3 Main Points

Can the EU balance innovation and security while controlling dual-use technologies in a volatile geopolitical context? Dual-use items like AI, drones, and semiconductors fuel growth but risk weaponization; the EU must align member states, avoid over-reliance on the US, and set global standards. By leading in responsible tech governance, the EU can strengthen strategic autonomy and global influence.

About the Author

Jonas Pfeufer is pursuing an M.A. in Politics and Public Administration at the University of Konstanz (DE). His research focuses on Comparative Politics and Public Policy, German-European Foreign Policy, and Security Studies. He is currently involved in projects with the Young DGAP and Amnesty International.

Future-Proofing Europe: Dual-Use Tech at Stake

Europe is at a critical juncture. The geopolitical landscape has rapidly changed in recent years: Russia's war against Ukraine has shattered European assumptions about security that were taken for granted for decades, the US–China rivalry is reshaping global politics and technological competition, multiple arms-control frameworks are eroding. In this environment, the European Union faces the pressing challenge of future-proofing its security and economic policies.

At the heart of this challenge lies dual-use technologies, which are defined as items that can serve both civilian and military purposes. This includes Artificial intelligence (AI), Drones, or advanced semiconductors as examples. On the one hand, these technologies fuel economic growth, innovation, and competitiveness. On the other, they carry the risk of being weaponized or misused by hostile actors. For example, Drones are employed in conflict zones, but their impact is also noticeable in areas such as videography and photography.

For the EU, finding the right balance between encouraging innovation and safeguarding security is about more than just regulation, it is a matter of strategic survival. The question is

whether Europe will be able to develop credible, future-oriented arms-control mechanisms for emerging technologies, or whether it will fall behind in a race defined by others. This brief explores the current state of EU rules on dual-use tech, the geopolitical challenges it faces, and the opportunities Europe has to position itself as a responsible global leader.

1. Current EU Treaties on Arms Control of Emerging Tech

The EU has long recognized that controlling the export of sensitive technologies is essential to both security and credibility on the world stage. Its legal framework for dual-use export controls is anchored in the EU Dual-Use Regulation, which was adopted in 2000 by Council Regulation 1334/2000. In 2021, Regulation 2021/821 was introduced as a way to control dual-use items at the EU-level. Regulations also take place at the Member State Level, this however risks a patchwork of rules without the necessary coherence. The 2021 Regulation enables the EU to address, for example, the evolution of global supply chains and the evolving security environment.

The 2021 reform was significant for several reasons. For one, the regulation explicitly considered Human Rights. Technologies that could be used for internal repression for instance, surveillance tools employed by authoritarian regimes are now subject to stricter export scrutiny. Second, Catch-All Controls were introduced, which allowed authorities to block exports not explicitly listed in the control annexes if there is evidence they might be misused. This flexibility matters in our modern, fast-moving technological environment where risks evolve faster than the legal norms applied to contain negative impacts. Lastly, Transparency was enhanced. The regulation increased reporting requirements and emphasized greater coordination among Member States.

But implementation is complex. Arms control remains a shared competence between the EU and its Member States. While the EU sets the common framework and a Dual-Use Coordination Group coordinates export controls, national governments retain sovereignty in licensing decisions. This has led to tensions, with some states emphasizing competitiveness

and wanting to protect their domestic industries, while others are more security-oriented and favour stricter controls.

Furthermore, the EU must navigate the external dimension: it is bound by international regimes such as the Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies, where decisions require consensus among members, which includes Russia, whose credibility as a partner has collapsed since the war in Ukraine.

In short, the EU's treaties and regulations provide a foundation, but one that is constantly tested by divergent member-state interests and an increasingly unstable international environment.

2. The Challenges of Arms Control in a New Geopolitical Context

The collapse of trust in Russia and rising tensions with China make international arms control increasingly difficult. Crucial arms control regimes like Wassenaar[1] or the Missile Technology Control Regime are threatened. Russia, despite being a Wassenaar member, has violated the spirit of arms-control commitments through its aggression and has undermined efforts for new controls, leading to efforts of a "Wassenaar minus one group". China, though not a Wassenaar member, is racing ahead in key emerging technologies, challenging the effectiveness of these frameworks. This erosion of multilateralism leaves the EU in a quagmire. On the one hand, it values international cooperation and rule-based governance; on the other, it cannot ignore the realities of today's security competition.

Europe's technological industries are essential for economic dynamism. Semiconductor firms in the Netherlands, drone start-ups in France, or AI labs in Germany are an important part on global markets. But what happens when these technologies can also strengthen the capabilities of adversaries? The EU must juggle three competing imperatives: Innovation, ensuring that over-regulation does not disadvantage research. Security, preventing exports that could be used against Europe or undermine global stability. Competitiveness, avoiding a

[1] The Wassenaar agreement governs international exports of dual-use items

strict framework that would cause European firms to lose out to American or Asian rivals operating under different rules. Striking this balance is not easy. Too much restriction risks stifling growth; too little risks strategic vulnerability.

The EU's diversity is both its strength and its weakness. With 27 member states, each with its own industrial base, threat perception, and foreign-policy outlook, consensus is hard to achieve, especially today. Some countries prioritize commercial competitiveness, while others stress human rights or national security. For instance, Eastern European states bordering Russia often advocate stricter measures, while export-heavy economies like Germany favour a more flexible approach. This divergence complicates the creation of a common EU voice on a lot of issues, including dual-use controls. Without internal cohesion, the EU risks being sidelined in global standard-setting.

Finally, the EU faces a strategic choice: should it lead in setting global norms for dual-use technologies, or should it primarily follow the lead of allies like the United States? The so-called Brussels Effect, which describes the EU's ability to set global standards through the global impact of its regulations, suggests Europe has potential to lead. For example, the EU's General Data Protection Regulation (GDPR) became a global benchmark for privacy rules. Could a similar effect emerge in dual-use technology governance? The alternative is reliance on US rules and coordination. This might guarantee transatlantic unity but risks locking the EU into a subordinate position, undermining its aspiration for strategic autonomy that have grown in recent years.

3. Conclusion: Dangers and Chances for the EU

The stakes for Europe could not be higher. The EU's approach to dual-use technologies will shape its credibility as a geopolitical actor and its role in the emerging geopolitical multipolar order.

To summarize, the dangers are that the EU is falling behind in Tech Leadership, an over-reliance on the US and inconsistent implementation among EU Members. If the EU's

controls are too restrictive, its innovators may fall behind global competitors, leading to dependence on foreign technologies. An over-reliance on US Rules risks undermining its claim to strategic autonomy and being perceived as a junior partner. Lastly, an inconsistent implementation among member states could erode trust in the EU's ability to enforce its own rules. The EU itself recognizes these challenges, outlining them in 2024 in a White Paper by the Commission, which offers a detailed analysis of the challenges that the EU faces.

However, the current challenges also present the EU with a number of chances that it has to use for its advantage. The current crisis gives the Union the opportunity to present itself as a responsible Global Power. By positioning itself as a pioneer in responsible technology governance, the EU has the potential to set standards that others can follow. Another argument is that the EU can use the so-called the Brussels Effect: If done in a proper way, EU regulations could become the global reference point for dual-use tech, giving European firms an important advantage. Most importantly in the emerging global geopolitical landscape, it is important to strengthen Geopolitical Europe, as has been stressed many times in recent years by the EU Commission and others. Introducing Effective controls on dual-use exports would reinforce the EU's ambition to be not just an economic bloc, but a geopolitical actor that is capable of shaping geopolitics independently from any other power.

The road ahead will be rocky. The EU must reconcile innovation with security, align 27 member states, and decide whether to lead or follow in global norm-setting. But in uncertainty lies great opportunity. If Europe can rise to the challenge, it has the chance to future-proof itself, shape the governance of dual-use technologies for decades to come, assert its position on the global stage and strengthen its commitment to human rights and international peace.