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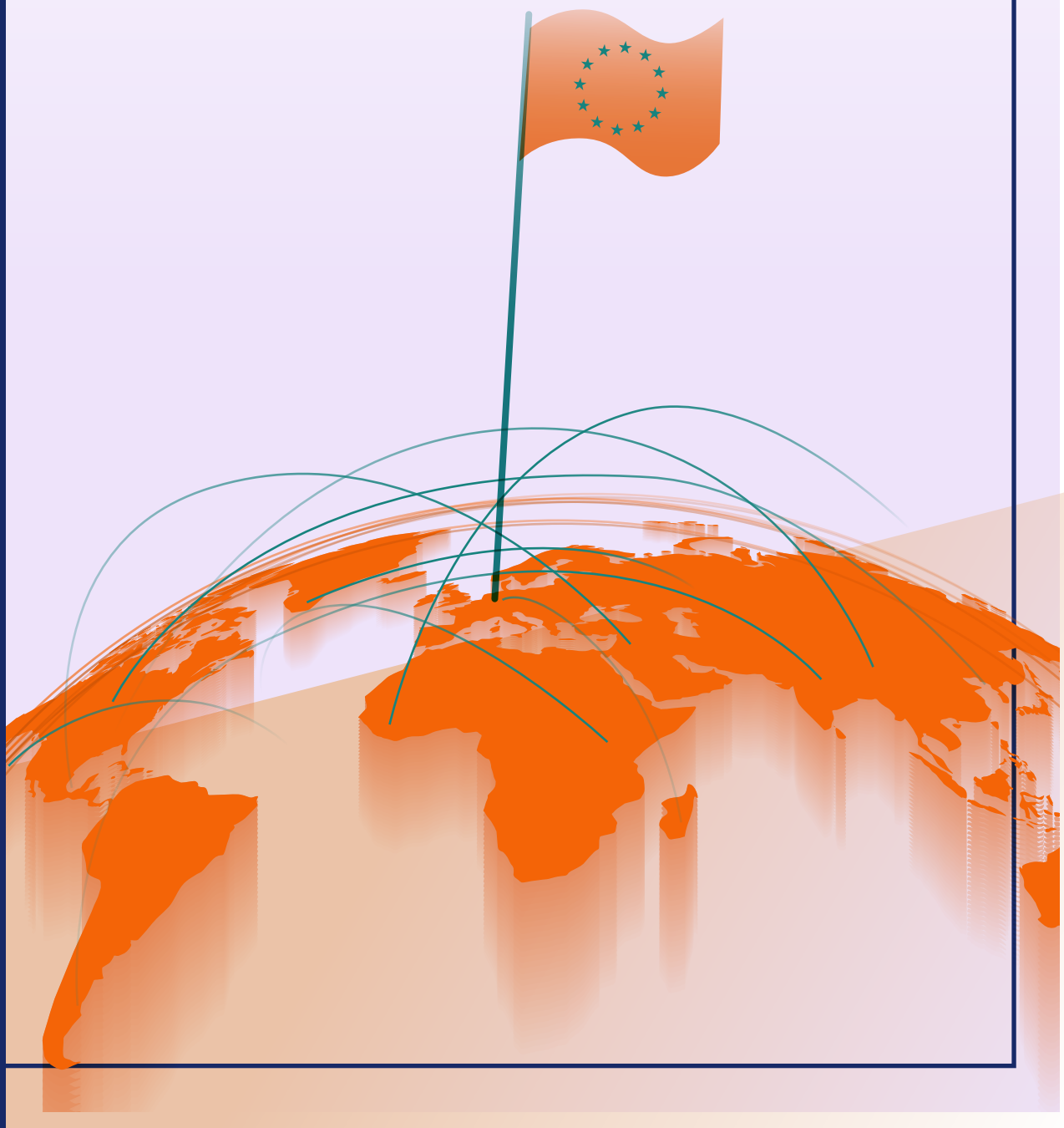
Geopolitics of Resources

Securing the Essential



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Geopolitics of Resources

Securing the Essential in the Turbulent World

AUGUST 2025

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European
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Geopolitics of Resources: Securing the Essential in the Turbulent World

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ABOUT

The Publishers

The European Liberal Forum (ELF) is the official political foundation of the European Liberal Party, the ALDE Party. Together with 57 member organisations, we work all over Europe to bring new ideas into the political debate, to provide a platform for discussion, and to empower citizens to make their voices heard. Our work is guided by liberal ideals and a belief in the principle of freedom. We stand for a future-oriented Europe that offers opportunities for every citizen. ELF is engaged on all political levels, from the local to the European. We bring together a diverse network of national foundations, think tanks and other experts. In this role, our forum serves as a space for an open and informed exchange of views between a wide range of different EU stakeholders.

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EDITORIAL

Pillars of Strategic Autonomy: Where Does the EU Stand in the Global Race for Resources?

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Senior Research Fellow
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DR MARIA ALESINA

My dear, here we must run as fast as we can, just to stay in place. And if you wish to go anywhere you must run twice as fast as that.

— Alice in Wonderland

Acute geopolitical tensions are reshaping the very foundations of international relations and trade, often turning critical resources into weapons of global power play. The carefree days of Europe benefitting from 'cheap energy from Russia, cheap goods from China, and cheap security (and technology) from the US' are clearly and undeniably over. The EU, which used to be the main beneficiary of the liberal world order, now risks becoming the main loser of the decline thereof. This leaves the EU face to face with the total collapse of its comfort zone and an urgent need for geopolitical maturity and long-term vision.

As big and medium actors across the globe are now pursuing their own, increasingly aggressive or protectionist agenda, reliable access to essential resources can no longer be taken for granted. Securing access to the indispensable becomes even more challenging in view of Europe's declining global competitiveness, immediate security threats, the demanding green and digital transitions as well as negative demographics. In today's deeply interconnected yet conflict-ridden world, interplay between the geopolitical considerations and the need for resources is likely to become one of the most existential of Europe's future concerns.

A resource-mindful geopolitical strategy cannot only be about de-risking and diversifying supply sources. Instead, it must be also about shaping a proactive global stance and magnifying Europe's own productive forces.

At present the EU is in danger of being left behind by more assertive and ambitious powers. In this increasingly hostile environment, a resource-mindful geopolitical strategy cannot only be about de-risking and diversifying supply sources. Instead, it must be also about shaping a proactive global stance and magnifying Europe's own productive forces. Immediate scarcity of resources or unreliability of supply chains could in fact push the EU to generate and better manage its own resources while actively forging new synergies and partnerships that reinforce its global agenda. Europe has what it needs to build on but it needs to go further and faster.

So, in this issue of the Future Europe journal, we address the very heart of the matter: how can Europe secure access to what our economies and citizens need – not only to survive but to advance and set the agenda in this new reality? While the 21-century 'essentials' range from food and critical raw materials to human resources or technological know-how, where does Europe stand and how should it adapt in order to avoid major disruptions? Reflecting the multifaceted nature of these question, in this journal we explore the complex interrelations of foreign, security, and economic policies with other key global domains such as technological innovation, education, and demographics.

The journal is divided into four sections – the four 'pillars' of Europe's strategic autonomy in resources. In Section 1, we begin with the bare bones of the matter: global competition for access to energy resources and critical raw materials. Section 2 focuses on detailed case studies from the key industries: quantum computing, defence, food production – and discusses if and how these domains can support Europe's future strategic autonomy. Section 3 looks at another key question: demographic trends and the productivity of the European workforce. As Europe's prosperity is created for people but also by people, how can we do more and better – and with less? Finally, Section 4 discusses how solid international partnerships and strategic foreign relations can help to advance the EU's global agenda - on resources and far beyond.

The combination of all these issues – though far from exhaustive – highlights the geopolitics of resources as a growing economic and security concern. In the pages of this journal, academics, industry leaders, and experts from the EU and beyond bring up controversial subjects and analyse them in all their complexity. Most importantly, they distill the problems into tangible solutions and offer practical strategies to ensure Europe has the key resources needed to remain safe, prosperous, and influential in the years and decades ahead.

Crises are known to push the EU forward and make it stronger. The current crisis of resources holds the potential to put the Union through yet another trial by fire – allowing it to shed its old skin and realise its true potential. With a strategic and united approach, the EU will emerge renewed and much better equipped for the new global era.

Enjoy the read!

SECTION 1

Global competition for critical resources

ARTICLE

Competition for Competitiveness

Strategic Levers for the EU to Navigate the New Raw Materials Order and Win the Race for Resources

–
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#SustainablePublicAffairs, Sustainability & Cleantech Advocate

Citation suggestion: Alex Braley, AB (2025). Competition for Competitiveness. Strategic Levers for the EU to Navigate the New Raw Materials Order and Win the Race for Resources *Future Europe*, 6(1), 17–23.

Abstract

Critical raw materials (CRMs) are not mere commodities but the essential building blocks of modern technologies, prosperity, and security. As global demand accelerates, a strategic race is emerging to secure access to these vital resources, fuelling competition and geopolitical tension. This article examines the European Union's vulnerable starting position in this contest, given its limited domestic supply of CRMs compared to others, and argues for a proactive, coherent policy response by Europe. Central to this is deepening integration of the EU Single Market by mainstreaming circular economy principles and boosting material productivity - stagnant since the 1970s - and creating demand-side incentives. The article also proposes a Critical Raw Materials Efficiency First Principle, as well as underscoring the importance of public-private collaboration and international partnerships. Delivering this vision will take time, and sustained political will is therefore key.

If oil built today's fossil-fuelled economy, critical raw materials (CRMs) will power the clean-tech-driven one of tomorrow.

The shift from fossil fuels to CRMs is serving as a catalyst for the change we see in the world today that is reshaping global politics and power: from the newly agreed, first-of-its-kind US–Ukraine economic partnership agreement and its emphasis on 'natural resource projects', to the first initiatives for deep-

sea mining that could reach into disputed resources in international waters, to rising tensions over the Arctic region.

Why all the fuss? CRMs are not merely commodities. They are the building blocks of modern technologies and future prosperity: from sustainability applications and the clean energy transition (such as electric vehicle batteries, solar panels, and electrolysers) through to digitalisation (for example, microchips and semiconductors) as well as defence and security (including drone guidance systems and stealth war planes). For this reason, everyone is after a piece of the pie.

Global demographic trends – population growth, urbanisation, and rising living standards – are also driving escalating demand.

However, these metals, minerals, and rare earth elements (REEs) – such as cobalt, graphite, nickel, neodymium, and palladium – face significant supply risks due to limited availability and geographical concentration.

For example, global demand for lithium – a key material for batteries – is projected to grow by over 40 times by 2040 compared with current levels, from 95 kilotonnes to 455 kt by 2030 and 928 by 2040 (IEA, 2021). Global supply today is at approximately 200 kt, with only three countries – Australia, Chile, and China – accounting for around 85 per cent of the total (Venditti, 2024). For some materials the concentration of global supply can reach monopolistic levels; for example, China holds 91 per cent of magnesium and 94 per cent of gallium supply (European Commission, 2023).

This comes at a time of rising geopolitical tensions. We already see these new forms of dependencies being leveraged, even weaponised, for political gain. In recent years, China – blessed with significant reserves of CRMs and a dominant player in the refinery industry – has placed restrictions on exports of graphite to Sweden to limit competition (The Economist, 2023), on germanium and gallium to the European Union in reaction to the Netherlands' curbs on exporting advanced chip equipment, and on materials more broadly to the US in response to President Donald Trump's tariffs.

In short, access to CRMs defines capability and power in this new era, and with that the ability to determine one's own prosperity and future.

Europe's first steps in adapting to the new raw materials order

Against this backdrop, Europe must act now, and decisively, to secure its future.

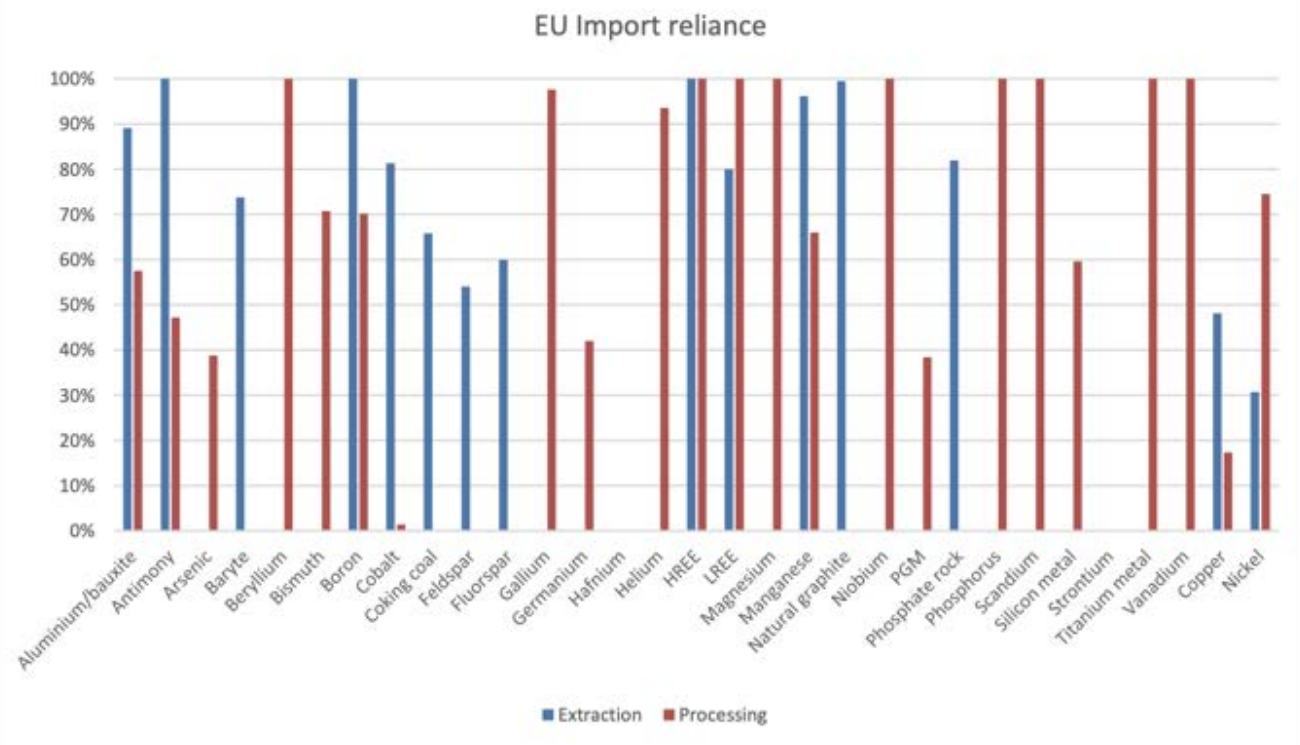


Figure 1: EU Import Reliance for extracted and processed Critical Raw Materials (European Commission, Study on the Critical Raw Materials for the EU, 2023).

However, Europe is starting with a weak hand because it is a comparatively resource-poor continent. Consequently, there are strong import dependencies (see Figure 1). While the EU does have industrial capacity in extraction (such as cobalt in Finland, lithium in Portugal, and REEs in Sweden), these operations remain small-scale. In refining, the picture is also challenging as China controls around 70 per cent of global processing capacity for many critical minerals (IEA, 2025). On the recycling front, Europe has a more promising foundation, but recycling currently supplies only a small fraction of the EU's total CRM needs. Therefore, the EU must significantly scale up its capacity across all stages of the value chain.

The EU institutions have begun to take steps to respond. These include:

- The EU Critical Raw Materials Act (CRM-A), which aims to boost EU autonomy and bolster supply chain resilience. It does so by setting targets for extraction, processing, recycling, and import diversification as well as accelerating the expansion of domestic supply by facilitating permitting processes.[1] It also creates a framework to support strategic projects in Europe, the first set (of 47) of which was recently announced by the European Commission and will be supported with €22.5 billion.

- The Waste Shipment Regulation: stricter rules that came into force a year ago on the export of waste, including that containing CRMs, to non-EU (and specifically non-OECD) countries. This means that materials such as 'black mass' – a hazardous intermediate product from battery recycling rich in CRMs including lithium, cobalt, and nickel – can now be retained more easily within Europe.

- The Ecodesign for Sustainable Products Regulation (ESPR), as well as product-specific legislation such as the Batteries Regulation, which pushes towards embedding circular economy principles into products placed on the Single Market.

These early initiatives must be foundational tools and an opening gambit, not the finish line. And they need to be coupled with serious market incentives and funding if Europe is to turn its ambitions into reality.

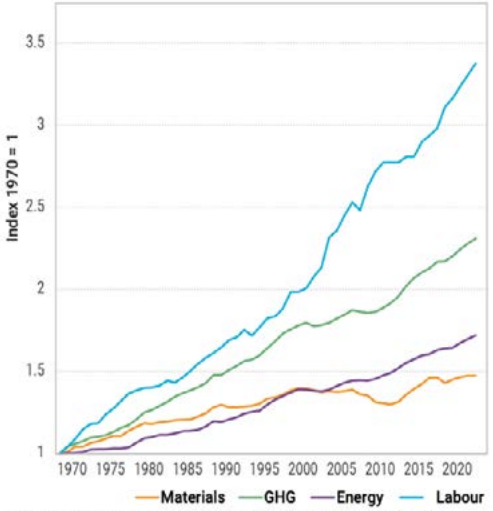
Against this backdrop, Europe must act now, and decisively, to secure its future. However, Europe is starting with a weak hand because it is a comparatively resource-poor continent. Consequently, there are strong import dependencies.

A long road to resilience: Strategic levers in Europe's quest for resource security and industrial sovereignty

Market integration

The first lever that the EU should pursue is further market integration. In doing so, Europe should embed circular economy principles as a market force in order to build self-sustaining business cases.

The Draghi report's core message is a simple one: deepen integration, or face economic stagnation and diminished global influence (European Commission, 2024a). The circular economy is a systems solution framework that is based on three principles: circulate products and materials



Source: Global Material Flows Database (UNEP 2023a); Emissions Database for Global Atmospheric Research (EDGAR); IEA World Energy Database; Penn World Table version 10.01.

Figure 2: Global resource productivity of materials, 1970 - 2024 (UNEP, Global Resources Outlook 2024)

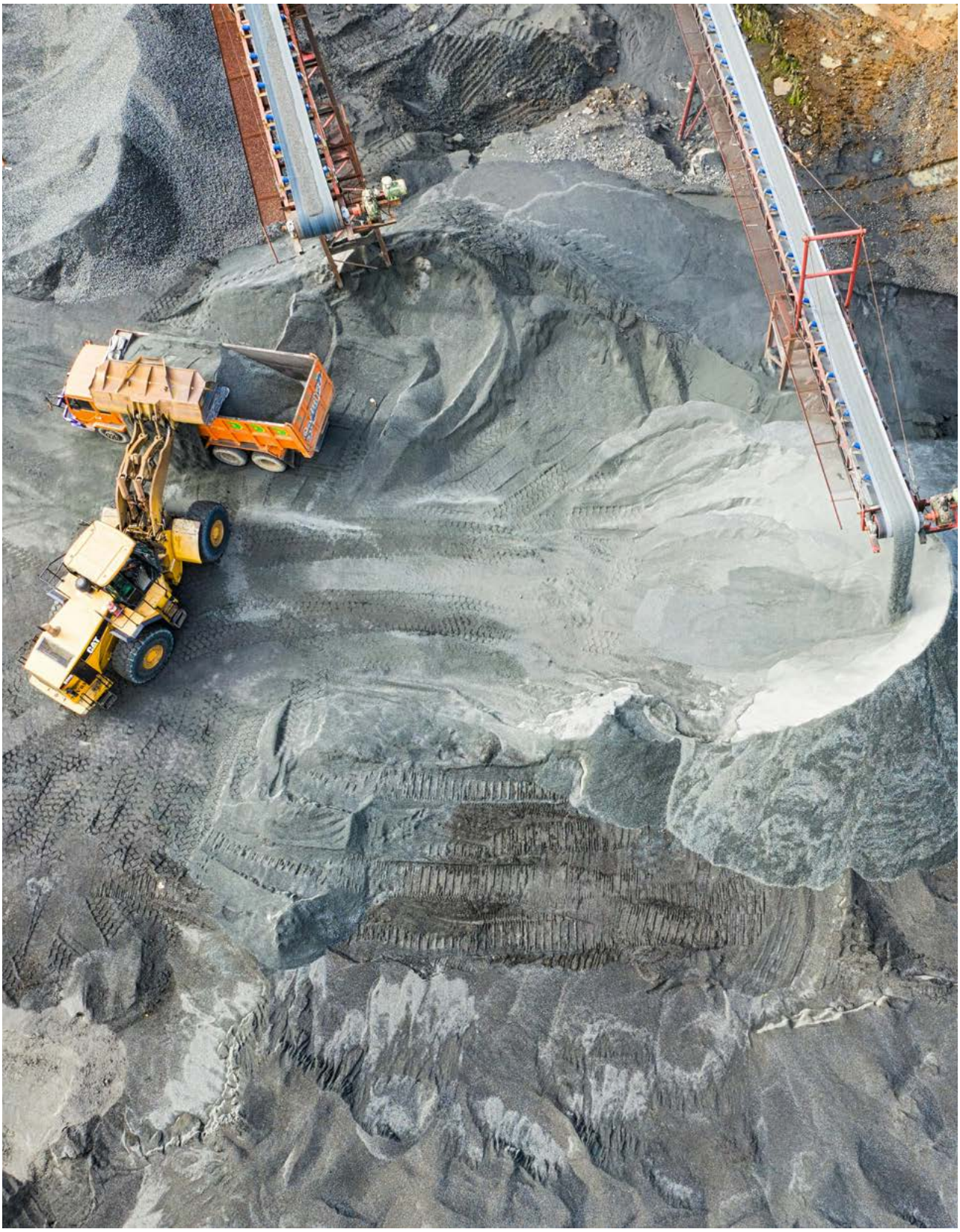


Photo by Tom Fisk on Pexels

(at their highest value), eliminate waste and pollution, and regenerate nature (Ellen MacArthur Foundation, n.d.). By reshaping the economy and production processes according to these principles, we can move from today's single-use, linear economy to a resource-efficient, regenerative, and circular one.

Strikingly, while labour productivity has more than tripled since 1970, material productivity has stagnated (Grabbe & Moffat, 2024 & see Figure 2). This has been driven by government and market failures that, on the one hand, disincentivise and get in the way of economic operators and individuals making resource-efficient choices. This notably includes the artificial cheapness of virgin raw materials as the environmental and social externalities and costs associated with their extraction are not accounted for in their prices. Instead, they are carried by taxpayers and local residents (Grabbe & Moffat, 2024). On the other hand, too few incentives to promote demand for secondary raw materials exist in today's regulatory framework. This is exemplified by the fact that Europe still exports large amounts of scrap (ferrous scrap exports more than doubled in recent years, reaching 19.43 million tonnes in 2021 – about 20 per cent of total scrap generated in the EU) (European Commission, 2025). Europe does not have a scrap leakage problem – it has a scrap demand challenge, as recycled materials continue to be overlooked by European manufacturers (Ettinger, 2025).

Europe must pull much harder on the lever of making more and better use of the materials we do have. This needs to be at the heart of future actions to deepen the Single Market. The EU must also be much bolder in mainstreaming incentives into the regulatory framework that build up these business cases. That, in turn, will nudge companies and individuals towards taking up circular economy practices. Where demand is in place, supply will follow. The European Commission's proposal for a Circular Economy Act in 2026 goes in the right direction by focusing on 'creat[ing] market demand for secondary materials and a single market for waste, notably in relation to critical raw materials' (European Commission, 2024b: 9).

While the Batteries Regulation includes recycling and recycled content targets for CRMs, an opportunity was missed in the revision of the end-of-life vehicles Directive, where recycled content targets are limited to plastics (the European Commission only commits to a feasibility study for steel and aluminium targets). Similarly, under the aforementioned ESPR, first proposed in March 2022, realistically we will not see the first ecodesign requirements for specific product categories hit the EU market until somewhere between 2027 and 2030. This is too little, too late.

Moreover, in practice Europe still has 27 separate markets as the Single Market for waste and materials remains fragmented (see, for example, the scope and set-up of Extended Producer Responsibility Schemes across Europe). In practice this means that certain scrap metals cannot circulate freely in the Single Market. EU-wide common standards would deliver a predictable regulatory framework and would support developing the market and industry for secondary materials, as well as increasing the scale at which they operate. This fragmentation is exemplified by the stagnant circular material use rate in Europe, a mere 11.8 per cent in 2023 (up from 10.7 per cent in 2010) (European Environment Agency, 2025).

Governance

The second lever on which the EU must continue acting is governance. We must tell it as it is: the EU institutions cannot deliver this agenda alone. What the EU institutions can do is coordinate actions and harmonise rules to create a predictable and level playing field. It can introduce certain market-based incentives to promote circular practices. It can also allocate some funding through the EU budget (1 per cent of EU GDP) and, for example, the European Investment Bank.

However, the firepower to make a significant difference lies with the Member States – specifically, with national, regional, and local authorities. For example, fiscal incentives can only come from them. They are the ones who can introduce tax breaks and make use of procurement rules that favour secondary raw materials over primary ones. Similarly, by running the permitting processes, they play a determining role as to which projects see the light of day and which do not. Without this hands-on delivery and follow-through, no amount of coordination will translate into real-world impact. This is where the Europe Commission's proposed Competitiveness Coordination Tool can also play a role, and CRMs and circular economy should be the first area in which to align national actions.

At the same time, we must acknowledge that government alone is not enough to deliver this agenda. It will require the public and private sectors to work hand in hand to encourage project developers and to see through their projects. Europe has leaders in this sector. For example, the Swedish materials company LKAB (Luossavaara-Kiirunavaara Aktiebolag) is developing a circular process to extract REEs and phosphorus from the mining waste of its iron mines, with production expected to start in 2027.[2] This would prevent valuable materials from ending up as waste, increase the economic viability of mining (as many CRMs are extracted as by-products and often are not economically recoverable on their own), improve Europe's self-sufficiency in these vital resources, and reduce the environmental impact of mining (CISL & Wuppertal Institut, 2023). LKAB has also uncovered reserves of one million tonnes of REEs – the largest known deposit of its kind in Europe (LKAB, 2023).

The European Raw Materials Alliance (ERMA) established in 2020 is a good example of the positive impact that coordinated governance among these different levels can have.[3] This has facilitated and accelerated the identification and investment into new business models and concrete CRM projects within Europe, thereby enhancing its capabilities and outcomes on the ground. The ERMA and the support given to it should be significantly scaled up to amplify its positive impact.

(currently undertaken by several actors such as Eurostat, the Joint Research Centre, and the European Environment Agency). What you don't measure, you can't manage or legislate for. We need to know where our materials come from, how we use them, and where they end up. And in the current geopolitical environment, these measurements are not a technical detail. They are a political necessity. Alternatively, the EU could set up such an Observatory at the European level, similar to the European Scientific Advisory Board on Climate Change.

In the new geopolitical economy, industrial power will be shaped by access to metals, minerals, and rare earths as much as innovation.

Material-specific strategies and actions

A third lever on which the EU could advance in the coming years is designing material-specific strategies and actions. One-size-fits-all approaches rarely work – and they are not fit for purpose when dealing with CRMs.

The EU institutions should take two further steps in this area:

1. Introduce a Critical Raw Materials Efficiency First Principle. This would aim to ensure that CRMs are better sourced and used where they are needed most, and that upstream solutions are prioritised. The energy crises of the 1970s and 2020s led to drives for energy efficiency, but there has been no such systematic drive for materials efficiency despite relatively high material input costs for European manufacturing (Grabbe & Moffat, 2024). This measure could include establishing, based on best available techniques (BATs), industry standard values for the use of CRMs for strategic technologies as well as recommendations to Member States on best practices to optimise the cross-sectoral demand for CRMs. Such a principle has the benefit of guiding the actions of individuals who are best placed to know what will work in their given local context, rather than prescribing in detail how they should do it from afar.

2. Support the establishment of a Global Materials Observatory with a Europe department to bring together the EU's data, knowledge, and measurement efforts regarding CRMs

Different materials have different market dynamics shaping their demand and supply as well as different value chain characteristics. For example, recycled aluminium is seen and treated as a valuable commodity in a highly internationalised market. It is actively traded on the London Metal Exchange (LME), where it is considered a benchmark industrial metal. The sophisticated infrastructure of the LME offers price (as well as demand and supply) transparency and liquidity for both physical and financial market participants.

Conversely, REEs such as terbium are not actively traded on international commodity exchanges. Instead, these materials are typically sold through opaque, bilateral contracts, often tied to long-term supply agreements through a limited number of producers and refiners globally. That in turn means a lack of price transparency, leading to risk and dependencies.

The EU needs to integrate this reality into its thinking and develop material-specific strategies and action plans. The newly released EU Steel and Metals Action Plans, covering the steel, aluminium, copper, and nickel sectors, is a first step in the right direction. Now others need to follow.

International partnerships and 'materials diplomacy'

The fourth lever centres on international partnerships and materials diplomacy. The US–China dichotomy dominates the conversation (accounting for about 30 per cent of global imports), and the US is shaking up the multilateral trade system led by zero-sum thinking and moving from a rules-based system to a power-based one.

However, there are 190 other countries in the world representing about 60 per cent of global trade. This presents the EU with an opportunity to build a network of strategic partnerships to address CRM needs based on a win–win mindset. This is one way in which Europe can also walk the tightrope between open but fair trade and strategic autonomy.

This is the mindset that should underpin the new Clean Trade and Investment Partnerships the EU plans to build up in the coming years. The recently modernised EU–Chile trade deal, which includes enhanced cooperation on sustainable raw material supply chains, signals a shift towards more geopolitically aware economic diplomacy while defending a continuation of the rules-based, democratic approach to global trade.

Conclusion: Where there is (political) will, there is a way (to deepen European and Single Market integration)

Where once pipelines defined influence, it is now supply chains of the likes of lithium, cobalt, and neodymium. In the new geopolitical economy, industrial power will be shaped by access to metals, minerals, and rare earths as much as innovation.

For Europe, the competition for CRMs is a test of whether it can turn values, smart regulation, and economic openness into strategic strength – meaning, in this context, resource security and industrial sovereignty – in contrast to those pursuing resource nationalism.

It is also a fundamental test of whether Europe can muster the political will to pull the levers that are in its control in this global race. The first priority in this must be targeted integration to maximise the benefits of the Single Market's scale. And, more importantly, it is a test of whether the EU can sustain that political will in the long run to see through the building of this new resource system and end-to-end supply chains that are resilient and reliable for Europe, as well as a system that upholds the rules-based multilateral system and does not descend into one where power alone dominates.

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ARTICLE

Walking a Tightrope

The EU and US Interest in Ukraine's Critical Raw Materials

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Abstract

This article explores the geopolitical and economic dimensions of the global race for critical raw materials (CRMs), focusing on Ukraine's emerging strategic role. As the European Union and the United States strive to secure supply chains essential for decarbonisation, digitalisation, and defence, Ukraine has become a focal point due to its abundant untapped CRM reserves. The piece contrasts the EU's technocratic, standards-driven partnership approach with the U.S.'s more assertive and commercially advantageous strategy, highlighting concerns over extractive dynamics, value retention, and governance standards. The EU must recalibrate its engagement, anchoring CRM cooperation within Ukraine's EU accession process and broader strategic integration. The article offers policy recommendations to promote transparent, sustainable, and participatory CRM governance, advocating for Ukraine's transformation into a green industrial partner rather than a resource periphery. Ultimately, it presents Ukraine's CRM sector as a litmus test for Europe's geopolitical vision, democratic values, and green transition ambitions.

Introduction

The EU's race for competitiveness, security, and strategic autonomy largely depends on access to critical raw materials (CRMs), which unlock decarbonisation, digitalisation, and industrial growth. In this race, the EU is competing with the United States and China to secure supply chains, which has turned resource-rich countries such as Ukraine into geopolitical chessboards.

Global race for CRMs

From batteries and solar panels to missile guidance systems and wind turbines, CRMs enable technologies essential for both strategic autonomy and climate goals. Yet, while the demand curve steepens, control over CRM extraction and processing remains alarmingly skewed in favour of one dominant actor: China.

China currently processes over 80 per cent of the world's rare earths, dominates the refining of cobalt and graphite, and is rapidly securing lithium and nickel assets across Africa and South America. This commanding position is not accidental but stems from a decades-long industrial strategy focused on resource security, downstream value capture, and global influence. Beijing's 'Made in China 2025' plan explicitly names rare earth elements and battery technologies as strategic priorities. The Chinese government uses export restrictions, foreign investments, and price manipulation to maintain its advantage and exert economic leverage over rivals.

By contrast, the US and the EU are in a scramble to catch up. The EU's Critical Raw Materials Act, adopted in 2024, sets ambitious targets: sourcing at least 10 per cent of strategic materials domestically, processing 40 per cent within the EU, and limiting dependency on any one country to no more than 65 per cent. The US has likewise issued a series of executive orders and launched the Mineral Security Partnership, aiming to secure non-Chinese supply chains by 2030. The Inflation Reduction Act and Defence Production Act have also unlocked federal funds to accelerate domestic mining and processing.

Despite these efforts, both blocs still lack the capacity to match China in the midstream segment – refining and processing – which is often more capital- and expertise-intensive than mining itself. Most European and American companies are only beginning to enter or scale up this space, and they remain reliant on overseas partners for intermediate materials.

According to both US and EU CRM lists, Ukraine holds over 20 types of CRMs, including large deposits of lithium, rare earths, titanium, beryllium, and nickel. The Ukrainian Shield, one of the richest geological formations in Europe, remains largely untapped.

Even in the midst of Russia's war of aggression, Ukraine's geological wealth and its aspirations for EU accession make it a strategic opportunity. The recently ratified US–Ukraine Economic Partnership Agreement, which grants US investors privileged access to Ukrainian mineral resources, has dramatically altered the landscape. For the EU, this development threatens to reduce its influence over a near-neighbour with immense strategic value unless proactive steps are taken to deepen collaboration and invest in long-term partnerships.

As the global race for CRMs intensifies, Ukraine represents not just a mining frontier but also a litmus test for Europe's geopolitical resilience and strategic foresight. Whoever secures sustainable and ethical access to Ukraine's resources will gain a formidable edge in the twenty-first-century scramble for autonomy, security, and technological leadership.

Competing blueprints: US and EU CRM agreements with Ukraine

As Ukraine emerges as a strategic epicentre in the global contest for CRMs, both the US and the EU are vying for influence through competing partnership models. At stake is not only access to one of Europe's richest geological zones but also the values and governance structures that will shape its post-war economy.

The EU has taken a technocratic, capacity-building approach. It holds two formal agreements with Ukraine: the 2021 Strategic Partnership on Raw Materials with the European Commission, and a 2022 memorandum with the European Bank for Reconstruction and Development (EBRD) aimed at modernising geodata systems and facilitating investor access (European Commission, 2022). These frameworks promise technical cooperation across the full spectrum – from geological surveying to transport and monitoring – and aim to align Ukraine's practices with EU environmental standards and investment norms.

Yet these initiatives, while comprehensive on paper, stop short of delivering what matters most for Ukraine's economic sovereignty: value retention. Neither agreement includes provisions for developing downstream industries such as battery production or rare earth processing within Ukraine. As a result, Europe risks replicating the extractive dynamics of the past – securing raw materials without ensuring that the wealth they generate stays in the country of origin.

By contrast, the US has moved swiftly to institutionalise strategic control. In May 2025, Ukraine's parliament ratified an Economic Partnership Agreement that grants US entities preferential access to Ukraine's deposits of oil, gas, and critical minerals (Government of Ukraine, 2025). Under this deal, revenues from permits and sales of state-owned outputs are split, with 50 per cent channelled into a joint US–Ukraine Reconstruction Investment Fund. While marketed as a win–win for recovery, the agreement effectively embeds US actors at the core of Ukraine's extractive governance architecture.

European investors, meanwhile, may find themselves at a procedural disadvantage. The new agreement centralises decision-making under a US–Ukraine governance structure and prohibits rejected investors from pursuing 'substantially similar' deals outside this framework (Articles 6.4 and 8.1).

With Ukraine inside the EU, the bloc would gain not only a vital source of secure CRMs but also a rare opportunity to prove that strategic autonomy and democratic values can go hand in hand.

This exclusivity clause could sharply limit EU participation unless Brussels asserts its strategic and normative leverage.

One way to recalibrate this imbalance is for the EU to anchor the CRM agenda to Ukraine's EU accession pathway. As a future Member State, Ukraine should be treated not as a third-country quarry, but as a strategic industrial partner. Applying the EU acquis to CRM governance – especially in areas such as environmental safeguards, public consultations, and labour rights – would not only raise the standards of extraction but also reaffirm the EU's geopolitical presence in Eastern Europe.

It is also worth noting that the US International Development Finance Corporation (DFC) – a key player in implementing the new partnership – lags behind European institutions in environmental and social governance. Scoring just 5.5 out of 20 in the World Benchmarking Alliance's (2022) Social Benchmark, the DFC has been criticised for weak human rights due diligence, poor stakeholder engagement, and limited transparency (Vesey, 2021). Its reliance on minimal application of the International Finance Corporation's Performance Standards places it below European peers such as the European Investment Bank (EIB) and EBRD, which operate under more rigorous accountability frameworks.

In this light, neither the US nor the EU agreements with Ukraine represent truly equal partnerships. Both risk cementing Ukraine at the lower end of the global value chain. However, only one offers a pathway to higher environmental integrity, stronger democratic oversight, and eventual integration into a unified European industrial space.

To secure a sustainable future for both Ukraine and Europe, the EU must elevate CRMs to the core of its enlargement strategy. It should champion Ukraine as a model for just, clean, and transparent mining, offer co-financing for domestic value chains, and treat Ukrainian CRM governance not as an extractive opportunity, but as a test of European solidarity and strategic vision.

With Ukraine inside the EU, the bloc would gain not only a vital source of secure CRMs but also a rare opportunity to prove that strategic autonomy and democratic values can go hand in hand.

Recommendations

Securing access to Ukrainian CRMs is not just about economic security – it is a test of Europe's commitment to strategic autonomy, democratic solidarity, and sustainable development. The EU must act not as a mere buyer, but as a partner shaping Ukraine's transformation in line with shared values. In doing so, it will secure both materials for the green transition and trust for a common future.

1. ***Elaborate and elevate CRM cooperation in the Ukraine accession negotiations***
   The European Commission and EBRD should review the two Memoranda of Understanding with Ukraine with the aim of promoting an ambitious agenda, coupled with the EU accession negotiations and upgraded to the level of EU–Ukraine cooperation in the energy, trade, and security sectors.

2. ***Tie CRM access to Ukraine's EU accession process and Chapter 27 (Environment)***
   The EU must ensure that access to Ukraine's CRMs is conditioned on progress in adopting the EU environmental acquis, especially in areas of environmental impact assessment, waste management, water protection, and public participation. Fast-track alignment with the European Green Deal, Taxonomy Regulation, and Raw Materials Act will help avoid ecological degradation while fostering regulatory coherence across borders. The EU should express interest in holding consultations and negotiations with Ukraine to review the agreement if necessary.

3. ***Promote transparent and participatory governance of mineral resources***
   Learning from the implementation of the EU Cohesion Policy and the European Code of Conduct on Partnership, the EU should support the establishment of monitoring committees

in Ukraine involving civil society, environmental NGOs, and veterans groups to oversee CRM projects. This participatory model boosts legitimacy, flags risky investments early, and aligns with the Ukraine Facility Regulation's democratic standards.

4. ***Invest in green and circular mining value chains***
   European investments in Ukraine should focus on upstream and midstream segments, including refining, battery component production, and recycling. These projects must adhere to EU principles of circularity, 'do no significant harm' (DNSH), and high sustainability criteria. The EU can mobilise the Global Gateway initiative, Innovation Fund, and EIB to finance infrastructure and technology that keep value added in Ukraine while supporting EU climate goals.

5. ***Develop a CRM tracing and certification mechanism with Ukraine***
   The EU should help Ukraine establish a traceability and certification system – akin to the Forest Law Enforcement, Governance and Trade (FLEGT) mechanism – to ensure that CRMs exported to the EU meet ethical, environmental, and labour standards. This system will serve as a competitive advantage for Ukrainian exports vis-à-vis less transparent suppliers and guard against resource-driven corruption.

6. ***Counterbalance US influence through multi-stakeholder European consortia***
   Rather than competing directly with the US, the EU should consolidate public–private CRM consortia with Ukrainian partners that provide technology, capital, and ESG-compliant frameworks. These consortia should be led by entities capable of delivering long-term strategic engagement, not short-term profit extraction.

7. ***Support conflict-sensitive resource governance***
   Given the ongoing war, EU policies must account for the security risks of extractive investments. Resource projects should be mapped against conflict-sensitive criteria and avoid regions at high risk of militarisation or occupation. Strengthening Ukraine's governance capacity and resilience in these areas is essential to prevent resource-fuelled instability.

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ARTICLE

Serbia's Lithium Dilemma

A Challenging Test for the EU's Raw Materials Diplomacy

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Abstract

As the EU accelerates its pursuit of critical raw materials to support its green transition and enhance strategic autonomy, lithium – an essential component of electric vehicle batteries – has gained significant importance. This article examines the EU's strategic interest in securing lithium through the Critical Raw Materials Act (CRMA) and evaluates Serbia's potential role in meeting these objectives. It presents Serbia's 'lithium dilemma', which involves balancing the presumed substantial economic and strategic benefits of lithium exploitation with rising environmental and social concerns among the local population. The article argues that failing to address this dilemma could undermine the EU's legitimacy in Serbia, especially in the context of the country's EU accession process. It identifies three central challenges dominating public discourse in Serbia: environmental risks associated with lithium extraction, widespread public mistrust of Serbian institutions, and the fear that mining could reinforce stabilitocracy rather than foster democratic reforms. Against this backdrop, the article outlines how the EU can navigate these complexities while advancing its strategic objectives as part of its raw materials diplomacy.

Serbia as an important factor in the EU's raw materials diplomacy

The adoption of the Critical Raw Materials Act (CRMA) in May 2024 marked a pivotal shift in the EU's approach to securing essential resources, driven by the realisation that inaction had left it vulnerable while other global powers had secured dominance in critical materials (European Commission, 2024b).[4] The COVID-19 pandemic was a wake-up call for the EU, exposing its dependency on countries such as China for essential goods, including face masks, and leading to the European Commission's 2020

communication on the need to reduce these dependencies (European Commission, 2020). The subsequent Russian invasion of Ukraine further highlighted the EU's strategic vulnerabilities, especially regarding energy reliance on Russia. This spurred the adoption of the CRMA in 2024, which emphasised the urgent need to diversify and to secure supply chains. Besides being approved in the Council, the CRMA received broad support across the European Parliament, with a rare consensus emerging among diverse political groups, signalling its enduring importance despite shifting political landscapes (HowTheyVote.eu, 2023). Moreover, as the EU enters a new institutional cycle, policy drivers such as the Letta Report and the Draghi Report underscore the CRMA's role in mitigating risks related to supply chain concentration, particularly vis-à-vis countries that adopt assertive strategies (Letta, 2024; European Commission, 2024c). These reports highlight the geopolitical and economic imperatives of reducing dependencies, safeguarding decision-making autonomy, and enhancing strategic partnerships. Against this backdrop, the CRMA has become not only an economic strategy but also a vital geostrategic tool to safeguard the EU's future, ensuring its competitiveness and resilience in the face of growing global challenges.

Given Serbia's proximity to the EU and its long-term ambition to become a member, it is likely to play a prominent role in the EU's overall efforts to secure its strategic objectives in the future.

Although the CRMA recognised the necessity to boost the EU's own capacities to extract raw materials, the EU cannot fulfil this task on its own. Namely, the CRMA aims to reduce Europe's dependency on non-EU countries by establishing a secure, diversified supply of critical materials. By non-EU countries, it is implied here that third parties have no EU membership perspective or have different strategic interests. In such a context, the EU has relied on its so-called raw materials diplomacy, by which it has formed partnerships with Argentina, Australia, Canada, Chile, the Democratic Republic of the Congo, Greenland, Kazakhstan, Namibia, Norway, Rwanda, Ukraine, Zambia, and lastly Serbia (European Commission, n.d.). In the case of Serbia, although still outside the EU, it is a candidate country whose strategic goal has been to attain membership in the Union and whose economy primarily depends on trade with the EU, investments from EU Member States, and the EU's pre-accession assistance. The reaffirmation of Serbia's status as a country aligned with the EU's worldview came with the signing, in July 2024, of the Memorandum of Understanding between the EU and Serbia on a Strategic Partnership on Sustainable Raw Materials, Battery Value Chains and Electric Vehicles (European Union and Republic of Serbia, 2024). Although this is a non-binding instrument setting out actions of mutual interest in relation to critical raw materials,[5] it was supposed to increase 'risk-sharing', thus sending an encouraging message to investors.[6] Given Serbia's proximity to the EU and its long-term ambition to become a member, it is likely to play a prominent role in the EU's overall efforts to secure its strategic objectives in the future.

In pursuit of that aim, the EU was expected to identify strategic projects in third countries – with Serbia, at the time, eyed as a likely top contender. Given that the time horizon for utilisation of this tool is labelled as 'short term', that is, one to three years,[7] this speaks volumes of their importance. In fact, the CRMA indicates that the European Commission, with the support of a special board consisting of Member States, is supposed to launch the call and assess the applications.[8] By August 2024, the European Commission had received 170 applications, spanning all the stages of the value chain, with 77 applications focused on extraction, 58 on processing, 30 on recycling, and five on substitution (European Commission, 2024a). While 70 per cent of the applications (121) were from within the EU, 30 per cent (49) were submitted from outside the EU. Fast forward to June 2025, the Jadar project was officially selected as a project of strategic importance to the EU. This designation qualifies it for 'support through relevant funds', aligning it with the CRMA's priority actions, which emphasise the need to 'support the diversification of supply chains'. The selection of the Jadar project signifies more than just an opportunity for economic collaboration – it also signals the EU's readiness to put its name and political capital on the line to ensure the project's success.

Serbia's perspective on lithium: Worth as much as oil or kryptonite?

The issue of lithium mining has rapidly become a defining issue on Serbia's political stage, marking a dramatic shift from a decade ago when Serbia first started EU accession talks. Although some environmental concerns were raised at the time – particularly in regard to air pollution, water pollution, and waste management – their mobilisation force was weak. It was only seven years after the negotiations began, in 2021, that the first major environmental protests took place, successfully forcing the Serbian government to annul the local spatial plan for the Rio Tinto project. Now, since the Constitutional Court ruled in July 2024 that the government's decree was unconstitutional, the project has resurfaced, allowing the government to continue with its original plans. Given the EU's involvement through its strategic partnership immediately after the Court's decision, a contentious debate was reignited within Serbia. It involved heated discussions involving government officials, opposition parties, civil society, academics, journalists, and environmental activists – that is, all relevant segments of society. In the meantime, the tragic deaths of 15 people in Novi Sad, Serbia's second-largest city, following the collapse of a canopy at the newly reconstructed railway station on 1 November 2024 shifted the spotlight away from the Jadar project. Despite Serbia continuing to face various challenges, some of which may impact the daily socio-political agenda, the issue of mining has become so prevalent that it is likely to remain one of the key political fault lines shaping the country's future.

From the government's perspective, the Jadar project has become one of the highlights of its consecutive terms in power. Facing significant resistance, the government backed down in 2022, essentially halting the project until June 2024, when the project was reinstated after the Constitutional Court deemed the government's original decision to halt the project unconstitutional. Readily accepting the Court's ruling, the government invested significant political capital to ensure no further disruptions took place. In fact, the government went on to compare the potential value of lithium for Serbia to that of oil for Saudi Arabia (Danas, 2024). The government further argued that, from a minimalist perspective, if the project is limited to the exploitation of lithium and other minerals, it will contribute approximately 1 per cent of the country's annual GDP (NIN, 2024). At the same time, from a maximalist perspective, it suggested that the entire endeavour could account for up to 16.4 per cent of GDP if the full value chain is realised, including lithium processing, cathode production, and battery manufacturing in partnership with various companies. Although there is no consensus on the figures, the overall message of those in favour of the project is that, with it, Rio Tinto would become the biggest taxpayer in the country and the Jadar project the biggest greenfield investment in Serbia's contemporary history, allowing Serbia to transform its economy in the years to come in preparation for future EU membership.

Neither the government's enthusiasm nor Rio Tinto's (see Box 1) is reciprocated by the opposition parties or by the majority of citizens (N1, 2024c). They have continued to express deep concerns about the ecological footprint of such a project, fearing the degradation of landscapes, water contamination, and long-term harm to local ecosystems. In that case, the mineral would amount to, figuratively speaking, kryptonite – the fictional mineral used to fight Superman. Interestingly, when Jadarite was first discovered in the Jadar valley in 2007, the scientific community indicated that this mineral coincidentally contains the same elements as kryptonite (News in Science, 2007). This symbolic association underscores broader uncertainty and fear that, much like kryptonite, the Jadar project could have harmful or even irreparable consequences that would far outweigh the economic benefits (N1, 2024a). In fact, some have even

Rio Tinto's perspective

Building on strong government support, Rio Tinto promotes the Jadar project as a potential win–win opportunity for Serbia and the company alike. According to Rio Tinto's estimates, the project, at full production, would annually yield approximately 58,000 tons of refined battery-grade lithium carbonate, 160,000 tons of boric acid, and 255,000 tons of sodium sulphate, positioning the company among the world's top ten lithium manufacturers (Rio Tinto, n.d.b). Over its projected 40-year lifespan, the mine is expected to produce a total of 2.3 million tons of lithium carbonate. With this extensive exploitation, Rio Tinto estimates a capital investment of at least €2.55 billion, on top of the €475 million already spent on preliminary studies, making Jadar the largest foreign direct investment project in Serbia's modern history (Rio Tinto, n.d.a). The company also highlights the project's economic benefits, including the creation of 1,300 permanent jobs and up to 3,500 temporary construction positions. Additionally, the company argues it plans to spend over €300 million annually on supplies, with 70 per cent sourced locally. Once fully operational, the company concludes, the project is projected to become one of Serbia's largest taxpayers, contributing over €180 million annually in taxes and royalties – approximately 1 per cent of the country's national budget revenue. In short, Rio Tinto projects an image as a company whose planned project will leave a positive mark on Serbia's economy and state budget.

gone as far as to completely dispute the economic promise of the project, showcasing that the revenues from the Jadar project would be negligible and thus calling for a halt to the project altogether (Radar, 2024). Given these reservations, this article outlines three contentious issues that deserve special attention: 1) the potential environmental risks posed by extraction, 2) widespread public mistrust in government institutions, and 3) concerns that the EU might reinforce stabilitocracy at the expense of democratic reforms. Each is examined in more detail in the next section, particularly as, if left unresolved, they could exacerbate existing tensions in the country.

Identifying Serbia's lithium-related challenges

Firstly, the potential environmental footprint of mining activities from the Jadar project remains a significant point of contention in the public discourse. As previously indicated, the proposed project has sparked public protests and social resistance, as many citizens worry that the extraction processes could lead to substantial ecological degradation, affecting landscapes, water sources, and local biodiversity. Given the proximity of the town of Loznica, there are also fears about how its population could be affected. Furthermore, concerns have been raised about the potential degradation from the Jadar project exacerbating the already high levels of pollution, particularly from other projects in 'black ecological spots' in Serbia, such as Bor and Smederevo (where China currently operates) (Radulović, 2022). In addition, many view Rio Tinto as a company with a dubious reputation stemming from incidents of malpractice in other parts of the world. For example, a 2020 Australian parliamentary inquiry required it to reconstruct, at its own expense, a 46,000-year-old Aboriginal cave system that it had blown up and to provide compensation accordingly (Parliament of the Commonwealth of Australia, 2020). Considering that Serbia is only 'moderately' prepared in the area of environment, as the European Commission noted in its 2024 annual report (European Commission, 2024d), these fears are likely to persist as long as the country struggles with enforcing environmental regulations and aligning policies with EU standards.

Secondly, local opposition to lithium mining reflects a broader tension stemming from the low trust in government institutions, a sentiment that has only intensified amid concerns over the lack of transparency and accountability in decision-making processes. As highlighted in the European Commission's annual reports, Serbia has practically stagnated in advancing key reforms in the rule of law area – despite engaging in accession talks for over a decade (Omeragić, Dimintrov, & Mitrović, 2024). Addressed under Cluster 1 (Fundamentals) in the EU accession negotiation process, the rule of law area encompasses areas such as judicial independence, anti-corruption efforts, the fight against organised crime, and freedom of expression – each of which has proven very challenging for Serbia. In fact, in 2024, Serbia's advancements on that front were very modest. For Chapter 24 (Justice, Freedom, and Security), its level of preparedness moved from 'some' to a status between 'some' and 'moderate'. However, for Chapter 23 (Judiciary and Fundamental Rights), Serbia remained at the 'some' level of preparedness.[9] Importantly, the same cluster encompasses the functioning of democratic institutions, with Serbia's track record being labelled as 'mixed'. Due to the persistent lack of necessary advancements in these areas, scepticism has grown among the public regarding the government's ability to manage large-scale projects such as lithium mining in a way that genuinely serves the public interest.

Finally, the potential economic benefits of lithium mining seem poised to flow primarily to foreign investors rather than to the communities most affected by its consequences. Notably, the guarantees provided by the European Commission and Germany have not produced the desired effect, even among Serbia's pro-EU population, who have started accusing the EU of 'neo-colonialism'. They warn that the EU will, for its own interests, turn Serbia into a dumping ground, while the government will profit from renewed external legitimacy. Such concerns are based on the belief that the established cooperation on lithium exploitation is yet another instance of the EU sacrificing its values in favour of strategic and economic interests (Ivković, 2024). This scepticism can be attributed to the perception that the EU has prioritised stability over democratic principles and genuine reforms in Serbia – a critique frequently voiced by the local think tank community and civil society in general (N1, 2024b). This phenomenon, often described as stabilitocracy, refers to a policy approach in which the EU supports stable yet semi-authoritarian regimes in the Western Balkans to maintain regional stability and reap other benefits, even when such governments show limited commitment to democratic reforms and the rule of law. Given these concerns, there is a real fear that the lithium project could unintentionally reinforce this stabilitocracy model by providing greater external legitimacy and financial backing to the Serbian government, further eroding democratic standards.

Conclusion and a way forward

The analysis of the EU's strategic direction and the identification of key concerns regarding the Jadar project have clearly outlined that Serbia's lithium reserves embody both a strategic opportunity and a complex challenge. On the one hand, there is a clear interpretation that integrating Serbia into the EU's critical materials supply chain could bolster the EU's autonomy in sourcing raw materials that are vital for its green transition and strategic autonomy while simultaneously fostering stronger economic ties that

might accelerate Serbia's EU accession process. On the other hand, any missteps in addressing the environmental and social concerns vis-à-vis lithium mining could erode local support for EU integration in Serbia, fuelling scepticism around both the EU's intentions and Serbia's role. In such a complex situation, the EU needs to strike the right balance between the necessity to meet its CRMA goals and maintaining its credibility and commitment to the rule of law and environmental standards in the eyes of Serbian citizens. Considering the key challenges identified here, the EU needs to tailor its response accordingly. The following represents a possible response to some of the concerns as the EU continues to engage with Serbia as part of its accession talks.[10]

The EU must recognise that concerns about environmental risks are so widespread and deeply entrenched that only a long-term strategy stands a chance of alleviating them. It is evident that the government of Serbia, if left to address this issue entirely on its own, is unlikely to succeed given its weak track record in tackling other 'black spots' across the country. While the 2024 strategic partnership signals the EU's commitment to the project, deeper and sustained involvement is required beyond the one-time reassurances the European Commission and Germany gave on the day the Memorandum of Understanding was signed. The EU should engage in continuous, transparent dialogue with citizens, clearly outlining its role, interests, and how it is tackling similar mining and environmental issues within its own borders. Additionally, since Serbia opened Cluster 4 (Green Agenda and Sustainable Connectivity) in 2021, the EU has a unique opportunity to assist the Serbian government in informing the public about progress in aligning with EU environmental standards. Member States with strong environmental records should support the Commission's efforts, showcasing how lithium exploitation is part of a broader EU vision for a sustainable, resilient, and independent Europe. Lastly, as the prospects of Serbia's accession to the EU still remain distant, the EU should clarify how it will hold Serbia accountable and ensure that it meets the highest environmental standards, particularly as it lacks the monitoring and enforcement mechanisms for a candidate country that it possesses for Member States. Engaging with all segments of society becomes even more crucial now that the Jadar project has been granted strategic project status under the CRMA.

Given the public's deepening mistrust in the government's ability to make responsible decisions and manage large-scale projects such as mining, as well as fears over stabilitocracy, it is crucial that the EU continues to emphasise the importance of the rule of law as part of Serbia's accession process. In the short term, the key way for the EU to support Serbia's democratic reforms is by strictly adhering to the conditionality principle outlined in the New Growth Plan for the Western Balkans, which is materialised through the Reform and Growth Facility. The Facility, covering the period from 2024 to 2027, allocates €1.6 billion to Serbia (one-third in grants and two-thirds in loans), with access to these funds contingent on the fulfilment of reforms across all clusters, particularly the Fundamentals, as set out in Serbia's Reform Agenda. The year 2025 presents a timely opportunity to test this commitment, as Serbia has already pledged to take specific actions by the end of 2024, including 1) organising a Working Group on the Coordination and Follow-up of Recommendations for Improving the Electoral Process, 2) conducting a meaningful audit of the voter register, and 3) re-electing the Council of the Regulatory Body for Electronic Media (REM), among others. In the long term, the EU should ensure that the conditionality principle is embedded, to the maximum extent possible, in the next instrument for pre-accession assistance as part of the EU's next multi-annual financial framework covering the period between 2028 and 2034. Both the short-term and long-term suggestions need to be part of a strategic approach to enlarge to the Western Balkans, which is why the EU will need to persist in implementing commitments that will sustain the enlargement policy at the top of its agenda.

The EU must recognise that concerns about environmental risks are so widespread and deeply entrenched that only a long-term strategy stands a chance of alleviating them. It is evident that the government of Serbia, if left to address this issue entirely on its own, is unlikely to succeed given its weak track record in tackling other 'black spots' across the country.

ANNEX 1

Critical raw materials as the EU's long-term objective: EU institutions' perspective

The adoption of the Critical Raw Materials Act (CRMA) in May 2024 stemmed from the sudden stark realisation that prolonged inaction had left the EU lagging while others secured dominance in critical resources. It took the COVID-19 pandemic for the European Commission to publish, in September 2020, a Communication on 'Critical Raw Materials Resilience: Charting a Path towards Greater Security and Sustainability'. Warning that 'the stakes are high', it highlighted that one of the lessons of the pandemic was the need to reduce dependency and strengthen diversity and security of supply. The pandemic acted as the initial shock, as the supply chains for essential medicines, as well as medical devices and equipment, were seriously impeded. For instance, China was the main EU partner for the import of face masks, supplying 92 per cent of this product in the first semester of 2020 (Eurostat, 2020). A year later, in November 2021, the European Parliament went in the same direction, adopting a Resolution on European strategy for critical raw materials (European Parliament, 2021). Building upon this economic logic, the Act emphasises that the EU 'relies heavily on imports, often from a single third country, and recent crises have underlined EU strategic dependencies' (European Commission, 2024b). To translate, the EU's dependence on systemic rivals such as China became evident, and the COVID-19 pandemic exposed how unprepared the Union was to face global challenges.

However, it was only after Russia's aggression in Ukraine that the EU started to accelerate its work on this issue. With the outbreak of the war, the Union's energy dependence on Russia became all the more exposed, limiting the EU's capacity to take effective action.[11] In fact, in March 2022, just two weeks after the war started, EU leaders adopted the Versailles Declaration, highlighting the importance of reducing 'strategic dependencies', identifying critical raw materials, and securing strategic partnerships as means to obtain them (European Union, 2022). As a response, six months later, the CRMA was announced by European Commission President Ursula von der Leyen in her 2022 State of the Union speech, where she highlighted that 'lithium and rare earths will soon be more important than oil and gas' (Von der Leyer, 2022). Having listed lithium among the key critical raw materials, the CRMA was put into effect in May 2024. In line with it, all Member States have committed to the 2024–2029 Strategic Agenda, stating the necessity to 'reduce harmful dependencies and diversify and secure strategic supply chains' (European Council, n.d.). Moreover, in her speech on her second administration's programme in November 2024, Von der Leyen clearly stated that critical raw materials are vital to reinforcing economic security, defined as one of the pillars of the newly introduced 'Competitiveness Compass' (Von der Leyen, 2024).[12] With the consensus among all EU institutions on the importance of critical raw materials, the CRMA has become a landmark piece of EU legislation with the ambition to strategically redefine the EU's global outlook.

The EU's newly adopted policy outlook is here to stay. Some concerns arose regarding the EU's future direction in the aftermath of the European Parliament elections in June 2024, given that European citizens voted in favour of moving the EU towards the right of the political spectrum. Although a more right-leaning European Parliament might face more hurdles to adopt policies envisioned by the established political groups, the implementation of the CRMA will not be among those policies. The analysis of votes for the CRMA indicates that it has received overwhelming support from all but one political group despite the many ideological and policy differences between them (HowTheyVote.eu, 2023). Among those supporting the CRMA were the European People's Party (EPP), Progressive Alliance of Socialists and Democrats (S&D), and Renew Europe (RE), which even committed in their Cooperation Statement to 'enhance competitiveness in strategic industries' (EPP, S&D, & RE, 2024). Beyond mainstream groups, the CRMA was also supported by the Greens/European Free Alliance (G/EFA), European Conservatives and Reformists (ECR), Identity and Democracy (ID), and even the Non-attached members (N/A). The only exception was the Left, the smallest political group, which demonstrated varying voting approaches, with 47 per cent of the group voting against, 34 per cent abstaining, and 19 per cent voting in favour. Consequently, the breakdown of all votes on the CRMA is as follows: 515 MEPs in favour (89 per cent), 34 against (6 per cent), and 28 abstentions (5 per cent). This alignment indicates that the consensus on the CRMA is one of the rare instances where different political groups share the same view, indicating that its future is promising and resistant to internal changes of political constellations.

ANNEX 2

Economic and political logic of critical raw materials: A policy driver's perspective

Given that some lessons have been learnt, and political consensus has been generated, important contemporary policy drivers in the EU indicate in their work that the CRMA now needs to be used as a springboard for decisive action as the EU enters a new institutional cycle. Namely, the Letta Report states that the CRMA represents 'a pivotal move' to acknowledge and mitigate risks stemming from the fact that value chains of critical raw materials, including lithium, are significantly concentrated (Letta, 2024). As China is labelled as a country that is adopting 'assertive strategies', Letta calls for prompt implementation of the CRMA to ensure that the EU's diversification activities are effective. One way of doing so is by 'leveraging its collective purchasing power' through a mechanism for the joint procurement of critical materials. Similarly, the Draghi Report warns of Europe's notorious exposure to any 'sudden stops' in trade caused by ongoing geopolitical shifts (European Commission, 2024c). With 40 per cent of Europe's imports sourced from a small number of suppliers, half of which are not strategically aligned with the EU, there is a risk of price volatility, which could hamper investment decisions and even push investors to scale up production in countries such as China. Currently, this Asian giant has the most extensive array of export restrictions on critical raw materials, involving bans, quotas, and export taxes, causing further risk of higher prices in the future. It is also the third-largest extractor of lithium (after Argentina and Chile), and the biggest processor of this material. Hence, the EU's sustainable development will depend on effectively meeting the CRMA's benchmarks in the years to come.

While the economic logic of the CRMA is vital, the equally important – perhaps even more crucial – aspect is the political imperative of safeguarding decision-making autonomy. This is evident in both the Letta Report and the Draghi Report, which strongly emphasise that the EU's severely restricted access to critical raw materials is creating a real risk of dependencies on the EU's political decisions being dubbed down by its economic vulnerabilities. The more immediate risk for Europe is that dependencies could be exploited to create opportunities for coercion, making it harder for the EU to maintain a united stance and undermining its common policy objectives. A growing use of dependencies as a 'geopolitical weapon' is, in turn, likely to increase uncertainty and have a detrimental effect on business investment. That is why, for instance, the Draghi Report encourages both opening domestic mines and maximising the use of strategic partnerships with strategically aligned third countries. The Letta Report goes on to insist on the necessity of introducing 'reshore or friend-shore' critical production inputs as part of the EU's de-risking of its ongoing cooperation with 'rival partners'. Such interpretations indicate that the CRMA is more than just a tool for economic development; rather, it is a vital strategic tool whose effective implementation is intended to transform the EU by making it better prepared to face the increasingly complex challenges of the twenty-first century.

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ARTICLE

Powering a New World Order?

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These things happened.
They were glorious and they changed the world ...
and then we fed up the end game.***
— Charlie Wilson's War

The eternal battle: from Pericles to Zelenskyy

Thucydides' (460–395 bce) masterpiece *History of the Peloponnesian War* is required reading in many classes on international relations, strategy, and security studies. The importance of this Greek classic has once again become evident in the twenty-first century, when interstate wars, overt and covert means of coercion, and pandemics have disrupted societies' normal way of life. Thucydides interrupted his account of the Peloponnesian War to describe the famous Plague of Athens, which occurred at the start of the summer in 430 bce (Martin & Martin-Granel, 2006). The plague affected not only the war but also the development of the city (city-state) and influenced the history of Athens, resulting in the defeat of the Athenian democracy by the Spartan oligarchy (Kelaidis, 2020). This historical event clearly shows that many interdependent events and processes affect the trajectory of countries and societies, triggering wars and shaping peace; but it also features almost all the components that today we call critical infrastructure – governance (democracy vs oligarchy), ports, public health, city-state infrastructure, safety, and so forth – and their resiliency is translated into the degree of national resiliency.

The post-Second World War rules-based liberal world order brought significant benefits to societies in the form of economic prosperity and security and opened new opportunities, powering the process of globalisation. At the same time, the risks and challenges posed by global disruptive events became

internationalised, characterised by a highly complex interdependency (World Economic Forum, n.d.). Since Russia's second invasion of Ukraine in 2022, both sides of the axis – democratic nations and revisionist authoritarians – have been drawing their own lessons and adjusting their strategies. Ukraine's resistance against the Russian invasion will go down in history as a shining example of bravery, but once the war approaches its conclusion, the primary goal of the Ukrainians, and of the democratic world, should be to play the endgame in a way that will lay the foundation of a new, more peaceful and stable world order.

Ukraine's resistance against Russia, backed by the democratic world and reinforced by sanctions, has depleted Moscow's resources. Yet, with China's help, Russia continues to wage a war of attrition.

The energy of geopolitics: chain reaction

Over the past two decades, authoritarian regimes have consolidated their anti-democratic alliance, promoting a world order centred on 'spheres of influence', and adopted an aggressive stance. Putin made this clear at the 2007 Munich Security Conference (Fried & Volker, 2022), and he fired the first salvo in 2008 by invading Georgia, triggering a geopolitical chain reaction. This invasion was followed by military actions against Ukraine in 2014 and 2022. China has, directly or indirectly, supported these moves, bringing the ongoing struggle between democracy and autocracy to a critical juncture where the existing rules-based world order has been irreparably undermined, and the contours of the emerging global order are not yet clear and will depend on how the war ends. This struggle is not only ideological but also driven by the geography and resources of the so-called world island,[13] where the authoritarian regimes of Russia and China are positioning themselves to gain the upper hand in order to 'control the world', as Mackinder wrote decades ago. The contested geographic area largely covers the South Caucasus and Central Asia, where Russia's concept of Eurasianism, a modern iteration of the USSR, mostly aligns with China's global security and development initiatives.

Ukraine's resistance against Russia, backed by the democratic world and reinforced by sanctions, has depleted Moscow's resources. Yet, with China's help, Russia continues to wage a war of attrition. Meanwhile, the prolonged conflict in Eastern Europe has fostered isolationist sentiments in the West, creating an opportunity for China to expand its influence over Central Asia. China is slowly usurping Russia's political and economic clout in the Central Asia and Caucasus region, securing unchallenged access to its vast strategic resources in critical minerals, including rare earth metals.

The South Caucasus and Central Asia is the seventh-largest region in the world by territory, comparable in size to the European Union, with Kazakhstan being the largest country. Although its population is relatively small, at 100 million, the region's nominal GDP of around $640 billion places it among the world's top 25 economies. It is also one of the richest regions in terms of natural resources, producing 54 per cent of the world's uranium, 6 per cent of its gas, 3.5 per cent of its oil, and 2.5 per cent of its gold, along with significant deposits of rare earth metals and other strategic minerals. The region also has the largest arable land area globally after the US, Russia, and Ukraine.

These resources sustained the Soviet Union's ultimately unsustainable economic model for 70 years. Today, Russia continues to benefit from this legacy, using its geographic and logistical dominance to wield influence. Beyond its predatory hydrocarbon policies, issues such as nuclear energy, strategic minerals, and wheat production remain critically important. Nearly all Central Asian uranium is processed in Russia for the Rosatom supply chain, which generated $19 billion in 2021.

Today, transparent, market-based access to the resources of the Caucasus and Central Asia is vital for the Western and global agenda, including energy security, decarbonisation, access to strategic materials, microchip production, military industry, and supply chain diversification. This context forms the economic foundation for Western strategic engagement.

Photo by Polina Tankilevitch on Pexels

In 2022, the EU and the five Central Asian nations expressed their commitment to developing sustainable connectivity between Central Asia and the EU. At the COP27 conference in Egypt in November 2022, European Commission President Ursula von der Leyen signed a memorandum of understanding with the Kazakh prime minister on establishing a 'strategic partnership' between the two sides (European Commission, 2022; Romano, 2022). Kazakhstan has the capacity to supply all 30 critical raw materials that the EU needs (European Commission, n.d.).

In April 2024, UK Foreign Secretary David Cameron visited all five countries in Central Asia in an attempt to increase engagement with this pivotal region. Cameron was the first British foreign secretary to visit Kyrgyzstan, Tajikistan, and Turkmenistan and the first to visit Uzbekistan since 1997 (Gov. UK, 2024). His visit followed the release of a UK Parliament report titled 'Countries at Crossroads: UK Engagement in Central Asia', which called deepening ties 'a geopolitical imperative' (Rickleton, 2024).

Geopolitical interests and strategic resources could be realised through the development of secure, stable, and reliable logistical access to the 'Eastern European gateway to the Eurasian landmass', a concept tied to strategic connectivity between the Black Sea and the Caspian Sea. Russia and China will continue to exert their disruptive influence over these connections, with the Black Sea region being a primary target. Control over strategic infrastructure, such as the Anaklia Deep Sea Port, awarded to a controversial Chinese company by Georgia's pro-Russian government, is a clear example (Standish & Pertaia, 2024; The Economist, 2024).[14]

Georgia is a critical missing piece in this strategic puzzle. In the absence of robust Western policy, Russia has already made significant advances by undermining Georgia's democratic credentials and altering its pro-Western foreign policy (Gavin, 2024). The joint pre-war ultimatum from Russia and China included a demand for the West to abandon its goal of integrating Ukraine and Georgia into European and Euro-Atlantic structures (President of Russia, 2022).

Georgia's strategic importance cannot be overstated. As a vital middle corridor for trade, energy, and access to the critical minerals of Central Asia, it offers an alternative to routes dominated by Russia and China. The Black Sea region is central to Euro-Atlantic security, and Georgia hosts its eastern gateway.

The legacy of distrust between Western investors and regional governments, as well as between the governments themselves, poses significant challenges. Western political and financial commitment, coupled with high-profile strategic engagement, could help regional governments align their policies and implement reforms to attract new investors. US leadership along with EU strategic engagement could play a decisive role in overcoming these challenges (Shaheen, 2022). The West's strategic interests are about ensuring energy security, advancing the green economic transformation, and securing access to critical resources.

Transparent investments in infrastructure, alongside necessary security arrangements, could create a more prosperous, peaceful, and secure global order, countering Sino-Russian authoritarian influence over the 'heartland' and establishing a sustainable, rules-based international system.

Lessons from Ukraine: resilience, resilience, resilience

The many geopolitical challenges currently posed by authoritarian regimes to democratic societies include those above and below the threshold of open military confrontation. An effective response to those challenges requires a holistic understanding of the threats and challenges, and the highest possible interoperability with partner democracies. This can be achieved by implementing thorough reforms, modernisation, and adaptation of governance and policymaking institutions coupled with strong security arrangements. Such resilience will depend on the democratic reformation of the state and security guarantees. This is not a finite process but rather a constantly evolving and irreversible one, whether in peacetime or wartime. The war in Ukraine has highlighted that resilience is more than a national issue. Interconnected critical infrastructure creates a chain reaction effect on a global scale.

Critical infrastructure comprises the systems, assets, facilities, and networks that provide essential services for the functioning of the economy and the safety and well-being of the population.[15] According to the OECD classification, there are ten principal critical infrastructures to consider: government, finance, energy and utilities, health, manufacturing, safety, transportation, food, information, and communication. The disruptions of the twenty-first century have made clear the necessity of a proper understanding of the key critical infrastructure, the risks associated with them, and, most importantly, the complex interdependence of those infrastructures, which challenges economies and especially societies. The biggest challenge is the interdependence of these critical infrastructures and the cascading effect of disruptions, leading to further crises.

Resilience can be defined as the capacity of critical infrastructure to absorb a disturbance, recover from disruptions, and adapt to changing conditions while still retaining essentially the same function as prior to the disruptive shock (OECD, 2014). This definition includes the ability to withstand shocks with as little loss of functionality as possible under specific circumstances, limiting the duration of potential service interruption by

minimising recovery time, and adapting to new conditions and improving systems' functionality (Chang et al., 2014).

The resilience shown by Ukraine since Russia's full-scale invasion on 24 February 2022 did not emerge from a vacuum. Following Russia's aggression and annexation of Crimea in 2014, the Ukrainian state and government failed to demonstrate any resilience against Russian aggression. Five months before the 2022 invasion, on 21 September 2021, President Volodymyr Zelensky approved the concept of introducing a national resilience system. This concept was fully in line with NATO's baseline requirements on resilience and mandated a whole-of-government approach (Roepke & Thankey, 2019). When Russia invaded, it targeted civilian infrastructure, especially energy infrastructure, affecting not only Ukrainian energy security but also that of Europe as a whole.

Ukraine's power system is in the midst of one of the greatest trials in human history. It has already survived 31 Russian onslaughts since February 2022. Of this unprecedented number, 13 missile and drone attacks took place in 2024 (Derentz et al., 2025). According to officials, more than 2,000 missiles and countless drones have targeted Ukrainian power plants and high-voltage substations since the beginning of the full-scale war. Ukraine has sought to make its energy supplies resilient by focusing on physical protection, back-up plans, and decentralised power grids, both internally and across borders. Particular emphasis has been given to its nuclear power plants, which have been repeatedly targeted by Russian attacks and have been used to blackmail Ukraine's Western allies.

Ukraine's energy infrastructure has long been identified by NATO as the primary target of Russian overt and covert operations. The NATO Energy Security Center of Excellence in 2020 pointed to energy blackmail as one of the main weapons in Russia's hybrid warfare against Ukraine and Europe due to its high degree of interdependency. Russia's direct use of the energy sector as a weapon in the pre-crisis period (up to 2014) contributed to the inclusion of the energy dimension in the present concept of hybrid warfare. During the period between 2014 and 2017, a series of energy-related events led to internal disruptions in Ukraine.[16] After the 2022 invasion, Ukraine delinked from the Russian electricity grid and switched to integration with the European transmission infrastructure. As was predicted, Russia's military then launched devastating airstrikes against energy infrastructure. As a result of the targeted missile attacks, 60 per cent of the electricity generation and transmission capacity has been damaged. More traumatic still are the human losses among power network personnel. In the first year of the Russian invasion of 2022, one of the largest private electricity generating companies has lost 136 employees, 328 have been injured, 25 have gone missing, and four are being held prisoner[17].

Ukraine has receiving a significant amount of aid from the United States, valued at $897 million (for generators, gas turbine power plants, and transformers). The EU's Ukraine Energy Support Fund has already contributed $182 million. The Ukrainian government has committed $270 million towards the restoration and preparation of the country's energy infrastructure for the forthcoming winter. Synchronisation with the European grid has created a solid base to rebuild more resilient energy infrastructure. Commercial cross-border capacity is now 700MW, but there are plans to increase it to 1,500MW with the synchronised European system and to add another 1,000MW of capacity on an isolated line to Poland. For this further reforms and energy diplomacy steps are to be implemented.

Considering the terrorist tactics Russia used at the Kakhovka Dam hydroelectric power plant and the Zaporizhzhia nuclear power plant, the likelihood of Russia repeating its tactics in the upcoming winters or critical moments of the war could be well predicted[18]. While mitigating the immediate effects of the war, Ukraine is also looking towards a more sustainable future. The country aims to build a resilient, decentralised, renewable energy grid, which would offer increased energy independence and resilience. At the policy level, Ukraine has combined emergency measures like rolling blackouts and infrastructure repairs with long-term reforms, including grid interconnections and renewable energy legislation aligned with EU standards. These changes, backed by international partners, point to decentralization and clean energy as core pillars of resilience [19].

Since the beginning of the war US has supported Ukraine with comprehensive energy programs, including U.S. Department of Energy's National Renewable Energy Laboratory (NREL) program, which is providing tools and technical support to Ukraine to realize a resilient, decentralized, renewable energy grid.[20] To further advance and modernize Ukraine's nuclear energy capabilities, The United States and Ukraine Announce Partnership on Leading Edge Small Modular Nuclear Reactor Projects at COP29.[21] On Wednesday, April 30, 2025, the United States and Ukraine signed a long-awaited deal (so called Minerals Deal)[22] to establish a joint investment fund for the reconstruction of Ukraine[23]. Reconstruction and modification of the energy infrastructure is the key part to implement this deal.

This short synopsis of Ukraine's energy reform agenda and energy diplomacy could be translated into a broader blueprint for European energy security, putting energy at the centre of the new European security architecture – and its holistic resilience strategy.

The geopolitics of energy: 'split-baby-split'

Besides military tools and hard coercion, Russia has tested separately and jointly its tools of hybrid warfare by weaponising every component of its relations with the West. Energy has become one of the primary targets of this warfare, since hydrocarbons were a major source of revenue for Russia, with which it funded both conventional war and other domains of hybrid warfare – including corruption and propaganda.

Europe's energy policy and relevant infrastructure were not prepared for this scenario and, more importantly, were not resilient and agile enough to be able to address the challenge and swiftly adapt in accordance with its economic, political, and strategic interests. In the third year of the war, EU imports of Russian fossil fuels surpassed the amount of financial aid it sent to Ukraine (CREA, 2025). Despite a range of sanctions and the threat posed by dependence on Russian energy, since the beginning of the war, EU imports of Russian fossil fuels remain largely unchanged, totalling €21.9 billion, a 6 per cent year-on-year drop in value but merely a 1 per cent year-on-year drop in volume.

Besides military tools and hard coercion, Russia has tested separately and jointly its tools of hybrid warfare by weaponising every component of its relations with the West. Energy has become one of the primary targets of this warfare.

By targeting Ukrainian energy infrastructure, Russia is maintaining its ability to increase energy prices in Europe (Eruygur, 2025). Similarly, Russia has launched its proxy energy wars with the EU in countries where it has political goals and has already deployed an enabling network to alter their pro-Western democratic choices. Moldova is a good example. After the decision by Kyiv to stop the transit of Russian gas through Ukraine, Gazprom, without exploiting alternative routes such as the Trans-Balkan pipeline, unilaterally cut off supplies to Transnistria, a Russophile breakaway state of Moldova that proclaimed itself a republic in 1990, leaving the region's more than 350,000 inhabitants without light and heat (De La Feld, 2025). The EU has allocated €250 million in aid. These are emergency measures, but they will not solve the problem for the foreseeable future. Strategic policy should be focused on making the energy network adaptable to existing hybrid warfare challenges, increasing the resilience of critical infrastructure, and powering the next-generation digital economy. Therefore, the EU's new energy strategy goal should be to minimise the toxic interdependencies on fossil energy resources by diversifying sources, with a strong emphasis on fissile energy ('split-baby-split'). A recent survey of insights from leading industry, civil society, and government voices and relevant essays from across sectors by the Atlantic Council (n.d.) has revealed several interesting findings:

1. ***The Black Sea region and geopolitical and energy security challenges***
   The continuation of Russia's war in Ukraine is a major geopolitical risk (26 per cent of respondents identified it as a primary threat). The Black Sea region remains a critical battleground for energy security due to Russia's influence over energy transport routes.

   The EU's energy vulnerability persists as Russian fossil fuel exports continue despite sanctions. Securing alternative energy transit routes through the Black Sea is crucial.

2. ***The future of nuclear energy in the EU***
   Nuclear energy is expected to see increased investment in 2025, with 11 per cent of respondents selecting it as a priority sector for growth, a rise from the previous year.

   Small modular reactors (SMRs) are gaining traction, with respondents acknowledging their role in providing a stable baseload for the EU's energy transition.

3. ***Anticipations for energy transition and security***
   The EU's net-zero transition faces political and financial barriers, with 61 per cent of respondents citing lack of political will and 53 per cent mentioning rising costs as major obstacles.

   Natural gas remains significant but is losing its dominance, with 48 per cent of respondents stating that gas will serve as a bridge fuel, with demand decreasing over time.

   Hydrogen and energy storage investments are accelerating, with hydrogen investment ranking higher than fossil fuels in future energy priorities.

These findings highlight the EU's need for alternative energy diversification, stronger energy security measures in the Black Sea region, and sustained investment in nuclear and renewables to counter geopolitical and economic risks.

Policy recommendations for shaping the future

1. ***Geopolitical outreach beyond EU borders: the EU–Central Asia energy corridor.*** To reduce dependency on Russian energy and diversify energy routes, the EU should develop a new strategic energy corridor linking Central Asia, the Caucasus, and the Black Sea with European markets.

    - Build strategic pipelines and interconnectors. Expand the Southern Gas Corridor to incorporate Turkmenistan and Kazakhstan via Azerbaijan and Georgia. Support Azerbaijan–Georgia–Romania (AGRI) liquefied natural gas (LNG) projects to transport Caspian gas to Europe.

    - Create an EU–Caucasus energy pact. Offer long-term investment to Georgia and Azerbaijan to modernise their energy infrastructure. Strengthen bilateral agreements with Uzbekistan and Kazakhstan for uranium supply and energy partnerships.

    - Secure critical minerals for renewables and nuclear. Secure lithium, uranium, and rare earth elements supply from Central Asia to support EU energy projects. Invest in processing facilities within the EU to ensure independence from China.

    - Expand NATO energy cooperation in the Black Sea. Increase naval patrols and real-time intelligence-sharing to secure energy transit routes. Develop a joint EU–Turkey security framework to protect offshore and pipeline assets in the Black Sea.</BL>

2. ***The EU Nuclear Resurgence Initiative ('split-baby-split').*** A three-pronged approach is needed to accelerate SMR deployment and next-generation nuclear reactors.

    - Fast-track SMR licensing and deployment. Implement a standardised regulatory approval process across EU Member States to streamline licensing. Establish regional SMR clusters in countries with strong nuclear experience.

    - Create an EU–NATO nuclear energy security framework. Enhance nuclear cybersecurity protections to prevent Russian and Chinese cyberattacks. Coordinate nuclear supply chain resilience plans with NATO for energy infrastructure defence.

    - Accelerate public–private investment. Launch SMR pilot programmes with private partners (e.g., Rolls-Royce, Westinghouse, NuScale). Provide sovereign loan guarantees for nuclear projects to lower capital costs.

3. ***The European Energy Investment Accelerator. In order to expedite clean energy investments, reduce bureaucracy, and attract private capital, the EU must implement the following measures.***

    - Set up a one-stop investment platform. Establish the accelerator as a central clearinghouse for nuclear, renewables, and grid projects. Streamline permitting to ensure a maximum 12-month approval period.

    - Create an EU Energy Security Fund. Pool €300 billion in funding from the European Investment Bank, private investors, and green bonds for the next 15 years. Provide direct investments towards SMRs, offshore wind, hydrogen hubs, and grid expansion.

    - Design risk-sharing mechanisms for private investors. Implement state-backed risk insurance for private nuclear and energy infrastructure projects. Expand long-term energy purchasing agreements to provide revenue certainty.

    - Accelerate public–private partnership infrastructure development. Prioritise cross-border energy projects under simplified procurement rules. Create fast-track investment zones near industrial clusters to enable rapid project deployment.

4. ***(NATO+) and (EU+) Energy Shield Initiative.*** As energy infrastructure is increasingly targeted (cyberattacks, sabotage, hybrid warfare), NATO and the EU must integrate energy security into defence planning including non-NATO and non-EU democracies.

    - Establish a NATO Energy Security Command. Develop real-time intelligence-sharing between NATO, the EU, and energy companies. Deploy rapid response teams and uncrewed platform capabilities to counter cyber and physical attacks.

    - Harden EU energy infrastructure against hybrid threats. Invest in drone detection and anti-sabotage measures for pipelines, LNG terminals, and power grids. Deploy AI-powered energy grid monitoring to detect cyber intrusions early.

    - Pursue naval security operations for LNG and oil transit routes. Expand the NATO naval presence in the Black Sea and Mediterranean to protect tankers and pipelines. Conduct joint EU–NATO energy security drills simulating cyber and kinetic attacks.

    - Develop a strategic energy infrastructure reserve. Create a shared NATO–EU stockpile of emergency transformers, cables, and repair equipment for rapid response to attacks.

5. ***Transatlantic Strategic Minerals Pact (Strategic Minerals Alliance).*** In order to secure uranium enrichment and reduce reliance on Russia, increase access to the strategic minerals of Ukraine and Central Asia, share mining and processing technologies, and streamline the secure supply chains, the US and EU must rebuild a resilient nuclear fuel supply chain.

    - Ban Russian nuclear fuel by 2026. Implement a full embargo on Russian uranium enrichment services. Secure supply from Australia, Canada, Kazakhstan, and the US to replace Rosatom's role.

    - Expand EU–US uranium enrichment and reprocessing facilities. Restart Western-controlled enrichment projects (Urenco, Orano, Centrus) to reduce dependence on Russian technology. Fund advanced reprocessing facilities to recover spent fuel and boost self-sufficiency.

    - Rebuild Europe's enrichment capacity. Increase Urenco and Orano's enrichment output by 50 per cent to cover EU energy demands. Establish joint US–EU financing for a next-generation enrichment facility in Europe.

    - Secure new fuel supply chains for SMRs. Invest in **HALEU (high-assay low-enriched uranium) production to ensure the viability of next-generation SMRs. Create strategic uranium stockpiles in EU Member States to withstand future supply disruptions.

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ENDNOTES

Section 1

1 The EU's Critical Raw Materials Act sets a range of targets, including:

- For extraction: at least 10 per cent of the EU's annual consumption of CRMs should be sourced domestically;
- For processing: at least 40 per cent of CRMs should be processed within the EU;
- For recycling: at least 2 per cent of CRMs should be obtained through recycling;
- On import diversification: no more than 65 per cent of the EU's annual consumption of any strategic raw material should be sourced from a single third country.

2 https://lkab.com/en

3 https://erma.eu.

4 The views expressed in this work are the author's own and do not express in any way whatsoever the opinion of CEP or the European Liberal Forum (ELF), who is publishing the article.

5 The Critical Raw Material Act (CRMA), Regulation (EU) 2024/1252 of the European Parliament and of the Council of 11 April 2024 establishing a framework for ensuring a secure and sustainable supply of critical raw materials and amending Regulations (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1724 and (EU) 2019/1020, 2024, article 2.63.

6 CRMA (65).

7 For a summary of CRMA priority actions, see European Commission (2024c, Part B: 57).

8 CRMA (16).

9 For illustration, the levels of preparedness are labelled as follows: (1) Early stage of preparation, (2) Some level of preparation, (3) Moderately prepared, (4) Good level of preparation, and (5) Well advanced.

10 The steps outlined for addressing the challenges are not intended as an endorsement of lithium mining itself but rather as a framework to ensure that, should lithium extraction proceed, the EU effectively addresses the societal concerns associated with the project.

11 Despite the adoption of many sanctioning packages, EU Member States continue to import Russian oil in large quantities.

12 As the world becomes increasingly polarised, and the EU is expected to be shrugged off by the United States under the Trump 2.0 administration, there is a danger of supply disruption.

13 'Who rules East Europe commands the Heartland; who rules the Heartland commands the World-Island; who rules the World-Island commands the world' (Halford J. Mackinder, Democratic Ideals and Reality, p. 113. 1942).

14 https://www.rferl.org/a/Anaklia-China-georgia-companies-port/32974215.html

15 While definitions of critical infrastructure differ across countries, this definition is not prescriptive and aims to encompass the largest set of definitions identified in the OECD Survey on Critical Infrastructure Resilience (OECD, 2019).

16 https://www.enseccoe.org/publications/hybrid-warfare-against-critical-energy-infrastructure-the-case-of-ukraine/

17 https://cepa.org/article/ukraine-energy-grid-resilience-continues-despite-invasion/

18 https://www.ukrinform.net/rubric-economy/3700156-president-zelensky-we-preparing-our-energy-sector-for-next-winter.html

19 https://rasmussenglobal.com/report-resilience-under-fire-how-ukraines-energy-sector-is-adapting-and-what-it-means-for-europe/

20 https://www.nrel.gov/news/detail/features/2023/ukraine-fights-to-build-a-more-resilient-renewable-energy-system-in-the-midst-of-war

21 https://2021-2025.state.gov/the-united-states-and-ukraine-announce-partnership-on-leading-edge-small-modular-reactor-projects-at-cop29/

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23 https://home.treasury.gov/news/press-releases/sb0126

SECTION 2

Strategic sectors

ARTICLE FROM THE INDUSTRY

Europe's Strategic Opportunity in Quantum Computing

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In an era of intensifying global competition over critical resources, quantum computing is a strategic frontier. Like energy or AI, quantum technologies are now recognized as a geopolitical asset, most recently highlighted at forums such as the G7 in Canada, where leading nations underscored their importance for economic growth, security, and digital transition.

The European Union is right to place quantum at the heart of its technological agenda, as highlighted in the Draghi report and the Commission's recently published Quantum Technology Strategy. Quantum computing, in particular, holds the potential to radically transform industries by unlocking advances in materials science, drug discovery, energy, and secure communications. But it also presents new risks, including to cybersecurity and global technological dependencies. To secure its place in this rapidly evolving field, the EU must sharpen its focus, strengthen its comparative advantages, and invest strategically in targeted partnerships and ecosystems. The new EU strategy includes the right elements to enable this focus and leadership, and the Commission and Member States will now need to turn to effectively implementing it. Here, I provide more context, as well as recommendations, with a specific focus on quantum computing.

State of the Field. Quantum computing is no longer just a niche research topic, but a matter of international strategic competition. China, the United States, and Europe have each committed billions in public funding. Private sector players, including Google Quantum AI, are making significant progress. In 2019, our team demonstrated that quantum computers can outperform classical ones on a benchmark task. More recently, with our 105-qubit Willow chip, we reached a new milestone: executing a similar benchmark task in minutes that would take today's best supercomputers longer than the age of the universe, and demonstrating "below threshold" quantum error correction, a decades-long problem for the field critical to real-world applications. These advances show that building a useful quantum computer is no longer a speculative ambition but a real, if enormously complex, engineering challenge. We believe the most transformative quantum applications will come once large-scale, error-corrected quantum computing systems exist, likely around 2030 or later. In the meantime, global players are positioning themselves for leadership not only in hardware, but in applications, software, standards, and talent.

Europe's Strengths and What Must Come Next. Europe has long been a global leader in quantum research. Its universities and research institutions are among the best in the world. Public funding is

robust, second only to China in announced funding scale. The EU also boasts a growing number of startups and quantum suppliers, and it is home to key industries where quantum computing could deliver early value, including in chemicals, pharma, automotive, and financial services.

These strengths must now translate into coordinated, long-term strategic advantage. As a complex and emerging field, quantum computing demands significant investment and a wide range of expertise - ***no single nation or organization can dominate every aspect of this technology or develop it alone.***

Developing and building the first large-scale quantum computer will cost billions of euros. With several promising qubit technologies in the running, the total investment in hardware will likely be much higher. The industry also relies on a global supply chain for specialized components and extends beyond hardware to include crucial software and application development, where most long-term economic benefits are expected (as it has been for classical computing). Europe cannot lead in quantum computing by doing everything everywhere. Instead the EU should double down on areas of strength, and foster strategic partnerships to complement these strengths. Alongside continuing support for broader R&D in quantum, we suggest the following focus areas, which also align with wider geopolitical imperatives:

With the right policies and partnerships, Europe can secure its place as a global quantum leader driving innovation, resilience, and prosperity for decades to come.

1. Developing a quantum-ready workforce
2. Strengthening the quantum supply chain
3. Investing in applications, particularly for fault-tolerant systems
4. Focused R&D in areas of strength, such as quantum computing applications and quantum communication and networking (which will be relevant for scaling quantum computing)

Workforce. The shortage of quantum-specific and digital skills is perhaps the most acute challenge facing the EU quantum ecosystem, and necessitates a coordinated, long-term approach involving enhanced education and multi-stakeholder collaboration to build a sustainable talent pipeline.[24] A comprehensive approach to address this should include:

- Expanding undergraduate and postgraduate programs in quantum technologies, especially in interdisciplinary fields beyond physics and computer science, and in fields that can complement supply chain and applications/ software development, outlined below.
- Targeted efforts to include top talent from historically underrepresented communities in education and training.
- Supporting technician-level training for fabrication, cryogenics, and facility operations, which are critical for scaling quantum hardware, including the hardware supply chain.
- Broadening early engagement through programs targeting school-age students.
- Streamlining visas and attracting global talent, especially for areas where Europe faces critical shortages.

These programs must be aligned with industry needs to accelerate progress in the field, and assessed for impact. Institutions like the European Quantum Readiness Center can play a vital coordination role.

Supply Chain. Quantum supply chains are still in their infancy. Europe is strong in key areas like dilution refrigeration, laser systems, and cabling. But it relies heavily on imports for essential components such as helium-3, FPGAs, and cryocoolers. The goal should not be self-sufficiency that is neither feasible nor desirable— but strategic autonomy ***through resilient interdependencies***. Recommendations include:

- Mapping and identifying chokepoints in the European and global quantum supply chain.
- Investing in upstream suppliers, including SMEs, to scale capacity and reduce costs.

- Establishing government-led testbed facilities for early vali-dation and standardization of components.

- Coordinating with like-minded partners (e.g., US, UK, Japan, Australia) on critical technologies and export security.

The EU should also engage early in quantum benchmarking and standards-setting, especially as global competition in hardware architectures accelerates.

Investing in Applications. Much public focus is currently on near-term applications on Noisy Intermediate Scale Quantum (NISQ) devices. These are important for engagement and skill-building, but their commercial impact will be modest. The EU should complement this with sustained investment in developing applications for fault-tolerant quantum computers, where the true long-term value lies.

Collaborations between quantum developers and end users in industries like chemicals, pharmaceuticals, or energy are essential to identifying real-world problems classical computers cannot solve. Public funding for these collaborations can accelerate both research outcomes and private investment. The EU could also consider launching grand challenges or application prizes to spur innovation around societal benefit.

Policy Insights. The strategic nature of quantum computing also demands forward-looking policy approaches. Two areas require immediate attention:

- A rapid transition to robust, standardised PQC algorithms, in line with recommendations in A Coordinated Implementation Roadmap for the Transition to Post-Quantum Cryptography, published by the European Commission in June 2025, which recommends a timeline aligned with that put forward by the US National Institute of Standards and Technology: deprecate vulnerable cryptography by 2030, and disallow it by 2035. This urgency is heightened by recent findings from Google and other researchers, which show lower quantum computing resource requirements for Shor's algorithm, which is capable of breaking RSA and other cryptography.

- Export controls - sensitive IP must be protected, but overly broad controls could slow Europe's progress. Member states should focus narrowly on specific national security risks, adopt architecture-neutral rules, and coordinate with global allies to avoid disadvantaging EU firms.

Finally, we encourage policymakers to build an understanding of the basics of quantum computing, so they are equipped to make informed decisions, and to draw on expertise from industry and academia in doing so. For example, Google Quantum AI developed a white paper outlining the basics of quantum computing, and is supporting a course developed by Apolitical that aims to educate civil servants around the world about quantum computing. ***Building institutional understanding is key to avoiding hype, enabling smart regulation, and ensuring long-term strategic alignment within the Union and with international partners.***

A European Quantum Future. Quantum computing is a rapidly evolving field with profound implications for technology and global power dynamics. Europe has world-class research, strong public investment, and industrial sectors poised to benefit. The opportunity now is to channel these strengths, turning world-class research and investment into leadership by focusing on talent, supply chains, key applications, and strategic partnerships. To succeed, Europe must strategically align its efforts, invest where it is strongest, and build partnerships across Member States and with trusted like minded countries. In doing so, it can lead in shaping the global norms, platforms, and applications of quantum computing. Strategic autonomy is important, but should not mean isolation; it is the ability to choose interdependence on your own terms.

The next five years are critical: the new institutional cycle has just started in the EU, we are seeing increased investments from many other governments, and the quantum computing industry is at the cusp of a transition from R&D to early commercialization. With the right policies and partnerships, Europe can secure its place as a global quantum leader driving innovation, resilience, and prosperity for decades to come.

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ARTICLE

How to Bridge the EU's and Ukraine's Defence Industries

Mechanisms and Directions

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Abstract

The European Union and its Member States are showing a genuine interest in Ukraine's military-industrial complex because it combines innovation, efficiency, and battlefield-proven capabilities. In the period 2024–2025 the EU made several significant strategic decisions regarding military and technical support for Ukraine, as well as the strengthening of its own defence capabilities. If implemented, these decisions could boost European–Ukrainian defence cooperation, which is currently crucial for both parties, particularly in the light of the United States' unpredictable stance. However, to achieve this, both Brussels and Kyiv must focus on implementing the planned steps promptly and unwaveringly with long-term priorities in mind. The main areas of cooperation are the development of uninhabited platforms, air and missile defence, artillery and ammunition, as well as deep strikes capabilities. It is also important to take a creative approach to tools that can enhance collaboration.

Preconditions for new policy design in the area of EU–Ukraine defence cooperation

Military support from the European Union and EU Member States is one of the keys to Ukraine's resilience in deterring the enemy on the battlefield and protecting the civilian population of Ukraine. The EU is

Ukraine's strategic partner in countering Russian aggression. In total, as of June 2025 the assistance provided by Brussels and EU Member States to Kyiv since the start of the full-scale invasion had reached €158.6 billion. Of this amount, €56.9 billion went specifically to military support for Ukraine.

However, 2025 has brought new geopolitical and internal challenges to EU–Ukraine military cooperation. Firstly, there is a very real prospect of the US ending its military and technical assistance to Ukraine. This creates an additional financial and resource burden on Ukraine's other Western partners, including EU members. At the same time, Washington is sending mixed signals about a possible reduction of the US military presence on the European continent, which carries systemic risks of undermining the current system of deterrence and defence based on transatlantic synergy within NATO.

Secondly, there is a clear understanding in most European capitals that their current level of preparedness for a full-scale conventional war is inadequate and does not correspond to the realities of military operations that can be observed on the battlefield in Ukraine. Dominance in the production and use of unmanned systems and their continual modernisation are now an important component of asymmetric defence and deterrence. Traditional approaches to warfare are no longer successful for either side. Currently, 80 per cent of the Ukrainian Defence Forces' casualties and military equipment losses are caused by various types of unmanned platforms.

Thirdly, approaches to military procurement have been completely transformed compared with European ideas about the quantitative and qualitative formation of military arsenals. Long-term and costly programmes for the development of new combat platforms cannot compete with cheaper, innovative technological solutions that have the potential for rapid scaling.

Fourthly, the modern war that Russia is waging against Ukraine is characterised not only by the situation on the battlefield, but also by the aggressor's total terrorisation of the civilian population. With each new year of the war, the scale of attacks on the civilian population and infrastructure has grown. For example, in June 2025, Russia achieved the capability to launch more than 500 kamikaze drones, ballistic missiles, and cruise missiles simultaneously in a single night. This situation poses a significant potential risk to the populations of EU countries due to their current lack of air and missile defence capabilities.

Fifthly, EU members and European institutions themselves have felt the political and physical limits of their ability to help Ukraine. Ukraine's partners' reserves have been significantly reduced, making it necessary for them to focus on strengthening their own defence capabilities. At the same time, some European initiatives that require 27 votes from national governments are being blocked by certain destructive leaders. In particular, since 2023 Hungary has been blocking €6.5 billion worth of military assistance within the framework of the European Peace Fund.

All this has led to a stronger focus on security and defence in political debates at the level of national governments of Member States and has also influenced the determination of EU institutional leaders to propose new long-term instruments for building their own defence capabilities, including not only on the Ukrainian experience of full-scale war, but also with the full integration of the Ukrainian defence complex into the European production base.

New EU regulatory frameworks on defence support for Ukraine in 2025

Against the backdrop of these chronic risks, the new European Commission has begun by proposing large-scale conceptual approaches to strengthening European defence. Thus, in early March 2025, the President of the European Commission announced the ReArm Europe Plan/Readiness 2030 initiative, which proposed a number of new approaches to strengthening European defence capabilities by creating financial opportunities.

The new mandate of the European Commission was marked by the preparation of the Joint White Paper on European Defence Readiness 2030, which was presented by Commissioner for Defence and Space Andrius Kubilius and High Representative for Foreign Affairs and Security Policy Kaja Kallas in March 2025. One of the tasks set for the EU in this document is to support Ukraine by increasing military aid and deepening the integration of Ukrainian defence industries into the European Defence Technological and Industrial Base (EDTIB).

In May 2025, under the Polish presidency of the EU Council, the Security Action for Europe (SAFE) Regulation was adopted in the shortest possible time – two months –thanks to the use of a legislative procedure to bypass the European Parliament. The SAFE mechanism provides for the use of loans of up to €150 billion, supported by the EU budget, for the defence needs of EU members. Debt repayment can be scheduled for up to 45 years, while the projects under SAFE themselves will be exempt from VAT. However, an important element of this EU regulation is the possibility of participation by third-country partners, including Ukraine (Maślanka, 2025).

The European Commission held consultations with Ukraine on procedural mechanisms and thematic areas of defence and industrial cooperation. The Ukrainian side welcomed the adoption of the EU regulation and expressed its readiness to participate in joint production and joint procurement of weapons and ammunition (Ministry of Defence of Ukraine, 2025a). The SAFE mechanism allows Ukrainian

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arms manufacturers to participate fully in joint European arms procurement, integrate into supply chains, and jointly develop defence projects. This level of defence integration was first proposed to Ukraine in practical terms.

Another potential programme that involves Ukraine's active participation is the European Defence Industry Programme (EDIP). The draft programme was presented in spring 2024, but as of June 2025, following heated political battles, only the EU Council's basic negotiating framework has been outlined, which requires further agreement by the European Parliament. Currently, the draft programme provides for €1.5 billion in grants to be made available to programme members, of which €300 million is earmarked for the Ukraine Support Instrument. The first trialogue on the EDIP between the Council, Parliament, and Commission took place on 30 June, paving the way for further consultations during the Danish presidency the Council (European Council, 2025).

As Ukraine strengthens its military capabilities with innovative defence technologies, it is also important for Ukrainian arms industries to participate fully in the European Defence Fund (EDF). Although the EDF is not as open as the SAFE and EDIP, the first steps have already been taken. In April 2025, the European Commission announced an investment of €910 million for the 2024 edition of the EDF to promote innovative defence industries in the EU and among its partners. This is the first time that Ukrainian defence companies have been included in EDF projects (European Commission, 2025).

Mechanisms for establishing EU–Ukraine industrial cooperation in the defence sector

In 2024, the EU began developing a new strategic framework for industrial policy in the defence sector. The preparation process took into consideration experience and lessons learned from the Russian–Ukrainian war since 2022, as well as a realistic assessment of the state of the European defence industry.

Specific mechanisms for EU–Ukraine military-industrial cooperation were proposed as part of the implementation of the European Defence Industrial Strategy (EDIS), which was adopted in March 2024. Most of these mechanisms are still being developed and institutionalised, and many of them are interconnected and mutually reenforcing. The main areas of focus include coordinating efforts to exchange information, running information campaigns, searching for partners on both sides, creating a knowledge base based on lessons learned from combat operations in Ukraine, and adapting the defence industry to the current needs of the Ukrainian Armed Forces.

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EU–Ukraine Defence Industries Forum

The first inaugural meeting of the EU–Ukraine Defence Industries Forum (DFNC: EU Edition) was held in Brussels in May 2024 as a step towards implementing the EDIS. The second meeting, in May 2025, was attended by representatives of nearly 20 countries, including 100 European arms manufacturers and 30 Ukrainian ones. The aim of these events is to further integrate Ukraine's defence industry into the EDTIB. They provide a platform for the exchange of experience, the presentation of innovative defence solutions, and the development of pilot projects between European and Ukrainian arms manufacturers. It is also worth noting that Ukraine holds similar forums with individual Western partners, including EU Member States (Ministry for Strategic Industries of Ukraine, 2025a).

EU Defence Innovation Office

The EU opened the EU Defence Innovation Office in Kyiv in September 2024 to strengthen working contacts between European institutions and relevant representatives of the defence industry, including arms and ammunition manufacturers. The office works to strengthen coordination between the EU and Ukraine, identify ideas for flagship defence projects, and address challenges in bilateral cooperation. The centre focuses in particular on preparing Ukrainian companies to participate in European defence programmes

and strengthening the research component of bilateral cooperation.

The EU Defence Innovation Office is currently being reformed into the EU Defence Industry Office in Ukraine (EUDIO). In addition to increasing its staff, its functional responsibilities will also include promoting European investment in Ukraine's defence industry.

EU–Ukraine Task Force on Defence Industrial Cooperation

In May 2025, the EU–Ukraine Task Force on Defence Industrial Cooperation, which was proposed in March in the White Paper on European Defence, held its first meeting in Brussels. It is currently expected that the mandate of this group will include the integration of Ukraine's defence industrial base into the European ecosystem. In this way, the mechanism should promote cooperation in the field of innovation and joint procurement. The group is to coordinate joint actions within the framework of the above-mentioned SAFE and EDIP programmes and use Ukrainian experience to develop thematic EU roadmaps in the field of defence capabilities. A preliminary plan of action for the group was developed at the first meeting.

On the Ukrainian side, the group includes representatives of relevant ministries, the Office of the President of Ukraine, and the Mission of Ukraine to the European Union. On the European side, the delegation is represented by the European External Action Service (EEAS) and the European Commission Directorate-General for Defence Industry and Space (DG DEFIS) (Ministry for Strategic Industries of Ukraine, 2025b).

The Danish model

With the depletion of their own stocks of weapons and military equipment, Western partners needed to find alternative ways to support Ukraine. Denmark proposed a mechanism for financial support for Ukraine's defence sector, with Copenhagen acting as administrator and intermediary in the investment of Western partners' resources and in communication with the Ukrainian side. Under this mechanism, Ukraine determines the quantity and nomenclature of weapons and ammunition needed by the Ukrainian defence sector, while Denmark oversees the financing of production, quality control, and the timely and safe delivery of weapons to the battlefield. Although this mechanism initially attracted the attention of individual partners wanting to support Ukraine in this way, the European Union also saw potential in the model. In 2024, funding came from Denmark, Sweden, and Iceland, as well as €390 million from the EU.

In 2025, Denmark will continue to administer this mechanism on behalf of the EU. Currently, €1.3 billion has been allocated for the current year, including through the use of interest on frozen Russian assets. Denmark, Sweden, Canada, and Iceland will also support the model with their own resources. These funds will soon be used to produce Ukrainian weapons, including artillery, strike drones, missiles, and anti-tank weapons.

Capability Coalitions

As of June 2025, nine Capability Coalitions are operational within the Ukraine Defence Contact Group (UDCG) framework. They deliver tailored assistance aligned with the nine thematic domains: Air Force; Maritime Capability; Integrated Air and Missile Defence; Artillery; Armoured Vehicles and Manoeuvrability; Drones; Demining; IT; and Electronic Warfare (EW). Some of the coalitions were established in late 2023, when Ukraine proposed moving to the 'Ramstein 2.0' format. However, most of the groups, organised by thematic areas and capabilities, were institutionalised in 2024. The last group, the EW Capability Coalition, was formed in April 2025, which may indicate the utilitarian nature of the format for Ukraine and its partners. Each coalition has co-leading nations which coordinate all the work within the group.

In early 2025, during a meeting of the UDCG, eight coalition roadmaps for 2027 were approved, setting out specific steps and involving members of these groups in the development of Ukraine's defence capabilities. Long-term planning allows Ukraine to determine its future battlefield needs and order the appropriate capabilities in advance. Although coalitions are not an instrument that unites only EU Member States, the potential of this instrument is significant and takes into account the specific characteristics and potential of each partner. However, it is important to note that eleven EU members are co-leading nations in the Coalitions.

'Build with Ukraine' initiative

Kyiv and its partners are already seeking to implement new financial mechanisms to extend the existing formats of defence industrial cooperation. During a recent UDCG meeting, Ukraine proposed an international initiative called 'Build with Ukraine' to produce arms jointly with Ramstein format member states, using the potential of the aforementioned EU SAFE loan mechanism. Under this model, Ukraine intends to manufacture drones, missiles, ammunition, EW systems, and other types of weaponry.

It is expected that partners will agree to the terms under which their defence companies will manufacture products for Ukraine's defence sector and provide financial support for this production. However, this model offers mutual benefits. Ukraine will gain additional access to financial resources, advanced technologies, and production facilities in safe locations. In turn, Western partners will strengthen

their production capacity and contribute to enhancing Ukraine's defence capabilities. The initiative is expected to be supported by leading companies from Europe and North America (Ministry of Defence of Ukraine, 2025c).

Thematic areas of defence and industrial cooperation between the EU and Ukraine

Priority areas for joint projects

More than three years of war following Russia's full-scale invasion of Ukraine have provided a clear vision of Ukraine's medium-term defence strategy. Waging a war of attrition, in 2025–2026 we can expect the Ukrainian military and political leadership to focus on stabilising the front line; maximising the preservation of Defence Forces personnel; maintaining dominance in innovative defence solutions, especially using the potential of unmanned platforms; and preserving resources for rapid, unexpected, asymmetric responses to enemy actions. All this will take place against the backdrop of a strengthening Ukrainian defence industry. According to the government team, Ukraine intends to produce up to 50 per cent of the weapons and ammunition needed by the Ukrainian Defence Forces by 2025.

However, despite the titanic efforts of Ukrainian arms manufacturers to increase their own capabilities to produce the necessary military equipment and ammunition, Ukraine is highly dependent on Western military support for key types of military capabilities. Representatives of the Ukrainian government regularly describe the needs they have identified as critically important for Ukraine to conduct defensive operations and protect the civilian population at meetings with the leadership of European Union institutions, at relevant EU Council meetings, in the UDCG and Capability Coalitions, and in bilateral consultations.

Although the Ukrainian side's requests may vary depending on the military specialisations of specific countries, it is possible to identify general areas that require joint efforts with European partners. Among the permanent priorities are joint projects in the fields of air defence, long-range systems, and ammunition of various calibres. Traditionally, the production of various types of drones and means of countering unmanned platforms occupies a prominent place in Ukrainian requests. Not surprisingly, similar capabilities are mentioned as strategic in the Joint White Paper of the European Commission, including air and missile defence; artillery systems; ammunition and missiles; drones and anti-drone systems; and AI, quantum, cyber, and electronic warfare (European Union External Action, 2025).

In the context of Ukraine's integration into the European defence technology base, the Ukrainian side is proposing a number of initiatives that may be of interest to foreign partners. In particular, Ukraine may be prepared to cooperate in the following formats of joint production:

- foreign investments in current defence production in Ukraine;
- establishment of joint ventures for the development and production of new models of military equipment;
- transfer of licences to Ukraine for the production of Western equipment and ammunition;
- localisation of Western weapons production in Ukraine; and
- production of Ukrainian defence products on the territory of partners.

Recently, there have been some positive developments in terms of attracting Western defence companies to Ukraine. Several European arms producers have increased their presence in Ukraine, including KNDS (France–Germany), FFG and Rheinmetall (Germany), Kongsberg (Norway), and SAAB (Sweden).

Drone production

The production of drones and all types of unmanned systems is an unconditional priority for Ukraine in building its technological defence doctrine. Drones, as an alternative to expensive Western weapons systems, are currently the cornerstone of a strategy of attrition warfare. On the battlefield, up to 80 per cent of casualties and military equipment losses are caused by strike drones. The need to preserve manpower and use new doctrinal approaches to warfare has been demonstrated in the Ukrainian president's 'Drone Line' initiative, which provides for the creation of a continuous 15-kilometre-wide strike zone using unmanned systems. The unmanned systems units involved in the development of this initiative are demonstrating positive results in holding territory and destroying the enemy.

In addition, Ukraine has learned to conduct asymmetric high-tech operations deep into enemy territory, with a strike radius of over 1,500 km. Ukraine is effectively destroying enemy command posts and strategic weapons arsenals. Special Operation Spider Web, successfully carried out by the Security Service of Ukraine, reduced the number of combat-ready strategic aircraft by 35 per cent in a single day.

In the Black Sea, thanks to the effective use of naval drones, Ukraine was able to drive the remnants of the Russian military fleet from Crimea to remote ports and reduce the level of danger. Ukrainian drones are already successfully hunting enemy reconnaissance and strike drones, which is an innovative element, including for the integrated air defence system.

Of course, maintaining such a technological advantage requires a large number of drones and their constant improvement. Currently, compared with Western models of unmanned systems, Ukraine has an advantage due to rapid scaling and significantly lower production costs. According to government estimates, Ukraine can produce up to 10 million drones of various types per year. On average, a Ukrainian drone costs three times less than its Western counterparts.

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The Drone Capability Coalition, led by Latvia and the United Kingdom, is working to provide assistance to Ukraine. Ukraine is interested in producing drones jointly with European partners, given that unmanned systems are identified as among the priorities in the development of the EU's defence capabilities. Kyiv is ready to share innovations in the field of unmanned systems (Ministry of Defence of Ukraine, 2025b).

Ammunition

Ukraine makes frequent appeals to its Western partners for supplies of artillery ammunition, especially of 155 mm calibre. Progress in the development of unmanned systems does not mean they will replace artillery. Although the situation on the battlefield is not as critical as it was in early spring 2024, when the enemy's firepower advantage was 10-8 to 1, the mass destruction of artillery equipment and strategic ammunition depots on Russian territory has reduced the aggressor's advantage. Moreover, by the end of 2024, a European initiative to supply Ukraine with 1 million shells had been implemented, and the so-called Czech initiative, under which Ukraine was supplied with about 1.6 million shells of various calibres, had been almost fully implemented. These measures taken together made it possible to achieve a ratio of two to one.

Currently, most of the EU's financial support mechanisms for Ukraine, funded by windfall profits from frozen assets, as well as the G7 ERA credit mechanism, are directing a significant portion of funds to the purchase of shells for Ukraine.

Despite the fact that Ukraine did not produce artillery shells of this calibre until 2022, the Ministry of Defence has ambitions to develop its own production of 155 mm calibre ammunition at a rate of 1 million per year. In 2024, Ukrainian companies signed agreements with KNDS, Nammo, and Czechoslovak Group for the licensed production of artillery shells. However, there is also significant scope for joint production, given the acute shortage of artillery shells not only for the battlefield in Ukraine but also for stockpiling by EU Member States.

Long-range capabilities

In 2024, the Ukrainian defence industry reached a strategic level in developing its own long-range weaponry. Ukraine demonstrated its ability to create high-precision weapons capable of destroying important enemy military targets at profound depths. Serial production of Ukrainian cruise missiles has begun, and the first Ukrainian ballistic missile has been successfully tested. According to the Ukrainian government team's plans, 2025 will be dedicated to scaling up the production of domestic cruise and ballistic missiles, as well as long-range drones and missile drones.

Thanks to international support, the production of long-range drones has increased 22 times compared with 2022. Germany and Sweden recently announced their intentions to support Ukrainian production of long-range weapons (Safronov, 2025). These military capabilities allow Ukraine to destroy strategic energy infrastructure facilities that help finance Russia's war against Ukraine. These weapons, with their long range and precision, also significantly undermine Russia's defence capabilities by constantly disrupting the work of the defence sector.

The Ukrainian ballistic missile programme should also be of interest to European partners, as it represents an additional element of deterrence in the future.

Air and missile defence

Strengthening air and missile defence is critical to protecting Ukraine's civilian population. Ukraine is enduring relentless terror from the sky. On 29 June 2025, Russia set another record by launching 537 strike drones and missiles of various types at Ukraine. Against the backdrop of a shortage of modern air defence systems and corresponding interceptor missiles, Ukraine is trying to use all available means to protect itself, including anti-aircraft missile forces, the air force, electronic warfare units and unmanned systems, and mobile fire groups of the Ukrainian Defence Forces.

Therefore, Ukraine, together with its partners, including members of the Integrated Air and Missile Defence Coalition, has ways to expand the production capabilities of air defence and missile defence systems and the missiles for them. Ukraine is also ready to share its own developments in effective and cost-efficient interceptor systems (Ministry of Defence of Ukraine, 2025d). Anti-aircraft interceptor drones for Russian–Iranian Shahed-type drones also deserve special attention.

The creation of a unified digital air defence space with elements of automation and AI may also be of considerable interest for joint research and development by Ukrainian and European partners.

Conclusions

The period 2024–2025 has seen a radically new policy for the EU regarding its own defence capabilities and military support for Ukraine. The new SAFE and EDIP initiatives open up significant opportunities for Ukraine to become a full member of these initiatives. While on the one hand this is a sign of goodwill on the part of EU representatives towards Ukraine, on the other hand it is a recognition that Ukraine is also a contributor to European defence capabilities.

The EU and Ukraine have a sufficiently broad institutional infrastructure, established in 2024–2025, which allows for maximum effective communication and coordination of positions between the two sides. Although most of these mechanisms are still evolving, there is a wide range of opportunities for European institutions and individual Member States to support Ukraine and strengthen the integration of Ukraine's defence industry into the EDTIB.

However, even at this stage, it should be noted that the innovative component of bilateral relations between the EU and Ukraine does not match the potential of these relations. Ukraine has focused on defence technologies that are tested daily on the battlefield and are being developed effectively. Its European partners should show greater interest in inviting Ukraine to participate fully in the EDF. Areas of bilateral cooperation such as drones, air defence, and the development of long-range weapons should be seen as mutually beneficial by both the EU and Ukraine.

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ARTICLE FROM THE INDUSTRY

Strategic Autonomy on Food Starts with Fertilisers

Securing Europe's Future through Key Value Chains

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Introduction

As Europe navigates a world defined by geopolitical instability, climate urgency, and economic challenges, one imperative is becoming increasingly clear: the European Union must secure its strategic autonomy in critical sectors. From energy to semiconductors, the EU is prioritising resilience and self-sufficiency. But one sector remains underappreciated despite its foundational role in Europe's food and industrial security – fertilisers.

Fertilisers, and the broader ammonia value chain, are not merely agricultural inputs. They are strategic assets. Ensuring their availability, affordability, and sustainability is central to Europe's food security, industrial competitiveness, and clean energy transition. Any serious strategy for European strategic autonomy must therefore place fertilisers and ammonia at its core.

Food security: fertilisers feed the world

The link between fertilisers and food production is direct and unquestionable: 50 per cent of global food production depends on the use of fertilisers. High-quality fertilisers are crucial to helping sustain agricultural productivity and provide healthy and nutritious food for all. Without fertilisers, harvests would shrink dramatically and food prices would soar.

Reducing dependency: tariffs and Russian fertilisers

The EU is in the process of successfully decoupling its economy from Russia as a matter of European security and strategic autonomy. At the same time, Europe has developed another dependency – this

time on fertilisers. Between the 2020/2021 and 2023/2024 agricultural seasons, fertiliser imports from Russia increased by 117 per cent. European farmers have become progressively reliant on fertilisers that fall short of meeting high production standards aimed at curbing emissions.

In June 2025, EU policymakers decided to impose gradual tariffs on Russian fertilisers. Tariffs will enable Europe to reduce strategic dependency and cut off an important revenue stream to Russia's war machine while safeguarding the EU's agricultural sector and maintaining its industrial resilience.

By levelling the playing field, tariffs are expected to ensure that European producers can continue supplying domestic farmers with sustainable fertilisers for the foreseeable future.

Ammonia: a hidden backbone of critical value chains

Fertiliser and ammonia producers are cornerstones of much more than agriculture. The same ammonia used in fertiliser production feeds into a wide range of essential sectors that Europeans rely on every day.

- Transport: AdBlue, a diesel exhaust fluid that reduces harmful emissions from trucks and buses, is produced from urea – a direct fertiliser derivative. Without a stable supply of AdBlue, Europe's transport and logistics networks would grind to a halt.
- Healthcare: medical-grade gases, derived from nitrogen and other chemical processes used in fertiliser production, are critical for surgeries and respiratory treatments.
- Food and beverage: carbon dioxide, often produced as a by-product in fertiliser manufacturing, is essential for carbonated drinks, food preservation, and meat processing.
- Industrial uses: ammonia and its derivatives are used in plastics, textiles, cleaning products, and refrigeration. Disruptions to fertiliser production ripple far beyond the farm.

By securing domestic fertiliser and ammonia production, the EU is also securing the continuity and resilience of these vital sectors. Neglecting this would be not only an economic miscalculation but also a strategic vulnerability.

Clean ammonia: a workhorse of the hydrogen economy

The EU fertiliser industry currently produces about 40 per cent of total European hydrogen as raw material of ammonia production. It is therefore uniquely placed to contribute to the development of a green hydrogen economy in Europe. Low-carbon ammonia will be a critical vehicle in the EU's efforts to decarbonise hard-to-abate sectors.

Food system decarbonisation

Fertiliser production is currently energy and carbon intensive, but transitioning to low-carbon hydrogen can dramatically reduce emissions from the production of agricultural inputs. Switching to fertilisers produced using low-carbon technologies can reduce the carbon footprint of a loaf of bread by up to 15 per cent.

Long-haul shipping

Over 90 per cent of world trade is carried across the world's oceans. International shipping is the backbone of the global economy but also a major source of emissions. Clean ammonia is among the main candidates for decarbonising maritime transport. It can be used by both internal combustion engines and fuel cells, offering potential for retrofits of ships that use internal combustion engines. Its use as a fuel will almost eliminate particulate matter and black carbon emissions, and CO_2 if produced using clean technologies.

Hydrogen carrier

As Europe builds a hydrogen economy, clean ammonia offers a cost-effective means of storing and transporting hydrogen across borders and continents. Ammonia has a higher energy density compared with liquid hydrogen, making it a more compact and practical option for long-distance transportation and storage. Using ammonia as a hydrogen carrier in liquid form has the advantage of an energy density three times that of compressed hydrogen and 1.5 times that of liquefied hydrogen. Using ammonia to export hydrogen over long distances, therefore, requires far fewer ships to transport the same amount of energy.

Clean energy storage

Ammonia can be used to store renewable energy: it is rapidly deployable, easy to handle, and produces no carbon emissions in the case of direct combustion. Ammonia, a compound composed of nitrogen and hydrogen, is emerging as a game-changing solution in the realm of energy storage. It is a carrier of hydrogen, an essential element for clean energy, and it boasts high energy density by volume, making it an excellent candidate for energy storage and transportation. Its physical properties allow for efficient compression and storage at moderate pressures, simplifying its handling and distribution.

These emerging roles further underline the need for a strong and competitive European ammonia industry – one that is not only clean but also autonomous.

Policy alignment for strategic security

If the EU is serious about strategic autonomy, it must align its policies accordingly. Fertiliser producers face rising energy and carbon costs, increasing regulatory burdens, and unfair competition from global players not held to the same standards. At the same time, they are being asked to invest in cleaner technologies, adopt circular economy practices, and remain globally competitive.

To meet these expectations and maintain strategic capabilities, the EU must provide a stable and supportive policy environment by:

- ensuring access to competitively priced energy and feedstock;
- preventing non-EU producers from gaining an unfair competitive advantage;
- boosting demand for climate-neutral EU fertilisers;
- recognising ammonia and fertiliser production as strategic for Europe; and
- stimulating targeted investment in low-carbon and circular technologies and implementing measures to de-risk early movers.

Conclusion: fertilisers as a strategic asset

Strategic autonomy cannot be achieved through words alone. It requires political will, investment, and strategic mapping of where Europe's vulnerabilities – and strengths – lie. Fertilisers and the ammonia value chain are essential to our food systems, our industries, and our green future. Recognising this is the first step towards securing Europe's autonomy in a more uncertain world.

Fertilisers feed Europe. They fuel its trucks, preserve its food, power its surgeries, and hold the key to decarbonising its industries. As the EU builds its strategic autonomy, it must ensure that this cornerstone sector is not left exposed.

Fertilizers Europe

Fertilizers Europe represents the majority of fertilizer producers in the European Union.

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NOTE FROM THE INDUSTRY

Why Energy Efficiency Needs to Be at the Heart of Europe's Energy Policy

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The European Union's electrification strategy looks to significantly increase the share of electricity in Europe's final energy use, with the goal of obtaining a 69 per cent direct electrification rate by 2040. This is an ambitious goal, and one that is easier said than done. That's because before we can electrify, we must first address Europe's capacity challenge – a key prerequisite for electrification of our energy system.This challenge was thrust into the spotlight when the lights went out across Spain and Portugal in April 2025. Although the exact causes of the blackout are still under investigation, the incident underscores the urgent need for a new energy security paradigm. This framework is essential for enabling a smooth transition to a net-zero electricity system and minimising the risk of similar disruptions in the future.

With society plugging in everything from our appliances to our cars, devices, and heat pumps, demand for electricity is surging. Industry and emerging technologies such as artificial intelligence will further drive electricity demand, as will society's need to use more air conditioning to keep cool on a warming planet. As a result, the European Commission expects electricity demand to increase by as much as 60 per cent by 2030 (over 2023 rates). But if we are not able to meet our current demand, as the Iberian blackout illustrates, the question is: what happens when nearly every part of society goes electric?

A magic formula: combining demand-side solutions with energy efficiency

Traditionally, this increase in demand would be met by either importing or producing more energy. With Russia's invasion of Ukraine and the EU's subsequent determination to become energy independent essentially taking the former off the table, that leaves producing more energy. But producing energy sustainably (i.e., via renewable sources) requires significant investment into new energy capacities and infrastructure and could actually increase the risk of blackouts, not to mention send energy system costs soaring. It would also mean meeting this increase in demand using an energy supply that is intermittent and that cannot be scaled up in response to demand.

There is, however, a winning combination that can help bridge the gap between energy demand and capacity: energy efficiency with demand-side solutions. Let me turn to the building sector to explain.

Two birds, one energy efficient stone

Most of Europe's buildings were built during the post-war construction boom. Out of the nearly 250 million houses in Europe, less than 10 per cent were built in the last decade – meaning our buildings are not only old, they are also grossly inefficient. Considering how inefficient our buildings are, it should come as no surprise that they are the continent's single largest consumer of energy – responsible for 40 per cent of the EU's total energy consumption. Among other factors, these buildings lack the proper insulation needed to keep heat in (or, in the summer, out). Poorly insulated, older buildings need higher flow temperatures to deliver the same level of indoor comfort.

Needless to say, getting that higher flow temperature requires the use of more energy. This highlights the

correlation between energy efficiency and energy use. With heating and cooling responsible for an estimated 35 per cent of a building's total energy consumption, increasing a building's energy efficiency can go a long way in reducing energy use.

In other words, the more efficient the building, the more energy is saved. And the more energy we save, the less energy we need to produce or import, thus further strengthening Europe's resilience and energy security. That's two birds with one energy efficient stone.

Energy efficiency as simple as quality insulation

The good news is that making a building more energy efficient can be as simple as installing quality insulation. In fact, a well-insulated home will slow heat loss to the outside, allowing the flow temperature to go as low as 35ºC and still deliver a warm, comfortable living environment.

Furthermore, according to the Buildings Performance Institute Europe (BPIE), insulating a home's attic and roof can save up to 14 per cent of residential heating energy. BPIE goes on to note that renovating homes with proper insulation would result in a 44 per cent reduction in the amount of natural gas used for heating. Furthermore, such renovations would ultimately save 45 per cent of the final energy consumption currently used to heat Europe's residential buildings.

Making our buildings more efficient would also alleviate pressure on the grid – especially during periods of peak energy demand, that time of day when energy consumption skyrockets and the risk of blackouts increases.

According to a report commissioned by the European Climate Foundation, the European Insulation Manufacturers Association and the International Copper Association, energy efficient home renovations could cut peak heating demand by nearly half by 2050. This would reduce total energy system costs by EUR312 billion annually. It would also reduce distribution grid investments by EUR44.2 billion per year.

Helping homeowners make smarter decisions about energy use

Beyond the renovations themselves, one can further increase a home's energy efficiency by installing an energy efficiency metre. By providing ongoing, up-to-date data on the energy efficiency of one's home, these metres help homeowners make smarter decisions about energy usage. Energy efficiency metres can also improve the ability to use price signals, such as time-of-use tariffs, to help reduce peak demand, decreasing the need to overbuild grid generation capacity.

For instance, measured performance and energy efficiency metres can help us understand the exact energy performance of a building, making renovation more targeted and efficient. Such solutions also allow residents to understand whether a house can be preheated at times of the day when electricity costs are lower while still staying comfortable and warm. This could allow a house to be heated during the middle of the night when electricity is cheaper as opposed to during expensive peak periods.

A big step in the right direction

While making our buildings and homes more energy efficient alone will not solve Europe's capacity challenge, it would be a big step in the right direction. However, for that to happen, energy efficiency solutions, such as insulation, must be given a front row seat within EU energy policy.

Knauf Insulation

Knauf is one of the world's largest manufacturers of modern construction products and systems with over 300 plants in more than 90 countries and over 40,000 employees worldwide. It is 100% independent, family-owned, and proud of its strong European heritage and footprint. Part of the Knauf Group, Knauf Insulation has more than 40 years of experience in the insulation industry. It is one of the fastest growing and most respected names in insulation worldwide. It helps its customers meet the increasing demand for energy efficiency and sustainability in new and existing homes, non-residential buildings, and industrial applications.

ENDNOTES

Section 2

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SECTION 3

Europeans at the heart of it all

ARTICLE

One 'Ultimate Resource' to Rule Them All

Lessons from Economic Thought for Today's European Geoeconomics

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Philosopher

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Abstract

Europe still treats tonnes and cubic metres of natural resources as fixed facts in a zero-sum geopolitical game. This article revives an almost forgotten episode of economic history to challenge this view. The face-off between neo-Malthusian and Cornucopian thinkers shows that scarcity is cognitive, not geological; the human mind is the Ultimate Resource that turns physical stuff into resources that are of value to human beings. The paper argues that (1) our very language of talking about resources locks policymakers in a scarcity mindset; (2) revisiting the Simon/Ehrlich wager will conceptually and empirically break that frame; (3) fears of demographic decline ignore AI's ability to amplify each human ingenuity; and (4) Europe should track ingenuity, attract global talent, and build an AI-first education. Because Strategic autonomy flows from creativity, not stockpiles.

Introduction

Europe's resource conversation is stuck using the wrong vocabulary. We count lithium in tonnes and gas in cubic metres, but we often lack a sufficient conceptual understanding of what actually determines which of those raw materials will become strategic levers. This article aims to change the tone. By revisiting a largely forgotten twentieth-century debate between neo-Malthusians and liberal Cornucopians, I argue that scarcity is fundamentally cognitive, not geological, and that European decision-makers should resist the instinct to frame every resource problem as a shortage or dependency. The return of

Photo by Nikolai Ulltang on Pexels

geopolitics must not entail a comeback of outdated economic theory.

The argument proceeds in four steps. First, I explain how language steers and shapes policy, and why European policymakers should adopt an 'ultimate resource' vocabulary. Second, I revisit the Simon–Ehrlich wager to contrast Cornucopian and Malthusian ideas in the history of economic thought. Third, I defend the ultimate resource hypothesis against objections rooted in Europe's demographic contraction and the apparent slowdown in knowledge discovery, arguing that this is nothing but Malthusian miscalculation. Finally, I translate these insights from intellectual history into three modest recommendations that point towards further topics for research and discussion.

'In the world of ideas, to name something is to own it. If you can name an issue, you can own the issue.'

— Thomas L. Friedman

Why Europe cannot afford misleading terminology ... again!

While this quote may sound like a throwaway aphorism, recent European policy debates demonstrate its power. For years, European decision-makers tiptoed around the historically loaded term 'geopolitics', stubbornly clinging to their own vocabulary of 'rules-based multilateralism'. But reality moved on – and so did the weaponisation of supply chains, energy dependencies, and export relations – all before Brussels had even opened a serious conversation about strategic autonomy. In other words, language had delayed strategy.

This shows that words matter. They do more than merely describe reality; they are able to channel political attention and even create budget lines. We are seeing this all across Europe: ministries are setting up geoeconomic desks, great-power politics is back on the menu, and Ursula von der Leyen speaks of the first 'Geopolitical Commission' (European Commission, 2019). The Brussels dictionary is finally catching up.

Unfortunately, the next semantic slip is already underway. Draft regulations and policy papers still employ the terms 'resource' and 'scarcity' as if they were clearly defined and self-explanatory. But they are not. And intellectual history shows why.

A barrel of oil is merely 'black, sticky stuff' until a combustion engine makes it useful, and a block of code is idle syntax until it is transformed into software. Each so-called resource is just matter until human ingenuity turns it into value. Ideas and minds unlock the potential of the physical world, not the other way around. And if we lose sight of that relationship, public policy will head in the wrong direction, hoarding stockpiles of 'stuff' while the real constraint – creative capacity – continues to intensify. In other words, the right vocabulary is a matter of strategy.

This confusion is hardly new; it has shadowed resource debates since Malthus (Malthus, 1798). What is new is Europe's shrinking margin for error: geopolitical competition has returned at full force just as technological cycles have accelerated. Here, Julian Simon's neglected insight – that the human mind, organised by open and competitive institutions, is the 'ultimate resource' – offers a sharper vocabulary. It shifts scarcity from geology to cognition and reframes the strategic question from 'how can Europe ensure access to raw material X?' to 'how can Europe lead in turning mere stuff into value?'. That, in fact, is the strategic autonomy everyone tries to conceptualise.

The pages that follow trace this idea through its intellectual lineage and explain why it matters for today's European debate on the geoeconomics of resources.

A public bet at the heart of intellectual history

There are those rare moments when academic debates transcend the seminar room and reshape public discourse. One occurred in the early 1980s, when biologist Paul Ehrlich and economist Julian Simon agreed to a public bet that sharply

divided two schools of thought: Malthusian pessimism and Cornucopian optimism.

The backdrop of this story feels uncannily similar to twenty-first-century Europe: energy shocks, stagflation, and growing doubts about the 'limits to growth'. Ehrlich's bestseller The Population Bomb (1968) distilled that mood into a stark forecast: an exponentially growing number of hungry mouths would collide with a planet of fixed resources – ending not only in shortages but also in existential conflict. In other words, Ehrlich re-popularised the Malthusian script.

On the other side of the debate, Simon argued that this apocalyptic diagnosis was not merely wrong; it inverted causality. Scarcity, he argued, was being misunderstood conceptually (Simon, 1981). Population growth does add consumers, yes, but it also multiplies problem-solvers. More people generate more ideas, and the only truly scarce resource is the human mind, not the materials it eventually substitutes.

At first, this argument did not find many supporters. Simon was more of an academic outcast than anything else. Unable to settle the matter in print, Simon challenged Ehrlich to a straight bet: pick any raw materials, choose any horizon longer than a year, and let market prices decide who is right about scarcity. Ehrlich accepted and selected five industrial metals (chromium, copper, nickel, tin, and tungsten), confident they would be seriously depleted through the 1980s. Simon bet they would not. (for a more detailed account of the Simon-Ehrlich Wager, see Sabin, 2013 or Simon, 1996)

When the decade closed, the price of every one of the five metals had fallen in inflation-adjusted terms – a sign of abundance rather than scarcity. Ehrlich conceded and mailed Simon a cheque. The intellectual battle, however, marched on. Nearly 50 years later, although Cornucopians won the wager, Malthusians still dominate the political sphere. And so it comes as no surprise that EU briefings still quote Ehrlich while Cornucopian ideas are largely absent. The result is that current geopolitical discussions about raw materials instinctively frame the problem in terms of looming shortages rather than exploring how to expand possibilities. Europe focuses on counting tonnes rather than generating ideas.

Rediscovering Simon's insights and adopting a Cornucopian lens would do more than rectify intellectual history; it would give the EU a strategic edge. If human ingenuity is the ultimate resource, Europe's real challenge is to cultivate, attract, and mobilise inventive minds – and to let that ingenuity bend physical scarcity in its favour.

The new Malthusian trap: are we running out of ideas?

Objections to an ultimate resource lens usually take two forms. The first is dismissive, arguing that 'Europe already gets this' because on paper, European policymakers pledge allegiance to innovation, tech acceleration, research funding, and economic growth. Yet the Cornucopian vocabulary vanishes the moment resource policy is discussed. For example, when it comes to the Critical Raw Materials and Chips Acts, the mental default remains scarcity (European Parliament, 2023 & 2024).

The second objection carries more weight as it challenges the very framework itself: what if human ingenuity itself is drying up? Simon's optimism may have made sense when overpopulation was the primary concern, but Europe now faces a structural demographic decline and diminishing productivity. Some observers even claim that the 'ultimate resource has already peaked' (Kenny, 2023)

Several indicators seem to back that view:

- According to the European Commission (2023), the EU's working-age population is projected to shrink by 35 million by 2050.
- UNESCO (2024) data show average years of schooling flattening; each additional year now contributes far less to global human-capital stock than it did in the post-war decades.
- The median inventor on European patents is edging towards 50 years old (Kaltenberg et al., 2023), and novelty scores in EU and US filings have drifted downward since the late 1990s (Park et al., 2023).

If populations decline, schooling plateaus, and labour productivity falls, idea generation should stall – at least that is what we would expect in terms of conceptual relationships. According to such reasoning, the engine of abundance is running out of fuel just when Europe needs it most.

Yet I would argue that this linear thinking is simply another Malthusian trap. With the advent of artificial intelligence (AI), sheer brain count matters less because AI will amplify human ingenuity – and we are already seeing the early signs of this. Early studies of AI-enabled workplaces show double-digit productivity gains (for example Bertrand et al., 2024) and we have barely scratched the surface.

Fixating on demographic slowdown repeats Malthus's original error: assuming a fixed ratio between input and output – while the production function keeps evolving. The task is not to lament fewer births but to enhance the ingenuity of every resident mind and to attract additional ones where possible.

How best to do that lies beyond the scope and expertise of a philosopher, yet I shall conclude with a few modest recommendations for putting a Cornucopian policy lens into practice.

Recommendations

Drawing lessons from intellectual history is tricky (and risky), but I would nevertheless argue that a Cornucopian lens could be highly useful for entering today's geopolitical debates. Decision-makers should shift their main priority from stockpiling physical stuff to multiplying minds – and in doing so strengthen Europe's position in the global power politics of the day.

- ***Adopt a Cornucopian mindset.*** This may sound esoteric, but once European decision-makers shift from a scarcity mindset to a Cornucopian lens, their assessments of real-world innovation will change. Take the watershed moment of the launch of the Chinese large language model (LLM) DeepSeek. For many commentators, it was inconceivable that a model of such capabilities could be developed at a fraction of the cost of its Western counterparts (Gibney, 2025). What was often overlooked, however, is that this cost-effectiveness and efficiency were driven by the very scarcity that semiconductor export controls aimed to impose. Human ingenuity, therefore, challenged one of the central assumptions of AI development: that there is a linear relationship between computing power and model capabilities. Only a Cornucopian lens can accommodate that insight conceptually.

- ***Double down on the race for talent.*** Europe cannot erase or even alleviate its structural demographic challenges overnight. But it can become the brain capital of the twenty-first century. With the Trump administration waging a war on its own universities and research institutions, this could be an incredibly opportune moment for the EU to solidify its geopolitical positioning as a global hub for knowledge and innovation. How exactly this should be implemented is, of course, a matter of public policy (and is also discussed in this issue) but it requires a new kind of dashboard: one that tracks ingenuity itself. Similar to and Tupy's Simon Abundance Index (Pooley & Tupy, 2018), the EU would do well to develop a Simon Ingenuity Tracker to monitor and promote the dynamism of the continent's human capital – and show its commitment to Simon's ideas.

- ***Adopt AI accelerationism.*** The EU takes pride in having passed the first comprehensive AI regulation. But if it adopted a Cornucopian mindset, it would see AI for what it is: an amplifier of the ultimate resource. While certain forms of tech and social media scepticism may be warranted, AI offers a strategic edge for Europe's future. Viewed through a Cornucopian lens, the locus of competition would shift – not towards semiconductors, hardware, or brute computing power (i.e. physical stuff), but towards making the European population AI-ready and unlocking its creative potential. In concrete terms, this would entail integrating AI literacy into primary education, offering free premium AI subscriptions to every citizen, and adopting an AI-first approach to policymaking. Pre-emptive over-regulation is exactly the wrong move in the context of geopolitical competition – and once again reflects the wrong scarcity paradigm.

Of course, these are broad-brush, strategic, and somewhat abstract recommendations. But they aim to distil the essence of the historic wager between Julian Simon and Paul Ehrlich into timely lessons for current European debates: secure minds, amplify them, and let ingenuity bend material scarcity to Europe's advantage.

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Conclusion

The latest public policy trend is an old one: overemphasising the scarcity of the physical world. And indeed, a serious conversation must be had about critical raw materials in a geopolitical context where Europe can no longer rely on favourable trade conditions. However, this renewed focus on resources should not bring with it a return to thinking in terms of mere matter. Instead, it should prompt European decision-makers to recognise their true strategic advantage – namely, the human capital capable of turning 'stuff' into value. I have traced this genealogy of the concept of a 'resource' back to a long-standing dispute in the history of economic thought between Malthusians and Cornucopians. One can only hope that European decision-makers revisit the Simon–Ehrlich wager – and place their bets on the winning side this time: human creativity, unleashed and amplified by AI.

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ARTICLE

A Liberal Response to Europe's Population Decline

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Abstract

Europe's population decline presents not just a demographic challenge but a strategic threat to the continent's economic vitality, political stability, and global competitiveness. This paper offers a liberal response to the crisis, arguing that demographic sustainability requires more than technocratic fixes it demands values-based, future-oriented policy. From reforming family support and pension systems to investing in education, digital infrastructure, and regional cohesion, the paper advocates for a European Demographic Pact and the appointment of a dedicated EU Commissioner. A liberal strategy must combine individual freedom with shared responsibility to ensure the continent remains innovative, inclusive, and resilient in the face of rapid population ageing and outmigration. A liberal strategy must connect individual freedom with shared responsibility in order to ensure that the continent remains innovative, globally competitive, and resilient in the face of rapid population ageing and internal migration within the Union.

Keywords: Sustainability, Responsibility, Liberal strategy, Strategical solutions, Commissioner for Demography, European Demographic Pact

Introduction

In 2022, Europe reached a demographic turning point. That was the year when the continent's population peaked. In continental Europe (based on geographical borders), the population reached 748 million, (United Nations, 2024), while within the European Union, it peaked at around 448 million (Eurostat, 2023). Since then, a gradual decline has begun, driven by natural population loss (low birth rates, ageing), which migration can only partially offset.

There are multiple, interconnected causes behind the declining birth rate. Economic factors include difficulties in accessing housing for young people, unstable labour market conditions, and the high cost of raising children. Among the social and cultural factors are the postponement of family formation, the growing participation of women in the workforce, the transformation of traditional gender roles, the spread of individualised urban lifestyles, and shifting societal values. Together, these elements lead many people to have fewer children – or none at all. A growing number of women and families envision a life with only one child, or even child-free, as a legitimate and preferred life path.

The economic and social impacts of the demographic crisis

The demographic crisis is not merely a social phenomenon; it represents a strategic threat to Europe's long-term economic vitality, political stability, and global competitiveness. As population decline accelerates, the EU faces structural fault lines that are often underestimated in public discourse yet are central to the continent's geopolitical resilience.

The shrinking working-age population is already destabilising the European labour market (European Commission, 2021b). Key sectors such as healthcare, logistics, agriculture, and advanced manufacturing are experiencing an acute shortage of skilled workers, especially in regions suffering from continuous outmigration of young people. While automation and artificial intelligence may partially offset these shortages, they do not offer a universal solution.

At the same time, pension systems across EU Member States are approaching the limits of sustainability (OECD, 2023). Traditional pay-as-you-go schemes are coming under significant financial pressure due to the rising old-age dependency ratio. In the near future, governments will be forced to choose between raising taxes, reducing pension benefits, or increasing public debt, each of which would have serious political and economic consequences if not accompanied by increased productivity.

As population decline accelerates, the EU faces structural fault lines that are often underestimated in public discourse yet are central to the continent's geopolitical resilience.

The demographic decline also reduces innovation potential. Fewer young workers means fewer entrepreneurs and researchers, and less adaptive capacity overall. The Draghi Report emphasises that countries experiencing a decline in their young populations will become less competitive in a rapidly evolving, technology-driven global economy (European Commission, 2024). A well-educated, mobile, young workforce could be one of Europe's most valuable strategic resources – if the EU manages to harness their potential. However, Southern and Central European Member States lag significantly in offering innovation opportunities, and existing programmes and business environments often fail to provide young people with the chance to succeed in their home countries. In the worst-case scenario, these young people will not only leave their nations but also may eventually leave the EU altogether.

In parts of Eastern and Southern Europe, demographic decline has already resulted in visible depopulation (ESPON, 2020). School closures, reduced hospital capacity, and deteriorating infrastructure are turning these regions into 'social deserts' – economically stagnant and politically vulnerable. The outmigration of young, skilled workers is especially damaging. It not only hinders local development but also undermines the EU's internal cohesion.

Depopulating border regions on Europe's periphery also pose geopolitical risks. In the context of Russian influence, hybrid warfare, and the rise of populist trends in Eastern Europe, demographic erosion is no longer just a welfare issue – it is a matter of internal security. Ageing societies are more prone to institutional inertia, generational tensions, and the rise of identity-based politics. As the electoral majority ages, public policy tends to focus on short-term preservation over long-term investment. This dynamic contributes to growing disillusionment among younger generations and

further fuels emigration. Moreover, demographic anxiety can lead to deeper social polarisation, especially around issues of migration, identity, and national belonging. The rhetoric of 'population decline' is already being weaponised by populist political forces, often embedded in civilisational or ethno-nationalist narratives. If liberal democracies fail to present a credible and coherent demographic policy, they risk ceding the field to illiberal discourses.

Liberal responses to Europe's demographic crisis

The problem of population decline is not merely a technocratic policy challenge; it is a deeply value-driven and political one, forcing Europe's liberal political forces to rethink their relationship to the role of the state, personal freedom, community life, and human capital. Across several regions of the continent, political movements advocating authoritarian or nationalist approaches to demographic decline are becoming increasingly vocal, employing rhetoric centred on the 'duty to reproduce', the rejection of migration, or the reinforcement of traditional gender roles.

The first step is to rethink family policy – not as a political instrument, but as a partnership in ensuring long-term societal sustainability. Rather than seeking to increase birth rates through financial incentives or cultural pressure, the liberal approach prioritises the freedom and dignity of parenthood. This means ensuring that everyone has the option to choose whether or not to have children without facing economic vulnerability, social exclusion, or institutional obstacles. Key to this are affordable, high-quality childcare services, reformed maternity and paternity leave that promotes gender equality, and flexible working arrangements that allow for a genuine balance between professional and family life. Housing policy and urban planning must also adapt, with a focus on family-friendly spaces and housing models that enable younger generations to start their lives independently.

Liberal political forces must also reclaim the topic of family and family policy from populist actors in the political discourse. Family planning based on respect for human dignity is one of the great achievements of European liberal democracies, with deep roots in the continent's social history. This legacy must not be ceded once again to authoritarian or semi-fascist regimes that seek to monopolise the meaning of family for ideological ends.

Education is the key

Empowering the younger generation through education is another cornerstone of a liberal demographic strategy. Europe's future strength lies not in the size of its population but in the aggregate capabilities of its people. While Europe is home to some of the world's top universities and highest-quality education systems, it is clear that the continent has fallen significantly behind the United States in the global competition, especially in online education and related technologies (García-Herrera & Porcaro, 2021). Although precise statistics are lacking, it is evident that European universities educate far fewer students online worldwide compared with their American counterparts. This is a missed opportunity. European higher education institutions could deliver useful programmes for lifelong learning, particularly in developing countries and regions affected by migration. In doing so, they could also gain a competitive edge over the United States.

Within the EU itself, the education system must be universal, high-quality, and tailored to the challenges of the future, regardless of a student's social background. Essential measures include the development of early childhood education, the reform of vocational and technical training, and the integration of digital skills into all curricula. Special attention must be given to young people who are not in education or employment (the so-called NEET group), as they represent a key risk group for social and economic exclusion (Eurostat, 2024).

Mobility and exchange programmes such as Erasmus are valuable but insufficient. They currently serve a relatively narrow demographic – mostly from upper-middle-class or elite social backgrounds. A genuinely inclusive liberal strategy must extend these opportunities to all young people, regardless of their starting point in life.

Reducing regional disparities

Reducing regional disparities is also a prerequisite for demographic sustainability. The liberal approach rejects the notion that such regions are beyond saving or that the future lies solely in the continued expansion of urbanisation. Instead, what is needed is a smart cohesion policy that does more than provide financial compensation to affected areas – it must proactively and innovatively intervene in the trends of demographic decline.

One key component of this approach is the development of digital infrastructure. In the twenty-first century, geographical location should not be a barrier to economic participation – provided that the necessary technological conditions are in place. High-speed internet access, smart devices, and the availability of digital services make it possible for people to participate in the labour market, take up remote work, start businesses, or access education from small towns, rural areas, or even outside the EU's borders. Digitalisation can bring jobs back to these communities while also fostering new forms of community life.

A second strategic area is the targeted support of young families and entrepreneurs. Demographic renewal can only be successful if attractive living conditions are offered to those willing to settle, raise children, or start a business locally. This may include housing subsidies, the development of education and healthcare infrastructure, tax incentives, or even social innovation programmes (European Commission, 2023a). The goal is not to force people to return but to create an environment where settling down becomes a rational and appealing choice.

Pension and labour market reform for ageing societies

A liberal demographic strategy begins with the recognition that ageing is not merely a budgetary or labour market challenge; it can also be an opportunity, provided older generations are actively included in economic and social life. The liberal approach does not seek to compel everyone to work longer but instead aims to create the conditions for those who are willing and able to remain active – on a fair, flexible, and supported basis.

Gradual and flexible retirement is a cornerstone of pension reform. In more and more countries, models are emerging that allow individuals to exit the workforce based on their personal life circumstances and health status rather than a fixed age threshold.[26] This not only alleviates pressure on pension systems but also helps avoid the psychological and social shocks often associated with sudden inactivity.

Promoting cooperation between generations in the workplace not only enhances productivity but also strengthens social cohesion. When younger and older employees work together, they can learn from one another: older colleagues share their experience, while younger ones contribute digital fluency and innovative thinking. This dynamic requires ensuring older employees can access modern skills development, especially in digital competencies, so they are not left behind by technological change.

European Demographic Pact

A liberal, European-level demographic policy does not aim for uniformity, but it does assume shared responsibility: to respond to the demographic crisis in a coordinated and coherent manner. This makes it urgent to establish a comprehensive framework – not to challenge national sovereignty, but to strengthen coordination and the sharing of knowledge and best practices. One of the central proposals that liberals could champion is the creation of a European Demographic Pact,[27] which would clearly define the goals, indicators, and priorities needed to ensure the EU's long-term demographic stability.

Following the logic of the green and digital transitions, this pact would elevate demography to the status of a strategic priority. It would establish shared benchmarks to track progress on demographic adaptation, for example, improvements in fertility rates, the stabilisation of the old-age dependency ratio, or metrics related to migrant integration. The pact would provide a framework for aligning national policies and encourage reforms that go beyond short-term popularity in favour of long-term sustainability.

Another essential pillar of this shared approach would be the horizontal integration of demographic considerations into all EU policies. Currently, demography appears only sporadically and retroactively in impact assessments – within education, agriculture, or cohesion policy, for instance. In the future, every major EU strategy, from industrial policy to healthcare, from digital transition to regional development, should assess how it affects population structure and responds to ageing, emigration, or declining birth rates.

The pact would represent more than technical cooperation; it would serve as a political declaration that demography is not a secondary issue for the EU but a central one. Strategic autonomy does not only mean energy independence or technological self-sufficiency; it also implies population security – the capacity for Europe to maintain its economy, social model, and political relevance through the strength of its own citizens.

Mainstreaming demography into EU strategic planning

A liberal strategy starts from the premise that demography must be integrated as a horizontal factor across the entire EU policy and planning framework – just as has already occurred in the cases of climate change and digital transformation. Population-related aspects must appear not only in social or educational policy but across every area that directly affects citizens' living conditions, mobility, learning opportunities, and regional equality.

One of the most important tools in this regard is the European Semester, the EU's annual coordination mechanism, which aligns national budgets, structural reforms, and investment priorities. Currently, demographic analysis plays only a minor role in this process. Yet assessing a country's long-term fiscal sustainability, productivity, and labour market outlook is incomplete without factoring in demographic trends.

In the field of industrial policy and skills development, the lack of demographic considerations is especially striking. Technological innovation and digitalisation are valuable not in and of themselves, but only if people are able to apply and benefit from them. As the working-age population declines,

maintaining productivity will increasingly depend on upgrading the skills and capabilities of the existing workforce – a challenge that is inherently demographic in nature.

To truly embed demographic thinking in EU planning, there must be institutional capacity-building. The European Commission and other EU bodies should develop an analytical and impact assessment framework that evaluates all significant regulatory and budgetary decisions from a demographic perspective. This would not be without precedent: the EU already requires climate and digital impact assessments across many policy areas. A similar demographic impact assessment, introduced as a new regulation or guideline, would represent a major step towards long-term planning and coherence.

To truly embed demographic thinking in EU planning, there must be institutional capacity-building. The European Commission and other EU bodies should develop an analytical and impact assessment framework that evaluates all significant regulatory and budgetary decisions from a demographic perspective.

Appointment of a Commissioner for Demographic Sustainability

In the current institutional architecture of the EU, several horizontal challenges – such as climate change, the digital transition, and geopolitical security – are assigned to dedicated commissioners or vice-presidents, giving these issues the visibility and authority they deserve. Demographic challenges, by contrast, are fragmented across portfolios such as employment, social rights, cohesion, and education and are often treated as secondary concerns. In the European Commission in 2019, Dubravka Šuica's official post included the field of demography (Vice-President of the European Commission for Democracy and Demography) (European Commission, n.d.) alongside her main position as a Commissioner for the Mediterranean), and this continued in 2024, despite the fact that it would be worthy of a separate position.

This institutional fragmentation reflects not only a lack of strategic focus but also the absence of a comprehensive and politically empowered EU demographic strategy. Yet managing population decline can no longer be seen as a purely technocratic matter. Its political significance has been underscored by recent societal transformations, voter anxieties, and the rise of populist discourse. For the next European Commission, it would be both timely and appropriate to appoint a dedicated Commissioner for Demographic Sustainability.

This role would serve three main functions. Firstly, it would enable the horizontal coordination of a unified EU demographic strategy. A dedicated commissioner could ensure coherence across policy areas such as education, migration, family policy, regional development, and pensions. Secondly, the commissioner would represent demographic priorities within institutional negotiations, including in the formulation of Multiannual Financial Frameworks, programming cycles, and legislative packages. Thirdly, the role would provide a platform for strategic dialogue with Member States, expert communities, civil society organisations, and citizen forums.

Such a position would not only fulfil a practical coordination role – it would also carry symbolic significance. It would send a clear political message: the EU recognises that demography is not a secondary issue but an existential challenge that shapes the continent's future, prosperity, and global role. Appointing such a commissioner would signal that the EU is not merely reacting to demographic trends but is prepared to actively shape them through deliberate, values-based, and long-term policymaking. This role would also help ensure that Europe's demographic strategy evolves from a fragmented collection of programmes into a coherent narrative capable of aligning economic, social, and political goals under a unified vision for the future.

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Norwegian Sea
Arctic Circle
ICELAND
Reykjavik
NORWAY
SWEDEN
FINLAND
Helsinki
Oslo
North Sea
Stockholm
ESTONIA
LATVIA
Riga
LITH.
GREAT BRITAIN
Copenhagen
DENMARK
Berlin
POLAND
BELARUS
Dublin
IRELAND
NETH.
GERM.
Warsaw
London
BLG.
LUX.
CZEC.
SLOVAK.
Vienna
Budapest
Paris
AUSTRIA
HUNG.
ROMA
FRANCE
SWITZ.
SL.
CR.
BOS-HERZ.
SE.
BULG.
Bay of Biscay
ANDORRA
MONACO
ITALY
MO.
AL.
Madrid
Sardinia
Rome
GREECE
PORTUGAL
Lisbon
SPAIN
Mediterranean Sea
Sicily
Athens
MALTA
Crete
Rabat
Algiers
Tunis
Casablanca
MOROCCO
ATLAS MOUNTAINS
TUNISIA
Tripoli
ALGERIA
LIBYA

Establishing a European Demographic Transition Fund

The EU's structural and cohesion funds – owing to their historical mandate – have primarily focused on reducing economic disparities, balancing regional development, and supporting the convergence of disadvantaged areas. While these objectives partially overlap with demographic challenges, the existing EU funding instruments have not been suitable for directly and specifically addressing the structural problems stemming from population decline.

This is why the creation of a dedicated and targeted financial mechanism is necessary: a European Demographic Transition Fund that would specifically support ageing, depopulating, or structurally declining regions.[28] The logic behind such a fund would not be one of social redistribution, but rather one of enhancing demographic adaptability – incentivising Member States and regions to respond to demographic challenges in a proactive, innovative, and sustainable manner.

Such a fund could serve multiple objectives. On the one hand, it could finance region-specific investments aimed at retaining or attracting young people: housing programmes, support for young entrepreneurs, expansion of childcare infrastructure, development of digital connectivity, and the creation of flexible work and training opportunities. On the other hand, it could support innovative demographic pilot projects that experiment with new methods and partnership models to curb population decline.

Creating this fund would not be without precedent. The EU has already established targeted transition or crisis-related funding mechanisms, such as the Just Transition Fund for managing the social effects of the green transition, or the Recovery and Resilience Facility post-COVID. The demographic challenge is of similar weight – albeit less visible – and in the long run may prove even more destabilising. Therefore, the operation of such a fund must be flexible, regionally tailored, and designed in close cooperation with local governments, civil society organisations, businesses, and educational institutions.

From a political perspective, the creation of this fund would be both a symbolic and a strategic statement, especially if initiated by liberal political actors. It would demonstrate that the EU is willing to mobilise resources to maintain a sustainable and viable social structure across the entire continent, not just in competitive urban centres but also in vulnerable peripheral regions. Such a funding tool would not only advance cohesion objectives but would also strengthen the human dimension of Europe's strategic autonomy: the European project needs people – and those people must have places to live and the means to thrive within Europe.

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ARTICLE FROM THE INDUSTRY

Winning the Talent War in Europe

The Workforce of Today and Tomorrow

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Set up in 1962, Ceemet is the European employers' organisation representing the interests of the metal, engineering, and technology-based (MET) industries with a particular focus on topics in the areas of employment, social affairs, industrial relations, health and safety, and education and training. Ceemet members are national employers' federations across Europe and beyond based in 20 countries. They represent more than 200,000 member companies, a vast majority of which are small and medium-sized enterprises. Together, these companies make up Europe's largest industrial sector, providing 35 million direct and indirect jobs.

Introduction

In today's fast-evolving geopolitical landscape, Europe finds itself in a quiet but consequential war: a war for talent. Unlike traditional battlegrounds, this one is fought not with weapons or armies, but with education systems, labour policies, more inclusion, and strategic foresight.

The forgotten resource

The ability to attract, nurture, and retain skilled people is increasingly becoming the most defining factor of economic strength and societal resilience. Both the high- and low-skilled workforce must be understood not as something nice to have, but as a critical resource, as vital to Europe's future as energy, defence, or raw materials.

Yet Europe is falling behind in this race. Eighty per cent of European employers report that they struggle to recruit workers with the right skills (Weber & Adăscălițe, 2024). A persistent mismatch between the skills offered by the labour market and the demands of its industries is stalling growth and undermining competitiveness. Literacy and basic skills levels in parts of the population remain alarmingly low, even as digitalisation and the green transition require increasingly complex competencies. Innovation is not accelerating at the scale or speed required. While the continent rightly focuses on strategic autonomy in areas such as energy, technology, and critical raw materials, we have been slower to grasp that autonomy is impossible without the people to drive it. Simply put, we cannot produce chips without engineers or artificial intelligence without mathematicians, and we cannot accomplish the green transition without skilled technicians.

There is a long way to go from political declarations to tangible outcomes. The urgency and scale of the challenge call for a structured, long-term approach, and European industries are on board with it.

Demography is at the heart of the problem. Europe's ageing population means fewer people are entering the workforce, while a growing number are exiting it, often without having passed on their valuable skills and knowledge. At the same time, the social care burden is increasing, creating more demand for labour in sectors already facing critical shortages. This is a demographic time bomb: without serious course correction, Europe risks economic stagnation and an even more fragile social fabric.

To make matters worse, political evolutions in Europe and beyond with rising nationalist movements are eroding the consensus around openness and international cooperation, with direct consequences for talent attraction and retention. Some countries have moved to restrict the intake of foreign students (Pascoe, 2024), while others are tightening migration rules or cutting integration budgets. Stricter migration policies and complex bureaucratic processes continue to act as barriers to third-country nationals entering and integrating into the European job market. These decisions may play well in short-term domestic politics, but they are damaging Europe's long-term capacity to remain a magnet for global talent.

Meanwhile, our economies are undergoing one shock after another. Inflation and the rising cost of living put massive strains on households and businesses, while geopolitical instability, from the war in Ukraine to the volatility in global trade, creates further uncertainty. For many companies across Europe, especially small and medium-sized enterprises (SMEs), this is not a time of expansion but one of survival. SMEs, to many people's surprise, comprise 99 per cent of European businesses, providing around 85 million European citizens with jobs (European Commission, n.d.a).

And yet, paradoxically, millions of vacancies remain unfilled across critical sectors, from manufacturing to healthcare, from logistics to construction. The EU's biggest economy, Germany, reportedly has 1.6 million unfilled positions alone, with the country's workforce projected to shrink by 10 per cent by 2040 (DW, 2024). The people either are not there or, if they are, they are not where they are needed the most.

Adding to the complexity are internal obstacles that Europe has yet to overcome. Despite decades of integration, the EU still suffers from structural and regulatory fragmentation which slows down and discourages the mobility of skills and qualifications across borders. Labour mobility within the Union remains constrained by bureaucratic inefficiencies, lack of interoperable digital systems, and uneven recognition of credentials. These 'gaps' in completing the Single Market for labour mobility prevent the kind of dynamic workforce redistribution that Europe desperately needs.

In this context, it is not an exaggeration to say that Europe's competitiveness, and indeed its social model, is at stake. The question now is whether we have the courage to re-think talent as a strategic resource and treat it as such. Winning the talent war requires more than rhetoric: it requires political will, policy streamlining, and re-prioritisation of education and training across different demographic groups, but particularly youth.

Photo on Pexels

Signs of political awakening

The good news is that this conversation is finally gaining traction. The new European Commission, in its first hundred days, has placed labour, skills, and workforce planning at the heart of its political agenda. The European Commission's Competitiveness Compass, published on 29 January 2025, underlined the need to 'ensure a good match between skills and labour market demands' (European Commission, 2025: 22). The subsequent Union of Skills initiative with its various action plans, unveiled by Roxana Mînzatu, EVP and Commissioner for Skills, Education, Quality Jobs and Social Rights, took that mission further.

The Union of Skills targets all aspects of European workforce development, including supporting upskilling and reskilling, promoting labour mobility, helping the free movement of workers, and attracting talent (European Commission, n.d.b). Later in 2025, the Commission will also unveil the Quality Jobs Roadmap package, covering areas from working conditions, wages, skills, and job transition to social protection and career development.

For perhaps the first time, human capital is no longer an afterthought. There is widespread recognition that no industrial strategy, particularly in the context of the twin digital and green transitions, can be implemented without addressing the fundamental question of workforce availability and qualification. In this sense, the shift from ad hoc, reactive policymaking to a more systemic and proactive approach might just create the change we need.

Still, there is a long way to go from political declarations to tangible outcomes. The urgency and scale of the challenge call for a structured, long-term approach, and European industries are on board with it.

Solutions for today and tomorrow

To win the so-called 'talent war', Europe must move decisively across three interconnected areas: mobility, shortages, and education. Each of these, on its own, is complex. But they are not stand-alone issues, and all three of have recently become heavily politicised.

1. **Activate labour mobility**

   European workers must be able to move more easily across borders. Today, only 4 per cent of EU citizens live and work in a Member State other than their own – a shockingly low figure in a Union that prides itself on freedom of movement. Obstacles such as language barriers, inconsistent social security coordination, and administrative hurdles are some of the many reasons for this.

   What is needed is a modernised framework for intra-EU mobility, one that integrates digital tools, recognises qualifications easily, and ensures fair access to social protections without penalising mobile workers or employers. A fully implemented and interoperable eDeclaration system – as called for by Ceemet and other employer organisations – would go a long way towards reducing administrative burdens and boosting cross-border mobility of workers.

2. **Target labour and skills shortages**

   The shortage of skilled workers in Europe is no longer a sector-specific problem; rather, it is an economy-wide crisis. From machine operators to drivers, from engineers to data scientists – Europe needs millions of both high- and low-skilled workers. The EU Talent Pool initiative is a good starting point, but its voluntary nature means that its potential for many industries is limited.

   We must treat talent attraction as a global competition. Europe should position itself as an attractive destination for both low- and highly skilled migrants. This can be done through facilitating visa procedures, speeding up qualification recognition, and creating welcoming, stable environments for professionals and their families. More importantly, we need to embrace a narrative that sees migration as an investment in Europeans' future, not a threat to their livelihoods.

3. **Rely on education and training**

   Education and training systems must be strategically realigned with labour market realities. Too often, these systems operate in isolation from economic need, resulting in graduates being ill-equipped for today's industries and employers scrambling to train new hires from scratch, carrying the financial burden of building the workforce they need on their own.

   A modern education system should blend academic knowledge with practical skills, put a critical focus on digital skills, foster STEM education from an early age, and elevate the status and quality of vocational training. Lifelong learning should be not just encouraged but enabled, particularly for low-skilled workers, women, and those in shrinking industries. Importantly, training must be flexible and targeted.

   Social partners – employers and trade unions – must be at the heart of designing these systems. No top-down reform can substitute for the insight and experience of those closest to the workplace.

A strategic turn for Europe's future

The twenty-first century is defined not only by technological change and geopolitical realignment but also by a growing awareness that human capability is a strategically important source of resilience. This realisation should lead to a change of mindset in many areas: investing in education and skilling as much as we do in other areas, viewing labour mobility as a solution instead of a problem, rethinking bureaucratic habits in favour of faster and smarter policymaking, and telling a different story about migration focused on opportunity and mutual benefit.

It is true that we are already falling behind in many of these areas. The demographic trends we face today were set in motion decades ago. The investments we make now in education, training, and talent attraction will take time to materialise, and mindset changes sometimes take generations to succeed.

But Europe already has strong foundations: a large market and a population of almost half a billion, legacy industries, a tradition of high labour standards, and engaged social partners. The race is on, and we hope that we all help Europe win it.

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ENDNOTES

Section 3

25 The views expressed in this work are the author's own and do not express in any way whatsoever the opinion of CEP or the European Liberal Forum (ELF), who is publishing the article.

26 The concept of gradual and flexible retirement is increasingly discussed in international policy literature (see, for example, European Commission, Directorate-General for Employment, Social Affairs and Inclusion, 2021; Bloom, 2019).

27 The concept of a European Demographic Pact was indeed mentioned by the AGE Platform Europe in 2012 (Mallia, 2012).

28 There is no official EU funding instrument currently named the European Demographic Transition Fund, but the idea has been discussed in policy circles and is conceptually related to several existing or proposed EU initiatives (see, for example, European Parliament, 2022).

SECTION 4

Europe's global connections

ARTICLE

Greenland and the EU's Arctic Ambitions

Securing Strategic Autonomy in a Changing North

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Abstract

As climate change and geoeconomic interests reshape the Arctic, Greenland is emerging as a key player in securing access to resources, trade routes, and influence in this increasingly contested region. The European Union must move beyond passive rhetoric and adopt a proactive approach by investing in Greenland's infrastructure, fostering institutional partnerships, and integrating Greenland into wider Arctic planning initiatives. Updated European Union engagement in the region – and in Greenland more specifically – would enhance resilience, sustainability, and autonomy, while ensuring that Greenlandic local communities remain central to decision-making processes.

Introduction

The Arctic is becoming increasingly important to the European Union's (EU) pursuit of strategic autonomy, due in particular to its untapped resources, new trade routes, and growing geopolitical significance. As a key Arctic territory with vast natural wealth and a pivotal location, Greenland holds unique potential for ensuring the EU's future economic and energy security. Climate change and melting ice not only represent environmental phenomena but also open up new geopolitical realities, making access to the Arctic and partnerships in the region matters of strategic interest.
The Arctic region is primarily governed by the consensus-based Arctic Council and the United Nations Convention on the Law of the Sea, as well as the dedicated national policies of the

eight individual Arctic states. The region encompasses the Arctic Ocean and the northernmost territories of the Arctic states: Canada, the Kingdom of Denmark (through Greenland and the Faroe Islands), Finland, Iceland, Norway, Russia, Sweden, and the United States. The fact that three out of the eight states are EU member states, coupled with the rapidly evolving geopolitical landscape, calls for a more assertive and targeted EU role in the region.

Greenland's relevance lies not only in its autonomy within the Kingdom of Denmark but also in its strategic location between the Western Hemisphere, Europe, and northern Asia, and in its possession of valuable natural resources and access to the sea. Despite having just around 57,000 inhabitants across its vast, resource-rich landmass, Greenland is a player with vital geopolitical assets. Its natural resources, location on emerging sea lanes, and proximity to North America make it a cornerstone of Arctic policy and a test for the EU's credibility in its neighbourhood.

The EU should develop and implement a proactive, integrated Arctic strategy that moves beyond passive observation to active engagement. This strategy should prioritise resource security, sustainable cooperation, and strategic partnerships with Greenland and Denmark in order to safeguard the EU's economic and energy interests, enhance its geopolitical influence, and assert its role as a key Arctic actor amid intensifying global competition.

The EU should develop and implement a proactive, integrated Arctic strategy that moves beyond passive observation to active engagement. This strategy should prioritise resource security, sustainable cooperation, and strategic partnerships with Greenland and Denmark in order to safeguard the EU's economic and energy interests, enhance its geopolitical influence, and assert its role as a key Arctic actor amid intensifying global competition. Without decisive action, the EU risks losing access to critical resources and influence to more assertive global players.

1. The EU's strategic stakes in the Arctic: why Greenland?

Greenland's strategic location between North America and Europe rendered it a pivotal location for US military operations during the Second World War and the Cold War. This ultimately resulted in the establishment of Thule Air Base (Rahbek-Clemmensen, 2020; Østhagen, 2025). Over several decades, Greenland underwent a transition from colonial status to a position of increasing autonomy, ultimately achieving Home Rule in 1979 and further self-government in 2009, which includes the authority to govern its natural resources (Ackrén, 2025; Nielsen & Strandsbjerg, 2024). Greenlanders are now recognised as a distinct people under international law, possessing the unilateral right to independence and asserting a growing role in Arctic governance and geopolitical affairs. While Greenland remains an integral part of the Kingdom of Denmark, its relationship with Copenhagen is increasingly characterised by pragmatic cooperation. The EU, conversely, possesses a distinctive yet less clearly delineated status, with a historical foundation yet a political complexity that renders it a delicate entity. The EU is now obliged to clarify and fortify its position within the evolving strategic framework.

The EU's engagement in Arctic affairs is not merely a matter of regional policy; it reflects broader considerations of security, sustainability, geopolitical stability, and – most of all – long-term strategic autonomy. Since 2008, the EU has published various documents outlining its vision for the Arctic and formally applied for observer status on the Arctic

Council. Its most recent Arctic strategy dates to October 2021: its declared aim was to maintain the Arctic as a region of peaceful cooperation, mitigate the effects of climate change, and support the sustainable development of Arctic regions. A present-day reading of the 2021 EU Arctic strategy reveals a policy that is outdated and in urgent need of realignment with the geopolitical realities of today. As an opinion by the European Economic and Social Committee (EESC, 2025) argues, the Arctic is no longer an area of peaceful cooperation: the world has changed since October 2021 and new geopolitical challenges, including Russia's invasion of Ukraine, call for a more defined and pragmatic EU engagement strategy, one that prioritises economic cooperation, secure access to resources, and alignment with Greenlandic and Danish partners – all while respecting the local communities and national interests of Greenland.

2. Greenland's geoeconomic potential: what could the EU gain?

Greenland possesses substantial reserves of critical raw materials that are indispensable for the EU's green and digital transitions (Derouin, 2025). According to a report by the Geological Survey of Denmark and Greenland, 25 out of 34 minerals on the EU's critical raw materials list can be found in Greenland, including graphite, lithium, and rare earth minerals (Leclerc, 2025, p.7). The importance of these resources has increased significantly since the entry into force of the European Critical Raw Materials Act in May 2024. This Act sets clear benchmarks to reduce dependency on any single third country and aims to ensure that at least 10 per cent of extraction, 40 per cent of processing, and 25 per cent of recycling are carried out within the EU by 2030. These minerals are essential not only for clean energy technologies such as batteries and solar panels but also for defence systems and digital products vital to European industry (ENR, 2025). The 2021 EU Arctic strategy (European Commission, 2021) failed to explicitly state that Greenland was a strategic supplier for achieving these benchmarks, thereby missing a crucial opportunity to align Greenland's vast resource potential with the EU's long-term goals for strategic autonomy and supply chain resilience in the green and digital sectors. The EU's economic resilience and geopolitical flexibility would be safeguarded and enhanced by a reduction in its dependence on dominant suppliers such as China and select African states. In the context of mounting demand for critical minerals, the establishment of a stable and mutually beneficial partnership with Greenland is imperative if the EU is to achieve its long-term industrial and strategic objectives.

The island's strategic position along prospective Arctic maritime corridors, such as the Northwest Passage and the Transpolar Sea Route, is of additional interest as these routes are becoming more navigable due to climate change (Spence & Hanlon, 2025). Greenland could use this opportunity to establish support facilities along the shipping lanes, develop maritime infrastructure, monitor and secure the routes, and facilitate military defence positioning (Leclerc, 2025). Consequently, the EU's economic interests and resilience are significantly impacted by Greenland's actions. To support Greenland in capitalising on its strategic position, the EU should consider channelling investments through available funds to provide financial and technological assistance for Greenland's maritime infrastructure, route monitoring, and security capabilities. The provision of such support would facilitate the diversification of Greenland's economy, enhance its sovereignty over critical infrastructure, and augment its geopolitical significance.

The Arctic is witnessing climate change at a pace three times faster than anywhere else in the world. The accelerated melting of ice sheets and permafrost is making Greenland's mineral and hydrocarbon resources increasingly accessible for extraction. Although this opens up new areas for economic development, it is important to strike a balance between exploiting resources and preserving the environment. Effective governance frameworks that prioritise Indigenous participation in environmental stewardship are essential for fostering resilience in the face of these multifaceted challenges. Furthermore, recognising and protecting Indigenous rights is vital for promoting sustainable development and ensuring equitable resource management amid the escalating geopolitical focus on the region.

Although Greenland potentially has oil reserves, no commercial production has yet occurred because current policy prioritises environmental protection and renewable energy over fossil fuel development. In particular, Greenland focuses on expanding hydroelectric and wind power generation to meet domestic energy needs sustainably and reduce reliance on imported fuels or the extraction of fossil fuels. The EU has the potential to further leverage funding from the Multiannual Financial Framework, with a particular focus on its dedicated climate and energy transition programs, to support renewable energy projects in Greenland, facilitate technology transfer, and enhance sustainable infrastructure. This approach is consistent with the EU's Green Deal objectives and Greenland's commitment to environmentally responsible development. The close collaboration with Greenland should also be reflected in the negotiations for the upcoming Multiannual Financial Framework negotiations.

Photo by Polina Tomáš Malík on Pexels

3. The EU's strategic interests in the Arctic

The EU's cooperation with Greenland reflects a strategic blend of economic, political, environmental, and security interests. The evolving partnership between Greenland, Denmark, and the EU highlights the need for collaborative frameworks that not only address the pressing challenges of climate change but also engage in sustainable resource management. These dynamics collectively reinforce shared security interests, positioning the Arctic as a critical arena for geopolitical engagement and cooperative security strategies in an increasingly contested environment.

3.1. Economic aspirations

Greenland's vast mineral reserves, especially those of rare earth elements and hydrocarbons, are becoming increasingly important in the EU's strategy to enhance energy security and reduce dependency on Chinese-dominated supply chains (Chuffart & Johnstone, 2025). To support this strategic interest, the EU signed a Memorandum of Understanding with the Government of Greenland in 2023 (European Union & Government of Greenland, 2023a). This agreement established a partnership focused on developing sustainable value chains for raw materials. The aim is to promote the responsible extraction of these materials, create local value, and develop long-term cooperation in the supply of critical minerals. This approach aligns with the EU's Global Gateway strategy, which promotes sustainable infrastructure and strategic connectivity partnerships in regions vital to the Union's resilience and autonomy.

Despite the global interest in these critical minerals, the number of operational mining projects in Greenland remains very limited. Several factors, such as administrative hurdles, challenging weather conditions, and limited infrastructure and workforce, have served to impede the progress of commercial development. Currently, the mining industry accounts for approximately 1 per cent of Greenland's economy, leaving most of the territory's mineral wealth untapped (ENR, 2025). For the Greenlandic population, the long-term potential of these resources is seen not solely from an economic perspective but also as a potential avenue for enhancing political independence. To unlock this potential, the EU should adopt a proactive role in the de-risking of early-stage investments, support infrastructure development, and co-finance sustainable mining projects from Greenlandic companies or like-minded partners. This would ensure the EU's long-term security of access to vital resources, while contributing to Greenland's economic development.

In addition, the fisheries and partnership agreement that the EU holds with Greenland guarantees duty-free access to the European market and educational cooperation. Greenland receives more EU funding than any other overseas country or territory. The EU could further strengthen people-to-people ties, fostering capacity-building in Greenlandic institutions and supporting the development of a skilled workforce aligned with both local needs and broader EU priorities through additional promotion of Erasmus+ opportunities.

In this broader economic context, the EU–Greenland Partnership Agreement (European Union & Government of Greenland, 2023b) and the Sustainable Fisheries Partnership Agreement (Council Decision 2024/3202) play complementary roles. The former ensures duty-free access for Greenlandic fishery products to the EU market and promotes educational cooperation; the latter governs EU access to Greenlandic fishing zones and supports sustainable fisheries management, thereby strengthening institutional and economic ties. Notably, Greenland receives more EU funding than any other Overseas Country or Territory (Nielsen & Strandsbjerg, 2024), reflecting the Union's strategic interest in maintaining long-term economic and political cooperation with the island.

In the longer term, the formalisation of an expanded EU–Greenland partnership framework has the potential to enhance policy coherence and institutional alignment across raw materials, fisheries, and trade.

3.2. Political and governance objectives

The EU is seeking to strengthen its soft power in the Arctic by establishing cooperative governance frameworks that prioritise sustainable development and regional stability in Greenland (Nielsen, 2024). This can already be seen in the latest EU Arctic policy, which reflects the normative power approach of the EU, rather than laying the groundwork for the EU to become a conventional superpower (Debanck, 2023). Diplomatic initiatives, humanitarian goals, and investments in local communities aim to ease geopolitical tensions while reinforcing Greenland's role as a stabilising partner in the context of Arctic security.

While Greenland does not possess its own military, its geographical location renders it a pivotal element in ensuring transatlantic security. It is located within the Greenland–Iceland–UK gap, a critical chokepoint for NATO's maritime defence positioning (Rahbek-Clemmensen, 2020). Recent geopolitical tensions, particularly in the wake of Russia's 2022 invasion of Ukraine and Trump's aspirations to simply buy Greenland,

have heightened the imperative for the reinforcement of security frameworks in the Arctic region (Mikkola, Paukkunen & Toveri, 2023).

Nevertheless, it should be noted that conventional military expansion does not constitute the EU's primary competitive advantage. Instead, the Union should prioritise the development of cyber resilience, maritime monitoring, and hybrid threat management (Jacobsen & Rahbek-Clemmensen, 2024). The integration of surveillance with scientific research, for instance, has the potential to yield mutual benefits without contributing to militarisation. The promotion of local ownership, Indigenous inclusion, and environmental stewardship is not merely an ethical imperative: it is a strategic necessity for ensuring long-term cooperation. The EU has the ability to support capacity-building and inclusive governance structures, whilst aligning Arctic efforts with the European Green Deal.

Furthermore, the EU should promote trilateral cooperation with like-minded countries that share Arctic interests, such as European Free Trade Association members, to amplify its normative influence and operational reach. Given Greenland's increasing autonomy, the EU must adapt its engagement strategy to align with local governance structures while at the same time integrating Greenland more comprehensively into Arctic and EU-level strategic planning processes. This situation necessitates the establishment of novel institutional frameworks that foster inclusive governance and facilitate direct Greenlandic involvement in collaborative initiatives.

By deepening this partnership, the EU stands to gain enhanced geopolitical credibility, strengthened strategic positioning in the Arctic, and early access to key governance networks that will shape the region's future political and economic order.

3.3. Strategic forecasting and future scenarios

Given its geostrategic location within the Arctic, Greenland requires forward-looking planning to anticipate risks and opportunities. In an ever-changing geopolitical landscape, the possibility of a military build-up by NATO and Russia highlights the need for a robust EU diplomatic presence in the region. Prioritising the establishment of conflict-resolution mechanisms while continuing to support sustainable development and inclusive governance is crucial. Gattolin (2025) argues that the geopolitical reality of Greenland is evolving more rapidly than the EU's response; if this pattern persists, others will fill this void. Delays in policy implementation could compromise the EU's access to critical natural resources and diminish its involvement in a region that is essential to its long-term goal of strategic autonomy. A passive role could even undermine the EU's credibility among Arctic stakeholders, including its member states Finland, Sweden, and Denmark – or possibly send the wrong message to non-like-minded states interested in gaining influence in the region.

Strategic forecasting must incorporate scenario-based planning that considers cooperation, hybrid conflict, and environmental crises. In all cases, Greenland's role as a self-governing territory with deep Indigenous roots must be central. Indigenous knowledge and rights must be respected and integrated into governance frameworks to uphold international norms and ensure effective, legitimate policy outcomes. In her recent speech at the European Parliament plenary meeting in May, Vice-President of the European Commission Kaja Kallas reiterated this position: 'Any decisions over Greenland's future should be decided in the same way: by the people of Greenland' (EEAS, 2025). According to Kallas, the only way to ensure respect for the principles of sovereignty, territorial integrity, and the sanctity of borders in a rules-based world order is to let the people of Greenland decide on their own future.

4. The strategic implications of Greenland for EU Arctic security

Greenland should be recognised not as a peripheral actor but as a central partner in the EU's pursuit of strategic autonomy. The nation's abundant natural resources, advantageous location, and evolving political status confer significant influence in shaping the future of the Arctic region. Consequently, this has a direct bearing on Europe's capacity to operate autonomously in a global landscape characterised by mounting tensions and competitive interests. Should the EU be earnest in its commitment to reducing dependency on external powers, securing critical raw materials, and projecting influence through normative, non-military means, Greenland presents a strategic opportunity of unparalleled significance. To unlock this potential, the EU must transition from declarations to delivery: this necessitates a strategic investment in the development of Greenland's infrastructure and sustainable mining capacity, the deepening of institutional partnerships, the promotion of inclusive governance, and the integration of Greenland into broader Arctic and EU-level planning processes. A more engaged, pragmatic, and forward-looking EU Arctic policy would not only help secure vital resources and supply routes but also reinforce the Union's credibility as a geopolitical actor.

Greenland has been identified as a locale in which the EU's objectives pertaining to resilience, sustainability,

and autonomy converge. All forms of cooperation must be pursued in full partnership and consultation with Greenland, with the overarching objective being the support of its development goals. It is crucial that any decisions made are made with the consent of and to the benefit of Greenlandic communities as a fundamental principle. Policymakers must take decisive action to establish this approach as a pivotal area of strategic collaboration before other actors in the field do so.

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ARTICLE

Peace as a Prerequisite for Connectivity

The Trans-Caucasus Transit Corridor and Geopolitical Competition in the South Caucasus

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Abstract

This paper examines the Trans-Caucasus Transit Corridor (TCTC) as a strategic linchpin in EU connectivity between Europe and Asia. It argues that sustainable peace between Armenia and Azerbaijan is essential for unlocking the corridor's full potential, particularly amid shifting geopolitical dynamics and ongoing instability in the Middle East. The study highlights how Russia's conflict-driven influence and Azerbaijan's posture hinder integration and development. It outlines the European Union's strategic leverage and proposes a policy framework that links investment, inclusion, and deterrence to peace, particularly in the face of the August 8 trilateral meeting between the leaders of Armenia, Azerbaijan, and the U.S. The TCTC is presented as both a test and opportunity for EU geopolitical coherence and ambition.

Introduction

The South Caucasus region stands at the crossroads of Europe and Asia, making it a strategic hub for trade, energy, and digital infrastructure. In recent years, connectivity initiatives – such as the European Union's Global Gateway and China's Belt and Road Initiative – have heightened the strategic importance of the Trans-Caucasus Transit Corridor (TCTC), which forms a vital segment of the so-called Middle

Corridor. This corridor aims to link Europe and Central Asia through the South Caucasus, bypassing Russian and Iranian territories.

However, the viability of this corridor hinges on a single factor: peace between Armenia and Azerbaijan. While both countries announced on 13 March 2025 that they had agreed to the terms of a long-negotiated peace agreement, a breakthrough has been hard to achieve, given Azerbaijan's subsequent demands. The trilateral meeting held in Washington on August 8 and the signing of several documents marks an important progress in peace talks. This includes an agreement between the U.S. and Armenia for the "Trump Route for International Peace and Prosperity" (TRIPP) connectivity project in the territory of Armenia, which will ensure unimpeded connectivity between Azerbaijan and Nakhchivan. While the peace agreement was not signed given Baku's ongoing demands, the Foreign Ministers of two countries initialed it, reaffirming the need for further actions to achieve the signing and ratification of the agreement.

This creates an important momentum to double down on efforts to achieve lasting peace, which is not only a prerequisite for connectivity but also a necessary condition for limiting Russian and Iranian influence, enhancing EU strategic leverage, and ensuring sustainable regional development.

The Trans-Caucasus Transit Corridor and its strategic role

The TCTC, as part of the broader Middle Corridor, provides an east–west route from China through Central Asia, across the Caspian Sea, the South Caucasus, and onward to Europe. The corridor has gained significant traction since Russia's invasion of Ukraine in 2022, as EU Member States seek to diversify supply chains and reduce dependency on Russian-controlled infrastructure.

Presently, the TCTC bypasses Armenia due to its closed borders with both Turkey and Azerbaijan. Yet, if a peaceful resolution of regional conflicts is achieved, Armenia could join this network, offering shorter and more secure routes through its territory. These routes would not only provide time and cost efficiencies but also align with the EU's goals of resilient, transparent, and sustainable connectivity.

The strategic importance of the TCTC has been further underscored by the ongoing Iran–Israel confrontation. Heightened instability across the Persian Gulf, the Red Sea, and the wider Middle East highlights the vulnerability of southern transit routes. Against this backdrop, the TCTC emerges as a safer and more geopolitically neutral passageway, which can secure uninterrupted flows of goods, energy, and data between Europe and Asia. In this sense, the EU's ability to stabilise and develop the TCTC becomes a critical component of its broader strategic autonomy.

Conflict and instability as structural obstacles

The unresolved conflict between Armenia and Azerbaijan remains the greatest barrier to a functional and economically viable TCTC. The August 8 meeting in Washington, along with the relevant documents that were signed represents a notable progress in peace talks. However, Azerbaijan continues to maintain its demand on Armenia to change its constitution. Additionally, it remains to be seen how the "Trump Route for International Peace and Prosperity" will be implemented, satisfying the demands of both Armenia and Azerbaijan.

It also remains to be seen what will happen with the tactics Azerbaijan has employed previously, such as disinformation campaigns, ceasefire violations, territorial provocations, as well as the 'Western Azerbaijan' narrative promoted by Azerbaijani officials, which openly challenges Armenia's sovereignty.

Further complicating the situation is Azerbaijan's ongoing occupation of over 200 square kilometres of Armenian territory, the detention of Armenian prisoners of war and civilians, and the destruction of Armenian cultural heritage in Nagorno-Karabakh. These actions not only exacerbate mistrust but also serve as deterrents to long-term investment and development in the region – particularly in connectivity infrastructure.

Russia's crisis management strategy: Conflict as leverage

Russia's foreign policy in the South Caucasus has historically relied on maintaining low-intensity conflicts that require its mediation. The deployment of Russian peacekeepers to Nagorno-Karabakh after the 2020 war exemplifies this strategy. Although framed as a stabilising gesture, the move primarily served to preserve Moscow's role as a power broker in the region.

Today, while Russia's capacities are constrained by its prolonged war in Ukraine, it remains unlikely to relinquish influence in the South Caucasus. Indeed, any EU-led peace or connectivity initiative that threatens to marginalise Moscow is likely to be met with obstruction or subversion. Russia's primary objective is to prevent any single external actor – especially the EU – from dominating regional projects or negotiations.

Stability in the South Caucasus would undermine the rationale for Russia's continued military presence and diplomatic mediation. This would, in turn, weaken one of its most effective instruments of leverage. EU policymakers must anticipate and pre-empt efforts by Russia to derail peace or delay the region's integration into European infrastructure and governance frameworks.

The peace dividend: Unlocking Armenia's transit potential

A finalised peace agreement between Armenia and Azerbaijan would unlock new possibilities for connectivity, most notably Armenia's reintegration into regional transit networks. This reintegration is essential to realising the full potential of the TCTC and delivering on the EU's vision of diversified, sustainable trade corridors.

The inclusion of Armenia would create more direct and efficient links between Central Asia and European markets. For instance, a route connecting Baku to Turkey through southern Armenia would offer a significant logistical advantage over current detours through Georgia. Not only would this save time and costs, but it would also enhance corridor resilience by creating alternative pathways.

The economic incentives of this integration are matched by the political benefits. Open borders and increased interdependence can help normalise relations, foster trust, and encourage long-term peace. For Armenia, such developments would open up new avenues for infrastructure investment, trade diversification, and broader economic renewal – all goals that directly align with the EU's regional engagement strategies.

EU strategic leverage and imperatives

The EU holds substantial strategic leverage in the South Caucasus. As Azerbaijan's largest export market for natural gas and home to key investors in regional infrastructure – such as BP – Brussels is well positioned to shape outcomes. However, the EU has often refrained from deploying its full weight in support of peace and sustainable development.

Integrating the South Caucasus into the EU's Global Gateway and Black Sea Strategy frameworks offers a rare window of opportunity. These strategies are not merely development tools; they are instruments of geopolitical alignment and value-based engagement. Armenia's inclusion in the TCTC supports the Global Gateway's aims by promoting democratic governance, transparency, and resilience.

Simultaneously, the Black Sea Strategy – aimed at enhancing connectivity, security, and cooperation – requires a stable South Caucasus to realise its full potential. Armenia, if included, could serve as a pivotal land bridge connecting the Caspian Basin to the Black Sea and onward to Europe. This would enhance not only physical connectivity but also Armenia's institutional alignment with European norms and partnerships.

The EU must act with clarity and purpose. With the Global Gateway and Black Sea Strategy already in place, the instruments for engagement are available. What is required now is the political will to use them effectively.

Policy recommendations for the EU

To realise the transformative potential of the TCTC, the EU must adopt a proactive and coherent policy framework rooted in conditionality, strategic investment, and conflict resolution.

Firstly, the EU should make a signed peace agreement between Armenia and Azerbaijan a clear precondition for deepened cooperation with Azerbaijan. In addition to the need for Azerbaijan to withdraw its demand for constitutional change, the release of Armenian detainees and prisoners of war and the withdrawal of Azerbaijani forces from occupied territories would go a long way in building trust between the sides.

Secondly, the EU must use economic tools to incentivise peace. Infrastructure investments, preferential access to EU markets, and development financing should be made available contingent on measurable progress towards peace. Complementary support for humanitarian needs – such as de-mining, rehabilitation, and trauma recovery – should accompany these measures to support a broader reconciliation process.

Thirdly, the EU should prepare a deterrence mechanism aimed at preventing renewed aggression. This includes readiness to apply targeted sanctions and asset freezes against individuals responsible for escalation. It also requires close coordination with the United States and regional partners to resist destabilising activities by Russia and Iran, whose influence threatens both peace and connectivity.

Fourthly, and most importantly, the EU must work to ensure Armenia's full inclusion in regional connectivity initiatives. This means supporting its participation in Middle Corridor projects, backing confidence-building measures with Azerbaijan, and facilitating its involvement in EU-aligned platforms such as the Black Sea Strategy. Inclusion, rather than isolation, is the EU's most effective tool for promoting peace, democracy, and development in the South Caucasus. The initialing of the peace agreement creates a huge opportunity to work with Turkey, so it finally opens its border with Armenia.

Conclusion

The future of the South Caucasus lies at the intersection of peace and connectivity. The Trans-Caucasus Transit Corridor could become a cornerstone of east–west trade and geopolitical cooperation – but only if sustainable peace is achieved. Azerbaijan's hardline posture, external interference from Russia, and regional instability – exemplified most recently by the Iran–Israel confrontation – highlight the urgency of securing alternative, stable routes for European interests.

The EU must act with clarity and purpose. With the Global Gateway and Black Sea Strategy already in place, the instruments for engagement are available. What is required now is the political will to use them effectively.

Peace is more than a diplomatic objective – it is the linchpin of strategic connectivity and economic security. The credibility of the EU's foreign policy and its influence across Eurasia will be measured by its ability to ensure that peace enables connectivity – and that connectivity, in turn, secures peace.

NOTE FROM THE INDUSTRY

Protecting Europe's Critical Connectivity Infrastructure through Trusted Partnerships

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Reliable, resilient connectivity: A fundamental resource for the digital world

Digitisation of our economies, accelerated by the COVID-19 pandemic, has led to a reliance on fast and resilient digital infrastructure. Digital infrastructure is the foundation for tech innovation, in turn a fundamental pillar is essential for Europe's growth, productivity, and competitiveness. The war in Ukraine has demonstrated the critical role of digital infrastructure in enabling national defence and emergency response.

As Europe navigates an increasingly uncertain and unpredictable geopolitical landscape, governments must act to defend the fundamental resources that underpin Europe's interests, values, and future prosperity. This means bolstering collective defence capabilities, reducing high-risk dependencies and creating competitive, sovereign European ecosystems for critical technologies which drive future growth (AI, edge quantum). In all of this, the vital role of secure, reliable, low latency connectivity as a critical enabler is often overlooked.

Europe's response must be on a continental, if not global, scale. The EU's security and economic prosperity is best served by a strategically open approach to sovereignty based on deeper partnerships with countries that share European values and interests. That is why we celebrate the EU-UK Security and Defence Partnership and why we would like to see it extended to include a specific workstream on connectivity resilience.

Connectivity as a resource under attack

Europe's access to reliable and secure digital services and connectivity is increasingly exposed to political and security risks. The telecom infrastructure that underpins Europe's connectivity is under attack across multiple vectors. In November 2024, a ship was suspected of severing two fibre-optic cables in the Baltic Sea and, later in December, a tanker allegedly cut a subsea power connector between Finland and Estonia, damaging four telecommunication lines. Also in November 2024, the US government publicly revealed that Chinese state-affiliated cyber actors had aggressively targeted US telecom networks to conduct a broad cyber espionage campaign. Vodafone's global security operations and defence capabilities protect against millions of attempted attacks on our networks and our customers each year.

Private sector operators of connectivity infrastructure are having to invest more to defend their networks – and the European societies and economies they serve - from these hybrid, frequently state-sponsored, attacks. At the same time, Europe's telecoms sector continues to suffer from long-term

underinvestment. For the last 10 years, return on capital has been below the cost of capital in the telecoms sector. Europe's highly fragmented market and increasing demand for nationally sovereign capabilities makes it hard for European operators to benefit from economies of scale. This sustained market failure is undermining the resilience of Europe's critical digital infrastructure and operator's ability to invest to keep pace with a rising threat.

Protecting Europe's connectivity

In order to address these threats and vulnerabilities and boost European resilience, the European Union should take the following actions:

Economic security

Given that critical connectivity infrastructure operators are increasingly required to invest for national security and resilience objectives, economic reforms are needed to ensure such investments are sustainable without undermining Europe's competitiveness (e.g. through complex bureaucracy). Better investment in critical capabilities is a key priority outlined in the European Commission's White Paper on the future of European Defence.

This includes advancing a true European Digital Single Market that allows operators to scale across the bloc in order to deliver services more efficiently. The EU should harmonise regulatory frameworks across Member States, ensure consistent rules for all players, offering equivalent services, and position the bloc as a global exporter of cybersecurity standards. Rather than seeking to onshore cyber and digital capabilities within individual Member States, pan-European connectivity players should be enabled to leverage and pool capabilities across Europe to better address transnational hybrid and cyber threats.

A whole of society approach to security and resilience

In light of evolving hybrid and asymmetric threats to critical infrastructure, there is growing recognition of the need for a comprehensive, society-wide approach to security and resilience across Europe. Recent calls, including by former Finnish President Sauli Niinistö, have highlighted the importance of integrating civilian and private sector actors into national and EU security and defence strategies. This was reflected in the EU's 2025 Preparedness Union Strategy, which explicitly recognises telecommunications as one of the Union's "essential societal functions".

European governments should foster structured public-private partnerships both within the bloc and alongside trusted partners to counter state-sponsored threats. Joint exercising and integrated crisis management frameworks would enhance Europe's crisis preparedness. For example, in the cyber domain, targeted intelligence sharing and joint capacity building between governments, European/national agencies, and trusted industry players would strengthen collective preparedness. Scenario planning on a continental scale for the most likely set of geopolitical shocks would highlight where redundant connectivity or European sovereign digital capabilities are most needed and inform priorities for the Connect Europe and other pooled funding. Governments should identify opportunities and potential for true public-private partnerships and if needed develop the legal frameworks to transition from a theoretical/academic foundation into bold and measurable action.

Governments should work with the telecoms sector to create the regulatory and economic conditions for growth and to develop agile operational partnerships with industry as part of a whole-of-society approach to security and resilience.

Connectivity Security Partnerships

The EU should build additional partnerships with capable industry players in critical national infrastructure, alongside already existing Security and Defence partnerships. In this context, the new EU-UK Security and Defence Partnership is encouraging, particularly its commitments to strengthen cooperation in cybersecurity, subsea cables, space security and emerging disruptive technologies. These commitments should now translate into concrete joint initiatives that focus on strengthening shared digital and connectivity infrastructure. For example, on satellite, greater coordination is needed on spectrum licensing and the development of a pan-European resilient satellite infrastructure.

Furthermore, the EU and the UK must strengthen cooperation in broader digital and connectivity security domains, including stronger coordination on 5G/6G, next generation communication networks, AI deployment, quantum technologies, data governance, cross-border data flow, emerging tech standardisation and digital skills. A stronger EU-UK digital and connectivity

partnership would bolster both sides' digital competitiveness and resilience.

The EU should take a strategically open approach to digital sovereignty. In line with the EU's 2030 Digital Compass Communication, the EU should develop stronger digital trade and investment partnerships with countries that share European values and encourage joint innovation and entrepreneurship. By actively fostering a broader and more diverse trusted supplier base, Europe will become both more secure and more prosperous.

Conclusion

Connectivity is an indispensable resource under attack. Threats to connectivity infrastructure are accelerating more rapidly than the ability of Europe's telecom sector to keep pace. Governments should work with the telecoms sector to create the regulatory and economic conditions for growth and to develop agile operational partnerships with industry, as part of a whole of society approach to security and resilience. The challenges are complex and multifaceted demanding an integrated, collaborative approach rethinking traditional responsibilities and conservative split between state and industry capabilities. The EU needs to invest in defence and security partnerships based not on geography but on shared values, with digital security and resilience at their heart.

Vodafone

Vodafone is a leading European and African telecoms company that provides mobile and fixed services to over 330 million customers in 15 countries. It is a major player in submarine cable systems with current capacity of around 80 systems that reach 100 countries, totaling over 1 million km globally. Its purpose is to connect for a better future by using technology to improve lives, businesses and help progress inclusive sustainable societies. The Vodafone Institute, in partnership with the European Liberal Forum, is Vodafone's European think tank focused on digitalisation, resilience, and sustainability

ARTICLE

Türkiye's Energy Diplomacy and the Softening of Sanctions

Risks for European Energy Security

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Introduction

The Russian invasion of Ukraine in February 2022 exposed the profound energy security vulnerabilities facing the EU. One approach to countering the energy crisis that ensued was for the EU to begin an unprecedented effort to strategically decouple from its dependence on Russia. The EU has banned the import of coal and oil from Russia and proposed an ambitious roadmap to phase out Russian natural gas supply by the end of 2027.

Nonetheless, there are glaring loopholes in the EU embargo that have allowed Member States to continue buying, directly and indirectly, Russian crude and petroleum products – to the tune of $20 billion per year. There is a specific exemption in the EU ban that allows landlocked Central European countries including Hungary, Slovakia, and Czechia to import Russian oil via the Druzhba pipeline (CSD, 2025b, 2025c). In addition, EU companies can legally buy refined products made from processing Russian crude oil in third countries.

Türkiye has been one of the biggest beneficiaries of the refining loophole, making the country a major oil laundering hub (CSD, 2025a).

Natural gas trade has followed a similar pattern. Gazprom remains Türkiye's dominant supplier through long-term contracts with state-owned BOTAŞ. The proposed establishment of a Turkish gas hub, rebranding Russian gas as 'Turkish blend' and re-exporting it to Europe via the Gazprom-controlled TurkStream pipeline, threatens to turn Ankara into a covert extension of Gazprom's European supply chain, particularly after Ukraine's transit agreement expired at the start of 2025.

By laundering Russian oil and gas, Türkiye has undermined the impacts of Western sanctions. This has not only increased the Kremlin's ability to continue its war effort in Ukraine but also decreased energy security across the EU. Strategically located between Europe, Asia, and the Middle East, and exerting considerable economic influence across the Black Sea, the Balkans, and North Africa, Türkiye has leveraged its geographic position to become a central platform for Russian sanctions evasion. Its decision not to join the Western sanctions coalition, paired with a flexible and opaque regulatory environment in the energy and financial sectors, has enabled Ankara to act as a key facilitator in laundering Russian fossil fuels, diverting sensitive dual-use goods, and sheltering assets linked to sanctioned Russian elites.

Türkiye's role in bypassing the Russian oil ban

Türkiye's decision not to align with EU sanctions has rendered it a crucial partner to the Kremlin's ongoing sanction circumvention activities. Türkiye imports more than 40 per cent of its natural gas and over 70 per cent of its coal and oil from Russia. Turkish refineries, particularly STAR and Tupras, have become central to processing Russian crude and exporting the oil products to G7 countries, generating billions in war-bound tax revenue for the Kremlin. Ports such as Ceyhan and Mersin have become key transshipment zones, where Russian-origin oil products are blended, stored, and shipped to EU Member States, undermining the effectiveness of Western sanctions. Ceyhan, in particular, has become a significant transshipment and blending hub, handling Russian petroleum products far exceeding its refining capabilities. Between early 2023 and the end of 2024, Türkiye became the world's largest importer of Russian oil products and the third-largest importer of Russian crude. The Turkish refineries processed an estimated EUR 7.3 billion worth of Russian crude in 2024, processing it in refined products subsequently exported to G7+ countries. Shell companies and financial intermediaries played crucial roles in this intricate system, utilising complex financial networks involving Turkish banks to hide the true origin of Russian petroleum products. Through these sophisticated financial structures, Russia has successfully maintained significant revenue streams from oil products despite international sanctions.

The new Russian gas hub

Similar to its oil strategy, Russia has actively expanded its natural gas infrastructure in Türkiye to sustain its economic influence in European markets. The Blue Stream and TurkStream pipelines deliver substantial volumes of gas directly to Türkiye and onwards to Europe. In 2024, Russia accounted for nearly 42 per cent of Türkiye's gas imports, up from 24 per cent in 2019. Ankara and Moscow aim to establish a Turkish gas hub, preserving Gazprom's foothold in the EU. TurkStream, now Russia's largest gas export corridor to Europe, is central to that plan. Its possible expansion could derail EU efforts to fully phase out Russian gas by 2027.

Türkiye's role in sustaining Russian gas exports undermines EU diversification efforts and risks distorting European gas markets. The availability of cheap, rerouted Russian gas has depressed prices and disincentivised investment in Black Sea production (e.g. offshore Romania and Türkiye) and delayed infrastructure development, such as liquefied natural gas (LNG) terminal expansions in Greece, Croatia, and Poland, risking the creation of stranded assets. TurkStream has enabled Gazprom to bypass Ukraine entirely, completing Russia's strategic goal of removing a key leverage point for Kyiv.

The sanctions evasion bridge

Beyond energy, Türkiye has emerged as a central hub for the circumvention of Western export controls on dual-use goods – technologies and components that have both civilian and military applications. After the full-scale Russian invasion of Ukraine, exports of dual-use goods from Türkiye to Russia surged, as Western companies slashed direct shipments. Between March 2022 and February 2024, Türkiye exported $242 million worth of high-priority dual-use items to Russia, second only to Kazakhstan and significantly above pre-war volumes. Overall, between 2019 and 2024, the value of Turkish exports to Russia in manufactured goods vulnerable to sanctions nearly tripled to over €2.75 billion.

This spike in exports coincided with a dramatic increase in Türkiye's imports of the same types of goods from

the EU and the United States. For example, Türkiye's imports of electronic integrated circuits and semiconductors, including US-origin components, jumped by more than 50 per cent in 2023 alone. These items were often re-exported to Russia under generic classifications that obscured their true end use and end user. Customs data show that the share of Türkiye's dual-use exports to Russia rose to over 15 per cent of its total exports of electronics and 7–10 per cent of its machinery exports by 2024.

Critical items shipped to Russia through Türkiye include:

- microelectronics and semi-conductors used in missile guidance systems, drones, and communications equipment;
- machine tools and precision lathes essential for weapons production;
- aerospace components and aircraft parts, many of which are restricted under US and EU sanctions

The surge in these sensitive exports was enabled by a proliferation of Turkish intermediary companies. Over 13,000 new companies linked to Russian nationals were established in Türkiye in 2022 alone. Many of these acted as logistics providers, financial intermediaries, or simple shell entities used to obscure Russian ownership and financing structures.

Notably, US authorities have sanctioned Turkish firms such as Dexias Industrial and Azu International for supplying Russia with US-origin microchips and electronics found in Russian weapons systems deployed in Ukraine. By the end of 2024, over 200 Turkish-registered entities and 72 individuals were designated by the US for enabling the flow of sanctioned goods and technologies to Russia.

The trade was further facilitated through Türkiye's network of free zones and ports, where enforcement of export controls is notoriously weak. Russian-affiliated shipping companies have expanded their operations in Turkish ports, taking advantage of lax customs oversight and minimal due diligence requirements. This permissive regulatory environment has turned Türkiye into a logistics and commercial hub for Kremlin-linked procurement networks.

Unless addressed decisively, this dual-use goods pipeline will undermine the entire Western sanctions architecture by enabling the Russian war economy to access critical components that would otherwise be out of reach. A tightening of Türkiye's export control regime – aligned with EU dual-use regulations – and the establishment of a joint EU–Türkiye compliance monitoring system are urgently needed to close this major enforcement gap.

Türkiye's decision not to align with EU sanctions has rendered it a crucial partner to the Kremlin's ongoing sanction circumvention activities. Türkiye imports more than 40 per cent of its natural gas and over 70 per cent of its coal and oil from Russia.

Implications for Europe's strategic decoupling from Russia

Since the Russian invasion of Ukraine, Türkiye has emerged as one of the Kremlin's most crucial economic partners. As Western countries have sought to isolate Russia through trade, financial, and energy sanctions, Türkiye has instead doubled down on its economic partnership with Moscow. A combination of geopolitical pragmatism and cooperation between state capture networks in both countries have transformed Türkiye into a critical gateway for Russian capital, goods, and influence, blunting the effects of sanctions and reinforcing the Kremlin's war economy. Türkiye's role as a strategic enabler of Russia's sanctions evasion poses a significant challenge to the EU's efforts to achieve energy security, uphold the integrity of its sanctions regime, and preserve geopolitical unity in the face of

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Russia's war on Ukraine. By serving as a laundering hub for Russian oil and gas and facilitating the re-export of dual-use goods critical to Moscow's military-industrial base, Türkiye has allowed the Kremlin to maintain vital revenue streams and sustain its war effort.

Recommendations

To address this growing threat, the EU must adopt a comprehensive and layered strategy that combines enforcement, diplomatic engagement, and incentives.

- The EU should move decisively to close refining and transshipment loopholes by banning imports of oil products from refineries that predominantly process Russian crude and by implementing rigorous chemical tracing protocols to verify the true origin of petroleum imports. Such measures would curtail the ability of Russian oil to reach European markets through third-party intermediaries.

- The EU should also expand secondary sanctions to target the financial and corporate networks, particularly in Türkiye, Azerbaijan, and Central Asia, that facilitate the laundering of Russian-origin energy and goods. These sanctions should apply not only to entities directly engaged in circumventing restrictions but also to the banks and logistics providers that enable them.

- In addition, the EU should propose a strategic monitoring and cooperation framework with Türkiye. This would entail linking Türkiye's gradual alignment with EU sanctions and export controls to tangible economic benefits, such as preferential access to the Carbon Border Adjustment Mechanism (CBAM), financial support for decarbonisation and regulatory convergence, and improved access to European investment and trade mechanisms. Conditionality and transparency would be essential to this framework's credibility.

- European countries should also accelerate investment in alternative energy routes to reduce the strategic leverage of energy transit states such as Türkiye. This includes the rapid deployment of renewables, LNG infrastructure, and regional interconnectors in trusted EU and NATO member states. Diversifying energy flows and boosting resilience in front-line countries such as Greece, Bulgaria, Romania, and Poland would help diminish the strategic relevance of Russian-linked supply chains (CSD, 2022).

- Finally, the EU should bolster civil society and transparency initiatives across Türkiye and the wider region. Supporting investigative journalism, anti-corruption watchdogs, and independent monitoring organisations will be key to exposing illicit networks, tracking sanctions circumvention schemes, and sustaining pressure for reform from within.

Effectively decoupling from Russian energy and economic influence requires more than sanctions enforcement. It demands a strategic rethinking of Europe's external partnerships. Türkiye's geopolitical location and NATO membership make it too important to isolate and too risky to ignore. The EU must strike a balance between deterrence and engagement, using both pressure and partnership to bring Türkiye back into alignment with the West's security and economic order. Only then can Europe ensure that its sanctions regime is not just robust on paper but also enforceable in practice.

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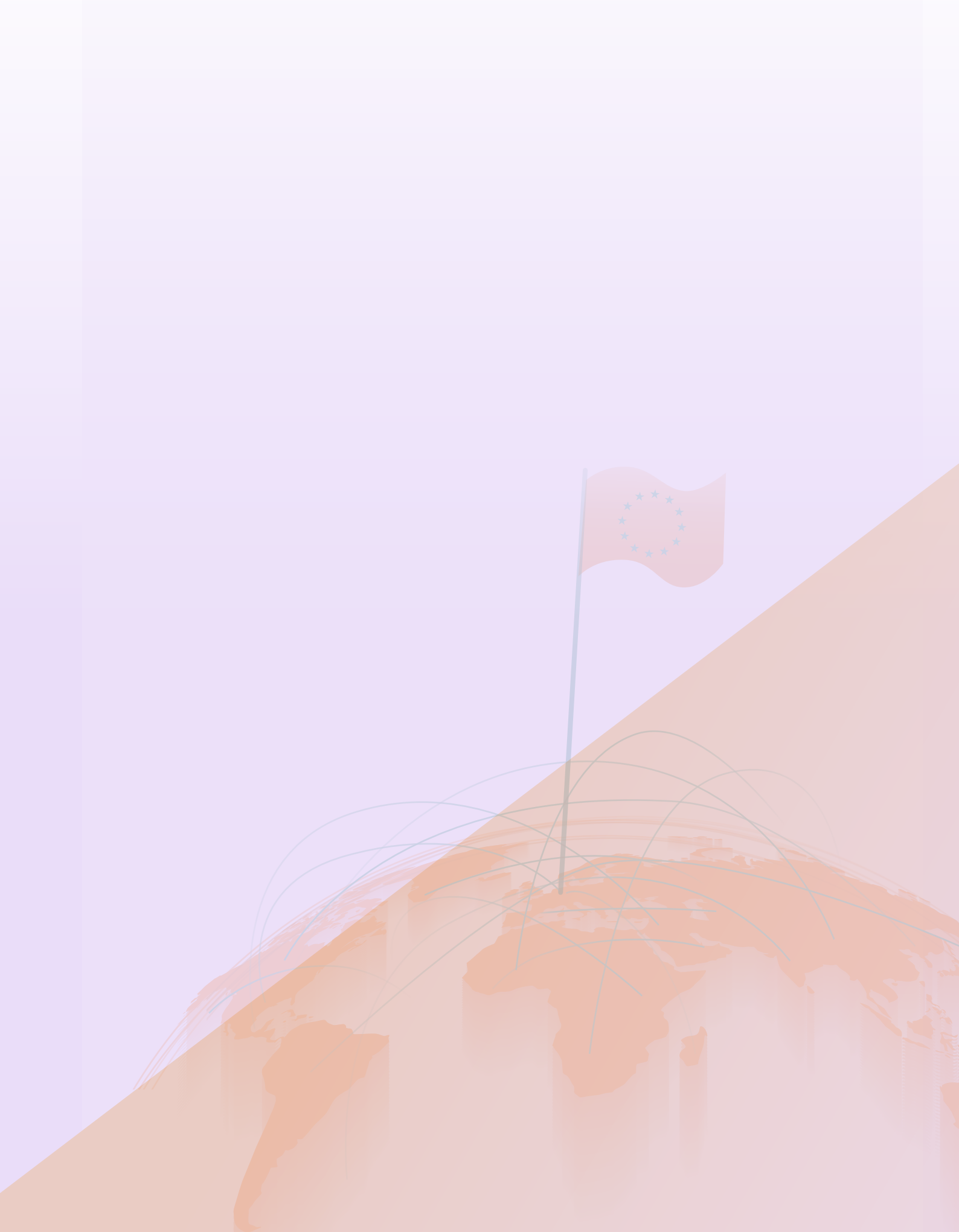

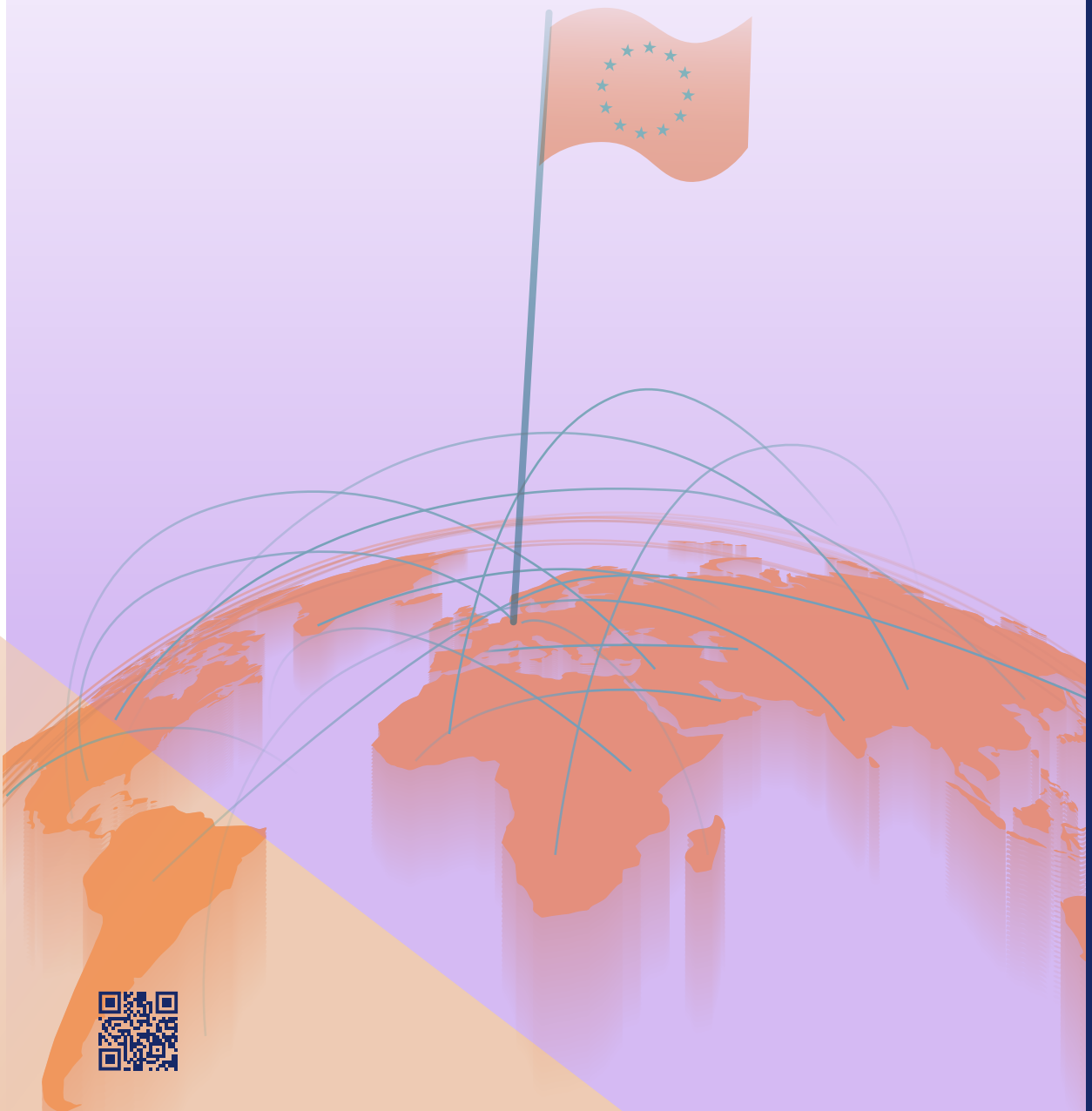

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