
European security in a changing geo-political context:

From the European Research Area to the European Defence Research and Innovation Area and from Cohesion to European territorial security policy

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August 2024



Institute for
Innovation and
Public Purpose

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Published by

UCL Institute for Innovation and Public Purpose (IIPP)
11 Montague Street London, WC1B 5BP
ucl.ac.uk/iipp

ISBN 978-1-917384-23-0

This report can be referenced as follows:

Kattel, R. and Soete, L. (2024). European security in a changing geo-political context: From the European Research Area to the European Defence Research and Innovation Area and from Cohesion to European territorial security policy. UCL Institute for Innovation and Public Purpose, Policy Report 2024/12.

Available at: <https://www.ucl.ac.uk/bartlett/public-purpose/policyreport-2024-12>

Acknowledgements

This paper is part of the Pool of Experts' contributions to the Fair and Sustainable Economy (FASE) directorate at the Joint Research Center (JRC) of the European Commission in Sevilla.

We are particularly grateful to Johan Stierna and Carmen Sillero Illanes from the JRC for critical comments on previous drafts of this paper. Any errors that remain are our own.

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Abstract

European policymakers face difficult trade-offs when aiming to increase economic growth and industrial competitiveness, stepping up efforts in green and digital economies, and coming to terms with new security realities requiring increased investments. As European and several national elections in 2024 have shown, this is not an easy circle to square. This paper makes an argument for the European Union to develop a coherent and overarching approach to security investments aligned with the current green and digital agendas and based on a broadening of two of Europe's unique, long-standing policy frameworks. The first is the area of research and innovation policy, where the nature of the multi-level governance between the EU and its Member States has been one of "shared parallel competence", implying that EU Member States can carry out national science and research policies in parallel to the EU. This institutional set-up offers the opportunity to broaden, in a relatively straightforward way, the current European Research and Innovation Area (ERA) into a European Defence Research and Innovation Area (EDRIA). The second framework is the EU's regional, so-called cohesion policy, which could be described as Europe's "secret" weapon. The integration of security issues into European regional policies represents, in the current insecure international geo-political environment, a logical, new expression of intra-regional European solidarity, and offers the opportunity to enlarge current cohesion policy towards a European territorial security policy.

Introduction

The past decade has seen a significant change in the global geo-political context in which the European Union (EU) operates. The wave of socio-economic and technological disruptions and geopolitical tensions could even be said to be shaking the foundations of the EU itself.

For an institution that received the Nobel Peace Prize for demonstrating how openness in trade and economic integration amongst individual nations would not just bring economic growth and welfare but also peace, this change represents a fundamental challenge, even an existential threat. In his 2012 Nobel Peace Prize acceptance speech, José Manuel Durão Barroso, then the president of the European Commission, highlighted the particular role of openness: "As a successful example of peaceful reconciliation based on economic integration, we contribute to developing new forms of cooperation built on exchange of ideas, innovation and research. Science and culture are at the very core of the European openness: they enrich us as individuals, and they create bonds beyond borders."¹

These core principle of openness, upon which the EU was built, reflected the primacy of economics in international relations, both internally within the EU and externally in its relationships with the outside world. Internally, in the gradual expansion of single market principles with openness, not just in the trade of goods but also of services, of capital, of labour and – as highlighted by Barroso – of knowledge. Externally, with openness becoming an intrinsic part of European values of democracy and transparency towards the outside world.

The focus on openness fitted within an international, multilateral order in which Europe was at the forefront of setting up international exchange standards through its own free trade agreements (FTAs).² These represented typical "soft power" instruments that could be expanded to include broader, global welfare principles such as human rights and, in more recent times, sustainability, which has become an integral part of trade policy and, as a result, an exclusive competence of the EU.

Behind the priority given to openness was the central assumption that the EU's internal and external economic relationships could be ringfenced from the interference of geopolitics. Such an assumption appeared logical given the success of the European economic integration project with the inclusion of many

¹ The text of his speech is available here: <https://www.nobelprize.org/prizes/peace/2012/eu/lecture/>.

² Since 2011, the FTAs were enlarged with a "Trade and Sustainable Development" (TSD) chapter; for a brief discussion, see Blot 2023.

East-European countries following the collapse of the Soviet Union. With hindsight, it can be argued that the EU's enlargement in the 21st century has been a political and security project that has been carried out predominantly through economic policy.³

Current events in Ukraine and in Georgia have shown how and why such a view of security no longer works. And, as recent European and a swath of domestic elections have shown, security concerns have again become important drivers of political debates. How can we understand the positions of European Member States in the overall priority shift towards military and defence investments? Has "security" been a missing element in Europe's notions of competitiveness, sustainability and social welfare? To what extent can science and research be organised in Europe so as to contribute to greater feelings of security? What does security imply for Europe's international collaboration in science? And, by contrast, to what extent do space-based, territorial considerations dominate this collaboration? These are the issues to which this reflection paper hopes to contribute. How can we understand what is currently happening in order to act in a rational way?

This paper will focus on the above questions.

Major events on its own continent and heightened geopolitical tension between the US and China have forced the European Union to face these security challenges. Both the US and China have been able to integrate relatively easily economic, technological and security agendas.⁴ As we will show below, such integration is, by design, much more difficult for the EU and its Member States.

³ Caroline de Gruyter, a journalist from the Dutch newspaper NRC, recounted an evening during the eurozone crisis in 2011 when discussing with a top Finnish civil servant at a bar in a Brussels hotel why, for Finland, all proposed solutions to the crisis were out of the question. She finally asked him: "If you criticize and shoot down everything, why are you a member of the eurozone in the first place?" She recalled: "I have lost this man's name. But I have never forgotten his answer because it made it clear that the Finns know where they stand in the world. He looked at me sternly, was silent for three seconds for maximum effect and said with rolling r: 'Se-cu-ri-ty.' While the ministers above argued that each euro country should keep its own pants, the official began to explain like a schoolteacher that Finland's border with Russia is over 1,300 kilometers long. That it had been peaceful there for decades after a couple of terrible wars and that Finland wanted to keep it that way. If there were any hassle with Russia, he said, Finland would immediately be 'in the shit.' A phenomenal, geopolitical shit. That border, he said, was Finland's Achilles heel. Everything Finland did remained focused on not provoking Russia and, at the same time, covering itself in case it did. Even after 60 years of peace. 'That's why Finland has the euro. Not because we like it. Or because, like you, we wanted to get rid of those eternally turbulent exchange rates of European currencies. No, we have the euro because of security. We participate in everything in Europe because it gives us cover. Every layer of European integration is another layer of security for Finland'" (de Gruyter 2024).

⁴ See, for instance, the discussion by Weiss 2024.

The EU's core principles and agreements are unlikely to be changed in the current climate, particularly given the fact that not all countries view security threats, and even partnerships, in a similar fashion. Accordingly, it is of pivotal importance for the European Commission to lead the way in finding institutional innovation that enable integration of economic, technological and security agendas across the EU. We propose that such an institutional innovation could be **European Defence Research and Innovation Area (EDRIA)**, building on the successes of science and innovation on one hand and cohesion policies on the other.

In the first section, we discuss how the current change in mindset in Europe emerged over the last 10 years. While the changes in Europe's external environment following the Russian invasion of Ukraine certainly played a major role, the perception of the European integration project as a peace project also implied that the EU did not act as a geopolitical power. Nor did it internally address the elephant in the room of non-economic European integration: the defence sector. However, as argued here, herein lies perhaps the key danger: that the EU and its Member States will view defence as a "sector". Instead, defence should be viewed as a distributed and complementary capability that helps to tackle Europe's core challenges and achieve its missions, as captured in the current and future strategies. In the simplest of senses, security should complement the European strategic agenda of twin transitions.

In the second section, we turn to the implications for European research and innovation policy. The way the EU has addressed common policies in research, technological development and space appears particularly useful insofar as it represents a so-called "shared parallel competence", not just a "shared competence". It means that EU Member States can carry out national science and research policies (including legislation) in parallel to the EU, regardless of whether the EU legislates or not. In areas of "shared competence", Member States can do this only where the EU has not exercised its competence or has explicitly ceased to do so. In short, what we have called here a **European Defence Research and Innovation Area (EDRIA)** could be developed under a similar system of "shared parallel competence", not questioning individual Member States' national responsibility concerning security but, at the same time, allowing for the emergence of a parallel European competence, next to the membership of most, but not all Member States to the North Atlantic Treaty Organisation (NATO).

In the third section, we discuss the opportunities to more closely link the construction of such an EDRIA to the European Commission's two core civilian priorities: the European Green Deal and the digital agenda. In both areas, the

opening up to dual-use opportunities (that is, enabling the development of the military use of civilian research and the development of civilian applications of military research as proposed in the White Paper “On options for enhancing support for research and development involving technologies with dual-use potential”⁵) in these two priority areas are likely to incentivise the innovation dynamics associated with Europe’s large internal market implementation opportunities. The civilian military separation has prevented Europe from reaping the full spill-over benefits from European military procurement, the latter having been constrained to national procurement initiatives. This explains why, contrary to the US or China, innovation-led procurement and domestic lead market initiatives in many areas of the European Green Deal and of the Digital Agenda have, despite the huge amount of public resources made available, had such difficulties in coming off the ground in Europe: the economic incentives of rapid scaling up through the existence of a large internal market were missing.

In the fourth section, we focus on the place-based nature of defence industrial policy and its particular role in developing the sort of European Defence Research and Innovation Area presented in Section 2. Here we highlight the sheer natural link with European cohesion policies, which could be considered in some ways as Europe’s “secret” weapon. At first sight, it could open the way for the rapid integration of security issues into European regional policies. However, the policy challenges for transforming such earmarked structural funds, whether aimed at cohesion or at research and innovation, are formidable. The value added of such policies, precisely because of their “shared parallel competence”, is primarily reflected in their intra-European “open nature”, whether in terms of bringing about regional and/or local place-based innovation or whether in terms of knowledge mobility. By contrast, the defence industry is essentially a closed knowledge system whose main characteristic is to prevent knowledge exchange. How to integrate such a closed knowledge system into policies that have been designed to contribute to an open, borderless “single market” in which knowledge exchange is central will not be straightforward, as highlighted here.

5 European Commission 2024.

1. Separating economics from geopolitics: the limits of the European integration project

The outgoing European Commission (2019–2024) made ‘sustainable development’, together with the digital agenda, the core elements of its overall growth strategy for the present decade. As argued elsewhere (McCann and Soete 2020), in its external dimension this new European Green Deal strategy represented Europe’s “Moonshot mission” of the 21st century: its contribution to the United Nations’ Sustainable Development Goals. Internally, it represented Europe’s own “smart specialisation strategy”: an internal attempt to take on a leading position in sustainable development, developing a sustainable competitiveness strategy for Europe. It is noteworthy that security concerns play a minor role in these strategies, even though the fear of falling behind in the geopolitical race plays an important part in the rediscovery of the importance of industrial policies.

Particularly with respect to research and innovation, in which the EU had been globally lagging behind ever since the Lisbon strategy, new concepts such as the European Research Area, and the so-called 3O principles of “Open Science, Open Innovation and Open to the World” of Commissioner Carlos Moedas⁶ became essential building blocks in developing critical mass in science, technology and innovation, such as the common investment in large research infrastructures, the enhancement across Europe of research and student mobility, the adoption of common science policy principles as in the case of ‘open science’, and the improvement of individual member states’ national science, technology and innovation (STI) policies to progress towards common EU objectives.⁷

6 European Commission 2015 report on *Open innovation, open science, open to the world – A vision for Europe*; see also the RISE report published in 2017 by European Commission.

7 It is interesting to read back some of the conclusions of those reports to which we will return below. Thus, the RISE report (European Commission 2017) on the 3 Os stated: “Such openness positions Europe as it always was: an open knowledge gatekeeper for addressing the societal, global challenges confronting the world, and Europe in particular. With the high concentration of researchers and research facilities in Europe, the EU owes it to itself and the rest of the world to remain a central player in addressing the big, societal challenges of our times. But here too the knowledge-innovation axis appears more complex than generally assumed and can be said to function poorly today. Traditionally, addressing societal challenges has been a primarily ‘supply-pushed’ concern with the research community playing a central role and becoming even a stakeholder in the way to address such ‘big challenges’, relying in its financial sustainability increasingly on EU-funded research projects addressing those societal challenges. Implementation in terms of innovation has, however, often been disappointing. Typically, users and more broadly the demand side, has been insufficiently involved in the design and development of innovative ways to address those societal, global challenges.” As we will see later, these are the typical features that a European Defence Research and Innovation Area will have to pay attention to.

Five years ago, at the start of the present outgoing Commission, the internal and external openness of such policies were heralded as having directly contributed to the EU's global position in research and innovation. As the external expert group RISE concluded in 2019 on the ERA: "Europe is a global R&I powerhouse. Its scientific base has significantly strengthened over the past decade, including through EU action (e.g. European Research Council). It rates among the top worldwide. With only 7% of the world population, Europe is responsible for 20% of global R&D investment and 30% of the most excellent world-wide research. It is the leading economy in terms of public investment in R&D. The 2019 European Innovation Scoreboard shows the EU's innovation performance has improved for four years in a row and, for the first time ever, Europe is now outperforming the United States. European companies lead the world in industrial sectors such as pharmaceuticals, chemicals, mechanical engineering and fashion. Paris, Berlin or Barcelona and other European cities now rank among the most attractive start-up ecosystems worldwide..." (European Commission 2017).

Today, five years later, this optimistic vision on Europe's world position in research and innovation has changed radically. The COVID-19 pandemic, the outbreak of a devastating war on Europe's own borders with the Russian invasion in Ukraine, and the spike in energy prices, suddenly brought Europe's foreign "dependency" to the fore: in strategic (raw) materials and equipment, in fossil fuels, in technological components such as microchips and batteries, in digital platform technologies such as artificial intelligence, and in military equipment. The EU has historically relied on a quite linear view of openness in which openness is both a democratic (for example, basic freedoms) and economic value (for example, trade and market integration) and will lead to better societal outcomes. The new dependency questions this linear logic, and various initiatives and debates around "technological sovereignty"⁸ capture the emerging political and policy tensions. In principle, the EU could create "a virtuous circle of openness on the one hand, and economic as well as political power and autonomy on the other. The stronger the EU is technologically and economically, the more powerful it is in international negotiations and trade relations; and the more open it is to those international cooperations and relations, the more economically powerful and autonomous it can become" (Edler 2024).

Before any of those crisis events impacted Europe, at the start of the current Commission, Jean Pisani-Ferri and Guntram Wolff (2019), in their *"Memo to the High Representative of the Union for Foreign Affairs and Security Policy"*, drew attention to the changing geopolitical landscape within which the EU would

8 See, amongst others, Edler et al. 2023.

operate in the 2020s, highlighting the fact that countries such as China or the United States no longer kept to the principle of separating economics from geopolitics in their industrial, research and STI policies. As Pisani-Ferri and Wolff put it: "sovereignty for the EU as a whole was and remains first and foremost economic sovereignty. The collective capacity of the EU and its member countries working together to preserve their economic independence underpins the bloc's value to Europe's citizens. That argument is bolstered by the EU's ability to participate in defining the rules of the game for the global economy ... In this context, the EU's international economic policy was reasonably insulated from geopolitical concerns. Its construction – with most international economic powers given to EU-level bodies and most security and foreign policy instruments left at member-state level – reflected this assumption."

However, they continued, "the EU has been lucky so far. Perhaps the EU's apparent economic independence in the global context was always the result of a lack of geopolitical interference. It is becoming ever clearer that neither the US nor China separate economics from geopolitics. The competition between them is simultaneously an economic competition and a security competition. Our separation between the economic and the geopolitical spheres was always fragile." They concluded: "It now looks outdated. National security issues are gaining prominence everywhere, as is the almost-forgotten relationship between economics and national security. Economic connections, from cyberspace to financial links, are becoming the primary areas of great-power competition and are increasingly at risk of being weaponised. Powerful countries often no longer abide by the primacy of economics."

In the 2019 memo, Pisani and Wolff proposed a number of measures that should be taken to strengthen economic sovereignty,⁹ many of which appear today as part of the Open Strategic Autonomy agenda of the EC but they avoided carefully the issue of the national fragmentation of military expenditures in the EU and the non-existence of a common European defence sector.

If, as Pisani and Wolff (2019) pointed out, the EU needs: "a change of mindset

9 "The EU needs a change of mindset to address threats to its economic sovereignty. It must learn to think as a geopolitical power, define its goals and act strategically. After decades during the priority was internal integration – through the single market, common regulations, common policies and the creation of a common currency – the EU needs to refocus its attention on its relationship with the rest of the world. Building economic sovereignty does not imply turning one's back on globalisation or refraining from taking an active part in global collective action. Global competition and linkages are good for growth, innovation and consumer choice. Europe's aim is not, and should not be, to reduce trade or investment links with the global economy. It should be to strengthen the rules-based order, not to undermine it" (Pisani and Wolff 2019).

to address threats to its economic sovereignty”, then it “must learn to think as a geopolitical power, define its goals and act strategically”. It will also have to address the elephant in the room of non-economic European integration: the defence sector. However, herein lies what may be the key danger: that the EU and the Member States will view defence first and foremost as a sector. Instead, defence should be viewed as a distributed and complementary knowledge capability that helps to tackle Europe’s core challenges and achieve its missions, as captured in the current and future strategies. Hence the focus on the research and innovation capabilities linked now to the mission of “security” at both the European and local levels.

2. Organising security-related research in the EU

2.1 From the ERA to an EDRIA?

The establishment of the ERA reflected the particular composition of the EU as a union of nations of very different sizes of population and physical territory with peripheral and more centrally located regions of low and high population density, and very different nation-state characteristics: some more centrally governed with a unified national language, others more federally organised alongside the co-existence of different cultures and national identities. It explains the primacy of economic thinking in the European integration process over national security issues: the large differences between the European nations guaranteeing that the free mobility of goods and services, workers and citizens, as well as knowledge flows, would bring about advantages to the union as a whole. In theory, they raise no particular concerns except insofar as they might lead to growth or development divergence.

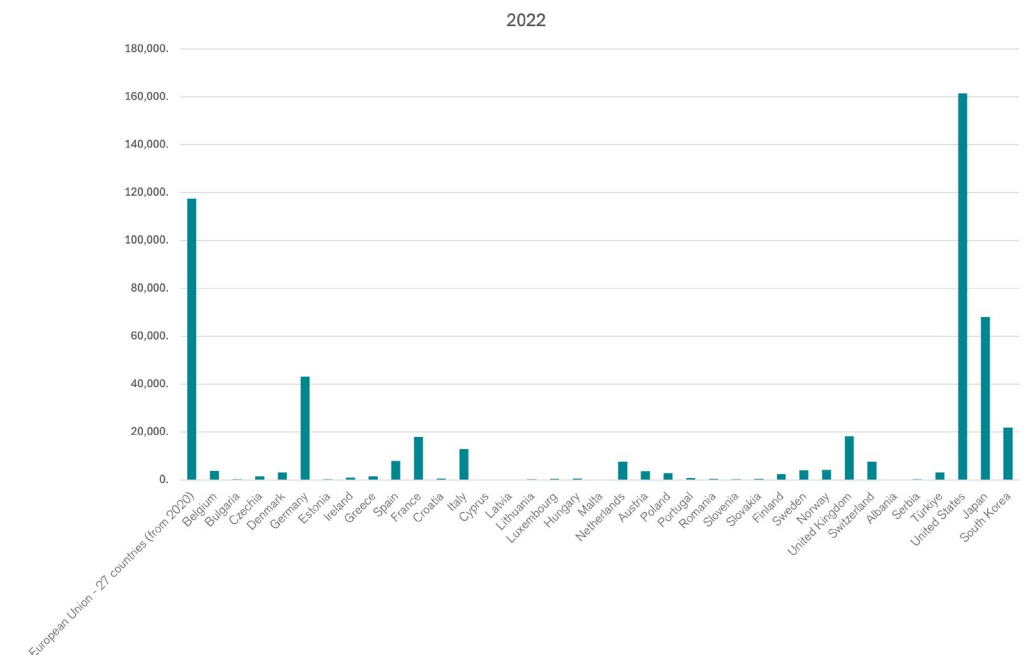
Particularly in the case of knowledge, there have been concerns that the increased attractiveness of research and innovation centres in some core well-endowed areas might lead to strong brain drain effects across Member States. The EU has always paid particular attention to development convergence. Notably, its gradual enlargement before 2004 can be seen as a process of economic integration as gradual convergence. The eastern enlargement of 2004 already had much stronger political and security connotations, particularly as a number of countries joined NATO in the same year. Even so, the 2004 enlargement unleashed a much more rapid and uneven process of economic convergence in the new Member

States. The EU became the only union of countries in the world in which a certain amount of resources would be reallocated amongst member states, as witnessed by the continuous importance of structural and cohesion funds in the EC’s budget; this represented a “security” investment in the EU’s own long-term sustainability.

Given the huge differences in the absolute size of countries, the amount of resources devoted by individual European countries to STI also varies significantly. In some European Member States, the national public research budgets represent, in absolute terms, not more than a small fraction of what another Member State is capable of spending in a particular sector on research.

In research, the absolute size of the public resources available matters is illustrated in Figure 1.

Figure 1: Total absolute government budget allocations for R&D (in millions of euros)



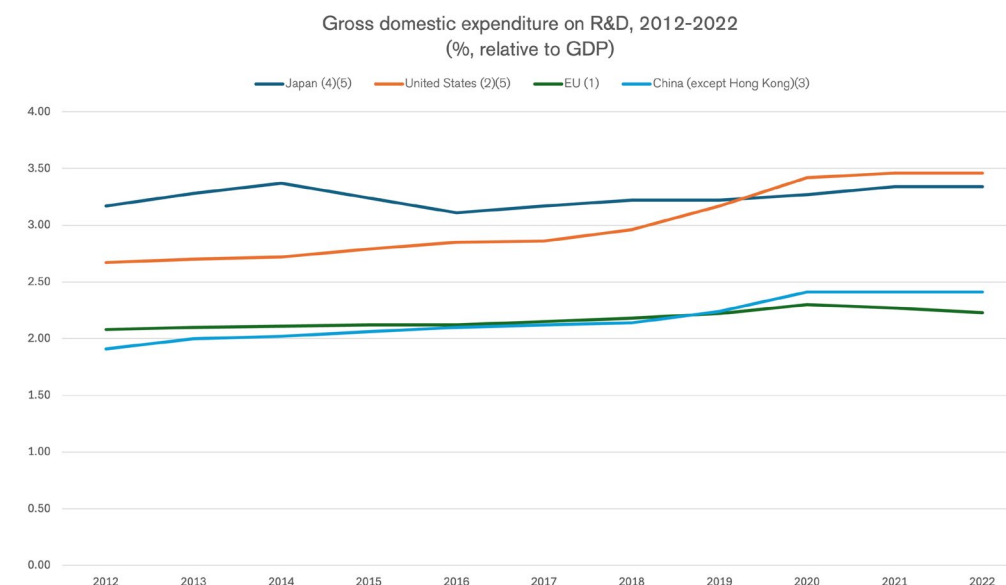
Source : Eurostat, OECD and Office for National Statistics (ONS), released 30 April 2024, ONS website, statistical bulletin, [Research and development expenditure by the UK government: 2022](#).

The total amount of all public government allocations to R&D for the EU-27 amounted in 2022 to some €117 billion, compared to €161 billion for the US and €86 billion for Japan. At the individual EU member country level, these figures are much smaller: they range from €43 billion per year in Germany to €4.1 billion in Sweden, €445 million in Croatia and €37 million in Malta. As Figure 1 illustrates, the amount of public funds that Germany spent on R&D in 2022 was as much as France, Italy and Spain (the next largest EU spenders) combined. By contrast, the public R&D budgets of most of the smaller EU Member States represented less than 1 per cent of Germany's public R&D investment. To these national public budgets should be added the European Horizon programme (a total budget of €95.5 billion over the period 2021–2027).

Why are these absolute differences in European countries' size of their public R&D budgets important?¹⁰ The answer is that they matter particularly because they enable even smaller countries to cover all relevant research fields so as to “absorb” nationally world-wide contributions to knowledge advancement, let alone contribute to it. For the vast majority of countries in Europe, the public R&D budgets are insufficient to cover all relevant research fields. As an interesting thought experiment, one might consider the H2020 average annual budget of €13 billion euro as the minimum scale benchmark covering all relevant research areas and topics in the EU. If this figure were included in Figure 1, it would illustrate that, apart from the UK, only France and Germany within the EU today have the budgetary room for manoeuvre to cover all relevant research areas.

Looking at total (both public and privately funded) research in relative terms – that is, as a percentage of GDP – the EU's R&D intensity has been slowly increasing. However, it currently lags behind not just the US and Japan, but since 2019 also behind China, as illustrated in Figure 2.

Figure 2: Gross domestic R&D expenditures, 2012–2022 (as a percentage of GDP)



- (1) 2012 and 2022: estimates
- (2) Excludes most or all capital expenditure, definition differs: 2012-2021
- (3) 2020 instead of 2021 and 2022
- (4) 2013 and 2018 : break in series
- (5) 2021 instead of 2022

Source: Eurostat and OECD database.

2.2 The missing elephant in European integration: the defence procurement and research

When looking only at the public funding of research for defence, the European predicament is particularly striking.

As in Figure 1, but now limited to defence, Table 1 presents the absolute size of government budget allocations for R&D in defence for the same countries based on Eurostat/OECD data.

¹⁰ The importance of the absolute size of a country's public R&D funding came out of a Tour d'Europe carried out within the framework of the RISE expert group. See, in particular, Soete and Stiern 2018.

Table 1: Government budget allocations for R&D in defence by country (in million euros)

Countries	million euros
European Union – 27 countries (from 2020)	4,356.259 e2021
Belgium	41.392
Bulgaria	0.774
Czechia	6.83
Denmark	11.936
Germany	2,283.027
Estonia	5.604
Ireland	0
Greece	26.879
Spain	207.212
France	1,576.261
Croatia	0.313
Italy	73.996
Cyprus	0.035
Lithuania	0.565
Luxembourg	0
Hungary	46.478
Malta	0
Netherlands	200.125
Austria	6.771 d
Poland	115.851

Portugal	2.158
Romania	25.22
Slovenia	3.066
Slovakia	11.853
Finland	46.418
Sweden	99.440 e
Norway	125.215
Switzerland	41.59
United Kingdom	2,463.300
Iceland	:
Serbia	3.37
Türkiye	338.309
United States	74,416.904
Japan	1,192.063 bd
South Korea	3,166.803 e2021

Source: Eurostat, https://ec.europa.eu/eurostat/databrowser/product/page/gba_nabsfin07_custom_11822019. for the UK, see Office for National Statistics (ONS), [Research and development expenditure by the UK government: 2022](#), op.cit.

As illustrated in Table 1, in defence-related research the 27 Member States of the EU combined spent only approximately one-fifteenth of what the US spent. In 2023, the US figure increased from the €74.4 billion indicated in Table 1 to €82.9 billion. Within the EU itself, the largest countries, such as Germany and France, spent the largest amounts on defence research: in Germany some €2.3 billion, in France some €1.6 billion, followed by Spain and the Netherlands with €200 million each. The UK is actually the European country that spends most on defence R&D, some €2.5 billion, just ahead of Germany.

As in the case of Figure 1 with respect to total public R&D funding, there is today also a European Defence Fund (EDF), which complements European national R&D defence funding. In November 2016, the European Commission launched a European defence action plan aimed at meeting “Europe’s current and future

security needs and to enhance the Union's strategic autonomy". The plan included the proposal for a EDF launched in June 2017 which has been functioning since January 2021 with a total budget of €7.953 billion for the period 2021–2027. One third aimed at funding competitive and collaborative defence research projects through grants, and two-thirds complemented Member States' investments by co-financing the costs for defence capabilities development following the research stage.

Not surprisingly, most EU countries¹¹, both small and large, are currently members of NATO. NATO, as an intergovernmental military alliance, has a very different political purpose. Today it fulfils the missing European defence research coordination role, benefitting the US as the country with the largest industrial military sector estimated by the Stockholm International Peace Research Institute (SIPRI) at some \$916 billion and also the largest defence research sector, estimated at some \$90 billion, as highlighted above in 2023.

In short, while there are many similarities in the national fragmentation of total public research funding and defence-related research funding in Europe, the civilian research sector has clearly benefited in recent decades from the gradual expansion of a large array of complementary European research policy initiatives enhancing the opportunities for knowledge diffusion and research collaboration across public and private agents, as encapsulated by the framework programmes and the concept of the European Research Area. By contrast, research in defence did not receive such benefits; it remained, even after the creation of the EDF, primarily a national prerogative.

There is little doubt that one of the main reasons for this concerns the absence of any specific European policy framework for enhancing the benefits of Europe's large integrated market for individual Member States' own security. The military sector remained largely absent in the European integration project as the project took form and became institutionalised following the Second World War. Although the first steps were made in the midst of the Cold War, the European integration project appeared primarily as a peace project. That feature was also what was most clearly recognised in the granting of the Nobel Peace Prize to the EU in 2012, as mentioned in the Introduction. Hence, the peaceful exploitation of nuclear power, as with the setting up of Euratom (a forerunner of the European Community of Coal and Steel), became fully part of the European project. The same applies for the development of civil aviation with the development of the Concorde and the

¹¹ Twenty-three countries are currently members of both the EU and NATO. Four EU Member States – Austria, Cyprus, Ireland and Malta – are not members of NATO.

creation of Airbus. Dual-use military applications of civilian technologies remained explicitly outside of the European scope of action; they were eliminated from any of the framework research support programmes of the EC when they were first developed in the 1980s and subsequently renewed and enlarged to the current Horizon Europe R&D support programme.

The Treaty on the European Union actually restricts the use of the EU budget for defence (European Court of Auditors, 2023). The EU action in the field of defence is limited to the common security and defence policy as an external crisis management tool and is not intended to be a collective European defence policy, encompassing, for example, a common definition of the threats. This constraint complicates the EU's long-term planning for spending in the defence area. Thus, in the case of Horizon Europe, legislation explicitly prohibits the use of research money for military applications.

Similarly, at the industrial level, the individual European Member States' defence industries did not benefit from any of the Single Market reforms introduced in 1992. Military production and procurement remained entirely subject to national decision making. Those European Member States, which had been part of the NATO alliance, did coordinate their procurement policies but more with the US than with European partners. This became even more pronounced following the end of the Cold War, with many of the new Member States looking for their military security to NATO and to the US rather than to European partners.

As a result, the industrial sector with possibly the greatest "single market" potential – the military sector – never developed as an integrated European sector, and advantages of European scale were never realised.¹² The procurement of European defence markets did not develop and did not contribute to the overall competitiveness of Europe's defence and security industries. By contrast, most dual-use, technological breakthroughs of existing, often highly specialised defence firms in individual Member States, particularly the small ones, were transferred to and became exploited in the US. Only large Member States (the UK before Brexit, Germany and France) succeeded in developing a dynamic defence sector/industry. In the US, such integration has famously led to significant technological

¹² As has been recognised and acknowledged in, for example, the December 2013 official Consilium document: "To ensure the long-term competitiveness of the European defence industry and secure the modern capabilities needed, it is essential to retain defence Research & Technology (R&T) expertise, especially in critical defence technologies. The European Council invites the Member States to increase investment in cooperative research programmes, in particular collaborative investments, and to maximise synergies between national and EU research. Civilian and defence research reinforce each other, including in key enabling technologies and on energy efficiency technology" (European Council 2013).

advances, as exemplified by the role DARPA and other organisations played in the emergence of the digital revolution (Mazzucato 2013 and 2021). Europe, or its Member States, have failed to develop similar public organisations and their respective collaboration with other funding organisations, both at the European and national levels. As we saw during the COVID-19 pandemic, in some areas, European countries in close collaboration with the European Commission can overcome the lack of such public sector capabilities. However, this seems to be more the case during an immediate crisis rather than based on a sustained capability.

In short, there is little doubt that the fragmented European defence market has not contributed in any way to the overall competitiveness of Europe's defence and security industries, on the contrary.

While the recent EUR 7.9 billion European Defence Fund (EDF) mentioned above can be considered as a first milestone for collaborative military R&D programmes across Member States, the EU still lacks a longer-term strategy for the EDF.¹³

In the next section we turn to the issue of how to design such a strategy within the framework of an EDRIA complementary to the two strategic goals of the current EC: the European Green Deal and the Digital Agenda.

3. Connecting 'EDRIA' to the European Green Deal and the Digital Agenda

The political side effect of the Russian invasion of Ukraine has undoubtedly been the realisation, in both European and national Member States' policy circles, that Europe's integration project, which was based primarily on "soft power", is no longer sustainable in the current multipolar world of geopolitical tensions. However, the support of Ukraine is by no means uniform across the EU. Accordingly, the EU will have to advance its defence – and defence R&D – agenda through multi-pronged and initially incremental steps.

¹³ As the European Court of Auditors (2023, p. 5) noted: "the Commission has not yet sufficiently addressed strategic issues in order for projects under the EDF to have their intended impact. PADR defence research projects do not, from the outset, include a plan specifying how research results will be dealt with at later stages, in terms of additional research, development, manufacturing, procurement, and other aspects."

First, while the immediate aim is not to achieve military technological sovereignty, given the fact that most EU Member States are now also full members of NATO, there will be a new focus on exploring how to exploit in a more proactive way the technological and industrial advantages of dual-use opportunities associated with military and relevant civilian research carried out in Europe.

Recognition of the importance of developing a common European economic security strategy,¹⁴ including de-risking and promoting a technological edge in critical sectors, is relatively recent. In the Joint Communication on a European Economic Security Strategy, the Commission committed to reporting on options to ensure support for R&D involving technologies with dual-use potential, after reviewing the scope of existing instruments. The design of parameters in EU funding conditions for R&D involving technologies with dual-use potential should enable a quicker market uptake in the EU, whether for commercial purposes, Member States' government needs (civil or defence), or for EU-level infrastructures.

Therefore, the EU may have an important role to play in providing targeted support to dual use, on the pathway from R&D to deployment, right through to market uptake or public procurement. Support measures can build on the potential of synergies under the Strategic Technologies for Europe Platform (STEP)¹⁵ and an enhanced coordination with dual-use programmes of other EU organisations such as the Strategic European Security Initiative (SESI) of the European Investment Bank (EIB), seeing how best one European instrument could help where the other cannot, and aiming to support critical technologies and industrial capacities by developing strategic projects.

Military research, just like space research, has been shielded from immediate commercial application pressures, and therefore often offers opportunities for more radical disruptive innovations, as illustrated in the case of the US DARPA (Defense Advanced Research Projects Agency). Cutting off or preventing military-civilian fusion – as is the case today in European research programmes or was, until recently, the case in US space programmes – now appears to have been an overly restrictive approach to industrial-led research and innovation-led procurement.

As Schwaag Serger et al. (2023) noted: "DARPA has allowed the US to drive disruptive innovation and technology development that meet both national defence needs and benefit US economic growth (through commercial applications). China

¹⁴ European Commission's 'Joint Communication to the European Parliament, the European Council and the Council on 'European Economic Security Strategy' (2023).

¹⁵ See https://strategic-technologies.europa.eu/index_en.

has pursued civil-military fusion for many years. For historical reasons, Europe has sought to keep civilian and military research and innovation systems apart. Yet as illustrated in many new areas, such as space, public-private cooperation has accelerated technological advances.¹⁶ In a time of increasing geopolitical tensions where Europe's freedom and democracy are increasingly threatened, innovation, security and sustainability need to cross-fertilize and reinforce each other. This need is now also captured in NATO's new strategic concept that combines the three areas in its recent strategy: 'Technology innovation for a greener defence' (European Leadership Network, 2022). Europe can and should assume a leading position in linking defence, innovation and sustainability – *triple use* – for the benefit of national security and competitiveness”.

From an industrial and technological competitiveness perspective, European defence and security investments are likely to benefit most from the scale and standardisation advantages of the large European single market. The economic narrative of European integration, with its emphasis on “competitiveness”, can be easily broadened to include such security investments. The political power of nations, as reflected in current geopolitical tensions, has always been closely related to population size and economic wealth. The old notion of “dual use”, with spillovers from defence to civilian research, effectively explains the innovation success story of large, high-income countries such as the US in areas whereby economic size offered many opportunities for the rapid scaling-up of civilian applications based on military and defence breakthroughs. The EU as an economic union of primarily small countries typically missed out on such single-market-scale opportunities.

With respect to the more recent European narrative on sustainability – the European Green Deal – and the digital agenda, the inclusion of security in the integration narrative is more complex. Over recent decades, and closely connected to the widespread diffusion of digital, information and communication technologies, the “multiple use” nature of digital applications has meant that spillovers have now also moved, sometimes even primarily, from civilian to defence applications. The “general purpose” nature of digital, information and communication technologies has effectively meant that “dual use” has just been one of many multiple use applications. As a result, many areas of security, such as cybersecurity and space, have become increasingly dependent on civilian research and innovations.

¹⁶ This holds not just for the US but also for, for example, the so-called Quadrilateral Security Dialogue of Australia, India, Japan and the US. The latter “Quad” is now developing into a platform for mutual security (see <https://isic-japan.org/event/commanding-heights/>).

Particularly in the area of public digital infrastructure, such as identity and payment systems (Eaves et al. 2024), security and civilian uses are difficult to distinguish.

From this perspective, the distinction within ERA and the EC's Horizon Europe research framework programme to exclude potential “dual use” applications of research and innovation from any funding appears increasingly unrealistic. At the same time, the “multiple use” applications of digital technologies also offer new opportunities to reconfigure sustainability and even cohesion aims in terms of security.

Furthermore, when we see security and military expenditure through the lenses of industry transformation and increased R&D intensity, policymakers can design investment and procurement instruments with specific conditionalities. As Mazzucato and Rodrik (2024) showed in a recent paper, such conditionalities can range from targeting specific behaviour by firms (such as ensuring equitable and affordable access to resulting products and services, or requiring reinvestments of profits into productive activities) to sharing risk/reward mechanisms (how costs and profits are shared). Such industrial policy approaches should be adopted in increased security-related investments to make sure the spill-overs are far-reaching. We turn to that issue now.

4. The essential role of place in security investment

The geographical location of defence production sites and/or military facilities in Europe has been strongly influenced by the formation of different European countries national identity over the last few centuries. As a continent that has witnessed both world wars, the creation of defence capabilities were part of many of those individual European countries' industrialisation process in the 19th and 20th centuries. Logically, the location of military production and facilities sites was often in border regions or in those countries' key infrastructural locations such as seaports.

Following the end of the Second World War, many of those defence investments became coordinated and consolidated in Western Europe within the framework of NATO and in Eastern Europe within the framework of the Warsaw Pact. Only the larger European countries, in particular the UK and France and some of the smaller, independent neutral countries such as Sweden, kept a significant military industry of their own. After the Cold War period, a disarmament process took place

with the expansion of the EU to include the Eastern European countries and the realisation of a so-called peace dividend. That disarmament process was also part of a professionalisation of military forces and of the dismantling of military facilities in many of the (Western and Eastern European) internal border regions. Many of those regions became now also more centrally located European regions; others remained from a European perspective peripheral regions: regions on Europe's outside borders. This was particularly the case for the Southern European countries and the EU's new East European member states.

From a historical perspective, the creation and development of national defence-oriented industrial policies can be considered as national "cohesion" policy tools *avant la lettre*. It was accompanied with an explicit industrial policy aimed at creating a defence industrial and technological base (DITB). It involved territorial "specialisation", with an attempt to exploit the border region's natural absolute advantages, such as sea and/or air proximity, and also involved the relocation of staff, education and maintenance facilities, leading to a major development impulse for many of those peripheral regions.

In short, without an explicit formal recognition, European cohesion policies and national regional policies contributed to European security. It is in this sense that "territorial security" can be considered as a new European and Member State policy aim that repositions cohesion policy as a policy that, along with having a regional structural transformation purpose, now also has a broader European security aim that benefits all Member States. It represents an additional feature of European solidarity, now addressing the continent's territorial security. It explicitly acknowledges the place-based, territorial nature of security needs and, in doing so, justifies the transfers from more centrally located member states and regions to border and peripheral places.¹⁷

The implementation of such new forms of territorial-security-focused cohesion policies can learn from the development and European research and innovation policies, as described in Section 1, under the banner of policies based on a system of "shared parallel competence". In other words, this means not questioning individual Member States' security policies with respect to border, peripheral and/or strategically located territories but allowing for the emergence of a parallel European territorial security policy.

Following this line of shared parallel competence would effectively imply a further transformation of current regional cohesion policies towards territorial security. The

¹⁷ Next to cohesion policy with its focus on territorial differences within the EU, the EU mission on cities could also play a key role in ensuring a coherent integration of sustainability and security agendas.

latter can be linked not just to defence security, but also to other forms of security, as highlighted in the report on the future of cohesion policy.

Conclusions

European policymakers face difficult trade-offs in increasing economic growth and industrial competitiveness, stepping up efforts in green and digital economies and coming to terms with new security realities that require increased investments. As the European and several national elections in 2024 have shown, this is not an easy circle to square, particularly as domestic political conditions are often challenging for incumbent governments.

It is even more important that the EU develop a coherent and overarching approach to security investments and, in particular, align these with the green and digital agendas of the EU.

This reflection paper proposes two fundamental shifts in two of Europe's unique, long-standing and (to different degrees) relatively successful policy frameworks.

- The first is the area of research and innovation policy where the nature of the multi-level governance between the EU and its Member States has been one of "shared parallel competence", implying that EU member states can carry out national science and research policies (including legislation) in parallel to the EU, no matter whether the EU legislates or not. It would be an area that can be easily expanded to include more explicitly defence-focused research. In short, as argued in this paper, to broaden the **European Research and Innovation Area to a European Defence Research and Innovation Area (EDRIA)**.
- The second framework is Europe's cohesion policy, described here as Europe's "secret weapon". As the REGDUALOS JRC project/survey illustrates, there is, unsurprisingly, a remarkable geographical mapping of military facilities, the further exploration of defence research and so-called cohesion regions. This is not surprising. In the current insecure international geo-political environment, the integration of security issues into European regional policies represents a logical, new expression of intra-regional European solidarity. In short, enlarging current **cohesion policy to European territorial security policy**.

These shifts would allow, first, for market expansion and integration in security- and defence-related national expenditures (for example, through much broader dual-use allowances in R&D and procurement); second, by introducing conditionalities to such investments, governments can advance their green and digital growth agendas; and third, by integrating territorial development goals into defence programmes, governments address regional imbalances in their societies.

The reflections presented here are likely to raise many questions and debates, not just at the level of European and individual member states policy makers, but also within the science, technology and innovation community itself. Philosophical and ethical questions concern the need for and nature of the shift from spending Europe's so-called peace dividend from an "open science, open innovation and open to world" knowledge system now into a more security and fairness based "Europeanisation" of research and cohesion.¹⁸

Hopefully, the reflections presented here will also contribute to broader discussions on how to integrate security in the economic narrative of European integration – a narrative that was always dominated in the past by industrial and technological competitiveness and more recently by sustainability and digitalisation but is today in need of a broader perspective, including fairness and, therefore, also security.

¹⁸ The response from universities and different public research organisations, the main public stakeholders in the European framework programmes, to the consultation launched by the European Commission (2024) following its white paper on "options for enhancing support for research and development involving technologies with dual-use potential dual use" accurately illustrates the complexity of issues involved once the exclusive focus on civilian research in the current Horizon Europe would be removed. These range from ethical assessments of the possible risk of military misuse of research, to human rights aspects for individual researchers retaining the option to prevent military applications of their research, to even a restriction on the participation of a large number of German universities (a total of some 70) that have civilian clauses in their statutes. See the overview of responses to the White paper by Martin Greenacre (2024) in Science Business.

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