

UKRAINE'S DEFENCE INDUSTRY: BUILDING FOR VICTORY

A Report for the
Centenary Policy Institute

By Owen Matthews



Content

- 03** Executive Summary
- 04** Ukraine's Defence Procurement Strategy
- 06** Ukraine's Force Planning
- 09** Political Reform and Strategy Debates
- 13** Role of Foreign Investors
- 15** Drone Sector: Leading the Way
- 17** Attracting Defence Financing

1. Executive Summary

- Western assistance has helped Ukraine achieve military parity with Russia on the ground. However, in the long term, the ensuing attritional warfare favours Russia as it expands and speeds up its military-industrial complex. The first goal of Ukraine's defence industry is to produce weaponry that can break that deadlock.
- Commander-in-Chief of the Armed Forces of Ukraine, Valerii Zaluzhnyi's vision for the future of Ukraine's armed forces pointedly does not rely on Western assistance. Rather, it places the main emphasis on developing Ukraine's own systems and defence capabilities.
- Strategically, the Ukrainian government faces a choice over whether to prioritise tactical weapons systems (such as drones, armour and guided rocketry) for the current phase of the war or to concentrate on weapons that will create a long-distance striking capability (long-range drones, and ballistic and cruise missiles), which would act as a strategic deterrent against Russia.
- Another choice facing the government is the structure of Ukraine's future defence sector. Will it be dominated by small, independent companies (like today's Ukrainian drone-manufacturing sector) or by large, mostly state-owned, enterprises like Antonov, Luch and Pivdenmash?
- The vast majority of Ukraine's military remains dependent on Soviet-standard weaponry – as do the militaries of many former Soviet Bloc NATO members. Converting Ukraine's arsenal in its entirety to NATO standards would take decades – posing an urgent question over whether Ukraine's defence sector should concentrate on upgrading and developing Soviet-standard equipment or on attempting to switch to higher-cost and slower-production NATO standards.
- The Ukrainian government has reshuffled the leadership of the Ministries of Defence and Strategic Industries and appointed new teams drawn from the private and charity sectors – signalling that recent defence procurement corruption scandals are in the past, as well as indicating a willingness to adopt agile and novel methodologies in national defence.
- In the words of Ukraine's President, Volodymyr Zelensky, in September 2023, 'the best weapons that are currently helping our warriors defend Ukraine should be produced in Ukraine. The development of our own weapons production is a top priority'.
- A significant part of future funding for a Ukrainian defence sector is likely to come from Ukraine's Western allies. Currently, the vast majority of overseas funding is focused on providing NATO-standard and NATO-produced equipment, and most of the money returns to the coffers of Western arms producers and militaries. That has to change if Ukraine is to develop a viable domestic defence sector, with foreign governments supporting domestic industry – either through direct cash funding or in partnership with Western defence companies.

2. Ukraine's Defence Procurement Strategy

EU COMMON SECURITY GOALS

Ukraine's accession to the EU is unthinkable without an upfront guarantee of its sovereignty, the integrity of borders and the safety of its infrastructure.

In this regard, Ukraine's EU integration is indeed different to that of previous countries. Never before has the EU attempted to absorb a country that is still at war with a country of the size of Russia. This integration therefore requires the EU to accept common security

thinking regarding its future defence needs. Up to this point the diplomatic efforts of Ukraine's military and political leaders had been focused on encouraging international donors to supply more powerful, and longer-range, weapons. But long delays over the provision of Leopard tanks, HIMARS rocket artillery and later ATACMS rocket artillery, and Storm Shadow and Taurus cruise missiles contributed to – or in some iterations, caused – the failure of the summer 2023 offensive to achieve any significant territorial breakthrough.



Alignment will determine how fast the EU can provide a shield of protection to Ukraine



strategy, and for European citizens to accept that Ukraine's border will also be an EU border – which they will jointly have to guard.

In turn, this means that the EU must develop a common defence and security policy. Alignment in procurement, defence spending and integrated supply chains in equipment manufacturing will determine how fast the EU can fulfil its promise of providing a shield of protection to Ukraine.

NEW PRIORITIES

In the autumn of 2023 Ukraine entered a new phase of its war effort – and of its strategic

'Our total dependence on the West means we don't get enough weapons, and the weapons we do receive are of insufficient power,' Colonel Roman Kostenko, Secretary of the Rada's Committee on National Security, Defense and Intelligence, told Centenary. 'We waited a year for tanks to arrive on the battlefield. Then, some 50 or 60 old Leopards and 12 Challengers came. This should have been 4000.'

Now, as the war moves into a new phase, the Zelensky administration has pivoted towards emphasising the creation of a domestic defence sector. 'The best weapons that are currently helping our warriors defend Ukraine should be produced in Ukraine,' Zelensky told visiting BAE Systems CEO, Charles Woodburn, in Kyiv in September 2023.

According to Kostenko, 'the first main thing to organising effective resistance is to understand that the war has now entered a new phase. At present, we are very dependent on the West. That is a vulnerability that we need to address. And our way to accomplish that is to develop our military-industrial complex.' Two major factors suggest that this ambition is realistic.

One, Ukraine already has a major defence sector left over from the USSR, including a strong tradition of training and engineering. 'The Ukrainian defence industry remains pretty capable, at least in the sense of technical expertise, and the quality of engineers and designers, and is still capable of producing the most sophisticated types of military equipment,' Oleksandr Danylyuk, former Chief Advisor to the Minister of Defense and Head of the Foreign Intelligence Service of Ukraine, told Centenary. 'Among traditional heavy industries, the defence industry was the only one that survived the collapse of the USSR, and was actually even supported by the government. Ukraine was, for many years, the single global competitor to Russia.'

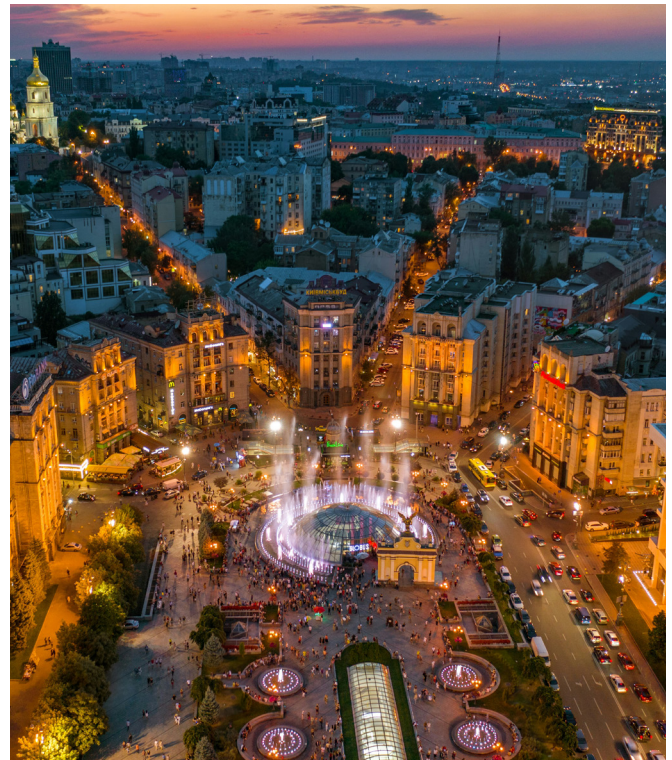
Two, while there has been little innovation from the traditional defence sector during the war, Ukraine has shown enormous agility – both in terms of technical innovation and development and in terms of funding, manufacturing and deployment – of every kind of drone weapon. According to Air Marshal Johnny Stringer, deputy commander of NATO's Allied Air Command, the use of relatively cheap drones and long-range missiles in Ukraine shows how such weapons could be a major disruptor to almost every kind of conventional weapon currently in existence. And Ukraine has shown world-leading initiative in drones. The Brave1 tech cluster founded in April 2023, for instance, has become the epicentre of Ukraine's defence tech landscape. Spearheaded by entrepreneur Natalia Kushnerska and her team, Brave1 has connected companies and startups with government agencies, defence forces and investors.

In the earlier stage of the war, the government's key consideration in defence procurement was 'not immediately cost – because the government is not paying for anything itself at this stage or for the foreseeable future – but effectiveness of supply,' says Pavlo Kukhta, former Minister of Economy. 'We will take the best, and most effective, weapons

available to us here and now.' But that thinking is changing. 'In the future, of course, we do not wish to be dependent on foreign supplies. We want to have our own military production here in Ukraine.'

STATE CHAMPIONS VERSUS PRIVATE SECTOR

Going forwards, there are different conceptions at the top levels of government as to how to build such a defence industry.



'Essentially, there are different views on the role of the state,' says a current senior economic adviser to President Zelensky, who requested anonymity. 'We've seen a strengthening in the role of the government in the economy and that's certainly a trend that has continued throughout the war. The government and the President view the defence industry as state-owned and state-run. There's no willingness at all to think about giving away the leading role to the private sector, both before the war and at the current time. So, while there is a willingness to see private investment in this industry, the government wants to call the shots. And when they speak about building a Ukrainian-based defence industry, what

they mean is really building national champions – which are, by definition, state-run and state-owned enterprises. They're not talking about a decentralised industry with hundreds of private players, or big private players.'

What is clear is that the Ukrainian government sees a major build-up of the defence sector not only as crucial to national security but also as central to post-war economic recovery, in terms of both a potential source of export revenue and as a major employer. 'What we need to do is to take an approach that matches Russia's,' says Danilyuk. 'Russia improved its defence industry in the last year by allocating 30% of their budget to defence and security. Moreover, they have many special projects directly financed from the revenues of big gov-

ernment corporations like Gazprom and Ros-
tech. We have nothing on that scale.'

Paradoxically, two apparently contradictory political and economic vectors in Ukraine have met in the defence sector. On the one hand is the Soviet tradition of state-owned heavy industry, as exemplified by the as-yet unreformed, state-owned, giant conglomerate, Ukroboronprom. On the other is the new, Silicon Valley concept of market-driven innovation, crowdfunding and decentralised entrepreneurship – as well as proactive, real-time business-customer relations – that has exemplified the drone sector. Both will have their place in Ukraine's economic recovery and in the establishment of national security that must precede this recovery.

3. Ukraine's Force Planning

6

SHORT- AND LONG-TERM PRIORITIES

With finite resources, Ukraine has to choose between the weaponry required for immediate military causes – specifically, keeping Russian forces at bay and ultimately advancing through Russia's deep defensive lines – and the very different requirements of strategic deterrence. 'When the government makes decisions, what should be prioritised?' says Colonel Kostenko, Secretary of the Rada's Committee on National Security and Defense. 'There is the battlefield, and there is a need to hold the defence line. Once that is secure, we need to make decisions about strategic spending. We do not have money for everything. The decision to be made is this: you can use this \$1 billion to make 100,000 rounds of ammunition, which is needed today, or you can build missiles.'

In terms of immediate needs, Kostenko identifies rocket artillery for battlefield use as a key priority. 'We already have some ATACMS

complexes, but we need to make our own, as well as short-range missiles and every kind of theatre defence missiles that can protect our sky and our infrastructure. Artillery, and indeed every kind of military equipment, is important. But missile deterrence is what will prevent another attack [like 2022].'

In the long term, Ukraine needs its own strategic answer to match Russia's firepower. 'What we need when this war ends is a weapon that, first and foremost, will act as a deterrent – just like their nuclear deterrent,' says Kostenko. 'They need to know that if they hit us with their missiles, we will be able to respond in kind by destroying their fleet. We see that Russia has superiority in long-range missiles. We need our own long-range missiles that can hit Russian defence industry facilities and economic infrastructure. We have our own Sapsan rockets, which can be developed with improved range and accuracy, as well as Neptune anti-ship rockets. We have rockets that we have stopped the development of, which can be revived. And we have the potential to incor-

porate Western technologies. We have an enterprise that once launched rockets into space and made strategic ballistic missiles for Russia. We have not lost this potential – as shown by Neptune and Grom missiles, as part of the project we undertook for Saudi Arabia. But we need help and funding.'

ZALUZHNYI'S SHOPPING LIST

In October 2023 Valerii Zaluzhnyi, Commander-in-Chief of the Armed Forces of Ukraine (AFU) published a detailed position paper outlining both a military strategy for the next phase of the conflict and a list of equipment needed by the AFU for this strategy. Zaluzhnyi identifies two key vectors in the conflict: Western assistance helped Ukraine a lot but was insufficient and too slow to achieve superiority. It helped Ukraine to achieve parity at best, but the ensuing attrition warfare favours Russia as it expands and speeds up its capabilities and resources. Significantly, Zaluzhnyi's vision for the future of Ukraine's armed forces pointedly does not rely on Western assistance. Instead, it places the main emphasis on developing Ukraine's own systems and defence capabilities. His article is a manifesto of self-sustainability.

Zaluzhnyi identified four key procurement priorities in order to break the current deadlock:

- Increasing the effectiveness of counter-battery weaponry;
- Building up electronic warfare (EW) capabilities;
- Gaining air superiority; and
- Breaching mine barriers at depth.

a) Counter-battery

Russian Assets:

- New Pole-21 electronic countermeasure (jamming) systems;
- Lancet loitering munitions with target illumination capability;
- Orlan and Zala unmanned aerial vehicles

(UAVs);

- 122-mm Krasnopol precision-guided munitions with target illumination by both ground-based observation rangefinders and UAVs; and
- Technical shortcomings of Soviet-era artillery systems (D-1, D-20, etc.) compensated for by significantly increased artillery density and real-time UAV targeting.

Ukrainian Assets:

- GPS-guided weapons, including Storm Shadow and SCALP-EG cruise missiles;
- Guided Multiple Launch Rockets fired by HIMARS launchers (including the longer-range ATACMS);
- M982 Excalibur 155-mm artillery shells;
- Building up localised GPS fields to improve the operation of precision-guided munition navigation tools; and
- Increasing the use of small drones for counter-battery, including reconnaissance and kamikaze drones.

b) Electronic warfare (the use of electronic signals to find, intercept and jam enemy forces)

Russian Assets:

- Electronic Warfare Troops created in 2009 as a separate branch of the Russian armed forces;
- Around 60 new or newly-adapted electronic warfare systems developed since 2010, with high accuracy and range, mobility, increased security, and short set-up and tear-down time;
- Establishment of mass production and universal frontline distribution of portable trench electronic warfare systems designed to jam signals and down incoming UAVs, including Silok, Piton, Harpoon, Piroed, Strizh, Lisochook and the optoelectronic surveillance system, Ironia-M;
- Deployment of the truck-mounted Leer

3 system, which launches drones that imitate the signal of a mobile phone base station. This false signal is so powerful that smartphones prefer to connect to it – intercepting data, disrupting connections and installing viral malware. The system's drones have a 6-km transmission range and a flight radius of 100 km.

- Large Soviet-era EW jamming platforms such as Zhitel R330-Zh remain effective, though they have been targeted with increasing effectiveness by Ukrainian drones and HIMARS; and
- 'Today [Russia] continues to maintain a significant electronic warfare superiority,' says Valerii Zaluzhnyi, Commander-in-Chief of the AFU.

Ukrainian Assets:

- 25 newly-developed modern electronic warfare assets such as Bukovel-AD, Enclave, Khmara and Nota. However, overall some 65% of jamming stations currently deployed in units of the AFU are still old models produced by the former Soviet Union;
- The capabilities of Ukraine's domestic defence-industrial complex remain limited, meaning that the bulk of new deployed capabilities come from international military assistance – including detection and electronic warfare against UAVs, anti-drone guns, tactical mobile direction-finding systems and EW systems with on-board radar stations;
- Nationwide deployment of the Pokrova EW system has increased Ukraine's capabilities to counter enemy high-precision weapons (that is, guided missiles and UAVs). Pokrova allows the replacement of older, localised satellite radio navigation field-stations (also known as 'spoofing'), instead allowing the suppression of satellite radio navigation along the entire line of contact and over most parts of Ukraine;
- Situational awareness systems are be-

- ing successfully integrated into command-and-control processes. The previous Graphit system allowed the automated transmission and display of data from small UAVs; Quartz allows the collecting, processing and display of this data, as well as the management of multiple radio-electronic assets;
- Development of new domestic EW systems with a focus on a wider electromagnetic spectrum, from radiation to terahertz radiation;
- Creation of the Kyiv School of Economics's Defense Innovation Center, which pairs defence requirements with investors; Aerorozvidka, a military initiative centre created by Ukraine's private IT sector; and the Brave1 tech cluster founded in April 2023, which has become the epicentre of Ukraine's defence tech landscape;
- Creation of new training programmes at the Boryviter Military School in Kyiv, founded in April 2022, focusing on intensive training in eight crucial areas – including UAVs, military communications, battle control systems and psychological training. Most of Boryviter's training programmes are based on NATO standards and adapted to current combat operations. To date over 18,000 service personnel have received IT and EW training; and
- 'At this time, we have practically achieved a parity in EW tasks performance,' says Zaluzhnyi. Or, the disparity with the Russians is one of scale of deployment, not of quality.

c) Air superiority

Ukrainian Assets:

- The simultaneous en-masse use of cheap, unmanned aerial target simulators and attack UAVs in a single combat formation: designed to overload the enemy's air defence systems, mislead the enemy about the number of real targets in the

raid, and expose elements of the enemy's air defence systems;

- Hunting down enemy UAVs via hunter drones with trap nets;
- Russian aircraft will only launch guided and glide-targeted bombs from the maximum possible range. Therefore, using simulators of the radiation signal of the target illumination systems of medium-range anti-aircraft missile systems will deter manned aviation.
- Blinding thermal imaging reconnaissance equipment and targetting UAVs with stroboscopes at night – in order to complicate strikes by UAVs equipped with thermal imaging equipment; and
- The en-masse use of electronic warfare assets (such as small and portable jamming transmitters and anti-drone guns) to counter enemy UAVs.

d) Breaching mine barriers at depth

Ukrainian Assets:

- The use of LiDAR scanning sensors to obtain situational information about on-the-ground breaching;
- Rosy smoke protection systems to conceal the activities of obstacle-clearing teams from enemy observation;
- The use of jet engines of decommissioned aircraft, water cannons and cluster artillery munition for breaching surface-laid mine barriers; and
- The use of mini tunnel excavators, Rapid Burrowing Robots, empty hoses for the injection of gaseous or liquid explosives, and missiles with a fuel-air explosive for breaching dug-in mine barriers.

4. Political Reform and Strategy Debates

9

SCANDALS AND NEW APPOINTMENTS

Previous Minister of Defence, Oleksiy Reznikov, came under intense media pressure and international scrutiny in the wake of



The previous Minister of Defence came under intense media scrutiny



an investigation – led by journalist at Ukrainian media outlet, ZN.UA, Yury Nikolov – into vastly inflated prices paid for military food sup-

plies and the procurement of winter uniforms. Under pressure from international allies, Zelensky dismissed Reznikov on September 5th, 2023 and appointed a new minister, Rustem Umerov, whose first action in office was asking for the resignation of almost all Reznikov's deputy ministers.

Zelensky also appointed the high-profile head of Ukrainian Railways, Oleksandr Kamyshin – known for his success in keeping the trains running even during the most intense period of fighting – as his new Minister of Strategic Industries, in charge of building Ukraine's domestic defence sector.

DEFENCE MINISTER, RUSTEM UMEROV

Umerov was a prominent member of the Holos opposition party. Nonetheless, President Zelensky views him as an ally. Umerov is regarded as someone who can 'build a future

relationship with the Crimean Tatars in the event of the peninsula returning to Ukrainian control, and hence could play an important role in the country's strategic plans,' according to a current senior adviser to Head of the Presidential Administration, Andriy Yermak.

During a year as head of the State Property Fund – a 'famous nest of corruption in the past,' according to Nikolov – Umerov did not come to the attention of anti-corruption campaigners, nor investigative journalists. 'People speak well of him for the good job he did in his last post, with no scandals,' says one former Acting Minister of Economy and a party colleague of Umerov's. 'He is an effective negotiator who, during the war, became one of most effective agents for supplies to Ukraine through non-governmental channels. He became one of key links to Turkey and Azerbaijan.' In 2022 Umerov played a leading role in negotiating the grain corridor with Turkey and is known for his extensive business contacts with Turkish, Saudi and Azeri companies.

Politically, Umerov is 'relatively independent because he represents Crimean Tatars and they are a political force in themselves,' according to a senior Zelensky economic adviser not authorised to speak on the record.

UMEROV'S DEPUTIES

In late September Umerov appointed new deputy ministers, including:

- Yuriy Dzhyhyr, a former deputy finance minister from 2018-2020 and also a Crimean Tatar. Dzhygyr has an MA degree in Economics, specialising in Public Finance, from the Maxwell School of Citizenship and Public Affairs of Syracuse University in the US.
- Nataliia Kalmykova, executive director of the Ukrainian Veterans Foundation – an NGO. In July 2023 Kalmykova returned from a Fulbright Scholarship at the

State University of New York Buffalo, where she worked with the US Veterans Administration and the US Department of Labor to learn about the infrastructure the US has developed to support veterans.

- Kateryna Chernohorenko, head of Ukraine's 'Army of Drones' project, an NGO that has taken a lead role in connecting small drone producers with the operational requirements of the Ukrainian Armed Forces;
- Lieutenant General, Ivan Havryliuk. Previously held key logistics positions within the Ukrainian Armed Forces;
- Stanislav Haider. Previously led digital



transformation efforts at the National Agency for the Prevention of Corruption; and

- Dmytro Klimenkov. Previously commercial director of the state-owned JSC Ukrtransgaz. Before that, Umerov's first deputy in the State Property Fund.

According to the journalist Nikolov, all the above appointments are 'conspicuously clean.' Thanks to new transparent procurement procedures and open tenders for the army, introduced after Nikolov's press revelations, 'billions of hryvnas have been saved ... and we can now see more clearly if there

is stealing. Officials in the police tell us that, magically, people [in the Defence Ministry] listened and there have been huge falls in prices and less stealing ... I think this is a genuine change in the command structure of the ministry. I am cautiously optimistic.'

According to a senior Zelensky adviser, 'the optimistic way to think about [the new Defence Ministry team] is to say that the Ministry is moving towards a more managerial and de-



There is evidence that Zelensky's new appointments are already delivering results



centralising approach. Some of these people were in the private sector and have private sector experience – which has advantages and disadvantages.'

MINISTER OF STRATEGIC INDUSTRIES, OLEKSANDR KAMYSHIN

Kamyshin was brought in, from his role as head of Ukrainian Railways, to replace Pavlo Riabkin – a former head of the State Customs Service of Ukraine who was close, politically, to Yermak – in March 2023. Kamyshin is 'an excellent political operator. He is smart, makes a good impression and has a good track record of results in Ukrzaliznytsia – which has been well run during the war,' says Nikolov. 'He is known as a good manager – I have not heard of any kickbacks.' According to a current senior economic adviser to Zelensky, 'admittedly, Kamyshin made a 100% state enterprise

[Ukraine Railways] work under the most difficult circumstances: that is miraculous and amazing. However, that's not a skill-set that's necessarily applicable to building a defence industry ... [Kamyshin] is a person who has essentially run a state-owned enterprise before. There's no logical connection to explain why such a person would be appointed as a minister of industrial production, which is about working with the private sector.'

According to a former Minister of the Economy who knows Kamyshin well, 'not that many competent people can work for this government; people are constantly required to display loyalty to the Presidential Administration. But there are a few people who can work effectively in this environment. Kamyshin is one. Olha Stefanishyna (Deputy Prime Minister for European and Euro-Atlantic Integration of Ukraine) is another; so is Serhii Marchuk (Minister of Finance of Ukraine). They can maintain independence.'

RESULTS

There is evidence that Zelensky's new appointments in the Defence and Strategic Industries Ministries are already delivering results.

'Fundamentally, corruption is a huge issue – still. There's no way around it. But corruption has been reduced by an order of magnitude in the case of – not only military procurement. In terms of transparency, in terms of declarations, in terms of the institutions that have been established – a difference has been made,' says Zelensky's economic adviser. 'Incentives have changed and behaviour has changed. So there is still corruption, but at much lower volumes. Today, there are scandals left and right, and there are corruption suspicions left and right – but that is a sign of less tolerance of corruption. Previously, people went into any type of office to essentially enrich themselves: if they didn't, they were fools. Now, it's extremely risky.'

According to Colonel Roman Kostenko, Secretary of the Rada's Committee on National Security, Defense, and Intelligence, 'the [new team] are successfully fighting corruption. It was very brave that Umerov brought a new young team now. They came in as a team when the political weather was very good. But let's see – let's look at their work in a year's time.'

Centenary Policy Institute board member Roman Sulzhyk – also a former PrivatBank board member, as well as ex-JP Morgan and Deutsche Bank, and founder of an investment fund for the Ukrainian defence sector – reports significant improvements in procurement procedures since the new appointments. 'I know some people who were recently appointed as Umerov's deputies. I've had experience with them over the last year. The [new Defence Ministry team] are extremely interested in bringing in Western companies and Western capital: they will throw procurement at them as long as they actually build something here in Ukraine.'

In May 2023 Sulzhyk travelled to Israel with a Ukraine defence industry delegation that included Kateryna Chernohorenko – now Deputy Minister of Defense. 'She's very good. I think she's going to be President in the future. She's very driven, very smart, very creative. She created the Army of Drones initiative from scratch. She brought me a 40 million hryvna project; I raised this money to build drones in Ukraine. The contact I approached in the Ministry of Defence said, why not 400 million hryvna? That is to say, why only \$1 million – why not \$10 million? In the end, Chernohorenko created an initiative that raised over half a billion dollars of funds, which they used to undertake drone procurement for local contacts.'

In Sulzhyk's experience, defence procurement corruption, 'is becoming less and less. It's not a pervasive, Albania-like situation,

where the West throws money and there's a black hole that swallows it. Now government procurement is the best it has ever been. I'm telling you first hand. One of the companies I invested in has \$30 million of procurement. But we paid zero bribes to anybody. Zero bribes, and zero approaches to solicit bribes. And we are building a very clean accounting system because all these anti-corruption bodies will eventually come to this company as well.'

On the other hand, Oleksandr Danylyuk, a member of the Parliamentary Working Group on Countering Hybrid Threats, Coordinator of the Ukraine-NATO Platform and former Chief



Advisor to the Minister of Defense of Ukraine and Special Advisor to the Head of the Foreign Intelligence Service, warns that the new team's relative inexperience may be a vulnerability. 'Right now, we have two new people [Kamyshin and Umerov] who obviously haven't had any experience in this field. That means that strategy will be shaped by advisors, assistants and other influencers. This is not very transparent. It's much better if the people appointed have some kind of strategy or vision. But that's not the case at the moment.'

5. Role of Foreign Investors

INTERNATIONAL PLAYERS IN UKRAINE

Several major international defence companies have announced their intention to, or expressed interest in, starting operations in Ukraine – notably:

- Bayraktar, a Turkish drone company – which signed a deal to locate production to Ukraine in 2019;
- Rheinmetall, a German armoured vehicle and emergency logistics manufacturer – the second company to announce a formal joint venture with Ukrainian partners in November 2023;
- BAE, a UK-based missile, avionics and armoured vehicle producer – which announced the opening of a Kyiv office in October 2023;
- Lockheed Martin, a US producer of F-16s;
- Palantir, a US-based big data and surveillance support company;
- Babcock, a UK-based naval and secure communications, electronic warfare and weapons systems manufacturer;
- Saab, a Swedish armoured vehicles and aircraft manufacturer; and
- Hanwha, South Korea's largest air, naval and land warfare systems manufacturer.

There is currently a strategic debate under way in the Ukrainian government regarding these international defence companies, across three points:

- Whether these companies will operate as fully foreign-owned subsidiaries or in joint ventures with Ukrainian entities;
- Whether these companies will be manufacturing exclusively their own NATO-standard products or whether they are to develop new capabilities for the maintenance and upgrading of existing

Ukrainian equipment.; and

- The extent to which foreign investors will be allowed to participate in the grassroots development of Ukrainian equipment such as drones and rocketry, which could raise national security concerns over both financial stability and espionage.

On the part of the potential foreign investors, the concerns and challenges are focused on four areas:

- Funding. Who will pay the bills: the cash-strapped and foreign-aid-dependent Ukrainian state or foreign donors?
- Ownership and political will. Is there a risk that the Ukrainian state will take over strategic industries in a future emergency? Will a future government change course and nationalise foreign investments in the defence sector?
- Corruption. A perennial, systemic problem for decades. Foreign investors need guarantees that their investments will be protected from predatory bureaucrats at all levels and all stages of building and production.
- Security. Clearly, defence industries in the territory of Ukraine will be a key target for Russian attacks, making insurance impossible and employee safety a major concern.

UKRAINIAN-MADE OR FOREIGN-MADE IN UKRAINE?

In August 2023 Zelensky and then-Minister of Defence, Reznikov, met with BAE Systems CEO, Charles Woodburn, in Kyiv. 'The best weapons that are currently helping our warriors defend Ukraine should be produced in Ukraine,' Zelensky told Woodburn. 'The development of our own weapons production

is a top priority.' Zelensky praised BAE-produced artillery for L119 and M777 systems, as well as armoured vehicles such as the 'robust' CV90 – while at the same time stressing the importance of the 'localisation of production in Ukraine.'

Many observers were puzzled by Zelensky's comments. The large-scale manufacturing of NATO-standard artillery and armoured vehicles is a vast logistical and investment challenge and, as yet, not being seriously considered by any foreign partner. Rather, Rheinmetall recently announced that a tank repair centre – designed to service Leopard tanks – that was initially due to be built in Poland will be set up inside Ukraine instead. 'Rheinmetall will soon have hundreds of tanks in Ukraine, so having them repaired there makes sense,' says Centenary's Roman Sulzhyk. 'It also makes sense to produce infantry vehicles, if not the most advanced high-tech defence tools, in Ukraine. It's a normal commercial decision. Ukraine has cheaper labour. And, right now, you will get so much political goodwill from doing so.' In fact, predicts Sulzhyk, the first wave of investors in Ukraine are likely to be from the defence sector. 'Regular businesses are obviously reluctant to invest during the war. But because military procurement is a heightened priority, it makes sense for these companies to go where the procurement is.'

According to a current senior economic adviser to President Zelensky, it's likely that the state will insist on either direct or indirect participation in any foreign defence entity operating in Ukraine.

'I really doubt that [BAE and Rheinmetall] are going to be pure foreign direct investment – wherein they create branches or subsidiaries of these huge enterprises in Ukraine, make that somehow part of our larger defence industry, and integrate it into our supply chains and the broader Ukraine defence industry. If pure foreign subsidiaries were possible, that

would be great. But I doubt that's what's going to happen. At best they're going to have an entity that includes Ukrainian participation, probably joint ventures. At worst worst the Ukrainian side will play the pivotal role and have the lion's share in these enterprises. That's what I believe is planned.'

At the same time, the state is also planning to bring in foreign investment for hitherto state-owned defence enterprises like Ukrob-ronprom. In a recent presentation the huge



The first wave of investors in Ukraine are likely to be from the defence sector



defence conglomerate announced that it intended to offload about 50% of its assets, which it described as, 'inefficiently utilised and unrelated to production.'

Zelensky's office would clearly like to channel funds into capitalising on Soviet-trained engineering talent to develop the post-war economy. 'The defence sector will be number one in Ukraine very soon,' Ukraine's Strategic Industries Minister, Oleksandr Kamyshin, told reporters in October. 'We have to focus on producing more weapons and ammunition locally.'

Effectively, foreign manufacturers will find themselves competing for Ukrainian state funds with legacy Ukrainian defence and aerospace companies – which even before the war employed over 200,000 people – as

well as a host of start-ups that have sprung up since the beginning of the war.

Among the local companies seeking to modernise their existing systems and create new ones is Pivdenmash, formerly Uzhmash, a Ukrainian state-owned aerospace company that used to build Soviet-era rockets. The Luch construction bureau, which makes the

Neptune naval rockets that sank the Russian battle cruiser Moskva, is also searching for a joint venture. Meanwhile, Antonov is also seeking to diversify into the long-range drone sector.

'It's not like Ukraine is going to have to start from scratch,' says Sulzhyk. 'It's really about adopting and developing existing things.'

6. Drone Sector: Leading the Way

PRIVATE INVESTMENT

The Ukrainian defence procurement system has proved extremely agile at matching state funding with private investment – first and foremost in the drone sector.

'These people [at the Defence Ministry] are looking at everything, but not necessarily

listen. And they will give them procurement. This is the best thing you can possibly do for any kind of defence company. [The state] has money to throw at companies.' The one proviso, says Sulzhyk, is that manufacturers have to be ready to make a serious commitment to producing in Ukraine in order to get Ukrainian funding. 'You have to go all in. If you're willing to set up a permanent presence here and do your manufacturing here, then you will be in a position to access this procurement. Sending money outside the country is a non-starter.'

Just as important as the availability of money for local procurement, there is a direct and highly proactive connection between front-line needs and procurement response. 'Rather than build a massive state enterprise, they're allowing smaller businesses to build only what they need,' says Sulzhyk. 'This creates a direct connection to those people [on the front lines] who send a request, saying 'we want these particular drones', through their military command. Then the military puts a stamp on it and gives it to the Ministry of Defence. And the Ministry of Defence issues the procurement contracts to whichever particular company can fit the task. It works very well.'

According to recent statements by senior officials, Ukraine has around 200 drone manufacturers and its armed forces have signed supply contracts for 30 new models of do-



investing in everything. We need value for money,' says Sulzhyk of his experience as an investor in drone manufacturing. 'If somebody comes to them and says, 'I will invest \$10 million or \$50 million or \$100 million in Ukraine and I will build the capability to deliver this type of munitions or weaponry,' then they will

mestically produced drones. However, most of these are start-ups founded after the invasion, operating at small scale and often lacking the production capacity and industry support needed to become significant players.

Is the positive experience of the drone sector – dominated by small-scale, relatively low-unit-cost manufacturers – transferrable to more capital-intensive projects? 'The government's current approach is to throw procurement at private companies in the drone space, because it was the low-hanging fruit,' says Sulzhyk. 'But I think they really want to throw money at munitions next. And munitions is much more complicated than drones. The way they're solving the shortage of munitions is by cutting the red tape and just throwing procurement money at whoever can fill the order.'

In addition, Ukraine wants to invest more heavily in aircraft repair and construction, with Kamyshin saying that giants like Ukraine's Antonov aircraft manufacturer and others will 'only grow'.

Antonov has announced plans to diversify its core cargo plane business and expand into drone-making. Antonov has designed and built drones in the past, including the Horlytsia model, but its expertise in cargo planes could also be applied to long-distance drones – giving Ukraine's armed forces the capability to strike deep inside Russia.

SOVIET- OR NATO-STANDARD?

The vast majority of Ukraine's military remains dependent on Soviet-standard weaponry – as do the militaries of many former Soviet Bloc NATO members. Converting Ukraine's arsenal in its entirety to NATO standard would take decades – posing an urgent question over whether Ukraine's defence sector should concentrate on upgrading and developing Soviet-standard equipment or on attempting to switch to higher-cost and slow-

er-production NATO standards.

Isn't the concept of aligning the Ukrainian defence industry to Soviet equipment incompatible with foreign defence contractors such as Rheinmetall or BAE? 'They're not incompatible – they are just two parallel processes,' says Oleksandr Danylyuk, former Chief Advisor to the Minister of Defense and Foreign Intelligence Service of Ukraine. The major factor is simply one of scale. 'The number of Western tanks in Ukrainian forces is still less



It could be logical and cost-effective for foreigners to collaborate with local manufacturers



than 100. The number of Soviet-type tanks is more than 1200 or even 1400, including the tanks that were captured from the Russians. So, we still have a lot of Soviet military equipment that we need to maintain and modernise.'

Danylyuk also believes that it could be both more logical and more cost-effective for foreigners to collaborate with, and boost, local Ukrainian manufacturers rather than to create their stand-alone, NATO-standard products – which tend to be much more expensive than comparable Soviet-standard equipment. Currently, the Ukrainian Armed Forces are deploying the biggest selection of arms systems of any army in the world – including 17 different types of 155-mm howitzers and over a dozen types of Infantry Fighting Vehicles.

Furthermore, one of the most urgent tasks for the wartime Ukrainian defence industry is to urgently replace interdependence with Russia for parts – a hangover from the Soviet-era planned economy. 'Since 2010 Ukraine has been working on reducing that dependence, but there are some critically important elements and components Ukraine still needs from Russia,' explains Danilyuk. 'Therefore, it would be prudent to use some Western components and elements to replace Russia in those systems. For instance, in the case of aircraft and helicopters, we could use specially-adapted Western avionics and other elements. Many of those things could be produced by Western companies, particularly if they were producing in Ukraine. This is actually a very natural collaboration.'

Indeed, expanding operations into upgrading

and maintaining Soviet-standard equipment could also open up new international markets for Western defence companies. 'The Ukrainian defence industry could be specifically focused on the modernisation and maintenance of Soviet-type systems,' argues Danilyuk. Apart from Russia, 'this is a huge part of the global market – at least geographically. Ukraine is among very few nations in the world that have expertise in producing spare parts, and that have engineers who know how to keep Soviet-type systems operating. We could be a natural competitor for Russia and China in this market. If you want to liberate countries like India, for instance, from that influence, you have to offer them something. There is no way they can just stop using Soviet-type systems and start using Western equipment. There's a huge international market. It's just not about Ukrainian armed forces.'

7. Attracting Defence Financing

17

FOREIGN VERSUS DOMESTIC FUNDING

A significant part of future funding for the Ukrainian defence sector is likely to come from Ukraine's Western allies. At present, the vast majority of overseas funding is focused on providing NATO-standard and NATO-produced equipment, and most of the money returns to the coffers of Western arms producers and militaries. That has to change if Ukraine is to develop a viable domestic defence sector, with foreign governments supporting domestic industry – either through direct cash funding or in partnership with Western defence companies.

'Right now, we are dependent on financial support from the West as well as on military equipment provided to us by the West,' says Danylyuk. 'In most cases, countries that are the biggest supporters of Ukrainian security are keener to give us what is produced in

their countries – not to support our own defence industry financially.'

Currently, any government planning is hampered by the ad-hoc nature of foreign funding. 'It's difficult to speak of a grand strategy that would run many years into the future,' one current senior economic adviser to the Presidential Administration tells Centenary. 'Right now, [the Ukrainian government] always hopes for the best. We try to secure commitments from partners, but we can count on these commitments for just a very short amount of time. That is why there is always some uncertainty looking one year ahead – and further down the line. We have a perpetual budgetary fiscal crisis at the moment, wherein we constantly live with the uncertainty of whether we're going to have enough funds by the end of the year to balance the budget.'

At the moment the vast majority of western military aid comes in the form of direct gifts-

in-kind of materiel, rather than in cash donations. Other aid, in terms of direct budgetary assistance, does come in the form of earmarked capital transfers that must be carefully accounted for – and cannot be diverted into local military spending. 'We are using Western money to pay salaries for personnel like teachers and doctors,' explains Sulzhyk. 'Tax revenue has fallen massively. Before the war [the Ukrainian state] was raising some \$30 billion a year. Now it is raising \$20 billion or even \$15 billion. But this \$15 billion is being almost entirely spent on war.'

STABILISING BUDGETS; ATTRACTING FOREIGN INVESTMENT

Clearly, a situation where foreign donors pay the bulk of Ukrainian state salaries while Ukraine spends its meagre tax revenues on warfare is unsustainable.

18

The challenge is how to rebalance state revenues and spending while fighting a war – and during a period in which the government remains desperate to raise revenue, even at the expense of long-term development. One example of this desperation is a mid-2023 debate, wherein the government proposed a regulation to make profits from defence contracts illegal. 'The state is very dysfunctional – this is a damaged government,' says one former Economics Minister who asked for anonymity while criticising the government. 'The debate over profits from defence industries is an illustration of all the problems we have been talking about – it's incredibly stupid and potentially kills all home-grown industries in the defence sector. Can a populist government make mistakes? Clearly, yes.'

Another potential jeopardy for investors is the possibility of windfall taxes and profit-raids by the state. 'In order to generate budget there are all kinds of unusual procedures to get money out of business,' says one senior aide to Zelensky who left the Presidential Admin-

istration in 2022. 'We still have Soviet-style attitudes – the state takes what it wants.'

While the sources of foreign direct investment and portfolio funding are potentially enormous, so far there is a strong reluctance to commit – not just because of the ongoing war but also because of uncertainty over the Ukrainian government's attitudes to overseas investors, taxation and the repatriation of profits, as well as to respect for private property in general. 'On the one hand, we are heading towards EU integration, and that means we need to implement structural forms and become more like an average EU country – where the private sector essentially dominates,' says a current senior economic adviser to Zelensky. 'Instead, we are seeing the reverse trend here. Everything is run by the government. Young people are aspiring to be government employees and managers of state-owned enterprises. And the bigger picture is that [the President and government] think of the state as some sort of super-enterprise that is essentially owned and governed by them.'

This has led to a Catch-22 situation, wherein foreign investment is suspended – while at the same time, 'Ukraine is in a terrible financial condition and doesn't have funds to invest into the defence sector,' says Danylyuk. On the other side of the front lines, Putin is planning to spend around \$110 billion on war in 2024, and that's just the open part of the budget. Ukraine will be lucky if it gets \$60 billion from all its allies combined.

Ukraine's challenge will be to create a predictable and transparent business environment where foreign investors feel confident to inject their money into all sectors of the economy – including defence. At the same time, the state will have to balance its plans to retain strategic control and practice what is effectively military Keynesianism with the harsh realities of a shrunken tax base and devastated economy.