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A compass to guide EU policy in support of business competitiveness

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A Compass to Guide EU Policy in Support of Business Competitiveness

By **Fredrik Erixon**, **Oscar Guinea**, **Philipp Lamprecht**, **Vanika Sharma**, **Elena Sisto**
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PREFACE

Europe has weakened its performance over the past few decades in terms of key economic indicators of competitiveness and productivity growth, and it is dangerously distant from the global frontier of competitiveness. The EU's share of global GDP has dropped from 25 percent in 1990 to 17 percent by 2020. This means that global growth over the past three decades has primarily taken place outside the EU – in Asia and especially in China. Part of the decline is due to the catching up effect but growth in the EU, and especially in the euro area, has been weak also compared to the US. Furthermore, the EU's relative weight in global trade has decreased and when comparing firms – the backbone of competitiveness – in Europe with firms in the United States, there is a significant gap. Between 2014 and 2019, European firms grew on average 40 percent more slowly than their US peers and spent 40 percent less on R&D.

Currently, Europe and the world are facing strong economic headwinds. Higher energy costs are squeezing businesses along with supply chain disruptions and rampant transport costs. Alongside the humanitarian crisis, Russia's invasion of Ukraine continues to have far-reaching consequences for EU businesses. Addressing the short-term needs of businesses is imperative, but at the same time we must not lose sight of the longer-term challenges.

Importantly, we should not draw the wrong conclusions from current developments and turn Europe inwards. Conflicts and crises must not become a pretext for isolating Europe. Rather it is vital to draw attention to the importance of open and competitive markets in a healthy economy and society. Our economy, and hence the global competitiveness of our firms, represent EU's global leverage. At a very fundamental level, securing growth is necessary if we are to successfully address the great challenges of our time – geopolitical, security-related, climate-related, demographic, as well as those arising from global competition and migration.

The Confederation of Swedish Enterprise takes, as its starting point, the need to strengthen Europe's competitiveness. The development of an entrepreneurial and knowledge-based economy along with businesses' ability to innovate are key issues for the future. At present, there is an unfortunate lack of more strategic thinking around competitiveness at European level. The good news is that Europe in many ways still is a leading economy and that there are reasons to be optimistic about Europe's economic prospects provided the right policies are pursued. With a policy framework at EU level to boost competitiveness and productivity growth, the gap between Europe and the global leaders at the frontier of growth and innovation can be closed.

It is for these reasons that the Confederation of Swedish Enterprise has commissioned this report, based on a concept developed by our Director EU Affairs Fredrik Sjögren, with support from our Senior Advisor Lars Jagrén. While many of our policy experts at the Confederation have provided input, the research, analysis and recommendations have been undertaken and drafted by, and should be attributed to, the staff at ECIPE. The report focuses on policies and reforms necessary for the next five to ten years.

We need to learn from the past that the EU can make strong contributions to Europe's economic performance when policies and reform focus on areas of strong EU competence. Our hope is that this report will be a timely contribution to a discussion at EU level on the need to develop a strategic agenda with a medium-term perspective – a compass to guide policy initiatives in support of competitiveness. After all, the best way to address the rising tide of challenges is to make our own economies more competitive.

Anna Stellingner

Deputy Director General, Head of International and EU Affairs



EXECUTIVE SUMMARY

The EU agenda for improving competitiveness is missing in action. Economic competitiveness has been a central plank in the development of the European Union – a relentless quest for policies that lead to more prosperity and that make European companies in world markets more successful. However, since the end of the Lisbon Agenda in 2010, economic competitiveness seems to have fallen off the EU map. This Agenda had its flaws, but it rightly sought to make Europe “the most competitive and dynamic knowledge-economy in the world”. The impression now is that Europe is on the retreat and the current European Commission is the first without a strategy to strengthen competitiveness at the EU level since the early 1990s. Hopefully, a course correction may now be on its way. Ursula von der Leyen has promised a “competitiveness check” on new EU policy. With the strong economic headwinds facing Europe and the world, the EU needs to pursue structural economic reforms that raise productivity and growth.

This report offers a map and a competitiveness compass for the EU to find a new path towards a flourishing society. The report takes aim at faster economic growth in Europe. Growth is not the only target for the economy but is a prerequisite to achieve many of the non-economic objectives that are important. For instance, improved rates of growth are necessary to boost living standards in Europe, and to give many more citizens economic opportunities that have been absent after a decade of strong economic turbulence. Faster growth and stronger European competitiveness are also central in an age of increasing geopolitical frictions and war. The West and its allies are economically strong and innovative. But it is equally obvious that their economic power to command the direction of the world economy has weakened, and that the only way to fight against the economic gravity that takes more business, investment and innovation to China and other emerging economies is to make our own economies more competitive. Moreover, there is no environmental sustainability without innovation. To address climate change, Europe need as much technological progress as it can muster.

Competitiveness may be an ambiguous concept, but it has shaped much of EU policies over the years. It is built on two foundations. First, improving competitiveness means growing the level of productivity in the economy. Second, competitiveness is about how firms and economies perform in an international context. This is not a zero-sum game in which a country performs better by blackballing other countries. In fact, one country’s level of competitiveness is based on open conditions for cross-border exchange, technology, and competition. Competitive economies thrive on the success in other regions: they imitate or learn from countries that are at the frontier of technological change, business development, and productivity growth.

There are good reasons to be optimistic about Europe's economic prospects. The economic performance of the EU is trailing behind the United States and other global leaders, and the shift in the economy from manufacturing to services and emerging technologies have proven especially difficult for Europe. But the gap between Europe and the global leaders at the frontier of growth and innovation can be closed. The 28 Policy Recommendations included in this report are designed to boost EU competitiveness, productivity growth and expand the EU economy at a faster rate.

Unfortunately, the EU economic performance over the last decades has been poor. The increase in EU Gross Domestic Product per capita has been slower than in the United States and members of the OECD; labour productivity has also grown faster in the US than in mature European economies, particularly as a result of lower rates of technology and innovation growth. There are many structural explanations behind the lagging rates of growth: low economic dynamism, reduced market churn, inadequate investments in infrastructure, and secular trends like population decline and rising energy costs. The combination of these and many other factors have contributed to falling rates of growth and competitiveness.

At the sectoral level, Europe's productivity problem is not due to the type of industries that make up its economy but the result of low levels of productivity within rather than across sectors. Notably, in the manufacturing sector, where the slowdown in productivity has happened across all firm sizes. There is a significant productivity gap when European firms are compared with its US counterparts and that gap extends to input factors like corporate-level spending on R&D as well as output factors like corporate profitability. Between 2014 and 2019, European firms grew on average 40 percent slower than their US peers and spent 40 percent less on R&D. This is also reflected in the generation of new knowledge and technologies. The US outperforms Europe in all classes of transversal or cutting-edge technologies.

To become more competitive, the EU needs to pursue new policy initiatives in several areas. A new competitiveness agenda in the EU should focus on policies at the EU level and where the EU carries legal competence. Such an agenda will reflect the Single Market Programme rather than the Lisbon Strategy, and it will aim at policies where there is a strong need for fresh initiatives that can help to make businesses, sectors and economies better equipped and motivated to compete globally.

The competitiveness compass contains seven focus areas that guide the EU towards higher levels of competitiveness over the next five-to-ten years. These are:

- Enabling Resilient and Dynamic Markets: harnessing the growth potential in deepening the Single Market and fostering competition and flexibility in

European markets, leading to good framework conditions for bottom-up firm growth.

- Supporting Global Free Trade: with many regions of the world growing faster than the EU, trade policy has an important role to open new markets and expand global trading opportunities for EU firms.
- Developing Innovation Capacity: harnessing European policy to boost innovation and making sure that the EU will be at the global frontier of current technological shifts.
- Accelerating the Digital Development: creating the conditions for faster digitalisation of the economy, better use of existing digital capacities and the development of new ones.
- Addressing Climate Change and the Energy Transition: reducing carbon emissions and providing a competitive supply of fossil-free energy.
- Improving Infrastructure Conditions: making more investments in transport infrastructure and boosting competition in transport services.
- Ensuring Better Regulation: improving the quality and predictability of regulation, and better transparency in the regulatory process.

Obviously, there are more policy areas than these that are important for European competitiveness: for instance, a broad macroeconomic framework and adaptable labour markets. Both areas are in urgent need of action. However, the seven focus areas have been selected because they are critical for competitiveness and long-run economic growth, and because they all are anchored in the political structure of the EU. In other words, the EU has strong legal competence in these fields, and it commands many types of structural and non-fiscal policy instruments that help to substantially improve competitiveness. This point is important because the compass is designed to be used at the EU level. Unlike the Lisbon Agenda, this compass is focusing on policy reforms that can be delivered in Brussels and not just in Member States. Ownership for this competitiveness compass rests with the EU, and equally the rewards from implementing these policies must therefore be attributed to the EU. Even though some of the actions presented below can be carried out without delay, the policy recommendations that make up the competitiveness compass show the direction of travel and are set with the longer-term in mind.

Enabling Dynamic and Resilient Markets

1. An open industrial policy that boosts entrepreneurship, scale-up companies, and growth: industrial policy should be preoccupied with productivity but not target in advance which activities – let alone firms – should become more productive than others. An open industrial policy promotes competition and removes regulation that inhibits the growth of productive companies.

2. Future-proof and deepen the EU Single Market: there should be no barriers to the EU Single Market, and in particular to those industries that drive economic modernisation and technological progress which are in many cases service sectors. Actions to support a future-proof and deepen the EU Single Market include a radical push for liberalisation in services – similar in ambition to what the Delors’s Commission did for the Single Market in goods.

3. A strong competition policy: EU competition policy has delivered a framework for market competition which boosted Member States confidence that the rules of the game are fair. Further erosion to EU state aid rules will have a negative impact on competitiveness and productivity since young and productive companies may have to leave the market in favour of less productive ones receiving government support.

4. An open and global attitude to standards: the EU should commit to market-driven standards which do not favour some companies over others according to their nationality. A more political European standard setting process risks taking away what makes it attractive to foreign companies, its broad participation. European standards that are accepted at global level are crucial for EU competitiveness in, for example, the circular economy, where the EU wants to be a leader.

Supporting Global Free Trade

5. Focus on market access and re-build a free trade strategy: most global growth in the next few years will take place outside the EU. To remain competitive, the EU should focus on increasing trade opportunities. Moreover, the EU should strive to implement the new EU trade defensive instruments in a way that causes as little red tape and costs as possible for trading firms and reduces the risks of retaliation from partner countries.

6. Make the EU market resilient: to diversify its suppliers, the EU needs to look for trade partners with the needed products which will not exploit EU dependencies for political gains. If properly designed, EU policies on the circular economy will also support the EU’s goal to reduce its trade dependencies.

7. Build partnerships and make new friends: given the increasing importance of forming strategic alliances in the new global order, the EU needs to ratify the Free Trade Agreements (FTAs) that have been finalised or that are under negotiation, and continue engaging with the World Trade Organization.

8. Embrace digital trade: there are many opportunities in digital trade. The EU should include ambitious digital chapters in its FTAs; continue its trade and technology

dialogues with the US and India; and participating or forging Digital Economy Agreements with other countries.

Developing Innovation Capacity

9. Mobilise resources on European R&D: The EU should prioritise R&D in its own budget even if that means reducing its budgetary spending in other policy areas. Moreover, given that two thirds of EU R&D is invested by companies, the EU should focus on incentivising European businesses to increase their R&D spending.

10. Support global success in research and universities: the EU spending on higher education should support European Universities and research institutions at the global frontier. The EU should increase mobility for European researchers inside and outside Europe to be able to join international networks.

11. Urgent need to attract talent: Knowledge is a key force behind technological change and defines the ability of an economy to absorb new technology and new ways of doing business. The EU should work with Member States to facilitate international labour migration into the EU, make the EU an attractive destination for foreign workers with skills that are needed in the European labour market, and support and encourage human capital flows between Member States and sectors so that labour finds the place where it can be more productive.

12. Harmonise and strengthen innovation protection: the EU needs to provide legal certainty and harmonisation of IPRs in the EU's Single Market especially on copyright as many innovations are produced in the digital economy.

13. Address the productivity gap of European businesses: low productivity firms struggle with obtaining access to knowledge and skills, data, and technologies, similar to those of high productivity firms. EU regulation, particularly in the digital economy, that includes experimentation clauses and sandboxes as well as investments in open infrastructure for testing and demonstration are two actions that the EU can take to shrink the productivity gap.

Accelerating Digital Development

14. Digital regulations should support competitiveness and growth: digital rules should not be cumbersome for businesses to follow or impede the development of new digital technologies. The EU needs to simplify and streamline digital regulation before the amount of regulation hurts competitiveness.

15. Improve infrastructure and connectivity: digital infrastructure can raise the productivity of all factors of production, broadening the productive capacity of the economy as a whole. The EU should put its attention into fibre, 5G, spectrum access and satellites.

16. Encourage venture capital in digital technology: for technological start-ups to scale up and realise their ideas, access to capital is essential. The EU should change its financial regulation to encourage investment by pension funds into venture capital funds. These funds will support the growth of European technology companies in Artificial Intelligence (AI) development where access to finance is insufficient.

Addressing Climate Change and the Energy Transition

17. Develop a global carbon price: The EU is not alone in its efforts to establish a market to price carbon. The EU should make the EU ETS more attractive to non-EU countries, build links between the EU ETS and other carbon markets and work on initiatives to set a global carbon price for industries where the leading countries have similar policies and objectives on emissions reduction.

18. More research into and deployment of fossil-free technology: investments in R&D to address climate change will make the EU more sustainable and competitive. The EU can channel more of its own resources to R&D activities and design regulatory frameworks that support the creation and adoption of new fossil-free technologies.

19. Produce more fossil-free energy: the energy transition requires a significant investment in fossil-free energy. These investments are not necessarily a detriment to competitiveness, but the energy transition will require a bigger role for tools that ensure stability of the system such as investments in energy storage and baseload capacity.

20. Upgrade the infrastructure for an Energy Union: connecting the energy infrastructure across EU Member States will make the EU more resilient to sudden changes in energy imports and will ease the management of renewable energy. The EU should provide funding, planning and coordination for additional cross-border energy infrastructure projects.

Improving Infrastructure Conditions

21. Deregulate transport services to make road and rail transport more attractive: the EU needs to further open up its transport market. Further deregulation in European road and rail markets will result in lower prices and create new business opportunities.

22. Fix the bottlenecks in European transport infrastructure: the EU should continue providing planning and financing to support a Trans-European Transport Network that addresses bottlenecks and facilitates cross-border transport. Moreover, EU-funded research should be channelled to decarbonise the transport sector before 2050.

23. Foster fair competition in international aviation and the maritime sector: the EU should play a leading role in extending open skies agreements with third countries and establishing a global level-playing field in aviation and the maritime sector. In addition, the EU should increase its efforts to cooperate with the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO) on an international regulatory framework to further strengthen fair competition, high safety standards, and environmental protection.

Ensuring Better Regulation

24. Increase scrutiny and transparency in EU regulation: the EU should be serious about competitiveness. It has the tools and guidelines, but they are not always implemented to the required depth. The quality of EU impact assessments, consultations, and evaluation must improve.

25. Expand the space for experimentation: instead of being prescriptive about how to use a specific technology, the EU should focus on outcomes and provide space for experimentation to demonstrate how these outcomes are achieved.

26. Empower the Regulatory Scrutiny Board: given the growing number, complexity and importance of EU regulation, the Regulatory Scrutiny Board should receive additional human and economic resources as well as become fully independent from the European Commission.

27. Reduce the regulatory burden: the EU should assess the regulatory burden of its regulation and the cumulative effect of regulation in each industry.

28. Make the better regulation agenda central in EU decision making: the EU could include EU competitiveness as part of the discussion of EU rules on fiscal sustainability in the Economic and Financial Affairs Council (ECOFIN); integrate competitiveness within the EU Next Generation Funds; or assign DG COMPETITION with a standing mission to produce sectoral reviews that include an assessment of how regulation impacts firms and competition within a given sector.

INTRODUCTION

This report sets out a competitiveness compass for the European Union – a set of policy recommendations that in the next five-to-ten years could boost competitiveness and improve Europe’s economic performance. Like a normal compass, the competitiveness compass is a tool for understanding in what direction the EU should go to increase its competitiveness and raise the prosperity of its citizens. And just as you need a map to use the full functionality of a compass, this reports also starts with an orientation of where the EU finds itself right now.

The entire report is unapologetic about the need for faster economic growth in Europe. The current economic headwinds are very strong, with soaring inflation, high energy costs and the expectation of a recession. However, Europe’s problem with competitiveness predates our present economic woes. While there has been shining examples in the past decades of rapid economic growth in the Eastern rim of the EU, the unfortunate fact is that the EU economy has been stagnating and that some parts of the EU have fallen behind. Growth is not the only target for the economy but is a prerequisite to achieve many of the non-economic objectives that are important. For instance, improved rates of growth are necessary to boost living standards in Europe, and to give many more citizens economic opportunities that have been absent after a decade of strong economic turbulence. For schools and healthcare to increase quality, and for the general feeling of economic security to be widely felt – for instance through good household savings and property ownership for younger generations – the economy needs to grow at a faster clip.

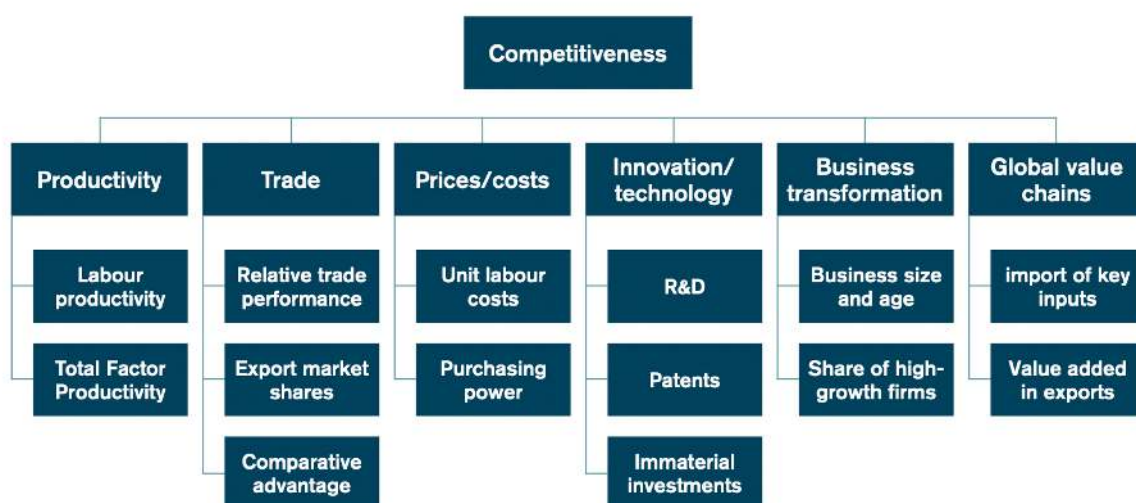
Competitiveness drives economic growth – and perhaps more so today than in the past. With the entire world economy going through a technological shift, the competitiveness of Europe’s economy is profoundly defined by our capacity to work with new technologies and to foster innovation and structural transformation in sectors and businesses. This is good news, because more and better use of technology give us a chance to vastly expand our prosperity without exhausting natural resources or polluting the planet. It can help to raise public sector efficiency, increase the quality of public sector services and reduce the demand for taxes. To cut carbon emissions and limit climate change, households, companies, and governments need to substitute current structures of technology and behaviour with new ones. This process can substantially boost our economy.

Faster growth and stronger European competitiveness are also central in an age of increasing geopolitical frictions and war. Nowadays, the battle for the open and democratic future is fought as much in research laboratories as on the battlefields. The West and its allies are economically strong and innovative. But it is equally obvious that

their economic power to command the direction of the world economy has weakened, and that the only way to fight against the economic gravity that takes more business, investment and innovation to China and other emerging economies is to make our own economies more competitive.

Fortunately, there are good reasons to be optimistic about Europe's economic prospects. The economic performance of the EU is trailing behind the United States and other global leaders, and the shift in the economy from manufacturing to services and emerging technologies have proven especially difficult for Europe. But the gap between Europe and the global leaders at the frontier of growth and innovation can be closed, and it is obvious to most observers what is required for competitiveness to go up, for productivity to grow, and the economy to expand faster. Europe should cut the barriers that still make services and technology markets to be organised along national lines and that lead to strong home-market biases in most Member States. Markets should be opened up to foster more competition and faster technological transformations. In sum, Europe should move away from its industry-first and big-company orientation that make the conditions for entrepreneurs and new market competition to be, at best, secondary ambitions.

At its heart, competitiveness will feed opportunities and performances by individuals, firms, sectors and economies that lead to better productivity. The European Commission has already established a good analytical framework for policies that boosts competitiveness, and it guides much of the thinking behind this report (see Figure 1). To raise the level of competitiveness in the European economy, there will have to be improved performance in many specific parts of the economy. Most fundamentally, rates of productivity growth have to increase. Europe needs to make better use of the global economy and make sure that European companies can access markets abroad in free and fair ways. Our cost levels have to be balanced against prices in the world market. Europe's autonomous capacity to generate new knowledge technology and innovation should go up. Many sectors and individual business will have to transform faster. And more.

FIGURE 1: SCHEMATIC VIEW OF COMPETITIVENESS

Source: European Commission, 2017, Background Documents for the European Semester: Measuring Competitiveness.

To achieve these outcomes, there will have to be new policy initiatives in several areas of policy. The question is what should be prioritised? This report argues that a new competitiveness agenda in the EU should focus on policies at the EU level and where the EU carries legal competence. Such an agenda will reflect the Single Market Programme rather than the Lisbon Strategy, and it will aim at policies where there is a strong need for fresh initiatives that can help to make businesses, sectors and economies better equipped and motivated to compete globally.

Competitiveness can be compared to an iceberg, we only see the tip of it, which is often measured as productivity or GDP per capita, but miss layers and layers of factors, which are connected and influence each other, and ultimately determine a country's competitiveness. Values and norms affect institutions and regulations, which in turn are fundamental determinants of demand and market dynamics. In the long-run, there is a feedback effect, as highly competitive economies attract capital and labour, and new technologies affect a country's system and institutions.

FIGURE 2: ICEBERG MODEL OF COMPETITIVENESS

Source: HBS Economics, based on European Commission, 2017, Background documents for the European Semester: Measuring Competitiveness.

However, not every layer that makes this iceberg, as shown in the Figure above, can be easily identified as a policy that helps orientate Europe's economic strategy. Starting from the iceberg model, this report selects seven focus areas. The choice of each one will be motivated later in the report as we move into policy. These focus areas are:

- Enabling Resilient and Dynamic Markets: harnessing the growth potential in deepening the Single Market and fostering competition and flexibility in European markets, leading to good framework conditions for bottom-up firm growth.
- Supporting Global Free Trade: with many regions of the world growing faster than the EU, trade policy has an important role to open new markets and expand global trading opportunities for EU firms.
- Developing Innovation Capacity: harnessing European policy to boost innovation and making sure that the EU will be at the global frontier of current technological shifts.

- Accelerating the Digital Development: creating the conditions for faster digitalisation of the economy, better use of existing digital capacities and the development of new ones.
- Addressing Climate Change and the Energy Transition: reducing carbon emissions and providing a competitive supply of fossil-free energy.
- Improving Infrastructure Conditions: making more investments in transport infrastructure and boosting competition in transport services.
- Ensuring Better Regulation: improving the quality and predictability of regulation, and better transparency in the regulatory process.

Obviously, there are more policy areas than these that are important for European competitiveness: for instance, a broad macroeconomic framework that ensures stability and provides for predictable conditions for business investment, and adaptable labour markets to boost supply in an age of labour shortages. Both areas are in urgent need of action. However, the seven focus areas have been selected because they are critical for competitiveness and long-run economic growth, and because they all are anchored in the political structure of the European Union. In other words, the EU has strong legal competence in these fields, and it commands many types of structural and non-fiscal policy instruments that help to substantially improve competitiveness. This point is important because the compass is designed to be used at the EU level. Unlike the Lisbon Agenda, this compass is focusing on policy reforms that can be delivered in Brussels and not in Member States.

This report is structured as follows. In the next section we will provide a map to help us guide where EU competitiveness stands right now: its current policy for competitiveness and Europe's underlying economic performance, and the lessons learned from previous initiatives to use structural policy reforms to boost economic growth. Knowing where this journey will start, the subsequent section will provide a compass to help policymakers to understand where they should go.

1. THE MAP

Like every journey has a starting point and an end, a programme to establish better competitiveness needs first to know what position that we start from and, second, the desired end destination. The purpose of this section is about that first part: orienting the performance and policy of the EU regarding competitiveness. More specifically, we will ask: (i) what is the status of competitiveness policy in the European Union now, (ii) what are the main competitiveness challenges facing the EU, and (iii) what lessons about policy delivery can be learned from current and past policies that are intended to raise competitiveness, productivity, and economic growth.

1.1 The role of competitiveness in the EU

Economic competitiveness has been a central plank in the development of the European Union. For many decades, the EU – and, before it, the European Community – has helped to drive higher prosperity in Europe and make European firms more competitive abroad. In 1993, the European Commission of Jacques Delors set out a new course of work by launching a first White Paper focused on Europe’s competitiveness.¹ On the back of the Common Commercial Policy, generations of European leaders before Delors had reduced barriers to trade and economic integration. The launch of the Single Market Programme in the second half of the 1980s had expanded on that core idea: driving higher productivity, more economic growth and better jobs by eradicating regulations that carved the European market up along national lines. But in the midst of Europe’s economic doldrum in the early 1990s, it became clear that many more efforts were needed to secure the region’s economic future.

With the creation of the Single Market came associated policies to liberalise markets and free consumers from monopolies that made services like telecoms and audio-visuals expensive. Many product markets were comprehensively opened up, boosting competition in Europe and making companies better equipped to succeed globally. In its different iterations, industrial policy at the EU level helped to establish competition-enhancing technological and product standards, and streamlined national regulations to better fit with an open and dynamic economy. Moreover, new finance policies freed up investment and generated a much better capital allocation in Europe – helping many companies to access finance for their growth.

While competitiveness may be a somewhat ambiguous concept in economic theory,² it has shaped much of EU policies over the years. It is built on two foundations. First, improving competitiveness essentially means growing the level of productivity in the economy. Productivity growth is a fundamental prerequisite for increasing prosperity and it is based on a dynamic economy – an economy with good firm and labour churn, and that adapts to new technologies and is quick to seize new business opportunities. In this view, competitiveness is the “ability to generate wealth” and “to drive and adapt to change through innovation”, to quote the European Investment Bank.³

Second, competitiveness is about how firms and economies perform in an international context – or vis-à-vis other economies and firms in other regions. Hence, raising the level of competitiveness is especially a challenge for countries that are lagging other

¹ European Commission (1993). White Paper on Growth, Competitiveness and Unemployment: The Challenges and Ways Forward into the 21st Century.

² Krugman, P. (1995). Competitiveness: A Dangerous Obsession, *Foreign Affairs*, Vol. 73:2, pages 28-44.

³ For a longer version of this definition of competitiveness, see European Investment Bank, 2016, Restoring EU Competitiveness. 2016 Updated Version.

economies, because their low performance makes it harder to create new businesses, win new customers and expand the economy. This is not a zero-sum game in which a country performs better by blackballing other countries. In fact, one country's level of competitiveness is based on open conditions for cross-border exchange, technology, and competition. The ability of an economy to cooperate deeply with other economies has proven to be a remarkable good way of building up an autonomous potential for growth and prosperity.⁴ Therefore, competitive economies thrive on the success in other regions: they imitate or learn from countries that are at the frontier of technological change, business development, and productivity growth.

This report harnesses both aspects of competitiveness and starts from observation that the European Union has lost much of its focus on competitiveness. Ever since the Lisbon Agenda ended in 2010, the role of a policy programme to raise competitiveness at the EU level has gradually weakened. The Lisbon Agenda was followed by the EU2020 strategy, a programme that had a markedly reduced ambition and that no longer aspired to the Lisbon goal of making Europe “the most competitive and dynamic knowledge-based economy in the world”. Moreover, it was quietly phased out of being because other concerns (e.g., the migration crisis and the Covid-19 pandemic) came to occupy the mind of elected politicians and civil servants.

Ominously, the EU2020 programme arrived amid the Great Recession and was shaped by the early experiences of the Eurozone crisis (that peaked between 2010 and 2012). The structural agenda for competitiveness and growth was replaced by many efforts that were focused at addressing sovereign debt, balance-of-payment and other immediate macroeconomic problems. With new programmes to ailing crisis economies and converge the European economies, the EU established in 2010 processes and instruments like the European Semester and Country-Specific Recommendations – policies that tied some competitiveness reforms to broader macroeconomic concerns. These programmes also heralded another qualitative shift: they gave much greater weight to economic reforms in Member States rather than at the EU level, and – after a while – gradually neglected the Lisbon ambition of growing the economy through reforms that spurred bottom-up firm and market change.

It is unfortunate that the current European Commission has followed the same trend of shrinking the role of a competitiveness agenda at the EU level. At its start, the European Commission of Ursula von der Leyen launched six key priorities for the period of 2019-

⁴ Jones, E. (2003). *The European Miracle*. Cambridge University Press; Angus Maddison, 1991, *Dynamic Forces in Capitalist Development: A Long-Run Comparative View*. Oxford University Press; Acemoglu, D., Johnson, S., & Robinson, J. (2005). The rise of Europe: Atlantic trade, institutional change, and economic growth. *American economic review*, 95(3), 546-579.

2024, but none took aim of raising competitiveness and growth.⁵ The policy ambitions that were made into the key priorities are important and, to be fair, made some associations with economic policy. But these associations were rarely about EU-level economic reforms and new efforts to improve the climate for trade, investment, competition, and business growth by policies that are part of the EU competence. Surprisingly, the ambition to deepen the Single Market has become a footnote in this new policy direction. It is the first time since the early 1990s that EU does not currently have a comprehensive ambition for deepening the Single Market.

The ambition is still to push for competitiveness-enhancing reforms in Member States, and there has been some renewed emphasis on that agenda in recent years. With the establishment of the Recovery and Resilience Facility (RRF) in early 2021 – the programme to support economic recovery after the COVID-19 pandemic – the plan has been to increase the relevance of the reform-oriented country-specific recommendations in the European Semester and put new resources to support investments that help to reduce carbon emissions and improve the digital infrastructure. However, it remains to be seen if the RRF can unleash reforms and better competitiveness in Member States. The reality is that this plan builds on a process with a poor track record. These country-specific recommendations have been the backbone of the EU’s policy for competitiveness since 2012 but rarely been registered outside of Brussels and ministries of finance. Their most conspicuous hallmark, and to use a phrase by playwright William Shakespeare, is that they have been more “honoured in the breach than the observance.”⁶

Member States have a poor record of delivering on the country-specific recommendations. In fact, this may be too generous a description: the implementation rate has been going down and, depending how implementation is measured, is reaching all-time lows.⁷ These recommendations stand on different legal bases: some are connected to the Stability and Growth Pact, others to the Macroeconomic Imbalance Procedure, and still others to the Integrated Guidelines that were part of the EU2020 strategy. The European Commission has claimed steady (yet weakening) rates of progress on the recommendations, and said in a multiannual overview analysis in 2020 – a review that allows for multi-year paces of implementation – that “some implementation progress has been achieved for more than two-thirds of the country-specific recommendations”.⁸

⁵ The six priorities are: A European Green Deal; A Europe fit for the digital age; An economy that works for people; A stronger Europe in the world; Promoting our European way of life; and A new push for European democracy.

⁶ European Parliament (2020). Economic Dialogue with the European Commission on the 2020 Country Specific Recommendations. Briefing.

⁷ It should also be noted that many of the country-specific recommendations focuses on input rather than output, and that the link between the two – or between policy change and result – is often ambiguous.

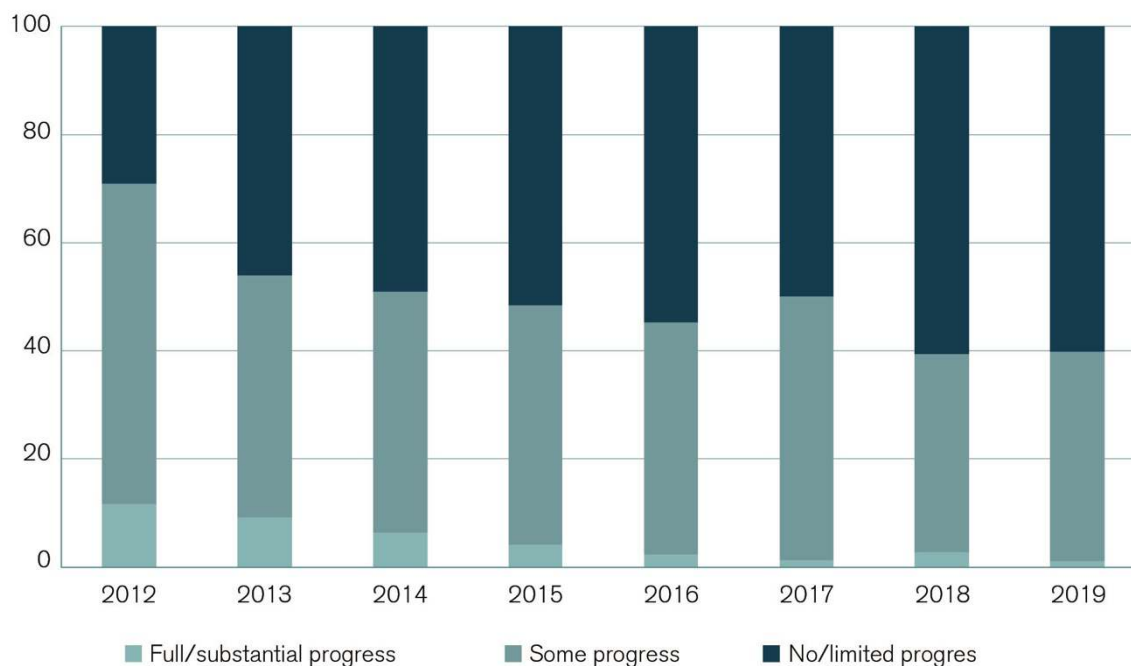
⁸ European Commission (2020). 2020 European Semester: Country-specific Recommendations. COM (2020) 500 final.

What does it mean that “some implementation progress” has been achieved? It is difficult to say because the data and the methodology used by the European Commission are non-transparent, and the language used is often obfuscating. Two other accounts of implementation rates suggest that implementation rates are far from compelling. Compiling data on different subparts of the country-specific recommendations, a group of scholars have found worsening implementation rates over the years and that the general implementation has “ranged between ‘limited progress’ and ‘some progress’, meaning that on average Member States fell short on adopting measures to at least partly address the recommendations or follow up on the adoption of the measures with implementation.”⁹

Equally, the Economic Governance Support Unit at the European Parliament has also tracked the implementation of the country-specific recommendations and detected a declining rate over time. This group tracks the implementation of the recommendation as a whole – and not its sub parts – and find that Member States implemented 11.6 percent of these recommendations in 2012. While the initial expectation was that the rate of implementation would increase as the process would mature and Member States given more time to execute reforms, this did not seem to have happened. In fact, the rate of implementation has declined. In 2019, Member States only made full or substantial progress on 1.1 percent of the country-specific recommendations, and the share of recommendations where there has at least been some progress declined from about 70 to 40 percent. Meanwhile, the share of these recommendations that witnessed no or limited progress went up from 29.2 percent to 60.2 percent.¹⁰

⁹ Efstathiou, K., & Wolff, G. B. (2018). Is the European Semester effective and useful? (No. 2018/09). Bruegel Policy Contribution.

¹⁰ Notably, there is no effective regime for compliance with the Country Specific Recommendations.

FIGURE 3: COUNTRY-SPECIFIC RECOMMENDATIONS 2012-2019, IMPLEMENTATION RATE PER YEAR

Source: European Parliament, Country-specific Recommendations: An Overview – September 2020

These are stark figures. For most observers, the only reasonable conclusion is that the programme of country-specific recommendation has not been able to incite reform delivery in Member States at an adequate rate. As a consequence, it is unlikely that this programme has had any significant impact on Europe's economic performance. The low rate of implementation also casts doubt on the validity of an EU programme for increased competitiveness that is based on the willingness and ability of national governments to actually deliver necessary reforms at home. For European institutions, there is a clear limit to how far they can intervene in the economic affairs of Member States when delivery is not executed by the EU itself. Obviously, the distance between policy design and execution is exacerbated when the policies have little or no direct relation to the EU competence. In such cases, the EU is left with financial incentives and moral suasion as methods for gushing Member States into action. Neither strategy has proven successful.

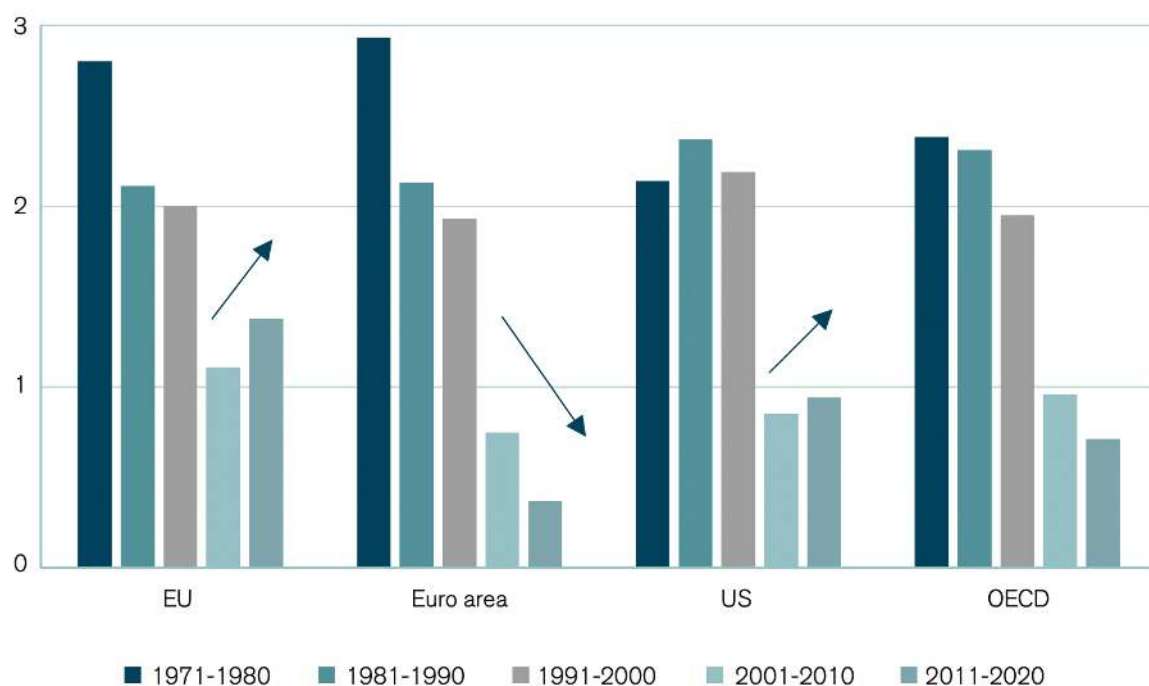
1.2 Where do we start? Analysing Europe's structural economic performance

Europe is a diverse economic region. It includes advanced economies that are at the frontier of competitiveness, innovation, and productivity – and economies that are still catching up. Hence, the European Union is not a single economy with equal rates of economic performance throughout the membership. A general trend of the past 20 years is that economic growth has been fast in Central and Eastern European countries that joined the EU during this period, but that rates of growth has been slow in

especially continental economies. The consequence is that the gap between these groups of countries has been closing fast. In purchasing power terms, the Czech Republic is now more prosperous than Italy and Spain. Over the next ten years, Poland is likely to surpass the United Kingdom in GDP per capita.

Figure 4 presents the growth in Gross Domestic Product per capita for different groups of countries over time. The development in Europe has broadly reflected the global trend in advanced economies with a decline over time in growth rates. Countries in the Euro Area have generally grown a bit slower than the entire EU, and this difference is especially visible in the new millennium, when the EU enlarged its membership in successive rounds. After the 1970s, Euro Areas countries have also grown slower than the United States and members of the OECD.

FIGURE 4: GDP PER CAPITA GROWTH IN SELECTED ECONOMIES



Source: World Bank.

There are many structural explanations behind the lagging rates of growth, and they include a range of policies covered in this report. For instance, market churn in especially the Euro Area countries is low – and behind comparable economies like the United States. Hence, the entry and exit of firms in European markets are held back, leading to lower dynamism and resource misallocation.¹¹ Small companies are not growing as fast as they could and too many incumbents are not facing enough competition, creating markets that are less susceptible to firm and product innovation –

¹¹ European Central Bank (2021). Key factors behind productivity trends in EU countries. ECB Strategic Review, No. 268.

a lack of what the Austrian economist Joseph A. Schumpeter once called ‘the perennial gale of creative destruction’. Moreover, investments in infrastructure have been comparably low and many key infrastructure services have low exposure to competition. Secular trends like population decline and rising energy costs have impacted the cost structure of many European firms.¹² The combination of these and many other factors have contributed to falling rates of growth and competitiveness.

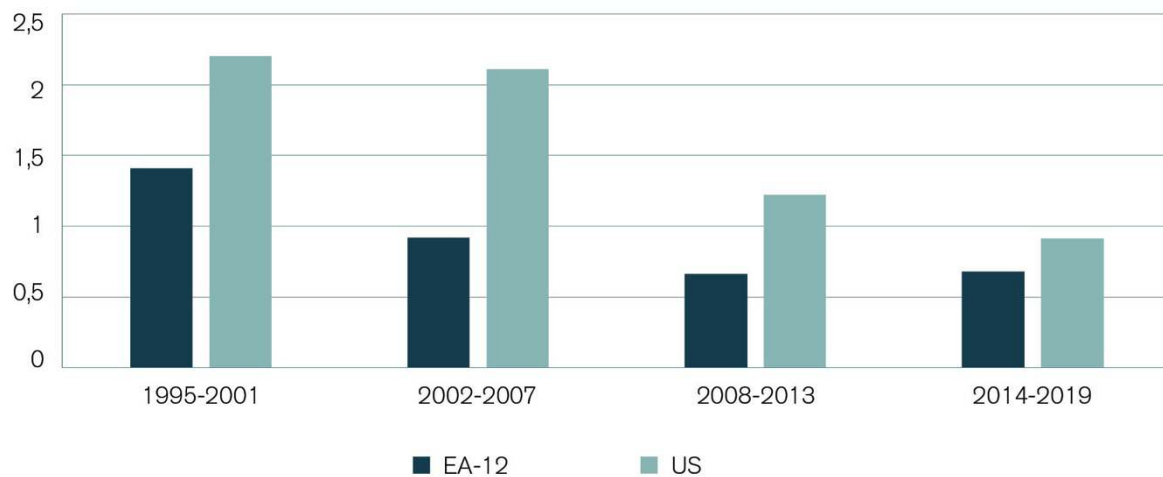
Productivity is the keystone of competitiveness, prosperity, and a flourishing society. Over time, labour productivity has also grown faster in the US than in the Euro Area (see Figure 5). While the entire EU has grown labour productivity at a faster clip – especially after the enlargement – it is notable that differences in growth rates between Euro Area countries and the United States persist. Focusing on the components in productivity growth reveal some interesting patterns in economic behaviour. In Figure 6, which decomposes productivity growth, we find that Europe’s productivity growth – especially in the last 20 years – has been substantially driven by capital deepening, meaning that the amount of capital per worker has increased. Total Factor Productivity (TFP) growth, which can be seen as a benchmark for the rate of technology and innovation growth in the economy, was stronger in the 1990s and has somewhat picked up again after 2015.

The Euro Area’s slowdown in productivity growth does not seem to be driven by large structural shifts in the economy – for instance, the secular trend of the services sector taking up a larger share of total output in Europe. In fact, such shifts seem to have had a positive effect on the employment composition, leading to higher levels of productivity. The big factor behind the decline happens within rather than across sectors. Notably, in the manufacturing sector, the slowdown has also happened across all firm sizes and for all parts in the productivity distribution. Even the frontier firms – the 5-percent most productive firms – in the manufacturing sector have reduced their productivity growth rates markedly. The services sector shows a different performance: frontier services firms have accelerated productivity growth over the past 15 years.¹³

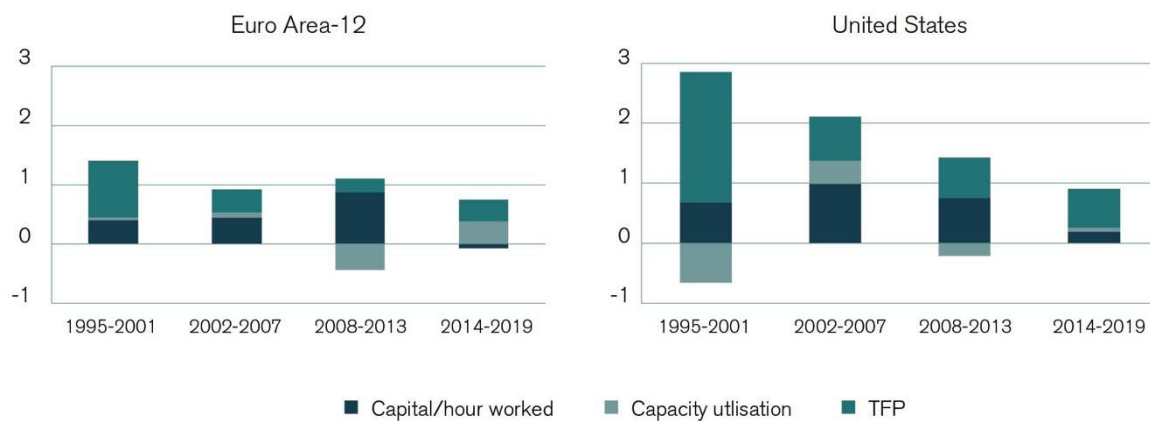
In the United States, the relative shares are somewhat similar, but what stands out is that the contribution of capital deepening and TFP growth is substantially bigger than in the Euro Area. While the US TFP rate has declined from the high levels in the 1990s – levels that were pushed by technological change through the ICT revolution (a sharp increase in ICT capital expenditure) – TFP growth remains much higher than in the Euro Area group.

¹² Ari. A. et. al. (2022). Surging energy prices in Europe in the aftermath of the war: How to support the vulnerable and speed up the transition away from fossil fuels. IMF Working Paper No. 2022/162.

¹³ European Central Bank (2017). The slowdown in Euro area productivity in a global context. ECB Economic Bulletin, Issue 3, 2017.

FIGURE 5: GROWTH IN GDP PER HOUR WORKED

Source: Eurostat and Federal Reserve Bank of the United States

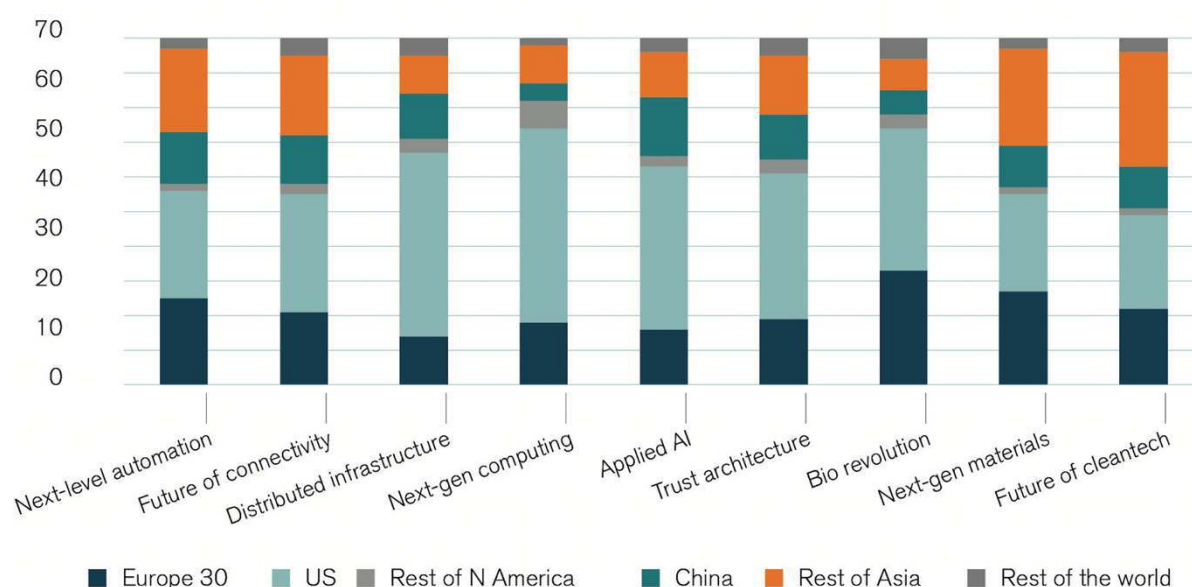
FIGURE 6: CONTRIBUTIONS TO GROWTH IN GDP/HOUR WORKED

Source: European Central Bank, Eurostat, Reserve Bank of the United States.

Growth in Total Factor Productivity is a key benchmark of competitiveness. TFP growth is driven by economic change that partly comes through a higher pace of research and innovation – more generally the contribution to economic growth that comes from individuals, firms and market adopting new technologies and business practices in a competitive and dynamic environment. Technological change is an important part of it – but high rates of innovation and TFP growth also require dynamic and competitive markets that reward companies that drive productive change. This is also a critical part of competitiveness now because R&D, innovation and rewards for productive market change permeate all industries as we are moving into significant technological and business-model shifts. In other words, in order to know where the competitiveness compass should point for Europe, it is important to know how Europe compares with different country groups and how capable they are to develop their economies without adding new capital and labour to the economy.

It is also an aspect that adds urgency to Europe's need to focus on its competitiveness. Comparing firms in Europe (and not the full economy) with firms in the United States, there is a significant productivity gap – and that gap extends to input factors like corporate-level spending on R&D as well as output factors like corporate profitability. Between 2014 and 2019, European firms grew on average 40 percent slower than their US peers and spent 40 percent less on R&D.¹⁴ As a consequence, the gap between the EU and the US in stock market valuations have increased. This is also reflected in the generation of new knowledge and technologies. The US outperforms Europe in all classes of transversal or cutting-edge technology – technologies that break a new path for the economy. It not only generates more patents than Europe in computing and AI – technologies known to be strong for the US – but also in materials technology and cleantech, classes of technology where Europe traditionally has had strong competitiveness and outperformed the US in the past. The EU is still ahead of China in most technology categories, but it is notable how other countries in the Asian region have grown their role as sources of new technology and innovation¹⁵.

FIGURE 7: PATENTS IN TRANSVERSAL TECHNOLOGIES



Source: McKinsey Global Institute and Bertelsmann Stiftung.

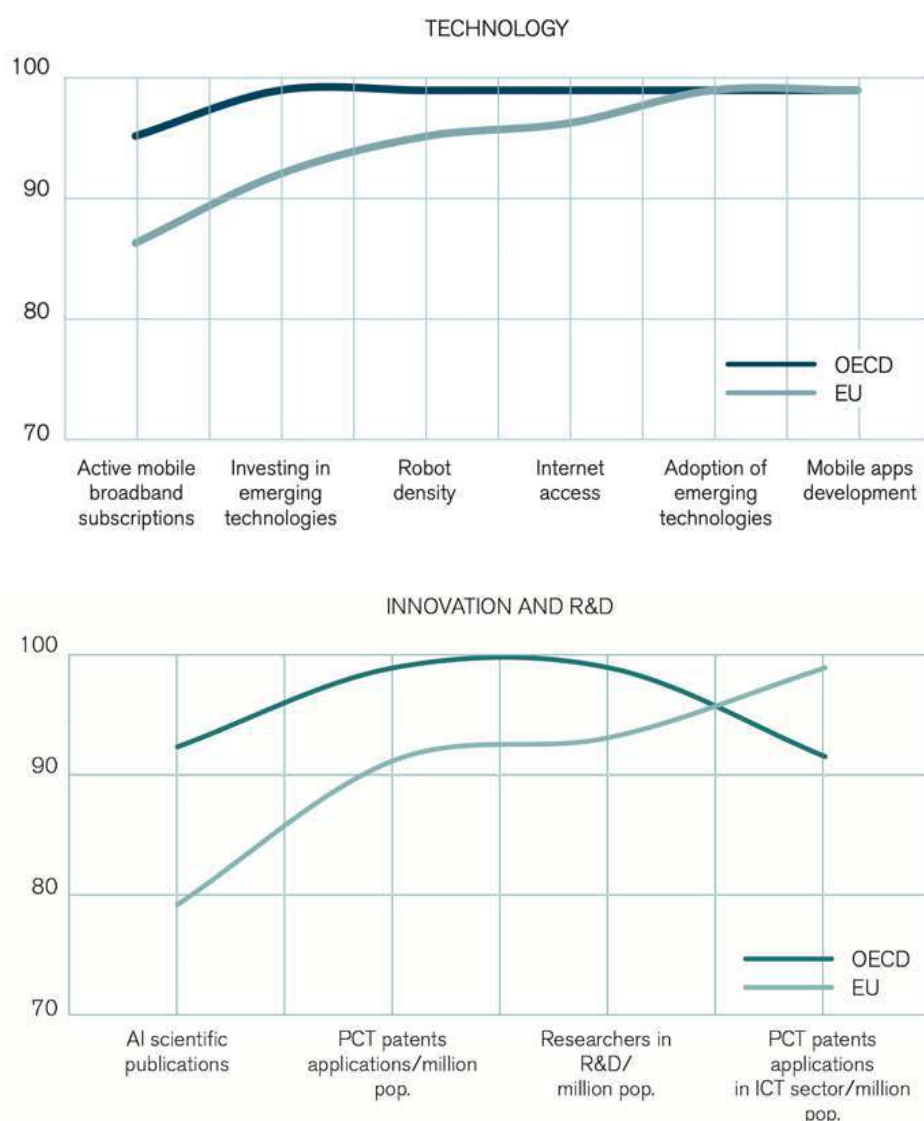
If we decompose these aggregate figures on technology and competitiveness, we will find that a few “input factors” help to explain the EU’s lag. For instance, the EU is also behind the frontier in input factors for modern competitiveness that related to R&D and the R&D capacity. Figures 8 tracks Europe’s performance on a number of different indicators, and compares it with the performance of the entire OECD – a good

¹⁴ McKinsey Global Institute (2022). Securing Europe’s Competitiveness: Addressing its Technology Gap.

¹⁵ Patents as an indicator of innovation suffers from certain limitations as demonstrated by Griliches, Z. (1998). Conclusions on the relative position of countries in the innovation race based on patent data should take account of these limitations.

benchmark for the global frontier. Obviously, Europe has some key strengths and is not behind the OECD frontier on all scores: the adoption rate of emerging technologies and mobile apps development, for instance, are areas where Europe is at the frontier. However, Europe is behind the frontier in both basic (active mobile subscriptions and internet access) and more applied aspects (robot density). Likewise, on the intensity indicators, Europe is ahead of the OECD in ICT patents per million people but are behind on other metrics relating to R&D intensities, such as research capacity.

FIGURE 8: FRONTIER ANALYSIS



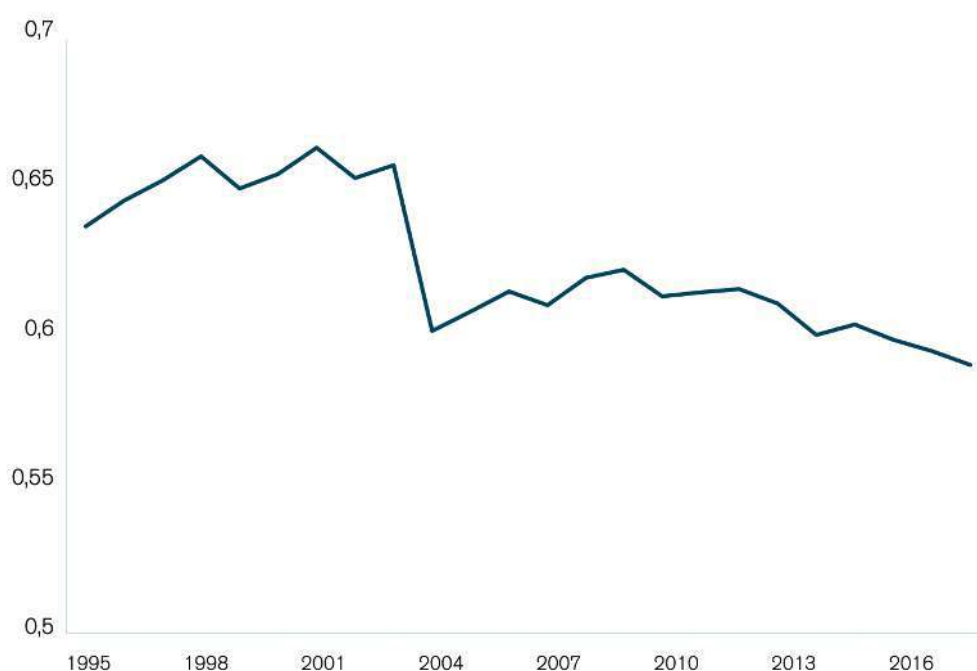
Source: NRI 2022, WEF, WDI, MSTI; own calculations. Note: The frontier analysis benchmarks the OECD group and the EU group against the top-performing country for each indicator.

It is also important to understand how Europe performs in international trade, and the extent to which Europe has been capable to fuse its competitiveness with cross-border economic integration. Generally, trade has for a long time been a strong area of Europe. With a number of small and open-oriented economies, Europe's economic growth has

been powered by more trade within Europe as well as global trade – the latter especially important in the past decades since global growth has been so much stronger than European growth. Over time, the EU has also been good at negotiating trade agreements to provide for better market access for European companies and consumers, leading to more trade.

While the volume of Europe’s international trade has grown remarkably over time, its profile of trade remains stable – meaning that the shares of trade that is internal (within the EU) and external (with non-EU) have not moved substantially. Between 1995 and 2018, the share of Europe’s trade that was regional have been about two thirds of its total trade while trade with the rest of the world has represented about one third of total trade. These results are somewhat surprising, even if we take into account the Single Market Programme and its positive consequences on trade within Europe. Given the fast growth of demand and trade outside of Europe in the past decades, it is expected that the share of Europe’s trade that is with non-EU countries would have grown.

The shrinking relevance of the rest of the world in EU’s total trade also appears in the trade intensity analyses of Europe’s trade. As shown in Figure 9, the extra-regional trade intensity index has constantly been below 1, meaning that the EU trades less with the rest of the world than expected (given its size and share of the world economy). However, the share has also fallen over time, especially in the 2000s when there was a significant drop. This is because the enlargements of the EU in that period made Europe more dependent on trade with each other than on trade with the rest of the world since the new countries that joined the EU traded very little with the rest of the world compared to the size of their economies. While Europe’s recovery from the global financial crisis increased its trade with the rest of the world, the extra-regional trade intensity started a fall again a few years into the 2010s.

FIGURE 9: EXTRA-REGIONAL TRADE INTENSITY INDEX

Note: An index of more than one indicates that trade flow between EU/ROW is larger than expected given their importance in world trade. Source: Trade in Value Added (TiVA) database, own calculations.

These results may be puzzling but are likely explained by the secular shift towards services in international trade. EU services trade with the rest of the world has grown steadily over the years but remains dwarfed by trade in goods. Services are, in the first place, less tradable than goods, but many services that are traded tend to be traded regionally rather than globally. Moreover, as services trade often follows on the heels of trade in goods – or that services are inputs to exported goods – it is likely that services trade within Europe has been boosted by the Single Market in goods.¹⁶ Analysis of Europe's role in global value chains also points in that direction. Compared to other regions, Europe has been a superpower in the age of global value chains (GVCs), with rates of GVC participation exceeding by far those of the US and China. However, its comparative performance has been going down over the years, and the decline is partly driven by an increasing services content in the value chains.¹⁷

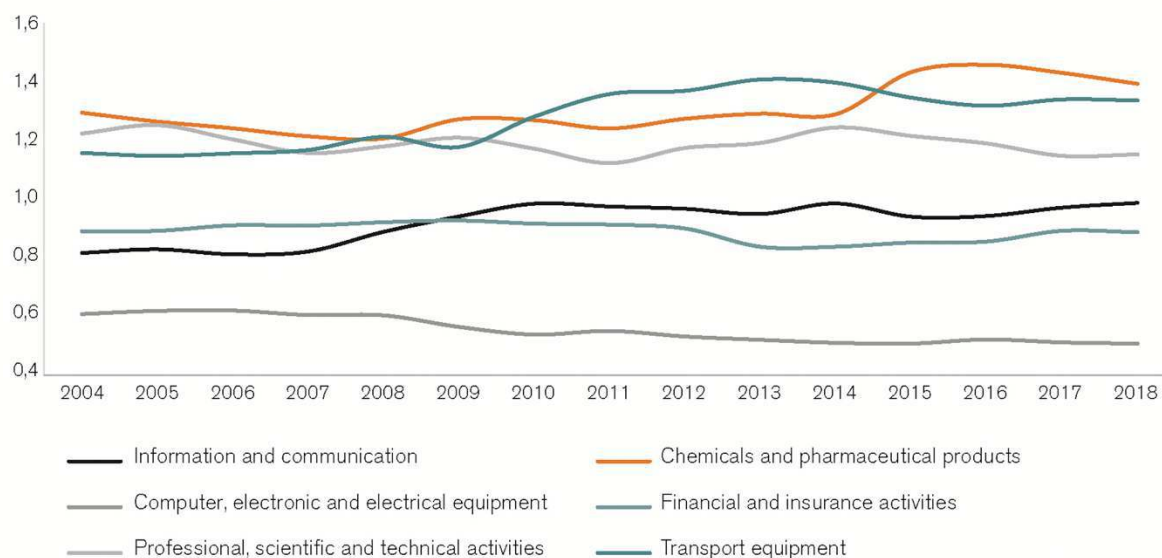
What is clear, however, is that Europe's comparative advantage in trade has remained stable over time. In Figure 10, which shows the revealed comparative advantage for selected sectors (result above 1 means comparative advantage, below 1 a comparative disadvantage), we find a few movements over time that are interesting. For instance, the EU has raised its comparative advantage in chemicals and pharmaceutical products and transport equipment. There is also a decline in equipment production in the

¹⁶ Antimiani, A., & Cernat, L. (2018). Liberalizing global trade in mode 5 services: How much is it worth?. *Journal of World Trade*, 52(1).

¹⁷ The data for the overall views is from the UNCTAD-EORA database.

computer and electronics industry, but the information and communication sector has moved from a comparative disadvantage to a comparative advantage. This suggests that Europe uses trade to boost its economic performance on the basis of its underlying economic strengths, and that the drop in extra-regional trade shares is more related to a structural shift in trade rather than significant shifts within sectors in which Europe has traded significantly with the rest of the world.

FIGURE 10: REVEALED COMPARATIVE ADVANTAGE IN EU TRADE



Source: Trade in Value Added (TiVA) database; own calculations for EU 27.

1.3 Lessons from the past

As noted above, programmes to raise the competitiveness of the EU or its Member States have been common in the past. The establishment of the Common Commercial Policy and the European Community's external trade policy after the Rome Treaty intended to boost productivity and economic activity, which it also did.¹⁸ In the 1970s, the Werner Plan for economic and monetary integration was born out of the same desire to lift Europe's economic potential – at a time when the post-World War economic recovery had ebbed out and European industries faced stronger foreign competition. In the 1980s, the Single Market Programme took aim of an economic rejuvenation in Europe, based on the principle that more trade and competition in Europe would spur productivity and growth. Similar ambitions powered the launch of the Economic and Monetary Union in the 1990s, with the introduction of a common currency that would reduce the cost of doing business in Europe. And then, in the 2000s, the EU launched

¹⁸ Erixon, F., Freytag, A., & Pehnelt, G. (2007). The Rome treaty at 50. ECIPE Policy Brief.

its ambitious Lisbon Strategy to raise competitiveness and growth, and make Europe the most competitive economy in the world by 2010.¹⁹

In this group of initiatives, the Single Market Programme stands out for its positive effects on competitiveness, productivity, and economic growth in the EU.²⁰ These positive effects emerged through different economic channels – among them more trade and competition because of the larger market size, reduced home-market bias, and lower product mark-ups leading to lower consumer prices.²¹ As firms in Europe were exposed to more competition and could scale up their production and R&D operations, they also increased their ability to compete globally and to innovate. The total effect on growth varies a lot depending on studies and methodologies, but it seems safe to contend that Gross Domestic Product in Europe has increased by between four and six percent as a result of the Single Market Programme.

Notably, these gains emerged predominantly through the market for goods, which was the basis for the Single Market Programme. Subsequent efforts to deepen the Single Market for services have not had much of an impact – which is unsurprising because these efforts have not created much bottom-up and structural economic change. This is also reflected in the country-specific recommendations: recommendations to increase national competition in services have one of the lowest records of progress.²² Unlike the Single Market in goods, changes in the Single Market for services have rarely been able to move market governance policy from Member States to the EU, and as a result Europe has a patchwork of market access rules that prevents scale and competition, and that leads to strong home-market bias.

Moreover, it is clear from economic evaluations that the positive contributions of the Single Market Programme petered out after a while. In the past 15 years, the Single Market contribution to productivity growth in the EU has been very small – if at all distinguishable. Single Market trade as share of GDP has also flatlined for the past ten years. Equally, the process of price convergence in Europe has largely stalled, and with the economy's underlying shift from goods to services, it is likely to expect that – everything else equal – the significance of the Single Market for the European economy will shrink.

¹⁹ An exposé of programmes to drive competitiveness and growth in Europe is provided in James, S. (2012). *The Origins and Evolution of the Lisbon Agenda*.

²⁰ For a review of the empirical literature on the economic effects of the Single Market Programme, see National Board of Trade, 2015, *Economic Effects of the European Single Market: Review of the Empirical Literature*. For a later study of the macroeconomic effects of reversing the Single Market, see Veld, J. (2019). *Quantifying the economic effects of the single market in a structural macromodel*. European Commission Discussion Paper, 94.

²¹ See for instance Badinger, H. (2007). *Has the EU Single Market Programme Fostered Competition?* Oxford Bulletin of Economics and Statistics, vol. 69:4, and Boltho, A., & Eichengreen, B. (2008). *The Economic Impact of European Integration*. CEPR Discussion Papers, No. 6820.

²² Efsthathiou, K., & Wolff, G. B. (2018). *Is the European Semester effective and useful?* (No. 2018/09). Bruegel Policy Contribution.

There is also a rich body of literature on the Lisbon Agenda for competitiveness and growth, and what results that emerged from it. Scholars of various disciplines have pointed to some positive effects. For instance, it has been argued that Europe's ability to deal with economic crises improved because of the Lisbon Agenda.²³ Another set of views points to Europe's capacity to be an external actor in the world: the Lisbon Agenda empowered Europe to make better use of the international economy, for instance through bilateral trade agreements.²⁴

However, on the core intentions of the Lisbon Agenda, the results of the entire programme were not satisfactory. Obviously, Europe did not emerge as the most competitive and dynamic knowledge-based economy in the world. Neither the EU as a whole nor the group of Member States that were part of the EU throughout the entire Lisbon Agenda (the EU expanded its membership during this period) caught up with the United States or other frontier economies that were used as benchmarks.²⁵ On the key benchmarks of innovation and a knowledge-based economy, the results were similar.²⁶ It is debatable if the agenda made any identifiable contribution to competitiveness, productivity, and economic growth.

Critical reviews of the Lisbon Agenda and its results point to several explanations why it failed to move Europe's economic performance. One factor to account for is that the Lisbon Agenda targets were not just about competitiveness and growth but also featured ambitions on areas like biodiversity, traffic management, and social exclusion – areas that are all important but with little direct relevance for economic performance. Given the centrality of the Lisbon Agenda in the EU process, it became tempting to associate many types of policies with the Agenda – and the result was diffusion and confusion. Halfway into the Lisbon Agenda, it was sometimes difficult to say what it was, and what it was not.²⁷

Another set of reviews takes aim at the diverse performance of Member States during the Lisbon Agenda. Some Member States did many reforms and progressed well on the benchmarks while others did not. This performance was clearly linked to the willingness and ability of countries to reform, and it is doubtful if the Lisbon Agenda had an impact on any of these groups: high-performers, middle-performers and non-performers. If a

²³ See for instance Van Middlelaar, L. (2013). *The Passage to Europe*. Yale University Press.

²⁴ See for instance Rodrigues, M.J., (2009). *On the External Dimension of the Lisbon Agenda: Key Issues for Policymakers*, in Rodrigues (ed.) *Europe, Globalization and the Lisbon Agenda*. Edward Elgar Publishing.

²⁵ Copeland, P. (2012). 'Conclusion: The Lisbon Strategy – Evaluating Success and Understanding Failure', in Paul Copeland and Dimitris Papadimitriou (eds.) *The EU's Lisbon Strategy: Evaluating Success, Understanding Failure*.

²⁶ World Economic Forum (2010). *The Lisbon Review 2010: Towards a More Competitive Europe?*

²⁷ See for instance Collignon, S. (2008). 'The Lisbon strategy, macroeconomic stability and the dilemma of governance with governments; or why Europe is not becoming the world's most dynamic economy'. *International Journal of Public Policy*, vol. 3:1-2 and Kok, W. (2004). *Facing the Challenge: The Lisbon Strategy for Growth and Employment*. Report from the High Level Group chaired by Wim Kok.

country has a clear economic strategy to raise competitiveness and growth, they can do so without the intervention of the EU. If a country does not have such a strategy, there is not much the EU can do to change domestic politics.²⁸

This review of the Lisbon Agenda is even more important in light of the agenda's division of labour between the EU and the Member States. Most of the reform delivery were due to happen in Member States. While there were clear tasks for the European institutions as well – and, in some areas (e.g., research policy coordination), these tasks grew stronger over time – the main targets of competitiveness, innovation and the knowledge-based economy mostly belonged to the preserve of Member States.²⁹

Unlike the Single Market Programme, which had a clear legal basis and empowered the European Commission to act vis-à-vis the Member States, the Lisbon Agenda had a weak governance framework. The European Commission could not monitor performance or incite Member States to act because much of the policies were part of the national competence.³⁰ The European Council had a coordination role and aimed to continuously prompt a review of progress – but with no real instruments beside discussion. Rather, the Lisbon Agenda was based on a soft model of governance – and “Open Method of Coordination” – but the coordination and peer pressure that was hoped for never materialised.³¹

1.4 Conclusions

In this section we have provided a “map” of where the EU stands now in terms of performance and policies for competitiveness. Some conclusions can be drawn about the starting point for the competitiveness compass.

First, raising the competitiveness of the EU is not a priority for the current Commission and there is no comprehensive policy programme that aims to raise competitiveness, productivity, and economic growth through bottom-up reforms at the EU level. The emphasis on competitiveness in current policies and initiatives from the EU is mostly visible in the European Semester and the country-specific recommendations that should guide Member State policy. However, as far as reforms of EU policy at the EU level is concerned, they are conspicuously absent.

²⁸ Wyplosz, C. (2010). The failure of the Lisbon strategy. *Vox EU*, 12(01), 2010; Tabellini, G., & Wyplosz, C. (2006). Supply-side Reforms in Europe: Can the Lisbon Strategy be Repaired. *Swedish Economic Policy Review*, 13(1), 101-56.

²⁹ See for instance Tilford, S., & Whyte, P. (2010). *The Lisbon scorecard X: The road to 2020*. London: Centre for European Reform.

³⁰ Copeland, P. (2012). ‘Conclusion: The Lisbon Strategy – Evaluating Success and Understanding Failure’, in Paul Copeland and Dimitris Papadimitriou (eds.) *The EU’s Lisbon Strategy: Evaluating Success, Understanding Failure*.

³¹ Collignon, S. et al. (2005). *The Lisbon Strategy and the Open Method of Coordination*. Policy Paper no. 12. Notre Europe.

Second, Europe has weakened its performance on key economic indicators of competitiveness and productivity growth, and it is distant from the global frontier in key determinant factors of competitiveness. Europe has strengths to build on and remain a global power in trade and the generation of new innovations and patents. However, the gap with the US is increasing and it seems that technological change and other secular trends explain why Europe is increasingly trailing others. Much as these trends are positive for the European economy, they are currently also sources of underperformance.

Third, the lessons we have learned from the past is that the EU can make strong contributions to Europe's economic performance when policies and reform focus on areas of strong EU competence. For instance, the establishment of the EU Single Market for goods boosted trade, productivity, and growth in the EU, and when Europe pursues reforms that reduce home-market biases, their results are positive and significant. However, when policy programmes are based on the national willingness and ability to reform – as was the case with the Lisbon Agenda – results tend to be weak.

2. THE COMPASS

Knowing “the map” and “the terrain”, the next step is to bring a compass to show in what direction we should go in order to reach the desired destination – better competitiveness. The compass outlines the policy pathways to reach the goal of a more competitive and prosperous EU. As mentioned in the introduction, our compass has seven rather than four cardinal points. These are: (i) Enabling Resilient and Dynamic Markets; (ii) Supporting Global Free Trade; (iii) Developing Innovation Capacity; (iv) Accelerating Digital Development; (v) Addressing Climate Change and the Energy Transition; (vi) Improving Infrastructure Conditions; and (vii) Ensuring Better Regulation.

Our seven focus areas are either directly linked to Europe's competitiveness or to policy areas from which competitiveness has been missing in action at the EU level. This is a competitiveness compass for the EU and not just for individual EU Member States. It has been designed with the EU as the central actor. It accounts for the factors that drive EU's competitiveness – many times factors that drive EU Member States competitiveness too – but in which the EU has the power to take the policy recommendations forward.

The subsequent chapters present each of the seven focus areas. Each chapter starts with a description of the key policy trends to provide the necessary context to each focus area. In addition, each chapter includes a section that outlines the division of competences between the EU and its Member States. Crucially, policy

recommendations are presented for each of the chapters. These policy recommendations, which are the magnetic needles inside the compass, are set with the long-term in mind. Their objective is to improve the EU's competitiveness in the next five-to-ten years and bring a fresh competitiveness dimension that is not currently present in the EU policy discussions.

2.1 Enabling dynamic and resilient markets

Enabling dynamic and resilient markets is crucial for competitiveness. Thriving markets, with a significant number of competitors and low market barriers that allow for companies to enter and exit the market, are more likely to deliver new innovation, resource efficiency and – ultimately – growth in productivity and the economy. These effects are directly linked to the competitiveness of European firms.

Competitiveness starts at the firm. Companies hire, buy, produce, innovate, and sell in competition with other companies in their city, country, region, and world-wide. It is this competition which encourages experimentation, risk-taking, and the survival of the most successful and productive firms. The productivity of each individual firm is what determines the overall productivity of an industry and a country.

The current economic debate is increasingly occupied by considerations of national economic security rather than efficiency and growth. Understandably, there is now a desire to shift from a “just-in-time” to a “just-in-case” model of supply and stocks, prompted not least by the experiences of goods shortages in the initial phase of the COVID-19 pandemic and ensuing logistical delays. Moreover, the alarming problems of competitive energy supply because of Russia's war on Ukraine have yet again put the light on “critical dependencies”, with some making a general case that Europe should wean itself of the reliance of others for its supply of key products and technologies. Notwithstanding obvious needs for Europe to have a better command over its energy supply, it remains the case that open, competitive and dynamic markets are a prerequisite to be more resilient. Crucially, a better resilience in the EU will come from firms and organisations being capable of adapting to new market circumstances – not by relying on a few domestic companies for the supply of key goods. The policy recommendations in this focus area will make markets more competitive and resilient to external shocks, and thus better suited for a world in which more regimes speak the language of power and autonomy rather than efficiency and prosperity.

Policy trends

The policy responses that followed the COVID-19 pandemic did not reflect the contribution of openness to resilience. On the contrary, many countries looked inwards

and pursued policies with the aim of becoming less reliant on the rest of the world. For some, the desired policy now is about supporting domestic firms and closing off their markets to foreign suppliers. Following the policy of dual-circulation, China has doubled down on its efforts to produce nationally what it consumes domestically; the US has launched policies to incentivise domestic production (e.g., the Inflation Reduction Act); and the EU is now pursuing a much more active industrial policy while aiming to cut its dependence on others.

In the past, EU industrial policy was rather horizontal and based on supporting the fundamentals that underpin business competitiveness like education, infrastructure, and a benign regulatory environment rather than “picking winners” by directly supporting specific sectors and companies. As a result of the COVID-19 pandemic, however, the EU approach towards industrial and trade policy changed substantially. For example, on semiconductors, the EU Chips Act will spend €11 billion, with Member States and companies expected to add €32 billion more to secure the production of semiconductors on EU soil. On minerals and critical raw materials, the EU is working on policies to diversify its suppliers – for instance by proposing the inclusion of a chapter on ‘Energy and Raw Materials’ in the modernization of the EU-Chile Association Agreement³².

The jury is still out regarding the economic impact of these policies. Initiatives that try to diversify the supply of critical raw materials necessary for the energy and digital transitions will help EU companies accessing these goods on favourable terms – ultimately increasing their competitiveness. Re-shoring production, on the other hand, may diverge resources from high-end production in Europe and exacerbate already growing labour shortages. The risk with all prescriptive industrial and trade policies is that they reallocate the economy from sectors where the EU is competitive to less competitive output³³.

EU role

There are three policy areas that carry a critical importance for Europe’s ability to secure dynamic and resilient markets: trade (internationally and within the EU Single Market) competition policy, and industrial policy.

The EU has exclusive competence in most international trade policy. International trade has a direct impact on market competition by exposing domestic companies to

³² European Commission (2020). EU-Chile Free Trade Agreement. EU Textual Proposal. Energy and Raw Materials Chapter. Retrieved from https://trade.ec.europa.eu/doclib/docs/2018/february/tradoc_156585.pdf

³³ Guinea, O., & Espés, A. (2021). International EU27 pharmaceutical production, trade, dependencies, and vulnerabilities: a factual analysis. ECIPE.

competition from abroad. The focus area Supporting Global Free Trade discusses EU international trade policy and its impact on Europe's competitiveness.

The functioning of the EU Single Market brings the same pro-competitive forces as international trade. As explained previously, several studies have demonstrated that the EU Single Market Programme have had large positive effects on productivity³⁴. The force of competition pushes the least competitive domestic companies out of the market and provides a larger market for the most successful domestic companies to grow. This process leads to a reallocation of resources – capital and labour – from the least to the most productive companies which increases the overall productivity of the EU and therefore its competitiveness. The level of commercial exchange within the EU – particularly for countries that have been part of the EU for longer – is similar to trade between US States³⁵.

The EU also has exclusive competence in competition policy. One of the pillars of the EU's competition policy is a strict state aid policy that prevents Member States from subsidising their own domestic companies, which would undermine competition within the EU Single Market. However, EU rules that limit state aid have all too often been sacrificed on the altar of industrial policy. For instance, state aid rules were bended to allow EU Member States to provide public funds for the Important Projects of Common European Interest (IPCEI)³⁶, and the EU Chips Act included provisions for a more permissive application of competition rules. Furthermore, more public support has been approved for companies to cope with high energy prices at Member States level, which can undermine free and fair competition in the EU Single Market³⁷.

Industrial policy does not need to be nationalistic and protectionist. For example, policies that bring non-EU companies into European Standardisation Bodies support European industrial innovation.

³⁴ For similar conclusions, see also Notaro (2002); Mahlberg, B., & Url, T. (2010); Bottasso, A., & Sembenelli, A. (2001); European Commission (1996); Allen, C. et al (1998); Harrison, G. W. et al (1996).

³⁵ Head, K., & Mayer, T. (2021). The United States of Europe: A gravity model evaluation of the four freedoms. *Journal of Economic Perspectives*, 35(2), 23-48.

³⁶ European Commission (2021). Press release. State aid: Commission adopts revised State aid rules on Important Projects of Common European Interest. 25 November 2021. Retrieved from https://ec.europa.eu/commission/presscorner/detail/en/IP_21_6245

³⁷ The EU approved a number of Member States' schemes to provide state aid to cope with the negative economic effects of the war in Ukraine under the Temporary Crisis Framework in. Information retrieved from https://competition-policy.ec.europa.eu/system/files/2022-10/State_aid_TCF_decisions_2.pdf

Policy recommendations

ECIPE Policy recommendation 1: An open industrial policy that boosts entrepreneurship, scale-up companies, and growth

The goal of an open industrial policy that supports entrepreneurship is to make the economic environment more conducive to higher productivity, growth, and a flourishing economy. Such industrial policy puts the emphasis on supporting market dynamism and competition – a general environment that is open to individuals and firms that want innovate with new technologies, business models, and ways of reaching consumers. This is not a new idea. Prior to the new push for a muscular industrial policy, the European Commission developed an industrial strategy that emphasised the economic environment rather than support for specific firms or products. Yet, an open industrial policy that supports competitiveness brings new elements that have become increasingly important when determining EU's competitiveness.

- Industrial policy should be preoccupied with productivity but not target in advance which activities – let alone firms – that should be more productive than others. For example, traditional industrial policy has been obsessed with manufacturing as a driver of higher productivity and economic development. However, many service sectors show higher levels of productivity than manufacturing, and the potential for growth in services by making lower-productivity firms more alike higher-productivity firms is very substantial³⁸.
- An open industrial policy should stress entrepreneurship, firm growth – especially for younger firms – and economic dynamisms rather than being an incumbent-oriented policy. Therefore, specific attention should be devoted to promoting greater competition in the market and removing regulations that inhibit the growth of productive companies.
- Traditional industrial policy runs the risk of becoming capture by forces of economic nationalism. However, a growing number of technologies and innovations will be developed outside the EU as the EU's share of the world economy goes down. The EU should pursue an open industrial policy that complements an open innovation policy – see focus area Developing Innovation Capacity. For example, openness in EU public procurement becomes more important when the latest technology can only be found outside the EU.

³⁸ Van der Marel, E. et al (2020). Are Services Sick? How Going Digital Can Cure Services Performance. Bertelsmann Stiftung.

ECIPE Policy recommendation 2: Future-proof and deepen the EU Single Market

Europe's Single Market offers not just economies of scale for competitive companies to flourish but also a vibrant ecosystem of companies where competition and market specialisation leads to higher productivity and competitiveness. However, the importance of the Single Market has been subdued in recent years. As a result, the degree of economic integration – measured as the ratio of EU internal trade over its GDP – has barely moved. As a percentage of EU GDP, intra-EU imports of goods were 20 percent in 2020, which was just 1 percent higher than what it was recorded in 2010³⁹. Policies to tackle the current Single Market barriers and avoid new ones, particularly in services, have been stalled for years, thwarted by a lack of political will. Urgent actions to revert this situation are now needed – not least because growth in the global economy has weakened and new policy reforms are needed to unleash more trade.

- A future-proof EU Single Market should make sure that there are no barriers to the EU Single Market, and in particular to those industries that drive economic modernisation and technological progress which are in many cases service sectors. This means that the Single Market has to be deepened in sectors that are held back by strong home-market biases.
- Trade in services is paramount for EU competitiveness since some services sectors like ITC or business services are key drivers of technological diffusion⁴⁰. Services are incredibly important for Europe's economic future and where the EU should redouble its efforts to achieve improvements. Moreover, digitalisation and the productivity gains carried by the diffusion of digital technologies in economic sectors give much more prevalence to trade in services than in goods. These actions will complement and are in line with the EU current efforts on the digital transition.
- The EU has direct powers to lead and implement this policy recommendation with the same energy that was used for goods when the EU Single Market was first forged. Actions to support a future-proofed and deepened EU Single Market include a radical push for market liberalisation in services which can be similar in ambition to what the Delors's Commission did for goods; and renew progress on the harmonisation agenda and the protection of Intellectual Property Rights (e.g., copyright).

³⁹Data shows that the EU downward trends in the ratio of trade in goods to its GDP is that dissimilar to the experienced at the global level.

⁴⁰An optimal services market helps countries adopt foreign technology. See Hallward-Driemeier, M., Nayyar, G., Fengler, W., Aridi, A., & Gill, I. (2020) and it enable companies to scale up without growing in size thanks to investment in ICT and intangible. See Criscuolo, C., Gal, P., Leidecker, T., Nicoletti, G., Goldin, I., Koutroumpis, P&Dadush, U. (2022).

ECIPE Policy recommendation 3: A strong competition policy

The EU already has a strong competition policy⁴¹, but its robustness has been eroded over time. Several crises, starting with the Great Recession, followed by the COVID-19 pandemic, and now the energy crisis, have pushed the EU to apply exceptions on state aid. Even though these exceptions are supposed to be temporary, they blaze a new trail and there is a real risk that they will endure for a long time. Furthermore, state aid lacks transparency and there is an alarming absence of evaluations of its effectiveness. For instance, none of the IPCEI will be evaluated until many years in the future.

- This policy recommendation is an attention call for EU policymakers. The EU should value and cherish its competition policy. It has delivered a framework for market competition which boosted Member States confidence that the rules of the game are fair. Therefore, the EU should not let the high standards of its competition policy slip any further.
- Strong EU state aid rules are there for a reason. EU Member States may use public subsidies to support their companies, which would provide an unfair advantage when competing in the EU Single Market. Such erosion will have negative consequences for competition and will be seen as unfair by EU Member States that cannot meet the fiscal power of large Member States. These dynamics will have a negative impact on competitiveness and productivity since the most productive companies may have to leave the market in favour of less productive ones receiving government support. The end results will be lower productivity and economic prosperity.

ECIPE Policy recommendation 4: An open and global attitude to standards

There are good reasons for countries to be mindful of standards. Standards are important for technological development and the future of competitiveness – not least in sectors that are important for the green and digital transitions – and they sometimes link up with national security. Equally important, standards allow for market specialisation which has positive effects on innovation and productivity. The EU has a strong position in the global standard setting process with European Standardisation Bodies playing a substantive role in the development of global standards. However, Europe's attitude has been slipping in a defensive and less open direction of late, which risks making European standards less global and hamper Europe's competitiveness. In contrast to this policy, a European standardisation policy that supports openness and innovation should follow these recommendations.

⁴¹The EU agreed on a new regulation on Foreign Subsidies which extends part of the EU competition framework to non-EU companies operating in the EU. Retrieved from <https://www.europarl.europa.eu/news/en/press-room/20220627IPR33918/agreement-on-foreign-subsidies-ensuring-equal-competition-in-the-eu>

- Commit itself to market-driven standards which does not favour some companies over others according to their nationality. A more political European standard setting process risks taking away what makes it attractive to foreign companies, its broad participation. Excluding some companies from the standardization process will not make EU standards stronger. Instead, it is likely to lead to fragmentation without making the EU a more prominent player at the global level.
- Firms volunteer to participate in the development of European standards which also encourage them to adopt the approved standards later. If the EU wants EU standards to have a global reach, then it needs to ensure that the process is open, balanced, and rules based. European standards that are accepted at global level are crucial for EU competitiveness in, for example, the circular economy, where the EU wants to be a leader and for which policies are likely to impose a cost to EU firms.
- Instead of limiting the role of foreign companies, the EU should encourage the participation of European companies in European standardisation bodies.

2.2 Supporting global free trade

Supporting global free trade is essential for raising competitiveness. Access to cheaper inputs and more customers abroad make firms more competitive and economies more specialised. When a growing part of world growth happens outside of Europe, free trade is key to access expertise, technology and important value chains – without which European competitiveness will fall markedly. Moreover, international trade also exposes domestic firms to foreign competition, requiring constant innovation and productivity from companies in order for them to succeed in the market. Crucially, the competitiveness of EU firms in foreign markets dictates how they can exploit the potential opportunities offered by global markets.

The EU could play an active role in making these opportunities real for European companies. For EU trade policy, which has become defensive – not to say somewhat protectionist – in recent years, there should be a revival of initiatives to get closer to global economic opportunities. While it is a geopolitical necessity to avoid dependence on hostile and totalitarian regimes for the supply of critical goods and technologies, such problems should not be exaggerated. Nor should the problems be addressed by making access to Europe's market more difficult for everyone else – including our geopolitical allies. This strategy will drive up the cost for producers and consumers in Europe, and ultimately make it harder to reduce specific dependencies. The policy recommendations in this focus area will enable the EU to become more competitive

through global free trade, while making it more resilient to trade shocks and disruptions.

Policy trends

New challenges of the 21st century – such as the rise of China, Russia’s invasion of Ukraine, and the COVID-19 pandemic – have fused the narrative that countries are too dependent on others. In response, several countries are getting defensive in their trade policies – looking for chances to close rather than open markets. In the US, successive administrations have hiked tariffs and introduce new barriers in key industries⁴². China, now on the verge of the dual-circulation model of trade, has been using industrial policy, trade regulations and other instruments to further its strategic goals in third countries and wean itself off from foreign imports.

The EU has not been an innocent bystander. It has developed its own set of trade instruments to reduce trade exposure or defend itself against coercive and unfair trade practices. While some of these measures have a clear rational, most of them remain conceptually elusive and, taken together, marks a shift in EU trade policy. Since trade policy no longer stands on its own legs and rather has become an integral part of other policies – e.g., geopolitics, industrial policy and climate change policy – the traditional EU interest of gaining more and better market access abroad has low priority.

EU role

The EU has exclusive competence over international trade. Recently, the EU has launched a new trade strategy, called Open Strategic Autonomy, which aims at pursuing the multiple goals of sustainable, fair and geopolitically-managed trade while being open to global markets. A flagship policy in this strategy is the proposal to establish a Carbon Border Adjustment Mechanism (CBAM), in the first instance targeting imports in energy-intensive sectors from countries that do not have a carbon price system (or equivalent) similar to the EU’s Emission Trading System.

New defensive trade policies like the Anti-coercion Instrument, the International Procurement Instrument, the Foreign Subsidy Instrument, the Corporate Sustainability Due Diligence, the Forced Labour Instrument, the Updated Enforcement Regulation, the Deforestation Initiative or the previously mentioned CBAM have been agreed or proposed, but their operation and effect are uncertain, and it will take some time to figure out how they will be used. However, what is clear is that these new measures will

⁴² Rachman, G. (2022, August 29). The enemies of globalisation are circling. Financial Times, Retrieved from <https://www.ft.com>

raise compliance costs for European companies and introduce new trade and customs administration requirements.

The EU is active in some trade negotiations. There are on-going talks about a new bilateral trade agreement with Australia while negotiations on the EU-New Zealand trade agreement concluded successfully in June 2022, and the old bilateral Free Trade Agreements with Chile and Mexico are due to be modernised. Negotiations with India have re-started, although the potential for the conclusion of an ambitious agreement is limited. An agreement has been signed with Mercosur, but it has so far failed to get the approval of Member States. In addition, the EU is also increasing partnerships in the evolving areas of trade such as emerging technologies, services, and innovations. Under the auspices of the Transatlantic Trade and Technology Council, it is coordinating some policies (e.g., export control regimes) and regulations with the US.

While there have been advances in the numbers and types of economic cooperation channels that the EU is participating in, progress in finalising agreements has been slower compared to the release of the defensive trade policy. Moreover, even though the establishment of Trade and Technology Councils with partner countries is a step forward, there are still many aspects of digital trade that remain outside their scope.

Policy recommendations

ECIPE Policy recommendation 5: Focus on market access and re-build a free trade strategy

Trade openness has several direct and positive impacts on competitiveness. Fundamentally, it helps European producers to get new customers and European importers to access more competitive products. Given that Europe's share of the world economy is shrinking, it is key for EU firms to have better access to the world market. In addition, openness also contributes to lowering trade vulnerabilities arising from the shocks and disruptions afflicting the international market. It provides an avenue for diversification of suppliers, making countries more resilient by increasing the number of suppliers available to producers. Diversification is also cheaper than alternate options of tackling trade vulnerabilities and disruptions such as, re-shoring, and ensures that competition gains from trade remain.

- Fundamentally, trade policy should stand on its own legs and have as key target to increase the scope for market-based competition.
- Although the focus of EU trade policy has currently moved to the new defensive instruments, the EU should strive to implement them in a way that promotes market-based trade and reduces the risk of retaliation from partner countries.

- A free trade strategy should provide more opportunities for EU business to trade. Most global growth in the next few years will take place outside the EU. To remain competitive, the EU should focus on increasing trade.

ECIPE Policy recommendation 6: Make the EU market resilient

The best way to make the EU market more resilient is to diversify production and imports. Dependencies on limited suppliers for the import of inputs of production can prove harmful to EU competitiveness, not only in times of global crises, but also when a single country faces an economic shock. However, the number of goods for which EU dependency on imports is a problem is limited, and it simply is not a better option to cut trade and make the EU reliant on even fewer suppliers inside Europe. Resilient markets are adaptable markets, and the companies that were most successful in managing disruptions during the COVID-19 pandemic were those that had access to a diversity of suppliers – both geographically and in numbers⁴³.

- To diversify its suppliers, the EU needs to look for countries with the needed raw materials, and where deeper cooperation can be formed. An important caveat in defining strategic dependencies is looking at the supplier country and whether it is a reliable and friendly trade partner. On that account, some trade partners are a challenge – but most are not.
- The EU can also build resilience by building its own reliable supply chains with a variety of suppliers from different geographical locations. An interesting example of the EU diversifying its supply chains comes from the recent shortages of critical minerals facing the EU. The EU's production capacity, particularly at the refining and processing stage of the supply chain, has fallen over the years. The EU is making its own metallic supply chains for which it is looking to friendly allies such as Canada and Australia, but also partners in its geographical proximity such as Norway and Ukraine. Moreover, it is also targeting more relevant strategic partners with resource rich African countries known for their minerals.
- The EU can also build resilience and support the global free trade agenda by reducing import tariffs on critical inputs of production. This can help increase foreign supply of critical inputs and increase EU companies' competitiveness through the availability of cheaper inputs.
- The EU policies on the circular economy which includes efforts to recycle and reuse materials which are in short supply also support the EU's goal to reduce its trade dependencies.

⁴³ Guinea, O., & Forsthuber, F. (2020). Globalization comes to the rescue: How dependency makes us more resilient (No. 06/2020). ECIPE Occasional Paper.

ECIPE Policy recommendation 7: Build partnerships and make new friends

There are many opportunities to increase competitiveness through openness and diversification of suppliers, and the best strategies rely on deepening relations with other reliable trading partners. Cooperation that goes deeper than just trade relations is very good in times of crises, such as after the Russian invasion of Ukraine. In good trade agreements, countries build up trust and institutions that are helpful to reduce political frictions and manage disputes in a rational and predictable way.

- The EU is already pushing for a number of trade and cooperation agreements with several of its partners like MERCOSUR, India, Australia, and Mexico. However, progress on many of them has been slow due to stalled negotiations and delays in ratification. Given the increasing importance of forming trade alliances in the new global order, the EU needs to start finalising and ratifying these agreements.
- Building partnerships can also provide countries with space for dialogue and cooperation, which can be a platform for the EU to promote its standards for sustainable and fair trade policies without causing unnecessary trade barriers.
- Another important forum for increasing partnerships is the World Trade Organization. The EU has a proposal for reforming the WTO that aims to make it easier to negotiate new agreements for large subgroups of WTO members as well as mainstreaming sustainability in the work of the WTO. At a time when faith in the multilateral organisation is dwindling and countries are turning inwards, it is important that the EU show leadership for the WTO and arrest the current slide of trade multilateralism into oblivion.

ECIPE Policy recommendation 8: Embrace digital trade

Digital trade has become a key determinant of competitiveness, providing faster and more opportunities for growth, innovation, and increased trade to companies of all sizes. It is also changing the way trade is taking place, blurring the lines between goods and services trade. New trade rules are necessary to facilitate digital trade and ensure that the challenges arising from digital trade are adequately addressed.

- The EU has already taken some steps in embracing the growing importance of digital trade. This is reflected in the EU's trade policy communication, 'An Open, Sustainable and Assertive Trade Policy', where supporting Europe's digital agenda is made a priority for EU trade policy. This is partly reflected in the bilateral trade agreements that the EU is currently negotiating: EU trade agreements are increasingly including self-standing chapter on digital trade, that include predictability and transparency for businesses, ensure a secure online

environment for consumers, and remove unjustified barriers⁴⁴. However, the EU is behind other advanced economies in digital trade agreements, and it remains all too defensive – which deprives the EU of strong economic gains.

- Further harmonization of rules for digital trade across Europe and with partner countries can help facilitate faster and safer transfer of information. An open digital trade strategy can allow Europe access to markets where new technology is being developed, which is essential to ensuring that the EU does not lag behind technologically and stays competitive. Engaging with the WTO for multilateral rulemaking on digital trade across nations will be crucial to ensure harmonization across EU and non-EU countries. The EU could do this by playing a more active role in the current Joint Initiative on E-commerce and by taking charge to initiate and lead negotiations on cross-border digital trade rules at the WTO.
- The EU can also position itself at the frontier of digital trade by embracing Digital Economy Agreements (DEAs) similar to the one between Singapore and Australia, New Zealand, United Kingdom, and South Korea. A DEA is a treaty that establishes digital trade rules and digital economy collaborations between two or more economies⁴⁵. They also encourage domestic regulatory reforms and “soft” cross-border collaboration on issues as wide-ranging as data innovation, digital identities, cybersecurity, consumer protection and digital inclusion⁴⁶.

2.3 Developing innovation capacity

Innovation is at the heart of productivity growth and competitiveness. In essence, innovation is about a dynamic market economy that allows experimentation and change – and is about so much more than just technological change. Innovation happens by firms who develop new business models and find new ways to reach customers. That process can be based on a new technology, but it is equally common that it is not. Innovation is not a given and depends crucially on the overall business and regulatory environment: many of these factors are covered in other chapters.

The policy recommendations presented in this focus area emphasise three elements of innovation policies. First, the amount of investment in R&D and the quality of the inputs inserted in the innovation process. Second, the regulatory frameworks for emerging innovation, including the protection of innovation through clear and well-implemented Intellectual Property Rights (IPRs), which include protection of

⁴⁴ European Commission (2022). Digital trade. Retrieved from https://policy.trade.ec.europa.eu/help-exporters-and-importers/accessing-markets/goods-and-services/digital-trade_en

⁴⁵ Singapore Government (2022). Digital economy agreements. Retrieved from <https://www.mti.gov.sg/Trade/Digital-Economy-Agreements>

⁴⁶ Warren, M. & Fan, Z. (2022). Digital economy agreements are a new frontier for trade – here's why. World Economic Forum. Retrieved from <https://www.weforum.org/agenda/2022/08/digital-economy-agreements-trade/>

innovation, value creation through commercialization, and new opportunities for innovation through new ways of handling IPRs. Third, the amount of innovation or output produced out of R&D investments which leads to higher levels of productivity.

Policy trends

The EU has renewed its goal of boosting investment in R&D to 3 percent of GDP by the end of the current decade.⁴⁷ However, in 2020 the EU spent €311 billion on research and development, equal to 2.3 percent of its GDP. Out of that investment, two thirds were invested by companies, 22 percent by the higher education sector, 12 percent by the government and 1 percent by non-profit organisations. EU spending on R&D is lower than R&D spending in comparable economies like Japan (3.2 percent) or the US (3.1 percent).⁴⁸ To achieve its goal, research spending in the EU would have to grow more than twice as fast up to 2030 as it did in the past decade.⁴⁹

This will not be an easy task. The EU lags behind the world leaders in innovation on various fronts. First, as a percentage of its GDP, public spending on R&D in the EU is 0.7 percent, compared to 1 percent in the US. Second, large European companies also spend a lower percentage of their revenue on R&D than comparable economies. Between 2014 and 2019, large European companies spent 40 percent less on R&D than US firms. Among the reasons for this growing gap is the relative underperformance of industries in Europe working on advanced technologies such as Internet of Things, industrial data, or Artificial Intelligence (AI)⁵⁰ compared to other regions.⁵¹

There are also changes in the regulatory environment. In previous chapters we have noted how the design of some regulations fails on standards for good regulation – including the use of the precautionary principle in a way that chills innovation by making it impossible for innovators to know what they are allowed to do. Added to that are continued negligence of key concerns about the IPR environment – e.g., in software innovations – and a preference for eroding the integrity of some IPRs. Finally, very little is happening on structural policies to improve the supply of advanced human capital.

⁴⁷ Science Business (2021). EU R&D spending hits 2.3 percent of GDP as economies shrink during pandemic. Retrieved from <https://sciencebusiness.net/news-byte/eu-rd-spending-hits-23-gdp-economies-shrink-during-pandemic#:~:text=The%20EU%2orecently%2orenewed%2oits,have%2oreached%2othe%202030%2otarget.>

⁴⁸ Eurostat. R&D expenditure. Retrieved from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=R%26D_expenditure&oldid=551418

⁴⁹ Science Business (2021). EU R&D spending hits 2.3 percent of GDP as economies shrink during pandemic. Retrieved from <https://sciencebusiness.net/news-byte/eu-rd-spending-hits-23-gdp-economies-shrink-during-pandemic#:~:text=The%20EU%2orecently%2orenewed%2oits,have%2oreached%2othe%202030%2otarget.>

⁵⁰ European Commission (2022). Advanced Technologies. Retrieved from https://single-market-economy.ec.europa.eu/industry/strategy/advanced-technologies_en

⁵¹ McKinsey & Company (2022). Securing Europe's competitiveness: Addressing its technology gap. Retrieved from <https://www.mckinsey.com/capabilities/strategy-and-corporate-finance/our-insights/securing-europes-competitiveness-addressing-its-technology-gap>

EU role

Some areas of innovation policy are shared competence in the EU. Developing an agenda that boosts the EU's innovation capacity requires taking into account the different areas of competences between the EU and EU's Member States. This is important because the degree of investment in areas such as education and skills is decided at the Member State – and sometimes regional – level. However, the EU can act in areas of skills – also with non-fiscal policies. It remains the case that many professional licenses in the EU are overly restrictive and prevent labour from crossing borders – or crossing sectors.

In 2020, the European Commission adopted an Action Plan on Intellectual Property to strengthen EU's economic resilience and recovery, with a particular focus on helping SMEs to profit from their inventions and creations. The Action Plan includes specific measures in five key areas. It aims at further improving the protection of IP; boosting the uptake of IP by SMEs; facilitating the sharing of IP; fighting counterfeiting and improving enforcement of IP rights; and promoting a global level playing field⁵².

Horizon Europe is the EU's key funding programme for research and innovation with a budget of €95.5 billion which is close to 9 percent of the overall EU budget for 2021-2027.⁵³ As a comparison, the share of the EU budget spent on agriculture will be 31 percent⁵⁴. Horizon Europe facilitates collaboration and seeks to strengthen the impact of research and innovation in developing and implementing EU policies, including promoting industrial competitiveness. It also pursues ambitions for access to data and research output. Horizon Europe includes a European Innovation Council to support innovations of disruptive nature and scale-up potential that may be too risky for private investors, with 70 percent of the budget being earmarked for Small and Medium Enterprises (SMEs). The EU also has other programmes on innovation that cut across EU policies on digital developments.

The EU role for IPRs is also somewhat ambiguous. Some IPRs fall within EU policy but others do not sit resolutely in EU legal competence. Copyrights remain split in Europe, and patents policy – while moving closer into the EU hemisphere – still have aspects that are in the domain of Member States.

⁵² European Commission (2020). Commission adopts Action Plan on Intellectual Property to strengthen EU's economic resilience and recovery. Press release. Retrieved from https://ec.europa.eu/commission/presscorner/detail/en/ip_20_2187

⁵³ European Council (2022). Long-term EU budget 2021-2027 and recovery package. Retrieved from <https://www.consilium.europa.eu/en/policies/the-eu-budget/long-term-eu-budget-2021-2027/>

⁵⁴ European Parliament (2022). Financing the CAP. Retrieved from <https://www.europarl.europa.eu/factsheets/en/sheet/106/financing-of-the-cap>

Policy recommendations

ECIPE Policy recommendation 9: Mobilise resources on European R&D

The EU needs to allocate a bigger part of its budget for R&D and leverage its own funds and policies to mobilise more R&D from the private sector.

- The EU should prioritise R&D in its own budget: a greater share of the EU budget should go to R&D in innovation-important disciplines and sectors. The EU's target to reach 3 percent of GDP on R&D – which the EU has not reached yet – is far too unambitious for the 21st century. That may have suited the economy in the 1980s, but an adequate target for R&D in the modern economy is closer to 5 percent.
- Private R&D spending should increase. Given the size of industry R&D on the overall R&D spending, the EU should focus on incentivising European businesses to increase their R&D spending through initiatives such tax incentives – and, in the first place, avoiding proposing changes to corporate taxation that effectively will reduce incentives for R&D spending.

ECIPE Policy recommendation 10: Support global success in research and universities

The EU should also focus on improving the quality of European research and universities, and support efforts to make European universities to be at the global frontier.

- In a ranking of the 25 best universities in the world, eight are European – but none are located in the EU. Among the top 50 universities in the world, there were seven times more universities in Asia than in the EU⁵⁵. The EU spending on higher education – even if considerably smaller than EU Member States budgets – should support European Universities and research institutions at the global frontier. These investments will not only lead to more innovation but also attract EU and non-EU businesses willing to invest in their own R&D activities which could lead to further innovations particularly when R&D funding is channelled to pre-commercial activities.
- As the world grows richer, there will be more innovation, and a larger part of it will come from outside the EU. The EU should enable access to international collaboration with private and public research centres in other parts of the world.

⁵⁵ QS World University Ranking (2022). The best-placed EU university is at rank 44. Other rankings – for instance the ranking by The Times Higher Education – differs slightly but not in any significant way from the QS ranking.

The possibility of businesses in third countries to participate in EU framework programs is a key element of this approach for open collaboration and exchange.

- The EU should focus on stimulating increased mobility for European researchers, inside and outside of Europe, to be able to join international networks.

ECIPE Policy recommendation 11: Urgent need to attract talent

Knowledge is a key force behind technological change and defines the ability of an economy to absorb new technology and new ways of doing business. Demographic developments will reduce Europe's own supply of advanced human capital – and shortages of human capital will grow in many different areas that are important for competitiveness: from advanced AI human capital to IPR lawyers. As the working population shrinks, companies find it increasingly difficult and expensive to recruit and keep staff.

- The EU should work with Member States to facilitate international labour migration into the EU and make the EU an attractive destination for foreign workers with skills that are needed in the European labour market. As it stands, regulation hinders the ability of European companies to attract high-skilled foreign talent needed for R&D activities. For instance, six to nine months to apply for a work visa for the EU is too long and regulation should be adapted to streamline processes, reduce delays, and make overall visa application less cumbersome for individuals and companies.
- EU policy initiatives targeting universities and research centres should tackle the growing scarcity of high-skilled labour⁵⁶ by directing their funds to the degrees where skill shortages are more severe. For instance, the EU has a smaller percentage of STEM students than Asia.
- The EU should support and encourage human capital to flow between Member States and sectors so labour finds the place where it can be more productive. This means ensuring that university degrees and other technical qualifications are compatible and recognised across EU Member States.

ECIPE Policy recommendation 12: Harmonise and strengthen innovation protection

Europe needs to have strong and effective IPRs, and other forms of innovation protection, so that investments in innovation are incentivised and innovators are rewarded. IP-intensive industries are key for Europe's economy. They constitute 47

⁵⁶ Lamprecht, P. (2022). Does Shortage of High-Skilled Labour Threaten Germany's Ambitious Sustainability Goals? ECIPE. Retrieved from <https://ecipe.org/blog/does-shortage-of-high-skilled-labour-threaten-germanys-ambitious-sustainability-goals/>

percent of EU GDP and generate 30 percent of total EU employment.⁵⁷ Innovative companies rely on intellectual property rights for the protection of their innovations and it is this protection that also determines the desire to invest in R&D.

- EU IPR strength in comparison with other countries has weakened over time. There is a need for better legal certainty: harmonising IPRs in the EU's Single Market is a key step forward that also will reduce the costs of IPR management. Furthermore, the patentability of software and computer programme innovations should be improved, leaving firms with more options that to rely on highly fragmented copyright protection. Moreover, the EU needs requirements for public investment in research projects that incorporate patent information.
- The framework of the EU's Action Plan for intellectual property rights includes several measures aimed at better use of research results. However, much more needs to be done to ensure that knowledge-based assets such as patents, copyrights and business secrets are not wasted, and more concrete measures are needed in EU action. This should include a clear strategy on the handling of knowledge-based assets with steps taken to ensure, for example, the adequate use of patent information to avoid agreements on knowledge-based assets becoming an obstacle for collaboration on R&D between companies rather than an opportunity.
- There is an external dimension to innovation protection – and especially intellectual property rights. Over the last decades, the EU has been forceful in extending its regime of Geographical Indications to other countries through Free Trade Agreements. Compared to the US and other frontier innovation economies, no other economy protects GIs as effectively as the EU in its trade agreements. However, the EU trails the US in the strength and enforcement of other IPRs – for instance, patents and trademarks – in trade agreements. A better external policy on IPRs would boost competitiveness and create more high value-added output from Europe's investment in R&D.⁵⁸

ECIPE Policy recommendation 13: Address the productivity gap of European businesses

The ways in which innovation leads to productivity gains in high productivity EU companies has consequences for low productivity firms. Generally low productivity firms struggle with obtaining access to knowledge, skills, data and technologies, similar

⁵⁷ EPO & EUIPO (2022). Intellectual property rights intensive industries and economic performance in the European Union. Munich (Germany) and Alicante (Spain).

⁵⁸ Erixon, F. et al. (2022). The Benefits of Intellectual Property Rights in EU Free Trade Agreements. ECIPE Occasional Papers, No. 1/2022.

to those of high productivity firms. EU policies and regulations need to focus on this lack of spill-over.

- One way of supporting this is to invest in relevant infrastructure, for example, for testing and demonstration, which is particularly relevant for smaller companies that want to test, validate and upscale new innovations. The EU should devise a strategy on how to co-finance more open infrastructures that are too expensive for single businesses, especially smaller ones to build themselves. An example of these infrastructures are pilot facilities for autonomous vehicles and big data analysis.
- European policy initiatives should also target bottlenecks in regulation to facilitate field-testing of new technologies. For instance, sandboxes are becoming substantially relevant at digital and fintech world, where there is a growing need to develop regulatory frameworks and instruments that allow flexibility, such as temporary clauses. The New European Innovation Agenda is planning to outline experimentation clauses with “relevant use cases of regulatory sandboxes, test beds and living labs in order to support policymakers and innovators in their approach to experimentation in the EU”. However, action is needed soon as more and more innovation, like self-driving vehicles, drones, and other robots, required regulation that support its deployment for testing in European cities.

2.4 Accelerating digital developments

If not before, the COVID-19 pandemic amply demonstrated that the use of digital technologies affects a nation's ability to prosper. When used effectively, digital technologies not only make it possible for work and education to move online, but they also offer effective ways to coordinate business operations and governmental procedures. Many of the latest and most promising technologies, including AI, 6G, quantum computing, virtual worlds like the Metaverse, 3D printing or robotics will have digital inputs or will be delivered through the Internet. Therefore, the growth of the digital economy, and its interplay with new technologies, is the prime force for new patterns of productivity and competitiveness. If Europe continues to lag behind global frontrunners in the deployment of new digital technologies and growth of new digital businesses, it will drop substantially in prosperity rankings over time. Moreover, as the fundamental nature of business changes with the advent of the digital economy, domestic industries – particularly in services – will be more exposed to international competition.

Policy trends

Several countries have national strategies for digitalisation to ensure that it unlocks new levels of innovation, competitiveness, and prosperity for industry and society. China, for instance, is pursuing a comprehensive digital strategy encompassing the search for new economic growth drivers, cyber governance and global power projection⁵⁹. The United Kingdom has its own Digital Strategy, which is a roadmap to strengthen the country's global position as a "Science and Tech Superpower"⁶⁰. The European Union has launched the Digital Europe Programme, which is a funding programme designed to bring digital technology to businesses, citizens and public administrations.

A parallel policy trend is that most countries introduce new digital regulations. Clearly, the digital economy is becoming more and more regulated everywhere. The EU has been one of the first major economies to regulate the digital economy and digital technologies, and compared to many other Western economies, it has adopted regulations that are more restrictive and less predictable than elsewhere. The latest wave of rules covers a variety of sectors of the digital economy: for instance, new guidelines for intermediary liability, limitations on "gatekeeper" platforms, and regulation on the creation and application of AI. However, the EU's position as a regulatory pioneer should not be overestimated. It is not a global regulatory superpower in digital technology or the digital economy.⁶¹

EU role

The European Union and its Member States share responsibility for digital policy. As a policy coordinator, the European Commission has made the EU's digital transition a priority. In its EU4Digital Initiative, the European Commission included six policy areas: telecom network; trust and security network; eTradenetwork; ICT innovation network; eHealth network; and eSkills network. Member States play a crucial role in the achievement of this initiative, but the EU also provides funding in key areas such as supercomputing, AI, cybersecurity, and advanced digital skills. The Connecting Europe Facility⁶² – also mentioned in other focus areas – supports the development of interconnected trans-European digital networks. More recently, the Recovery and Resilience Facility includes the digital transition as one of the priority areas to receive the Next Generation EU Funds.

⁵⁹ Shi-Kupfer, K., & Ohlberg, M. (2019). China's digital rise. MERICS. MERICS. Retrieved from <https://merics.org/en/report/chinas-digital-rise>.

⁶⁰ UK Government (2022). UK Digital Strategy. Department for Digital, Culture, Media & Sport.

⁶¹ Van der Marel, E. (2021). *Regulating the Globalisation of Data: Which Model Works Best?*. ECIPE, European Centre for International Political Economy.

The EU plays a fundamental role in the development of Europe's digital economy as a regulator. It has used that role extensively and, only in recent years, proposed or introduced regulations that could fundamentally affect Europe's competitiveness. Regulatory initiatives like the Digital Markets Act, the Digital Services Act, the AI Act and the Data Act often build on previous policies but introduce many new costs and frictions for businesses. Adding more regulatory uncertainty and confusion in the rules for the digital economy could stifle innovation and make European companies that compete in the global market less capable to work with frontier technological changes. There are other legitimate regulatory objectives, which should balance the desire for digital competitiveness, but it is notable that the burden of digital regulation is higher in Europe than in comparable advanced market-economy democracies.

Policy recommendations

ECIPE Policy recommendation 14: Digital regulations should support competitiveness and growth

Europe's environment for digital regulations needs to become more growth friendly. All too often, Europe's regulations are clumsy or heavy handed, and increase costs and unpredictability for businesses. In the first place, Europe's regulatory environment needs to be benchmarked against global frontrunners, and the ambition should be to offer a much more attractive environment for digital business development and growth than elsewhere. Europe's high degrees of regulatory restrictiveness is a problem – and it ripples through vast parts of the economy and reduces productivity.⁶³

- While it is important to have rules protecting rights (such as data privacy), these laws should not be cumbersome for businesses to follow or impede the development of new digital technologies. Uncertainty over what a firm is allowed and not allowed to do depress investment in Europe's digital economy, and it happens all too often that firms pause or reallocate digital investment elsewhere because new rules are too complex.
- EU digital regulations are accumulating at a fast pace, and it is brewing confusion. For example, in the case of the AI Act, it is unclear how the obligation to provide access to data can be brought into line with the requirements of the General Data Protection Regulation (GDPR). The EU needs to simplify and streamline digital regulations and avoid the amount of regulation hurting competitiveness and the adaption of new technology and new ways of doing business.

⁶³ Ferracane, M. F., & van der Marel, E. (2020). Patterns of trade restrictiveness in online platforms: A first look. *The World Economy*, 43(11), 2932–2959.

- EU policy makers need to improve their understanding of the effect new regulation can have on companies, data flows, knowledge, and competitiveness through better impact assessments (IAs). The focus area Ensuring Better Regulation discusses the importance of good regulatory appraisals on competitiveness in detail.

ECIPE Policy recommendation 15: Improve infrastructure and connectivity

Digital infrastructure is essential for competitiveness. Similar to transport networks, digital infrastructure can raise the productivity of all factors of production, broadening the productive capacity of the economy as a whole. The EU should put its attention to fibre, 5G, spectrum access and satellites.

- Fibre-based networks are essential for bolstering digital infrastructures. Fibre is also substantially more environmentally friendly than other fixed broadband options, in part because it uses less energy to operate. Creating the ideal environment for private infrastructure investment, network modernization, and digital innovation is essential.⁶⁴ A review of the Broadband Cost Reduction Directive should reinforce the application of the Connectivity Toolbox through new provisions and guarantee a uniform, light licensing regime for antenna sites to cut down on deployment costs and the time it takes to issue licenses.
- 5G is also an important aspect in the EU's digital advancement. Currently, 5G in Europe constitutes only 2.8 percent of the total mobile connections, compared to 13.4 percent in the US and 29.3 percent in South Korea⁶⁵. This is woefully inadequate – especially in light of the development now moving fast into 6G and its effects on a more distributed Internet. An EU-wide concerted effort towards increasing the coverage and take-up of 5G might close the gap with the leading regions. Spectrum access is a key tool to accelerate the deployment of 5G. When it comes to the actual spectrum authorization for a band⁶⁶ (harmonization of license-exempt bands and of license terms like duration, spectrum price, coverage standards, etc.), there is a lack of uniformity in the EU. The commission should carefully address this issue in the upcoming Radio Spectrum Policy Program 2.0 and build on current data on the state of fragmentation of spectrum allocations and licensing conditions in the EU and their impact on 5G deployment.⁶⁷ The adequate licensing framework for each band should be

⁶⁴ In December 2022, the Confederation of Swedish Enterprise will release a report on digital infrastructure and the requirements in the next five to ten years.

⁶⁵ The State of Digital Communication 2022. (2022). ETNO.

⁶⁶ 5G is based on the use of 3 pioneer frequency bands across the EU (700 MHz, 3.6 GHz and the 26 GHz).

⁶⁷ European Commission (2022). Commission work programme 2023. A Union standing firm and united. COM(2022) 548 final. Annexes 1 to 5. Brussels.

harmonized at the European level, especially for vertical applications such as slicing⁶⁸.

- The EU has fallen behind in the satellites sector, partly because of strong home market bias in the EU market and actions by governments that reduce competition. In the meanwhile, new competition from innovative US firms and from state-backed Chinese firms have become strong and accelerated the development of new satellites. Europe has been weak in space R&D.

ECIPE Policy recommendation 16: Encourage venture capital in digital technology

Europe falls behind the US and China in terms of its ability to support new digital companies with venture capital and growth equity. For technological start-ups to scale up and realise their ideas, access to capital is essential.

- Less than 2 percent of all investment funding in EU venture capital funds has come from pension funds. In contrast, up to 20 percent of US venture capital investment funds come from pension funds, which have historically been the largest contributors⁶⁹. Even in the Nordics, pension funds account for 16 percent of all capital committed, thanks to a new Swedish directive issued in 2018, which lets private pension schemes increase their share of alternative investments from 5 percent to 40 percent of the funds. The gap between the EU and the US can be closed, or prevented from widening, if financial regulation at the EU level encourages investment by pension funds that is severely lacking.
- European businesses have severe financial limits when it comes to AI compared to their American and Chinese competitors⁷⁰. Better access to funding is one of the factors that makes the US the undisputed leader in this industry. If financial legislation at the EU level supports investment by pension funds, the EU's standing in the AI race could improve.

2.5 Addressing climate change and energy transition

Policies that address climate change and the energy transition have a direct impact on firm's competitiveness. First, the definition of competitiveness must incorporate the concept of environmental sustainability. A society that is not environmentally sustainable will not be competitive in the long-term. Moreover, there is no sustainability

⁶⁸ Slicing is one of the main interests of 5G as it accommodates different quality of services requirements (high speed, low latency or access to edge computing resources) using a single physical network infrastructure.

⁶⁹ Cometto, M. (2014) Letter from the US: Pensions and start-ups. IPE.

⁷⁰ Hoffmann, M., & Nurski, L. (2022). The triple constraint on artificial-intelligence advancement in Europe. *Bruegel*. Retrieved from <https://www.bruegel.org/blog-post/triple-constraint-artificial-intelligence-advancement-europe>

without innovation. To address climate change we need as much technological progress as we can muster. Second, the transition towards a one-hundred percent fossil-free electricity system will impact the cost of electricity, which is one of the key energy inputs for the economy. Third, consumer preferences have shifted in favour of sustainability. Consumers seek environmentally sustainable products and are willing to pay higher prices for them⁷¹. At the firm level, competitiveness typically refers to a company's ability to survive in the market and make a profit. Therefore, if consumers value sustainability, companies that produce environmentally sustainable products will be more successful business and therefore more competitive.

Policy trends

Climate change and the policies to tackle it are driving government efforts to transform our countries into low or “net-zero” economies. To avoid an increase of more than 1.5 degrees Celsius in global temperatures, greenhouse gas emissions should peak before 2025. If temperatures rise above that level, the consequences for the planet could be dire: greater risks of droughts, heavy rainfall and cyclones, rapid sea-level rise which harms low small island nations, and loss of marine and land biodiversity.

Climate change is a global problem and actions to solve it must include non-EU countries, particularly the major emitters. The Paris Agreement is the latest international effort to put in practice global policies to address climate change. In the agreement, EU countries have committed to reduce CO₂ emissions by 55 percent by 2030 from the 1990 levels⁷². The reduction in CO₂ emissions will require an economic transition with costs attached that may hamper business competitiveness. Partly for that reason, some countries have shied away from more ambitious commitments.

A key plank to reducing CO₂ emission in the EU is the energy transition⁷³. An important aspect of this transition is the decarbonisation of energy production, which requires substituting fossil-based energy sources with electricity produced by fossil-free energy sources like nuclear power and renewable energy. However, most renewable energy is intermittent with unstable baseload capacity. While alternative energy sources like hydrogen are being developed, gas was the energy source chosen by many EU countries to maintain a stable load of energy production during the energy transition⁷⁴. That strategy is now far more difficult than before Russia's war on Ukraine. The invasion also

⁷¹ Capterra Survey (2022). Retrieved from <https://blog.capterra.com/consumer-expectations-for-sustainability-are-accelerating-despite-inflation/>

⁷² European Commission (2022). Paris Agreement. Retrieved from https://climate.ec.europa.eu/eu-action/international-action-climate-change/climate-negotiations/paris-agreement_en

⁷³ In addition to the decarbonisation of the energy production, the energy transition also includes the elimination of process emissions and the decarbonisation of transport.

⁷⁴ Other EU Member States have chosen nuclear energy as the energy source that maintains a stable load of energy production.

triggered a number of decisions from EU Member States and Russia that reduced the amount of Russian gas sold in the EU and increased its price⁷⁵. The rise in gas prices also caused a dramatic increase in electricity prices, which impacted utilities, companies, and households.

In response to the energy crunch, EU Member States had put forward policies to limit energy consumption and prepared plans to undertake more drastic measures during winter if necessary. A new energy market price regulation is being developed. At the same time, the EU has boosted its ambition to increase the production of renewable energy and diversify its sources of energy to stop its dependency on Russian hydrocarbons.

EU role

The EU plays a fundamental role in EU energy and climate policy as a co-legislator, investor, and policy designer – a role vastly amplified by the launch of the “European Green Deal”. For example, while the EU and its Member States are signatories to the Paris Agreement, many energy and climate change policies necessary to reach the goals of the Paris Agreement are decided at the EU level. Among the many legislative actions already underway, the EU will revise the EU Emission Trading System (ETS)⁷⁶; the Energy Efficiency Directive⁷⁷, the Renewable Energy Directive, and the Energy Taxation Directive. All of these revisions will include more ambitious targets and regulatory actions necessary for the EU Member States to meet their Paris commitments.

The designs and governance of the European electricity and gas markets are also decided at the EU level. Over the years, the EU has approved a series of rules on competition and market design that separate the production and distribution of energy, opening EU energy markets to competition. In 2019, the EU overhauled its energy policy with the adoption of legislation that changed the EU electricity market design to make it more compatible with the Paris Agreement. However, the new rules may be soon superseded by new ones as announced by the European Commission⁷⁸.

The EU also provides funds to tackle climate change. The EU’s funding capacity has been boosted several times by the Next Generation EU Funds, which Member States

⁷⁵ Nagle, P. & Temaj, K., (2022) Energy market developments: Coal and natural gas prices reach record highs. World Bank. Retrieved from <https://blogs.worldbank.org/opendata/energy-market-developments-coal-and-natural-gas-prices-reach-record-highs>

⁷⁶ European Commission (2021). Delivering the European Green Deal. Retrieved from https://ec.europa.eu/commission/presscorner/detail/en/fs_21_3671

⁷⁷ European Council (2022). Infographic - Fit for 55: how the EU will become more energy-efficient. Retrieved from <https://www.consilium.europa.eu/en/infographics/fit-for-55-how-the-eu-will-become-more-energy-efficient/>

⁷⁸ European Commission (2022). 2022 State of the Union address by President von der Leyen. Retrieved from https://ec.europa.eu/commission/presscorner/detail/ov/speech_22_5493

should spend, among other things, on projects that support the European Green Deal. This is another important element of the role that the EU plays in climate change policy. The EU produces the overall strategy, in this case the European Green Deal and the Fit-for-55 package, which provides direction and coherence to EU climate change policy initiatives.

The REPowerEU plan – produced in response to the Russian invasion of Ukraine – also raised the EU's profile in energy and climate change policy, as Member States searched for answers to diversify away from Russian hydrocarbons. The actions, planned at the EU level, include building gas reserves, undertake common purchases of gas, and EU-coordination for plans to reduce energy demand and distribute gas within the EU in case of disruption.

Policy recommendations

ECIPE Policy recommendation 17: Develop a global carbon price

A global carbon price will contribute to making CO₂ emissions another input in the firm's production process and another cost to minimise in order to improve its competitiveness. This will help to reconcile the concept of competitiveness with the need to address climate change and the energy transition. The EU Emission Trading Scheme (ETS) has produced a carbon price that is relatively high when compared with other countries. The increase in CO₂ prices for EU companies could erode EU's relative competitiveness vis-à-vis non-EU companies that do not have to pay for carbon.

- A global price for carbon will contribute to internalising the negative externalities stemming from the effect of carbon emissions on climate change while keeping a level playing field that will not change the relative competitiveness between countries. This is not a new proposal. Similar proposals have been made by the International Monetary Fund⁷⁹ and the OECD⁸⁰. Moreover, this policy will encourage more investment in technology to reduce the consumption of fossil fuels.

⁷⁹ Gaspar, V., & Parry, I. (2021). A proposal to scale up global carbon pricing. Retrieved from the International. Retrieved from <https://www.imf.org/en/Blogs/Articles/2021/06/18/blog-a-proposal-to-scale-up-global-carbon-pricing>

⁸⁰ Dellink, R., Jamet, S., Chateau, J., & Duval, R. (2010). Towards global carbon pricing. Retrieved from <https://www.oecd.org/economy/growth/towards-global-carbon-pricing-direct-and-indirect-linking-of-carbon-markets.pdf>

- The EU is not alone in its efforts to establish a market to price carbon. There have been similar actions in other countries like the US (California⁸¹) or China^{82,83}. The EU should make the EU ETS more attractive to non-EU countries, build links between the EU ETS and other carbon markets and work on initiatives to set a global carbon price for industries where the leading countries have similar policies and objectives on emissions reduction.

ECIPE Policy recommendation 18: More research into and deployment of fossil-free technology

Research and deployment of new technologies that substitute carbon-based products, production and fossil fuel energy for better alternatives is fundamental in the fight against climate change. The EU has a role to play in innovation policy as a funder of R&D activities and as a designer of policy frameworks and regulation. Supporting technology that lowers CO₂ emissions and facilitating its deployment should be front and centre in EU policy.

- Investments in R&D to address climate change will make the EU more sustainable and competitive. Moreover, these investments could lead to first-mover advantages for EU firms, similar to what happened in clean technologies like wind energy. The EU's innovation policy is further developed in the focus area Developing Innovation Capacity which include policy recommendation to mobilise growing resources on R&D.
- New fossil-free technologies and production methods requires a regulatory framework that encourages experimentation and novelty. This is a cross-cutting issue discussed in more detail in the focus area Ensuring Better Regulation.

ECIPE Policy recommendation 19: Produce more fossil-free energy

There is no reason why the EU should have high energy costs. For firms and consumers alike, energy should be cheap. It is a fundamental input for the competitiveness of European companies, and it is a basic service that allows EU citizens to function in society. The only energy source that should be expensive is energy produced with fossil-fuel resources.

⁸¹ California Air Resources Board (2022). Cap-and-Trade Program. Retrieved from <https://ww2.arb.ca.gov/our-work/programs/cap-and-trade-program>

⁸² Nakano, J., & Kennedy, S. (2021). China's New National Carbon Trading Market: Between Promise and Pessimism. Cent. Strateg. Int. Stud. Retrieved from <https://www.csis.org/analysis/chinas-new-national-carbon-trading-market-between-promiseand-pessimism>

⁸³ The World Bank registered 68 carbon pricing initiatives. Retrieved from <https://carbonpricingdashboard.worldbank.org/>

- The energy transition requires the decarbonisation of Europe's energy mix, production, and transport. As result, the EU needs significant investments in fossil-free energy production. Fortunately, the cost of technologies that produce fossil-free energy have fallen dramatically due to economies of scale and continuous innovation. In many situations, fossil-free energy sources are already cheaper than fossil fuels, and additional investments will push these costs even further⁸⁴.
- Investments in fossil-free energy are not necessarily a detriment to competitiveness. However, like in any transition, the energy transition will lead to a different energy model which will require adjustments and a bigger role for tools that ensure the stability of the system such as investment in energy storage and baseload capacity.

ECIPE Policy recommendation 20: Upgrade the infrastructure for an Energy Union

The Russian invasion of Ukraine has exposed the disjointed nature of the EU energy market. EU countries have seen themselves unable to cut their ties with Russia because they have no alternative supplier. At the same time, other EU countries were receiving their regular flows of natural gas from North Africa. The EU found itself unable to move this gas between their Member States because it does not have the necessary infrastructure.

- Connecting the energy infrastructure across EU Member States will make the EU more resilient to sudden changes in energy imports. At the moment, the EU does not have the necessary infrastructure to move energy – particularly gas – across borders to resolve energy shortages. While new LNG ports receiving liquid gas from different providers are part of the solution, the EU should also build its internal energy infrastructure to manage supply and demand more efficiently and become more resilient.
- An EU-wide energy infrastructure will also help EU Member States managing the fluctuation in energy supply, particularly in electricity, as a result of the use of more renewable energy.
- The EU should play a role earmarking funding for cross-border energy infrastructure projects, providing an EU-systemic view in the prioritisation of these investments, and facilitating discussion across EU Member States so these investments are carried out swiftly.

⁸⁴ Way, R., Ives, M., Mealy, P., & Farmer, J. D. (2021). Empirically grounded technology forecasts and the energy transition. Institute for New Economic Thinking, University of Oxford: Oxford, UK, 23.

2.6 Improving infrastructure conditions

Good infrastructure is central to competitiveness. Transport infrastructure investments have a positive impact on economic growth, create wealth and jobs and enhance trade. In the first place, the sector is important for its direct economic contributions. The transport sector contributes 5 percent to European GDP and directly employs around 10 million workers⁸⁵. Equally important, if not more, is that good infrastructure boosts productivity and growth in other sectors that use infrastructure services. Therefore, investment in infrastructure also brings important supply side benefits to the economy. As the capital stock of infrastructure expands, it broadens the productive capacity of the economy as a whole⁸⁶.

Competitiveness also demands good infrastructure quality. Infrastructure quality means, among other things, the possibility for businesses to get their goods and services in a secure and timely manner, also by improving facilities for supply chains that are important for trade. Moreover, good infrastructure quality helps to limit externalities of transport, like greenhouse gas emissions, noise and water pollution.

Energy and digital infrastructure are discussed in other focus areas, and in this section the focus is on transport infrastructure. The policy recommendations aim at making European transport services more attractive, preventing bottlenecks in European transport infrastructure, and increasing cooperation with third countries on aviation and shipping.

Policy trends

The cost of EU infrastructure development to match the demand for transport has been calculated at over €1.5 trillion for the period 2010-2030. Estimates for the EU indicate that investment is below the levels needed – and it is substantially below level in some regions. Challenges for infrastructure transport investment are well-known: high upfront costs, the climate goals, and breaking the dependency of oil without sacrificing efficiency and hurting consumers.

In December 2020, the European Commission presented its sustainable and smart mobility strategy, together with an action plan of 82 initiatives to guide work for the period until 2024. The strategy identifies ten flagship areas which are heavily influenced by the need to achieve a sustainable transport system. Specific goals for 2030 include

⁸⁵ European Commission (2022). Transport sector economic analysis. Retrieved from https://joint-research-centre.ec.europa.eu/scientific-activities-z/transport-sector-economic-analysis_en

⁸⁶ European Parliament (2018). Investment in infrastructure in the EU Gaps, challenges, and opportunities.

that at least 30 million zero-emission vehicles will be in operation on European roads⁸⁷. The European Green Deal also aims at making the EU's transport system more sustainable, calling for a 90 percent reduction in greenhouse gas emissions from transport by 2050.

The deployment of digital technologies in infrastructure is another key policy trend. Such technologies could be key for further improving multimodal transport information management and payment systems in the future, including new payments as well as open banking solutions, and cross-border transport mobility.

EU role

Transport policy has been one of the EU's common policies for more than 30 years and it is a shared competence of the European Union and its Member States.⁸⁸ The purpose of EU transport policy is to ensure the smooth, efficient, safe, and free movement of people and goods throughout the EU by means of integrated networks using all modes of transport (road, rail, water and air). For competition, the EU's role is to open the transport market and create fair and competitive conditions. Addressing current and preventing future bottlenecks in European transport infrastructure is another area where there is an added-value for the EU. However, it is Member States who are the principal entity in charge of creating and maintaining transport infrastructure.

Planning and financing the Trans-European Transport Network (TEN-T) is an area of shared competence where the EU plays an important role. Two horizontal priorities are the European Rail Traffic Management System (ERTMS)⁸⁹ and the “motorways of the sea” concept.⁹⁰ The Connecting Europe Facility (CEF) includes funding for strategic investment to support cross-border connections. The European Structural and Investment Funds⁹¹ also provides funding for EU transport infrastructure and the Horizon 2020 has dedicated projects for research on smart and sustainable transport⁹².

⁸⁷ In 2020, there were 250 million cars registered in the EU. Source: Eurostat (2022). Passenger cars in the EU. Retrieved from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Passenger_cars_in_the_EU

⁸⁸ European Parliament (2022). Common transport policy: Overview. Retrieved from <https://www.europarl.europa.eu/factsheets/en/sheet/123/common-transport-policy-overview>

⁸⁹ European Commission (2022). European Rail Traffic Management System (ERTMS). Retrieved from https://transport.ec.europa.eu/transport-modes/rail/ertms_en

⁹⁰ European Commission (2022). Motorways of the Sea. Retrieved from https://transport.ec.europa.eu/transport-modes/maritime/motorways-sea_en

⁹¹ European Commission (2022). European structural and investment funds. Retrieved from https://ec.europa.eu/info/funding-tenders/funding-opportunities/funding-programmes/overview-funding-programmes/european-structural-and-investment-funds_en

⁹² European Commission (2022). Horizon 2020. Retrieved from https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-2020_en

Policy recommendations

ECIPE Policy recommendation 21: Deregulate transport services to make road and rail transport more attractive

The EU needs to further open its transport market for competition. The European aviation market is already deregulated to a very large extent, and liberalisation led to more choice and lower costs for consumers. By contrast, despite a steady opening up of domestic road and rail markets to competition, more can be done in these transport modes.

- Further deregulation in European road and rail markets is about removing barriers to create a level playing field and opening these markets to fair and free competition. This would result in lower prices and create new business opportunities. Enabling more competition would also contribute to making public road and rail transport more attractive for cargo transport.

ECIPE Policy recommendation 22: Fix the bottlenecks in European transport infrastructure

The EU should address bottlenecks and cross-border transport in areas where there is an added-value for the EU in terms of planning and financing.

- The creation of a Trans-European Transport Network (TEN-T) is a key priority. The current TEN-T policy comprises two network layers: the core network, which is expected to be completed in 2030 and includes the most important connections, and the comprehensive network that would cover all European regions by 2050. Planning and financing to support TEN-T in order to address bottlenecks and facilitate cross-border transport are areas where there is an added-value for the EU.
- Rail freight transport in the EU declined by 5.9 percent in 2020 compared to 2019.⁹³ In addition, according to the OECD report on Western Scandinavia⁹⁴ trends in freight transport indicate that rail is losing competitiveness to road haulage. The EU needs to upgrade its rail corridors such as the one from Germany to Denmark and Sweden, to continue carrying large volumes of freight and passenger traffic with high efficiency and low emissions. A well-performing transport network requires substantial and continuous resources, and the EU

⁹³ Eurostat (2021). Railway Freight Transport Statistics. Data extracted in October 2021 from Eurostat (online data codes: rail_go_typepas and rail_go_quartal). Retrieved from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Railway_freight_transport_statistics

⁹⁴ OECD (2018). OECD Territorial Reviews: The Megaregion of Western Scandinavia, OECD Territorial Reviews, OECD Publishing, Paris.

should facilitate planning and investment in this area to make EU transport more competitive and sustainable.

- The EU's goal of a 90 percent reduction in transport carbon emissions by 2050 will only be reached by more ambitious policies to reduce European transport's reliance on fossil fuels, which will also reduce EU's dependency on imported oil. EU-funded research could be channelled to achieve this objective (see focus area Developing Innovation Capacity).
- In aviation, a first key element is that the Single European Sky needs to be implemented further through continued investments by the EU in necessary infrastructure and technology.

ECIPE Policy recommendation 23: Foster fair competition in international aviation and the maritime sector

The future competitiveness of Europe depends on the ability of all its regions to remain fully and competitively integrated in the world economy. Aviation and shipping are important not just for EU trade but also for the employment and growth of European companies involved in these sectors. Opening up third country markets in aviation continues to have high priority and the EU should extend open skies agreements with third countries. In addition, the EU should increase its efforts to cooperate with the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO) to establish a stronger regulatory framework and more cooperation to further strengthen fair competition, high safety standards and environmental protection.

- In 2008, the EU concluded the EU-US "Open Skies" Air Transport Agreement, which allows any airline of the European Union and the United States to fly between any point in the European Union and the United States. In addition, the Association of Southeast Asian Nations (ASEAN) and the European Union (EU) concluded the ASEAN-EU Comprehensive Air Transport Agreement (ASEAN-EU CATA) in 2022. The EU should play a leading role in further extending similar agreements with other third countries. Such agreements provide new business opportunities for European companies and ensure fair and transparent market conditions based on a clear regulatory framework.
- The aviation and the maritime sectors need a global level-playing field. EU standards for example on CO₂, environmental protection and to a lesser extent on safety are generally higher than in other parts of the world. To keep growth opportunities and employment levels for the European aviation and shipping sectors, while also confronting unfair practices and tackling climate change, the EU needs to speak with one voice in ICAO and IMO. Alone, each EU Member State is a small player in the UN organizations but together they can achieve

results. Concrete actions for global outreach on aviation include safety rules, the reduction of the burden of security checks through the use of new technology, and pursuing a robust global measure to achieve carbon neutral growth in the sector. At the IMO, the EU should in particular pursue a global approach to address greenhouse gas emissions from international shipping and continue to push for global action at the IMO to support research and innovation towards the decarbonisation of maritime transport.⁹⁵

2.7 Ensuring better regulations

Regulation that is effective, evidence-based, and consistent can strengthen European competitiveness. However, when regulations are not carefully designed, they can have negative effects for businesses. Regulation can impact cost competitiveness through compliance costs and higher costs on firms' inputs; reduce the space for experimentation and therefore for technological change; and increase barriers to trade which leads to higher trade costs. There might be good reasons that justify a new regulation. However, governments should always strive for high quality regulation and minimise any negative effect on competitiveness.

The good news is that the EU has built the structure – in the form of guidelines, processes, and institutions – to undertake good regulation. But this structure requires on-going maintenance. Recently, attention towards good regulation has drifted and serious cracks are appearing in the way the EU evaluates, appraises, and proposes new regulation. These policy recommendations do not try to reinvent the wheel but provide much-needed impetus to bring back the good regulation agenda to the centre of EU policymaking and continue progressing on some areas which have been left unattended for too long.

Policy trends

The agenda of better regulation, developed over the last 30 years by international organisations like the OECD and the EU itself, has steered governments towards a systematic appraisal of the impacts of regulation and a search for better regulatory practices. As a result of this work, several good regulatory principles or practices have emerged. For instance, research on good regulatory practice advises countries to set clear and coherent policy objectives based on solving a factual well-identified issue with

⁹⁵ European Commission (2022). Reducing Emissions from the Shipping Sector. Retrieved from https://climate.ec.europa.eu/eu-action/transport-emissions/reducing-emissions-shipping-sector_en

proven mechanisms, providing clarity of compliance requirements, and ensuring proportionality and adaptability⁹⁶.

However, the notion of good regulation is not set in stone and continues to adapt to changes in the economy and our societies. The regulatory response during the pandemic and the challenges associated with the regulation of upcoming technology has led the OECD to call for “regulatory policy 2.0”. The need to adapt, under the concept of the so-called “Agile Regulation”, is a prevalent tenant of this new agenda. Countries have recognised that new technology requires more flexible and adaptive regulatory frameworks which enable greater experimentation to stimulate further innovation.

Finally, the concept of competitiveness has been widened to include sustainability. A society that is not capable of delivering sustainable growth can be hardly considered competitive, at least not in the long-term. By measuring the impact of new regulation on climate change, the appraisal of regulation is starting to capture these concepts more systematically, going beyond the traditional understanding of competitiveness that focuses mostly on industry costs.

EU role

The EU better regulation agenda was introduced in the early 2000s. This agenda underpinned efforts to simplify and improve the quality of EU legislation, strengthen the competitiveness of the European economies, and ensure that the analysis addressed economic, environmental, and social regulatory impacts.

The EU’s approach to regulatory policy has been refined over the years as subsequent Commissions attempted to improve the existing framework. The European Commission published a new Communication on better regulation as well as new Guidelines on Better Regulation and an updated Better Regulation Toolbox in November 2021. In terms of competitiveness, the Better Regulation Guidelines includes a 12 steps process to help EU civil servants gather evidence of impacts on firms’ competitiveness and three areas where EU legislation could impact the competitiveness of European firms: the costs and price competitiveness; the capacity to innovate; and the international competitiveness. Recently, the European Commission announced that EU Impact Assessments (IA) will include competitiveness checks to measure the impact of EU regulation on large firms, in addition to the previous assessments of the impact of EU regulation on European SMEs⁹⁷.

⁹⁶ Bauer, M., Fredrik, E., Guinea, O., van der Marel, E., & Vanika, S. (2022) The EU Digital Markets Act: Assessing the Quality of Regulation. ECIPE Policy Brief.

⁹⁷ European Commission (2022). 2022 State of the Union address by President von der Leyen. Retrieved from https://ec.europa.eu/commission/presscorner/detail/ov/speech_22_5493

Within the EU, the European Commission takes the lead in the development of new regulation and its appraisal. The European Commission Secretariat General oversees compliance with the principles of Better Regulation and serves as Secretariat to the Regulatory Scrutiny Board (RSB), which checks the quality of all IAs and major evaluations and fitness checks.

The final shape of the EU regulation is decided when the Council and the European Parliament jointly agree on the final legislative act. The agreed legal text could be significantly different from the one proposed by the European Commission and appraised in its IA. The Inter-institutional Agreement on Better Law Making was established to support evidence-based decision-making across all three institutions and to ensure that the adopted EU legislation remains in line with better regulation principles. In its assessment of the regulatory practices across the EU, the OECD⁹⁸ recommended that the Council implements the Inter-institutional Agreement, in particular the analysis of impacts of its significant amendments. However, there is not an agreed definition of which are “significant amendments”. The European Parliament, on the other hand, created a Directorate for Impact Assessment and European Added Value which reviews IAs attached to draft legislation submitted by the European Commission and conducts in-depth analysis and IAs of amendments at the request of Parliamentary committees.

Policy recommendations

ECIPE Policy recommendation 24: Increase scrutiny and transparency in EU regulation

The EU has the necessary tools to undertake good regulation. However, in practice, EU regulation process suffers from some significant weaknesses. Anecdotal evidence suggests that the quality and attention to IAs has deteriorated. To take a few recent examples of regulation with impact on competitiveness, the IAs that followed the Digital Market Act (DMA), the Digital Service Act (DSA), and the regulation of AI were vastly unsatisfactory. The EU New Standardisation Strategy, which includes regulatory changes to the way European Standardisation Bodies take decisions, or the regulation on the banning of products made with forced labour have been presented with no IA. This lack of attention to regulatory appraisal has been followed by a deterioration of the quality of EU regulation. The emphasis on big regulatory packages has opened the door to regulations that include too many objectives, which creates confusion, and which responsibility for its implementation has been passed on to companies. This policy

⁹⁸ OECD (2022). Better Regulation Practices across the European Union 2022, OECD Publishing, Paris.

recommendation calls on the European Commission to up its game on the quality and appraisal of regulation.

- The EU should be serious about competitiveness. It has the tools and guidelines, but they are not always implemented to the required depth. EU IA should include quantitative analysis that measures the impact of regulation on EU competitiveness and built the required in-house capacity to perform this task.
- The EU should have IAs for all regulatory proposals, including implementing and Delegated Acts.
- The EU needs to appraise the amendments introduced by the European Council and the European Parliament in relation to the European Commission's proposed new rules and regulations.
- The EU should monitor regulatory outcomes on an on-going basis and include these activities from the start rather than as a revision or evaluation of the new regulation after several years.
- Consultations should not be defined with pre-defined multiple choices. Stakeholders need to be able to give precise answers and feedback on the proposed regulations. Otherwise, policy choices can be perceived as predetermined prior to the consultation.

ECIPE Policy recommendation 25: Expand the space for experimentation

Regulatory certainty and predictability are necessary conditions for companies to invest in R&D. Businesses are generally less likely to adopt and experiment with new technologies and business models if regulation is confusing. At the same time, regulatory stringency reduces the space for innovation.

- In contrast to the approach recommended by the OECD, EU emphasis on managing innovation has led the EU to regulate technology before companies can experiment with it and apply it into their production. This approach hampers innovation because it preestablishes a technological solution and narrows the potential applications of new technology. Instead of being prescriptive about how to use a specific technology, the EU should focus on outcomes and provide space for experimentation to demonstrate how these outcomes are achieved.
- The precautionary principle nudges innovators to focus on the risks rather than the benefits of their new products. Moreover, by shifting the burden of proof to producers that need to show that a product is not causing harm, the precautionary principle contributes to regulatory uncertainty. The EU needs to have a fact-based approach in regulations that involve doing something new. Otherwise, the precautionary principle becomes an anchor that stops new goods and services coming into the market, dragging the EU economy.

ECIPE Policy recommendation 26: Empower the Regulatory Scrutiny Board

The Regulatory Scrutiny Board (RSB) is a body within the European Commission that provides quality control for the European Commission IA and evaluations. RSB issues opinions on the quality of the EU regulatory appraisal and recommends improvements to the analysis. A positive opinion or positive with reservations is needed for an initiative to be table for adoption by the European Commission. The RSB was a good idea. However, to continue playing its role and extend its contribution to good regulation, the RSB needs additional economic and human resources, as well as more independence from the European Commission.

- The RSB workload has increased significantly. In 2021, the RSB scrutinised 83 IAs compared to 41 in 2020⁹⁹. Yet, its staff remains limited. The RSB is made of seven members, including three EU officials, three experts from outside the European Commission, and one Commission senior staff who chairs the board. Given the growing volume of regulation, the urgency to approve them, and the complexity and variety of topics under EU regulation, the EU should increase RSB human and economic resources.
- The RSB should be fully independent from the European Commission. The Australia Productivity Commission which provides independent research and advice to the Government or the independent fiscal watchdogs across EU Member States could serve as a template for an independent RSB.
- The RSB should have the power to step in any regulatory area and evaluate the burden and coherence of the EU regulation.

ECIPE Policy recommendation 27: Reduce the regulatory burden

The volume and restrictiveness of regulation must be considered to understand how regulation impacts competitiveness. The EU's better regulation agenda includes the "one in, one out" approach which aim is to minimise regulatory burden. However, the EU Better Regulation Guidelines limits the notion of regulatory burden to adjustment and administrative costs, which disregards the cost of regulation on inputs, innovation, and international competitiveness. This is a significant weakness. Given the amount of new regulation and the multiple objectives that EU regulation tries to achieve, the EU does not attempt to understand how each regulation adds up to the other.

- The EU should assess the regulatory burden of its regulation and the cumulative effect of regulation in each industry. The quantification of the costs in the EU IAs is too narrowly defined and the effects of other regulation and regulatory

⁹⁹ European Commission (2022). Regulatory Scrutiny Board. Annual Report 2021. Retrieved from https://ec.europa.eu/info/sites/default/files/rsb_report_2021_en.pdf

proposals in the same economic sector is not taken into account. This is because the EU IAs disregard the additive effect of regulation as if regulations were devoid of context and have no relation to each other.

- Regulatory sectoral reviews should be made by the European Commission (policy recommendation 5) or by the Regulatory Scrutiny Board (policy recommendation 3). These efforts should raise red flags when the burden of regulation is excessive and help EU civil servants understand how EU regulation impacts EU firms on the ground.

ECIPE Policy recommendation 28: Make the better regulation agenda central in EU decision making

The better regulation agenda and the theme of competitiveness have fallen off the radar. In order to bring these topics back at the top of EU agenda, the improvements in the quality of regulation developed in the previous policy recommendations must be connected to the centres of decision-making.

- A first option is to include EU competitiveness as part of the discussion of EU rules on fiscal sustainability in the Economic and Financial Affairs Council (ECOFIN). A second option is to integrate competitiveness within the EU Next Generation Funds which include structural reform as a condition to release EU funds. A third option is to assign DG COMPETITION with a standing mission to produce sectoral reviews that include an assessment of how regulation impacts firms and competition within a given sector.

REFERENCES

- Acemoglu, D., Johnson, S., & Robinson, J. (2005). The rise of Europe: Atlantic trade, institutional change, and economic growth. *American economic review*, 95(3), 546-579.
- Antimiani, A., & Cernat, L. (2018). Liberalizing global trade in mode 5 services: How much is it worth?. *Journal of World Trade*, 52(1).
- Ari, A. et. al. (2022). Surging energy prices in Europe in the aftermath of the war: How to support the vulnerable and speed up the transition away from fossil fuels. IMF Working Paper No. 2022/162.
- Bauer M. (2022). The Data Act Proposal: Assessing the EU's Latest Digital Policy Experiment. ECIPE.
- Bauer, M., Fredrik, E., Guinea, O., van der Marel, E., & Vanika, S. (2022). The EU Digital Markets Act: Assessing the Quality of Regulation. ECIPE Policy Brief.
- Berndt, M et. al. (2016). Restoring EU Competitiveness. European Investment Bank.
- Boltho, A., & Eichengreen, B. (2008). The Economic Impact of European Integration. CEPR Discussion Papers, No. 6820.
- Bottasso, A., & Sembenelli, A. (2001). Market power, productivity and the EU Single Market Program: Evidence from a panel of Italian firms. *European Economic Review*, 45(1), 167-186.
- Catelli, A. (2022, September 6). Goldman Sees \$2 Trillion Surge in Europe Energy Bills by 2023. Bloomberg, Retrieved from <http://bloomberg.com>
- CEB (2017). Investing in Public Infrastructure in Europe. A local economy perspective.
- Cernat, L. (2021). We Need to Talk Trade and Technology!. ECIPE Policy Brief.
- Chazan, G. (2022, August 31). German companies halt production to cope with rising energy prices. *Financial Times*, Retrieved from <http://www.ft.com>
- Collignon, S. et al. (2005). The Lisbon Strategy and the Open Method of Coordination. Policy Paper no. 12. Notre Europe.

Collignon, S. (2008). ‘The Lisbon strategy, macroeconomic stability and the dilemma of governance with governments; or why Europe is not becoming the world’s most dynamic economy’. *International Journal of Public Policy*, vol. 3:1-2

Cometto, M. (2014) Letter from the US: Pensions and start-ups. IPE.

Copeland, P. (2012). ‘Conclusion: The Lisbon Strategy – Evaluating Success and Understanding Failure’, in Paul Copeland and Dimitris Papadimitriou (eds.) *The EU’s Lisbon Strategy: Evaluating Success, Understanding Failure*.

Council of the European Union (2020). Conclusions on Better Regulation “Ensuring competitiveness and sustainable, inclusive growth”. Outcome of proceeding.

Criscuolo, C., Gal, P., Leidecker, T., Nicoletti, G., Goldin, I., Koutroumpis, P., & Dadush, U. (2022). For services firms, small can be beautiful. *VoxEU*.

Davidson, P., C. Kauffmann and M. de Liedekerke (2021). How do laws and regulations affect competitiveness: The role for regulatory impact assessment, *OECD Regulatory Policy Working Papers*, No. 15, OECD Publishing, Paris.

Dellink, R., Jamet, S., Chateau, J., & Duval, R. (2010). Towards global carbon pricing. *OECD*.

Efstathiou, K., & Wolff, G. B. (2018). Is the European Semester effective and useful? (No. 2018/09). *Bruegel Policy Contribution*.

EIB (2022). Sustainable Transport Overview. *European Investment Bank*.

EPO & EUIPO (2022). Intellectual property rights intensive industries and economic performance in the European Union. Munich (Germany) and Alicante (Spain).

Erixon, F. (2021). *Achtung Europa!* Stockholm Free World Forum: Frivarld.

Erixon, F. et. al. (2022). Mapping the economic consequences of and responses to new digital regulations in Europe. *ECIPE Occasional paper*.

Erixon, F. et. al. (2022). The Benefits of Intellectual Property Rights in EU Free Trade Agreements. *ECIPE Occasional Papers*, No. 1/2022.

Erixon, F., Freytag, A., & Pehnelt, G. (2007). The Rome treaty at 50. *ECIPE Policy Brief*.

Erixon, F., Guinea, O., Lamprecht, P., Sharma, V., & Zilli, R. (2022). The New Wave of Defensive Trade Policy Measures in the European Union. ECIPE Occasional Paper.

Erixon, F., Guinea, O., van der Marel, E., & Sisto, E. (2022). After the DMA, the DSA and the New AI regulation: Mapping the Economic Consequences of and Responses to New Digital Regulations in Europe. ECIPE Occasional Paper.

European Central Bank (2017). The slowdown in Euro area productivity in a global context. ECB Economic Bulletin, Issue 3, 2017.

European Central Bank (2021). Key factors behind productivity trends in EU countries. ECB Strategic Review, No. 268.

European Commission (1993). White Paper on Growth, Competitiveness and Unemployment: The Challenges and Ways Forward into the 21st Century. European Commission. Brussels.

European Commission (1996). The Impact and Effectiveness of the Single Market. Brussels. COM (96) 520 final.

European Commission (2012). Operational Guidance for Assessing Impacts on Sectoral Competitiveness Within the Commission Impact Assessment Toolkit, a “Competitiveness Proofing” Toolkit for use in Impact Assessment. Brussels.

European Commission (2014). European Economy. Infrastructure in the EU: Developments and Impact on Growth. Brussels.

European Commission (2017). Missing Convergence in Innovation Capacity in the EU: Facts and Policy Implications. Brussels.

European Commission (2020). 2020 European Semester: Country-specific Recommendations. COM (2020) 500 final. Brussels.

European Commission (2020). Commission adopts Action Plan on Intellectual Property to strengthen EU's economic resilience and recovery. Press release. Retrieved from https://ec.europa.eu/commission/presscorner/detail/en/ip_20_2187

European Commission (2020). Energy prices and costs in Europe. COM/2020/951 final. Brussels.

European Commission (2020). EU-Chile Free Trade Agreement. Eu Textual Proposal. Energy and Raw Materials Chapter. Brussels.

European Commission (2020). The role of research and innovation in support of Europe's recovery from the Covid-19 crisis. Brussels.

European Commission (2021). Better Regulation Guidelines. Brussels.

European Commission (2021). Better Regulation Toolbox. Brussels.

European Commission (2021). Delivering the European Green Deal. Architecture Factsheet. Brussels.

European Commission (2021). Directorate-General for Energy, Lewis, P., Granroth-Wilding, H., Napolitano, L., et al., European barriers in retail energy markets: final report, Publications Office, 2021. Brussels.

European Commission (2021). Special Eurobarometer 513. Climate Change. Brussels.

European Commission (2021). State aid: Commission adopts revised State aid rules on Important Projects of Common European Interest. Press release. 25 November 2021. Brussels.

European Commission (2021). Strategic dependencies and capacities. Commission Staff Working Document. Brussels.

European Commission (2022). 2022 State of the Union address by President von der Leyen. Brussels.

European Commission (2022). A European approach to artificial intelligence. Retrieved from <https://digital-strategy.ec.europa.eu/en/policies/european-approach-artificial-intelligence>

European Commission (2022). A New European Innovation Agenda. COM (2022) 332 final. Brussels.

European Commission (2022). Advanced Technologies. Retrieved from https://single-market-economy.ec.europa.eu/industry/strategy/advanced-technologies_en

European Commission (2022). An open, sustainable and assertive trade policy. Open strategic autonomy. Retrieved from https://trade.ec.europa.eu/doclib/docs/2021/february/tradoc_159434.pdf

European Commission (2022). Commission work programme 2023. A Union standing firm and united. COM (2022) 548 final. Annexes 1 to 5. Brussels.

European Commission (2022). Connecting Europe Facility. Retrieved from https://transport.ec.europa.eu/transport-themes/infrastructure-and-investment/connecting-europe-facility_en

European Commission (2022). Digital trade. Retrieved from https://policy.trade.ec.europa.eu/help-exporters-and-importers/accessing-markets/goods-and-services/digital-trade_en

European Commission (2022). EU-India: Joint press release on launching the Trade and Technology Council. Press Release. Retrieved from https://ec.europa.eu/commission/presscorner/detail/en/IP_22_2643

European Commission (2022). EU-Mexico Trade Agreement. Retrieved from https://policy.trade.ec.europa.eu/eu-trade-relationships-country-and-region/countries-and-regions/mexico/eu-mexico-agreement_en

European Commission (2022). European Rail Traffic Management System (ERTMS). Retrieved from https://transport.ec.europa.eu/transport-modes/rail/ertms_en

European Commission (2022). European structural and investment funds. Retrieved from https://ec.europa.eu/info/funding-tenders/funding-opportunities/funding-programmes/overview-funding-programmes/european-structural-and-investment-funds_en

European Commission (2022). EU-US Trade and Technology Council: strengthening our renewed partnership in turbulent times. Press release. Retrieved from https://ec.europa.eu/commission/presscorner/detail/en/IP_22_3034

European Commission (2022). High Performance Computing. Retrieved from <https://digital-strategy.ec.europa.eu/en/policies/high-performance-computing>

European Commission (2022). Horizon 2020. Retrieved from https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-2020_en

European Commission (2022). List of Member States measures approved under the State aid Temporary Crisis Framework. 28 October 2022. Brussels.

European Commission (2022). Motorways of the Sea. Retrieved from https://transport.ec.europa.eu/transport-modes/maritime/motorways-sea_en

European Commission (2022). The EU-New Zealand trade agreement. Retrieved from https://policy.trade.ec.europa.eu/eu-trade-relationships-country-and-region/countries-and-regions/new-zealand/eu-new-zealand-agreement_en

European Commission (2022). The Recovery and Resilience Facility. Retrieved from https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility_en

European Commission (2022). Towards and EU-Australia trade agreement. Retrieved from https://policy.trade.ec.europa.eu/eu-trade-relationships-country-and-region/countries-and-regions/australia/eu-australia-agreement_en

European Commission (2022). Trade in services. Retrieved from https://policy.trade.ec.europa.eu/help-exporters-and-importers/accessing-markets/goods-and-services/services_en

European Commission (2022). Transport sector economic analysis. Retrieved from https://joint-research-centre.ec.europa.eu/scientific-activities-z/transport-sector-economic-analysis_en

European Commission (2022). Regulatory Scrutiny Board. Annual Report 2021. Brussels.

European Council (2022). Infographic - Fit for 55: how the EU will become more energy-efficient. Retrieved from <https://www.consilium.europa.eu/en/infographics/fit-for-55-how-the-eu-will-become-more-energy-efficient/>

European Council (2022). Long-term EU budget 2021-2027 and recovery package. Retrieved from <https://www.consilium.europa.eu/en/policies/the-eu-budget/long-term-eu-budget-2021-2027/>

European Environmental Agency (2022). Annual European Union greenhouse gas inventory 1990–2020 and inventory report 2022 Submission to the UNFCCC Secretariat.

European Environmental Agency (2021). Energy intensity in Europe, Retrieved from <https://www.eea.europa.eu/data-and-maps/indicators/total-primary-energy-intensity-4/assessment-1#:~:text=Between%201990%20and%202017%2C%20the,decrease%20of%201.7%20%25%20per%20year>

European Investment Bank. & Innovation Finance Advisory. (2021). Accelerating the 5G transition in Europe: How to boost investments in transformative 5G solutions: main report. Publications Office.

European Investment Bank. & Innovation Finance Advisory. (2021). Accelerating the 5G transition in Europe: How to boost investments in transformative 5G solutions: main report. Publications Office.

European Parliament (2018). Investment in infrastructure in the EU Gaps, challenges, and opportunities. Brussels.

European Parliament (2022). Common transport policy: Overview. Retrieved from <https://www.europarl.europa.eu/factsheets/en/sheet/123/common-transport-policy-overview>

European Parliament (2022). Financing the CAP. Retrieved from <https://www.europarl.europa.eu/factsheets/en/sheet/106/financing-of-the-cap>

European Parliament (2022). The EU agreed on a new regulation on Foreign Subsidies which extends part of the EU competition framework to non-EU companies operating in the EU. Press release. Brussels.

European Parliament (2020). Economic Dialogue with the European Commission on the 2020 Country Specific Recommendations. Briefing. Brussels.

Eurostat (2021). Railway Freight Transport Statistics. Data extracted in October 2021 from Eurostat (online data codes: rail_go_typepas and rail_go_quartal).

Eurostat (2022). Supply, transformation and consumption of electricity. Retrieved from <https://ec.europa.eu/eurostat/databrowser/bookmark/6f726931-0e89-41d9-b151-f3841fff4277?lang=en>

Eurostat (2022). R&D expenditure. Retrieved from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=R%26D_expenditure&oldid=551418

Ferracane, M. F., & van der Marel, E. (2020). Patterns of trade restrictiveness in online platforms: A first look. *The World Economy*, 43(11), 2932–2959.

Gaspar, V., & Parry, I. (2021). A proposal to scale up global carbon pricing. Retrieved from the International. International Monetary Fund.

Geyer, M. (2022, September 20). On Track: Digitale Schiene Deutschland Building Digital Twin of Rail Network in NVIDIA Omniverse. Nvidia, Retrieved from <https://blogs.nvidia.com/blog/2022/09/20/deutsche-bahn-railway-system-digital-twin/>

Goldberg, E. (2018). Better Regulation: European Union Style, <https://www.hks.harvard.edu/centers/mrcbg/publications/awp/awp98>

GRC World Forums (Director). (2022, May 30). What's Wrong With the GDPR? Constructive Criticisms from Privacy Professionals. PrivSec.

Griliches, Z. (1998). Patent statistics as economic indicators: a survey. In *R&D and productivity: the econometric evidence* (pp. 287-343). University of Chicago Press.

Guinea, O., & Erixon, F. (2019). Standing up for competition: Market concentration, regulation, and Europe's quest for a new industrial policy. ECIPE Occasional Paper.

Guinea, O., & Espés, A. (2021). International EU27 pharmaceutical production, trade, dependencies, and vulnerabilities: a factual analysis. ECIPE.

Guinea, O., & Forsthuber, F. (2020). Globalization comes to the rescue: How dependency makes us more resilient (No. 06/2020). ECIPE Occasional Paper.

Guinea, O., & Sharma, V. (2022). The L'Oréal principle: How the EU leverages its Single Market for its trade policy objectives. ECIPE.

Guinea, O., & Sharma, V. (2022). Should the EU pursue a strategic ginseng policy? Trade dependency in the brave new world of geopolitics. ECIPE Policy Brief.

Guinea, O., Perez del Puerto, I. (2021). Doubts Trap the Mercosur – EU Agreement. ECIPE.

Hallward-Driemeier, M., Nayyar, G., Fengler, W., Aridi, A., & Gill, I. (2020). Europe 4.0: Addressing the Digital Dilemma. World Bank.

Harald Badinger (2007). Has the EU Single Market Programme Fostered Competition? *Oxford Bulletin of Economics and Statistics*, vol. 69:4.

Head, K., & Mayer, T. (2021). The United States of Europe: A gravity model evaluation of the four freedoms. *Journal of Economic Perspectives*, 35(2), 23-48.

Hoffmann, M., & Nurski, L. (2022). The triple constraint on artificial-intelligence advancement in Europe. Bruegel.

Home, A. (2020, September 7). RPT-COLUMN-Europe joins the global scramble for critical minerals. Reuters, Retrieved from <https://www.reuters.com/article/eu-metals-ahome-idUSL8N2G13WK>

IEA (2022). *Global Energy Review: CO₂ Emissions in 2021*. Paris.

IPCC, 2018: *Global Warming of 1.5°C*. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate. Cambridge University Press, Cambridge, UK and New York, NY, USA, 616 pp.

Jones, E. (2003). *The European Miracle*. Cambridge University Press; Angus Maddison, 1991, *Dynamic Forces in Capitalist Development: A Long-Run Comparative View*. Oxford University Press.

Krugman, P. (1995). Competitiveness: A Dangerous Obsession, *Foreign Affairs*, Vol. 73, No. 2, pages 28-44.

Kutlina-Dimitrova Z., J M. Rueda-Cantuche, A F. Amores and M. Victoria Román (2018). How Important are EU Exports for Jobs in the EU?, DG TRADE. Chief Economist Note no 4/2018, Brussels.

Lamprecht, P. (2022). Does Shortage of High-Skilled Labour Threaten Germany's Ambitious Sustainability Goals? ECIPE.

Mahlberg, B., & Url, T. (2010). Single Market effects on productivity in the German insurance industry. *Journal of Banking & Finance*, 34(7), 1540-1548.

McKinsey & Company (2020). *The future is now: Closing the skills gap in Europe's public sector*.

McKinsey & Company (2022). *Future of work*.

McKinsey & Company (2022). Securing Europe's competitiveness: Addressing its technology gap.

McKinsey Global Institute (2019). Innovation in Europe.

McKinsey Global Institute (2022). Securing Europe's Competitiveness: Addressing its Technology Gap.

Morison, R., Gebre, S., & Tara, P. (2022, March 9). European Industry Starts Shutting Down as Energy Prices Soar. Bloomberg, Retrieved from <http://bloomberg.com>

Nagle, P. & Temaj, K., (2022). Energy market developments: Coal and natural gas prices reach record highs. World Bank.

Nakano, J., & Kennedy, S. (2021). China's New National Carbon Trading Market: Between Promise and Pessimism. Cent. Strateg. Int. Stud.

National Board of Trade (2015). Economic Effects of the European Single Market: Review of the Empirical Literature.

Navarra, C. (2020). Assessing the potential impact of an EU-India trade Agreement. European Parliamentary Research service.

Nilsson, L., Kennedy, B., Tucci, A., Velazquez, B., Nolte, S., & Kutlina-Dimitrova, Z. (2020). Trade policy reflections beyond the COVID19 outbreak (No. 2020-2). Directorate General for Trade, European Commission.

Notaro, G. (2002). European integration and productivity: exploring the gains of the Single Market. London Economics.

Nulsch, N. (2014). Is Subsidizing Companies in Difficulties an Optimal Policy? An Empirical Study on the Effectiveness of State Aid in the European Union (No. 9/2014). IWH discussion papers.

OECD (2018). OECD Territorial Reviews: The Megaregion of Western Scandinavia, OECD Territorial Reviews, OECD Publishing, Paris.

OECD (2020). Shocks, risks, and global value chains: insights from the OECD METRO model. OECD, Paris.

OECD (2021). OECD Regulatory Policy Outlook 2021, OECD Publishing, Paris.

OECD (2021). Organisation for Economic Co-operation and Development, Recommendation of the Council for Agile Regulatory Governance to Harness Innovation, October 2021. Paris.

OECD (2022). Better Regulation Practices across the European Union 2022, OECD Publishing, Paris.

Philippon, T. (2019). The great reversal: How America gave up on free markets. Harvard University Press.

PWC (2021). Increasing Climate Ambition: Analysis of an International Carbon Price Floor.

Rachman, G. (2022, August 29). The enemies of globalisation are circling. Financial Times, Retrieved from <https://www.ft.com>

Ress, E. (2021). EU-Mercosur: (Why) Failing to Ratify is not Worth the Risk. ECIPE.

Rodrigues, M.J., (2009). On the External Dimension of the Lisbon Agenda: Key Issues for Policymakers, in Rodrigues (ed.) Europe, Globalization and the Lisbon Agenda. Edward Elgar Publishing.

Shi-Kupfer, K., & Ohlberg, M. (2019). China's digital rise. MERICS.

Singapore Government (2022). Digital economy agreements. Retrieved from <https://www.mti.gov.sg/Trade/Digital-Economy-Agreements>

Stolton, S. (2022, January 31). US pushes to change EU's digital gatekeeper rules. Politico, Retrieved from <https://www.politico.eu>

Storbeck, O., Speed, M., Milne, R., & Provan, S. (2022, September 21). Germany nationalises struggling utility Uniper in €29bn bailout. Financial Times, Retrieved from <http://www.ft.com>

Tabellini, G., & Wyplosz, C. (2006). Supply-side Reforms in Europe: Can the Lisbon Strategy be Repaired. Swedish Economic Policy Review, 13(1), 101-56.

The State of Digital Communication 2022. (2022). ETNO.

Thierer, A. (2020). On Defining 'Industrial Policy.' Technology Liberation Front.