/2023/09/04/finlands-patria-weighs-making-combat-vehicles-in-ukraine/>

⁵⁶ Kauranen, A. “Finland’s Patria urges government help in Ukraine defence deals”, Reuters, 13 September 2023. See: <https://www.reuters.com/world/europe/finlands-patria-urges-government-help-ukraine-defence-deals-2023-09-13/>

⁵⁷ French Government, “Agreement on security cooperation between France and Ukraine”, 16 February 2024. See: <https://www.elysee.fr/en/emmanuel-macron/2024/02/16/agreement-on-security-cooperation-between-france-and-ukraine#moduleAnchor-222724>

⁵⁸ Op.Cit. “France Ukraine Security Agreement”.

⁵⁹ Ibid.

⁶⁰ Ukrainian Government, “Ukraine continues to strengthen cooperation with French defence industry”, Defence Industry Europe, 25 July 2024. See: <https://defence-industry.eu/ukraine-continues-to-strengthen-cooperation-with-french-defence-industry/>

drones and demining capabilities⁶¹. In January 2024, GICAN met with the Ukrainian Maritime Cluster to discuss maritime cooperation⁶² and GICAN has also sought to deepen cooperation in the maritime and naval domains with Ukrainian counterparts.⁶³ In June 2024, Thales signed three agreements with Ukrainian industry including for local production and maintenance in electronic warfare, unmanned aerial vehicles, tactical communications, air defence and radars⁶⁴.

Before moving on to the specific case of Germany, we should also acknowledge the steps being taken to develop closer defence industrial ties with Ukraine by the French-German company KNDS. In March 2024, the French and German governments gave their go-ahead for KNDS to establish a subsidiary in Ukraine to help Ukraine maintain, overhaul and repair defence systems and to produce spare parts in Ukraine⁶⁵. In particular, the MRO centre – which bears the name of KNDS Ukraine LLC – in Ukraine is designed to allow KNDS to maintain the CAESAR self-propelled howitzers, Leopard I and II tanks, the AMX-10RC vehicle and more, being used by the Ukrainian armed forces⁶⁶. Finally, KNDS' local presence in Ukraine is also designed to ensure that KNDS and Ukrainian industry can jointly procure 155mm ammunition and space parts⁶⁷.

Germany

Germany and Ukraine signed their bilateral security agreement on 16 February 2024, and it outlines various elements of defence industrial cooperation between the two parties. Indeed, the agreement specifies how the parties will work to reduce barriers to cooperation, explore opportunities for localised production based on mutual commercial benefit, overcome supply chain bottlenecks, develop MRO capabilities in Ukraine and protect IPRs and technology transfers. Germany also commits to helping Ukraine align to Euro-Atlantic standards with the objective of enhancing interoperability, and it sees Ukraine's defence industry as a contributor

⁶¹ GICAT, "Le GICAT et ses adhérents de retour d'Ukraine", 26 September 2023. See: <http://www.gicat.com/le-gicat-et-ses-adherents-de-retour-dukraïne/>

⁶² Ukrainian Maritime Cluster, "Ukrainian Maritime Cluster met with the Delegation of the French Maritime Industry Association", 16 January 2024. See: <https://maritimeukraine.com/en/16-01-2024/>

⁶³ Ukrainian Government, "Дмитро Кліменков: «Захист наших морських кордонів має вирішальне значення як для України, так і для всього світу»", 15 March 2024. See: <https://www.mil.gov.ua/news/2024/01/15/dmitro-klimenkov-zahist-nashih-morskih-kordoniv/>

⁶⁴ Thales Group, "Thales signs three agreements with Ukrainian industry to strengthen front-line support and local defence capability", 18 June 2024. See: https://www.thalesgroup.com/en/worldwide/defence-and-security/press_release/thales-signs-three-agreements-ukrainian-industry

⁶⁵ Defence Industry Europe, "France and Germany greenlight KNDS subsidiary establishment in Ukraine", 23 March 2024. See: <https://defence-industry.eu/france-and-germany-greenlight-knds-subsiary-establishment-in-ukraine/>

⁶⁶ Defence Industry Europe, "KNDS to establish MRO centre for CAESAR howitzers in Ukraine", 22 June 2024. See: <https://defence-industry.eu/knds-to-establish-mro-centre-for-caesar-howitzers-in-ukraine/>

⁶⁷ Defence Industry Europe, "European defence group KNDS opens subsidiary in Ukraine", 1 October 2024. See: <https://defence-industry.eu/european-defence-group-knds-opens-subsiary-in-ukraine/>

to Kyiv's economic recovery and defence⁶⁸. Despite these commitments, however, it has been German industry itself that has led the charge to increase defence industrial cooperation with Ukrainian firms.

In February 2024, MBDA Deutschland entered into an agreement with Ukraine's UDI to explore the possibilities for cooperation in air defence systems, especially as such technologies relate to countering UAVs⁶⁹. Major German firms such as Rheinmetall have already enhanced their operational footprint in Ukraine, with an MoU signed in February 2024 to boost artillery, ammunition and armoured vehicle production with Ukrainian partners⁷⁰. On 12 June 2024, German firm Rheinmetall and Ukraine signed a cooperation agreement on the defence industry, including the possibility of transfers of technical know-how.⁷¹ Based on this MoU, Rheinmetall started work on the construction of an ammunition factory in Ukraine along with a joint venture partner from Ukraine.⁷² Rheinmetall also set up a joint venture with the Ukrainian state-owned company UDI in October 2023 and a maintenance hub in Western Ukraine/Romania was established in June 2024 to assist with MRO.⁷³ Other German firms have sought to establish a footprint in Ukraine, with companies such as Quantum Systems opening a drone factory and development hub in Ukraine in April 2024.⁷⁴ Back in October 2023, German firm RENK Group signed an MoU with Ukraine to support Kyiv with the repair of more than 1,000 vehicles.⁷⁵

Greece

Greece signed a bilateral security agreement with Ukraine on 17 October 2024⁷⁶. The agreement underlines Greece's support for Ukraine's defence. There is evidence of growing

⁶⁸ German Government, "Agreement on Security Cooperation and Long-Term Support between the Federal Republic of Germany and Ukraine", 16 February 2024. See: <https://www.bundesregierung.de/resource/blob/998352/2261062/d84fa168bdd3747913c4e8618bd196af/2024-02-16-ukraine-sicherheitsvereinbarung-eng-data.pdf?download=1>

⁶⁹ "Ukraine, German manufacturer cooperate on air defence systems", *Reuters*, 20 February 2024. See: <https://www.reuters.com/business/aerospace-defense/ukraine-german-manufacturer-cooperate-air-defence-systems-2024-02-20/>

⁷⁰ Defence Industry Europe, "Rheinmetall to open artillery ammunition factory in Ukraine", 17 February 2024. See: <https://defence-industry.eu/rheinmetall-to-establish-artillery-ammunition-production-facility-in-ukraine/>

⁷¹ Ibid.

⁷² Rheinmetall, "Rheinmetall secures contract to build ammunition factory in Ukraine", 24 July 2024. See: <https://defence-industry.eu/rheinmetall-secures-contract-to-build-ammunition-factory-in-ukraine/>

⁷³ Rheinmetall, "Rheinmetall: A powerful partner at Ukraine's side", 5 July 2024. See: <https://www.rheinmetall.com/en/media/stories/2023/rheinmetall-a-powerful-partner-at-ukraine-side>

⁷⁴ Defence Industry Europe, "Quantum Systems opens drone factory and development hub in Ukraine", 18 April 2024. See: <https://defence-industry.eu/quantum-systems-opens-drone-factory-and-development-hub-in-ukraine/>

⁷⁵ Defence Industry Europe, "RENK Group becomes part of the Ukraine Defence Industry Compact", 20 October 2023. See: <https://defence-industry.eu/renk-group-becomes-part-of-the-ukraine-defence-industry-compact/>

⁷⁶ Ukrainian Government, "Greece Will Provide Additional Resources to Accelerate F-16 Training for Ukrainian Pilots – Bilateral Agreement", 17 October 2024. See: <https://www.president.gov.ua/en/news/greciya-nadavatime-dodatkovi-resursi-dlya-priskorennya-pidgo-93893>

relations between Greek and Ukrainian defence firms. In February 2024, an MoU was signed between the Greek aerospace industry group (HASDIG) and NAUDI to focus on R&D cooperation, cyberdefence and space⁷⁷. The provision of F-16 training for Ukrainian pilots and technicians is a major part of Greece-Ukraine cooperation. Athens seeks to help reconstruct Ukraine and support its future EU and NATO membership.

Italy

Italy and Ukraine signed their bilateral security agreement on 24 February 2024⁷⁸. The agreement specifies how the parties want to remove barriers to cooperation, identify supply chain bottlenecks, identify sources of funding for the Ukrainian DTIB and explore potential avenues for joint production and defence innovation. Additionally, Italy seeks to protect IPRs and ensure secure technology transfers, as well as to bolster cooperation on MRO⁷⁹. This agreement was extended in 18 October 2024 via a high-level meeting between the Ukrainian and Italian governments to develop cooperation in the air defence, electronic warfare, UAV and armoured vehicle sectors⁸⁰.

Italian firms have already started to engage with Ukrainian counterparts, with five Italian firms – Leonardo, Fincantieri, Elettronica, Iveco Defence Vehicles and FAE Group – forming part of the Ukrainian Alliance of Defence Industries, as of November 2023⁸¹. As part of these efforts, Italian firms have expressed their interest to cooperate in the aviation sector, demining, armoured vehicles, airspace protection and defence innovation. In contrast to many other EU member states, the Italian government has established a special fund to help develop defence innovations with Ukraine and Italian research institutes will be included in the efforts⁸².

Latvia

On 11 January 2023, Latvia and Ukraine signed an MoU between the defence sectors⁸³. Through this MoU, Latvia seeks to supply Ukraine with unmanned aerial vehicles, land vehicles, electronic warfare capabilities and innovative autonomous platforms. The

⁷⁷ Defence News Army, “Greek and Ukrainian defense industries forge alliance at World Defense Show 2024”, 9 February 2024. See: <https://armyrecognition.com/news/army-news/army-news-2024/greek-and-ukrainian-defense-industries-forge-alliance-at-world-defense-show-2024>

⁷⁸ Ukrainian Government, “Agreement on security cooperation between Ukraine and Italy”, 24 February 2024. See: <https://www.president.gov.ua/en/news/ugoda-pro-spivrobotnictvo-u-sferi-bezpeki-mizh-ukrayinoyu-ta-89245>

⁷⁹ Ibid.

⁸⁰ Ukrainian Government, “Ukraine and Italy plan to deepen their cooperation in defence industry”, 19 October 2024. See: <https://mspu.gov.ua/en/news/ukraine-and-italy-plan-to-deepen-their-cooperation-in-defence-industry>

⁸¹ Defence Industry Europe, “Ukraine: five Italian companies joined the Alliance of Defence Industries”, 17 November 2023. See: <https://defence-industry.eu/ukraine-five-italian-companies-joined-the-alliance-of-defence-industries/>

⁸² Ibid.

⁸³ Federation of Security and Defence Industries of Latvia, “MoU on cooperation between the defence and security industries of Ukraine and Latvia”, 11 January 2023. See: <https://federacija.lv/pasakumi/mou-cooperation-between-defence-and-security-industries-ukraine-and-latvia>

cooperation was solidified between Latvia and Ukraine on 11 April 2024, following the signing of the bilateral security agreement⁸⁴. In this agreement, Latvia pledges to help develop Ukraine’s defence sector through investments, partnerships and collaboration. Much like many other EU member states, the agreement focuses on reducing supply chain hurdles, recognises the need to localise production and seeks to identify new sources of funding for the Ukrainian DTIB. Latvia underlines that Ukraine’s defence modernisation is an important element of its integration into NATO and EU frameworks⁸⁵. Given the size of Latvia’s DTIB, the country is focusing on niche military technology domains that are of great relevance to Ukraine. Hence, the main focus has been on promoting Latvia’s start-ups in the UAV sector. This partly explains why Latvia launched the “Drone Coalition” with a multitude of other Euro-Atlantic partners to supply Ukraine with UAVs and attendant spare parts⁸⁶.

Lithuania

Lithuania and Ukraine signed a bilateral security agreement on 27 June 2024, of which defence industrial cooperation was a major part⁸⁷. As part of the agreement, Lithuania and Ukraine will establish a Defence Industry Council to discuss innovation and how to adapt technologies to the battlefield. The Council will also help exchange between defence industry and technology experts. Lithuania seeks co-investment, joint ventures and local production in Ukraine. Lithuania wants to learn from Ukraine’s military experiences against Russia to help with R&D projects. Lithuania endeavours to identify supply chain bottlenecks and engage in long-term defence innovation with Ukraine in areas such as anti-drone systems, optics, lasers, sensors, gunpowder and explosives. Lithuania seeks to help build the Ukrainian defence industry into a powerful capability for Ukraine’s territorial integrity and economic recovery. Lithuania sees the Ukrainian defence industry as a major element of Kyiv’s long-term deterrence against Russia. To this end, it wants to help Ukraine identify sources of finances for its defence sector and to help integrate its industry into EU and NATO networks.

Lithuanian companies such as NT Service have already started exporting defence telecommunications technologies to the Ukrainian armed forces⁸⁸. It should also be noted that Lithuanian defence firms are already engaged in technology testing in Ukraine, with

⁸⁴ Latvian Government, “Agreement between the Republic of Latvia and Ukraine on Long-Term Support and Security Commitments”, 11 April 2024. See: <https://www.mfa.gov.lv/en/media/12765/download?attachment>

⁸⁵ Op.Cit. “Latvia and Ukraine Security Agreement”.

⁸⁶ Gifford, J. and Abelis, V., “Mapping Latvia’s DefenceTech Innovation Space”, 30 July 2024. See: <https://labsoflatvia.com/en/news/mapping-latvias-defencetech-innovation-space>

⁸⁷ Ukrainian Government, “Agreement on Security Cooperation between Ukraine and the Republic of Lithuania”, 27 June 2024. See: <https://president.gov.ua/en/news/ugoda-pro-spivrobotnictvo-u-sferi-bezpeki-mizh-ukrayinoyu-ta-91809>

⁸⁸ Lithuanian Defence and Security Industries Association, “Lithuanian Defence and Security Industry Leaders Honoured, Product of the Year Announced”, 27 November 2023. See: <https://lgsipa.lt/en/106-naujienos/636-lithuanian-defense-and-security-industry-leaders-honored-product-of-the-year-announced?showall=1>

Lithuanian-made drones being tested by the Ukrainian armed forces in battlefield contexts⁸⁹. Such examples of cooperation are why in October 2024 Lithuania and Ukraine signed an MoU on defence industrial cooperation, which looks specifically at developing cooperation in high-tech areas⁹⁰. We should also recognise that the collaboration between Lithuania and Ukraine works both ways, with one unnamed Ukrainian firm establishing a manufacturing plant in Lithuania to produce explosives⁹¹.

Luxembourg

Luxembourg and Ukraine signed a bilateral security agreement on 10 July 2024⁹². Luxembourg has made clear that it will support Ukraine attract funding sources for Kyiv's defence industry and to speed up the integration of Ukraine into NATO and EU frameworks, especially in terms of standardisation. Overall, Luxembourg agrees that Ukraine's defence industry should be transformed into a powerful capability to enable Ukraine to defend its territory and lead to its economic reconstruction. Given the specific size and nature of Luxembourg's defence sector, the bilateral agreement places an emphasis on cooperation between SMEs. However, overall the two parties are keen to remove supply chain barriers and to strengthen the protection of IPRs and transferred technologies⁹³.

Netherlands

The Netherlands and Ukraine signed a bilateral security agreement on 1 March 2024, and much like its EU partners' agreements the focus is on developing Ukraine's DTIB as a basis for its integration into NATO and EU frameworks.⁹⁴ This security agreement is one of the few to explicitly call for a strategic cooperation roadmap on the defence industry, which includes measures such as countering supply chain bottlenecks, seeking finances for Ukraine, protecting IPRs and technology transfers and engaging in information exchange. The Netherlands makes a specific point about working together with Ukraine in unmanned

⁸⁹ Defence Industry Europe, "Lithuanian combat drones pass second successful test in Ukraine", 11 August 2024. See: <https://defence-industry.eu/lithuanian-combat-drones-pass-second-successful-test-in-ukraine/>

⁹⁰ Ukrinform, "Ukraine, Lithuania sign memo on cooperation in defense area", 18 November 2024. See: <https://www.ukrinform.net/rubric-defense/3904558-ukraine-lithuania-sign-memo-on-cooperation-in-defense-area.html>

⁹¹ LRT News, "Ukrainian company to build explosives plant in Lithuania - ministry", 16 October 2024. See: <https://www.lrt.lt/en/news-in-english/19/2387794/ukrainian-company-to-build-explosives-plant-in-lithuania-ministry>

⁹² Ukrainian Government, "Security Agreement with Luxembourg: Document Includes Clause on Supporting Ukraine in Releasing and Returning All Our People", 10 July 2024. See: <https://www.president.gov.ua/en/news/bezpekova-ugoda-z-lyuksemburgom-dokument-mistit-punkt-pro-pi-92053>

⁹³ Ukrainian Government, "Agreement on security cooperation and long-term support between Ukraine and the Grand-Duchy of Luxembourg", 10 July 2024. See: <https://www.president.gov.ua/en/news/ugoda-pro-spirobitnictvo-u-sferi-bezpeki-ta-dovgostrokovu-p-92057>

⁹⁴ Dutch Government, "Agreement on security cooperation between the Netherlands and Ukraine", 1 March 2024. See: <https://www.government.nl/documents/publications/2024/03/01/security-cooperation-between-the-netherlands-and-ukraine>

systems⁹⁵. Practical cooperation is ongoing between the Netherlands and Ukraine, including the signing of cooperation documents between Dutch and Ukrainian industries in March 2024 on autonomous systems and AI-enabled technologies⁹⁶. The Dutch defence industry association (NiDV) has also made a point of establishing a point of contact for Dutch industry at the outset of the war to support firms with potential deliveries to Ukraine⁹⁷.

Poland

Ukraine and Poland signed a bilateral security agreement on 8 July 2024.⁹⁸ Poland seeks to be involved in local production in Ukraine, and to include Ukrainian-based firms into production chains. Poland is interested in MRO with the Ukrainian armed forces, and it seeks to prioritise the space industry. Poland wants to remove barriers to cooperation and explore joint production with Ukraine, as well as to identify supply chain bottlenecks and protect IPRs and transferred technologies. Poland wants to support Ukraine stockpile strategic equipment and technologies.⁹⁹ Poland seeks to help develop Ukraine's defence industries to support its territorial integrity and defence. Poland sees as an urgent need the development of Ukraine's military edge for self-defence against Russia, and it believes that Ukraine's defence industry should be integrated into NATO and EU frameworks¹⁰⁰.

Additionally, Warsaw seeks identify ways to generate investment in Ukraine's defence sector and to include Polish industry in Ukrainian defence industrial efforts. Poland has a long-standing level of cooperation with Ukraine on defence industrial matters that pre-dates the war in 2022. Indeed, Polish firms had already engaged Ukrainian partners in the areas of electronics, tank modernisation, fighting vehicles, howitzers and more¹⁰¹. There appears to be continued interest from Ukraine to work with Polish partners on armoured vehicles, UAVs and robotics.¹⁰² Analysis has shown that Polish manufacturers retain a dominant position in the

⁹⁵ Ibid.

⁹⁶ Ukrainian Government, "Ukrainian and Dutch defense companies signed 5 documents on cooperation", 21 March 2024. See: <https://msspu.gov.ua/en/news/ukrainian-and-dutch-defense-companies-signed-5-documents-on-cooperation>

⁹⁷ NiDV, "NiDV Steunpunt Oekraïne geopend", 4 March 2022. See: <https://www.nidv.eu/nieuws/nidv-steunpunt-oekraïne-geopend/>

⁹⁸ Ukrainian Government, "Agreement on Security Cooperation between Ukraine and the Republic of Poland", 8 July 2024. See: <https://www.president.gov.ua/en/news/ugoda-pro-spivrobotnictvo-u-sferi-bezpeki-mizh-ukrayinoyu-ta-92009>

⁹⁹ Op.Cit. "Ukraine Poland Security Agreement".

¹⁰⁰ Ibid.

¹⁰¹ Kozłowski, A. (ed.), "Polish-Ukrainian Military Industry Cooperation: The Rising Military Industry Power?", Pulaski Foundation, 2023. See: <https://pulaski.pl/wp-content/uploads/2023/09/Polish-Ukrainian-military-industry-cooperation.-The-rising-military-industry-power.pdf>

¹⁰² Ibid.

Ukraine market¹⁰³, and the major Polish firm PGZ (*Polska Grupa Zbrojeniowa*) has sent it experts to Ukraine to engage in MRO for damaged military equipment¹⁰⁴.

Portugal

Portugal and Ukraine signed a bilateral security cooperation agreement on 28 May 2024¹⁰⁵. Echoing many of the other bilateral security agreements with Ukraine, Portugal wants to see Ukraine's defence industry integrated into NATO and EU security frameworks and to also reduce barriers to cooperation, seek financing opportunities, protect IPRs and technology, support supply chain management, enhance standardisation and seek information exchange¹⁰⁶. The one aspect of the Portugal-Ukraine agreement that is perhaps unique is the emphasis it places on education and training in military technology and defence industry matters. Nevertheless, even though Portugal has exported several weapons systems to Ukraine to support its defence, it is unclear to what degree Portuguese industry has managed to strike up partnerships with Ukrainian defence firms.

Romania

The Ukraine-Romania bilateral security agreement was signed on 11 July 2024 and consists of a range of objectives in the defence sector¹⁰⁷. Romania recognises that Ukraine's defence industry can play an essential role in its integration to NATO and EU frameworks, and that it has a critical role to play in defending Ukraine over the longer-term. Like other EU partners, Romania is keen to reduce supply chain bottlenecks, protect IPRs, encourage defence industrial reforms, find financial support for Ukraine's industries and to improve military and technical cooperation¹⁰⁸. On this last point, Romania and Ukraine had already established a Commission on Military and Technical Cooperation in September 2020 to enable joint research, MRO and equipment purchases¹⁰⁹. Much like the experience of Lithuania and explosives production on its soil, there is evidence that Ukraine is being encouraged by

¹⁰³ Wilk, A. and Zochowski, P. "The International Defence Industries Forum in Kyiv. Day 586 of the war", *OSW Analyses*, 3 October 2023. See: <https://www.osw.waw.pl/en/publikacje/analyses/2023-10-03/international-defence-industries-forum-kyiv-day-586-war>

¹⁰⁴ "Poland Sends Personnel to Ukraine to Repair Military Equipment", *European Pravda*, 27 October 2023. See: <https://www.eurointegration.com.ua/eng/news/2023/10/27/7172325/>

¹⁰⁵ Ukrainian Government, "Agreement on Security Cooperation between Ukraine and Portugal", 28 May 2024. See: <https://www.president.gov.ua/en/news/ugoda-pro-spivrobotnictvo-u-sferi-bezpeki-mizh-ukrayinoyu-ta-91181>

¹⁰⁶ *Ibid.*

¹⁰⁷ Ukrainian Government, "Agreement on Security Cooperation between Ukraine and Romania", 11 July 2024. See: <https://president.gov.ua/en/news/ugoda-pro-spivrobotnictvo-u-sferi-bezpeki-mizh-ukrayinoyu-ta-92117>

¹⁰⁸ *Op.Cit.* "Ukraine Romania Security Agreement".

¹⁰⁹ Pienkowski, J. "Romania's Relations with Ukraine: Cooperation Despite an Impasse", *PISM*, 10 March 2021. See: https://pism.pl/publications/Romanias_Relations_with_Ukraine_Cooperation_Despite_an_Impasse

Romania's PATROMIL to develop UAVs, explosives and armoured vehicles in Romania¹¹⁰. Finally, given Romania and Ukraine's vital interest in the Black Sea both sides have explored the possibility of modernising the R-360 Neptune anti-ship missiles together¹¹¹.

Slovenia

Ukraine and Slovenia signed a bilateral security agreement on 18 July 2024¹¹², which underlines the importance of closer defence industrial cooperation. Slovenia seeks any opportunities to develop industrial cooperation with Ukraine and to integrate the Ukraine DTIB into NATO and EU efforts. The partners want to develop projects of common interest, and to help Ukraine strengthen the protection of transferred technologies and intellectual property rights¹¹³. Slovenia seeks to support Ukraine's independence, sovereignty and territorial integrity. Slovenia also supports Ukraine's reform agenda and economic modernisation, which are essential to Ukraine's European and Euro-Atlantic aspirations¹¹⁴.

Spain

Spain and Ukraine signed a bilateral security agreement on 27 May 2024, which included specific language on deepening defence industrial cooperation between the two countries¹¹⁵. Spain seeks to reduce barriers for cooperation and to boost Spanish participation in the Ukrainian defence sector, especially through joint production¹¹⁶. Spain seeks to support Ukraine overcome supply chain bottlenecks, and to enhance financial opportunities for the Ukrainian defence sector. Spain wants to help Ukraine protect IPRs and transferred technologies¹¹⁷. Spain will support Ukraine to integrate its defence industry into NATO and EU frameworks, and Madrid will help Ukraine standardise equipment so as to enhance interoperability with EU and NATO partners. Spain's overarching political interest is in restoring Ukraine's territorial integrity and to spearhead Ukraine's economic recovery¹¹⁸. It is worth acknowledging that Spanish firms such as Indra have long held a commercial footprint

¹¹⁰ Militaryni, "Romania wants to deploy Ukrainian defense plants", 24 September 2024. See: <https://mil.in.ua/en/news/romania-wants-to-deploy-ukrainian-defense-plants/>

¹¹¹ Army Recognition, "Romania Plans to Jointly Develop R-360 Neptune Missiles with Ukraine", 14 October 2024. See: <https://armyrecognition.com/news/army-news/army-news-2024/romania-plans-to-jointly-develop-r-360-neptune-missiles-with-ukraine>

¹¹² Ukrainian Government, "Agreement on Security Cooperation and Long-Term Support Between Ukraine and the Republic of Slovenia", 18 July 2024. See: <https://president.gov.ua/en/news/ugoda-pro-spivrobotnictvo-u-sferi-bezpeki-ta-dovgostrokovu-p-92241>

¹¹³ Ibid.

¹¹⁴ Ibid.

¹¹⁵ Ukrainian Government, "Agreement on Security Cooperation between Spain and Ukraine", 27 May 2024. See: <https://www.president.gov.ua/en/news/ugoda-pro-spivrobotnictvo-u-sferi-bezpeki-mizh-ukrayinoyu-ta-91145>

¹¹⁶ Ibid.

¹¹⁷ Ibid.

¹¹⁸ Op.Cit. "Ukraine Spain Security Agreement".

in Ukraine, with cooperation on air traffic management pre-dating Russia’s 2022 invasion. Yet, major Spanish firms are also positioning themselves in some key technology areas that will be of interest to Ukraine, including Indra’s “Crow” anti-drone system which was recently tested at a NATO interoperability exercise¹¹⁹.

Sweden

In May 2024, Ukraine concluded a long-term bilateral security agreement with Sweden¹²⁰ designed to help boost the production of the Ukrainian defence industry. Sweden has also announced the plan to deploy civilian experts from the *Försvarets materielverk* (FMV) to strengthen defence industrial cooperation¹²¹. Sweden and other Northern European countries have met at successive iterations of the Ukraine – Nordic Summit to pledge support to Ukraine, including in the defence industrial sphere¹²². Swedish defence firms are seeking a foothold in Ukraine. Saab wants industrial partnerships with a view to local production¹²³ and the company has publicly underlined its interest in establishing production facilities in Ukraine to support Kyiv develop sovereign defence capabilities¹²⁴. BAE Systems Hägglunds has also sought a deeper partnership with Ukraine following the delivery of the CV90 combat vehicle to Ukraine’s armed forces¹²⁵. On this basis, Sweden seeks to work with Ukraine’s defence industry for MRO and the localised production of Swedish defence products in Ukraine. Sweden sees cooperation with the Ukrainian DTIB as a way to create a modern defence sector and to integrate Ukraine into the EU and NATO. The provision of the CV90s, Archer artillery system, ASC 890 aircraft and Gripen fighters to Ukraine are seen as a way to boost Ukraine’s defence and long-term deterrence.

¹¹⁹ Defence Industry Europe, “Indra demonstrates Crow C-UAS system at NATO anti-drone exercises”, 24 October 2024. See: <https://defence-industry.eu/indra-demonstrates-crow-c-uas-system-at-nato-anti-drone-exercises/>

¹²⁰ Ukrainian Government, “Ukraine and Sweden Signed a Security Agreement”, 31 May 2024. See: <https://www.president.gov.ua/en/news/ukrayina-ta-shveciya-pidpisali-bezpekovu-ugodu-91233#:~:text=President%20of%20Ukraine%20Volodymyr%20Zelenskyy,EUR%202.2%20billion%20per%20year>

¹²¹ Swedish Government, “Utvecklingen av Sveriges försvarsförmåga”, 15 August 2024. See: <https://www.regeringen.se/artiklar/2024/08/utvecklingen-av-sveriges-forsvarsformaga/>

¹²² Op.Cit. “Nordic Summit in Reykjavik”.

¹²³ “Saab plans to set up production in Ukraine amid growing demand”, *Reuters*, 25 September 2024. See: <https://www.reuters.com/business/aerospace-defense/saab-plans-set-up-production-ukraine-amid-growing-demand-2024-09-25/>

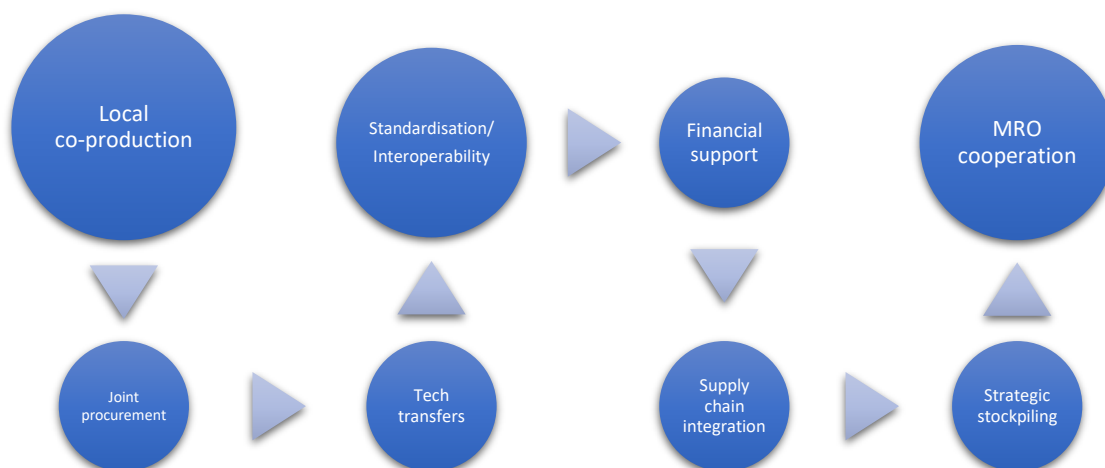
¹²⁴ Ibid.

¹²⁵ Swedish Defence Industries Association, “Support Ukraine”. See: <https://soff.se/en/support-ukraine/>

ASSESSING THE NATURE AND DEPTH OF EUROPE-UKRAINE DEFENCE INDUSTRIAL COOPERATION

Based on the mapping exercise above, it is now time to focus on the extent and nature of Europe-Ukraine cooperation in the defence sector. The first conclusion to derive from the mapping above is that cooperation is still in its infancy and in many cases the resulting cooperation can be labelled as largely superficial. In general, European defence firms have waited for signals from their governments to forge security agreements with Ukraine before venturing into the Ukrainian defence market. Such cooperation has benefitted from the existing government-to-government and institution-to-government cooperation that has occurred because of the war through the European provision of ammunition and military equipment to Ukraine. It is clear that Ukraine has been keen to engage European firms that can provide the military equipment required to defend against Russia – this is Kyiv’s immediate political objective. In this respect, European firms have operated within a more general context characterised by European military support to the Ukrainian authorities. It is clear that the bilateral and multilateral military support provided to Ukraine has enabled European firms to better socialise with Ukrainian authorities and firms, which has greatly enabled European firms – especially those with no prior access to the Ukraine defence market – to strike up strategic industrial partnerships.

Figure 1 – Forms of Europe-Ukraine Defence Industrial Cooperation

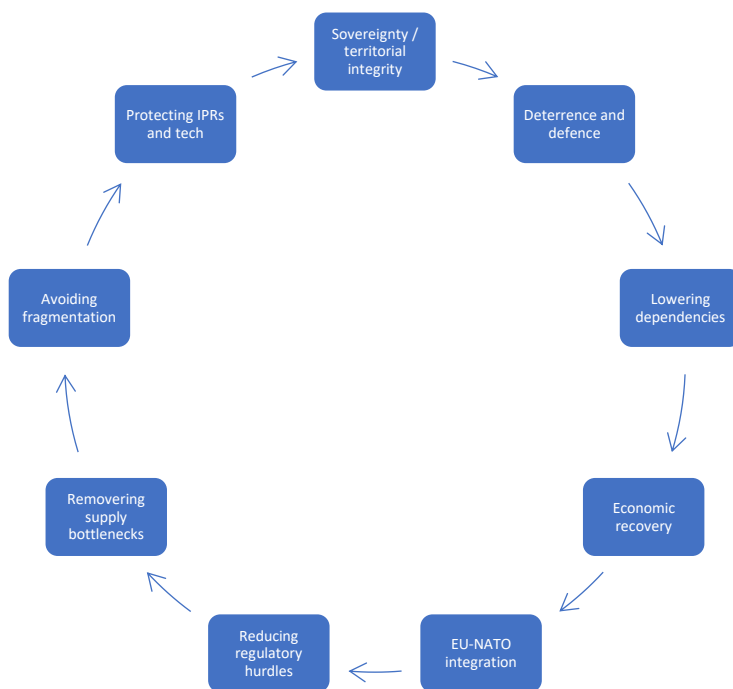


Source: author's own, 2024

To be clear, and based on the available data, the Ukrainian government is not operating a formal “pay for access” scheme, whereby the degree of permitted cooperation with Ukrainian firms is based on how far an individual EU member state is supporting the war effort. In fact, a more pragmatic and organic form of cooperation is taking root based on multiple industrial and political criteria. In this sense, it makes it difficult to outline one political and/or commercial strategy that has enabled European firms to work jointly with Ukrainian counterparts. On the one hand, larger European firms that have a political consensus with their government to do business in Ukraine, and where the technology/weapon suite on offer is best suited to Ukraine’s perceived short- and long-term military needs, find it easier to access the defence market in Ukraine. On the other hand, smaller defence firms from smaller EU member states have enjoyed some sector specific levels of technology cooperation, albeit mainly premised on close pre-war cooperation with Ukraine and/or close geographical proximity to Kyiv.

In general though Europe-Ukraine defence industrial cooperation is still rather superficial, although long-term engagement – depending on the security situation in Ukraine – appears likely to develop into deeper defence sector integration. As the mapping above shows, current partnerships are varied and take many forms. As shown by Figure 1, we have identified in this paper 8 main forms of industrial cooperation including: 1) local co-production; 2) general joint production; 3) technology and information transfers/exchange; 4) standardisation and interoperability initiatives; 5) direct financial support; 6) supply chain integration; 7) strategic stockpiling; and 8) MRO cooperation. As one can see, these are areas of cooperation that seek to support Ukraine’s ongoing war effort, as well as setting the ground work for Ukraine’s more structural integration into the EU and the EDTIB. In several cases, this form of cooperation is relatively well developed with a number of European firms already having established industrial hubs, factories or warehouses in or close to Ukraine.

Figure 2 – Political Objectives and Defence Industrial Cooperation

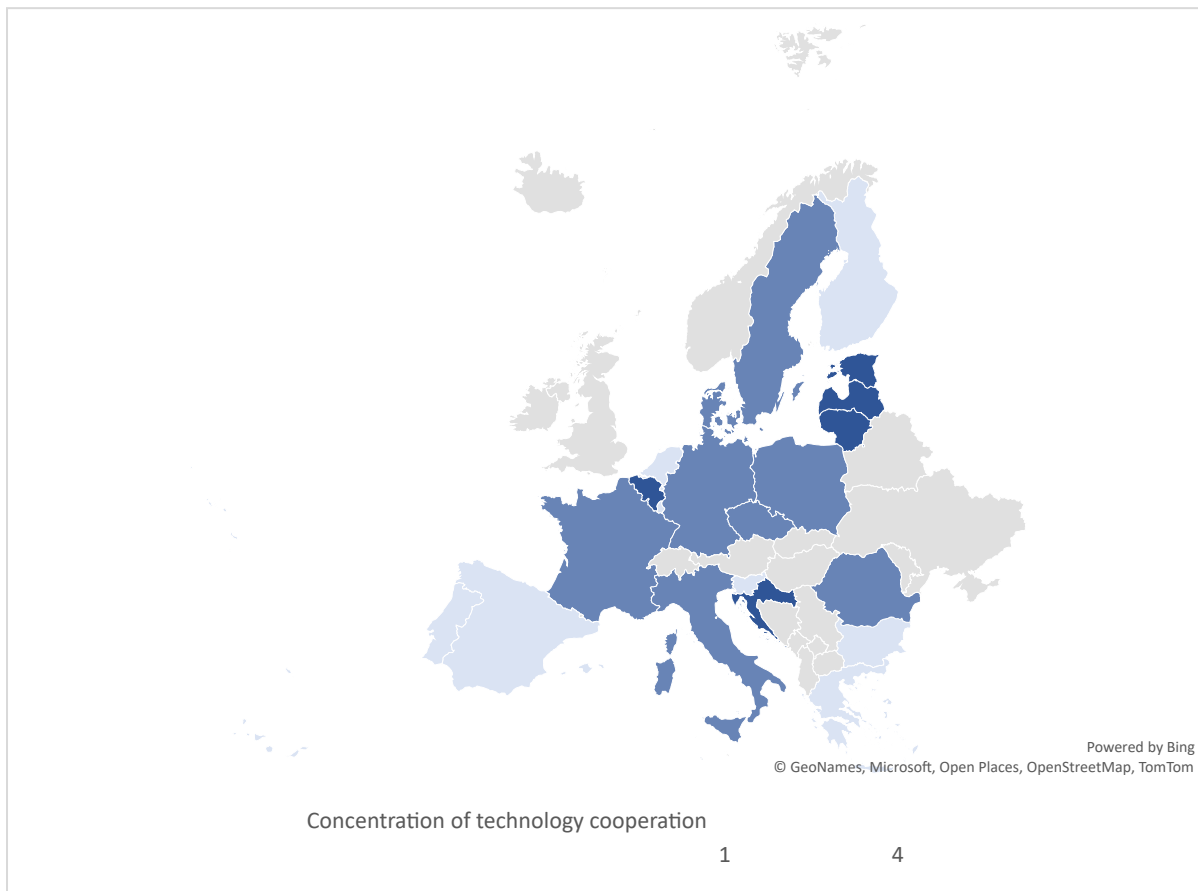


Source: author's own, 2024

These forms of defence industrial cooperation between European and Ukrainian firms are supported – and indeed blend with – a range of overarching political and economic objectives that have been agreed by the Ukraine government, EU member states and EU institutions. As many of the country cases in the mapping exercise above show, overall defence industrial cooperation between member states and Ukraine is regulated by bilateral security agreements. The majority of these bilateral agreements are identical in form and substance, as we should recognise that the bilateral agreements derive from the Joint Declaration of Support for Ukraine that was endorsed in Vilnius at the G7 meeting in July 2023.¹²⁶ On this basis, and as Figure 2 shows, the majority of EU member states and Ukraine are pursuing 9 specific political objectives including: 1) maintaining Ukraine’s sovereignty and territorial integrity; 2) strengthening Ukraine’s deterrence and defence; 3) limiting dependencies on Russia; 4) aiding Ukraine’s long-term economic recovery; 5) preparing Ukraine for EU-NATO integration; 6) reducing regulatory hurdles; 7) removing supply chain bottlenecks; 8) avoiding fragmentation of the Ukrainian defence sector; and 9) protecting IPRs and technology transfers.

¹²⁶ European Council, “G7: Joint declaration of support for Ukraine”, 12 July 2023. See: <https://www.consilium.europa.eu/en/press/press-releases/2023/07/12/g7-joint-declaration-of-support-for-ukraine/>

Figure 3 – Concentration of technology cooperation with Ukraine



Source: author's own, 2024

Note: the data in this map derives from the open source material used during the mapping exercise above. The author has graded each EU member state based on the actual/stated interest in cooperation with Ukraine based on high-tech products or defence innovation. 4 signifies that a country has only established defence innovation efforts without engaging in MRO or the joint development of military systems. 1 signifies that a country has given preference to MRO/systems cooperation over high-tech projects and joint ventures.

What is more, the current early phase of defence industrial cooperation between Europe and Ukraine is marked by an extensive range of military technologies and systems. Based on the mapping exercise, Ukrainian and European defence firms are currently engaged in 25 areas including: aircraft, air defence, anti-ship missiles, ammunition, artillery, armoured vehicles, critical infrastructure, cyberdefence, demining, digital/software, electronic warfare, explosives, gunpowder, helicopters, lasers, long-range missiles, main battle tanks, maritime security, medical, radars, remotely piloted systems (subsea, ground and aerial), robotics, sensors, small arms and space. Of course, cooperation in these military technology domains does not automatically assume a deep form of cooperation – in most cases basic information exchange between firms has occurred, although in several cases these technologies are

already being tested in the battlefields of Ukraine. What is more, no single EU member state is engaged in all of these areas with Ukraine on a simultaneous basis. The area of cooperation in any given military technology domain is decided based on the expertise of firms and their willingness to exchange information. What is more, we should also acknowledge that cooperation is not a one-way street, with Baltic countries engaging with Ukraine on missile technologies in order to improve their own long-range strike capabilities.

Finally, it is worth reflecting on the possible commercial and strategic reasons behind European firms' engagement with Ukraine – why cooperate in the first place? The mapping exercise shows that the firms from smaller EU member states seem most willing to engage in high-tech defence innovation efforts (e.g. anti-drone systems, sensors, etc.), whereas the larger firms appear more interested in existing military systems (e.g. tanks, ammunition, etc.). As Figure 3 highlights, geographical location and proximity to Ukraine (and Russia) implies a greater willingness to engage in riskier investments in Ukraine within the high-tech domain. In important respects, engaging with Ukrainian industries today – and assuming the risks that come with this – is a form of “down-payment” on future relations. The prospect of smaller defence firms in the EU striking deals with Ukrainian firms today means that they stand a better chance of exporting to the Ukrainian market in the future. What is more, working closely with Ukraine today is perhaps an effective way of forging industrial partnerships that might be quite successful within EU (and possibly NATO) defence funding schemes in the future. The larger firms from larger EU member states have been far more cautious in this regard. Nevertheless, there is a potential pattern in assuming short-term risk in order to make longer-term commercial and political gains later, although this wholly depends on Ukraine's military situation in the future.

CHALLENGES TO DEEPER DEFENCE INDUSTRIAL COOPERATION

Engaging in defence industrial cooperation with Ukraine comes with some major challenges and risks, not least given the fact that Kyiv is still at war with Russia and there is no clear end-state to the conflict in sight. Clearly, defence industrial infrastructure (i.e. factories, energy sources, etc) are direct targets for the Russian military and Moscow has already targeted such infrastructure in the hope of stymieing Ukraine's resistance and defence modernisation. In this respect, there are financial and political risks associated with European firms investing in production and innovation infrastructure in Ukraine during wartime. In addition to risks to production infrastructure, we should also consider the risk from sabotage and espionage, where any military technology transfers to Ukraine could end up in Russian hands. It has already been recognised by Ukrainian commentators that Ukraine's defence industrial reform

must include important steps to protect technology information and avoid industrial espionage¹²⁷. Indeed, Russia has already used cyber techniques such as hacking and spoofing to steal information from Ukraine¹²⁸.

However, the risks that European technology might be face once shared with Ukrainian firms are not only related to Russia. Ukraine is making great use of Chinese drones in its fight against Russia, especially procuring civilian drones such as the DJI Mavic for use in battle¹²⁹. Such small drones are being procured on the open market, despite DJI's prohibition on sales to militaries. In fact, China's moves to restrict the exportation of drones poses a challenge for Ukraine, which cannot rely on domestic production alone to sustain its Unmanned Systems Forces (USF). The integration of Chinese civil and military technologies into Ukraine's systems poses IPR and technology transfer questions for European producers, especially as Ukraine has demonstrated an ability to create "Frankenstein" weapons systems made up of parts and technologies from multiple suppliers. This is especially a risk in the context of the underlying software used to manage swarms of drones that may come from China too. Finally, with North Korean troops entering the war there is a risk that damaged European systems and technologies can be transported back to Pyongyang for military intelligence purposes.

As the mapping of defence industrial cooperation in this paper shows, however, European firms are willing to accept a degree of risk in order to cooperate with Ukrainian counterparts. In fact, based on the available evidence it is clear that European firms are seeking to manage risk in specific ways. First, only a few firms have actively invested in developing new physical infrastructure in Ukraine, and most investments in such infrastructure are geared to refurbishing existing sites in Ukraine. In this sense, European firms have been careful not to over-invest in new defence industrial infrastructure in order to avoid heavy initial financial outlays or the risk that infrastructure is struck by Russian forces and captured at some future stage. Risk has also been managed in the area of information exchange, where European firms can rely on their (or their governments') encryption and cyberdefence systems. There has also been a general reluctance by European firms to share valuable commercial and technological data with Ukrainian counterparts. Overall, a residual risk aversion among the defence sector has led to the bulk of cooperation focusing on MRO cooperation.

¹²⁷ Verkhniatskyi, P. "Ukraine's innovative defense industry can play a key role in Western security", Atlantic Council, 19 September 2024. See: <https://www.atlanticcouncil.org/blogs/ukrainealert/ukraines-innovative-defense-industry-can-play-a-key-role-in-western-security/>

¹²⁸ Mueller, G.B. et al. "Cyber Operations During the Russo-Ukrainian War: From Strange Patterns to Alternative Futures", *CSIS Brief*, 13 July 2023. See: <https://www.csis.org/analysis/cyber-operations-during-russo-ukrainian-war>

¹²⁹ Gosselin-Malo, E., "Ukraine continues to snap up Chinese DJI drones for its defense", *C4ISRnet*, 23 October 2023. See: <https://www.c4isrnet.com/global/europe/2023/10/23/ukraine-continues-to-snap-up-chinese-dji-drones-for-its-defense/>

Additionally, risk can also be calculated in terms of the current state of the Ukrainian defence sector more broadly, especially when it comes to the level of state control of industry and questions of corruption. The Ukrainian government has already dismissed or suspended military officials amid corruption probes¹³⁰, and there is an ongoing strategy of combating corruption in the country due to reports of embezzlement and money laundering.¹³¹ Even before Russia's full-scale invasion in 2022, there were strong indications of corruption in Ukraine's defence sector with a lack of transparency, competition and due diligence for the awarding of contracts¹³². These risks have forced the Ukrainian government to reform its defence sector. It was partly because of the failure to develop domestic ballistic missiles (Sapsan/Grom-2 missiles) in an orderly and timely fashion, that the Ukrainian state dissolved the state-owned Ukroboronprom in mid-2023 and replaced it with the Ukrainian Defence Industry (UDI) – which remains a 100% state-owned firm. Although the UDI was comprehensively reorganised to purportedly reflect Western standards¹³³, there remain questions about whether the impulse to consolidate the Ukrainian defence sector and relevant ministerial defence agencies is actually improving transparency and reducing the risk of corruption.¹³⁴

Linked to the issue of defence modernisation and sectoral reform are Ukrainian regulations and laws that may (and do) stymie European firms doing business with Ukrainian counterparts. Indeed, Ukraine's laws on the exportation of dual-use technologies and weapons systems can work as a disincentive for European firms. This is particularly the case in terms of Ukraine's law "On the State Control for International Transfer of Military and Dual-Use Goods" (No. 549-IV)¹³⁵, which subjects all export decisions to the Ukrainian State Service of Export Control. Although Ukraine is working to reform its defence industrial regulations, the reality today is that there are severe restrictions and prohibitions on (re)exporting military equipment out of Ukraine. While such legislation is geared to ensuring that the Ukrainian

¹³⁰ "Ukraine suspends senior defence official amid corruption probe", *Reuters*, 2 February 2024. See: <https://www.reuters.com/world/europe/ukraine-suspends-senior-defence-official-amid-corruption-probe-2024-02-02/>

¹³¹ Wright, G. "Ukraine says it has uncovered major arms corruption", *BBC News*, 28 January 2024. See: <https://www.bbc.com/news/world-europe-68120973>

¹³² Anderson, E. et al., "Six Red Flags: The Most Frequent Corruption Risks in Ukraine's Defence Procurement", *Transparency International*, 2018. See: https://www.transparency.org.uk/sites/default/files/pdf/publications/Ukraine_Six_Red_Flags_Eng.pdf

¹³³ Defence Industry Europe, "Ukraine implements reorganization of defence industry", 2 July 2023. See: <https://defence-industry.eu/ukraine-implements-reorganization-of-defence-industry/>

¹³⁴ NAKO, "The Merger of Two Procurement Agencies of the Ministry of Defense: Why the Minister's Decision Is Questionable?", 8 October 2024. See: <https://nako.org.ua/en/research/objednannya-2-x-zakupivelnix-agencii-ministerstva-oboroni-comu-ce-risennya-ministra-sumnivne>

¹³⁵ US International Trade Administration, "Prohibited and Restricted Trade Imports Ukraine", 11 January 2023. See: <https://www.trade.gov/country-commercial-guides/ukraine-prohibited-and-restricted-imports>

armed forces are equipped and supplied, it is equally true that an inability to export equipment is not in the interests of any European and Ukrainian firms working through joint ventures. In this respect, any joint ventures that cannot export to global markets is an unattractive proposition, as well as ensuring that profits from global sales do not benefit Ukraine through economic returns¹³⁶.

Furthermore, another challenge facing Ukraine and Europe is to properly define what defence industrial needs and technologies will be required in the future. Most European firms and governments act as though Ukraine will prevail in the war, although the election of Donald Trump as the next US president raises questions about whether Europeans can continue to support Ukraine – alone, if necessary. Even in Ukraine, producers are starting to reflect on what the Ukrainian defence sector may look like in the future based on its military needs. In fact, in 2023 the head of Ukraine’s association of defence industries (NAUDI) argued that it is impossible to plan for future investments in the defence sector because Ukraine does not know what it may require given the evolving strategic context¹³⁷. European governments and firms are certainly in the same position, and without a more precise idea of what military equipment will be required (especially in terms of quantity), it will be difficult to mobilise financial resources or develop commercial plans. Should any “peace deal” be formulated or in case Russia prevails, serious questions will be asked about the nature of Ukraine’s defence sector. Such questions would include whether Ukrainian defence scientists or technicians – and their IPRs and information – be extracted to EU/NATO territory in the event of the worst case scenario.

The question of Ukraine’s future integration into EU and NATO frameworks also poses a series of political challenges. In fact, the European Commission has been rather bold in dedicating sections of the European Defence Industrial Strategy and the proposed EDIP to the support of Ukraine’s defence industry. While the mapping exercise highlights that a majority of EU member states do wish to deepen their cooperation with Ukraine in the defence sector, there will be political considerations for how this could be structured. Ukraine is not a fully-fledged EU member state today, so it can be argued that there will be natural limits on how far it can be integrated with the EDTIB until it becomes one. Alternatively, if the assumption is that a lasting peace will be brought to Ukraine based on its territorial integrity and sovereignty, the

¹³⁶ Melkozerova, V. “Ukraine’s weapons industry presses government to allow arms exports”, *Politico*, 9 October 2024. See: <https://www.politico.eu/article/ukraine-arms-industry-export-weapons/>

¹³⁷ Naudi, “«Неможливо планувати інвестиції в оборонну промисловість – адже ніхто не знає, що буде потрібно армії завтра», – виконавчий директор NAUDI Максим Полив’яний”. See: <https://naudi.com.ua/blogs/news/неможливо-планувати-інвестиції-в-оборонну-промисловість-адже-ніхто-не-знає-що-буде-потрібно-армії-завтра-виконавчий-директор-naudi-максим-полив-яний>

full integration of Ukraine’s defence sector into the EU potentially holds out the opportunity of growing the European defence market. This growth is not only based on the idea that the Ukrainian DTIB will add substantial industrial heft to the EDTIB, but that Ukraine can represent a major contribution to stimulating “domestic demand” for European products – a “market” as well as a “member state”. In this regard, EU member states are still discussing under the planned EDIP about how best to modulate Ukraine’s integration with the EU while it is not a member state.

Finally, we should not neglect how there is growing international competition for privileged access to the Ukrainian defence market. Although this paper has focused on European cooperation (defined as EU member states), Ukraine is also striking up defence industrial cooperation with firms from the United States, United Kingdom (UK), Turkey and more. Such competition may complicate how Ukraine cooperates with EU-based counterparts, especially when it comes to technology exchange and IPRs. Although the US has sought to develop its own national DTIB after the war began in Ukraine¹³⁸, not least in order to respond to the growing military aid deliveries to Kyiv¹³⁹, several American firms have also sought to cooperate with Ukrainian counterparts. For example, companies such as AeroVironment have already struck up agreements to locally produce loitering munitions.¹⁴⁰ Interestingly, however, American firms have been far more interested in selling directly to the Ukrainian government, as the risks outlined above have weighed on commercial decisions to operate directly in Ukraine. Although Kyiv has called for joint production with US operators¹⁴¹, the US government has only recently allowed American contractors to deploy to safe parts of the country¹⁴² and most firms are worried that risk may outweigh the benefits¹⁴³.

Much like their EU counterparts, the UK has been keen to strike up defence industrial relations with Ukraine. London and Kyiv signed a bilateral security agreement in January 2024¹⁴⁴, under

¹³⁸ Souverbie, L. “The U.Z. Industrial Defense Strategy After Ukraine”, *IRIS Institute*, April 2024. See: https://www.iris-france.org/wp-content/uploads/2024/04/IRIS_EN_ProgIndusDef_US-Industrial-Strategy_April-2024.pdf

¹³⁹ Nicastro, L.A. et al., “Defense Production for Ukraine: Background and Issues for Congress”, *Congressional Research Service*, 16 September 2024. See: <https://crsreports.congress.gov/product/pdf/R/R48182#:~:text=4%20Broadly%20speaking%2C%20the%20U.S.,UAF%20from%20its%20existing%20stocks>

¹⁴⁰ Baker, S. “More US and European defense companies are setting up operations in Ukraine as the war rages on”, *Business Insider*, 3 October 2024. See: <https://www.businessinsider.com/western-defense-companies-set-up-operations-in-ukraine-war-continues-2024-10>

¹⁴¹ Ukrainian Government, “President of Ukraine Met with Representatives of American Defense Companies”, 11 July 2024. See: <https://www.president.gov.ua/en/news/prezident-ukrayini-zustrivsyia-z-predstavnikami-amerikanskih-92101>

¹⁴² Baldor, L.C. “The Pentagon is letting a small number of U.S. defense contractors fix weapons in Ukraine”, *AP Press*, 8 November 2024. See: <https://apnews.com/article/ukraine-contractors-pentagon-weapons-repair-c59260ab3db7514dd8930823e0b5adf3>

¹⁴³ Decker, A. “Warily, US companies eye co-production deals in Ukraine”, *DefenseOne*, 6 August 2024. See: <https://www.defenseone.com/business/2024/08/warily-us-companies-eye-co-production-deals-ukraine/398616/>

¹⁴⁴ UK Government, “UK-Ukraine agreement on Security Cooperation”, 12 January 2024. See: <https://www.gov.uk/government/publications/uk-ukraine-agreement-on-security-co-operation>

the previous Conservative government, and since this time defence industrial cooperation has intensified. In July 2024, the new Labour government signed a defence industrial agreement with Ukraine to help support the production of air defence systems, armoured vehicles and ammunition with a £3.5 billion support line of finance¹⁴⁵. The agreement is designed to stimulate joint defence products between British and Ukrainian defence firms¹⁴⁶. We should acknowledge that the UK government and British firms have been proactive in relations with Ukraine, with a defence trade mission to Kyiv having taken place in October 2024¹⁴⁷, among several of its kind since 2023 under the British “Task Force Hirst” initiative¹⁴⁸. Companies such as BAE Systems are already present in Ukraine, with the company having opened an office in Ukraine in August 2023 to help manage local production of light guns¹⁴⁹. Even Babcock set up an engineering facility in Ukraine in May 2024 in order to provide domestic MRO services for armoured vehicles – Babcock Ukraine was created in 2023 to support Ukraine with naval and air force capacities¹⁵⁰. Much like their EU counterparts, however, the British footprint in Ukraine is mainly defined in terms of MRO support rather than any high-tech joint production initiatives.

Other countries and firms have been keen to engage with Ukraine, although only a telegraphic overview can be provided here due to space. Turkey is capitalising on the production of its Baykar drone, which integrates Ukrainian technologies already, to boost cooperation with Ukraine – at the start of 2024 Baykar began constructing a factory near Kyiv to locally produce the drone variants¹⁵¹. Even potentially unlikely partners have appeared on Ukraine’s radar screen too, such as Australian firms. Kyiv has already started to cultivate relations with Australian firm EOS Defence Systems with a view to developing cooperation in counter-drone systems¹⁵². Even Japanese firms have sought to cooperate with the Ukrainian defence sector, including with Japanese drone firms such as Prodrone and Padeco seeking to launch their mine

¹⁴⁵ UK Government, “UK trade mission visits Kyiv to deepen industry ties”, 6 October 2024. See: <https://www.gov.uk/government/news/uk-trade-mission-visits-kyiv-to-deepen-industry-ties>

¹⁴⁶ Ukrainian Government, “Україна та Велика Британія уклали угоду про кредитну підтримку оборонних спроможностей нашої держави”, 19 January 2024. See: <https://www.president.gov.ua/news/ukrayina-ta-velika-britaniya-uklali-ugodu-pro-kreditnu-pidtr-92293>.

¹⁴⁷ Op.Cit. “UK trade mission visits Kyiv to deepen industry ties”.

¹⁴⁸ A cross-government team of the Ministry of Defence, UK Export Finance and the Department for Business and Trade to support industrial cooperation with Ukraine: <https://www.gov.uk/government/news/uk-trade-mission-visits-kyiv-to-deepen-industry-ties>

¹⁴⁹ BAE Systems, “BAE Systems awarded contract to maintain and repair light guns in Ukraine”, 10 April 2024. See: <https://www.baesystems.com/en/article/bae-systems-awarded-contract-to-maintain-and-repair-light-guns-in-ukraine>

¹⁵⁰ Babcock, “Babcock bolsters support to Ukraine”, 24 May 2024. See: <https://www.babcockinternational.com/news/babcock-bolsters-support-to-ukraine/>

¹⁵¹ Dost, P. “The Ukraine-Turkey defense partnership with the potential to transform Black Sea and Euro-Atlantic security”, *Atlantic Council*, 5 March 2024. See: <https://www.atlanticcouncil.org/blogs/turkeysource/the-ukraine-turkey-defense-partnership-with-the-potential-to-transform-black-sea-and-euro-atlantic-security/>

¹⁵² EOS, “Ukrainian Leadership, Australian Defence Industry Meet to Expand Cooperation”, 8 July 2024. See: <https://eos-aus.com/news/ukrainian-leadership-and-australian-defence-industry-meet-to-expand-cooperation/>

detection business in the country¹⁵³. There are many more examples of where international competitors are seeking to engage Ukraine, although in most cases the commercial arrangements remain in the early stages and focused largely on MRO tasks.

CONCLUSION

Defence industrial cooperation between the EU and Ukraine is still at an early stage of development, and in reality meaningful defence industrial relations have been built on relatively easy domains such as MRO. In fact, MRO has allowed European and international firms to move beyond the supply of military equipment to Ukraine towards local production chains to ensure that the military equipment that has been delivered by European states are sustained. In this respect, there is somewhat of a blurring of lines between “handouts” of military equipment to Ukraine, and the longer-term need to help develop Ukraine’s DTIB. On this basis, it is clear that donations and sales of military equipment to Ukraine are paving the way for defence industrial cooperation in a more structured fashion. Politically, the rationale among EU member states for closer cooperation is clear: creating a pathway for Ukraine’s EU integration, as well as ensuring that EU and Ukraine firms can benefit from cooperation and contracts. The EU has politically pinned defence industrial cooperation with Ukraine to its eventual integration into the Union.

We have seen in this paper that the current level of cooperation is accelerating, although several risks associated with the war and Ukraine’s defence modernisation pose important challenges. The 21 member states analysed in this paper have been relatively quick to engage in MRO efforts. Time will indeed tell, however, whether this cooperation will deepen in high-tech areas despite potential military shifts on the battleground in Ukraine. We should presume that any Russian success in the war will lead firms to reassess their footprint in Ukraine. However, Ukraine’s success may hold out the possibilities of future contracts, especially if Kyiv does move towards integration with the EU and NATO. At present, we can see EU member states and firms hedging for this more optimistic scenario through its insistence on already including Ukraine in the future plans for the EDIP. The European Commission is already treating Ukraine as if it were a quasi-member state (even if such a category does not exist in the Treaties). Still, we should acknowledge that the bulk of Europe-Ukrainian defence industrial cooperation has been bilaterally facilitated by individual governments and firms – this has called for a careful calibration of the political and commercial risks of operating in Ukraine.

¹⁵³ Michiue, T. “Japanese drones to look for land mines in Ukraine”, *Nikkei Asia*, 17 October 2024. See: <https://asia.nikkei.com/Politics/Ukraine-war/Japanese-drones-to-look-for-land-mines-in-Ukraine>

Any deeper defence industrial cooperation with Ukraine will, however, not just be dependent on the prevailing security situation in Ukraine. Indeed, this paper has suggested that a range of challenges continue to animate commercial and political considerations of risk. For example, any decision by the incoming US administration to considerably relax its military and political support for Ukraine may leave Washington without a foothold in the Ukrainian defence sector. In theory, this may give European producers an advantage by lowering international competition. This is just theory at this stage, however. Any American retreat from Ukrainian support is likely to pose huge questions for Europe, especially as it appears unlikely that Europe can fully fill any military and industrial void left by the United States. Should support for Ukraine collapse in Washington, then the situation in Ukraine could develop rapidly in a negative fashion including the collapse of the Ukrainian military. What would then be left in terms of commercial opportunities with Ukraine is anybody's guess, but the prospects of this situation are bleak.

Until this point, Europeans will likely continue their cautious approach to defence industrial cooperation with Ukraine. We are far from an integrated defence industrial strategy, where EU-based and Ukrainian firms engage in the joint production of major military systems or multi-year defence innovation programmes. Such forms of cooperation are more likely when Ukraine joins the EU. It is more likely that European firms will continue to develop joint ventures for MRO services, although we can also expect bold – if niche – joint defence innovation efforts for counter-drone, missile and other high-tech technologies (especially from start-ups coming from relatively smaller member states close to Ukraine). In this respect, for Ukraine the key objective must be to ensure the modernisation of its defence sector, not least to dispel the perception that its defence sector is marked by corruption. In this respect, the EU as an institution has an important role to play beyond any possible future funding sources through the EDF or EDIP. Indeed, in working closely with the EU and European firms Ukraine can also have a partner to assist with its defence modernisation by adhering to EU internal market standards related to public procurement, transfers and more.

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