



European Strategy and
Policy Analysis System

GLOBAL TRENDS TO 2040

Choosing Europe's future ■

April 2024



AN INTER-INSTITUTIONAL
EU PROJECT

The preparation of this report was a collaborative exercise drawing on the knowledge and expertise of colleagues across nine EU institutions and bodies, all of whom contribute to the inter-institutional ESPAS initiative. Warm thanks go to Members of the ESPAS Steering Group and its Chair, Stephen Quest for guidance and direction throughout the process.

The final drafting team was composed of: E. Noonan, G. Drozd, S. Finamore, A. Stuchlik, G. Porcaro and G. Barry (editor).

However, there was much support from further members of the Core Team: L. Bontoux, G. Carter, A. Constantinos, O. Dumitrescu, N. Kovalčíková, A. Lazarski, V. Mahieu, R. Muriel Carrasco, M. Salvi and L. Vinhas de Souza.

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ABOUT ESPAS

The European Strategy and Policy Analysis System (ESPAS) is an inter-institutional EU process promoting foresight and anticipatory governance. It brings together nine EU institutions and bodies who are committed to thinking longer term about the challenges and opportunities facing Europe and, through foresight, to support policy-makers to make the right policy choices.

We live in an era of rapid and sometimes frightening change, and of growing complexity and uncertainty. Stability, prosperity and democracy are no longer a given. To meet the expectations of citizens and communities, anticipatory governance is necessary to help prepare better for the future, mitigate major risks and build up capabilities. This is where strategic foresight comes into its own. By mainstreaming foresight techniques and processes in policy-making, Europe can make informed choices about the future and the lives and well-being of its citizens.

Since it was established in the early 2010s, ESPAS has led the way in forging a new culture of foresight in the EU. ESPAS institutions and bodies have developed their own foresight capacity as they came to see the benefits of using this for better policymaking.

CONTACT INFORMATION

European Strategy and Policy Analysis System (ESPAS)

E-mail: ESPAS.Secretariat@europa.eu

Website: <https://www.espas.eu/>

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FOREWORD

In a year when the European Union enters a new institutional cycle, it is timely to look ahead to the strategic choices our political leaders may be asked to make in the next five years. These choices will undoubtedly be taken against a backdrop of heightened global uncertainty when the tectonic plates of geopolitics seem to shift almost daily in new and unexpected ways.

This fourth ESPAS Global Trends Report is a contribution to the ongoing debate about the future of Europe, its role in the world and its ability to adapt and change to meet fresh challenges and harness new opportunities. In common with other foresight studies, this report does not predict the future. Rather, it attempts to identify the key global trends, analyse their significance for Europe, assess the agency the European Union has to influence global thinking, and sets out some of the main strategic choices policymakers may be required to make – choices that will have a strong bearing on the kind of Europe we will live in by 2040.

The report does not seek to offer policy prescriptions, nor does it approach the challenges we face through a particular political prism. Importantly, it does not represent the views or policies of any particular organisation involved in the process. Rather, we hope it can be used by the incoming leaders of the EU institutions and their teams as a tool to help navigate the way ahead.

For over a decade, the ESPAS process of informal and collaborative work on strategic foresight amongst officials in the EU's main institutions and bodies, has had a clear 'nudge' effect, in encouraging them to develop their own foresight capacity. With foresight comes a perennial debate about its relevance to policymaking. Elected representatives understandably have a time horizon that is closely aligned with the mandate they have been given. However, there is a greater understanding today that embedding foresight in policymaking can help us anticipate the future and prepare better for the future we want, rather than being driven by events.

In this year of institutional and political change in Europe, we hope this report will help to generate debate on the hard choices before us, and guide our political leaders – at this crucial moment for Europe and for its citizens.

Stephen Quest
Chair, ESPAS

EXECUTIVE SUMMARY

This is the fourth Global Trends Report produced by the European Strategy and Policy Analysis System (ESPAS).

It comes at a crucial time – ahead of the new EU political cycle and when many of the global trends previously identified are intensifying both in strength and impact.

The report begins with an overview of the key global trends that will affect the EU in the medium to long term. It then zooms in on the cross-sectoral strategic challenges resulting from the interaction of these trends.

The analysis of global trends focuses on ten areas and highlights their most novel and noteworthy aspects. These trends include:

■ The centrality of geopolitics

The trend from cooperation and integration to competition and friction continues, accompanied by increasing fragmentation. New threats are emerging in areas such as hybrid warfare, the battle of narratives, foreign disinformation, information

manipulation and interference, cyberspace, and a battle for primacy in outer space.

■ Economic challenges

Geopolitical fragmentation and the transition to climate neutrality, including net-zero industries, are leading to new threats to economic growth. Sustained economic and technological rivalry between the US and China, as well as the emergence of new regional blocs, are likely to affect global trade relations. Technological progress and more sustainable consumption patterns will determine the scope and speed of the transition to net-zero industries.

■ Demography

Europe's population will shrink relative to other continents, including Asia, North America and Africa. It will also decline in absolute terms as a result of declining birth rates; immigration flows will not compensate for the shortfall in births. The EU's ageing population will put pressure on the labour market as well as on fiscal sustainability. China's demographic decline may have global ramifications as it is likely to reduce its role as a 'globalisation engine'.

■ Environmental and climate crises

Climate change is accelerating, along with a larger megatrend of environmental degradation, which includes e.g. biodiversity loss. The world is likely to overshoot the 1.5°C – 2°C target set by the Paris Agreement, thereby increasing the risk of climate tipping points. The EU will be severely affected by climate change, but it cannot tackle this emergency on its own: its climate strategy needs to take into account the international context and how it can best use its agency.

■ Energy transition

Global energy consumption is rising, and so is the use of fossil fuel – despite the increasing share of energy generated by renewables and their falling costs. The pace of the green energy transition could be hindered by critical obstacles, such as continued investments in fossil fuel infrastructure, the price and availability of critical minerals, and electric grid capacity. The energy transition is likely to benefit some more than others and could open up new arenas of geopolitical competition, and social tensions within countries.

■ The quest for equality

Inequalities are growing in importance and complexity. Beyond economic inequalities, access to education, technology, healthcare, infrastructure, climate justice or intergenerational fairness are becoming increasingly relevant. Equality trends vary between different groups: women, the LGBTIQ community, or people with disabilities experience both progress and obstacles in their quest for equality. In Europe, inequalities within individual Member States appear to be growing. Societal tensions are intensifying and will continue to impact the lives of people in the period ahead. This feeds political polarisation and can weaken democracy.

■ Technological acceleration and convergence

The deployment and adoption rates of new technologies are accelerating and technological convergence is increasing. This is happening against a background of rising expectations towards technologies (not least for the green transition), growing geopolitical technological rivalry, and challenges around regulation and standardisation.

■ Managing health

The economic impact of the COVID-19 pandemic underlined the need for a well-resourced and equipped health sector. It also highlighted the reality of global interconnectedness, while widening the gap between rich and poor. The health sector will continue to be a driver of scientific and technological innovation. New treatments and therapies could bring huge dividends, while challenges such as anti-microbial resistance require close attention.

■ Changes in where and how we live

People are increasingly living in cities and are more exposed to the negative impacts of climate change. Technologies are changing the way we work and learn, bringing both opportunities and risks. On the one hand, there are new ways of working and delivering services; on the other, there are job losses and a pressing need for new skills. Both climate change and the twin digital and green transition will have dramatic and diverse impacts across EU regions and economic sectors.

■ Threats to democracy

Democracies are experiencing sustained attacks on their freedoms and way of life including efforts to undermine elections, freedom of the media and of expression, freedom of association, and the independence of the judiciary. The trend towards democratic backsliding continues. Technology is playing a greater role in how democracies function. The spread of participatory democracy, coupled with high levels of engagement on specific issues, is a positive trend.

These trends and their interplay call for urgent action in the short term, to ensure that the EU is equipped both to face challenges and to seize the opportunities that lie ahead. Against this background, the **incoming EU leadership will face strategic choices across several domains.**

These include:

- How can the EU establish itself as a **smart global power** able to effectively navigate an uncertain geopolitical landscape, acting with partners where possible and autonomously where necessary?
- How can the EU ensure that the **green transition** will be both effective and achieved in a socially and economically equitable way? What trade-offs will be necessary?
- To what extent are EU policymakers willing to accept **economic risks and frictions** in exchange for enhanced geopolitical and technological sovereignty?
- Is the **EU's current economic model** fit for purpose or does it need a major update to ensure long-term sustainability and wellbeing?
- How can the EU **regulatory framework** incentivise innovation and delivers economic benefits while safeguarding against potential harms?
- How can the EU strengthen **opportunities** for all citizens, in order to prevent social fragmentation and consolidate support for the coming transitions? To what extent could social protection instruments help to mitigate anti-democratic tendencies?

Between now and 2040, Europe and the world will undergo profound geopolitical, economic, technological and social change. The generation now growing up will live in a world that we can only imagine. However, integrating long-term goals into short to medium-term decision-making can boost our chances of leaving a world that is in better shape to the next generation. The more we understand the challenges ahead, the better we can anticipate and prepare for the changes to come. There are grounds for optimism. The EU has arguably made progress in the past precisely when the challenges seemed overwhelming. When pressed, it can marshal reserves of determination and ingenuity. The next EU leadership will need to draw deeply on these reserves in the years ahead.

1. INTRODUCTION

Recent years have been marked by rapid and disruptive change on many fronts and have already produced more than their fair share of once-in-a-generation crises. War at the very border of the EU, escalating conflicts with global consequences, a pandemic, and extreme weather events all have dramatic and intertwined consequences, and combined with sweeping technological innovation, create ever more complex challenges for governments and populations around the world. This new era of polycrises is the formidable background for the biggest election year in history; over half the world's population will cast their votes in seventy-six countries in 2024.

This new era of polycrises is the formidable background for the biggest election year in history.

2024 is also a year of European elections. In this context, the ESPAS Global Trends Report, delivered ahead of each political cycle, has the ambition to provide future-oriented resources and insights for the new European leadership on matters that will likely shape their mandate. This fourth edition of the report aims to contribute to a shared understanding of the major challenges and possible opportunities, which will affect Europe in the period up to 2040. This is particularly relevant, as the daily crisis

management mode makes it increasingly difficult to look beyond the immediate and towards the horizon of the next decades. However, this is exactly the task of foresight and this particular report.

The Global Trends Report 2024 is a product of the ESPAS network, an informal collaboration across EU institutions dedicated to developing strategic foresight as a tool for governance.¹ It is a collective effort drawing on a wide range of published sources, from EU entities, national and international bodies, local and regional governments, academia, think tanks and social partners. The proceedings of the annual ESPAS conferences and related events also fed into this work.

About this report

The COVID-19 pandemic is a good illustration of the need for perspectives that cover the entire policy spectrum. The preceding years saw the development of stronger expertise on matters such as geopolitical conflicts and financial vulnerabilities. Yet it was from the health sector that a crisis emerged which had devastating social and economic consequences, and which resulted in profound changes in various areas, from global trade to work patterns.

The main part of this report analyses global trends across ten topics, selected on a collaborative basis and on their relevance for the EU in the medium to long term, in terms of both potential risks and opportunities. The intention, however, is not to provide a deep and complete analysis, but rather to focus on their most relevant aspects.

This edition shows a high degree of continuity from previous ESPAS reports.² The shocks of recent years grew out of established trends in areas such as geopolitics, economic growth, technological convergence, or democracy – all are good



In a fragmented and polarised world, and in a period of deep uncertainty, decisions to shape the agenda for the next political cycle will need to be taken.

examples of trends which merit close analysis also in 2024. A succession of extreme weather events shows the need to update the analysis of the impact of climate change. Health and the future of life and work are each considered in their own right, in recognition of the need to address the lived experience of individual citizens. The energy transition has implications across the board, while demographics have social, economic

and geopolitical dimensions. Inequalities are also addressed, both in relation to socio-economic circumstances and to promoting equality and preventing discrimination. Examples drawn from the ESPAS horizon-scanning exercise complement the trends.

Today's policy choices will shape the Union's preparedness to face these long-term global trends. That is why the concluding chapter of this report seeks to identify options for consideration by EU decision makers as they define strategies to navigate the coming years. These are set out across five interlinked areas: geopolitics, economics, environment, technology, and social solidarity. Each aims to encourage further reflection and necessary political choices.

Against a backdrop of multiple and competing issues in a fragmented and polarised world, and in a period of deep uncertainty, decisions to shape the agenda for the next political cycle will need to be taken. Complexity is very much part of the prospect before us; it follows that responses developed to deal with challenges will also need to be multi-faceted. However, with concerted action, foresight and decisive leadership, ways to navigate these turbulent waters can and must be found. That is the challenge ahead.

2. TRENDS

An aerial photograph of a frozen lake, likely Baikal, showing a complex network of white cracks and ridges in the clear blue ice. A semi-transparent orange rectangle is centered on the image, containing white text.

2.1

The geopolitical chessboard: a world in flux

What we observe today

For several years now, the world has been undergoing a significant shift from an era of cooperation and integration to one of competition and friction. This shift is not a new phenomenon: previous editions of this report already highlighted a trajectory towards the unilateral pursuit of national interests, fragmentation of global decision-making and a weakening of multilateral institutions. If we see an element of novelty at the time of writing, it consists of the fact that several successive crises have shown the increasing inability of the so-called ‘great powers’ to provide a stable world order.³

Geopolitics today is marked by deepening fragmentation, whether it is the strategic rivalry that has come to define relations between the United States (US) and China, or states like Russia and indeed non-state actors challenging the rules-based world order. Emerging powers are asserting themselves in this new environment. Countries like India, South Africa, Brazil, Saudi Arabia, and Türkiye are strategically navigating global rivalries to hedge against traditional powers and maximise their own influence. This fragmentation is closely aligned to sharpening ideological divisions, as narratives pitting ‘the West’ against ‘the rest’, or democracies against autocracies are gaining prominence. Multilateralism is being weakened, with institutions like the United Nations (UN) increasingly unable to act.⁴

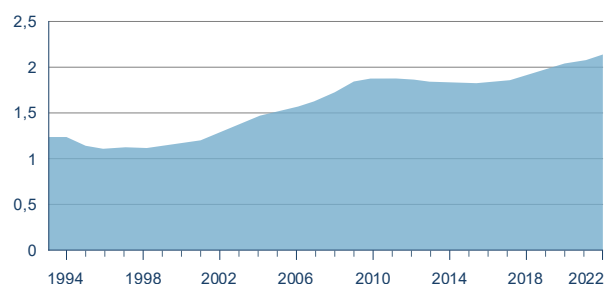
At the time of writing, conflict continues to rage on the EU’s eastern borders and in the Near East. Since the last Global Trends Report, the security and defence of Europe have faced their greatest challenge since the ‘Cold War’. Strategic decisions taken by the EU since the onset of the Russian war, together with an enlarging NATO, are game changers. The battle of narratives, disinformation, information manipulation and interference, cyber space, and even a battle

for primacy in outer space, pose new threats. While this new hybrid warfare is expanding, traditional warfare continues to represent one of the major risks of the ongoing geopolitical competition and friction. Armed conflicts are on the rise, international security treaties are being dismantled, and military expenditures are at record levels, reaching USD 2.24 trillion in 2023.⁵

Geopolitical dynamics are also reflected in international trade patterns, which show evidence of ‘friend-shoring’ and increasing trade concentration: countries trade with fewer partners, and privilege those with which they are in closer geopolitical alignment.⁶

Economic interdependence is increasingly weaponised to create geopolitical dependencies. This includes both traditional industries that rely on natural resources like gas and oil, as well as emerging sectors crucial for digital and green transitions, which require critical raw materials.

Figure 1: World military expenditure
(in million USD 2021 equivalent)



Source: SIPRI Milex (military expenditure database).

Key uncertainties towards 2040

The trend towards greater global friction and competition is likely to be a defining feature of the geopolitical landscape in the period to 2040. The world seems destined to live with ‘permanent instability’ for the foreseeable future.⁷

Against a backdrop of permanent instability, the EU's greatest assets are its relative internal resilience, its democracy and pluralist society, and its relative economic power.

A major determinant of how these scenarios will unfold will be the future of China, Russia and the United States. Will China's rivalry with the US continue as a zero-sum game, or could it evolve into a challenge to the status quo involving the use of force? How will the outcome of the Russian war against Ukraine affect the future shape of geopolitics and of Russia itself? To what extent will the direction of foreign policy in the US continue to be impacted by domestic polarisation, and with what consequences for its alliances and the world?

By 2040, states such as Brazil, India, Egypt, Indonesia, Iran, Kenya, Mexico, Nigeria, the Philippines, Türkiye and Vietnam may emerge even more clearly as not only regional but also global power hubs. This highly heterogeneous and diversified group of countries will acquire greater agency, as well as demographic and economic weight over the coming decades. They may act alone or in groups, and their membership of 'minilateral' arrangements with sometimes overlapping or conflicting geographies (e.g., BRICS, CSO, QUAD) may themselves become geopolitical centres of gravity.

The ongoing efforts led by China and Russia to bring together the so-called 'Global South' in opposition to the West seem likely to intensify; but conflicts within this group

will also increasingly call into question the notion of a Global South as a defined geopolitical entity. Meanwhile, the 'mega transitions' such as the changing climate and new technologies will push geopolitics into new territory. The geopolitics of climate is already unfolding in the form of conflicts over natural resources and a race for critical raw materials. There could be as many as 216 million internal climate migrants by 2050, unless remedial action is taken.⁸ Artificial intelligence (AI) will change how diplomacy and war will be conducted, and also pose radically new challenges.⁹ Global spaces – the atmosphere, high seas, poles, outer space, and cyberspace – will become crucial strategic theatres posing comparable governance challenges and could lead to intensified power competition.¹⁰ Finally, global economic inequality could spiral into increased fragmentation and conflict within states.

On the horizon: de-dollarisation¹

The traditional views on global reserve currencies were those of dominance, geopolitical power and control. The arrival of new forms of money together with a fragmented world could lead to a more diverse, volatile landscape of monetary plurality. The preference for using the dollar globally is challenged by current structural changes. China issues yuan-denominated loans in the Belt and Road Initiative. BRICS members consider creating a new currency and Brazil and Argentina also proposed a common currency. The financial, economic and geopolitical implications of de-dollarisation will be felt most strongly once alternative (digital) payment infrastructures, such as central bank digital currencies, are consolidated.

Many of these transitions could also offer opportunities. For example, geopolitical rivalry may force countries or regions to rethink their dependencies using technologies to pursue the green transition to help build more sustainable societies, or a more balanced globalisation to reduce socio-economic inequalities that so often lie behind political instability and conflict.

What this could mean for the EU

The shift from cooperation to competition poses critical questions for the EU's future role on the global stage. Against a backdrop of permanent instability, the EU's greatest assets are its relative internal resilience, its democracy and pluralist society, and its relative economic power. The enlargement of the Union potentially to 35 countries by the mid-2030s could strengthen its position as a security actor on the European continent and possibly beyond. The EU will also be faced with other significant challenges, including the reduction in its share of global GDP, an ageing population, and irregular migration.

In this uncertain global order, a more transactional approach by the EU may be required. The EU will face the challenge of striking the right balance between acting with others when it can, and reinforcing its capability to act autonomously when it wishes or is obliged to do so. This will manifest itself in the evolution of the transatlantic partnership, including the future of NATO, as well as in the EU's positioning vis-à-vis so-called 'middle powers' and the wider geopolitical landscape within which the EU will have to operate. Strengthening traditional alliances may be just as crucial as building new ones.

For an enlarged EU to remain an influential global actor, it will be necessary for it to equip itself with the tools needed to fulfil such a role. These could include the

evolution of common defence structures and capabilities, and putting in place mechanisms that could lead to greater economic security. Should it invest in other, more creative, means to increase its soft power and 'political branding' as a tool to advance its interests? How will it define its interests, and balance this with its values?

The EU has a major strategic interest in working with others to tackle global polarisation, and to help prevent an escalation of rivalries and antagonisms turning into open conflicts.

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To meet this key challenge, the EU could invest more intensively in diplomacy to help manage and keep strategic competition within limits and within rules. Seeking common ground and opportunities for cooperation will be increasingly important to ensure a rules-based world order and a role for the EU as a positive actor of change.



2.2

Mounting pressures on economic growth

What we observe today

The consequences of Russia's war with Ukraine exacerbated stresses arising from the COVID-19 pandemic. It further distorted global supply chains and, especially for the EU, access to low-cost energy. Our 2019 report noted a trend towards a more transaction-driven approach to the provision of global public goods. This has continued.

China and the US are on a path towards greater economic and technological rivalry. A new era of de-risking and re-industrialisation may ensue as well as the creation of other economic blocs, such as the expanded BRICS.

In recent years, global trade and the international monetary system have already had to cope with fragmentation and challenges to multilateral coordination. World trade as a share of GDP increased rapidly from around 40 % in the 1990s to more than 60 % in 2008 but has been hovering around this value since then. Global trade fragmentation in the form of an increase in trade barriers and higher trade policy uncertainty could lead to significant reduction in global output in the long-term, with low-income countries likely to be more negatively affected.

Two factors are likely to have widespread impacts on world trade and on European economies: the 'security premium' and the 'green premium'. The security-driven effort to reduce EU dependence on imported resources, notably energy and critical raw materials, may mean efficiency losses. Increased input costs pose difficulties for exporters. Trading partners also face stronger export controls and heightened competition for resources.

The second pressure, the 'green premium', relates to the costs associated with the green energy transition and climate mitigation efforts.

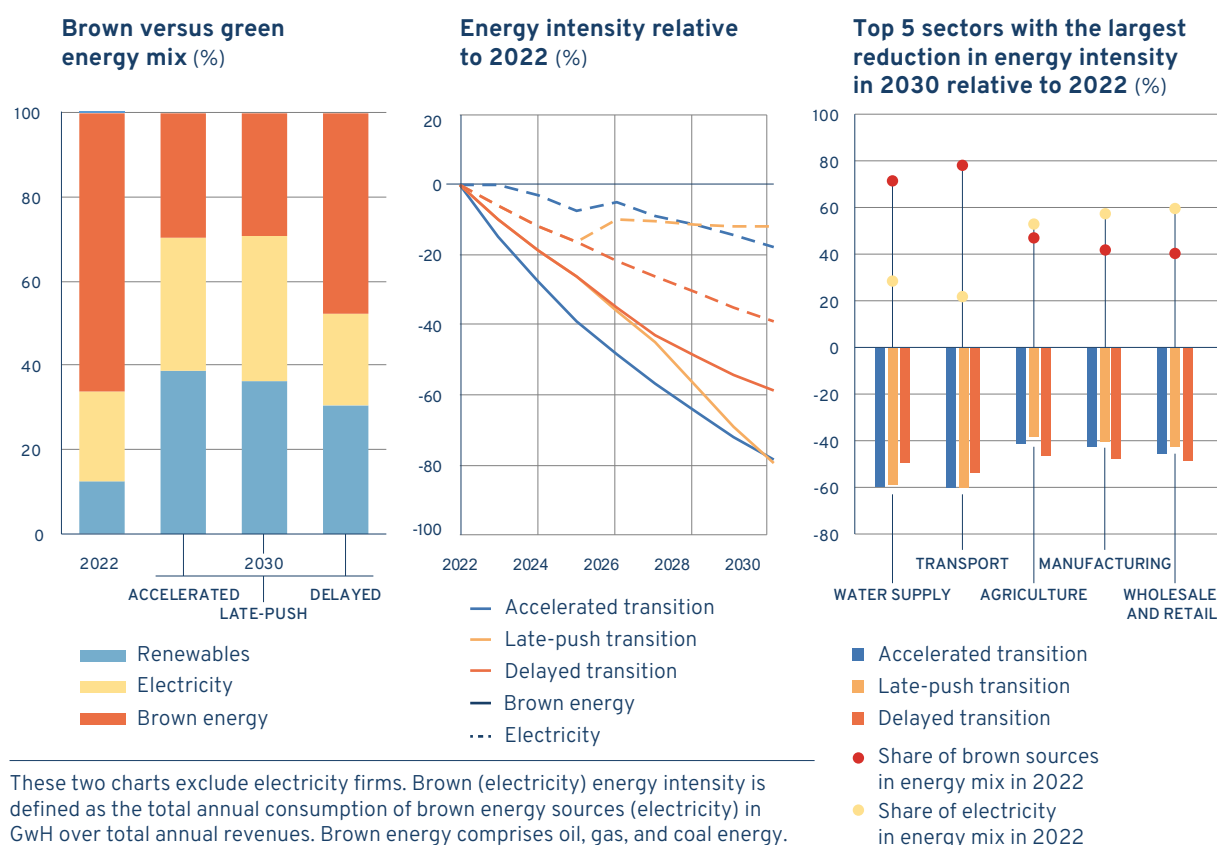
While the transition to net zero may not have a large impact on productivity, it is likely to entail significant initial costs that are then expected to decrease over time.¹¹ But net zero transition costs are only a fraction of the overall amount needed for climate change adaptation. This in turn could have a high social impact and increase the risk of 'climate inequality', (see ch. 2.6).¹² While the trend is global, the transition away from low-cost energy sources will vary across regions. By 2040, advanced economies are expected to have made significant adaptations. This may increase disparities with other economic blocs.

Economic and technological rivalry between China and the US may lead to a new era of de-risking and re-industrialisation.

Key uncertainties towards 2040

Efficiency losses and the costs of the green transition and climate mitigation costs are key pressures on economic growth. But they will not happen in isolation and independently. We can expect positive as well as negative spillovers. Competing priorities for public spending, such as between climate and defence expenditures, are already visible. Such competition for resources could affect climate action targets, and not only in Europe. At the same time, financial markets may increasingly re-value critical materials and natural capital

Figure 2: Firms would become less energy intensive over time



Source: T. Emambakhsh et al: *The Road to Paris: stress testing the transition towards a net-zero economy*, ECB, 6 September 2023, p. 37.

as part of national and/or regional wealth reflecting the increased relevance of corporate and public decarbonisation strategies.

Governments and multinational companies are adapting their trade links to accommodate the new challenges. The benefits of economic integration are being re-evaluated through the lens of national security, including most notably by China and the US. Economic security must also become an integral part of the EU's foreign and security policy.

One key uncertainty is how far the shift towards transactionalism in the global economy will extend and its potential reversibility. The influence of geopolitics on trade poses challenges as well as opportunities through the diversification of partners and new economic relationships (e.g., 'climate multilateralism'). China is likely to become pivotal in this regard. The country's economic might, coupled with the fact that it is the

largest emitter of CO₂ means that its policy choices are trends by themselves. China's economic slowdown implies that by 2040 its weight in the global economy may stabilise or even decrease.

The pace and extent of the green transition will influence the long-term pricing of carbon-based energy. A definitive shift in energy consumption patterns will inevitably result in higher energy costs in the short term for countries in transition. The medium to long-term impact on prices, termed 'greenflation', is less certain. While relative prices are expected to stabilise in the long run, the scale and duration of potential price shocks is very uncertain.

Technological progress will help to decrease adaptation costs. However, emerging new alliances of countries exporting critical raw materials, for instance, may prove less durable than coalitions in the age of fossil-energy.

Lithium, nickel, and cobalt are projected to remain scarce in 2040 yet their assessment as being 'critical' may change quickly as the emergence of disruptive technology accelerates.

New technology could impact labour markets by creating education gaps and causing social exclusion. AI will have far-reaching consequences for education while strategies to reskill and upskill the workforce may have to adapt very quickly to changing circumstances. The economic impact of AI, of course, stretches far beyond labour markets.¹³

Finally, governments, already bearing historically high debt levels, face the prospect of a significant rise in public spending at least over the next decade and beyond. This situation will intensify discussions on establishing new sources of revenue, such as taxes on digital assets or the ultra-wealthy, particularly in an ageing European Union. In the EU, linking rising expenditure to the concept of fiscal sustainability could reinvigorate recent debates on 'de-growth'. In this context, carefully targeting fiscal support to cushion shocks will be crucial. If not well calibrated, such measures could result in an excessive tax burden on low-income households.¹⁴

What this could mean for the EU

In the next twenty years, the EU's share of global GDP is projected to decline from 17.9 % in 2021 to approximately 14.2 % by 2040.¹⁵ However, as increasing challenges strengthen the case for economic security, the concurrent drive towards a net-zero economy might lead to efficiency losses by 2040. This is primarily due to the need to invest in industrial capacities to enable flexible production and self-sufficient supply within the EU.

Europe's green transition will require unprecedented investments in addition to the costs needed for climate adaptation.

On the horizon: green transition policies for the 1 %¹

By 2030 the per capita emissions of the richest 1 % of the populations are projected to exceed 30-fold the per-capita emissions necessary to remain below 1.5°C goal of the Paris Agreement. It is argued that focusing on the lifestyles of the mega-rich could be particularly effective (through e.g. taxing carbon-heavy luxury goods and services, compulsory restriction of individual emissions, specific building code obligations for large houses). This proposal is related to their carbon footprint, but also to their roles in shaping consumption patterns.

Much of this will have to come from private funding. Unlike in the past, the source of such funding, such as foreign direct investment (FDI) is likely to matter more. In return, these pressures will also offer opportunities. For instance, seizing first-mover benefits as sustainability will increasingly deliver long-term competitive advantage. In the medium-term, this would allow the EU to co-create and tap into a global market for green energy production and technology.

The green transition is projected to create employment in a number of sectors, potentially aggravating the EU's labour shortages. The investment needs for retraining, reskilling and upskilling in manufacturing strategic net-zero technologies are estimated at between EUR 1.7 billion and EUR 4.1 billion up to 2030. These challenges will call for a more flexible and more interconnected approach to trade, development, and migration policies. Evolving and emerging alliances, such as the BRICS, will add complexity to global economic cooperation. This evolution will influence existing multilateral structures, such as the G7 and G20, reshaping the landscape of international economic relations.

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2.3

**Uneven demographic
ramifications**

What we observe today

The demographic divide, which refers to changes in the size, growth and structure of populations around the world and their resulting impacts is widening. Asia continues to lead the way in terms of population growth. Most countries will continue to grapple with an ageing population, involving a long-term rise in life expectancy with declining fertility rates.

The world population will reach 9.2 billion in 2040, and is projected to rise to 9.7 billion by 2050, but population growth will be uneven and plateau in many advanced economies. The EU's population is expected to peak in 2026 at 453 million and fall moderately to around 450 million by 2040.¹⁶ In contrast, Africa's population is projected to expand from 1.4 to 2.1 billion between 2023 and 2040 – when about half of the population will be under the age of 21.¹⁷ Already by 2030, young Africans are expected to constitute 42 % of global youth. By 2050, the working-age population will diminish by about 17 % in China, while it will grow in the US and India.¹⁸

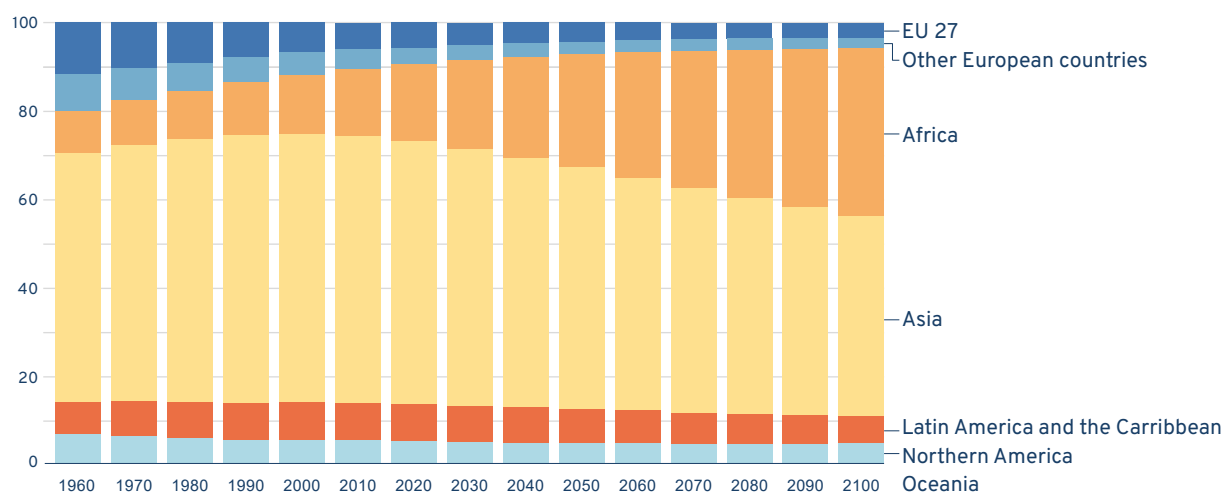
Together with the green and digital transitions, demographic change is the third transformation shaping the future of Europe. By 2040, the EU will have 17 million fewer

Demographic change will shape Europe's future.

people of working age than in 2023 and lose a further ten million by 2050 if it remains its current size.¹⁹ Whereas an ageing population of the EU is also a strong indication of rising living standards resulting in longer lives, the demographic transition in the EU shows a decline in birth rates.

People are also living up to two decades longer compared to previous generations. Living to be a 100 years old is now within reach for many people, with children born today in middle-income countries having more than a 50 % chance of living for more than a century. Between 2000 and 2019, global life expectancy rose from 66.8 years to 73.4 years.

Figure 3: Estimated and projected share of world population by continent, 1960-2100 (%)



Source: COM (2023) 577 final Demography toolbox in action.

The longevity society requires a new framework and mindset to guarantee that individuals can lead resilient, equitable and sustainable lives.

On the horizon: generalised population decline¹¹

The world is entering a new phase of slower than expected population growth. While projected to peak at 11 billion at the end of the century, other reports suggest that the peak may come earlier (around 2070-2080). A slowdown in population growth and reaching peak numbers is consistent with earlier projections on the matter. Population decline, once limited mostly to Europe and parts of Asia, is thus likely to increasingly become a global problem. This will have an effect on the global economy, social systems, immigration and the environment.

Key uncertainties towards 2040

There are three main uncertainties in relation to population projections. They comprise migration, which is difficult to predict, the speed of decrease of fertility in Sub-Saharan Africa and the recovery from very low fertility to replacement levels in developed countries.²⁰ Imbalances in the age of the population will have different economic effects between low and high fertility countries.²¹

Despite the decline in growth rates, population growth will still represent a major factor shaping future CO₂ emissions. The impacts will not just depend on population size but more importantly from the two-way interaction with income, urbanisation and decarbonisation efforts and from how population characteristics will shape consumption.²²

Uneven shrinking and ageing of the world's population may translate into long-term inflation for those countries affected and as such contribute to global fragmentation.²³

Geopolitical clout is likely to increase by rapidly growing populations in emerging economies (e.g. India, Indonesia), as well as in developing countries (in particular in Africa), while also bearing a risk of sustainability and/or migration challenges. Such ambitions may be decreased by shrinking and ageing populations. Whether China could follow the example of Japan and manage to safeguard economic prosperity despite a rapidly ageing population, is far from certain.²⁴

What this could mean for the EU

Demography-induced lower growth in China could negatively affect export-driven EU economies in particular. By contrast, rising population growth in the US could widen the productivity gap across the Atlantic. Both developments could partially balance each other out in terms of impact on the EU's external trade.

**By 2040,
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Countries with ageing populations are faced with increasing social costs. They have greater needs for health and long-term care and will require additional infrastructure investment and adaptations to ensure broad accessibility. It also makes it more challenging to sustain adequate pensions. By 2040, Europe's old-age dependency ratio could rise from 33 % in 2022 to almost 50 %, accompanied by a deepening of labour shortages and skills gaps.²⁵

This will put enormous strain on pension and social protection systems in the EU and could increase poverty and social exclusion for those in retirement. Linked to this, a decrease in the workforce may lead to a permanent increase in prices, due to higher labour and production costs, less savings and higher interest rates. Such an additional driver of inflation is likely to be felt particularly in the EU.

Greater participation of women and older people in the labour market could help mitigate this impact.²⁶ For example, if women's participation in the job market matched the target value of the three top-performing Member States, an additional 17.3 million women would join the EU workforce by 2040. Under the same assumption for men, an additional 8.8 million men would join the EU workforce.

These trends will also have considerable impacts on welfare states and the sustainability of public finances. Older people fare relatively well in the EU today, but demographic change is likely to result in a double burden on the younger generation in terms of increasing higher rates of contributions to social security, lower take-home pay and smaller pensions relative to wages in the future (see ch. 2.8).

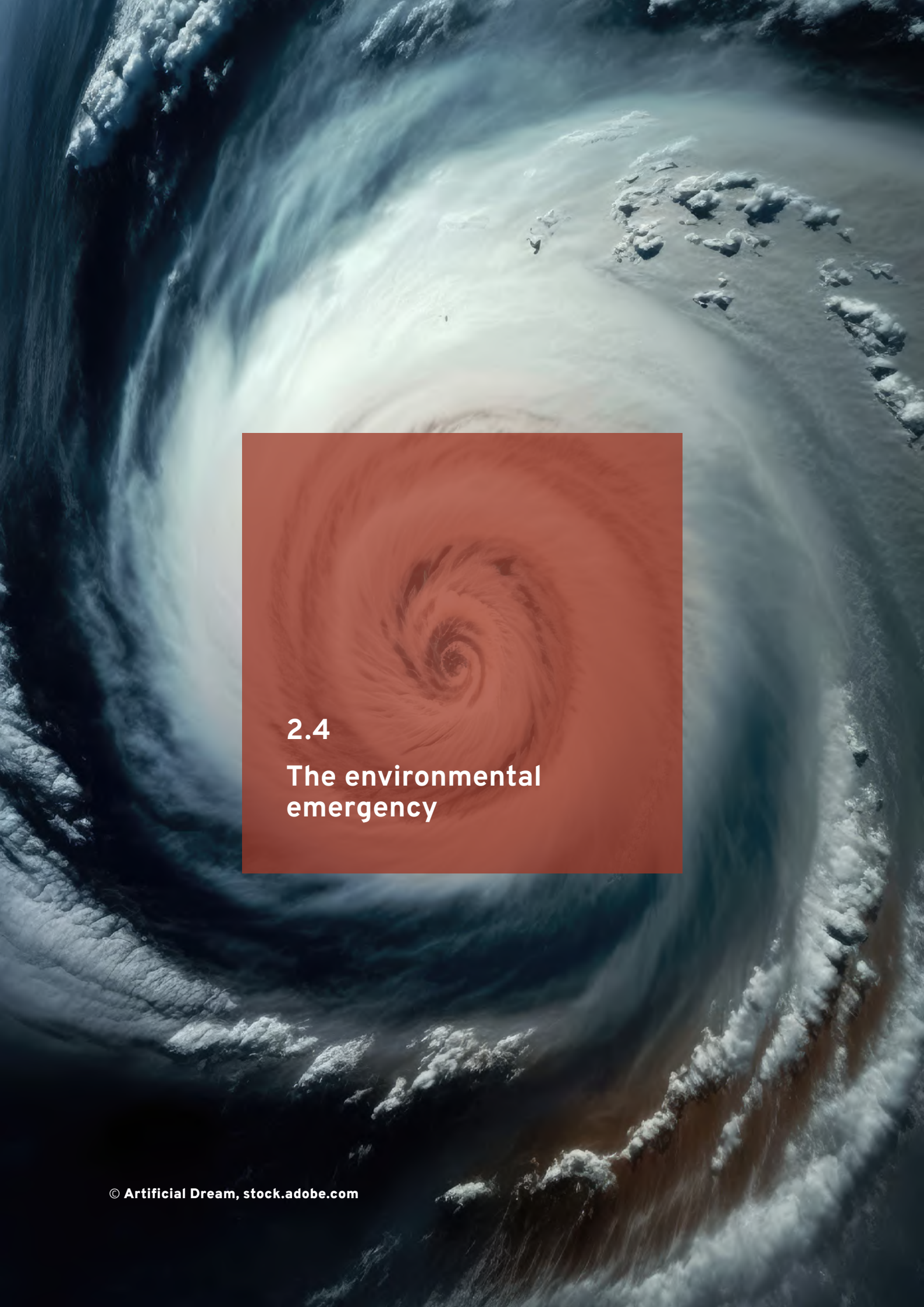
Finally, demographic imbalances in population size and age, and the climate emergency are likely to increase both the pressure and the need for migration flows between Africa and the EU.

A particular challenge for Europe is how to reduce irregular migration and replace it with established and well-managed legal migration, combined with coordinated and steered development policies. Such an approach would also contribute to a more favourable perception of migration.²⁷

Demographic imbalances and the climate emergency can increase both the pressure and the need for migration flows between Africa and the EU.



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2.4

**The environmental
emergency**

What we observe today

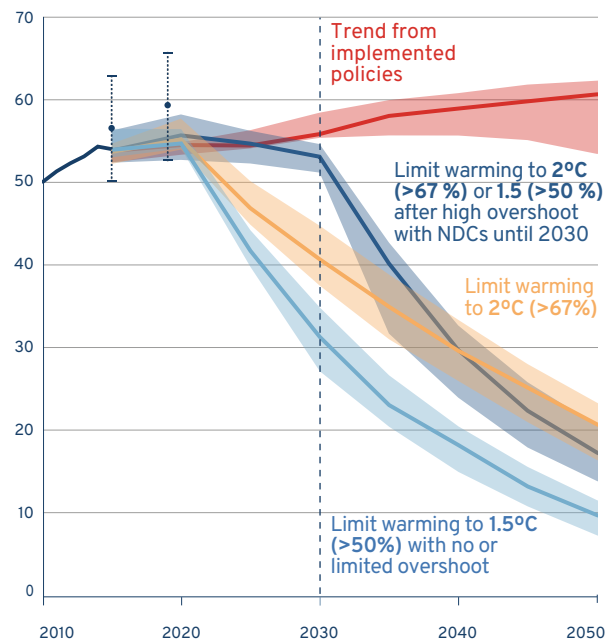
Fifteen years ago, the scientific community identified nine 'planetary boundaries': vital processes for maintaining the stability and resilience of the Earth system as a whole.²⁸ At the time, at least three of those nine boundaries – climate change, the rate of biodiversity loss, and changes to the nitrogen cycle – had already been pushed beyond safe levels. Today, research indicates that yet more boundaries have been breached – for land use, freshwater change, phosphorus flows and pollution from novel entities.²⁹

Among these environmental risks, climate change is perhaps the most visible and urgent. Global temperatures are not only increasing: they are doing so at an accelerating pace. Europe is the fastest warming continent in the world.³⁰ Despite reduction commitments and net-zero pledges from most major polluters, projections based on implemented policies show annual greenhouse gas (GHG) emissions increasing well beyond 2040.

But climate change is only part of a larger megatrend of environmental degradation linked to overexploitation of natural resources.³¹ Together with biodiversity loss and pollution, it is one of the components of a 'triple planetary crisis'.³²

Europe is the fastest warming continent in the world.

Figure 4: Global green-house gases emissions (GtCO₂-equivalent per year)



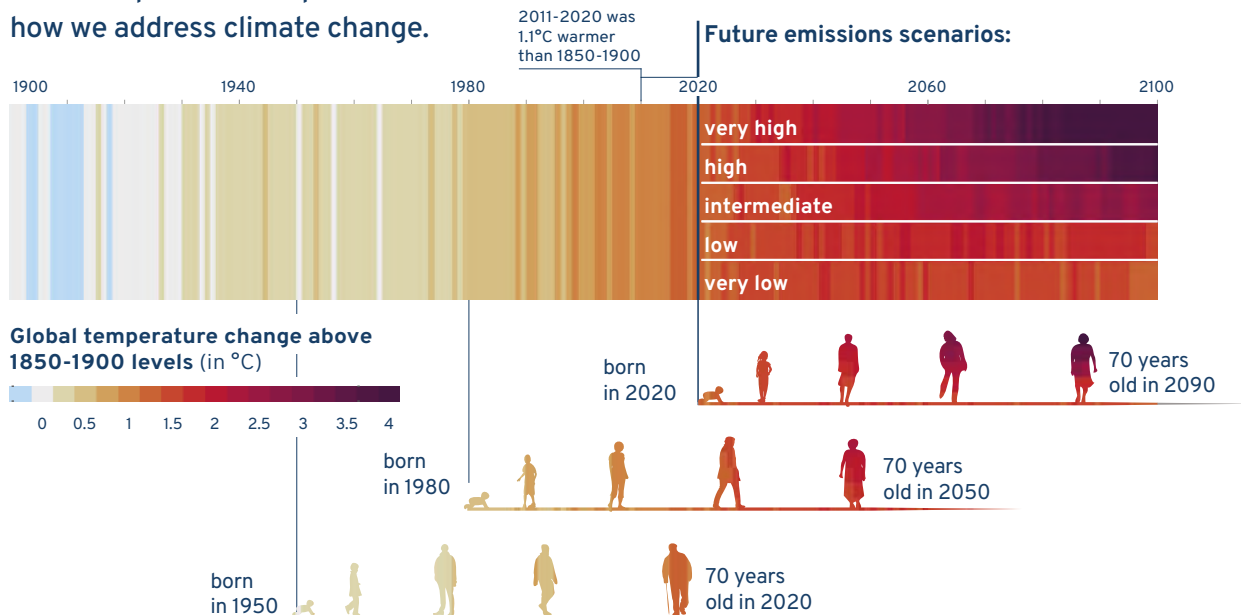
Source: IPCC, 'Climate Change 2023: Synthesis Report', figure 2.5, p. 25.

Biodiversity loss is accelerating, at rates which are already tens to hundreds of times higher than the average rate over the past 10 million years.³³ Scientists estimate that over 500 land vertebrate species are likely to become extinct by 2040 – as many as in the entire 20th century.³⁴ Ecosystems that lose diversity also reduce their ability to absorb and store carbon from the atmosphere, and become more vulnerable to extreme weather events and other impacts of climate change.

We also witness a rise in political polarisation in reaction to environmental policies, which may lead to increasing resistance to mitigation efforts in coming years.³⁵ However, public awareness of the risks of environmental degradation is increasing. For example, a 2023 Eurobarometer survey indicated that more than three quarters (77 %) of EU citizens think climate change is a very serious problem, with 58 % considering that transition to a green economy should be sped up.³⁶

Figure 5: How current and future generations will experience global warming

Future experiences depend on how we address climate change.



Source: IPCC, 'Climate Change 2023: Synthesis Report – Summary for policymakers', figure SPM.1 (c), p. 7.

Key uncertainties towards 2040

Of all the trends presented in this report, environmental trends and projections are perhaps the most firmly established. The Intergovernmental Panel on Climate Change (IPCC) calculated that to limit global warming to 1.5°C, global GHG emissions need to drop by 43 % by 2030 and by 69 % by 2040, compared to 2019 levels.³⁷ These reductions seem unrealistic in view of current trends and national climate targets. Even under the most optimistic scenarios, we cannot expect a decrease in global temperatures within our lifetimes or those of our children – barring unanticipated developments in carbon capture or geoengineering technology which could help achieve this reduction.

Meanwhile, the risk of irreversibly crossing climate tipping points is increasing rapidly. At the current level of warming (1.2°C) we are at the lower end of a range of uncertainty for several tipping points, and reaching the limit of 1.5°C – 2°C set by the Paris Agreement would significantly increase the risk of

crossing them, and of generating 'tipping cascades'.³⁸ The concept of biodiversity tipping points is more controversial, but crossing critical thresholds of biodiversity loss could lead to fundamental shifts in other Earth-regulating systems.³⁹

There are also some recent positive developments. Examples include the 2022 Kunming-Montreal Global Biodiversity Framework to safeguard biodiversity and

No single country can address climate change on its own.

the adoption by the UN in 2023 of a ‘High Seas Treaty’ to protect marine biodiversity in areas that are beyond national jurisdiction. Such examples remain relatively rare, however.

On the horizon: personal resource allowance¹

With the growing climate change crisis and increasing resource scarcity, emissions and resource (water, energy, etc.) restrictions or quotas for businesses are an increasingly popular tool. A recurring idea from the late 1990s is to introduce similar quotas or allowances for individuals, especially personal carbon trading, but this was not taken up due to costs, lack of public acceptance and low receptivity among decision-makers. Recent research argues that technology tools can increase the cost-efficiency and feasibility of such schemes.

What this could mean for the EU

The EU is already feeling the direct effects of climate change, and at an accelerating pace. Economic losses due to extreme weather and climate in the EU have been estimated at EUR 650 billion between 1980 and 2022, but over EUR 100 billion of losses were concentrated in just the last two years of this period.⁴⁰

Current projections indicate that Europe will face increasing challenges over the coming years as a result of climate change and environmental degradation.⁴¹ Longer and harsher heatwaves may result in larger numbers of human fatalities each summer. Water scarcity may impact sectors ranging from agriculture to power generation. Wildfires will not only result in immediate losses, but may also permanently change

the nature of ecosystems across large parts of Europe.

Adaptation efforts will become more and more urgent – from increasing demands for climate insurance coverage to greening large cities to reduce urban heat islands. Social backlash against environmental policies will increasingly represent a challenge for public authorities. Furthermore, assets may no longer be insurable, imposing further strains on business continuity and the financial system. Successful adaptation may require shifting from a costs-focused narrative to a more positive one centred on the effects on quality of life, sovereignty and resilience.

We cannot expect a decrease in global temperatures within our lifetimes or those of our children.

The EU is currently responsible for only 6.7 % of global GHG emissions, as a result of a long-term decreasing trend.⁴² Its climate strategy must take account of the international context and other major polluters, while also ensuring that GHG emissions are not exported to other countries. No single country can address climate change on its own. However, current geopolitical trends (ch 2.1) pose major challenges in this regard, as a shift towards competition rather than cooperation could make future action uncertain and unlikely.

The image features a circular wooden lattice structure, likely a well or a decorative ceiling, with a central inset showing an aerial view of a solar plant. The lattice is made of dark brown wood and has a repeating square pattern. The central inset is a semi-transparent blue rectangle containing a grayscale aerial photograph of a solar plant with several large rectangular panels and circular structures. The background is a clear blue sky.

2.5 Energy transition

What we observe today

Global energy consumption has increased at a rate of 1.4 % per year since 2012, driven by economic and demographic growth. This trend is reflected not only in increased consumption of renewables, but also of traditional fossil fuels.⁴³ This threatens to compromise the feasibility of climate goals: a recent report found that governments plan to produce more than double the amount of fossil fuels in 2030 than would be consistent with limiting global warming to 1.5°C, and 69 % more than would be consistent with 2°C.⁴⁴

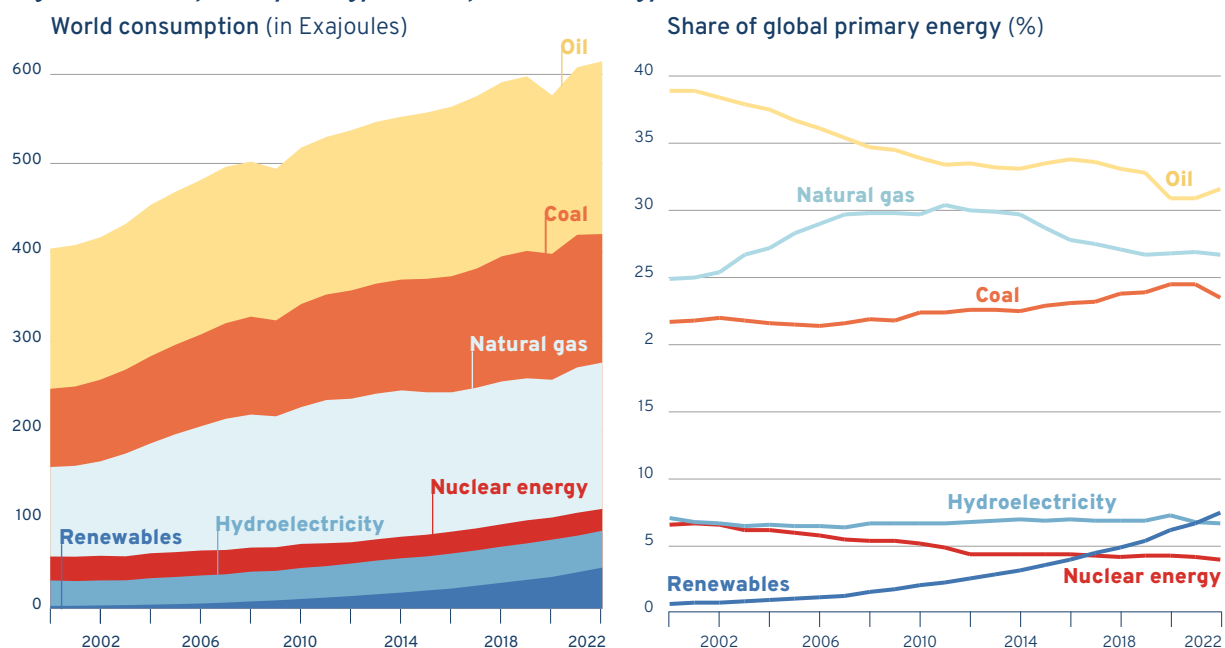
A key driver for the increased popularity of green energy, which now accounts for 18.2 % of global energy use, has been the dramatic reduction in its cost. According to some metrics, renewables can even be considered a more competitive form of energy production than most fossil fuel-powered alternatives.⁴⁵ While the economics chapter (ch. 2.2) highlighted the initial frontloading of costs, it is estimated that a rapid green transition could generate trillions of euros in net savings over the

next 20 years.⁴⁶ Furthermore, fossil fuel prices are currently kept artificially low by means of public subsidies. Overall fossil fuel subsidies (both implicit and explicit) were estimated to have reached USD 7 trillion in 2022 (or 7.1 % of global GDP), and are projected to keep rising at least in the medium term, as developing countries increase their consumption of fossil fuels.⁴⁷

Key uncertainties towards 2040

One of the greatest uncertainties on the path towards a green energy transition concerns the price and availability of the raw materials required to replace the current energy infrastructure. Rising demand and supply chain disruptions have already contributed to high volatility, pushing the prices of many critical minerals above their historical averages. Immature recycling technologies complicate the matter. According to the International Energy Agency (IEA), if the world is to reach net zero by 2050, demand for minerals for clean

Figure 6: Global primary energy consumption and energy mix



Source: Energy Institute, 'Statistical Review of World Energy', 2023, p. 10.
<https://www.energyinst.org/statistical-review/>

energy technologies will grow six-fold by 2040 compared to 2020, driven especially by electric vehicles and battery storage.⁴⁸ New technologies relying less on critical minerals, or new sources of supply including from recycling, may be necessary to avoid a crucial bottleneck for the energy transition.

With the growing electrification of energy systems worldwide, the (under-) development of electricity grids could also represent a bottleneck to the deployment of renewables. Reaching national climate and energy transition goals would require adding or replacing 80 million km of grids by 2040 – the equivalent of the entire existing global grid.⁴⁹ While data for most countries is limited, there is already evidence of at least 3000 gigawatts of renewable power projects at various stages of development, waiting in grid connection queues.

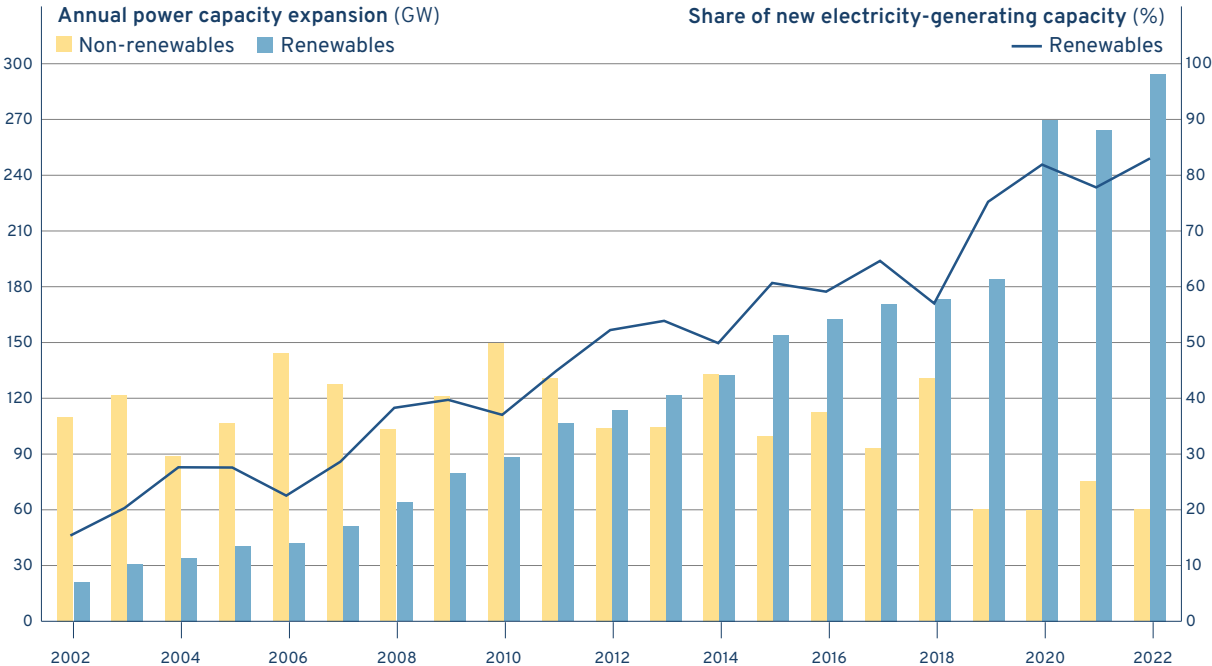
Expanding and digitalising the global electricity grid will require substantial investment, estimated at over USD 600 billion per year by 2030 and USD 775 billion per year in the following decade, while the EU will need to invest EUR 584 billion

between 2020 and 2030.⁵⁰ An alternative would be localised energy distribution systems to cater for local needs, where extensive grid interconnections remain challenging.

Green hydrogen could also help to address the limits of electrification, in particular as a viable solution for heavy transport and for sectors which require high-temperature combustion, such as the steel industry. And the possibility of mining natural hydrogen deposits has potential for a future energy revolution.⁵¹

Recent successful experiments have also raised hope for nuclear fusion, which could become the greatest game-changer in the history of energy. In a recent survey, a large majority of fusion companies predicted that a fusion plant will deliver electricity to the grid by 2035 although the scientific community remains more cautious.⁵² Meanwhile, fission technology is also advancing rapidly, with small modular reactors expected to play an increasing role over the next decade.

Figure 7: Renewable share of annual power capacity expansion



Source: IRENA Renewable Capacity Statistics 2023, March 2023.

On the horizon: battery-free energy storage¹

The world is set to add as much renewable power over 2022-2027 as it did in the past 20 years, according to the International Energy Agency. This is making energy storage increasingly important, as renewable energy cannot provide steady and uninterrupted flows of electricity. Apart from batteries, other energy storage systems are actively being developed – electrochemical (super capacitors), electrical (superconducting magnetic energy storage), thermal modules, mechanical (compressed air, hydro storage, flywheels) or combined in hybrid systems. Although they still require significant improvements, they will likely play a more important role in the energy transition.

What this could mean for the EU

In the very long term, a decarbonised global energy system could not only mitigate climate change, but also reduce geopolitical friction: for example, the influence of authoritarian petro states would decrease; energy prices would become less volatile; energy production would become more diffuse and decentralised, thereby reducing dependencies and the need to ‘securitise’ energy supply. The EU – and the world – would certainly stand to gain from such a scenario.

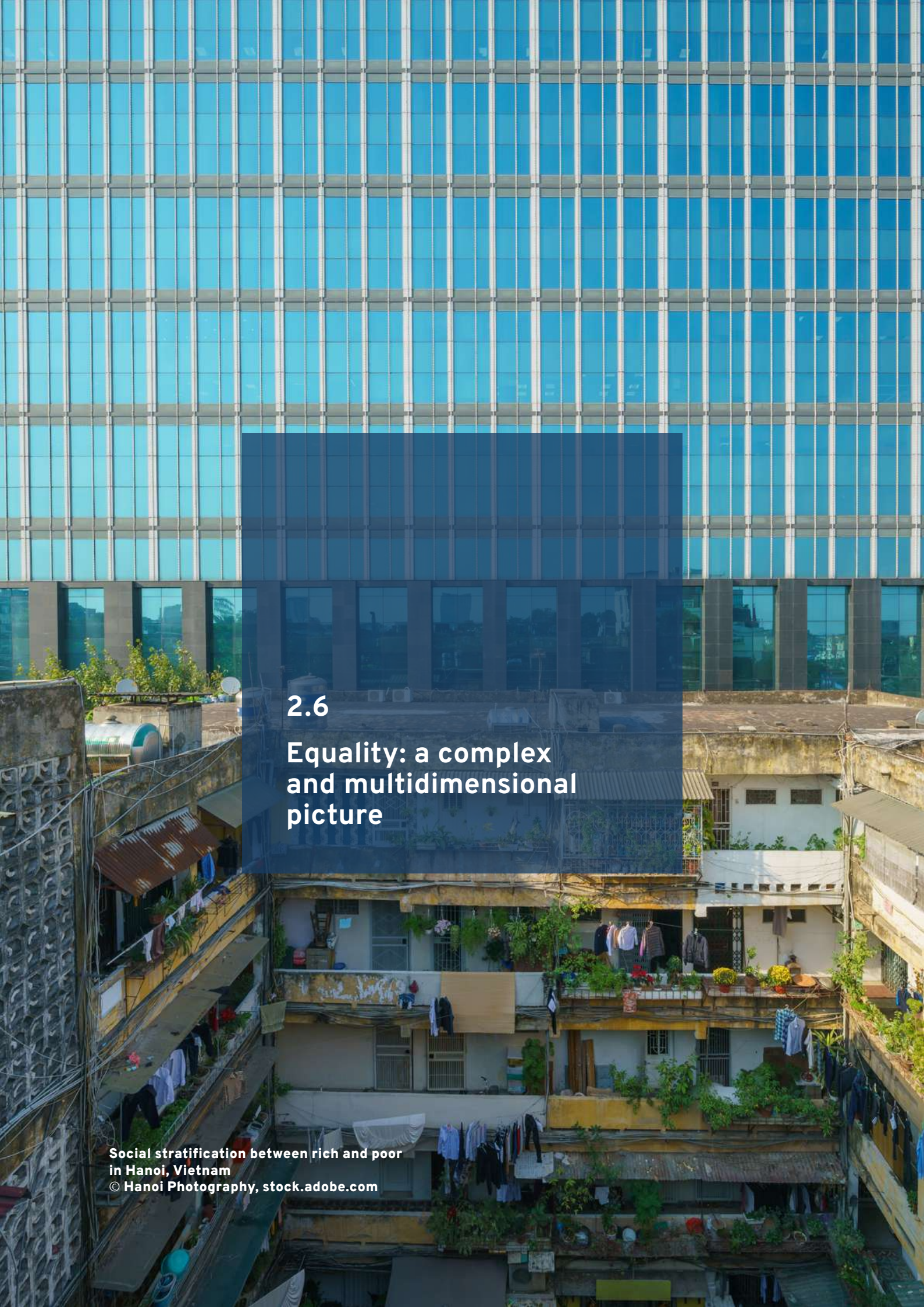
However, in the short to medium term, the green energy transition could exacerbate geopolitical tensions with some benefiting more than others and opening new arenas of competition, which may contribute to altering the structure of the international system. As some commentators put it, ‘a zero-carbon world does not do away with zero-sum games: it produces different ones’.⁵³

As a result, the EU will need to adapt to new geopolitical realities.

Dominant oil and gas producers are still expected to prosper for decades during the transition, due to the volatility of prices and the concentration of production among fewer actors.⁵⁴ At the same time, great powers will compete for control of the supply chains of critical minerals, with energy dependencies shifting from producers of fossil fuels to suppliers of technology and raw materials.

The energy transition could also have important consequences for the EU’s economic competitiveness.⁵⁵ With the construction of gas pipelines from Russia to China, both of the world’s great powers – the US and China – appear likely to have long-term access to cheaper sources of gas than Europe. If the EU is to preserve its competitiveness, it will be in its best interest to base its economy on cheaper and more sustainable energy sources. This is not only an environmental imperative, but also an economic one.

The green energy transition is not only an environmental imperative, but also an economic one.



2.6

Equality: a complex and multidimensional picture

Social stratification between rich and poor in Hanoi, Vietnam
© Hanoi Photography, stock.adobe.com

What we observe today

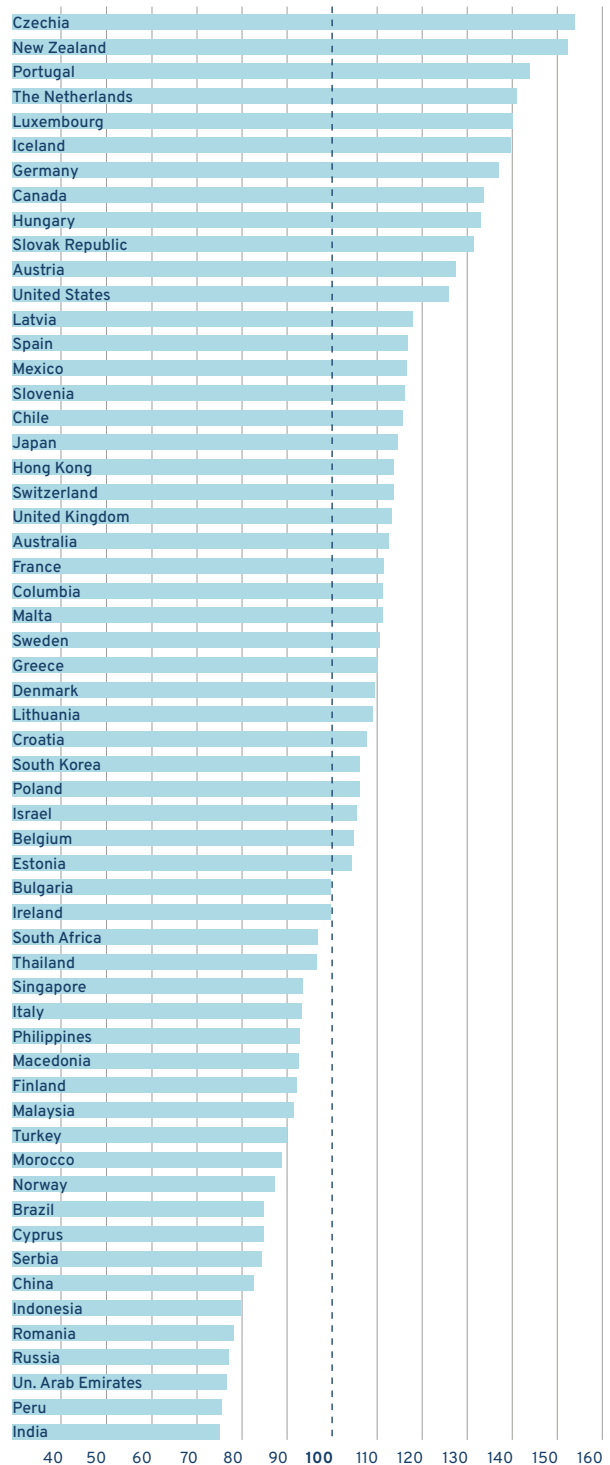
Economic inequality, both between people and countries persists. There is a growing wealth gap between the world's richest and poorest, with 685 million people in extreme poverty, living on less than USD 2.15 per day.⁵⁶ At the same time, the share held by low-income countries of global wealth remains below 1 %, even though they represent around 8 % of the population.⁵⁷ While global efforts to reduce poverty continue, the combined effects of the COVID-19 pandemic, the Russian war against Ukraine, and the cost-of-living crisis have stalled progress. For many, including the middle class, work increasingly does not pay anymore, e.g. in terms of purchasing power. One of the most telling indicators is housing affordability, which in various regions is at its lowest for those seeking to buy or rent. When people experience or perceive such reversals, it is often highly demoralising and can drive discontent.

In addition to income or wealth, other factors relating to issues around equality are increasingly relevant. For instance, the poorest often live in more polluted areas and are more vulnerable to the health effects of pollution, yet their environmental footprint is usually very limited.

In addition to income or wealth, other factors relating to issues around equality are increasingly relevant.

Figure 8: House price-to-income ratio around the world

House prices have grown faster than incomes in most countries.



2021: Q4 or latest available index, 2015=100)

Source: Bank for International Settlements and World Economic Outlook.

By contrast, the world's richest 1 % is responsible for more CO₂ emissions than the poorest 66 %.⁵⁸

Inter- and intra-generational fairness is also becoming increasingly salient. Young people benefit from various generational improvements yet face new challenges: they are better educated but have less disposable income and less stable jobs, or suffer from mental health issues, heightened by social media and the pandemic. At the same time, poverty, health issues, marginalisation or discrimination are realities for many elderly people.

Across different groups of society, progress in equality varies too. At the current rate of progress, it will take 131 years to reach full gender equality.⁵⁹ The LGBTIQ community has seen substantial progress: laws preventing discrimination and violence, same-sex marriage and partnerships, or removing transgender identity from the classification of diseases. Still, 63 countries have laws that criminalise homosexuality, including the death penalty.⁶⁰

Despite the broad ratification of the UN's Convention on the Rights of Persons with Disabilities challenges persist, as an estimated 1.3 billion people with significant disability face various forms of inequality. For instance, some will live up to 20 years less⁶¹ or will have unequal access to work and education – around 70 % of people with disabilities are professionally inactive. Finally, ethnic and racial background are also frequently a source of inequalities. For example, in Latin America, indigenous peoples are among the poorest. In the US, Black and Hispanic Americans earn significantly less than white or Asian adults.⁶² In Europe, in a study across 13 EU Member States young people of African descent are three times more likely to be early school-leavers.⁶³

Furthermore, in recent years the political debate around issues related to equality of many of these groups has become increasingly tense, adding to the polarisation of society.

Key uncertainties towards 2040

Depending on the policy choices and the scale to which societal implications will be taken into account, the effects of the ongoing transitions will either help to combat all these types of inequality, or can exacerbate them. This is especially relevant as equality matters not only in terms of the extreme sides of the spectrum but also touches upon the majority of the people in between. It relates to their outlook on life: people's hopes, aspirations, expectations, and overall wellbeing. It is also about the opportunities they see for themselves and their children.

What this could mean for the EU

In broader terms, Europe's socio-economic model has delivered some relatively good results in the sphere of minimising inequality. As Europeans, we enjoy longer and better lives than previous generations. Many European countries are among the happiest places to live.⁶⁴ Inequality between them has been decreasing and EU cohesion in many ways proved to be successful: since 2001, several less developed regions in Central and Eastern Europe have been catching up.

Still, challenges persist. Many middle-income and less developed EU regions in the south and south-west continue to see economic stagnation or decline. Longevity will bring new challenges in terms of the digital divide or access to dignified and affordable long-term care. Inequalities within individual Member States are on the rise.⁶⁵ In 2021, 38.2 % of total household income in the EU was attributed to the 20 % of the population with the highest income, while the 20 % with the lowest income received merely a 7.9 % share.⁶⁶ These statistics are reflected in attitudes among Europeans: 81 % believe that income inequality is too high.⁶⁷

Many Europeans across regions and cities facing economic stagnation and decline are increasingly dissatisfied. Persistent economic disparities across and within the EU Member States have been aggravated by the impact of the COVID-19 pandemic and the cost-of-living crisis.⁶⁸ In 2022, material and social deprivation and absolute monetary poverty increased by 3-6%.⁶⁹ These socioeconomic challenges are especially painful for 37 million inhabitants living in remote rural areas, which suffer particularly from the demographic trends and where the average household income is 22% lower than the EU average.⁷⁰

Moreover, wealth concentration in the EU is significantly higher than income inequality and is gradually increasing. This is a significant obstacle to equal opportunities and upward social mobility in the context of intergenerational poverty cycles experienced by some population groups.⁷¹ All this feeds political and social polarisation and undermines democracy.⁷²

On the horizon: new sources of extreme inequalities¹

As the richest 1% of society captures an increasingly large share of new wealth created around the world, their resources give them access to increasingly powerful tools that are out of reach for most in our societies. Examples include genome editing techniques not only for therapeutic, but also enhancement purposes, as well as access to longevity treatments etc. Building private luxury bunkers or vaccine tourism to secure a privileged position in a world of increasing man-made and natural disasters is also reflected in some tech billionaires' behaviour. Addressing economic inequalities focuses on median income, but less on the extreme ends of the distribution. With technologies (biotech, AI, etc.) transforming our societies, they will compound the current effects of inequalities making extremes more dire.

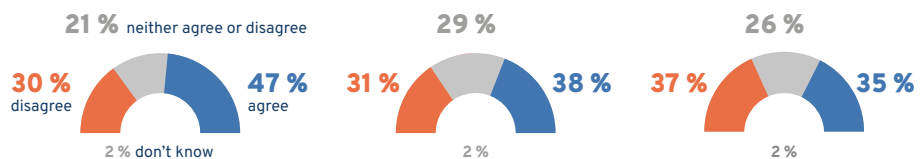
Figure 9: How Europeans perceive inequalities

Less than half of Europeans believe that society is fair and equal

Almost half of Europeans think that they have equal opportunities for getting ahead in life.

Around four in ten believe that most of the things that happen in life are fair.

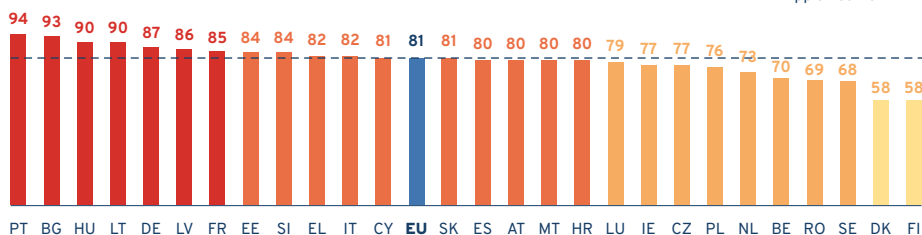
Only a third believe that, by and large, people get what they deserve in their country.



A vast majority of Europeans believe that differences in income are too great in their country

% agree with the statement 'income differences are too great in my country'

EU 81%
- 4 pp since 2017



Source: Fairness, inequality, and intergenerational mobility, Special Eurobarometer 529, May-June 2022.



2.7

The nexus of technological convergence and acceleration

What we observe today

The deployment and adoption of new technologies is accelerating, across digital, biotech, next generation materials and clean technologies. This was amply demonstrated when ChatGPT took just two months to reach 100 million monthly active users.⁷³ The cost of human genome sequencing has plummeted from USD 10 000 a decade ago to a few hundred dollars today and the price is expected to fall further.⁷⁴ Research and innovation developments, economic and geopolitical ambitions, and political choices drive this acceleration. Deploying new technologies often requires high fixed costs upfront but may not always require costly or complicated infrastructure.⁷⁵

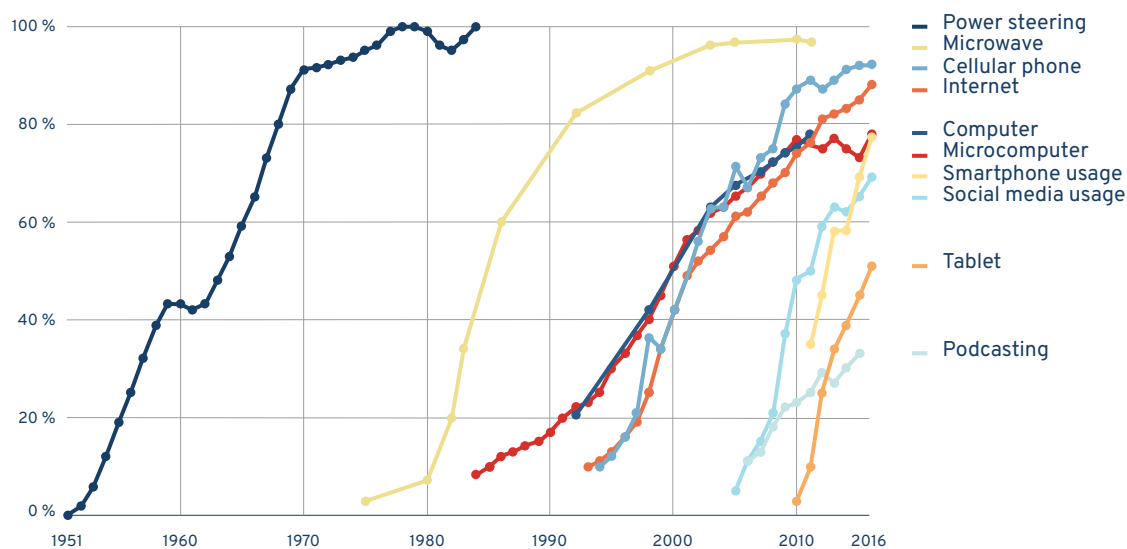
At the same time, technological convergence is increasing with hyper-connectivity fuelling increased convergence of sectors, products, services, and technologies. The number of connected devices globally is projected to increase from 30.4 billion in 2020 to 200 billion in 2030.⁷⁶

New technologies clearly offer opportunities. For example, increasing amounts of data can be used to improve

existing technologies and develop new ones. AI has the potential both to give a serious impetus to growth and productivity, and to drive the green transition. In biotechnology, managing complex data can support the production of synthetic life forms, different ways of human enhancement, and transform food value chains. In advanced robotics, data can completely transform industrial operations, or bring financial and environmental savings. The fusion of AI and quantum computing could revolutionise science. More data also means faster development of generative AI technologies, which could be used across industries, and towards 2040 could be a peer in human collaboration.

However, technological advances may bring unquantified potential downsides. An extreme risk is of AI ‘taking over’ and provoking real life catastrophes. Innovative technologies could be misused by malign actors. Our ability to discern the truth could be further undermined, corroding trust in society and democratic processes. New technologies are often energy-intensive, with the digital sector alone responsible for 5-9 % of global electricity use.⁷⁷

Figure 10: Accelerating adoption speed of technologies (% of US households using specific technologies)



Source: Visual Capitalist.

Technologies are key for the EU's future: in terms of its strategic objectives, competitiveness, or open strategic autonomy and overall security.

Technologies like AI, next-generation chips, or various net-zero technologies could also be increasingly used as a geopolitical tool. A leading position in their development is key for competitiveness, but also broader security. This progressively drives major global players to strengthen their strategic autonomy in critical technologies and the materials necessary for their production.

Finally, the governance of technology is becoming a pressing challenge for lawmakers due to the accelerating pace of its development. There are limits to the capacity of existing policy tools to capture increasingly complex issues and it takes time for legislation to assess and adapt to new practices. All this can fuel scepticism among citizens or within established sectors of the economy.

Key uncertainties towards 2040

Technologies have a crucial role to play in achieving the green transition but will need to be complemented by changes in production and consumption patterns.⁷⁸ Another uncertainty relates to the overall balance between opportunities and threats offered by

technologies across all fields: economy (on productivity, economic growth, or jobs), democracy (on polarisation, democratic processes, citizens' participation), security and defence (on improved defence capabilities, security risks through acts of malicious actors), and on human life (physical and mental wellbeing, health, prosperity). The increasing and widespread permeation of generative AI could be the biggest disruptor since the EU was founded, given the potential impact on skills and education, the economy and the welfare state.⁷⁹

On the horizon: AI generated worlds¹

The use of generative AI for image generation and 3D graphics is enabling the creation of virtual worlds in real time. Current first experiments still require large computing power, but they are likely to be more cost-efficient in a few years, prompting ideas about dreaming up virtual worlds in real time or creating 3D worlds based on any given video. Such virtual worlds could be used for training, simulation, education, learning or healthcare. Sharing a common world was taken for granted in creating the global community, addressing global challenges and articulating humanity as a whole. The future multitude of disposable and tailor-made virtual worlds requires rethinking what binds communities together.

A further uncertainty is the possible use of 'controversial' technologies and solutions including nuclear, geo- and gene-engineering, sea, or space mining. All could have a bearing on the climate emergency. The possibility of increasing ethical and regulatory divergences across key global players adds to this uncertainty.

In addition, there is a blurring of roles between governments and 'Big Tech'

corporations, given the latter’s increasing influence in how we communicate, spend or vote. Many transformative technologies will have a role akin to the infrastructure of the modern age, and they will be developed, owned, and controlled by private companies or individuals, not the state. This will create new dependencies and regulatory challenges. The degree to which technology will continue to be a driver for inequality across the world or to diminish it is also unknown.⁸⁰

What this could mean for the EU

Technologies are key for the EU’s future: in terms of its strategic objectives, competitiveness, or open strategic autonomy and overall security. Europe is still a strong player in this domain accounting for almost 20 % of global R&D, publications or patents. It has a strong position in various technologies, such as advanced manufacturing and materials, or several low-carbon technologies.

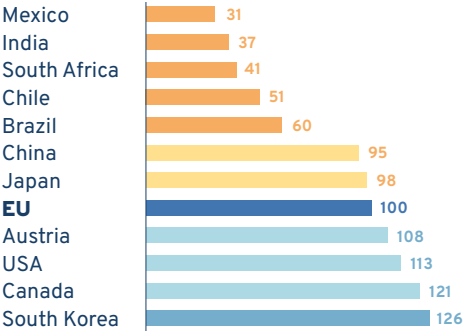
However, Europe also has weak points including in applied research and transversal technologies, where currently the EU leads only in two (next-generation materials and clean tech) out of ten fields.

This is due to the fragmentation of its market and relatively limited access to venture capital. While European companies invest less in research, EU private R&D investment growth reached its highest rate since 2015, surpassing that of US firms. US companies are still responsible for over 42 % of the R&D overall investment of the largest 2,500 corporate investors but the EU is now closely competing with China for second place, with 17.5 % and 17.8 %, respectively.⁸¹ However, in deep tech the US leads with more than 60 % of funding provided, Europe collectively has 14 %, and China accounts for 12 %.⁸²

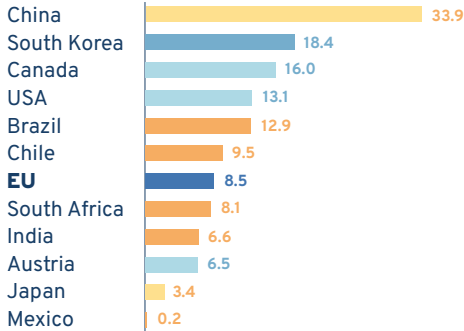
To date, the EU’s technological advantage has been matched with strong regulatory and standard setting capacity. The Digital Markets Act and the Digital Services Act show that Europe can act quickly even in complicated or fast changing areas. However, China is also heavily investing in building its regulatory capacity, by increasing its presence in relevant international bodies and supplying critical technological infrastructure, such as 5G abroad.⁸³ At the same time, the US is shaping the regulatory environment around emerging technologies such as AI or cryptocurrencies, with a light touch approach, attractive for investors.

Figure 11: Innovation performance, EU vs competitors, global change

EU innovation performance versus global competitors in 2023
(% relative to the EU innovation performance)



Change of global innovation performance from 2016-2023 (difference in scores relative to that of the EU in 2016)



Colours show performance relative to that of the EU in 2023. Orange-yellow: below EU performance; light blue: above EU performance.

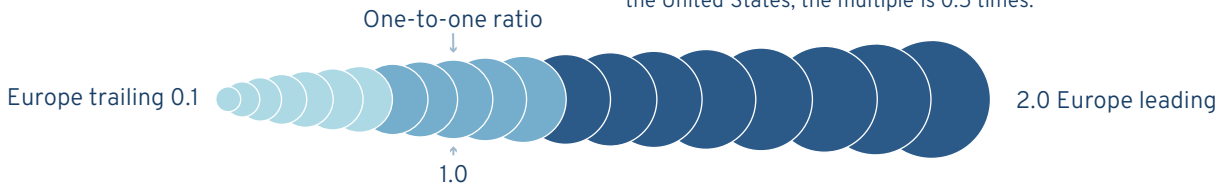
Source: European Innovation Scoreboard 2023, European Commission.

Figure 12: Europe’s relative position in key transversal technologies

Out of ten transversal technologies, such as AI, quantum computing, and cloud, Europe leads on two.

Relative European position vs leading or second best region on a range of metrics, multiple*

*multiple: for instance, if Europe issues 200,000 patents per year related to automation vs 400,000 a year in the United States, the multiple is 0.5 times.



Innovation: average number of the ratios based on number of publications, number of patents, and venture capital funding (\$ billion).

Production: average number of the ratios for top ten companies on market share (%), market capitalization (\$ billion), and corporate or private equity funding (\$ billion).

Adoption: average number of the ratios based on public investment (\$ billion), penetration (count per capita), and end market share (%)

Transversal technologies	Keywords	Innovation	Production	Adoption	Average
Next-level automation	Industrial, collaborative, and professional robots; additive manufacturing; virtualisation	0.6	1.0	0.7	0.8
Future of connectivity	5G, Internet of Things	0.7	0.7	0.3	0.6
Distributed infrastructure	Cloud, edge computing	0.2	0.1	0.7	0.3
Next generation computing	Quantum computing, neuromorphic software	0.5	n/a	n/a	0.5
Applied AI	Robotic process automation, optimised decision making, natural language processing computer vision, speech technology	0.5	<0.1	0.8	0.4
Future of programming	Software 2.0, no-code and low-code programming	0.3	<0.1	n/a	0.2
Trust architecture	Blockchain, zero-trust security/ cybersecurity	0.3	0.3	0.6	0.4
Bio Revolution	Biomolecules, biosystems, biomachine interface, biocomputing	0.8	0.4	0.5	0.6
Next-gen materials	Nanomaterials, composite materials	0.7	2.0	1.2	1.3
Future of cleantech	Solar power, wind energy, hydropower, nuclear, electric vehicles, hydrogen	1.3	0.4	1.2	1.0
Average		0.6	0.6	0.7	

Source: The top trends in tech, McKinsey Digital, 2021; McKinsey Global Institute analysis.



New blood vessel formation
© Design Cells, stock.adobe.com

2.8

**Health: a global
challenge**

What we observe today

Several lessons have emerged from the COVID-19 pandemic.⁸⁴ The cost of maintaining early warning systems and preparedness, including stocks of essential equipment and medicine, are trivial compared to the potential economic impact of a pandemic. Both scientific excellence and basic research are key to the development of new vaccines.⁸⁵ Cooperation between states regionally and globally is vital to both containment measures and vaccination coverage. A negative legacy is the emergence of anti-science conspiracy theories, which can undermine preventive strategies in future.

At the global level, the burden of disease is still concentrated in developing countries, while healthcare resources are concentrated in advanced economies (see Figure 13). The health and economic impact of the pandemic increased this discrepancy.⁸⁶

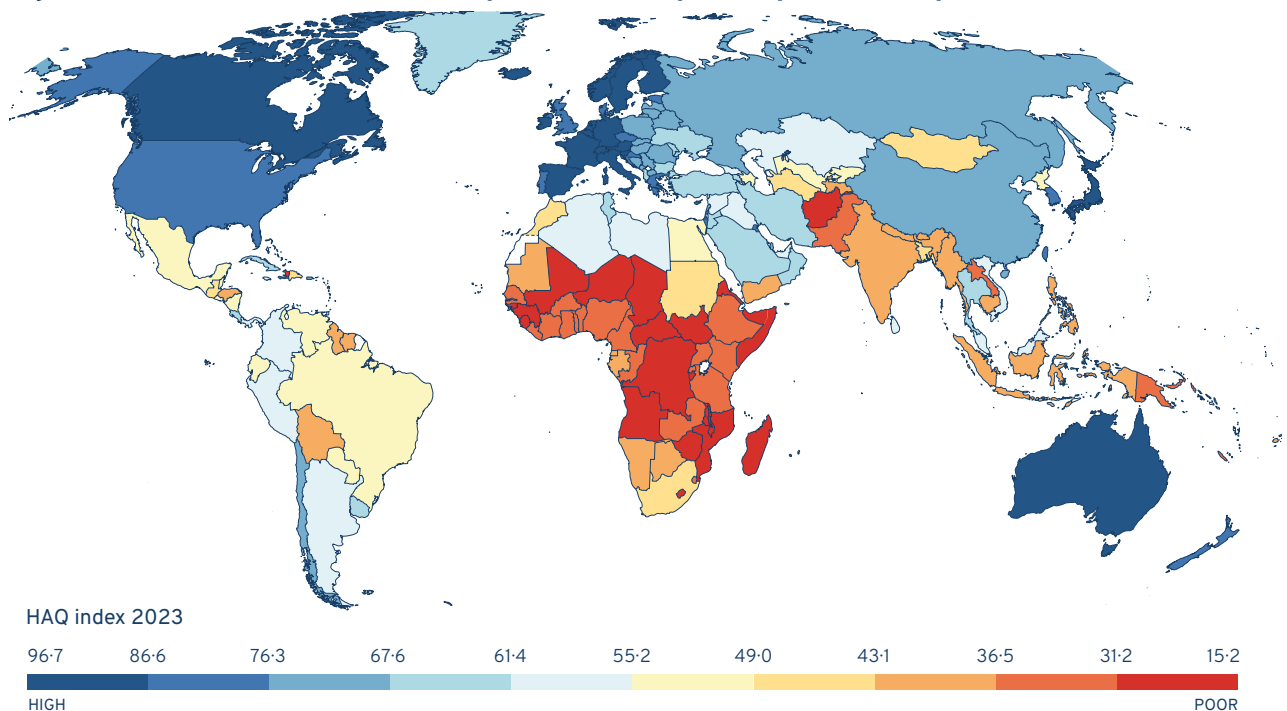
Health inequalities also remain significant in advanced economies. Shorter life expectancy, which emerged as a trend

during the pandemic even in EU countries, correlates with lower socio-economic status.⁸⁷ Factors such as gender equality, participation and empowerment, and policy coherence are known to mitigate health inequalities.⁸⁸

There is increasing awareness of grave threats to health arising from the climate emergency and from environmental degradation.⁸⁹ These include the spread of zoonotic diseases, threats to food production systems, and even the possibility of ancient viruses emerging from permafrost.⁹⁰ In addition, there is a growing risk to human health from heat stress exacerbated by climate change.⁹¹ The case is clear for a coordinated approach across human, animal and planetary health, as promoted by the One Health initiative.⁹²

The EU has identified Antimicrobial Resistance (AMR) as a high priority threat to health, with the potential to reduce global GDP by more than 2 %.⁹³ There is a new focus on mental health, especially among young people. Several trends identified in previous reports continue, including obesity,

Figure 13 : Healthcare Access and Quality (HAQ) Index, by country and territory



Source: Global Burden of Health survey, 2022.

Figure 14: Impediments to global governance for health

EXAMPLES OF SYSTEMIC DYSFUNCTIONS	FACTORS THAT MAY INCREASE DYSFUNCTIONS
Democratic deficit Weak accountability Institutional stickiness Missing institutions Lack of policy space for health	Economic crisis / austerity Access to knowledge / intellectual property Investment agreements Food security Transnational corporations Irregular migrants Organised violence

Source: Adapted from Ottersen et al (2014).

non-communicable diseases, and population ageing in several countries, with societal and economic implications.

The health sector has a huge economic footprint. In 2020, healthcare expenditure in the EU amounted to 10.9 % of GDP.⁹⁴ The upward trend in costs raises questions about tax sustainability. At the same time, the health sector generates demand for services and is a major employer. Since the pandemic, difficulties with recruitment of health professionals have emerged.

Key uncertainties towards 2040

Health is a major driver of technological innovation. Cutting-edge research and innovation infrastructure is critical. The potential dividends are enormous, if breakthroughs are achieved in the treatment of illnesses such as cancer and dementia. Human enhancement has emerged as a new focus, linked to advances in neuroscience; it raises deep ethical and philosophical questions.⁹⁵ Machine learning can speed both detection of diseases and the identification of new therapies.⁹⁶ Digitalisation offers opportunities for more effective service delivery.⁹⁷ An emerging threat is that health services have become a prime target for cybercrime and ransomware attacks.⁹⁸ Cybersecurity will be essential to ensuring the integrity of critical

systems and the privacy of personal data.

Rigorous testing of new medicines has long been a critical element of patient safety, also in the face of occasional efforts to lower standards. One task over the coming years will be to verify claims made about individualised medicine. The opioid scandal in the US is a powerful reminder both of the risk of corruption and of the importance of maintaining safeguards.⁹⁹

The impact of the pandemic complicates the achievement of health-related Sustainable Development Goals. These include ending the epidemics of AIDS, tuberculosis, malaria and other communicable diseases by 2030.

The global burden of disease is concentrated in developing countries, while healthcare resources are concentrated in advanced economies.

Progress depends heavily on protecting and expanding the health component of international development assistance. The women's health gap merits special attention. A recent report concludes that closing this gap would benefit the world economy to the tune of EUR 1 trillion by 2040. Investment in health can pay for itself several times over.¹⁰⁰ Systemic dysfunctions continue to impede successful global governance of health (Figure 14).¹⁰¹

On the horizon: individual longevity¹

Anti-ageing research is growing quickly. Recent biotech breakthroughs include the reprogramming of cells for rejuvenation, organ regeneration with stem cell therapies, and reversing the epigenetic clock. Interest groups such as the US Alliance for Longevity Initiatives and the EU's European Longevity Initiative have formed. At the same time, *life expectancy at birth varies widely across the globe*, from 83 and more in countries like Japan and Norway to 55 in Nigeria and Chad. Will anti-ageing breakthroughs widen this gap even further?

What this could mean for the EU

While competence for health primarily rests with Member States, the pandemic showed the importance of strong supporting actions at EU level. The mobilisation of resources for especially distressed regions and work on joint procurement of critical medicines can help maintain high standards of healthcare, with universal access to health services, across Europe.

The pandemic has prompted the creation of new structures for cooperation across EU and Member State health bodies in assuring

a rapid and coordinated response to health emergencies. Building on these innovations could help prevent a recurrence of the problems of 2020. Given that the risk of another pandemic is ever-present and likely to increase over the next couple of decades, particularly due to increased urbanisation and climate change, better preparedness will be essential.¹⁰²

The ageing of the EU population will bring increased demands on healthcare systems, with implications for the costs and organisation of care.

The EU has opportunities to create the conditions for success on several fronts: developing effective new treatments and therapies; harnessing the potential of digitalisation; remedying shortages of skilled personnel; and supporting preventive and public health approaches that save costs in the short and long run.

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2.9

**What will change in how
we live and work?**

What we observe today

Where we live is changing. As indicated in our 2019 report, urbanisation continues with the number of people living in cities potentially reaching five billion by 2050. This will drive productivity, as well as environmental degradation, and pose challenges for public health, housing, congestion, and inequalities. For instance, 1.1 billion urban citizens already live in slums or similar conditions, and this number is expected to rise to three billion in the next 30 years.¹⁰³ Climate change is a big driver too. Some places may become impossible or very difficult to live in, e.g. with an expected 1.9 billion people, especially in cities, subject to heat stress by 2030.¹⁰⁴

How we live is changing too. By 2030, almost five billion people will belong to the consumer class – 1.3 billion more than today. Without changes in consumption and production, the nexus of population growth, greater affluence, and environmental impact will pose major threats to sustainability. Changing those patterns will be challenging without just and fair approaches. People are more willing to change their habits, if they feel that this is a shared responsibility, and when

Approaches to family, parenthood, contributions to society or the economy are shifting, especially in more advanced economies.

the proposed measures focus on encouraging changes rather than penalising negative behaviours.¹⁰⁵

Another area of change relates to values and lifestyles. Approaches to family, parenthood, contributions to society or the economy are shifting, especially in more advanced economies. This is driven by various factors. Some relate to awareness of climate change. For instance, 69 % of Gen Zs and 73 % of Millennials in 44 countries are actively trying to minimise their impact on the environment.¹⁰⁶ 69 % of people are willing to give away 1 % of their household income each month to combat global warming.¹⁰⁷ Others are linked to cultural shifts and increasing diversity in society, raising issues of identity (e.g. in terms of race, gender, sexuality), inclusion, or representation.

There is also an emerging global ideological divide between young men and women, which affects both their electoral and daily choices. Young men tend to be increasingly conservative in their attitudes, whereas women have become more liberal. While there might be different reasons for this, social media ‘bubbles’ foster ideological biases, as we increasingly inhabit separate virtual spaces with divergent values, cultures, and content.¹⁰⁸

Technology is another area where attitudes are shifting, with growing concerns regarding its potential to empower humans. Technologies increasingly shape the way we meet, interact, access information, take our decisions, or consume. However, the awareness of their various negative effects is fuelling overall mistrust and concern. Technological and societal changes are contributing to the rise in the epidemic of loneliness, with 13 % of respondents in the EU feeling lonely most or all of the time.¹⁰⁹ AI and automation are influencing job creation and destruction, and shaping the content and methods of work.¹¹⁰ This will drive new forms of work and offer greater flexibility, but if not steered properly it can also lead to more precarious working conditions and job polarisation.¹¹¹

On the horizon: digital co-workers¹

AI working as a teammate could augment human teams by enhancing coordination, knowledge sharing and learning, supporting decision-making, as well as evaluation and team performance; concerns related to social and machine teammate interaction, design, privacy and ethics currently exist. Although most of the focus is on the acceptance, performance and effectiveness of such collaboration, impacts on the meaningfulness of work and job satisfaction in the longer term are also expected. Preliminary research suggests that working with a human is perceived as more motivating and meaningful compared to the relation with a machine, although the success of hybrid teamwork depends on the role of digital co-worker in the team.

The very nature and meaning of work is also changing because we generally live longer and the evolving structure of the economy requires changing jobs, careers, and skills multiple times. In parallel, Gen Z and Millennials are challenging attitudes towards work, with concepts such as ‘quiet quitting’, ‘job hopping’, and strong demands related to work-life balance.

Finally, the way we learn is changing. Skills are becoming increasingly important in addition to formal qualifications. Digital technologies, including generative AI, create new teaching and learning opportunities. They also challenge existing education and training systems in terms of pedagogic approaches, assuring quality and trustworthiness, or ensuring equal opportunities (e.g. access to technological infrastructure and equipment).

Figure 15: Top 10 Skills in 2023



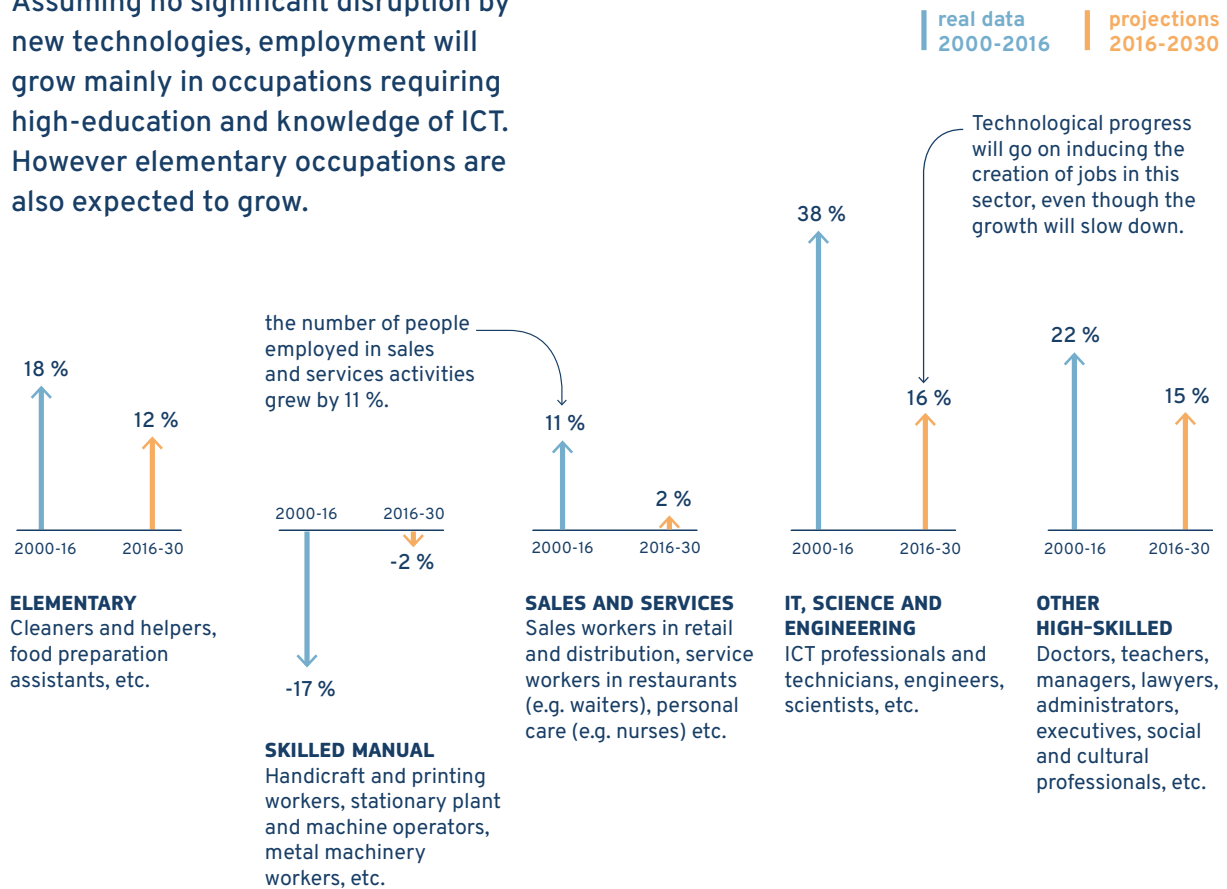
Source: World Economic Forum, Future of Jobs, 2023.

Key uncertainties towards 2040

A key uncertainty relates to the actual impact of new technologies on various aspects of our lives. Employment will be one of the most telling examples in terms of numbers of job losses and gains, as well as the nature of work itself. Estimates vary widely, while the impact that we have already seen suggests strong variation across sectors and skills. For instance, around 40 % of workers globally are estimated to be in jobs highly exposed to AI impacts, with 60 % in advanced economies.¹¹² Semi-skilled workers have experienced more losses than those on the high and low ends of the skills scale. The pace at which existing jobs will be lost, and new ones created is also an important factor.

Figure 16: Job impacts driven by technological progress

Assuming no significant disruption by new technologies, employment will grow mainly in occupations requiring high-education and knowledge of ICT. However elementary occupations are also expected to grow.



Source: The changing nature of work and skills in the digital age, European Commission, 2019.

What is clear, is that if left unaddressed, these trends might lead to the erosion of fundamental social rights, and increased inequalities and dependencies within and between states.

What this could mean for the EU

Europe is still one of the best places in the world in which to live and work. In the decades to come, the quality of life for Europeans will increasingly depend on where exactly they live. By 2050, the EU's level of urbanisation will increase to almost 84 %. At the same time, various parts of Europe will be increasingly difficult or even impossible to live in due to water stress, extreme weather or heat.

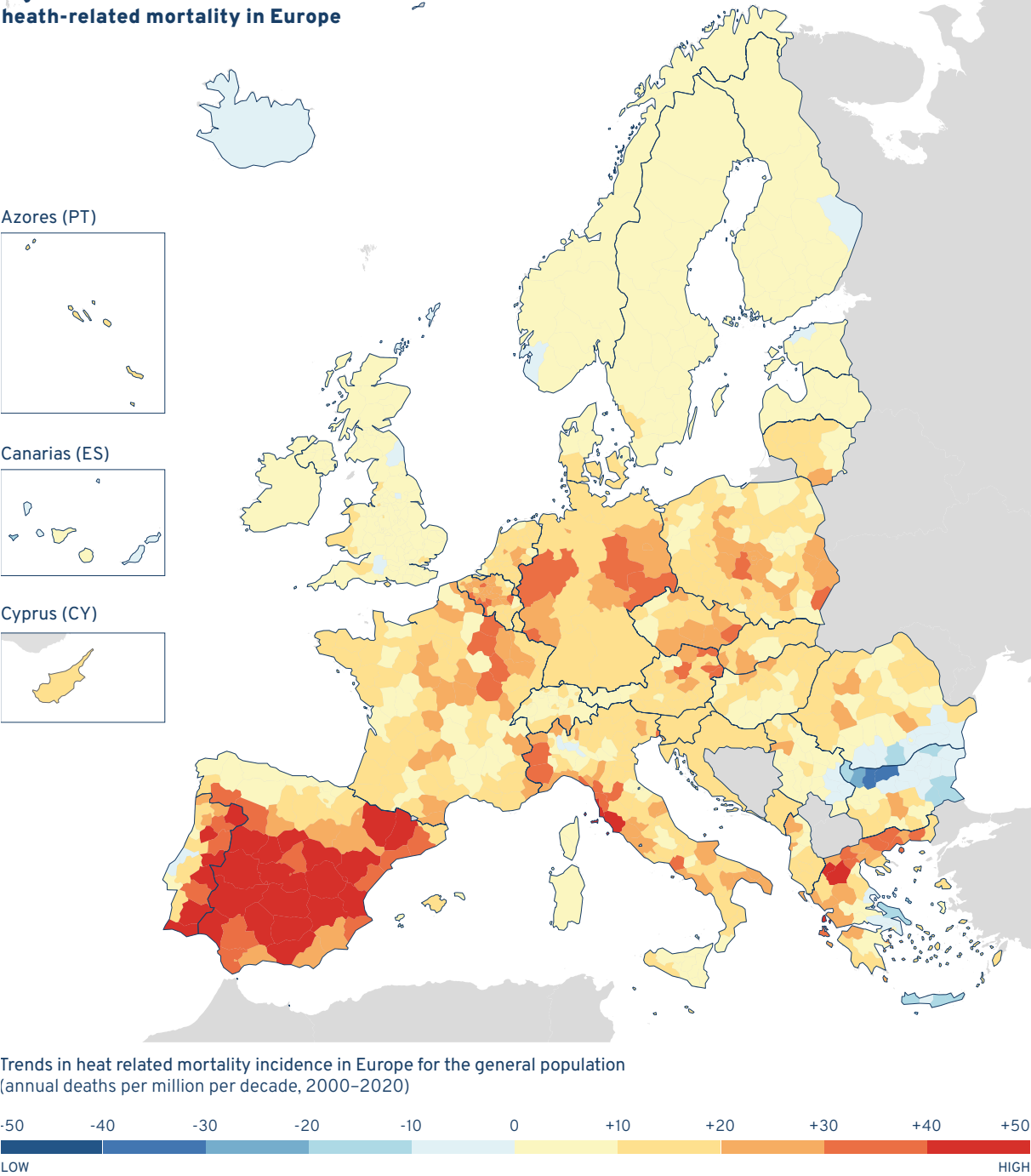
Socio-economic factors will also play an important role. Currently, 82 EU regions comprising 30 % of Europeans either face or risk a talent development trap resulting from a sharp decline in the working age population, coupled with a low share of people with tertiary education, and a significant departure of young people from the affected regions.

The EU's labour landscape will continue to evolve. Shortages in both high-skilled and low-skilled occupations are expected to continue as the population ages and the demographic transition continues (see ch 2.3).¹¹³ Sectors and regions dependent on fossil fuels will experience job losses. New jobs will also be created from the green transition, in clean energy, renovation, or the circular economy.¹¹⁴ Similarly, the digital transition

is likely to create new jobs in areas such as advanced technologies, while leading to the loss of jobs due to full or partial automation. Moreover, while the EU’s workforce is the most educated in its history, there remain 60 million low-educated and low-skilled adults. A further uncertainty, and an area of potential concern, will be whether the decline in educational

achievements and basic competences of European youth, already worsened by the pandemic will continue.¹¹⁵ As seen in chapter 2.3, women, older workers and secondary educated people will represent the largest untapped potential workforce in the EU by 2030 – a key challenge will be to ensure their participation.

Figure 17: The climate-health nexus: health-related mortality in Europe



Source: van Daalen K. et al (2022), ‘The 2022 Europe report of the Lancet Countdown on health and climate change: towards a climate resilient future’, The Lancet Public Health.



2.10

Democracy between threats and renewal

What we observe today

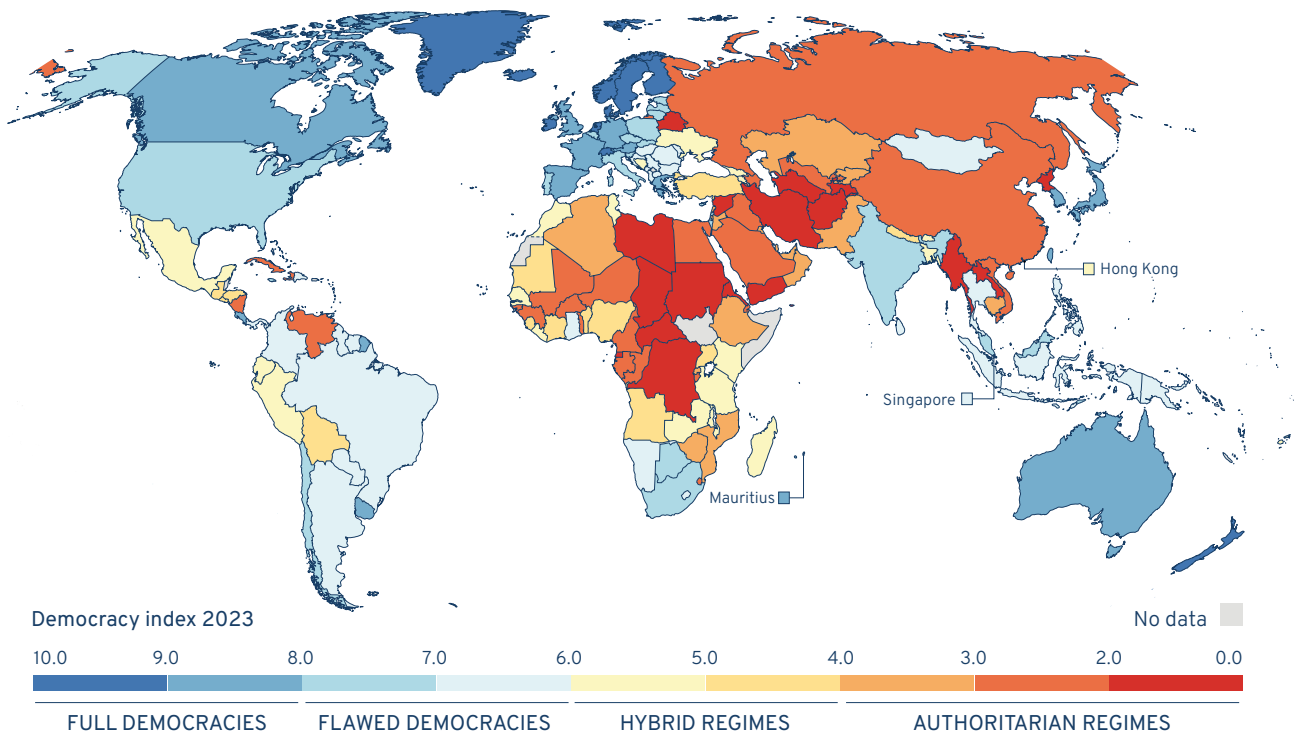
The decline of democracy noted in the 2019 report has continued. Today, a third of the world's population is subject to authoritarian rule; only 8 % enjoy 'full democracy' (see Figure 18).¹¹⁶

As the Global State of Democracy 2023 points out, a healthy democracy is underpinned by a range of institutions and organisations (see Figure 19).¹¹⁷ Efforts to undermine it include the use of spyware by governments against journalists, restrictions on civil society organisations, and the overt politicisation of the appointment of judges. Further symptoms include reduced engagement in organised civil society and in political parties. Even within the EU, there is a worrying degree of voter support for the idea of strong leaders who dispense with elections.¹¹⁸ The emergence of anti-democratic attitudes among young people is also a concern.¹¹⁹

Social and economic stress undoubtedly plays a role with inequality driving distrust (see ch. 2.6 on Equality).¹²⁰ A Chatham House study highlights the 'depoliticisation' of policy making, particularly economic policy.¹²¹ Civic space is undermined in many countries, including in the EU itself.¹²²

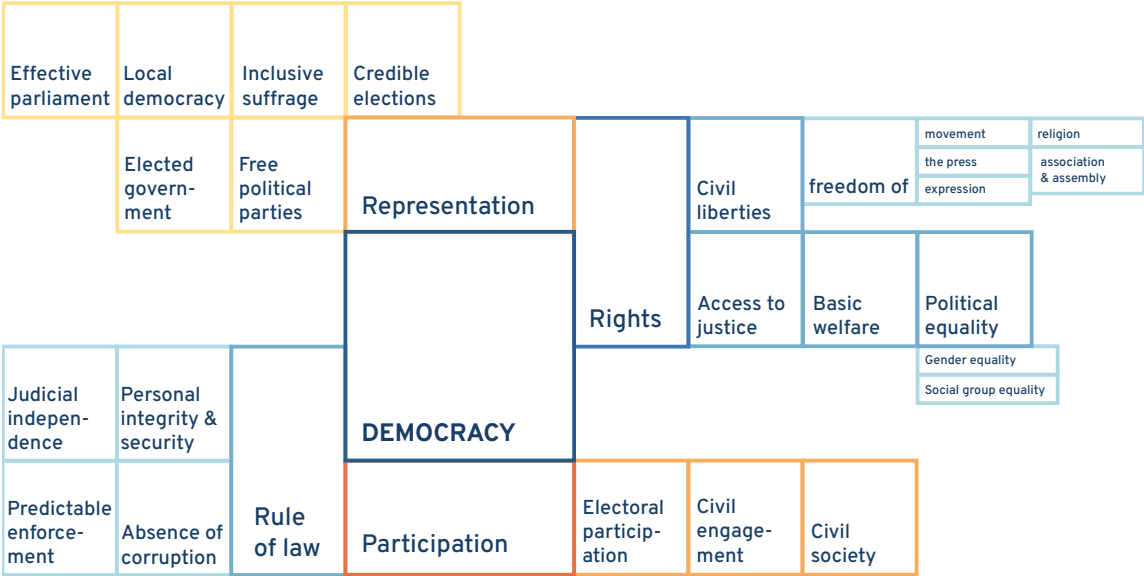
Civic space is undermined in many countries.

Figure 18: Global map by regime type



Source: EIU Democracy Index 2023, <https://www.eiu.com/n/campaigns/democracy-index-2023/>

Figure 19: A conceptual framework around democracy



Source: International IDEA, *The global state of democracy 2023*.

In several advanced economies, neo-nationalist movements have leveraged concerns about immigration and ethnic/religious diversity to make electoral gains. A related development is the spread of outright sectarianism; extremist parties seek to dehumanise individuals and groups with which they disagree. This development parallels the growth of hate speech; both are actively promoted by targeted disinformation online by both domestic and foreign actors.

The picture is not one of unmitigated gloom. The practice of closer consultation of citizens, through deliberative democracy, involving citizens’ assemblies and other forms of engagement continues to grow.¹²³ Large-scale youth mobilisation against climate change also demonstrates a passion for engaging in democratic discourse. Many vibrant civil society organisations and activities around the world defy threats and allow citizens to participate in policymaking.

There are recent examples of governments with authoritarian tendencies being voted out of office, despite efforts to unfairly hamper opposing candidates. This shows that large groups of voters can mobilise to resist threats to democracy.

At the same time, a systemic challenge to the universal values that Europe seeks to promote which stifles democracy and human rights is emerging.¹²⁴ For instance, China works to translate its greater strength into greater influence globally.

Key uncertainties towards 2040

Further democratic backsliding through political polarisation and attacks on democratic institutions could result in an unconstitutional change of government, or a slide into autocracy without a constitutional change, even in established democracies. On the other hand, efforts to improve the distribution of the benefits of economic growth could have a positive impact.

Technology intensifies trends. In the coming years, will it amplify more pro- than anti-democratic trends? It could contribute to more effective and accessible public services. It could facilitate the exercise of democratic rights and could make policymaking more open and transparent. It allows wider and deeper consultation of citizens on key issues - though this also

raises questions about the relative merits of representative democracy versus direct democracy. Set against these are the possible misuse of AI and far greater levels of ‘truth decay’.¹²⁵

Will attempts to polarise societies along ethnic lines gain or lose traction? In many European states, the population has become more diverse in recent decades. Surveys suggest attitudes towards migrants are becoming more favourable yet support for parties that emphasise cultural differences has grown.¹²⁶ Cultivating and communicating the benefits of diversity will remain a key challenge. In the US, a ‘majority minority’ milestone is projected for 2044: the non-Hispanic white category will be one of many minorities.¹²⁷

What this could mean for the EU

Democracy is a founding value of the EU and a criterion for membership.¹²⁸ Fourteen of its Member States successfully emerged from totalitarianism in the past 50 years. A treaty-fixed objective of the EU’s external activities is the promotion of the rule of law, human rights and democracy.¹²⁹ An unconstitutional change of government in a core EU ally, or even an EU Member State, may be a remote possibility, but recent history shows the advisability of addressing even the most unwanted outcomes. Such an event would have serious implications for the EU, whether in its international partnerships or in its internal governance.

A challenge for the EU and other democracies will be to find the right formula for policing the line between robust political debate, on the one hand, and manipulation of voters through misinformation, on the other.

Attitudes to democracy may again become the defining fault line on the international stage. The EU has an abiding

On the horizon: radical transparency¹

Decreasing levels of trust and social capital, and the availability of unmanageably large amount of information, have increased calls for ‘radical transparency’. This concept refers to a transformation towards transparency in public administration, modifying traditional approaches to confidentiality. It involves being explicit about values, and making processes open. Citizens would have access to a wide range of key information, including public contracts, salary levels and so on. New technologies allow the sharing of ‘raw content’ and big data. A general adoption of radical transparency could change the dynamics of decision-making in public policies. It could encourage a deliberative approach, but may herald more conflictual and less compromise-based outcomes, at least in an initial phase.

interest in the continued promotion and protection of democratic values at the global level.

The Commission’s 2023 *Defence of democracy package* is a step forward; it aims to strengthen participatory democracy and improve election integrity. However, the challenges facing democracy will likely require a deeper and more coordinated response that also involves areas such as economic policy and technology regulation. The distribution of competences within the EU means that this task cannot be accomplished at the EU level alone; Member State actions are crucial.

The concept of a new social contract, expressing a commitment to share equitably both the costs and benefits of transitions currently underway, could be a basis for an overarching strategy for democratic renewal.¹³⁰

Within the trends described, a common feature is either growing polarisation and fragmentation, or increasing likelihood of their occurrence. This is as true of geopolitics as it is for democracy and inequalities. The growing disparity in views held by Generation Z men and women is symptomatic of the complexity facing today's policymakers. What also emerge are the many inter-connections between trends. Actions to address a particular trend will inevitably have consequences elsewhere. The impact of climate change and biodiversity loss contributes to food insecurity, intensifies population movement and increases inequalities. This both feeds into regional and geopolitical instability and is worsened by it. The transformative role that technology can play in achieving the green transition and in mitigating climate change will need to be accompanied by economic and social policies to improve this impact. It is against this backdrop of intersecting trends that the decisions to shape the agenda for the next political cycle and beyond will be taken. Choices will need to be made to steer the EU through these challenging times. Drawing on the trends described, this next chapter outlines some of these choices.

3. STRATEGIC CHOICES

At a time when many global trends point to a troubled future, the strategic choices made by EU leaders in the near term will shape the long-term direction of the Union.

This chapter sets out strategic questions across five interlinked domains: geopolitics, environment, economics, technology and social solidarity. The intention is to help clarify where EU leaders will face choices of long-term strategic importance, without in any way advocating for specific decisions or directions.

Armed conflict, economic stress, environmental depletion, and societal polarisation dominate the headlines, but it is worth recalling that within challenges lie seeds of opportunity. The realms of technology and climate action are especially fruitful sources of new possibilities. Environmentally-friendly technologies create opportunities for prosperity by developing new industries and green jobs. Clean energy, smart cities, and sustainable practices have ripple effects; better air, cleaner water, and greater well-being benefit individuals, society and the planet as a whole.

The strategic choices made by EU leaders in the near term will shape the long-term direction of the Union.

One matter of particular European interest needs comment: EU Enlargement. The EU has evolved from six founding countries to 27 Member States at present. The next round of enlargement may well mean a membership of over 30 in the foreseeable future. There are large implications for the EU across the board: for its functioning and financing, and for key areas such as the Single Market, agriculture, cohesion, and energy. A shared long-term vision and a sense of commitment from both Member States and Candidate Countries will drive the process forward. Yet this is taking place at a time when it is especially difficult to foresee the course of events even in the near term. In view of the uncertainties involved, a high degree of flexibility may well be important to achieving successful outcomes.

Another European development worth noting is the preparation of the next Multiannual Financial Framework, which will cover the period from 2028. Here too, uncertainties about the course of events are such that an overarching strategic line may not be possible in the near term. In other words, flexibility and agility may be the preferable strategy also in relation to future EU financing. One assumption does seem reasonable: spending demands will outstrip the resources available.

Major trends at both the global and the European level point to a surplus of challenges and a deficit of solutions and resources. Setting this dilemma in a long-term context helps surface perspectives which otherwise risk being neglected. First, a long term, sustainable solution would seem to demand new approaches on both the revenue and the expenditure side. Second, the polarisation and fragmentation identified throughout the trends serves as a reminder of the advisability of equitably sharing both the burdens involved in tackling global challenges and the benefits that arise from overcoming them.

Further, there is always a risk of false economies. There are several areas where the avoidance of short-term costs could lead to even greater costs in the longer run; building defence capabilities, advancing the green transition, and investing in social and health services are pertinent examples.

Cross-sectoral considerations

The trends set out in the previous chapter impose particular strains on global governance. The EU and Member States now need to find strategies to revitalise the international governance they played a leading role in creating. They remain important vectors for advancing the EU's objectives on the world stage, not simply on international security, but also on trade, technological and environmental matters. A number of examples illustrate the interconnectedness of different sectors.

On international security, the EU needs to find ways to consolidate existing alliances, cultivate strategic partnerships with other actors, including emerging economic powerhouses such as India and Indonesia, and develop its relations with its southern neighbours in Africa, for example.

On the economic front, the interests of the EU as a major trading bloc are well served by a structure that can successfully police the line between legitimate trade defence measures and undue restrictions on market access. It also needs to consider whether demographic trends will create large-scale demand for migrant workers in the medium to long term. If so, what implications might follow in fields from social solidarity to security policy?

On the technology front, international cooperation on standard setting can pay dividends. There is also an international dimension to the effort to diffuse the benefits of successful innovations both quickly and equitably.

**Within
challenges
lie seeds of
opportunity.**



An example which crosses over into the environmental dimension is the need to make expensive green technology available to Lower and Middle-Income Countries. This in turn links to EU strategies for advancing the Sustainable Development Goals.

Choosing the EU's geopolitical game: playing soft or hard

The EU is still an important global player, but its influence may be severely put to the test by long-term trends pointing to a relative decline of its economic and demographic weight, and to the increased contestation of Western norms and values. In parallel, the international scene is changing: becoming more multipolar, increasingly uncertain, and less multilateral. Global structures and traditional alliances are being questioned. The US and China are increasingly locked in geopolitical confrontation, various existing or aspiring middle powers are seeking more global influence, and hedging strategies (displaying a mix of cooperative and confrontational approaches) are becoming increasingly popular. In this new reality, the nature of power is becoming less absolute and more situational.

At the same time, we are also witnessing the revival of hard, military power, often supplemented by cyber tools and the weaponisation of interdependencies. Zones of instability and conflict close to the EU and beyond are likely to persist and may even grow. As the risks to EU security grow, gaps in its defence and military capacities are increasingly exposed.

Filling these gaps will require significant commitments to build European security, defence and industrial capabilities. This in itself will not be an easy task, and will require EU leaders to consider significant trade-offs in the allocation of scarce resources. The design of a coherent European defence policy will also present leaders with significant choices to make with regard to the level of integration of national capabilities, and to the coordination of European efforts within the broader framework of NATO.

While hard power and defence are going to play an increasingly central role in international relations in the years ahead, developing the EU as a truly 'smart' power will also require paying attention to broader dimensions of influence. Soft power, in particular, will continue to be a crucial tool in the global battles of narratives; but it will also be expressed increasingly in the form of standard-setting capacity for critical and emerging technologies, and as influence in multilateral and plurilateral fora. While the EU is traditionally well-positioned in these domains, it will face growing competition and difficult choices to maintain its relative advantage.

In an international context marked by fluidity and uncertainty, the EU will increasingly be called upon to build resilience and autonomy.

In an international context marked by fluidity and uncertainty, the EU will increasingly be called upon to build resilience and autonomy.

At the same time, sufficient openness will be required to preserve competitiveness and efficiency in strategic sectors. This balancing act will necessarily involve trade-offs in the development of capacities at national, regional, or European level. It will also require choosing partners based on both shared values and complementarity of interests,

pursuing a transactional approach when necessary while also upholding the EU's funding principles, and while bearing in mind the EU's fundamental strategic interest in preserving an effective and rules-based multilateral order.

Finally, foreign policy starts at home. The EU's ability to lead global developments is linked directly to its degree of political unity, cohesion and public support, i.e. its ability to speak with one voice and to act accordingly. This has ramifications for both external and internal policy domains.

Strategic choice:

How can the EU establish itself as a smart global power able to navigate effectively an uncertain geopolitical landscape, acting with partners where possible and autonomously when necessary?

Green agenda at a crossroads: choosing the right direction

Under the current mandate, the EU has substantially accelerated its green transition by providing an unprecedented level of funding and adopting extensive new legislation. While doing so, it has also been challenged on different fronts. First, geopolitically, the Russian war against Ukraine and the increasing international competition in the net-zero economy have underlined the need to speed up the green transition and strengthen the diversification of energy, critical raw materials, or technologies. Second, politically, various interest groups and some political parties have started to question the pace and scope of the green transition. Third, economically, various sectors have started to raise concerns about the effects of related costs or legislation on their competitiveness

(e.g. energy intensive industries, agriculture).

It is clear that the green transformation cannot stop. The accelerating trends of climate change and environmental degradation point to the need for quick and effective action to avoid their worst effects. At the same time, it is increasingly clear that the green transition will benefit some more than others and create opportunities and challenges. All this raises various difficult trade-offs.

Between 2019 and 2024, the EU put in place an unprecedented number of green initiatives and related goals and objectives. One of the first issues for the next political mandate will be how to implement them efficiently. This also relates to the issue of how the EU can ensure continued public support for the green agenda, notwithstanding signs of growing discontent among some social, economic, or political groups.

Going forward and considering increasing impacts of climate change and environmental degradation, it will also be important to reflect on whether the EU should redirect resources and efforts towards adaptation rather than mitigation. Some difficult choices will also need to be made regarding various costs of the transition and the question of who should bear them: sectors or social groups with the highest environmental footprint or all proportionally. This for example relates to the changes in agriculture and food production, and shifting their focus towards simultaneously ensuring sustainability and food security.

Strategic choice:

How can the EU ensure that the green transition will be both effective and achieved in a socially and economically equitable way? What trade-offs will be necessary?

A new economy for a new era: fix it or change it

Economic growth and prosperity were the engines driving the European Union from the very beginning. They are also at the very core of the EU's global influence building on its regulatory power. The EU's social market economy is not only a source of its stability, but a key factor contributing to its support among EU citizens. However, several trends could affect the general wellbeing of Europeans in the future.

The geopolitical trend of increased fragmentation we observe today has economic consequences which could result in longer-term negative effects making international trade in goods and services less efficient. In addition, establishing net zero industries will require investment and international cooperation against the backdrop of sustained economic and technological rivalry between the US and China as well as upcoming new regional blocs. However, such geopolitical fragmentation and the net-zero transition could also translate into business opportunities in terms of long-term competitiveness as well as more jobs, although against aggravated skills shortages and demographic pressures.

Rising pressures on all aspects of sustainability fuel the debate to go beyond the traditional concepts of prosperity.

Rising pressures on the environmental, social and economic aspects of sustainability fuel the debate about the need for a new economic model to go beyond the traditional concepts of prosperity. The geopolitical and economic contexts add additional levels of complexity to the reflection of what is strategically necessary, what is economically viable, and what is politically achievable in the near term. Together, these aspects ultimately point to whether the current EU economic model requires adaptation.

Pulling these various risks and opportunities together, EU policymakers are likely to face several trade-offs. Some of these are already clearly visible in 2024, such as whether or not to ease restrictions on state aid in order to promote industry policy goals. Temporary flexibility is set against the long-term efficiency of the Single Market.

Others are gradually becoming apparent, such as rivalling policy goals: whether it is possible to improve both resilience and sustainability, as well as competitiveness, or whether trade-offs between these goals are inevitable.

On the external dimension of Europe's economic policy, this includes the ability of the EU to secure a level playing field globally (G7/G20), or whether new and regional approaches are needed to strengthen its global competitiveness. If trade policy does become more 'securitised', as global trends indicate, then a challenge will be how to promote a more flexible yet more interconnected approach between trade and development policy. Finally, whether GDP-measured economic growth should remain the sole priority or whether it should be complemented by other indicators (e.g. respect of planetary boundaries, European social model, overall wellbeing) merits serious consideration. Such potential trade-offs can be captured in two strategic choices.

Strategic choices:

To what extent are EU policymakers willing to accept economic risks and frictions in exchange for enhanced geopolitical and technological sovereignty?

Is the EU's current economic model fit for purpose or does it need a major overhaul to ensure long-term sustainability and wellbeing?

Framing the tech right: developing innovation that serves the EU and Europeans

New technologies often involve both opportunities and challenges. Recent advances, such as in AI, are disruptive, exponential and all-encompassing. Greater speed and scope result in greater complexity, and pose dilemmas for lawmakers. What should be regulated? How? By whom? Increasing technological convergence creates further challenges, as borders between different domains become more fluid. The goal of maximising benefits and limiting harm will remain difficult, given the complex dynamics of the social, economic and strategic challenges ahead.

The EU's regulatory efforts have a measurable effect at international level, due to the attractiveness of its Single Market. This creates an opportunity to promote values of inclusiveness, respect of human rights and responsibility towards future generations in the development and dissemination of new technology. But the so-called 'Brussels Effect' may be waning. At the same time, the role of the public sector in shaping technologies is also increasingly challenged – it is private,

non-state actors that shape the environment in which governments operate, rather than the other way round. The regulatory framework is critically important; but it is just one aspect of a successful innovation ecosystem. Support for research and development, access to capital, availability of a skilled workforce, and assistance in scaling up promising new technologies are also needed. An overarching strategy entails a long-term vision and reliable means for identifying priorities and navigating trade-offs.

In the coming decades, the EU will need to strike a balance between promoting the development of new technology and protecting society from possible risks. It will need to determine what limits can be applied to the legally guaranteed right to privacy, and whether legal protections will need to be redrafted in light of technological advances. The present consensus that resources for research and development must be increased is likely to continue, but this throws up questions about how to fund increased public investment, and how to incentivise a markedly higher level of private investment.

The EU is likely to continue to seek to direct resources to priority areas such as the green transition, but a related question remains open: to what extent should the EU play an active role in picking winners or European champions in specific sectors? The need to develop digital and technology-related skills is widely recognised; one challenge ahead is how to do this effectively, given that needs may change quickly in a period of rapid and radical innovation.

Strategic choice:

How to ensure the EU regulatory framework incentivises innovation and delivers economic benefits while safeguarding against potential harms?

A social contract fit for the 21st century: rewriting the rules

Europe has traditionally outperformed most world regions in both quality of life and policies supporting people. However, the wellbeing of Europeans is challenged on several fronts. These range from housing affordability, to non-standard forms of work, declining real wages, quality and availability of public services, or sustainability of pension funding. At the same time, efforts to ensure a proper standard of living can increase support for the transition, strengthen societal resilience, and decrease political polarisation.

Social fragmentation can be regarded as a threat multiplier, making it more difficult to respond to other challenges.

By contrast, approaches that downplay or ignore the wellbeing of EU citizens risk increasing distrust and opposition to necessary transitions in other areas. Social fragmentation can be regarded as a threat multiplier, making it more difficult to respond to other challenges. Social partnership, by contrast, can be a gain multiplier, bringing other objectives closer to fulfilment.

Demographic trends add to these complexities. They will influence Europe's economy, labour markets, innovation, and competitiveness and will come with important consequences for public finances, health, education, or welfare policies. At the same time, climate change, economic and social inequalities in other regions, or conflicts closer to and beyond EU borders, combined with European labour shortages, will increase migratory pressures. Enlarging the EU to new Member States would increase its population,

but will not solve the underlying challenges as ageing populations and low birth rates also affect the EU candidate countries.

Considering those challenges, a number of issues related to the current and future social contract can be identified as relevant for the next EU leadership. First, the actual ability of the EU to bring solutions to the long-term sustainability of social protection should be addressed. This is especially relevant given both current EU competencies in the field of social policies, and challenges such as pressures on public budgets, ageing and rising healthcare costs.

A second issue is the agency in areas such as managing demographic change, (for instance designing a migration policy responding to the needs of the EU labour market and aging population), supporting labour market participation, or fertility measures. While these areas are currently mainly within the competence of Member States, the EU could potentially play a bigger role in tackling them. Third, the role that the EU can effectively play to combat social polarisation should be explored. A fourth issue includes the concrete tools and ways to strengthen intra- and intergenerational fairness within current and future generations.

In the medium term, the definition and funding basis for essential public services and public support also needs to be re-thought – given ongoing changes in society and the economy what people can expect from government and how this should be paid for will require reflection.

Strategic choice:

How can the EU strengthen opportunities for all citizens, in order to prevent social fragmentation and consolidate support for the coming transitions? To what extent could social protection instruments help to mitigate anti-democratic tendencies?

Conclusion

Crises of the recent past remind us that time is of the essence. When difficult decisions are delayed, the scale of the challenge at hand tends to increase – and one’s own capacity to shape events tends to decrease. Near-term costs of new initiatives can be substantial, but they need to be set against the possibility that failure to act will bring even greater costs in the long term.

Some general principles drawn from the EU’s own experience bear repeating. A coordinated approach with alignment across the EU institutions and the Member States is more likely to succeed than an approach where different instances take contradictory or opposing positions. Coalition building, internally and externally, can have dividends. In the EU context, consensus has always been an important factor; as a rule, stronger consensus is conducive to better outcomes.

The world will change over the coming decades, and so will Europe. Integration of long-term goals into near-term decision-making can increase our chances of success. The better we understand emerging challenges, the better we can anticipate and prepare for coming transformations. There are grounds for optimism; the EU has had remarkable success in overcoming crises.

The EU finds itself in the midst of trends which could generate interlocking crises at home and abroad. Passivity is the worst option.

When pressed, it can marshal huge reserves of determination and ingenuity.

Today, the EU again finds itself in the midst of trends, which, left unattended, could generate interlocking crises at home and abroad. Passivity is the worst option; determined and united action across all its areas of activity seems essential, in order to turn challenges into new opportunities to maintain and spread peace and prosperity in Europe and beyond.

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