



WINNING THE PEACE

Australia and Ukraine's Recovery

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**JOHN CURTIN
RESEARCH CENTRE**

Report No. 12, November 2025

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ISBN: 978-0-6489886-8-7

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Foreword



Alex Vynokur

The story of Ukraine's struggle and resilience is not just a chapter in the history of one nation. It is a test of our shared humanity and the values that bind the global community.

We have all witnessed, time and again, the extraordinary courage of the Ukrainian people in the face of devastation. Their determination to stand up for themselves, to hope, and to thrive despite unimaginable hardship is a beacon for all who believe in freedom, dignity, and the right to self-determination.

This important report from the John Curtin Research Centre arrives at a pivotal moment. The war in Ukraine is not only a tragedy for its people. It is a challenge to the principles of sovereignty, democracy, and international law. The consequences of this conflict reverberate far beyond Europe's borders, shaping the security and prosperity of the Indo-Pacific, and the world at large. As Australians, we cannot afford to be bystanders. Our national interest, our values, and our sense of justice compel us to act.

I founded the United Ukraine Appeal with the belief that practical, timely help can make a difference, change lives, and shape destinies. Since our inception, we have worked to deliver much needed help, and hope, to tens of thousands of Ukrainians most affected by the war. But humanitarian relief, vital as it is, must be matched by a vision for long-term recovery and renewal. This is why we are proud to support this report, which sets out a clear,

actionable roadmap for Australia's engagement in Ukraine's reconstruction.

The lessons of history are clear. As this report reminds us, Australia's own postwar recovery did not wait for the guns to fall silent. Visionary leadership, bold policy, and a spirit of national unity enabled our country to emerge stronger from the crucible of conflict. Today, Ukraine stands at a crossroads. Its needs are immense: rebuilding shattered infrastructure, restoring energy and health systems, and reviving education. The private sector, government, and civil society all have a role to play. The time to act is now.

Australia brings unique strengths to this partnership. Our expertise in renewable energy, education, health, agriculture, and advanced manufacturing can help Ukraine not only recover, but leap forward. The recommendations in this report are ambitious but pragmatic. They call for investment, creative financing, and deepening ties between our peoples and institutions. They urge us to mobilise business, foster innovation, and stand with Ukraine as it pursues EU membership and a democratic future.

But above all, this report is a call to solidarity. It is a reminder that the fate of Ukraine is intertwined with our own. When we help Ukraine win the peace, we defend the values that underpin our own society. We show the world that compassion, courage, and cooperation can overcome even the gravest adversity.

I am deeply grateful to Dr Nick Dyrenfurth, Dr Dominic Meagher and the John Curtin Research Centre for their friendship, leadership and vision. I am honoured to support this work, and I invite all Australians – political leaders, business leaders and citizens – to join us in this vital endeavour. Together, we can help Ukraine not only survive, but flourish. Together, we can win the peace.

Alex Vynokur

Founder, United Ukraine Appeal

Founder, Betashares Financial Group

Contents

About the Author	2
Foreword	3
Executive Summary and Recommendations	5
Key Recommendations	7
Introduction	10
Part 1. The case for acting now	13
Support for Ukraine	14
The role of the private sector	16
Part 2. Opportunities for Australia	21
Reconstruction financing	21
Energy	24
Existing efforts	26
Energy recommendations for Australia	27
Education and R&D	28
What others are doing	30
Education recommendations for Australia	30
R&D collaborations	32
Health: hospitals, disability & mental health	33
Health recommendations for Australia	34
Demining	37
Decarbonised steel and sustainable building materials	37
Agriculture	38
Democratic integrity and Labour Rights	39
Cyber warfare	39
Information warfare	41
Anti-Corruption	42
Labour rights	43

Executive Summary and Recommendations

We can't afford to wait

There is little doubt that the ongoing war upon and occupation of Ukraine is a global tragedy. The impact that Russia's aggression has had on the flow of trade, diplomatic relationships, and international security cannot be overstated. As a valued partner, Australia cannot and should not accept any end to the war that diminishes the national sovereignty of Ukraine. The ramifications would be disastrous. As we have seen from North Korea's recent engagement on the battlefields of Ukraine and Russia's subsequent incursions into the South Korean Air Defence Identification Zone (KADIZ) demonstrate the connectedness of the European and Indo-Pacific theatres. Taiwan and Japan have already acted, supporting Ukraine because they have realised what we are only now truly grasping: our region's security depends on the war ending on just terms.¹

Failing to ensure an outcome favourable to Ukraine would be a return to the age of empires, and a declaration that the sovereignty of nations was no longer the pillar of our international order. Emboldened by a Russian victory, China could follow suit and deploy military force to expand its borders, beginning with Taiwan and the Philippines. While both would resist such aggression, they would require the support of local allies Japan, South Korea, and Australia. Whether the United States would act to defend the global system is no longer a certainty. However, our regional security depends upon preventing conflict, independent of US involvement or absence. While Australia maintains the preference that disputes should be resolved peacefully through diplomacy, where the actions of violent and power-hungry regimes proves undeterrable, we have a responsibility to protect the rights of nations. That begins with defending Ukraine.

Prime Minister Anthony Albanese himself has made similar arguments recently, stating that 'this is a struggle for the international rule of law... what happens in the Euro-Atlantic has serious implications for our region – the Indo-Pacific – and vice versa'.² The majority of Australia's support has so far been through the provision of aid and defence materiel, and a willingness to support in European-led peacekeeping missions in the wake of a potential ceasefire.³ However, this should not be interpreted as an excuse to leave other support until hostilities end, as this would act as an effective veto for Russian President Vladimir Putin to determine when Ukraine can begin recovering. As such, we argue that Australia should urgently seek to provide greater whole-of-nation support. While we should be mindful of constraints placed on Ukrainian governance and sovereignty by ongoing Russian aggression, the brave Ukrainian people cannot pause their lives to start again after the war; they need food, energy, heating, education, opportunity, and hope.

Australia has committed to being a proud and steadfast ally to the Ukrainian people, and we are also uniquely well suited to invest in their interests, through the coming reconstruction as well as war. Critically, such an investment need not necessitate significant impositions on the federal budget. While governmental aid has been both welcome and necessary, Australian businesses have comparative advantages and complementary capabilities which can be leveraged to meet the needs. After all, Australia has dealt with similar challenges before.

While Australia's shore has never been subject to the prolonged bombardment that Russia has inflicted in parts of Ukraine, when Australia faced economic reconstruction during World War Two (WW2), we also did not wait for the conflict to end. Labor Prime Minister John Curtin, supported by his Treasurer and eventual successor Ben Chifley, began the 'post-war' reconstruction while

still prosecuting the war effort against Japanese aggression. Put simply, the Curtin government began planning for peace long before the last shot was fired. Indeed, the Department of Postwar Reconstruction was established in 1942, barely three years after Britain declared war on behalf of Australia and nearly two years until it would end. Regardless, the Curtin government charged the new entity with developing the now famous *White Paper on Full Employment*, which came to define national economic policymaking for three decades.

Planning for the transition to a peacetime economy, the government guarantee the jobless rate would never exceed five per cent through the use of Keynesian economics. During the war, the Commonwealth effectively wrested the power to levy income tax from state governments and use the revenue to provide for the vulnerable and those affected by the transition. The Treasurer implemented forward thinking industry policy, which established the car manufacturing industry. Higher education opportunities were expanded, and nation-building projects like the Snowy Mountains Scheme were embarked upon, utilising our existing labour pool and drawing in skilled migrants to fill the shortages. All this inspired Labor's 1943 election motto 'Victory in war, victory in peace', a phrase that captured the aspirations and hopes of the Australian public.

While Australia's postwar experience is not perfectly analogous for a country under occupation, it underscores the need for Ukraine's recovery to be prioritised just the same. Ukraine's reconstruction needs are great, and the ability of its domestic economy to meet them is severely constrained. Like our commitment to help bolster Ukraine's military capabilities, Australia has an opportunity to support broader economic development that is mutually beneficial.

An investment in Ukrainian reconstruction is not charity, but an opportunity to diversify our trade profile, unlock new supply chains and grow strategic capabilities in line with government priorities. When there is work to be done at the scale of postwar reconstruction, what is good for Ukraine will be good for Australia. We believe that there is a unique opportunity to demonstrate our commitment to a valued ally and support a nation that has fought so bravely, that will create jobs for workers and opportunities for business in both countries.

Key Recommendations

The recommendations from this report fall into several categories. Where resourcing is called for, it is usually in the form of investments rather than grants, to reduce the impact on the budget and offer a return to Australia's public purse. Many recommendations call for government to play a coordination role, provide support in overcoming risk, or help remove barriers to private sector service provision. While there is a key role for government, we have included numerous recommendations that support private sector investment, in order to swiftly grow opportunities both at home and abroad. Crucially, we have proposed five key thematic recommendations that we believe can be implemented in the current political and financial context.

1. Timely Investment. When every delay to investment can be measured in lives, the time to act is now. Investing in Ukraine does not just support the people affected by war, but demonstrates our commitment to supporting Europe in a time of war and crisis. The European Union (EU) is a critical trade and security partner, and the war on its doorstep should encourage Australia to maximise national engagement through government, business, civil society, and individual connections. Having reopened our embassy to Kyiv, Australia should expand our presence in Ukraine to help business, civil society, and government officials establish local connections. Australia's embassy in Kyiv should include numerous officials: an ambassador; a deputy ambassador; a defence attaché; an intelligence officer; a trade representative; a culture secretary; and, relevant consular officials. This will ensure that Australia's military, defence industry, and intelligence agencies can learn about the experience of conducting modern warfare against a larger aggressor directly from Ukrainians. Similarly, trade and investment opportunities will be difficult to identify externally. Critically,

Australia should prioritise NATO engagement and participation in European support for Ukraine's defence and recovery.

- 2. Mobilise Business:** Drawing inspiration from the *Japan-Ukraine Conference for Promotion of Economic Growth and Reconstruction*, we recommend that Australia convene a recovery conference in partnership with Association of Southeast Asian Nations (ASEAN). Such a conference will support businesses to identify opportunities for investment and trade, and allow the government to prioritise initiatives that offer comparative advantage for both public and private investment. Additionally, Australian firms should be encouraged to participate in established Ukraine recovery conferences in Europe and the US.
- 3. Deepen European Engagement:** In the wake of America's increasing withdrawal from security and trade obligations, Australia, Britain, and the EU are rising to meet the challenge of the new global order. This makes us natural allies who should prioritise a deeper partnership. The EU sees Ukrainian recovery and reconstruction as its highest priority. Therefore, Australia can significantly increase its relevance to European partners by promoting trade and investment with Ukraine, especially when it supports eventual EU membership. By treating support for trade and investment into Ukraine as a form of marketing for 'Brand Australia' in Europe, the government can justify certain levels of fiscal commitment that would create jobs and opportunities for Australian businesses.
- 4. Focus on our strengths:** Australian capability is broad and diverse. To correctly identify the opportunities with the best comparative advantage, government should convene stakeholders from public departments and private sector to formally decide on priorities.

However, we can identify some clear areas where particular attention should be directed:

- **Energy:** Australia has embarked on a major energy transition dominated by deployment of a diverse and distributed network of small-scale renewable production units. This is precisely what Ukraine needs, both to fortify its energy supply against Russian aggression and to satisfy the EU's requirements for membership. The section on energy has a number of recommendations that can be grouped together as simply: support Ukraine's energy system transition to a diversified small-scale network of grids and micro-grids.
- **Education:** Engage universities to explore how they can contribute to Ukraine's recovery by offering their expertise in specific problem areas and by considering opening campuses in Ukraine or partnering with Ukrainian education institutions. Australia should make Ukraine-specific scholarships available to Ukrainian students to study in Australia, prioritising key areas of demand for Ukraine. Leverage Australia's experience with distance learning and micro-credentials to support Ukraine's hybrid education requirements. Explore options for recognition of credentials, including post-graduate degrees.
- **Hospitals:** Australia should engage Ukraine's *International Medical Partnership Program* to work directly with partnered Ukrainian hospitals. Hospitals, health professionals and health administrators should explore what they can do to help Ukraine's recovery and support the training of Ukrainian health professionals and administrators. This should include examining medical transport decommissions to determine if old stock could be sent to Ukraine, especially for items such as ambulances, refrigerated vehicles or hospital equipment. The Australian Defence Force (ADF) health system should seek the opportunity to place health professionals on secondment to Ukraine to gain experience working in combat contexts and managing polytrauma. Additionally, Australia should recognise Australian citizens who have fought for Ukraine as veterans.
- **Mental Health:** Australia should work with Ukraine to improve their own mental health services and support the diaspora living here. Ukrainian and Australian veterans share these needs and may find mutual support is effective. Support for orphan adoptions may be related. Australia should seek to incorporate collaboration with Ukraine into the ADF health strategy, with priorities for veteran mental health collaborations and for training ADF-ready medical practitioners.
- **Physical Health:** Ukraine has widespread injuries including lost limbs and lost hearing in which Australian medical technology industries and science have world leading capabilities including in relation to significantly lowering the cost of prosthetics and, of course, with Cochlear. Australia should seek to apply its skills and capabilities to these tremendous humanitarian needs, while also engaging the EU to increase access of Australian medical technology and equipment to the European market as a whole. Australia should also engage Ukrainian technicians who have demonstrated considerable zeal for improving prosthetic technology. There are educational, as well as Research and Development (R&D), partnership opportunities available. Australia should share its experiences (both the good and the bad) in disability insurance related to the National Disability Insurance Scheme (NDIS) to explore how Ukraine can better finance the care of a population with extremely high disablement and other chronic health needs.

- **Demining:** This is now the single greatest physical barrier to Ukraine's economic restart, including agriculture, infrastructure reconstruction, energy deployment, and population return. Australia's world-class Explosive Ordnance Disposal (EOD), engineering, and geospatial capabilities make it a logical contributor, building on new technology developed by the CSIRO and companies such as MRead.
- **Decarbonised Steel:** Supplying sustainable construction materials for Ukraine's reconstruction can help underwrite investment in decarbonised construction materials.
- **Agriculture:** Cooperation in agricultural science and technology (including geospatial technology) should be encouraged and actively brokered by government. This is a particular area where Australia can potentially learn from Ukraine's expertise.
- **Critical Minerals:** The Chinese Communist Party (CCP) recently banned battery sales to the main US drone maker supporting Ukraine. Critical dependencies on CCP-controlled industries are an ongoing risk to sovereign capability. Australia should hasten critical mineral development including exports to Ukraine to reduce CCP market power.
- **Information Warfare:** Ukraine is a key battlefield in a global information war. Other battlefronts include recent US elections, Taiwan, the Middle East, and Australia's own domestic national discourse. We should step up our efforts to meet this challenge, including by coordinating with (and learning from) Ukraine and Taiwan, who are world experts in this field.
- **Prevent Russian lawfare:** Russia fined Google more money than exists in the world in a meme-ruling.⁴ It aims to use aligned countries to extract money from Google or other western companies to offset the confiscation of Russian assets. Those countries should be made to understand that supporting Russia's lawfare might potentially imperil relations with Australia. Russia conducts lawfare (legal warfare) and coordinated disinformation targeting Australia and Indo-Pacific partners, leveraging third states to pursue predatory rulings, asset seizures, and regulatory harassment. Australia should coordinate between Ukraine, the EU, and Indo-Pacific democracies on countering such tactics, as per the Council of Europe's Register of Damages for Ukraine (RD4U).
- **Leverage the October 2025 tax agreement with Ukraine and provide tax concessions for Australian businesses investing in Ukraine or tendering to meet Ukraine recovery projects:** Among the many barriers to trading and investing with Ukraine, some are purely regulatory and can be addressed through relatively simple processes. As per the Japan-inspired Ukraine recovery conference mentioned above, government should consider relevant options.

5. Fortify governance:

- **Democratic Integrity:** Promoting democratic institutions, free and independent trade unionism and labour rights, a vibrant civil society, and anti-corruption measures. Australia should apply and expect the highest labour standards from Ukraine, including by supporting collaboration with Ukraine's union movement to help build their capacity to protect workers' rights.

Introduction

Wars are political instruments. That they're the costliest form of political instrument does not change their fundamental nature. Ultimately, then, their resolution depends on politics. Vladimir Putin's explicit political goals are to reestablish the age of empire and 'might-is-right' geo-politics, with a new Russian Empire as the dominant force in Europe and returned as a Great Power on the world stage. Putin wants to end the post-colonial political system that has been built up since the end of WW2 and that rests on the sanctity of national sovereignty and self-determination.

Putin's goal is profoundly contrary to Australia's national interests. We live in a region with another large nation aspiring to be a great empire. Containing the CCP's aspirations to dominate our region has been achieved without open war thus far because of the shared commitment to the existing political project of nation states. However, this can only be sustained if it is backed up by sufficient military power. Putin has devoted his military power to overturning these norms. If he succeeds, peace, prosperity, safety, and freedom across our entire region will be imperilled. Putin must fail. Australia must do all that we can to ensure he is defeated.

In October 2024, Ukraine's President Volodymyr Zelenskyy presented Ukraine's Victory Plan, outlining to Ukraine's parliament (*Verkhovna Rada*) how to reach a just end to Russia's war.⁵ He presented the plan also at an EU summit on Ukraine Recovery. Part of winning involves making sure the people in Ukraine have something to hope for. Families, jobs, livelihoods, a future. Much of what has been lost is irreplaceable, but there is also a great deal that is replaceable; that can be rebuilt. Demand for reconstruction in Ukraine has been estimated by the World Bank's Rapid Needs Assessment at over €500bn and counting. That figure represents an enormous loss through

destruction. Rebuilding, and showing Putin that the world is willing to foot the bill to rebuild, is part of what will ensure Ukraine wins and Russia's invasion ends in futility.

Russia's invasion of Ukraine is not just a war against Ukraine – Putin aims to overthrow the post-Cold War regime of national sovereignty underpinned by shared liberal democratic values. He, along with the CCP, North Korea, and Iran, want to establish an imperial world order where power both rules and defines reality. Such a world would be intolerable for Australia.

And yet ensuring Putin's failure cannot be our only priority. The Australian Defence Force (ADF) is rightly focused on the security of our region. Because we operate in the context of global alliances, our success in this region ensures allied forces can increase their attention elsewhere. If the Indo-Pacific became an active theatre in the sense that the Ukraine-Russia border region is, it would drain real and financial resources that are needed in Ukraine. Therefore, while we encourage Australia to provide Ukraine's defence with all possible military support (including participating in peacekeeping operations), we do not propose to second-guess the allocation of military resources across a global alliance contending with multiple active, semi-active, and potential large-scale theatres of combat.

We also understand that the Australian government's primary responsibility is to the safety, prosperity and wellbeing of Australians, which is a task that is also under stress from many directions. As cost-of-living and housing crises continue, we do not believe recommendations that call for significant distributions of public finance outside Australia would be taken up in the short-term. Our intention is to identify what might actually be implemented. We focus on recommendations that can be adopted mostly without legislative

requirements and without significant demands on government budgets in a time of fiscal restraint. We also aim to highlight where the federal government's other policy priorities are aligned with supporting Ukraine.

As described above, to stop Putin's revanchist ambitions, we should heed a key lesson from Australia's war time Prime Minister, John Curtin: post-war recovery should not wait for the war to end. Waiting for the cessation of hostilities is tantamount to handing Putin a veto over Ukraine's recovery. At the Lugano conference in July, President Zelenskyy himself underscored the urgent need to plan for reconstruction before the end of open conflict. To win both the war and the peace, Ukraine's allies have to support it on the home front as well as the battle front.

Australia should maximise its engagement with Ukraine through government, business, civil society and people-to-people connections. Australia and Ukraine have forged a spirit of international mateship in a time of need. There is a great deal that we can collaborate on as Ukraine rebuilds and recovers, both materially and socially, especially in areas such as education, agriculture, mental health, decarbonised steel for reconstruction, and democratic integrity.

This report focuses the role that Australia's private sector can play in supporting Ukraine, and what the Australian government can do to mobilise, facilitate, and coordinate that work.

Ukraine's economic recovery is not simply about business, or consumerism. Ukraine's people must survive and thrive so that Putin abandons militarism or hopes of eradicating Ukraine as a people and as a culture. Only when Putin knows that his goals are unobtainable through violence will he consider alternatives. Only when other would-be military imperialists accept that attempted conquest is likewise futile will they seek other goals. Investing in Ukraine's economy is now a global and national priority. Of course, asking businesses to invest in a new market in a country at war raises many

obvious questions. We have already addressed in a broad sense *why* this must be done; *what* specifically is needed and *how* it can be done will be the main focus of the rest of this report.

Businesses are not expected to invest for the sake of political nirvanas, even when those dreams are the survival of a country and its people. A fundamental insight of market economics is that rather than make plans contingent on changing human nature, we can create incentives that align private ambitions with shared priorities. The World Bank's *Rapid Needs Assessment* estimate that reconstruction will cost more than €500bn implies a tremendously large opportunity for businesses to invest. Like much of the physical universe, business investment often follows the principle of least action⁶: businesses will invest where returns are anticipated to be high not relative to other opportunities but relative to the effort required and uncertainty involved. In other words, relative to the risk and cost. Where there are barriers to investment or trade, and where trusted relationships and markets are difficult to establish, even the promise of high returns will not attract investment from any but the most cavalier entrepreneurs. Where those barriers are low and relationships are facilitated, then business will do its thing (for its own reasons). If political actors want to encourage a type of investment, we need to minimise the action required and risk shouldered by business.

Government can eliminate much of the necessary action simply through leadership and using its coordinating power, neither of which require much legislative or fiscal commitment (the principle of least action applies to government, too). Where financial commitments are needed, often this can be through loans or risk-sharing ventures that leave a light impression on national budgets.

How to mobilise business raises many questions that need attention. How do we manage the risks? How do we guarantee supply chains and distribution networks? How do we establish local connections? How do we assess demand? How do we market ourselves? How do we know what

regulations must be followed? Which industries should we focus on? These are challenging questions, which is why there has been a huge amount of work already done to address them.

This project aims to create the groundwork for that engagement from an Australian perspective. As we will see, many countries have been dealing with these challenges as they all look to invest in Ukraine's future. The best ambassadors for investing in Ukraine are those businesses that are already invested there. The Australian government should convene these business leaders to better understand the opportunities and needs that Australian companies can act on now.

The report includes recommendations on a diverse range of areas. Some of these focus on resourcing or risk adjustments, some on coordination, while others call for service provision by Australian firms, private sector cooperation, or efforts to boost people-to-people links. They all have as their objective ways that Australia can, within its

capabilities and comparative advantages, fortify Ukraine's civil resilience and lay foundations for rapid recovery. For instance, cultural protection is a defence against genocide. Poland's foreign minister recently discussed Russia's attempts to eliminate Ukraine through cultural erasure.⁷ Australia can further support, for instance, the Ukrainian Museum in Australia (based in Melbourne) to help preserve Ukrainian culture and render futile Russia's attempts at genocide. Such cultural preservation initiatives be developed jointly with the Ukrainian diaspora (over 60,000 people) through the Australian Federation of Ukrainian Organizations, ensuring community-driven content and sustainable operations. This is a simple but potentially effective step that Australia can take at little cost. More importantly, it demonstrates the approach that we seek from Australia: to think creatively but realistically about how we can help Ukraine in full appreciation of the limits and competing demands for resources that government and Australians are all facing.

Part I: The case for acting now

“Time has a price - and that price is life.”
- Ukraine’s First Lady, Olena Zelenska⁸

Prime Minister John Curtin knew that war reconstruction could not wait until the end of the war, but this lesson needs relearning and adaptation. Australia has supported Ukraine since the beginning of Russia’s invasion, even going back to the shooting down of Malaysia Airlines Flight MH17 in 2014 when 38 Australians were killed by Russian troops in their initial (undeclared) invasion of Ukraine.⁹ Australia has every reason to continue supporting Ukraine now.

The European Commission (EC) also believes that recovery should begin now. They state:

It is now that Ukraine needs help the most. The European Commission and its partners are mobilising international support for Ukraine’s economic and social stabilisation, reconstruction and recovery from the effects of war.¹⁰

Likewise, the advice to Ukraine in relation to anti-corruption reforms from Former Polish Foreign Minister, Radoslaw Sikorski, is the right approach for many issues related to the war. Sikorski told Ukraine, ‘don’t let this emergency go to waste: you will sometimes have to carry out politically difficult reforms. Do it now when you have a national consensus that you want to join the west whatever the cost, because after the war, it will be harder. Normal politics will return, and it will be harder. Better to do it now’.¹¹ Better to begin supporting reconstruction now while there is still consensus on its importance.

In October 2024 at the Ukraine Investment Summit hosted by Poland, Kateryna Glazkova, executive director of the Union of Ukrainian Entrepreneurs said, ‘it is really important to understand for our foreign partners and potential partners: the time to invest in Ukraine is now. Not tomorrow – now.

Ukrainian companies, Ukrainian businesses, which are still operating in Ukraine are not waiting for the finish of the war’.¹² She highlighted that EU investment into Ukraine during the last three years under full-scale war conditions was over €600m, including investment in new products and services, not just reconstructing damaged infrastructure.

Further at the Ukraine Investment Summit in Poland, Davide La Cecilia, Italian Special Envoy for the Reconstruction of Ukraine, said that Italian business sector had very strong attention on Ukraine, including through holding the Italy-Ukraine Business Forum in November 2024.¹³ The focus of that forum included metallurgy, critical minerals, renewable energy, the defence industry, agribusiness and the *Made in Ukraine* agenda. La Cecilia told the conference that he would say to Italian companies that Ukraine is like a little China in terms of the opportunities, but also that ‘they can start now – there are a number of things that can be done now’. Among those things to do now he included improving energy resilience and rehabilitating the liberated parts of Ukraine by removing anti-personnel landmines.

Ukraine’s economy is struggling under the pressure of invasion. While GDP growth in 2023 was 5.23%, this followed a 28.9% contraction in 2022 and masks the actual state of the economy. The 5.23% GDP growth figure is driven substantially by defence spending, which grew from around \$7bn in 2021 to \$65bn in 2023 (around 36% of GDP). Government debt to GDP almost doubled from 49% in 2021 to 89% in 2023. Simultaneously, imports collapsed for a period in 2022, before recovering after regaining some territorial control. As a result, inflation reached 26.6% in October-December 2022. It since stabilised, coming down to 3.2% early this year before rising significantly again

in the second half of this year, reaching 9.7% in October. The National Bank of Ukraine (NBU) currently maintains a key policy rate of 13% (down from the 2023 peak of 25%).¹⁴ Double digit inflation and interest rates reflect an economy that is crowded out by defence spending. The relatively high GDP growth figures do not represent welfare gains – on the contrary, households are economically worse off as ever more resources (both human and capital) are employed by the existential demand of national defence. Competition for the remaining supply of resources is fierce, driving up prices and contributing to scarcity at the household level. All this underscores the need for reconstruction now.

It is worth noting that these costs of war are landing even more heavily on Russia than Ukraine, owing largely to western support of Ukraine and global isolation of Russia. Russia's high GDP growth does not imply that their economy is doing well. On the contrary, inflation in Russia is just as high as in Ukraine but interest rates are nearly twice as high at 21% implying far more crowding out of the civilian economy to service the war economy. Russia's military expenditure is also the highest it has been since the fall of the USSR, having reached \$110bn in 2023 (double the average over the years from 2015 to 2021). Russia's government debt is also 15% of GDP (having reached almost 18% in 2021) while government spending is also double the pre-war levels. In short, while Russia's production levels are high, very little of what is produced adds anything to current or future welfare: most of it is blown up on the battlefield in short order. Russia has set its prosperity back by decades.¹⁵ Nonetheless, there is no case for supporting Russia's economy. The cost of the war must fall on Russia.

Only if Russia abandons its war mongering imperial ambitions and undergoes convincing regime change should we consider its rehabilitation. After WW2, German and Japanese reconstruction followed total regime change. In Japan's case, an entirely new constitution was

written for it that precluded any form of offensive military capability. For Russia to be similarly rehabilitated, similar assurances and guarantees that do not depend on trusting the Kremlin should be a prerequisite. This should include creative approaches to Crimea and the Luhansk and Donetsk regions that return those regions to Ukrainian sovereignty.

Support for Ukraine

Countries around the world are already acting decisively in support of Ukraine's recovery. In November 2024, the EU hosted one of the largest conferences toward that end: The European Union – Ukraine Investment Conference: Rebuild Ukraine 2024. (A follow-up event, the 2nd EUUkraine Investment Conference, is scheduled for 13 November 2025 in Warsaw as part of the Rebuild Ukraine exhibition and conference.) Italian Foreign Minister, Antonio Tajani, said in July 2024 that 'to protect Ukraine is to protect Europe and to protect democracy and to protect international law'.¹⁶ At the same conference, then UK Foreign Minister, David Cameron, encouraged all sectors of society to make that their mission and to look for what they can do to make Ukraine's defence and recovery a success:

Everyone should ask, 'what can I do for Ukraine?' If you're a business, can I invest in Ukraine? Can I at least visit Ukraine and have a look where I can invest? If you're an insurer: can I insure ships in the Black Sea? If you're a Foreign Minister: ask yourself what countries you can win over to the cause of Ukraine. If you're a Defence Minister have a look and see if there are any spare weapons you can give to Ukraine (and have a look at the permissions so we can make sure that they can hit Russian soldiers before they actually get into Ukraine. If you're involved in cultural industries or other things, think of what you can do to part-

ner with Ukraine. Something Britain is working on now is a 100-year partnership with Ukraine, on everything from twinning our towns to universities, to school visits, to trips to cultural institutions; everything we can do. Let's be frank about this: this country, Ukraine, has chosen a path – a path to join us in the Euro-Atlantic, in the West, with all that means for their economy, for their society, their politics and everything else, and we've got to support them in that choice. Because Putin wants to stop them making that choice. Everyone should ask: what can I do for Ukraine? And if we all do that, there's no way we can't win.¹⁷

In addition, there have been four iterations of the Ukraine Recovery Conference. The Ukraine Recovery Conference 2025 (URC2025) was held in Rome on 10–11 July 2025, and marked the fourth edition of the annual international effort to coordinate Ukraine's swift recovery and long-term reconstruction following Russia's full-scale invasion. Bringing together governments, international organisations, financial institutions, businesses, local authorities and civil society, the conference reaffirmed a shared, long-term commitment to Ukraine's resilience, reform and reconstruction. Guided by the Lugano Principles and a 'whole-of-society' approach, URC2025 focused on four main dimensions of recovery — integrating themes such as economic stability, infrastructure, energy, climate resilience, governance, and social inclusion. The event also highlighted Ukraine's reform progress in the context of its EU accession path and featured a Recovery Forum and Business Fair, promoting investment, innovation and partnership opportunities for rebuilding Ukraine's economy and communities.¹⁸

Even before Donald Trump became President in the US, the European Union has been inevitably playing the lead role in Ukraine's recovery. This is for two clear reasons. First, Russia's invasion of Ukraine is a direct threat to Europe and ensuring Ukraine's future is essential for the security and

prosperity of Europe. Second, Ukraine is on a path to joining the EU, which means it needs to begin to conform with EU regulations and standards. For Ukraine, it makes no sense to rebuild while adopting US or other standards only to have to re-do all the necessary reforms all over again as part of its EU accession process. This of course is to say nothing of the consequences of Donald Trump's return to office in the US: he has shown no inclination to support Ukraine, therefore while the EU is the obvious choice for leading the effort in support of Ukraine, it may also be effectively the only choice. For Australia, the implication is simple: our support for Ukraine should be in full coordination with the EU. There is little value in helping if we end up just getting in the way.

In 2024, the EU established a major reconstruction fund: the Ukraine Facility. With an initial €50bn in financial support over a three-year period, this fund is underwriting much of the reconstruction and recovery work. The main objective of the Ukraine Facility is to 'support Ukraine's macro-financial stability and recovery, reconstruction and modernisation'.¹⁹ As of 18 March 2025, €21.9bn had already been disbursed under the Ukraine Facility via three payments of grants and loans.²⁰ It is notable that Ukraine has had to meet stringent EU conditions to qualify for each round of disbursements. The EU reports that 'The Council concluded today that Ukraine had satisfied the necessary conditions laid down in the Ukraine Plan in order to receive a third disbursement from the Ukraine Facility'.²¹ This included demonstrating the successful implementation of 13 different steps covering reforms supporting the use of renewable energy, improving agricultural development strategies (including a plan for landmine removal) and other intentions regarding Ukraine's recovery, reconstruction and modernisation. These plans include a timetable for how Ukraine intends to meet EU accession obligations over the next four years.

By October 2024, the EU had mobilised €124bn in support of Ukraine, both through military and non-military assistance. Beyond the Ukraine

Facility, the G7 added a further US\$50bn support from frozen Russian assets, and the EU is adding a further €18bn in macro-financial assistance. The World Bank also established the Ukraine Relief, Recovery, Reconstruction, and Reform Fund (URTF), which is a key financing mechanism for supporting Ukraine.²² The URTF has supported projects worth around US\$7bn, mainly focused on infrastructure reconstruction.

While there is a great deal of support, it is yet to be sufficient to meet the more than half a trillion USD in damages estimated by the World Bank. There is no shortage of need, which means no shortage of investment opportunities.

The role of the private sector

Prior to the Trump Presidency, the American Chamber of Commerce in Ukraine was extremely bullish on investment opportunities in Ukraine. They suggested: 'Ukraine is open for business. Now is the time to look at Ukraine because the biggest recovery of a nation in Europe since WW2 has already begun. The role of the private sector is massive'.²³ This is why President Zelenskyy spoke to WEF business leaders at Davos in January 2024 and called on businesses to invest in Ukraine, saying 'people need jobs'.²⁴

While it remains to be seen which way the US will go under its new leadership, with so much to be done it cannot possibly be achieved by the public sector alone. Ukraine's recovery and reconstruction represents an enormous investment opportunity, but it is one that will be accessible preferentially to those who contribute while the going is still tough. Investing in a new country that is subject to an active invasion involves quite a risk, and business executives have prudential responsibilities. Even when businesses report a positive intention for investing in Ukraine (as they often do), they can be unsure how to start.

It is reason the EU has made major calls for European business to invest in Ukraine's recovery

and reconstruction, and the UK established a range of support for UK businesses investing Ukraine, including through the UK Ukraine TechBridge.²⁵ Similarly, it was the impetus behind the Japan-Ukraine Conference from Promotion of Economic Growth and Reconstruction, which resulted in 56 MOUs between Japanese businesses and Ukrainian partners.²⁶ It encouraged German Chancellor Olaf Scholz to speak after Ukraine's Prime Minister Denys Shmyhal at the 5th German-Ukrainian Business Forum.²⁷ The gravity of this challenge led Italy's Deputy Prime Minister Antonio Tajani to join the Minister of Economy, Minister of Enterprises, President of the Italian Trade Agency, and the Secretary General of the Ministry of Defence in opening the Italy-Ukraine Business Forum in November 2024.²⁸ The need to support business led Canada to host its third annual Rebuild Ukraine Business Conference in December 2024,²⁹ and then US President Joe Biden appointed former Secretary of Commerce Penny Pritzker as US Special Representative for Ukraine's Economic Recovery in September 2023.³⁰

Davide La Cecilia explained steps the Italian government took to begin mobilising their business sector to invest into Ukraine now. Besides having appointed La Cecilia as Special Envoy for the Reconstruction of Ukraine early in 2023, Italy also hosted the Italy-Ukraine Business Forum in November 2024, establishing consultation processes with Italian business associations (having met over 100 of them every 4-6 weeks), established a business advisory council and is working with businesses to better facilitate their involvement. Japan's government has also taken considerable steps to help Japanese businesses invest into Ukraine. Because of Japan's WW2 history, their military support for Ukraine has been limited, so Japan has instead focused on civil and humanitarian support. Prime Minister Kishida identified five specific actions that the Japanese government had taken to steer business partnerships with Ukraine:

1. Concluded a Tax Convention and began negotiations on a new Investment Agreement;

2. Provided direct support through international financial institutions, including the European Bank for Reconstruction and Development (EBRD) and a 'two-step loan through the Black Sea Trade and Development Bank by JBIC';
3. Japan's international cooperation agency, JICA, established ODA and investment finance for Ukrainian venture capitalists;
4. Opened a JETRO office in Kyiv (similar to Austrade) to expand business ties, investment and trade, while NEXI (Japan's external trade and investment credit and insurance agency) established facilities to reduce investment and trade risk for Japanese companies; and,
5. And finally, relaxed multi-entry visa requirements for Ukrainians partnering with Japanese businesses on 'cooperation projects'.³¹

These steps facilitated 56 new business agreements during the Japan-Ukraine Conference for Promotion of Economic Growth and Reconstruction in February 2024. These deals included agreements to supply agricultural machinery, investments in wind energy, modernising Ukraine's gas compressor stations and a range of other areas. Then in December, Japan held the ninth Japan-Ukraine Economic Joint Meeting, which was attended by over 200 business and government representatives. Japan Business Federation's (Keidanren) Kokubu Fumiya called for sustainable development in infrastructure and innovation in Ukraine's key industries (especially agriculture).³² Keidanren representatives raised challenges such as access to finance, wartime business risks, insurance, labour force stability, difficulties finding business partners, and travel restrictions. In recognition of the importance of high-level business dialogue, the parties endorsed a commitment to hold the tenth Joint Meeting soon.³³

There are of course some clear challenges beyond the security environment that potential investors or traders face in engaging Ukraine. Those challenges are not only cultural issues, but sometimes lack of energy, lack of people and

other consequences of the war beyond simply the security context. Ukraine has improvements to make in relation to rule of law, judiciary, function of public administration. These are priorities identified by businesses in Europe to facilitate greater investment. These are also the reform items that Ukraine is working on with the EU. While Ukraine's reform program will engage European partners much more than Australian, there is plenty of space for anyone who is willing to help, and Australia's support of Ukraine's EU-reform agenda will certainly help. Australia itself also has current experience working with the EU as an outsider, even if the goal of Australia's negotiations has not been to become an actual EU member. Experience negotiating with the EU will still be valuable for Ukraine to learn from. Additionally, Australia naturally gains from Ukraine conforming with EU regulations since it means Australian companies only need to understand one set of existing regulations to fully participate in Ukraine's recovery (and because those regulations are very high quality).

Despite those strong expectations, the path will not be straight progress all the time. With Ukraine's enthusiasm to attract investment, there have been reports of overshooting in terms of supporting business bargaining power relative to workers. The imbalance has become so problematic that some business leaders are complaining about it, because it undermines working conditions and because the laws clearly fall below European standards. There have been reports that this overshoot is encouraged by some voices from the US that Ukraine has been keen to please. Australia has a strong tradition of unionism and a keen sense of how to achieve a fair balance in industrial relations. There is plenty that Australia can offer Ukraine in terms of support for managing a period where almost everything is changing.

The reason for the private sector to be interested in Ukraine is not because it's hard, and it's naturally not only for Ukraine's benefit. With 33m people, Ukraine would become the fifth largest population

in the EU were it to join, increasing the total EU population by 10%. Ukraine's population is just larger than Poland – a country that converged with European living standards by doubling the size of its economy over a span of 20 years following its ascension to the EU in 2004 according to the IMF.³⁴ That is a significant market to participate in, and one where there is currently far more demand than supply in almost every sector. Similarly, while Ukraine's GDP per capita is currently quite low (estimated around \$6,000 for 2025³⁵), it can be expected to grow extremely rapidly as soon as the conflict ends and again upon joining the EU. It would be reasonable to anticipate GDP growth well above 10%, perhaps as high as 20% for the first few years of reconstruction. (There can be no such similar expectations for Russia's post-war economy unless it undergoes substantial regime change).

Australia can also think of Ukraine as an entry-point to the European market. It's the part of the market that will be the most dynamic over the next decade, where new opportunities will emerge, and new partnerships will be forged. Ukraine's door is wide open, and as it is on a path to joining the EU, it has the potential to become the biggest business opportunity since China joined the World Trade Organisation (WTO).

This is an opportunity that major European firms are already acting on. Speaking at the EU – Ukraine Investment Conference, Rebuild Ukraine 2024, Laurent Germain, CEO of Egis Group (a global construction and engineering firm and France's leading infrastructure firm) highlighted that Ukraine graduated 130,000 engineers every year – more than any other country in the EU. Egis is already working on rebuilding destroyed infrastructure, but also investing in long term projects for new infrastructure.³⁶

Just selling goods for recovery is not sufficient: direct investment will be much preferred. This is very different to the trade-led model of Australia's economic relations with China over the past two decades. Ukraine is already establishing industrial

parks, mechanisms for capex compensation for large-scale investment, private equity facilities are emerging, and Ukraine is mobilising tools to make its investment needs more transparent. Ukraine officials believe there is no prospect that Ukraine would not join the EU. They see it as a matter of survival and so they simply must meet the requirements of the EU and have no alternative. That mentality is underpinning very strong expectations that business conditions will improve tremendously over coming years. Now is the time to be present.

While Ukraine's door is open, there is also significant competition for the opportunities it presents. The EU intends that European countries and companies would provide most of the investment, at least as far as what is underpinned by EU financing mechanisms such as the *Ukraine Facility*. There is a tremendous amount of geopolitically informed industrial policy that will not necessarily penalise Australian investments, but cannot be relied upon to support them either. Gert Jan Koopman, as a representative of the EC, told EU companies that while investing in Ukraine requires accepting some risk, the company is not alone; that the EU is supporting them financially in principle to 'fund EU companies and associated companies... what we certainly don't want is that this is going to be the work of Chinese and other companies from all over the globe except from the companies that Ukraine is going to belong as part of the European Union'.³⁷ This raises a specific role for the Australian government in ensuring that Australian companies are treated as 'associated' with the EU and not thought of as belonging to the group of 'Chinese and others from all over the globe'. There is good reason to assume that this is possible, but it would also require some trade diplomacy.

Think Ukraine, act globally. Koopman emphasised that this should not just be an effort for some countries or the EU, but that 'the scale of the challenge is such that we need to mobilise the world'. But he added that Ukraine is on its way to

EU membership, so when it comes to standards and regulatory frameworks that other partners from other countries would have to play by European rules. He added that in relation to finance from the EU itself, they were strongly preferencing European or Ukrainian incorporated companies (pointing out that the EU would not subsidise the entire world in investing into Ukraine). According to International Finance Corporation (IFC) Vice President Alfonso Garcia Mora³⁸, Ukrainian companies need working capital and help to invest in the medium and long term to reconstruct what has been destroyed. He believes that the risk from Russia's continuing attacks, while a difficult problem, can be managed. It requires consideration of where in Ukraine you can begin to reconstruct infrastructure. For instance, energy infrastructure can begin to be rebuilt in the west, far from the most active conflict zones. Similarly, transport may need new routes. Secondly is blended finance. He argues that donor finance needs to be directed to leveraging private finance into reconstruction. Early in the war, the IFC invested \$1bn, with the board asked directly to 'put \$1bn in IFC capital at risk'. The goal was to leverage an additional \$1bn from donor finance and blended financing. The IFC began by focusing on agri-businesses, providing working capital. Their second priority was trade finance. Third, was to work with small-to-medium enterprises (SMEs) through risk-sharing agreements with local commercial banks: the IFC accepted 50% of the risk if local banks lent to Ukrainian SMEs. Finally, the IFC invested in technology companies.³⁹ As the war proved to last longer than expected, they shifted their focus to core-infrastructure: energy, transport, telecoms, and housing. The reconstruction of those sectors has become critical for Ukraine.

Investing in the reconstruction of Ukraine's infrastructure sectors carries some obvious risk that must be managed. Assuming the financial instruments and credit are available, there is still a significant need for reforms on Ukraine's end. The IFC believes that at least a third of the funds that Ukraine needs for reconstruction can be provided

by the private sector conditional upon appropriate reforms. To attract that capital, its sectors need to be open. The energy sector needs a tariff that makes it bankable. They need competitive tenders to allow the private sector to enter. The IFC worked with Ukraine's government based on its own goals to identify the key reforms needed in each sector to attract private capital. More than 200 such reforms were put to Ukraine's congress for approval, which the IFC described as demonstrating extreme seriousness. However, further reforms are still needed. Ukraine needs a strong financial sector capable of leveraging private capital; the opening up of key sectors for private investment; and, a renewed focus on the sectors that offer the largest multipliers (e.g. the construction of housing for returning refugees).

There is a question about how much reconstruction depends on the circumstances of the war, but the war is taking too long to continue waiting for its conclusion. This is one reason that reconstruction must make immediate progress. The IFC estimates that each donor dollar they can mobilise will allow them to leverage \$4-5 in private capital. They emphasise that anything that can be done by the private sector should be left to the private sector, ensuring that it does not occupy extremely scarce public sector resources. Instead, direct the scarce public sector resources to where the private sector is incapable of acting. The IFC agrees that Ukraine's growth prospects are extremely high, describing it as an economy that is ready to grow but with many sectors that have been destroyed, meaning the catch-up investment will be rapid. Ukraine is also in a critical geopolitical location that will attract significant investment, and its government is continuing to make the right reforms. The IFC expects that in five years, Ukraine will be a growth engine of the EU.⁴⁰

Ukraine is the focus of the biggest reconstruction effort since the end of WW2. As a result, there will be tremendous opportunities for profit while doing good. The private sector can play an enormous role in Ukraine's recovery, including from Australia,

but it needs help. Countries around the world are stepping up to support business investment into Ukraine. Organisations such as the *Federation of Australian Ukrainian Organisations*, or the Ukraine-based *Union of Ukrainian Entrepreneurs* have put themselves forward as willing to help. The Australian and state governments must play a convening and leadership role.

Part 2: Opportunities for Australia

Australian trade with Ukraine in 2023 was \$166m, including \$97m in exports and \$69m in imports. Australia's humanitarian assistance to Ukraine has included a series of announcements totalling \$85m in support.⁴¹ This included: allowing Ukrainian nationals in Australia to automatically extend their visas; \$3m to NATO's trust fund for Ukraine; including medical supplies; \$30m in emergency humanitarian assistance; a joint mission with the UK chartering emergency supplies; 70,000t of thermal coal; \$10m to the UN administration of the Ukrainian Humanitarian Fund; and, \$31m toward Ukraine's energy and humanitarian needs. A Department of Foreign Affairs and Trade (DFAT) submission to the Senate Inquiry into Australian Support for Ukraine stated that humanitarian support had focused on at-risk groups including 'women, children, elderly people, and people with disabilities'. Ukrainian imports have been duty-free since July 2022, and Australia has recently negotiated a new tax treaty with Ukraine.⁴²

In December 2024, Australian Foreign Minister Penny Wong travelled to Kyiv to meet with Ukraine Prime Minister Shmyhal, as well as the Foreign Minister, Defence Minister, and Deputy Energy Minister. During the trip, Minister Wong announced an additional \$66m financial support to the EBRD, \$10m for the Ukraine Energy Support Fund, and \$80,000 for Save Ukraine, a local community organisation that works with vulnerable families and children. These contributions brought Australia's assistance to Ukraine to over \$1.5bn. Minister Wong also announced that Australia's embassy to Ukraine would return to Kyiv from January 2025.⁴³

All these forms of support are in addition to the considerable military support that Australia has provided Ukraine. This is important and welcome, and we encourage the Australian government to continue providing military and humanitarian support, including by participating in peace

keeping operations were they to be established. We also understand that Australia's defence priorities are in our own region, where the cost of living and housing crises are key budget priorities. We are confident that the government will provide what support can be provided. The role of this report is to demonstrate opportunities to facilitate trade and investment that would help Ukraine and strengthen its negotiating position against Russia while also bringing returns for Australian businesses.

In Part 2, we consider some of the key sectors where Ukraine has substantial needs that align with Australia's economic strengths: energy; education; health; agriculture; decarbonised steel; and finance. We do not imagine this is an exhaustive list of opportunities for Australian private sector engagement with Ukraine, but we hope to precipitate action by presenting some of the more obvious opportunities.

Reconstruction financing

When President Zelenskyy presented Ukraine's resilience plan, money was highlighted as a key priority after achieving unity, stabilising the frontline, and supplying sufficient weapons. Ukraine needs financing to pay for defence, reconstruction, salaries and other expenses.⁴⁴ The biggest single financing mechanism for Ukraine's recovery, reconstruction and modernisation efforts is the EU's Ukraine Facility, which provides €50bn in financing.⁴⁵ Within the Ukraine Facility framework, the EU has made a range of loans, guarantees, grants and other financing arrangements. These include: support for Ukraine's private sector; 'first loss capital'; technical assistance; guaranteeing Ukrainian bank loans to small and medium businesses; a pan-European export credit guarantee facility;

supporting equity investments into Ukraine; finance for start-ups; partnerships for war-risk insurance including experimental pilot schemes; and, a wide range of other methods of support.⁴⁶ According to a spokesperson from the EU, 'never in the past have we dedicated so much of our resources: our political support, our diplomacy, our financial instruments, military support. This is very significant what the European Union has done to help Ukraine over these 1,000 days. In particular, when it comes to the mobilisation of investment, this year (from March) when we have got our Ukraine Facility adopted, we are rolling out our €50bn package in support of Ukraine'.⁴⁷

The goal of this section is not to identify every potential financing mechanism that could help Ukraine. Instead, it's to highlight the potential for Australia's finance sector to bring creative options forward that would support Ukraine's defence without unduly burdening the federal budget. Christian Syse, Norwegian Special Representative for Ukraine, explained the approach taken by the *Norwegian Development Finance* institution. He described it as open for bids to invest in Ukrainian businesses and institutions 'from all sources', with less emphasis on prioritising European partners than some other institutions. Syse emphasised the critical role of derisking projects that are ready to build, including the need for insurance. He also highlighted the importance of transparency and other governance assurances to make Ukraine investable for the private sector. A key tool in establishing transparency is the *Single Project Pipeline*, which coordinates investment projects. It is the main source for finding criteria Ukraine's public investment requests and for submitting proposals.⁴⁸ At the end of 2024, the Pipeline had almost 300 projects in the 'energy and extractives' sector, two thirds of which were in the initiation stage.

A new *Commercial Risk Guarantee Fund* for supporting renewable energy investments was announced in November 2024, at the ReBuild Ukraine summit in Poland.⁴⁹ The project was presented by Oleksandr Melnyk, European-

Ukrainian Energy Agency (EUEA) board member. The fund requires participants to offer a 'minimum required guaranteed price' for projects.⁵⁰ While this was described as being specific to renewable energy projects, it is fundamentally an example of a risk allocation model that shifts risk away from financiers. It requires projects that are able to absorb the risk themselves. There are a wide range of alternative models of risk allocation, including leaning on hedge funds to manage risk, or allocation of part of the risk to governments (whether the Ukraine government, other European governments, or in the case of Australia, our own government where it is willing to offer such guarantees). Risk can also be shared across many actors or divided into different categories of risk. For instance, hedge funds might manage the currency risk while governments accept the risk arising from warfare.

There are a number of options that the Australian government can consider enabling concessional financing for Ukraine without unduly impacting the government budget. Concessional financing can include options around repayment rates or repayment schedules, it can come with underwriting options around default risks, it can include options on the source of principle financing. These options can be made conditional on factors other than time, such as GDP or governance milestones. Australia may also bring public finance expertise for infrastructure. This could be done in a technical advisory and/or capacity building way entirely separate from financial commitments. Australia has considerable experience with public asset recycling and public-private partnerships, for instance.

Another more creative option might take inspiration from Australia's higher education loans. Under the HECS & HELP schemes, repayment schedules are linked to income. This can serve as a model for reconstruction financing. There are a number of challenges that arise with this type of financing, but there are also many benefits that make it worth exploring. Notably, there is an existing body of

literature on such financial mechanisms, pioneered by Nobel prize winning financial economist Robert Shiller.⁵¹ The Bank of England has also published research endorsing the use of GDP-linked bonds as a means of managing the risk of sovereign default.⁵² These mechanisms should be especially suitable to Ukraine's situation because growth can be expected to be quite rapid in Ukraine once security is established. Such circumstances make the potential for early repayment quite likely relative to a debt structure that simply assigns repayments based on the passage of time.

At its simplest, finance is about the flow of money and risk over time. There is an opportunity for Australian businesses to invest in Ukraine – i.e. to send money to Ukraine now in the expectation of receiving higher repayments in the future. Because the future is less certain than the present, that process involves risk. How these factors are allocated is the essence of finance. Many businesses would consider the risk of investing into a country at war too great, for instance, but if a portion of that risk can be held by others, they may be willing to provide the capital. That is the essence of insurance.

While Australia has a developed insurance industry, it is likely that war risk is too great for most private sector insurers. There are of course many types of risk. Being unable to make repayments on a promised schedule is one risk. Being unable to make repayments at all is another type of risk. If the project fails to make returns because it was ill-conceived, that may be considered a different risk than if the people involved are killed in war or if key capital assets are blown up. All these different risks can be treated differently. We do not presume to have all the options – after all, the finance industry employs a huge number of the highest achieving Australians. They can certainly come up with creative financing options that we would never consider, if they turn their attention to the issue.

We do propose, however, that Australia should work with the EU to both share and minimise war risk. In essence, Australian businesses willing to

bring capital to Ukraine could apply for war risk insurance from a consortium of Australian and EU governments. Insuring a loan does not require significant upfront budget commitments, so the imposition on the Australian government is small. Meanwhile, the Australian government gets the benefit of increased growth potential of Australian businesses that trade and invest with Ukraine and Europe. For Europe, they get the benefit of increased foreign direct investment into Ukraine (that they don't have to pay for), helping ensure Russia's imperial warmongering fails and does not result in future invasions of current EU states. There is simply so much to be done in Ukraine that Europe cannot meet all the demand itself without seriously diminishing its current consumption in favour of significantly increased savings/investment. The solution is to work with reliable partners that are willing to divert manageable portions of current savings to Ukraine now, knowing that the return over the coming decade will make the investment well worthwhile.

Sharing the risk is part of the solution, but reducing the risk is also essential. There are many ways to reduce the financial risk of investing into Ukraine. For instance, a subsequent section will focus on anti-corruption efforts, which are essential for ensuring investors and creditors can trust they are not simply burning money. Other risk-reduction tools are also available. Australia has developed strengths in technology and skills for financial transactions interrogation and analysis. Helping Ukraine develop similar skills and technology, both through partnerships and training, will strengthen the foundation of trust and reduce financial risks for potential investors or creditors. Meanwhile, such efforts will also help Australia improve our own efforts to counter Russia's methods of circumventing integrity measures.

Australian investment into Ukraine has very significant benefits for Europe and the Australian government should work to ensure Europe sees it as such. Australia should seek (without becoming mercantilist) greater European support for trade

access and investment collaborations in a way that fully reflects the commitment demonstrated by a friend who is there when times are worst. The US under Donald Trump is not likely to be generous toward Europe over the next few years. China under Xi is even more mercantilist and predatory. Russia is an imperial aggressor. There are few partner countries that remain committed to open international trade and the rules-based order. Australia should demonstrate through its support of Ukraine a commitment to, and partnership with, Europe and expect this to be reciprocated.

There are many options, and the finance industry is full of creative people. For instance, the Australian government could subsidise a portion of the principle for loans. It could guarantee a minimum return on a standard schedule while allowing Ukraine businesses or government to make payments on a less urgent schedule. It could arrange with the EU or UK to underwrite or act as guarantor for a portion of debt so that were Ukraine unable to meet conditions or ultimately need to refinance or default on part of the debt, the loss could be more broadly shared. This should be attractive from the EU perspective because it allows mobilising more capital for the defence of eastern Europe at no upfront cost to the EU, and, assuming that Ukraine meets its ultimate development milestones, no ultimate cost to the EU either.

It should also be attractive to the Australian government. It ensures that Australia is not being asked to provide high levels of direct aid during a cost-of-living crisis while allowing Australia to make investments that are likely to be very profitable, potentially facilitating the finalisation of trade and investment agreements with the EU, and allowing the government to make highly popular announcements of support for Ukraine without significantly impacting the budget position. We believe there is much to be gained, both in real and political terms, from pursuing such an approach. The next sections look to sectors of the real economy where direct engagement could

be most beneficial based on Ukraine's needs and Australia's comparative advantage and skills.

Energy

Russia's full-scale invasion of Ukraine sparked a global energy crisis according to the IEA, with energy prices remaining high around the world even two years later. It is of course Ukraine itself where Russia's targeting of power plants and key infrastructure has caused the most severe energy crisis.⁵³ Ukraine now has less than a third of the electricity supply that it had before 2022 (around 12 GW compared with almost 40 GW before). In May 2024, Igor Piddubnyi and Dmytro Goriunov from The Kyiv School of Economics assessed the cost of restoring Ukraine's energy sector in the region of US\$50bn.⁵⁴ By June that figure had passed US\$56bn.⁵⁵ In late November 2024, Russia again launched what was described in international media as a 'massive attack' (indisputably war crimes) firing cruise missiles and drones at civilian energy infrastructure across the entire country, leaving over 1m people without power during the harsh winter.⁵⁶

Indeed, the International Energy Agency (IEA) anticipates Ukraine's electricity demand to peak during winter at around 18.5 GW,⁵⁷ representing a deficit of 6 GW. The front-line regions have suffered major damage to heating infrastructure, especially the Kharkiv, Chernihiv, Donetsk, Zaporizhzhia, Sumy and Mykolaiv regions - even Kyiv is at risk.⁵⁸ Russia continues to deliberately attack and destroy critical aspects of Ukraine's energy network, leaving civilians without heat during harsh winters. Military defence of infrastructure (especially air defence) is essential, but so is rebuilding and recovery. There is much non-military work to do.

The priorities for dealing with this crisis begin with fortifying infrastructure, restoring emergency supplies, and improving the resilience of the energy system. Ukraine also has a longer-term priority

for its energy system, which is conforming with EU sustainability requirements. All of these priorities (resilience, speed, cost, the EU) are best met through substantial investments in a distributed grid or network of micro-grids using renewables and batteries. None can be delayed – even the long-term priorities need action to be begun now.

Australia has a lot to contribute to such a project. Australia has major expertise in the energy sector, including recent experience in system re-design focused on incorporating small-scale distributed renewables into a reliable network. That includes experience with financing both industrial and household uptake of renewables, understanding how they synergise with other industries (especially agriculture), and experience with the challenges of variable supply. Australia has also invested heavily in cyber security for critical infrastructure, which is a key need to ensure the reliability of Ukraine's energy system. Australia can help in many ways but should be mindful to ensure its support aligns with Ukraine's own needs and is well coordinated with other major efforts, especially from Europe.

The IEA notes that the 'world added 50% more renewable capacity in 2023 than in 2022'⁵⁹, meaning that the industrial base for installing new renewables is expanding rapidly. At COP28, governments committed to triple renewable energy capacity by 2030, surpassing 11,000 GW. This is partly accelerated by Russia's invasion of Ukraine, with the IEA speculating that 'the biggest legacy of the global energy crisis triggered by Russia's invasion of Ukraine may be that it accelerates the end of the fossil fuel era'.⁶⁰ But more importantly for Ukraine, the result is greater availability of renewable energy systems.

Ukraine has major energy system reconstruction planned but repairing the energy system is not sufficient: Ukraine needs a far more resilient system that cannot be easily destroyed or sabotaged. It also needs to meet its national energy and climate plan as part of its accession to the EU. As part of this priority, Ukraine is working to decarbonise their energy system. Making it more decentralised may

also help fortify it against sabotage or attack. A distributed network of grids would mean that no attack can have widespread consequences. Such a network would be more resilient and offer less of a target to Russia than would a hub-and-spoke grid with large nuclear, coal, or gas generators producing power for wide areas.

The European Commission (EC) has established support for Ukraine's energy security and integration into the European energy market, including a €2bn package of support.⁶¹ The aim is to fully integrate Ukraine's energy system with Europe's by early 2027. The EC's investment package aims to accelerate investment in renewables, adding 1.5GW of renewable generation, and to fund gas purchases through the Ukraine Facility. The intention is for most of that support to be provided via the Ukraine Energy Support Fund and the Union Civil Protection Mechanism. Clearly this is not sufficient to fully complete the objective, meaning there remains significant opportunity for Australia to contribute in what is an area of strength.

Notably, the existing support from the EU is prioritising repairing damaged infrastructure and connecting to the EU electricity market. The EIB has also provided €86m to build anti-drone shelters to safeguard power substations.⁶² Still lacking is a strong emphasis on fortifying Ukraine's energy system by hastening the transition to a more diversified network of small-scale generators that are less vulnerable to single attacks. Before Russia's invasion, more than half of Ukraine's energy was supplied by just four nuclear power plants.⁶³ Such a system is highly vulnerable to attack because taking a single plant offline can result in a reduction of 12% of Ukraine's total energy supply. A diversified grid of small-scale solar and wind combined with battery storage and other smaller generation and storage units would mean less disruption due to single attacks. This is a transition that Australia has become extremely familiar with and an area where Australian expertise could be of considerable benefit simultaneously to Ukraine's

reconstruction and its security. This is also the conclusion of the International Energy Agency, which published a report titled 'Empowering Ukraine through a decentralised electricity system' in December 2024. The IEA's analysis found a 'major role for technologies such as solar PV, modular gas turbines and batteries'.⁶⁴ This aligns with Australian strengths: off-grid renewable generation, micro-grid design, remote-area energy resilience (e.g. experience from mining regions), battery safety regulation, hydrogen safety standards, and distributed energy resource (DER) management systems. This could potential export of Australian regulatory expertise, not only hardware.

Existing efforts

There are already many supporters contributing to Ukraine's energy system recovery. That does not mean there is enough help, but it does mean additional help needs to be well coordinated with existing efforts. Australia should coordinate closely with key players including Ukraine, the EU, the IEA, EBRD, and the European Investment Bank (EIB) at a minimum. There are many views about what is needed most, often reflecting the capability of the provider more than the actual needs of Ukraine. Ukraine's energy system needs regulatory reform as well as financing, insurance, experience and physical/real support – essentially there are needs in every aspect. Coordinating the support and aligning it with actual needs requires some effort to understand what is happening and who the key people are that should be engaged.

At the Ukraine Recovery conference in Poland late in 2024, Ukraine was represented in discussions on energy recovery by Yuliia Kyian, Energy Minister and Director General of Strategic Planning and European Integration, and Nataliya Boyko, advisor to the Prime Minister. The G7+Ukraine Energy Coordination Group issued a statement in November 2024 that identified their perspective of key priorities:

We commit to supporting the accel-

eration of new distributed power systems including renewables, to increase support for the urgent restoration of Ukraine's energy infrastructure and strengthen cross-border electricity interconnections with neighbouring EU Member States in compliance with the EU Clean Energy Package, common energy transition objectives and principles to achieve a climate neutral economy as enshrined in the National Energy and Climate Plan. We also recognize the crucial importance of increasing active and passive protection of existing and reconstructed Ukrainian energy infrastructure facilities.⁶⁵

Ukraine's First Deputy Minister of Economy, Oleksii Sobolev, explained that because the energy sector is so capital-intensive and requires so much private financing, Ukraine has moved to deregulate as much as possible to speed up investment programs. The main financing vehicle is the Ukraine Investment Framework, which is part of the EU's Ukraine Facility, but there are also certain special financing programs such as the '579 Program' that is specifically aimed at distributed energy systems. Ukraine's government also offers general investment support, including a program to provide up to 15% of capital expenditure (Capex) investment.⁶⁶

According to the EBRD's deputy head for Ukraine's Sustainable Infrastructure, Mark Magaletsky, the highest priority for Ukraine's energy sector is to 'fix corporate governance in the key state-owned companies'.⁶⁷ The IEA recently released a major report titled 'Ukraine's Energy Security and the Coming Winter: an energy action plan for Ukraine and its partners'.⁶⁸ The report outlines Russia's attacks on Ukraine's energy system and offers ten key priorities and calls for a coordinated regional approach, prioritising the safeguard of essential services through winter.

The ten priority actions identified by the IEA include:

1. Bolster physical and cyber security of critical energy infrastructure;
2. Expedite delivery of equipment and spare parts for repairs, such as transformers and generators;
3. Increase and decentralise the power supply, including with diesel generators, small-scale gas-fired combined heat and power generators, solar, wind and battery units, especially for schools, hospitals and mobile micro-grids;
4. Expand transmission connections to Europe;
5. Implement demand-response measures;
6. Prepare back-up options for winter heating;
7. Build gas reserve stores;
8. Strengthen gas import capacities from Europe;
9. Coordinate with Moldova; and,
10. Build foundations for a modern, market-based, resilient, sustainable, and decentralised energy system, well integrated with Europe.

The report notes that dealing with immediate priorities arising from extreme risk during winter is essential, but it is also essential to begin work on actions that require longer lead-time, such as transmission corridors and systems building.

In October 2024, EIB President Nadia Calviño, presented the 'Ukraine Energy Rescue Plan' to EU finance ministers. The plan anticipates the EIB investing €600m in emergency energy projects for critical heating and power including renewable energy infrastructure while also furthering Ukraine's EU accession. The investments are to be guaranteed under the EU's Ukraine Facility and supported by the EIB's *EU for Ukraine Fund*. The initial objective is rapidly deployable projects to meet the most urgent and critical needs. Medium-term objectives focus on sustainability and resilience.⁶⁹

Grzegorz Zieliński, EBRD Energy Europe director, discussed the challenges for balancing emergency needs and long-term commitments in rebuilding

the energy system. The EBRD has committed €5bn including €2bn directed to energy. Based on experience leading that investment, he found a key lesson that 'well planned implementation of a strategy' is essentially impossible given the highly unpredictable circumstances. He emphasised the need for agility rather than meticulous planning. Zieliński demonstrated this lesson with an anecdote from the summer of 2022 when Ukraine had a huge surplus of energy and the EBRD had planned to help export the surplus. By the time they had devised a plan, Russia had destroyed much of the infrastructure and exports were no longer viable. The new priority was protecting network assets, such as key transformer stations. To that end, EBRD sought permission to invest in small sized (10-15 MW) emergency gas generation. Those gas generators were designed to be able to replace damaged generators immediately, while also having a longer-term role as firming resources.

Energy recommendations for Australia

Earlier in the war, Australia attempted to send coal directly to Ukraine. The obvious logic was that being a major exporter of coal, Australia could help in a time of need. The cost of transporting the coal from Australia to Ukraine made the effort prohibitively expensive,⁷⁰ and Australia opted to help Ukraine buy coal on the open market instead, by donating \$30m to the Ukraine Energy Support Fund (along with an additional \$11m in other humanitarian support).⁷¹ Expanding our diplomatic presence and participating in major recovery conferences is essential for understanding who the key players, priorities, and programs are, while also building relationships that will facilitate the necessary collaboration.

Australia has strengths in small scale rooftop solar that could provide the backbone of a distributed and resilient energy network for Ukraine. Supplying and installing these systems is part of the challenge. Australia operates a network of grids. The National Energy Market (NEM) integrates the eastern states plus South Australia and Tasmania, while Western Australia and the Northern Territory

have a separate grid. We also have experience with very remote and isolated energy systems that can be useful to Ukraine.

Managing a system with a high degree of variability is also a major challenge that Australia has extensive experience with. In Ukraine's case, the variability is not simply due to the nature of variable supply but also because its key generators are constantly being attacked by Russia. The consequence for managing a grid is still that supply needs to constantly be made to match demand. Small-scale mobile deployable energy systems can help fortify the network against these types of attacks. Rapidly deployable and highly mobile micro-grids can be especially useful for Ukraine in the context of essential services and mobile front-line military applications, mobile hospitals, or rapidly restoring power to regions that are damaged by Russia.

Cyber Security for Ukraine's critical infrastructure is a major requirement of the war and a significant strength of Australia's. We return to this topic in its own section later in the report, but it has particular relevance to energy supply, so cannot go unmentioned here.

Related to energy supply is energy efficiency. Reducing consumption where possible is as good as increasing supply as far as the reliability of the network and ability to guarantee supply to critical infrastructure. Energy efficiency is a matter of urgent demand for Ukraine and has been a major focus for Australia. There are many areas of technical skill and knowhow that Australia has developed that can help here. However, coordination and mobilisation of the right people with the right skills remains the challenge that requires government leadership.

Australia also has a tremendous amount of intellectual property (IP) in renewable energy, especially solar modules. It may be possible to licence Ukrainian business to manufacture systems to their own specifications using that IP. This could be a form of a grant, even though it would not

necessarily require fiscal outlays. Waiving rights to IP does not require spending even though it forgoes potential revenue.

Energy financing arrangements is another area where Australian experience can help Ukraine. One reason that Australia has had so much success in deploying household rooftop solar is because of financing options that make the upfront cost to households very minimal. There is a role for bankers, insurers, and other creative business services people to find the best way to unlock this potential in Ukraine. Doing so would certainly help both the recovery and the war effort, since it would reduce the effectiveness of Russia's strategy of attacking the energy system in hopes of freezing Ukrainians into submission.

Education and R&D

President Zelenskyy himself has said that 'for the people who experience and survive this terrible war, they will be yearning for knowledge and skills'.⁷² His plan for Ukraine's resilience includes key points on communities, human capital, and cultural sovereignty. *Education Cannot Wait*, a UN-led organisation that supports education in crisis zones, described Ukraine's 5.7m school-aged children and adolescents as 'suffering trauma, shelling, displacement, injury and death'.⁷³ The aforementioned Single Project Pipeline listed 114 projects in the education sector as of December 2024.⁷⁴ Some of the project proposals are difficult to read. For instance, on behalf of a high school in the Chernihiv Region, the Novgorod-Siversky Lyceum No. 1, with 797 students and 98 staff, the Chernigov Regional Department of Education has submitted a project proposal requesting funding for the construction of a new anti-radiation shelter. The budget for the project is expected to be UAH101,057,465 (around \$4m). The 'problem' identified in the project proposal reads as follows (machine translated):

A full-scale war and the location of the

community in close proximity to the border with the aggressor country made it impossible for the students of the Novgorod-Siversky Lyceum No. 1 of the Novgorod-Siversky City Council of the Chernihiv Region (hereinafter LYCEUM) to have a traditional full-time education, where half of the community's children study. The main task of the state under such conditions is to return children to full-time education as the most effective way of acquiring knowledge. Since the LYCEUM has only a temporary shelter for 58 people, the construction of an anti-radiation shelter with a capacity of 800 seats is required to fulfill the task of organizing full-time education.⁷⁵

The proposal has a 4.5 rating, ranking it 36 out of 114 active proposals in the education sector as of December 2024. Many of the proposed projects involve similar safety efforts at different levels.

Some projects are larger in scope. For instance, Ukraine's Education and Science Ministry has requested UAH25bn (around \$1bn) to install missile and air raid shelters at schools.⁷⁶ In the proposal submitted mid-August 2024, the Ministry estimates that 'approximately 3,500 educational institutions were damaged, almost 400 were completely destroyed. Hundreds of thousands of children were forced to change their place of residence or went abroad. Even more students have lost access to quality face-to-face education due to regular shelling, air raids and the shift to distance learning'.⁷⁷ Only a quarter of Ukraine's high schools provide full-time education, while a third had a mix of face-to-face and remote learning and 40% are now fully remote. One of the main challenges they face that prevents students from attending schools is creating shelters in the event of attack. Many schools simply lack shelters entirely, while others fail to meet the requirements established under DBN B.2.2-5:2023. The project has a score of 5.53 and identifies insufficient funding as a critical risk.

Other levels of government have also submitted proposals for constructing missile and air raid shelters at schools in their local region. Kyiv's Education and Science Department requested UAH3bn (around \$116m) for shelters that it estimates would allow some 15,000 children to return to school, to increase the number of children studying full-time by 30,000 people and to ensure the needs of the region for 100% full-time education. The civilian population will also be able to stay in these shelters. In addition, it provides for the creation of equal, proper and safe conditions for obtaining an education, the organization of a safe educational environment.

Other projects are simpler. There is a project to procure school busses to replace busses that were destroyed by Russian attacks. Other schools or districts need to repair heating and sewage infrastructure. Some schools or even preschools that were completely destroyed by Russia need to be rebuilt entirely. There are efforts to reform the nutrition system in schools as part of efforts to support children's health. There is a major effort to improve energy efficiency of schools, both to reduce costs but more importantly to improve reliability (especially for heating). There is a need to improve professional development opportunities for teachers. The Education Ministry needs greater management capacity to plan, implement and monitor major reforms such as the *New Ukrainian School (NUS)* educational reform aiming to modernise the school system while coping with disruptions from both the pandemic and the invasion. There are efforts to provide learning aids for around 65,000 students with special educational needs.⁷⁸

However, not all the education projects are focused on rebuilding basic infrastructure. There is also significant need for improving educational standards in more normal ways. For instance, according to the Education Ministry, 35% of students finishing 9th grade chose vocational or vocational pre-university education (around 560,000 students enrolled across 595 vocational

and technical institutions and 636 vocational higher education institutions in the public sector).

⁷⁹ However, the Education Ministry observes that 'professional education in Ukraine still remains unpopular, and its quality is quite low'.⁸⁰ It points to outdated equipment in workshops where students learning agricultural, metallurgical, mechanical, woodworking and other skills rarely have equipment that is less than 30 years old to learn on. The Ministry describes 80% of the equipment as 'physically and morally outdated'.⁸¹ Some private education providers are able to access agricultural drones or modern solar equipment to train students in new industries, but these are not available to many students. The Ministry aims to procure modern equipment and introduce current technologies to vocational training as well as introduce new training programs including micro-credentials (short-term training).

The top-ranked education project as of Dec 2024 is the 'Creation of Centres of Professional Excellence'.⁸² Ukraine has significant skills shortages and aims to improve training in accordance with needs. There are five main objectives for these centres of excellence:

1. Training highly qualified workers in professions that meet local, regional and national labour market requirements;
2. Promoting innovation and development in professional education and training;
3. Exchanging methodical and professional teacher training experience and educational resources;
4. Ensuring education is inclusive; and,
5. Increasing the prestige of professional education and training.

Higher education reform faces significant challenges other than the context of war and insufficient financing. The education ministry identifies three main other sets of challenges. Higher education institutions are insufficiently open, lack capacity to produce useful intellectual products, have insufficient anti-corruption cultures

and mechanisms, need to improve the culture of academic honesty and objective evaluations. Accessibility of higher education is insufficient due to non-compliance with EU quality standards, the damaged state of infrastructure and educational spaces, and a lack of provisions for students with special needs. Integrating with EU standards requires significant changes, including adopting best practices and ensuring Ukraine is able to both host and send students abroad.⁸³

What others are doing

The EU has mobilised significant support for Ukraine's education sector. It highlights some of its recent efforts:

Because the future of Ukraine begins in its schools, the EU is supporting the rehabilitation of damaged schools with €100m, announced by the President in her 2022 State of the Union address.

The European Commission has allocated around €14m to purchase school buses and bring Ukrainian children safely to school. The Commission has also launched an EU-wide campaign to donate school buses for Ukraine, channelled through the EU Civil Protection Mechanism.⁸⁴

The EIB has issued a €10m loan (guaranteed by the EU) to upgrade energy efficiency across 16 universities.⁸⁵ The Global Partnership for Education (GPE), UNESCO and UNICEF, with Google and Microsoft, provided US\$51m 'for distance learning and psychosocial support for children in conflict-affected areas'.⁸⁶ Late 2024, UNICEF contributed to around 800 schools over two rounds of grants of US\$7,000 per school for repairs, heating, insulation, fixing windows and doors, and other preparation for winter. This support was provided under a Ukraine Cabinet of Ministers Resolution (No.1114, 26 Sep 2024).⁸⁷

Education recommendations for Australia

Before Russia's full-scale invasion, there was

around 53,000 Australians with Ukrainian ancestry, including 10,000 who were born in Ukraine.⁸⁸ In the last three years, many more people have arrived from Ukraine, both as refugees and as migrants. In 2024, an additional 1,227 Ukrainians were invited to apply for permanent residence in Australia.⁸⁹ Measured public support for Ukraine is widespread: 80% support admitting Ukrainian refugees into Australia and 74% support military aid to Ukraine.⁹⁰ There are strong foundations for engagement at the people-to-people level. Australia has a world leading comparative advantage in higher education, but the sector itself is also in crisis. This combination means Australia has a lot to offer in support of Ukraine but can also potentially gain a lot through supporting Ukraine. Similarly, collaboration with TAFE and technical skills training, and new skills developed in Ukraine that Australians can learn from (especially in relation to practical application of low-cost technology such as drones in combat).

Australia also has lessons to offer about higher education financing. The Australian education financing system based on income contingent loans is one of the best in the world. Ukraine can certainly adapt such a model to their own circumstances. Australia should engage Ukraine's government in offering technical advice on the benefits of such a system, how it works, and the challenges in implementation. Australia can collaborate with Ukraine and EU education institutions to support efforts to meet Ukraine's five strategic goals for education. These goals include internationalising higher education by meeting the obligations of the *European Higher Education Area* (EHEA), developing a national qualifications system, simplifying the process for recognising foreign qualifications, and transforming security and defence education to match NATO doctrines and principles. Ensuring high-quality education by increasing international mobility of students and promoting innovative technologies and the latest teaching methods. Making higher education more attractive by implementing student-centred

learning, expanding interdisciplinary and dual programs, developing education-management training programs and other general improvements to the way higher education is run and the programs offered.⁹¹

There are some obvious ways that Australia can help in the education sector and some less obvious ways. To begin with, the Australian government can make a number of scholarships available to Ukrainian high school and university students to study in Australia. University positions may prioritise disciplines that the Ukraine government has identified as key skills in-demand. The government should also engage the universities themselves to explore what role they can play in helping. According to then ANU Vice Chancellor Brian Schmidt, Universities have a desire to be focal points of community and to play important roles in society, to 'do things together with society'. He points out that 'a lot of the complex problems that we're dealing with in society need not just multidisciplinary, we need multi-experiences of people knowing how to solve problems'.⁹² This is certainly the case in the recovery and reconstruction of an entire nation that is trying to simultaneously remake its entire social and governance architecture to meet EU standards. The breadth of skills and talent required is near total.

For instance, one of the major challenges that schools and universities in Ukraine face is energy supply. Micro-grids and fully off-grid campuses is one way to make Ukraine's energy system more robust while ensuring campuses are not dependent on the defence of major electricity infrastructure that Russia has a predilection for destroying. Australian universities have expertise in building such modular micro-grids. Similarly, the rapid construction of missile and radiation shelters that meet EU standards is a major requirement for Ukraine's education system. Students cannot attend campuses because the campus cannot be made safe. Australian universities have experts in the construction of highly specialised buildings and may be able to determine how to containerise and

mass-produce such facilities.

Universities are full of many of the most intelligent problem solvers in the country who work with the most cutting-edge technologies and concepts. They also attract people who are primarily motivated by the desire to solve important problems and do good in the world. They should certainly be able to identify ways that they can help with appropriate facilitation. Currently, Australian universities have not turned their attention to the problems faced by Ukraine. Engaging them on the problem can be done by government playing no more than a coordination role.

Australian universities are also looking for opportunities to go offshore and change their offering to make international education more bi-directional rather than mainly have students coming here. The universities could consider directly investing into Ukraine-based campuses or joint ventures with Ukrainian institutions. This would also help diversify the universities' markets away from the huge dominance of just China and India and could open access to other parts of Europe over time.

Australia's education system unfortunately has a great deal of expertise at distance learning. This includes the infrastructure as well as the practice of transforming curriculums and redesigning classes to work with distance learning realities. A huge portion of Ukraine's students are learning either fully or partially through distance education since many of the schools cannot be made safe for students to attend in-person full time. How university courses are delivered has received a lot of innovation in recent years. Education Services Australia has considerable expertise in translating curriculums into materials. There is reportedly interest in how to commercialise certain aspects of this service, with some consideration of partnerships in the Pacific. Part of Australia's innovation in regard to both distance learning and the delivery and development of courses has been in micro-credentialing, including through some services owned and run by the government.

With the urgency of demand for practical skills in Ukraine, micro-credentialing is likely to be highly applicable.

R&D collaborations

Beyond education, Australia's university sector has a research and development role that is world leading in many fields. Universities themselves (and the CSIRO and other research agencies) are best placed to determine where collaboration is likely to be most constructive and potentially profitable. A particular example of innovative Australian R&D that has helped Ukraine's defence is the PPDS cardboard drones developed by Sypaq and supplied as flatpacks to Ukraine through a \$30m package facilitated by the Australian Army Defence Innovation Hub.⁹³ Relevant innovation is not only in military applications, however. Australia has advanced research on a vast range of problems. One area where collaboration is likely to be mutually profitable is automated systems. Another is emergency management. Australia has world leading expertise on fire and emergency response systems, including prediction and resource management. Such systems can certainly find useful application in Ukraine.

Australia has an existing Global Science and Technology Diplomacy Fund⁹⁴ that has strategic and bilateral elements. It operates under the Department of Industry, Science and Resources. It prioritises advanced manufacturing, AI, quantum computing, hydrogen production, and RNA and mRNA vaccines and therapies. Nine bilateral partners are also identified, mainly in Asia. The program could be extended toward prioritising collaboration with Ukraine, especially on areas such as advanced manufacturing and AI, where Ukraine has become one of the world's most critical theatres for deployment of such technology.

For the present purposes, rather than list every potentially useful technology collaboration, our intention is for the government to see the value of inviting and encouraging researchers and private sector technology firms to look for how

their projects could benefit Ukraine and how they and Australia can benefit from collaboration with Ukraine – and beyond inviting such proposals, to help facilitate the connections and manage the risks.

Health: hospitals, disability & mental health

‘Just left Ukraine. What I saw there proved to me that we can’t give up on the Ukrainian people. Everyone wants this war to end, but any agreement has to protect Ukraine’s security and can’t be a giveaway to Putin... Hospitals should never be targets in war, but Putin is a war criminal who targets hospitals routinely. I visited one in Kyiv. Injured soldiers told me how they want to get back to the fight. Nurses there shared their stories of the invasion with me through tears. Stories of violence that women and children of Ukraine suffered during the invasion. These nurses told me how they witnessed Russian soldiers raping children in front of their parents and then murdering these children in front of their parents. Horrendous war crimes which can never be forgiven’.

US Senator Mark Kelly (D-AZ)⁹⁵

After three years of Russia deliberately attacking cities without provocation and imposing a gruelling war of attrition on Ukraine, Ukraine’s health needs are immense, and its health system is severely damaged. The *Lancet* ended 2024 with an editorial titled ‘Health in Ukraine amid great uncertainty’, which described the situation:

More than 1000 days of deaths, destruction, fear, displacement, separation, hunger, and trauma have passed since the full-scale invasion of Ukraine by Russia. The UN estimates that in 2024, 14.6m people in Ukraine needed humanitarian assistance because of lack of access

to water, food, electricity, and heating. The health system has suffered huge disruption and damage, particularly where fighting has been concentrated. Since February 2022, 2,176 attacks on health-care facilities have been recorded.⁹⁶

It cites a September 2022 survey by Ukraine’s health ministry that estimated 15m people needing psychological support, at least one post-traumatic stress disorder (PTSD) symptom present in 90% of the population and more severe signs of PTSD present in almost half Ukraine’s children. More than half of Ukrainians reporting symptoms of anxiety⁹⁷ and over a quarter meeting the criteria for a full PTSD diagnosis.⁹⁸

War does not only kill people through combat casualties; destruction to health systems kill people who never come close to the frontline. The most famous demonstration of this fact is the contribution of World War One (WW1) in exacerbating the 1918 influenza pandemic, which is estimated to have caused 50m deaths (possibly 3-6% of the global population).⁹⁹ Ukraine is no different. Before Russia invaded, the leading causes of death was heart disease and covid, then non-communicable diseases. Those factors did not vanish because of the war, but the availability of health services often did. The result is that even when the war ends, Ukraine will be left with a health burden that persists for a lifetime. Even in the short term, there are far too many deaths that are preventable even in the context of war.

Of course, Russia is also causing legions of injuries both on the frontlines and in civilian areas. On 8 December, President Zelenskyy publicised the number of injuries that Ukraine’s soldiers had sustained:

Since the start of the full-scale war, Ukraine has lost 43,000 soldiers killed in action on the battlefield. There have been 370,000 cases of medical assistance for the wounded.¹⁰⁰

Zelenskyy continued to highlight Ukraine’s health

system as a tactical advantage in combat:

One of the key distinctions between the Russian army and Ukraine's Defense Forces is the level of frontline medicine, which is significantly higher in our forces. We are deeply grateful to everyone who supports its development, saves our wounded in action, and facilitates their rehabilitation.¹⁰¹

Many of the challenges to Ukraine's health system are related to Russia's attacks on other infrastructure, such as the energy system. For instance, World Health Organisation (WHO) Regional Director (Europe), Dr Hans Henri P. Kluge commented that damage to Ukraine's energy infrastructure had 'jeopardized storage and distribution of vaccines' leading to an increase in preventable disease. Similarly, damage to electricity can prevent the function of water distribution systems, leading to waterborne and foodborne diseases. The loss of heating in winter increases respiratory infections. Dr Kluge also emphasised that war conditions also increase the rate of antimicrobial resistance, which has potentially global health consequences. He reported that Ukraine has opened 97 new laboratories monitoring drug-resistant bacteria.¹⁰²

There are of course many existing efforts to support Ukraine's health recovery. In particular, Ukraine's EU accession process involves satisfying numerous health system obligations including improvements for public health, medical education, and health financing among many others. The *Lancet Psychiatry Commission* recently convened to assess Ukraine's mental health needs and outline a 5-10-year plan of response that would help Ukraine meet EU requirements. The commission included 40 experts from 12 countries organised in 5 working groups.¹⁰³ Naturally any involvement by Australia should aim to engage and support these existing efforts rather than duplicate (or worse, undermine) them.

Health recommendations for Australia

Given the context of near infinite needs, almost every area of Australian capability aligns with something that Ukraine urgently needs. Ukraine is experiencing what the Centre for European Policy Analysis (CEPA) described as an 'epidemic of limblessness'. CEPA estimates over 50,000 new amputees from Russia's attacks.¹⁰⁴ Other reports estimate the number to be at least twice as high.¹⁰⁵ Oleskandra Paskal was a 7-year-old girl and a gymnast in 2023 when Russian shelling injured her, fracturing four ribs, breaking her arm, and injuring her head. Doctors were unable to save her leg and ultimately amputated it during a 15-day induced coma. She received a prosthetic leg and four months rehabilitation in Austria to relearn to walk. In June 2023, she won her first gymnastics tournament after returning to Ukraine. Her story was shared by Ukrainian Olympic medallist gymnast Anna Rizatdinova on Instagram, making her one of the many faces of Ukrainian resilience.¹⁰⁶ However, the current cost of limbs is difficult for many Ukrainians. CEPA reports that a prosthetic foot costs \$6,000 - \$7,000 for a basic model, while more advanced devices are even more expensive.¹⁰⁷

Australia has significant expertise in simplifying and lowering the cost of prosthetic limbs. Biomedical engineers from the University of Melbourne, led by Professor Peter Lee, developed a low-cost system to quickly make customised sockets for prosthetic limbs. They have used the system to help hundreds of patients in and around our region over the last two years, including in Vietnam, Indonesia, and Tanzania.¹⁰⁸ This is an area where Australia could provide significant life-altering assistance at low cost, including by ensuring that prosthetics supply chains are responsive to demand, by supporting additive manufacturing partnerships, remote prosthetics diagnostics, rehabilitation training programs, and joint research with Cochlear, CSIRO, and Australian orthopaedic institutes. It may even be possible to partner with European hospitals to provide Australian technology to Ukraine at heavily subsidised rates while simultaneously increasing the commercial

opportunity for the same technology in Europe.

Meanwhile, Ukraine has experienced a surge of people interested in developing prosthetic technology. According to the CEO of Levitate (a Danish prosthetics company), the number of people needing prosthetics is unprecedented. He also describes the makers' attitude that Ukrainian patients bring to the challenge, saying 'it's not uncommon that you see that one of the technicians doing sockets or something similar who is an amputee... you can see they're so fire up to learn more and train'.¹⁰⁹ If Ukraine has demonstrated anything on the battlefield, it's that they have a canny knack for low-cost solutions to technical problems. Australia can partner with Ukrainians to further advance technology in this field. This is an opportunity that Australia can only seize if we are present and involved.

Dylan Alcott having been Australian of the year in 2022 generated a resurgence of interest in Paralympics in Australia. There is no doubt of the ability of sports to bring people together. Australia has used sports diplomacy to excellent effect in the Pacific with the recent addition of a PNG rugby league team. There is an opportunity for Paralympic sports diplomacy to increase Australia's role in the global biotech industry by working with Ukraine on one of their most devastating needs.

Limbs are not the only parts of the body injured by Russian attacks. 'Continuous and relentless missile attacks' have caused extensive hearing loss in Ukraine according to a report in *The Hearing Journal*. Hearing loss is estimated to now be one of Ukraine's most prevalent noncommunicable disabilities. Experts report being overwhelmed by the number of people in need. A significant shortage of hearing health professionals has made it impossible to meet demand for testing, much less properly fitting hearing aids.¹¹⁰ Hearing loss, especially for young people, can create life-long barriers to education and careers, but it is a solvable problem and one where the solution has tremendous return on investment at the economy-level.

The *Australian Manufacturing Forum* describes hearing implant maker Cochlear as 'the standout leader in Australian technology manufacturing'.¹¹¹ According to the company itself, they have provided more than 750,000 implantable devices.¹¹² There may be no more obvious potential collaboration for Australia and Ukraine in the health sector than in providing hearing and training hearing technicians and physicians. This could be done in partnership with the EU, as part of an arrangement to finalise a bilateral trade and investment agreement; it could be financed through concessional GDP-linked loans, or it could be treated as a simple marketing investment for Australian biotechnology. The precise means of capitalising on the opportunity will be determined by the government, but there should be no doubt that the opportunity exists.

A separate health initiative that Australia should engage is the *International Medical Partnership Program* (IMPP). The program was driven by Ukraine's first lady, Olena Zelenska, who has driven many of the country's health initiatives over the past two years. In cooperation with the Ministry of Health, the program invites interested countries to establish a direct partnership with a specific Ukrainian hospital. By March 2024, 34 MOU's had been signed between Ukrainian hospitals and a 'twin hospital' in different countries to 'share experience and best international practices'. The program reported having facilitated 132 Ukrainian doctors to train abroad, including through participating in scientific and educational events and experience exchanges in Germany, Austria, Poland, France, Italy, Sweden, the United Kingdom, and Israel.¹¹³ The program has grown significantly from there, with 180 medical professionals participating in scientific events abroad during just the next month, April 2024. On launching the program over a year ago on the sidelines of the Summit of First Ladies and Gentlemen, Zelenska reported that 'Russia has destroyed more than 1,500 Ukrainian hospitals'.¹¹⁴ That number is certain to be significantly higher now.

Australian hospitals, health professionals, and health officials engaging Ukraine through the IMPP could bring training and expertise in primary care, telehealth systems, supply and regulation of medicines, and expertise in health insurance. Australia's experience of establishing the world-leading NDIS would be uniquely beneficial given the extensive disabilities that Russia has inflicted on Ukrainians. Meanwhile, similar to the way Australia was able to supply Ukraine with M1A1 Abrams tanks in October 2024 (the largest single donation of combat tanks to Ukraine)¹¹⁵, it may be possible to provide decommissioned rolling stock of critical civilian equipment to Ukraine. For instance, according to Zelenska, 'the need for ambulances, unfortunately, is constant'¹¹⁶. In addition to ambulances, there is a need for refrigerated vans to ensure cold-chain delivery for vaccines and other medicines.¹¹⁷ Any time Australia is replenishing rolling stock of almost any kind, there is an opportunity to ask whether the decommissioned stock would help Ukraine.

As we declared at the beginning of this report, we do not propose charity; there is a much to be gained for Australia in participating in the IMPP. Zelenska herself offers:

'What Ukraine [can] give in return, in addition to our gratitude, is experience in treating polytrauma and combat injuries. Experience in the so-called extreme medicine, with a massive influx of patients. Doctors at Ukrainian clinics save limbs of wounded children and adults in cases where it seems impossible'.¹¹⁸

Australia's Defence Health System has a significant need for precisely that experience: ensuring skills in treating polytrauma and combat injuries, and experience with the massive influx of patients that doctors must face during war or other major crisis events. The ADF health strategy (2023) is titled to reflect Defence's core commitments: 'Ready, Responsive, Resilient'. The strategy describes Defence's approach to ensuring Australian defence personnel have world-class healthcare wherever

they serve. readiness requires experience. According to the Department of Defence, 'an increased focus on the Defence Health System will be necessary to generate the capacity and agility required to meet [the challenges of warfare driven by...] geopolitics, technology, data and demographics... in order to respond to emerging situations that threaten Australia's interests'.¹¹⁹

Recruitment of health providers with defence experience is one of the top challenges identified by the ADF health strategy. It notes: 'there are challenges in retaining healthcare providers in the ADF. Bridging the gap between civilian and military experience for the ADF workforce is an ongoing challenge, and greater work is required to build a pipeline of military-ready clinicians'. There is only one place in the world where Australian doctors can gain this kind of real-life experience right now. The Joint Health Command (JHC) should work with the Australian Military Medicine Association (AMMA) and other relevant parties to arrange training, exchange, and secondment opportunities for Australian doctors, allied health professionals, and especially for junior doctors or medical students. This should be considered part of Australian defence preparation and training, not a form of assistance to Ukraine. If appropriate, Australia can extend the invitation for participation from doctors across our Pacific Family.

Another major challenge shared by both Australia and Ukraine, where collaboration could help both communities, is veteran health. The ADF health strategy describes whole-of-life care as one of its internal challenges, noting that 'properly caring for Defence members, particularly those who have been wounded, injured or fall ill in the course of their service to our country' is a particular challenge.¹²⁰ It calls for improved links between Defence and Veterans Affairs. nowhere is there now more attention paid to the recovery and health of injured veterans than Ukraine. In 2023, Ukraine hosted the 3rd Summit of First Ladies and Gentlemen, founded by Olena Zelenska under the theme 'Mental Health: Fragility and Resilience of

the Future'.¹²¹ Mental health is a shared challenge for Australia and Ukraine, and one that we would both benefit from in addressing it together.

While mental health is a challenge relevant to all Australians, it is a particular challenge for Australia's veteran community. The draft Defence and Veteran Mental Health and Wellbeing Strategy (2024) identifies factors that determine wellbeing, including meaning and spirituality, recognition and respect, social support and connection, education and skills, and employment and meaningful activity. It also identifies a number of goals, including to 'grow a positive and connected Defence and veteran community' on the basis of the importance of meaningful connections for wellbeing.¹²²

There is an opportunity to provide avenues to strengthen these pillars of wellbeing for Australian veterans by establishing support networks with Ukrainian veterans. Veterans are people who have experienced highly mission-oriented and team-driven lifestyles only to suddenly find their mission is over and their team is disbanded. They also have experiences that no one else has: they know what it is to have been through combat. There is no one else better able to complete the next mission: to support the next generation of veterans. Australian and Ukrainian veterans can help each other through their respective challenges in a way that no one else can, and by doing so, they can help themselves by building meaning, recognition, respect, social support, education, and meaningful activities. Studies have shown that an 'important determinant of whether stressors lead to poor mental health outcomes is the perception of meaning'.¹²³ Ukraine is an entire nation of veterans in need of support. There is a mission that Australia's veterans could be assigned, and doing so could help solve one of Defence's most protracted challenges.

Health is also a prime example of an area where technology vastly improves service delivery and management. Covid provided many lessons about the potential of technology to better manage

logistics, patient prioritisation, theatre management and research networking. A partnership between Australia and Ukraine in these areas, drawing on clinical data generated by the conflict, could provide tremendous benefit both to Ukraine's massive omni-trauma needs and also to Australia's own veterans and the DVA.

Demining

Preventing injuries is as important as responding to them. One critical area demanding attention is. Today more than 174,000 square kilometres of Ukraine remain contaminated by landmines, unexploded ordnance and improvised devices, an area larger than many European nations. This hidden battlefield paralyses everything that follows –: it blocks the return of agricultural production across some of the world's richest farmland; slows housing and school reconstruction; complicates energy and rail repair; and disrupts the basic logistics of rebuilding a functioning society. Yet it is also an area where Australia can make a real, practical contribution. Our engineering firms, robotics innovators, geospatial data specialists and training institutions are well placed to support large-scale clearance, mapping and risk-reduction programs. And major partners are ready: the UNDP Mine Action Programme, the Geneva International Centre for Humanitarian Demining, and Japan's rapidly expanding demining initiatives are actively looking for capable collaborators. If Australia is serious about helping Ukraine win not only the war but the peace, this is where our expertise could save lives, accelerate recovery and demonstrate, once again, that we punch above our weight when it matters most.

Decarbonised steel and sustainable building materials

A major theme at all the Ukraine recovery business forums held across Europe has been sustainable development in rebuilding. Much of that focus is attached to the energy system, but so is a great deal focused on rebuilding with new, sustainable materials and high energy-efficiency standards.¹²⁴

Ukraine reconstruction will include one of the biggest building projects outside of China in decades. Accordingly, there is a need for long-term thinking. It is not sufficient to address only the immediate challenges: Ukraine's reconstruction needs to consider issues such as climate change, as well. This is not just a nice-to-have for Ukraine: the EU has made it a condition of much of their support.

Given the scale of reconstruction required, Ukraine will certainly emerge as one of the biggest growth markets for steel consumption over the next two decades. Steel accounts for around 11% of global greenhouse gas emissions, meaning decarbonising steel is a high priority. It's a high priority for Europe but also here in Australia, where it's seen as both an economic opportunity and a necessity for the survival of the industry.¹²⁵ Because there is still so much work to do on this project, action is needed now to ensure we meet critical milestones. A project that implies as much new steel consumption as does reconstructing Ukraine is an opportunity for decarbonising the sector that should not be disregarded.

The World Bank's Updated Ukraine Recovery and Reconstruction Needs Assessment estimated that in March, 'direct damages to buildings and infrastructure comes to more than US\$135bn'. Damages have only increased in the six months since then. Suppliers of modern, sustainable construction materials should be actively involved. Decarbonised steel is one material that may overcome the trade costs and where there is not an established European industry that can possibly meet Ukraine's demand. The Western Australian government recently announced a major new partnership to lead the world in low-emissions steel, with Rio Tinto investing \$215m into an R&D facility in the Rockingham Strategic Industrial Area.¹²⁶ The government should work with Ukraine and the EU to underwrite investments to maximally fast-track that development and ensure that low-emissions steel from Australia is available on time to contribute to the rebuilding of Ukraine.

Simultaneously, Australia's housing crisis necessitates major improvements in the productivity of the construction sector. Ultimately, this means making more of construction a manufacturing process and minimising the component of a build performed on-site. A result of such a transition in the construction process would be to make construction more of an internationally tradable industry. Therefore, to compete internationally in this emerging sector, Australia will need to brand itself as a home of high-quality sustainable materials and exceptional design. With construction set to become increasingly subject to international trade, Australia's distance from Ukraine no longer excludes it from participating in the rebuilding process. Australia can engage world leading architects with expertise in heritage protection that is especially critical in Ukraine's current circumstances, to design internationally tradable building components that meet the EU's ambitious energy, safety, and sustainability standards, while also helping to restore Ukraine's built environment and urban culture. Such a project would take considerable creative work, but would also give Australian suppliers of sustainable and high quality building materials an opportunity to brand themselves in Europe that would be extremely difficult to replicate.

Agriculture

Ukraine and Australia are both major agricultural nations. Pre-war Ukraine was the world's No. 1 sunflower oil exporter and major grain supplier. Australia welcomed Ukraine as a full member of the Cairns Group of agricultural fair-trading countries in February 2024.¹²⁷ Agricultural science is of critical interest to both our nations, meaning we can both benefit from cooperation. Even space technology has an increasingly significant role in agriculture. While an initial consideration may suppose that Australia and Ukraine are competitors in agriculture, there is a great deal more to the industry than the final product.

Australia has technology and IP in the agricultural sector that includes equipment manufacturing and servicing, advanced techniques and breeds and a range of other factors that make collaboration potentially worthwhile. Australian agri-businesses can undoubtedly find opportunities to invest in Ukraine, whether as joint ventures or in parts of the food supply-chain where Ukraine is lacking that would expand the opportunities available to both partners. A particular challenge to farming in Ukraine will be de-mining fields. Fitting farm equipment with mine-sensing or resistant kits will be an unusual but essential requirement.

Agriculture has also proven to be an area where there is extra strong support for collaboration. When Ukraine's grain supply was devastated by Russia's invasion, Australian farmers, via Grain Producers Australia, established the Grain4Ukraine fundraising appeal to support Ukrainian farmers.¹²⁸

Australia already has established an Australian Centre for International Agricultural Research (ACIAR), a statutory authority under the Minister for Foreign Affairs that brokers, 'facilitates and invests in strategic collaborations with public and private research institutions to improve the productivity, resilience and sustainability of food production and natural resource management systems'.¹²⁹ ACIAR works in Asia, the Pacific, and in Africa. Given the particular needs from Ukraine, it could expand its remit to help facilitate collaborations with Ukraine's farmers and agricultural researchers. Similarly, the Department of Agriculture has established a number of national partnerships to help decarbonise the agriculture sector.¹³⁰

Additionally, many Australian universities have well established programs in agricultural science that could form the basis of mutually beneficial collaboration. These departments tend to have extensive experience with industry collaborations and a particularly practical approach to scientific work.

The CSIRO has a world leading agricultural science research section. It also has an extensive international cooperation program. For instance, it partners with agencies from India, Japan and the US through the QUAD AI-Engage program to support agricultural resilience in the Indo-Pacific.¹³¹

Ukraine-Australia cooperation could focus on areas such as digital farming (using sensors, drones, and data analytics), post-harvest processing, drought-resilient crop varieties, geospatial land monitoring, biosecurity and phytosanitary standards.

Democratic integrity and Labour Rights

Ukraine's fight is a fight for democracy and self-determination as well as a defence of the sovereignty of states. Self-determination can be attacked through non-military means, including corruption, cyber-attacks on institutions, and information warfare against citizenry. The Revolution of Dignity rejected the corruption and cynicism of Russia. Zelenskyy himself was elected to office precisely because he represented a refutation of those old corrupt systems. That old system is still fighting back and Ukrainian people's ambitions to replace it needs support off the battlefield, as well.

Cyber warfare

Russia's illegal invasion and attempted genocide of Ukraine has provided many lessons about modern cyber warfare. It shows that cyber warfare is extremely important, but also that you cannot win a war with just cyber warfare. Grace Mueller and colleagues from the CSIS explain that 'cyber operations will play a supporting rather than decisive role in major theatre wars'.¹³² However, it is also likely that Russia's cyber operations have been less impactful than often feared because Ukraine was forewarned and well prepared. Power grid hacks in 2015 and 2016 left many

Ukrainians without power.¹³³ Attacks on Ukraine's power, especially during winter, has been a major feature of Russia's effort to exterminate Ukrainians as people. By coming relatively early in the conflict, it allowed Ukraine time to adjust. Ukraine had established rigorous defences of its digital infrastructure by the time Russia's full-scale invasion occurred. Both friendly countries and private companies assisted Ukraine's cyber defence helping deflect many offensive operations.¹³⁴ War is fundamentally a political contest turned violent and cyber operations exist on the spectrum of coercive political tactics, but cyber operations are clearly less coercive than missiles or invading soldiers. They are also more deniable, meaning cyber operations are convenient for regimes wishing to coercively subvert the established institutional order without attracting the political repercussions for their actions. In other words, cyber operations have a covert aspect that suits aggressor states.

The targeting of energy infrastructure for cyber operations highlights a risk associated with fossil fuel energy systems that is mitigated by renewable energy. Fossil fuels (including nuclear) favour a major hub and spoke energy grid, with large generators as the hubs powering major parts of the grid. That model is relatively vulnerable to cyber (or kinetic) attacks because it has very large critical points of failure. In contrast, the more diversified network of grids model that works well with renewable energy systems is less vulnerable. A network consisting of small generators can tolerate the addition or removal of several generators without much impact. Similarly, if it is designed with resilience in mind, the network itself can be compartmentalised so that cyber-attacks cannot disable the connections between the generators. Australia has major expertise in small-scale renewable energy and in building grid and network infrastructure to support it. This is an area where cooperation at multiple levels of government as well as through universities and the private sector could generate major gains for both Ukraine's resilience and for Australia's own energy

and economic advantage.

Cyber warfare offers Australia both lessons and opportunities for collaboration with Ukraine and NATO that are relevant to stopping Putin's war against national sovereignty and also to securing our own region and domestic interests. Cyber defence and countering hybrid threats are among the priorities shared by Australia and NATO.¹³⁵ in the Individual Partnership and Cooperation Programme between Australia and NATO signed in 2019.

One area where Australian support for Ukraine cyber and digital security has already had significant success is in border security. Working with the International Organisation for Migration (IOM), Ukraine's border control has been substantially improved. This includes modernising automated systems and document inspection tools including advanced biometric technologies, hidden document security features for critical identification documents (e.g. passports).¹³⁶ The relevance of such an opportunity for collaboration to a country experiencing invasion would not occur to most people, but it remains important for Ukraine and is an area of capacity and strength for Australia. This highlights the importance of opening the call widely, inviting everyone to consider how they can support Ukraine.

Another key lesson for Australia is the critical importance of sovereign communications infrastructure, including a sovereign satellite network. Ukraine has been significantly aided by access to the Starlink satellite network, paid for by Poland. Starlink has facilitated Ukraine's medium range targeting systems, forcing Russia to position much of its artillery well behind the frontlines, making it very difficult for Russia to push forward. However, since President Trump took office, the reliability of Starlink has become extremely questionable. Elon Musk, owner of SpaceX, tweeted 'To be extremely clear, no matter how much I disagree with the Ukraine policy, Starlink will never turn off its terminals'. Musk made the comment precisely because his earlier comments

had made it unmistakably clear that such an assurance was not reliable. He and Trump have begun using Ukraine's reliance on their support as leverage against Ukraine. For Australia, this means there is an opportunity to expand our own space industry in alliance with Europe, as part of a more reliable service than Starlink. It also acts as a warning. We can afford no more trust in communications infrastructure controlled by Elon Musk than in infrastructure controlled by the CCP. The US itself has also proven unreliable in this regard, with the White House weaponising support for Ukraine to extort their minerals wealth.¹³⁷ Critical infrastructure – especially communications and satellite infrastructure, must be sovereign.

An additional critical lesson for Australia is the importance of preparation. Ukraine's cyber defences were well fortified before Russia's full-scale invasion. Australia has considerable work to do to improve our own cyber resilience, including transitioning to a zero-trust model of network security and implementing a substantial change in our attitude toward data security. This is an area where we should seek to learn as much as possible from Ukraine, including through active, state-led collaboration.

Information warfare

While the military effectiveness of cyber operations has proven less than many people anticipated, but the information warfare effectiveness has proven more so, meaning information warfare will likely become an increasingly used instrument for promoting division and discontent.

The entire world operates on trust. Money is system of trust. If people don't believe that money will largely hold its value and continue to be easily usable to exchange for things they want, then they will be less willing to accept it. Questioning the foundation of that trust is at the heart of the crypto-currency movement. Advocates (such as Elon Musk) claim that central banks are corrupt and fiat currency is unreliable. They want people to put their trust in anonymous crypto exchanges

run out of tax havens. In reality, central banks are far more reliable than crypto exchanges because they're backed by national governments. Naturally, nations are not infallible, but they are far more reliable than anonymous 'tech bros', such as Sam Bankman-Fried. Attacking this trust is part of modern warfare.

Yuval Noah Harari explains how much of what we do is based on inter-subjective agreements. He intermittently calls them 'myths' or 'stories'. These are the shared idea that something is true despite it not existing in objective reality. A corporation is an inter-subjective reality: it exists because everyone agrees that it exists. In contrast, gravity is an objective reality that exists regardless of what people believe, while pain is a subjective reality that exists in a single person's experience. Society is an inter-subjective reality. It is therefore based on trust that people will continue to share the beliefs that determine behaviour. We trust that people meet contracts, accept money as payment, follow laws, mean what they say, remain committed to their family... we trust that teachers teach with integrity, that regulators enforce rules with integrity, that courts act fairly and impartially. We trust that journalists report truthfully and that politicians will strive to do what they promise.

Democratic societies have entirely different systems for this kind of trust than authoritarian societies do. In a democracy, people trust that the law is followed even by the powerful, that people act with integrity, and that objective reality is the foundational source of truth. In authoritarian societies, people trust that people act self-interestedly, that the law is a tool for the powerful, and that politics is the foundational source of truth. Democracies depend on independent media because competing voices are one way we ensure people report truthfully: it becomes too difficult to coordinate a lie or maintain a secret when everyone else's incentives are to expose the truth. (Some secrets are deemed legitimate, such as those of trusted intelligence services, and these can be maintained because most people

agree with the legitimacy or at least understand the incentives against divulging such secrets). Dictatorship depends on state-controlled media: people need to know what the ruler wants them to believe so that they don't inadvertently disobey some whim and end up subject to punishment. The ruler's decree is the source of truth. If the ruler says $2+2=5$, then that is treated as a political truth regardless of its objective falsehood. People contort their thinking into all sorts of strange inconsistencies to adhere to political truth.

This is why information warfare has become such a key domain in recent years. As China became richer, as the Chinese diaspora spread across the world, and as communication technology meant that Chinese discourse was exposed to international sources not controlled by the CCP, the CCP has increasingly required its objectively false political 'truths' to be accepted beyond its border. Mostly they focus on maintaining their own control over China. Russia, perhaps as a legacy of the Cold War, has specialised more in offensive information warfare. It has sought to spread cynicism and attack the trust and inter-subjective beliefs that democratic societies are built on. While Russia has attacked all democracies in this way, they have focused most of their attention first on the United States and now on Ukraine. Consequentially, working with Ukraine on this problem is part of an essential collective defence as well as a learning opportunity for Australia to better fortify ourselves.

Combating this kind of information warfare is mainly a matter of investing in the public's trust of institutions. This can be done through integrity and anti-corruption measures, by funding public interest journalism and reinforcing journalistic ethics and codes of conduct, by investing in public education and life-long learning, by reducing the role of money in politics, by ensuring hostile foreign state or criminal actors cannot fund or otherwise aid extremists... there are a wide range of ways to build democratic resilience. No where is now more attuned to this form of attack than Ukraine,

unless it's perhaps Taiwan. Australia should work with both Ukraine and Taiwan on this front, both because our collective security depends on it, and because we have a tremendous amount to learn in this domain.

Information warfare is not restricted to attacking the intersubjective beliefs that form the foundations of society, however. In March 2025, the Trump administration ended support for tracking kidnapped Ukrainian children in Russia. Work on a database containing critical information about thousands of such children was frozen by executive order in late January, and in late March a bipartisan congressional group expressed 'reason to believe that the data from the repository has been permanently deleted'.¹³⁸ This is a new form of information warfare that highlights the criticality of data security and reliability. This case also indicates a need for careful consideration of the reliability of certain partners. Ultimately, it is impossible to function without relying on others, but where that reliance is called into question, judicious appraisal should not be impeded by sentiment.

Anti-Corruption

Anti-corruption is one aspect of defending against information warfare, but it may be the most familiar. Corruption is the antithesis of integrity, which is required for people to trust that our shared inter-subjective beliefs will actually guide people's behaviour. In that sense, corruption is an attack on society, while anti-corruption can take any form of investing in incentives, accountability, norms, or other means of ensuring people act with integrity.

A Brookings Institution study of the historical lessons for post-war reconstruction found that anti-corruption has often been a successful foundation for winning the peace. Promoting democratic and civil society institutions such as independent media, trade unions, mechanisms for transparency, oversight, accountability, public participation in politics and governance, these are all essential aspects of a thriving democracy. Australia and Ukraine have much to teach and learn from each

other in this regard. Winning the war is the first step, but winning the peace is essential to ensure peace is sustainable and that Ukraine thrives once conflict ends.

The foundation of Ukraine's anti-corruption system is the e-governance platform, Diia. This system has made accountability for public funds, including foreign aid, extremely transparent and difficult to subvert. Diia was launched in 2020 as a basic e-government portal, but once Russia's full invasion began, it emerged as indispensable.

Australia also has much to offer in terms of technology and skills for tracing transactions and fighting organised- and state-based crime. For example, a partnership between the AFP and Australian Signals Directorate has deployed offensive cyber operations to investigate and disrupt hostile cyber actors. This work has included international cooperation focusing on Southeast Asia and Eastern Europe.¹³⁹

Labour rights

Naturally there are immediate emergency measures that any nation would unremarkably put in place when a war breaks out, but there are concerning reports of a longer-term continued attack on labour laws in Ukraine. According to the International Trade Union Confederation, 'Ukraine's Parliament has passed two bills that obliterate workers' rights to collective bargaining and other fundamental labour protections, and allow employers to put up to 10% of their workforce on "zero hour" contracts leaving them without any control over their working lives'.¹⁴⁰ The laws had been put forward before Russia's invasion, but workers' groups had been able to prevent them becoming law. With workers distracted, and the Parliament reasonably acting rapidly on many fronts, the laws were able to be pushed through.

A recent delegation of labour leaders met with the leaders of the Employers' Association in Ukraine, who validated these concerns. That employers are

raising concerns about an erosion of labour rights suggests a problem that should not be ignored. The employer groups blamed external influence from sources such as the US Chamber of Commerce. They see Ukraine's position as being extremely difficult, facing a choice between the 'high road' or 'low road'. There are clearly opportunists taking advantage of Ukraine's vulnerable position to push troubling agendas on them.

During the same delegation, labour leaders also met with a member of Zelensky's government, who agreed that they are making many changes aimed at 'flexibility' and the 'new economy' and with former Prime Minister and opposition party leader Yulia Tymoshenko who expressed alarm about the direction of the government in the area of labour laws, noting that the changes are coming on a regular basis.

The Law 'On Amendments to Some Legislative Acts Regarding Simplification of Regulation of Labour Relations in Sphere of Small and Medium-Sized Enterprises and Reduction of Administrative Burden on Business' was adopted by the Verkhovna Rada despite clear messages of its inconsistency with the international and European labour standards. The law discriminates against workers in organisations with less than 250 employees and deprive them of labour protections and allow such organisations to ignore existing collective agreements. Its adoption was contrary to the EU Aquis (the common rights and obligations that constitute the body of EU law), including the principles of non-discrimination and social dialogue, but also the obligations under ratified Conventions of the International Labour Organisation.

Similarly, following the Trade Union Summit for Ukraine that took place in April 2024, a statement was issued condemning the systematic violations of workers' rights by Ukrainian authorities and employers. It includes demands on the trade unions' role in restoring Ukraine through social dialogue and collective bargaining, and the need for Social conditionalities in the reconstruction process.¹⁴¹ This dismantling of balanced labour

laws will not only come at a cost for Ukrainian workers; it will create a further impediment to Ukraine joining the EU.

Ukraine may strive to meet European energy, safety and sustainability standards and aspire to meet European Higher Education Area obligations, but these efforts will be exercises in futility if it is simultaneously creating labour laws that the European Union will simply not

countenance. Australia should apply and expect the highest labour standards from Ukraine. We would do Ukrainians no favours by allowing their rights as individuals to be jettisoned in the name of rebuilding. Toward that end, Australia should support collaboration with Ukraine's union movement to help build their capacity to protect workers' rights in line with EU regulatory convergence processes. Ukraine's recovery must be the Ukrainian people's victory.

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