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COMMISSION STAFF WORKING DOCUMENT
Accompanying the document

**Communication from the Commission to the European Parliament, the Council, the
European Economic and Social Committee and the Committee of the Regions**

“The 2024 Annual Single Market and Competitiveness Report”

{COM(2024) 77 final} - {SWD(2024) 77 final}

Table of Contents

Annex 1: Overview of key performance indicators (KPIs) on long-term competitiveness.....	2
Annex 2: Key policy achievements	20
Single Market enforcement action plan.....	20
Industrial Strategy.....	29
SME Strategy	37
Annex 3: SME Relief Package	41
Annex 4: The Single Market at 30.....	46
Annex 5: Overview of resilience measures of key international partners	52

ANNEX 1

Overview of key performance indicators (KPIs) on long-term competitiveness

EU's long-term competitiveness requires a forward-looking, well-defined and coordinated EU framework that can inform the investments decisions for the future. In its communication Long-term competitiveness of the EU: looking beyond 2030¹, the Commission proposes to work along nine mutually reinforcing drivers to foster competitiveness and defines a set of key performance indicators (KPIs) to track progress towards the targets and ensure the necessary political focus and responsiveness. Accompanying these nine drivers, the Commission is working towards a growth enhancing regulatory framework to improve growth.

This annex provides an overview of the selected 19 KPIs² aimed at monitoring progress in each of the competitiveness dimensions³.

¹ COM (2023) 168 Final.

² The 19 selected KPIs include 2 candidate KPIs selected by the Chief Economist Network of the EU Member States: KPI 15b: Average test scores for 15-year-olds (PISA) and KPI 16a Exports of good and services as a share of the rest of the world's imports,

³ These KPIs, as well as additional indicators, are reported in the Single Market and Competitiveness Scoreboard, available at [The Single Market and Competitiveness Scoreboard](https://ec.europa.eu/economy_finance/scoreboard) | [Single Market and Competitiveness Scoreboard](https://ec.europa.eu/economy_finance/scoreboard) (europa.eu).

1. A functioning Single Market

KPI 1: Integration in the Single Market: trade over gross domestic product (GDP)

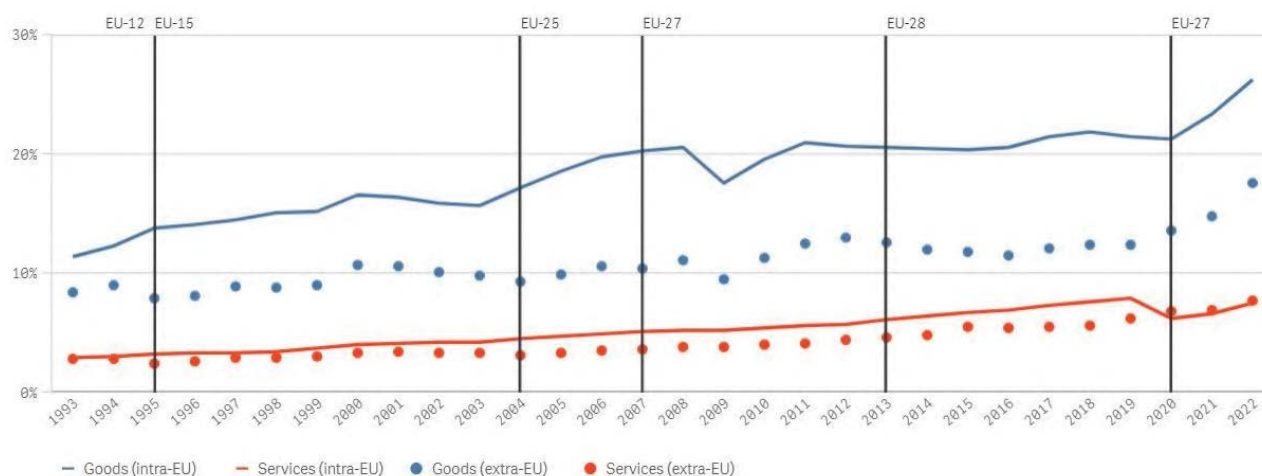
The chart below shows the trend in the EU's trade flows in goods and services within the EU and with the rest of the world as a share of total EU GDP between 1993 and 2022.⁴

Trade is measured by the average of imports and exports.

For both goods and services, trade integration in the EU has more than doubled in the past three decades. In 1993, trade integration in goods for the 12 EU countries in the Single Market at the time stood at 11.4% of the EU's GDP. This gradually increased to 26.3% in 2022 for today's 27 EU countries. During the same period, trade integration in services grew from 2.9% to 7.5%.

The Single Market is the EU's main source of trade in goods. It is about 60% higher than the EU's trade in goods with the rest of the world. Trade in services within the EU remains broadly at the same level as EU trade in services with the rest of the world, which is about 7.5% of GDP.

The data on extra-EU trade are commented under KPI 16.



Source: Eurostat.

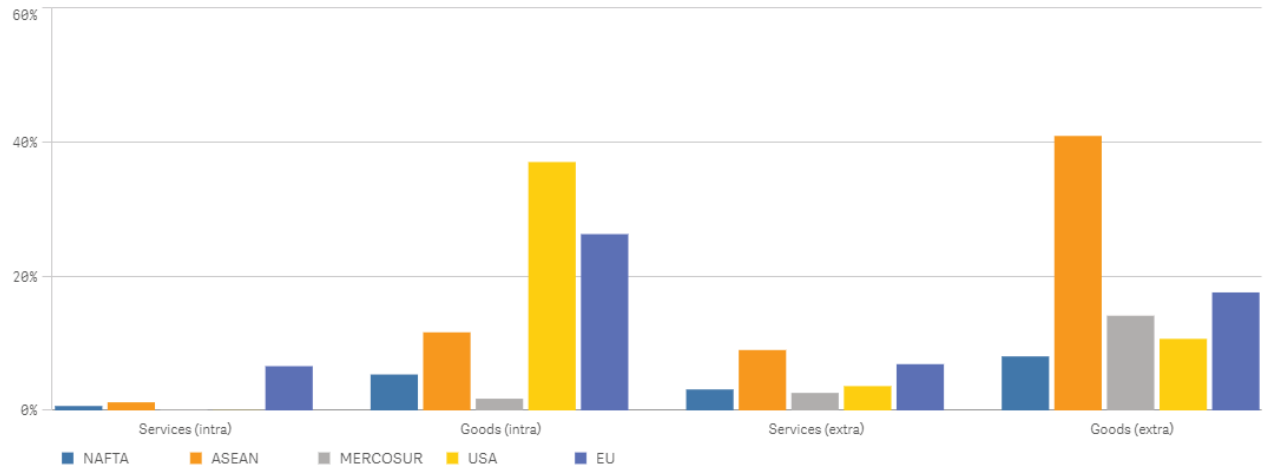
The following chart provides international comparisons, in particular it shows trade flows in goods and services of several economic blocs, within their bloc and with the rest of the world, as a share of their respective GDP.⁵ This comparison is purely indicative as it does not take into account the differences between the political set-ups of the economic areas identified (e.g. unlike the others, the USA is a sovereign state).

⁴ The vertical lines highlight breaks in the time series due to changes in the number of countries in the Single Market.

⁵ It is calculated using 2022 goods data from the Comtrade database and 2021 services data from the WTO. Due to lack of data, 2021 goods data is used for Laos and Vietnam. There is also no data for internal USA trade in services.

Trade is measured by the average of imports and exports.

Apart from the USA internal market for goods, the EU can be considered as substantially more integrated in both goods and services than the other economic blocs, for which the main source of trade is outside their bloc.

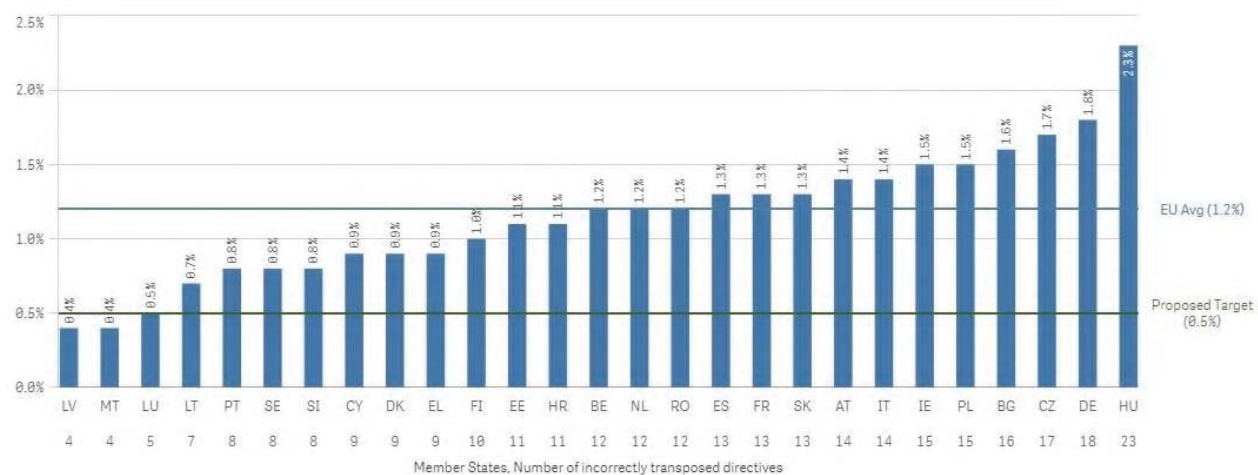


Source: Eurostat, World Bank World Development Indicators, UN COMTRADE, U.S. Freight Analysis Network, WTO Balanced International Trade in Services.

KPI 2: Conformity deficit (incorrectly transposed directives)

The conformity deficit measures the number of transposed Single Market directives for which the Commission has launched infringement proceedings for incorrect transposition. It is expressed as a percentage of the number of Single Market directives notified to the Commission as “transposed” or “not requiring any further implementation measures”. Only the Court of Justice of the European Union can rule definitively that a directive has not been transposed correctly, and the Commission is still working on the conformity assessment of a number of notified national measures. This should be kept in mind when interpreting the conformity deficit statistics.

Conformity deficit of Member States, by Member States as of 5 December 2023: the average conformity deficit slightly decreased for the first time in 4 years (1.2% down from 1.3% last year).



Source: European Commission.

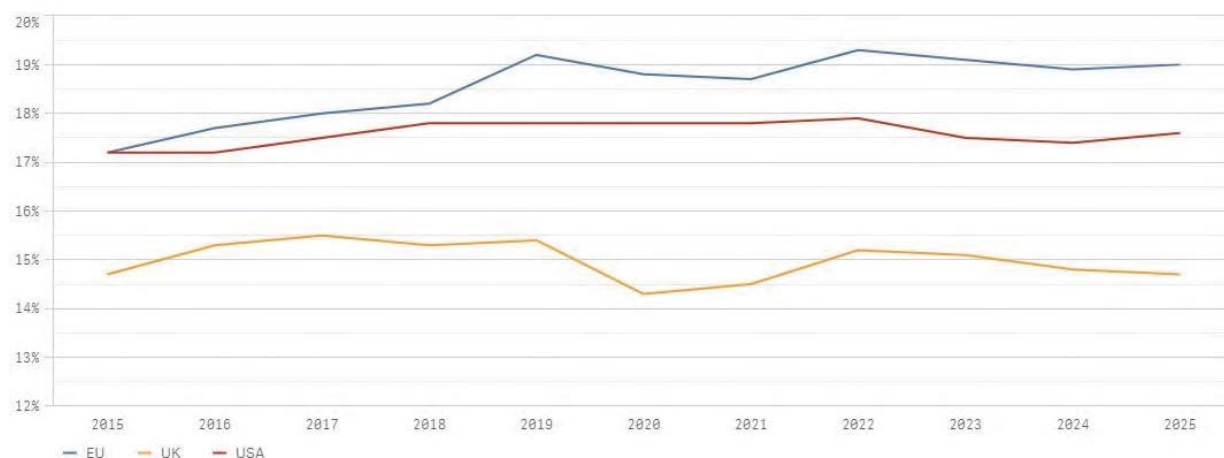
2. Access to private capital and investment

KPI 3: Private investment as a share of GDP

This chart shows the trend in private investment (gross fixed capital formation) as a share of annual GDP for the EU, the UK and the USA. The 2023, 2024 and 2025 values are forecasts.

The data refer to the increase of the capital stock belonging to enterprises and individuals, including equipment, land, houses and other buildings, and intangibles like R&D. It measures how the private sector improves its capacity to produce goods, deliver services and increase income in the future.

Private investment in the EU has recovered from its fall during the COVID-19 pandemic. As a share of GDP, it is currently higher than the UK and the USA's. Forecasts indicate further increases in 2023, 2024 and 2025, supported by NextGenerationEU, meaning that the EU economy should develop faster. However, a challenge to both public and private investment is the tightening of monetary policy due to higher inflation rates in 2023.



Source: AMECO.

National data on private investment, share of GDP (2022)

BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	S
21.2	14.8	22.1	18.6	19.5	22.4	19.6	10.1	17.3	21.5	15.9	19.3	17.8	17.8	18.2	13.3	22.8	21.9	17.7	21.9	12.7	17.7	20.6	16.2	17.1	20.1	22.1

KPI 4: Venture capital investments as a share of GDP

Venture capital is a form of equity financing particularly relevant for young companies with innovation and growth potential but untested business models and no track record; it replaces and/or complements traditional bank finance.

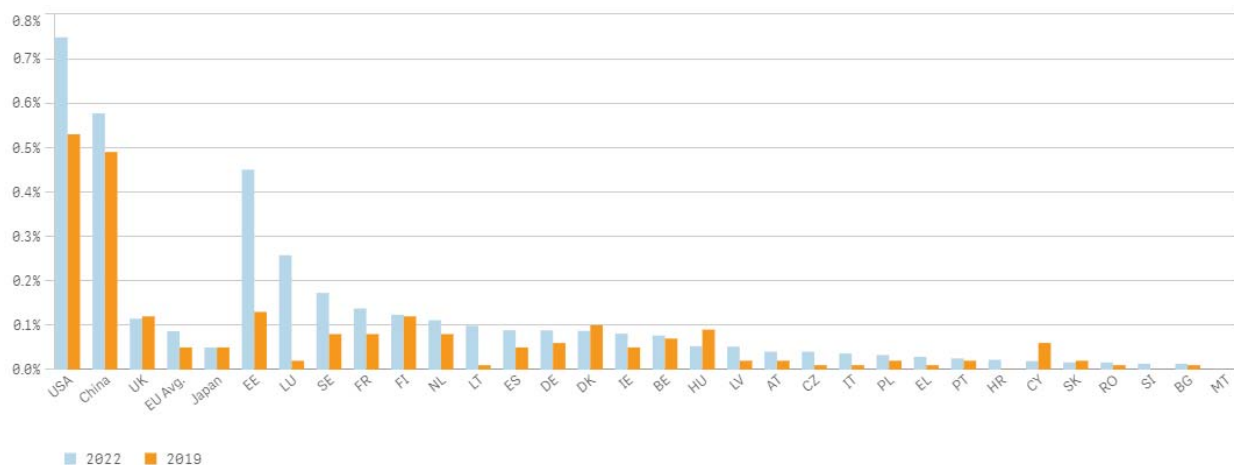
The chart measures venture capital investments in a country as a percentage of the country's GDP in 2019 and 2022.

Countries with the highest values are more effective in attracting venture capital investments.

The venture capital investments to GDP indicator fell in 2022 compared to the previous year. All EU countries saw a decrease, except Portugal and Croatia. Estonia is still the country with the highest value in 2022, followed by Luxembourg, Sweden, France, Finland.

The decrease in this indicator was due, in particular, to a reduction in venture capital investments in the EU, compared to the previous year, caused by the change in economic outlook (i.e interest rate, inflation). This decrease was mainly the result of the lower volume of later-stage venture investments (despite an increase in the number of companies that received a later-stage venture investment).

In comparison to the EU average, the corresponding figures for USA and China respectively are about 9 and 7 times higher, while UK is slightly above and Japan somewhat below. An overall downward trend was also observed in China, US, Japan, UK.



Source: Invest Europe, EUROSTAT, OECD, Statista.

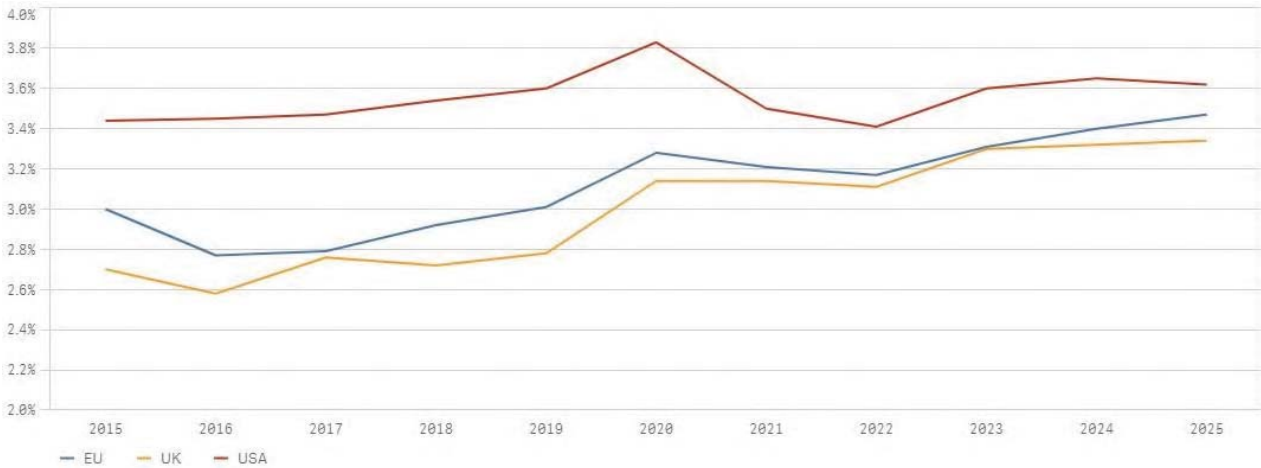
3. Public investment and infrastructure

KPI 5: Public investment as share of GDP

This chart shows the trend in public investment (gross fixed capital formation) as a share of annual GDP for the EU, the UK and the USA. The 2023, 2024 and 2025 values are forecasts.

Public investment is a measure of how much money a country spends to increase the value of fixed assets (for example, road infrastructure, buildings, equipment and intangibles). This investment is necessary for providing various public services, such as public administration, schools, hospitals, police and the army. A higher level of public investment leads to more capacity to deliver public services, resulting in, for example, improved roads, better healthcare and increased public safety.

The share of public investment in GDP increased during 2020, the first year of the COVID-19 pandemic. This increase was the result of more investment in public health and a fall in GDP. In the EU, public investment is supported by the NextGenerationEU initiative. However, a challenge to both public and private investment is the tightening of monetary policy due to higher inflation rates in 2023, which could lead to more restrictive financing conditions.



Source: European Commission, annual macro-economic (AMECO) database.

National data on public investment, share of GDP (2022)

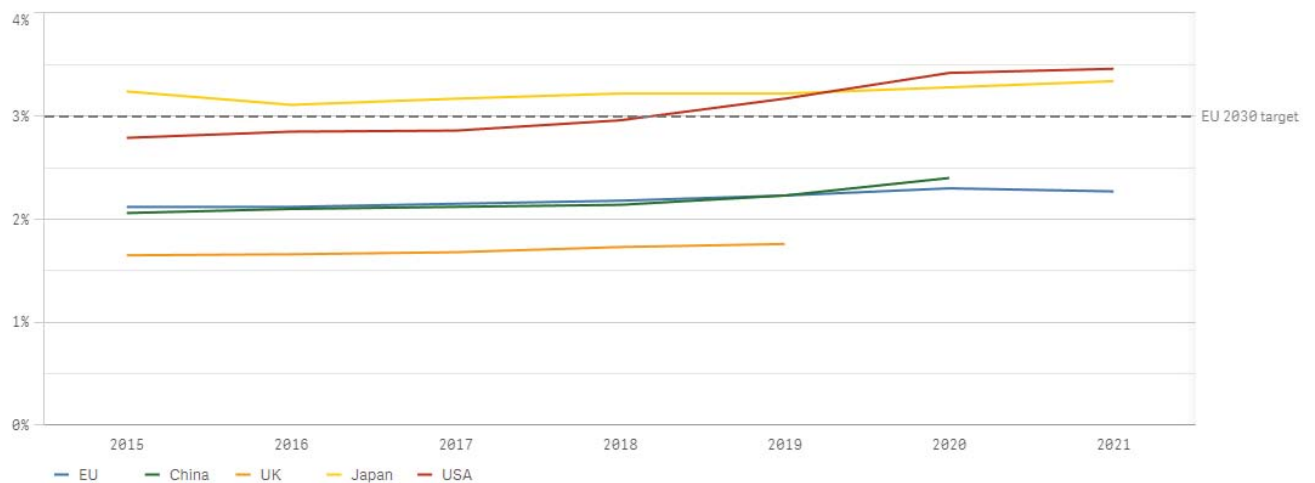
BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI
2.73	2.30	4.66	3.10	2.60	5.14	2.00	3.56	2.77	3.73	3.77	2.68	2.57	3.90	3.17	4.24	5.39	3.37	3.16	3.39	4.09	2.38	4.33	5.40	3.01	4.1

4. Research and Innovation

KPI 6: R&D expenditure as a percentage of GDP

The following chart shows the development of annual R&D expenditure as a percentage of GDP for the EU, China, Japan, the UK and the USA.

EU R&D intensity grew from 2.12% to 2.27% of GDP between 2015 and 2021. However, it remains below that of the USA (3.46% in 2021), Japan (3.34% in 2021) and China (2.40% in 2020). With a gap of 0.73 percentage points, the EU remains some distance from its ambition to raise R&D intensity to 3% by 2030.



Source: Eurostat, OECD Main Science and Technology Indicators.

National R&D intensity, share of GDP (2021)

BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	S
3.43	0.77	2.00	2.76	3.13	1.75	1.11	1.46	1.43	2.22	1.24	1.45	0.83	0.74	1.11	1.04	1.64	0.65	2.27	3.26	1.43	1.68	0.47	2.13	0.92	2.99	3.43

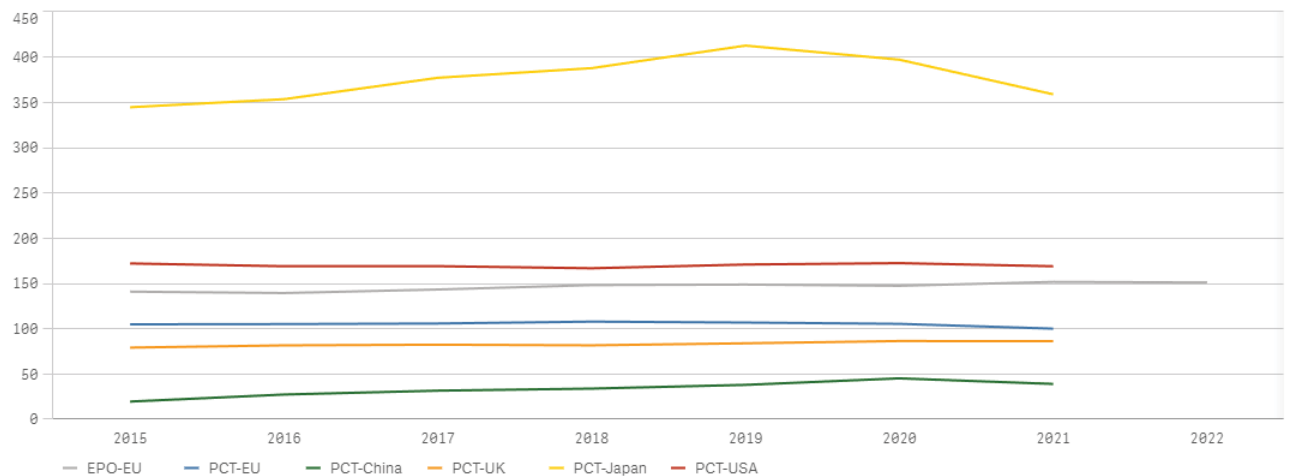
KPI 7: Number of patent applications per million inhabitants

The chart shows: (a) the number of patent applications to the European Patent Office (EPO) by EU applicants per million population, and (b) the number of patents filed under the Patent Cooperation Treaty (PCT) per million population by applicants' country of residence.

A patent application to the EPO can provide protection in up to 44 countries, including all EU countries, whereas a PCT patent application can provide protection in the 157 contracting states to the PCT. The number of EPO patent applications and PCT patent applications should not be directly compared because each system provides differing geographical scopes of protection.

Patent applications to the EPO by EU applicants grew on average by 1% every year between 2015 and 2022, reaching 151 per million inhabitants in 2022.

The number of PCT patent applications filed by EU applicants remained stable between 2015 and 2020, slightly decreasing between 2020 and 2021 to around 100 per million inhabitants. This figure is significantly lower than the number of PCT patent applications filed by applicants residing in Japan (358.87 per million inhabitants in 2021) and the USA (168.99) but higher than in China (39.03) and the UK (86.20).



Source: Eurostat (EPO patents), OECD (PCT patents), World bank (population).

National data on the number of patents applications rounded to the unit - EPO (2022)

BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE
224	7	21	453	297	50	225	18	41	161	8	82	46	12	28	531	11	138	387	266	16	30	2	58	9	386	482

National data on the number of patents applications rounded to the unit - PCT (2021)

BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE
115	6	24	255	198	29	176	8	30	106	6	58	42	16	13	451	10	85	222	169	9	19	1	41	7	327	349

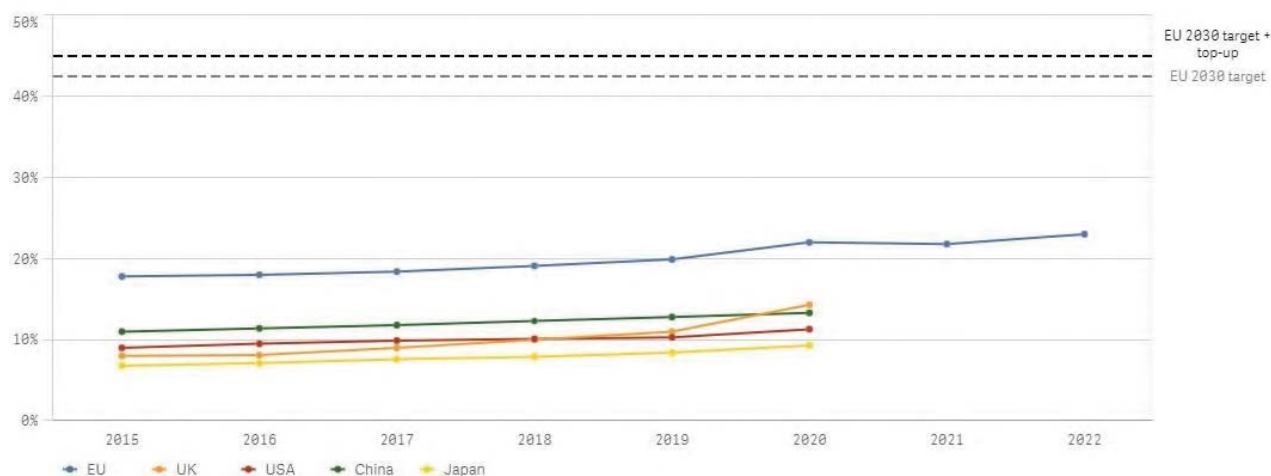
5. Energy

KPI 8: Share of energy from renewable sources

This indicator measures the share of energy from renewable sources in gross final energy consumption. The revised Directive (EU) 2018/2001 on the promotion of the use of energy from renewable sources (Renewable Energy Directive) sets a binding European Union wide target of 42.5% in 2030, with an indicative top-up of 2.5%.⁶

Renewable energy deployment has been steadily increasing in recent years and the EU has historically surpassed other major economies in this field. In 2020 energy from renewable sources represented 22% in gross final energy consumption as compared to shares approximately between 9 and 14% of UK, USA, Japan and China. In 2022, the EU share was 23%. Nonetheless, an increase of current shares is required in less than a decade to timely achieve the 2030 target (42.5%).

⁶ Values for the EU are taken from Eurostat and those for the UK, USA, China and Japan have been provided by JRC.



Source: Eurostat, JRC. The UK figure is based on data from Great Britain; thus, it excludes Northern Ireland.

National data on share of energy from renewable sources (2022)

BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE
13.8	19.1	18.2	41.6	20.8	38.5	13.1	22.7	22.1	20.3	29.4	19.0	19.4	43.3	29.6	14.4	15.2	13.4	15.0	33.8	16.9	34.7	24.1	22.9	17.5	47.9	66.0

KPI 9: Electricity prices for non-household consumers

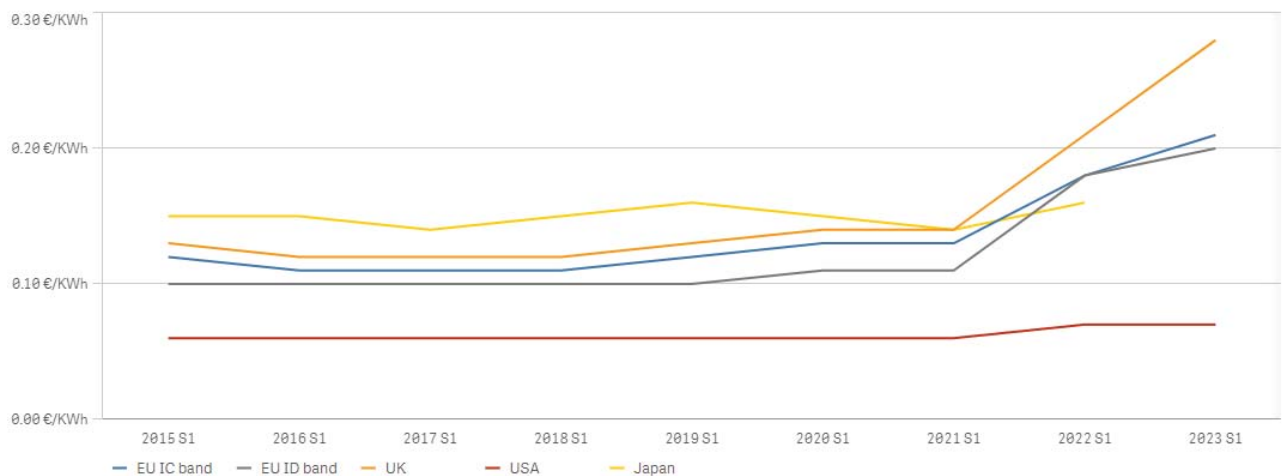
The chart shows non-household retail electricity prices in the EU, UK, USA and Japan. This indicator gives an idea of energy costs and cost-competitiveness, especially for those industries where electricity prices make up a significant proportion of total energy costs.

Non-household retail electricity prices in the EU are calculated using Eurostat data, broken down into two consumption bands. The data are from the first half of 2015 and are measured in euro per KWh, excluding VAT and other recoverable taxes.

The IC consumption band refers to medium-sized consumers with an annual consumption of between 500 MWh and 2 000 MWh, i.e the vast majority of small sized enterprises in services and manufacturing sectors, and gives an insight into affordability.

The ID consumption band refers to large-sized consumers with an annual consumption of between 2 000 MWh and 20 000 MWh, such as in electricity intensive manufacturing sectors, and gives an insight into international competitiveness. Only this band is used for international comparisons.

Since 2021, average prices in the EU, the UK and Japan have been on a similar clear upward trend. The latest values are EUR 0.16 per KWh for Japan (in the first half of 2022), EUR 0.21 per KWh for the EU and EUR 0.28 per KWh for the UK (both in the first half of 2023). However, prices in the USA (EUR 0.07 per KWh) have remained significantly lower than in the EU, like in most other G20 countries, particularly those with emerging industrial economies.



Source: Eurostat 'Electricity prices for non-household consumers - bi-annual data (from 2007 onwards)' [NRG_PC_205]. International prices are reported for the USA, UK and Japan, using data from the US Energy Information Administration (EIA), the UK Department for Energy Security and Net Zero (DESNZ) and the International Energy Agency (IEA).

National data on electricity prices for non-household consumers - IC band (2023 S1)

BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK
0.23	0.15	0.20	0.13	0.22	0.16	0.28	0.21	0.12	0.25	0.29	0.24	0.28	0.15	0.17	0.25	0.30	0.13	0.24	0.26	0.21	0.10	0.33	0.22	0.27

National data on electricity prices for non-household consumers - ID band (2023 S1)

BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK
0.22	0.14	0.18	0.14	0.21	0.15	0.24	0.22	0.11	0.22	0.23	0.24	0.27	0.13	0.15	0.23	0.27	0.12	0.25	0.23	0.21	0.09	0.25	0.22	0.25

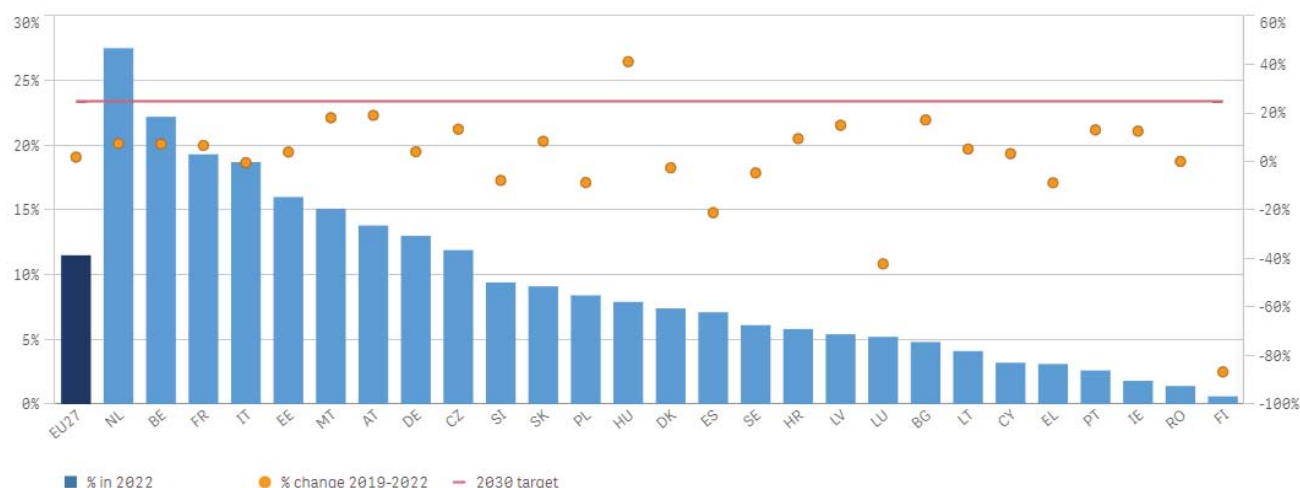
6. Circularity

KPI 10: Circular material use rate

This indicator measures the degree of the economy's circularity by looking at the rate of use of secondary materials. Secondary raw materials, replacing primary materials in the economy, reduce pressures on resources and limit waste. A higher rate indicates a higher degree of circularity⁷.

Secondary raw materials accounted for only 11.5% of all materials used in the EU economy, slightly increasing between 2019 and 2022. This suggests that the linear model (no reuse of material) still prevails, and the EU is far from reaching the aspirational target of 23.4% that requires doubling its circular material use rate by 2030.

⁷ On the right axis, the chart also shows the percentage change since 2019.



Source: Eurostat.

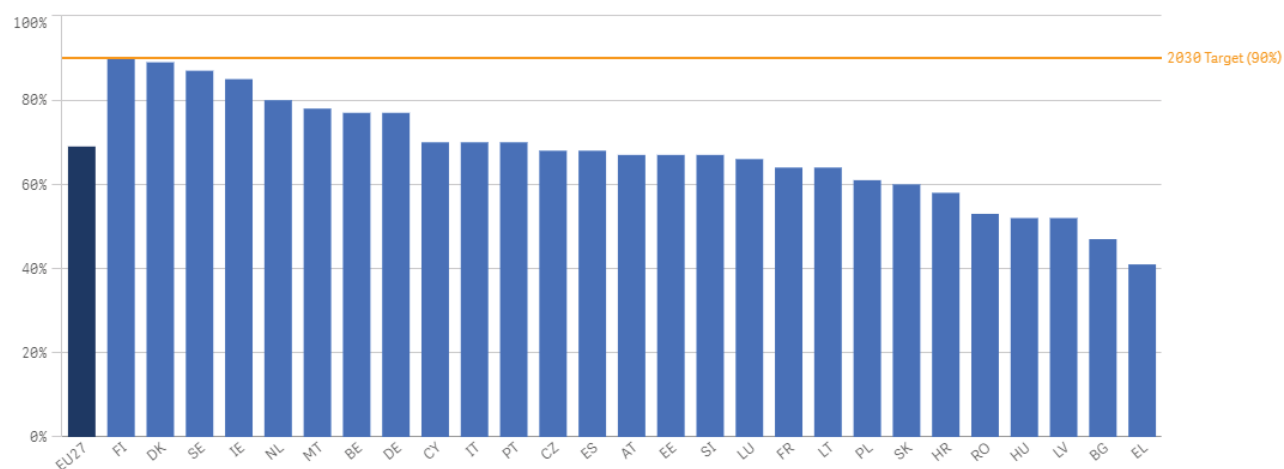
7. Digitalisation

KPI 11: Digital intensity in SMEs

The indicator measures the share of SMEs with at least a basic level of digital intensity.

The digital intensity score is based on counting how many out of 12 selected technologies are used by enterprises. A basic level requires usage of at least 4 technologies. The set of technologies considered by the indicator can vary between different survey years, depending on the questions included in the survey (see [DII v1 v2 v3 v4 2015-2023.xlsx \(europa.eu\)](#)).

In 2022 the share of the SMEs with at least basic level of digital intensity in Member States ranged between 89.5% and 41.2%, with an EU average of 69.1%. Around 60% of the EU countries show a value below the EU average. The value of the indicator is still far from the 2030 EU target of 90%, established by the Digital Decade Policy Programme.



Source: Eurostat: see also: <https://digital-strategy.ec.europa.eu/en/library/2023-report-state-digital-decade>

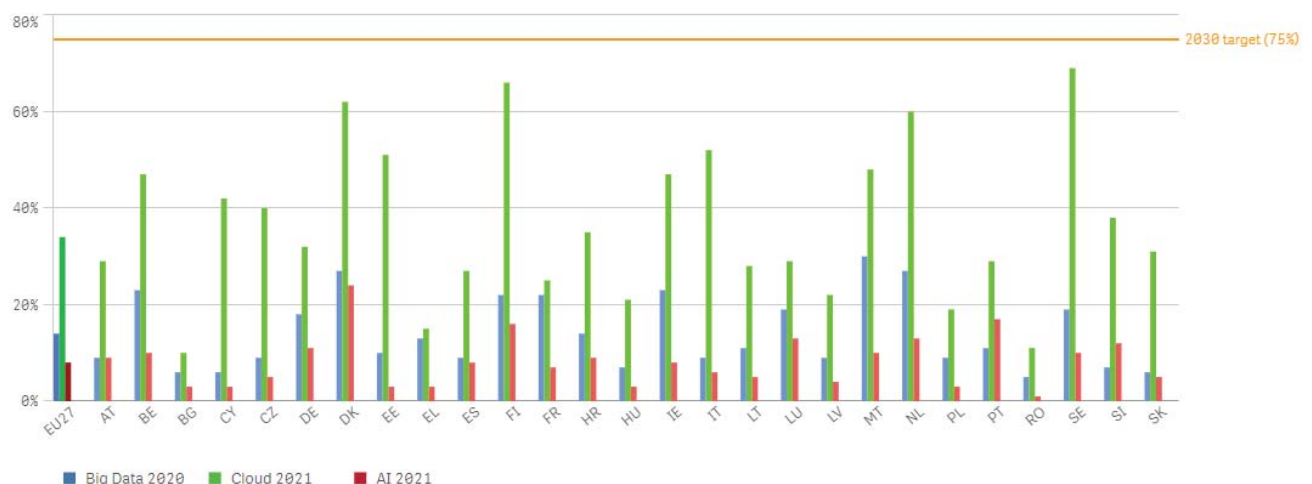
KPI 12: Digital technologies adoption by companies

This indicator measures the degree of companies' adoption of digital technologies: big data, cloud and artificial intelligence (AI).

The big data series is the percentage of businesses analysing big data from any data source. The cloud series measures the percentage of businesses purchasing at least one of the following cloud computing services: hosting a database, accounting software applications, customer relationship management software, computing power. The AI series measures the percentage of businesses, employing 10 or more people, using at least one AI technology. The indicator is calculated for all businesses in manufacturing and service sectors, excluding the financial sector.

The share of EU businesses that have adopted digital technologies was 14% for big data (2020), 34% (2021) for cloud and 8% for AI (2021).

The Digital Decade policy programme set a common target for these three technologies: at least 75% of EU businesses are expected to take up one or more of them by 2030. The chart shows that just three of the 27 EU countries are close to the target, whereas most countries score very low for all three technologies.



Source: Eurostat.

8. Education and Skills

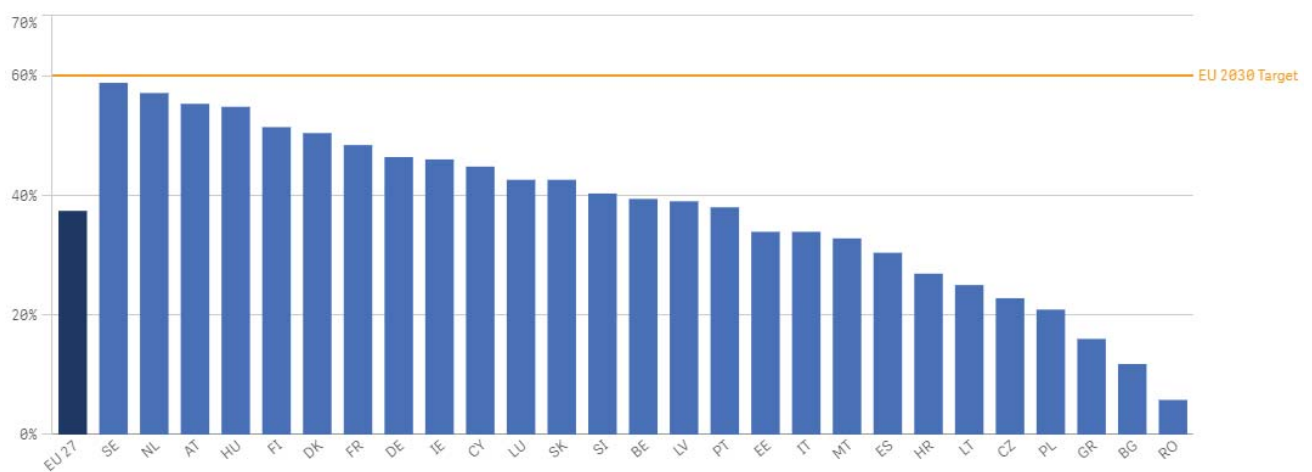
KPI 13: Adult participation in education and training every year (average of male and female)

This indicator measures the share of adults (25-64 years) that have taken part in an organised learning activity in the 12 months before the survey. These learning activities can encompass formal education and training in institutions or activities in non-formal settings such as in-company training and training purchased on the market or provided by local authorities or other bodies.

The EU leaders welcomed in 2021 the target, proposed in the **European Pillar of Social Rights**⁸ Action Plan, of 60% of adults participating in learning by 2030, with each Member State setting a national target.

The EU Labour Force Survey (LFS) and the EU Adult Education Survey (AES), both coordinated by Eurostat ask adults about participation in learning, with slightly different definitions. The LFS is carried out every 2 years (as of 2022), the AES every 6 years (latest 2016). The chart is based on a special extraction from the 2016 AES.

The chart shows a large difference in the rate across countries, with 5 countries above 50% and 3 around 10% or less. The EU average is at 37.4%, meaning that about one adult in three participates in learning over one year. This falls short of meeting the need to keep the EU workforce sufficiently skilled to harness the digital and the green transitions, which are changing the labour market and the skill sets required.



Source: Eurostat, 2016 EU Adult Education Survey.

KPI 14: Adult employment rate

This indicator shows the EU trend in the employment rate of people aged 20 to 64 and compares the EU rate with other countries.

The employment rate⁹ measures the use of available labour resources and is affected by changes in the activity¹⁰ and unemployment¹¹ rates. This indicator is sensitive to economic cycles and is also affected by policies, such as active labour market policies or income support, and inequalities of opportunities for disadvantaged groups. For individuals, employment is a source of income and promotes inclusion in society.

In 2022, the EU employment rate was 74.6%. The European Pillar of Social Rights sets three headline targets. One of them is that at least 78% of the population aged 20 to 64 should be in employment by 2030. The chart shows progress to this target despite a fall in employment during the COVID-19 crisis.

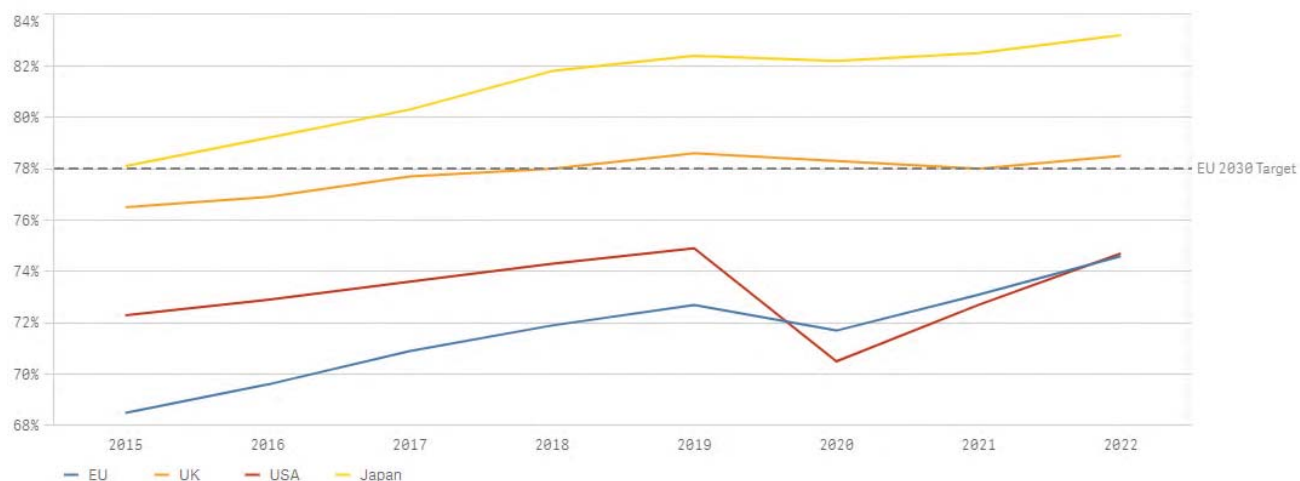
⁸ [The European Pillar of Social Rights in 20 principles - Employment, Social Affairs & Inclusion - European Commission \(europa.eu\)](#)

⁹ [Glossary: Employment rate - Statistics Explained \(europa.eu\)](#)

¹⁰ [Glossary: Activity rate - Statistics Explained \(europa.eu\)](#)

¹¹ [Glossary: Unemployment - Statistics Explained \(europa.eu\)](#)

Employment rates in the EU and the USA follow a broad similar pattern, and rates in the UK and Japan remained higher between 2015 and 2022. (For international comparison purposes, the chart uses OECD data for non-EU countries. The definition of employed people might differ slightly and lead to slight differences in levels – see source below).



Source: EU: Eurostat, Labour Force Survey (Statistics | Eurostat (europa.eu) ; Japan, UK, US: OECD, Labour Force Survey.

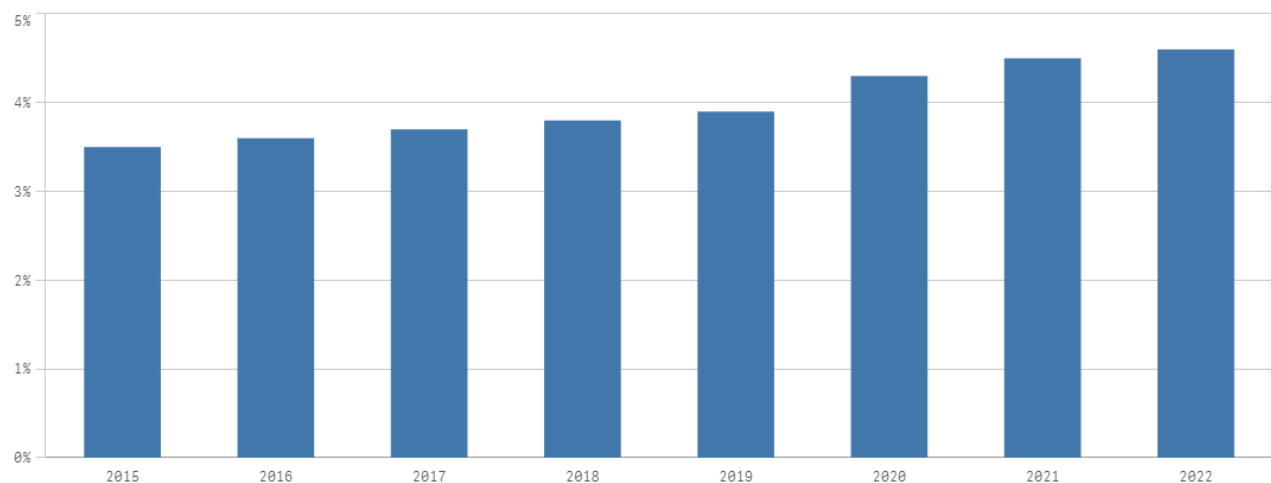
National data on adult employment rate (2022)

BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE
71.9	75.7	81.3	80.1	80.7	81.9	78.2	66.3	69.5	74.0	69.7	64.8	77.9	77.0	79.0	74.8	80.2	81.1	82.9	77.3	76.7	77.5	68.5	77.9	76.7	78.4	81.8

KPI 15: ICT specialists (average of female and male, % of employment)

This indicator measures the share of employed ICT specialists out of total employment. The definition of ICT specialists is based on the International Standard Classification of Occupations (ISCO-08) and includes ICT service managers, ICT professionals, ICT technicians, ICT installers and servicers.

In 2022, the percentage of ICT specialists employed in EU countries was between 2.5% and 8.6%, with an EU average of 4.60%. Around 56% of EU countries are below the EU average. The indicator shows a positive trend with constant growth in recent years. However, the target for ICT specialists to make up 10% of total employment (20 million ICT specialists in absolute terms) seems unlikely to be met on current trends.



Source: Eurostat.

National data on ICT specialists (2022)

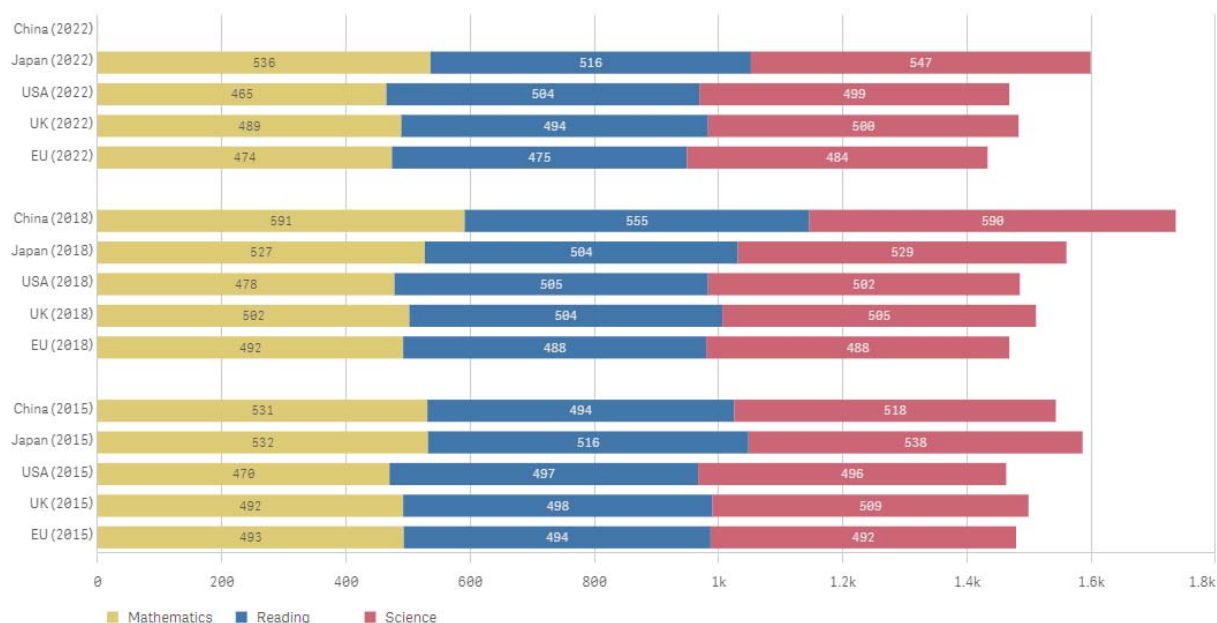
BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE
5.6	3.8	4.5	5.7	5.0	6.6	6.2	2.5	4.3	4.3	3.7	3.9	4.6	4.4	4.4	7.7	4.1	4.8	7.2	5.0	3.6	4.5	2.8	4.5	4.3	7.6	8.6

Candidate KPI 15a: Average test scores for 15-year-olds (PISA)

This chart shows the PISA scores of 15-year-olds in mathematics, reading and science in 2022, 2018 and 2015.

EU data are the average scores of the 27 Member States, weighted by the number of 15-year-olds enrolled in education. In 2022, Luxembourg did not participate so is not included in the EU average. Chinese data come from the following four Chinese provinces/municipalities that participated in PISA 2018: Beijing, Shanghai, Jiangsu, and Zhejiang. In 2022, China was unable to collect data because schools were closed during the intended collection period. In PISA 2015, Chinese data came from Beijing, Shanghai, Jiangsu, and Guangdong.

Overall, EU students underperform compared to their peers in the UK, the USA, Japan and China. Compared to 2018, EU students performed worse in 2022 in all three disciplines.



Source: OECD PISA database.

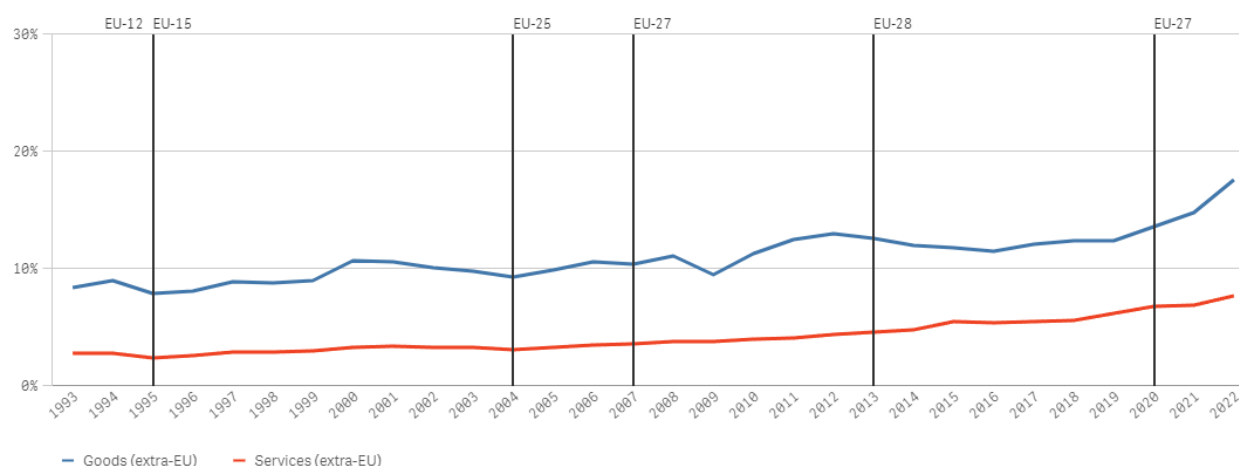
9. Trade and open strategic autonomy

KPI 16: Trade with the rest of the world (as share of GDP)

The chart below shows the role played by trade in goods and services between EU Member States and the rest of the world, as a share of total EU GDP, between 1993 and 2022. Trade is measured by the average of imports and exports.

In both goods and services, EU trade with the rest of the world has overall increased in the past three decades. While in 1993 trade in goods for the 12 Member States composing the Single Market at the time stood at 8.4% of the bloc's GDP, it has gradually increased to 17.6% in 2022 for today's EU-27. During the same period, trade in services went from 2.8% to 7.7%.

The share of extra-EU trade in goods over GDP amounts to approximately two thirds of trade within the Single Market and has been growing particularly since 2020. As for trade in services with the rest of the world, it remains broadly at the same level as EU trade in services within the Single Market.



Source: Eurostat.

National data on extra-EU trade in goods, share of GDP (2022)

BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE
25.8	23.8	18.6	15.0	18.1	12.8	30.2	19.0	14.4	12.6	12.3	15.1	12.6	14.5	23.8	7.1	21.1	18.2	28.9	14.6	15.3	10.5	10.0	18.1	25.3	14.9	14.3

National data on extra-EU trade in services, share of GDP (2022)

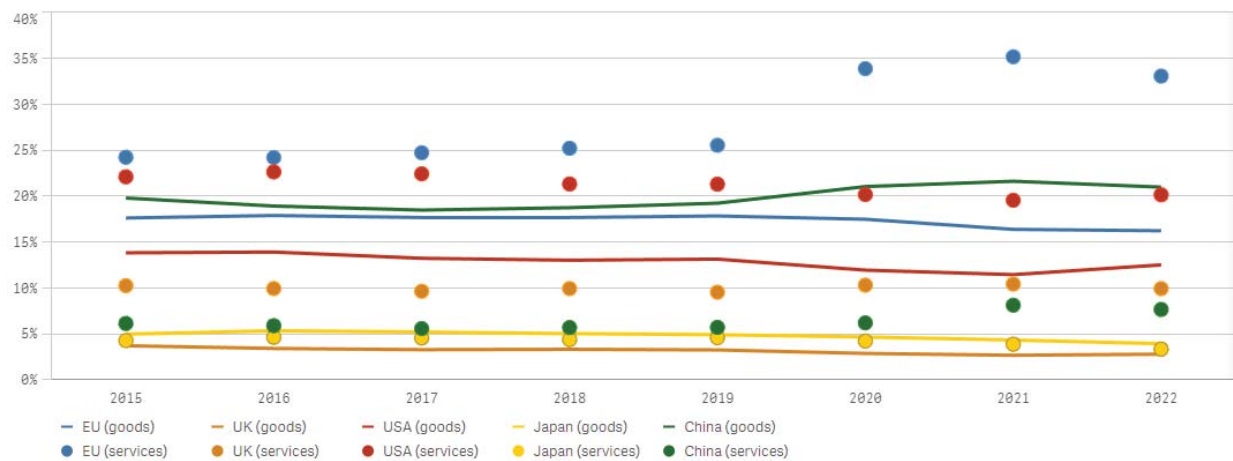
BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE
9.0	4.9	4.2	18.0	5.7	8.8	52.1	11.6	4.4	5.7	5.3	2.6	40.8	5.3	6.0	67.1	5.0	49.1	9.3	4.0	4.1	6.4	3.1	4.1	3.0	5.6	8.2

Candidate KPI 16a: Exports of goods and services as a share of the rest of the world's imports

The chart shows the exports of goods and services of the EU, the UK, the USA, Japan, and China as shares of the rest of the world's imports from 2015 to 2022. This helps evaluate the relative importance of exports from the EU and those four countries in the global market. A higher percentage indicates a more significant role in the global economy, and a lower percentage suggests a smaller presence.

The indicator is calculated using goods data from the Comtrade database and services data from the World Bank's World Development Indicators. Trade within the EU is not considered in the rest of the world's imports or in the EU's exports. The amount of trade in services within the EU and from the EU are estimated using ratios calculated with Eurostat data.

In 2022, EU exports in goods and services accounted for 16.2% and 33.1% of the rest of the world's imports, respectively. Among the countries featured in the chart, only China's goods exports captured a larger share of its respective applicable market than the EU's.



Source: Eurostat.

10. Regulatory burden

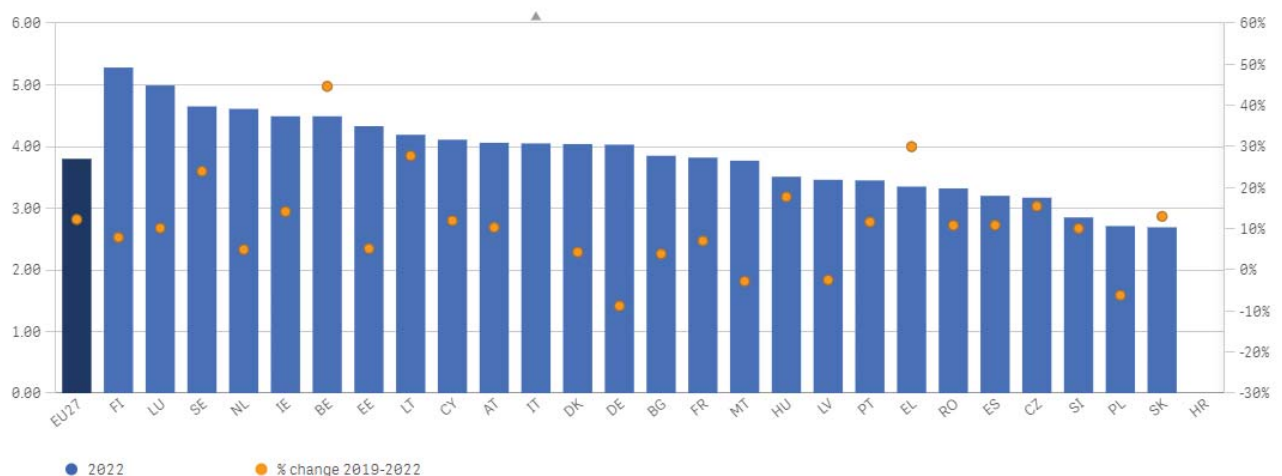
KPI 17: Ease of regulatory compliance (Burden of government regulation)

The indicator is measured by tracking replies to the survey question: ‘In your country, how easy is it for companies to comply with government regulation and administrative requirements (e.g., e.g. permits, reporting, legislation)? (1 = Overly complex; 7 = Extremely easy)’. Higher values indicate a better performance (i.e., i.e. less burdensome regulation).

In 2022, stakeholders’ perception of the regulatory burden in the EU was on average 3.8, up from 3.6 in 2021.

The right axis of the chart also indicates the percentage change since 2019. Over the previous 3 years the indicator shows that there have been improvements in 22 Member States.

No data are available for Croatia for 2022.



Source: World Economic Forum.

ANNEX 2

KEY POLICY ACHIEVEMENTS

Single Market enforcement action plan

The Single Market is one of Europe's greatest achievements for businesses and individuals. Nevertheless, Europeans continue to experience barriers that prevent them from fully exploiting the potential of the Single Market. To address these barriers, The Commission adopted in March 2020 an action plan for better implementation and enforcement of Single Market rules¹², which aims at addressing the barriers that arise from violations of EU law. The action plan is based on a renewed partnership between Member States and the Commission in their shared responsibility to ensure that Single Market rules are properly enforced and applied.

This annex presents some of the key achievements of the action plan¹³.

¹² COM(2020) 94 final.

¹³ Since 2021, the Commission has been publishing an update of the implementation of the actions set up in the Single Market enforcement action plan as part of the Annual Single Market Report.

The Single Market Enforcement Taskforce (SMET)

In order to strengthen implementation and enforcement of Single Market rules on the ground, the **Single Market Enforcement Taskforce (SMET)**¹⁴ was set up in April 2020.

The SMET is an innovative forum, where Member States and the Commission work together in a real partnership to overcome specific, Single Market barriers. It does not replace other enforcement tools but complements them by bringing the added value of cooperation and networking. SMET projects are chosen by consensus after a discussion on priorities identified in reports, workshops and other exchanges of experiences of Single Market barriers provided by stakeholders.

Examples of achievements by the SMET are already available in several Single Market areas¹⁵. Member States reviewed more than 800 prior checks for the recognition of professional qualifications and committed to removing 301 of those considered to be as being disproportionate. Furthermore, they agreed to implement measures to for addressing 90 country-specific barriers to permitting for renewable energy projects, with two thirds of the measures to be completed by the end of 2023. Member States are also advancing well with the implementation of selected good practices for improving the permit-granting process for renewable energy projects and for streamlining the administrative requirements for the cross-border provision of services. Exchanges on the synergies between the SMET and other Single Market tools, such as SOLVIT and the Internal Market Information System, contribute to improving these tools efficiency. In addition, in September 2023, the SMET launched a new project aiming to address the problem of IBAN discrimination, i.e. the non-acceptance of IBAN numbers from other EU Member States for payments in euro¹⁶.

The SMET regularly informs the Competitiveness Council and the European Parliament's Internal Market and Consumer Protection Committee (first report on 29 September 2021 and the second on 28 November 2022).

To continue working effectively, the SMET will develop further cooperation between the different parts of national administrations working on Single Market policies. Priority areas for its future work are related to the major Single Market challenges as indicated that stakeholders have identified, with a special focus on the green and digital transitions.

The Single Market and Competitiveness Scoreboard

The **Single Market and Competitiveness Scoreboard**¹⁷ is an online tool, providing Member States, the Commission and other EU policy makers with useful performance-monitoring indicators on the application of Single Market rules.

In its annual update on 31 January 2023, the Commission updated the Scoreboard to better reflect the situation of individuals and businesses in the Single Market and to assess the

¹⁴ More information on the SMET is available at [Single Market Enforcement Taskforce \(SMET\) - The EU Single Market - European Commission \(europa.eu\), including all reports published.](#)

¹⁵ SMET report 2022 - 2023.

¹⁶ : https://finance.ec.europa.eu/consumer-finance-and-payments/payment-services/payment-services/iban-discrimination_en

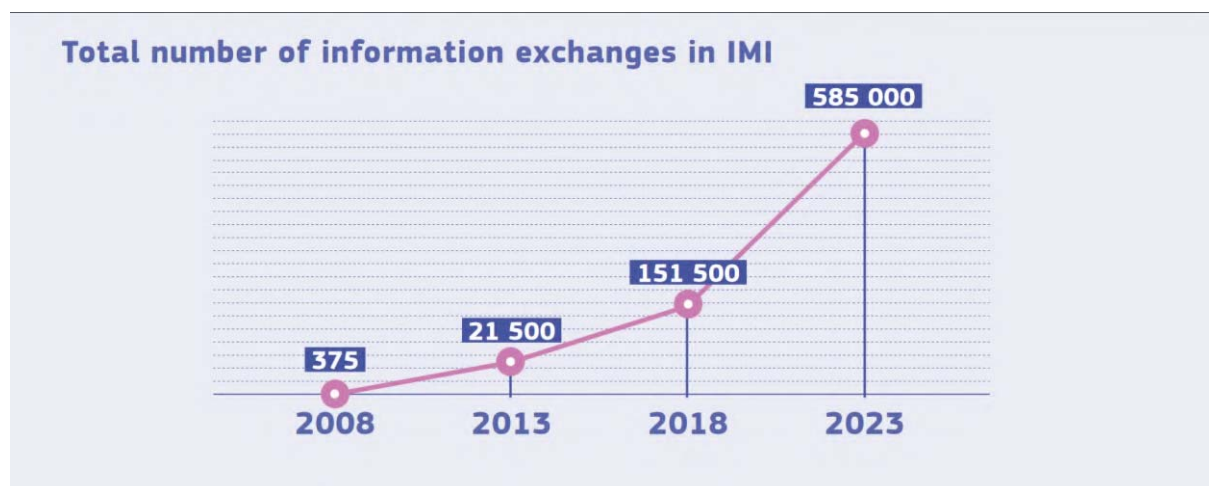
¹⁷ [The Single Market and Competitiveness Scoreboard | Single Market and Competitiveness Scoreboard \(europa.eu\).](#)

competitive strengths and weaknesses of the EU and its Member States. Additionally, on 14 July 2023, the Commission published an intermediate update of the Single Market Scoreboard together with the Annual Report on Monitoring the Application of EU Law, updating the reporting of the “Enforcement tools” section of the Scoreboard¹⁸. The new edition of the Scoreboard continues to support the measuring of Member States’ performance in the areas of the transposition and enforcement of the Single Market body of law and the related governance tools. In addition, it sheds light on the key areas where policies by Member States can impact the business framework conditions (e.g. administrative, or regulatory burden, public procurement, services). Lastly, it assesses the overall results achieved by the Single Market as regards integration, competitiveness, and major EU policy goals (economic resilience, the green and digital transitions).

Following the adoption of the communication *Long-term competitiveness of the EU: looking beyond 2030*¹⁹ adopted on 16 March 2023, the Scoreboard has become the tool to report on the key performance indicators (KPIs) selected by the Commission and by Member States experts to assess EU progress on the important competitiveness drivers²⁰. To this end, the Scoreboard has been renamed to the **Single Market and Competitiveness Scoreboard**.

The Internal Market Information System (IMI)

The **Internal Market Information System (IMI)**²¹ has been connecting authorities across borders and languages for the past 15 years. It is an online application facilitating and supporting the administrative cooperation between Member States’ public administrations in currently 19 policy areas of the Single Market²² through 95 administrative procedures. Since 2008, the number of active authorities in the IMI increased from 400 to 12 500 and the number of information exchanges from 375 to 585 000.



¹⁸ [Annual reports on monitoring the application of EU law - European Commission \(europa.eu\).](https://european-council.europa.eu/media/en/press-room/pages/press-room.aspx?pid=100&tid=100&cid=100)

¹⁹ COM(2023) 168 final.

²⁰ For more information, please see Annex 1 Overview of key performance indicators (KPIs) on long-term competitiveness.

²¹ [Homepage – IMI-Net – The EU Single Market – European Commission \(europa.eu\).](https://IMI-Net.eu)

²² Action 13 Single Market enforcement action plan. Rationalising Single Market IT systems.

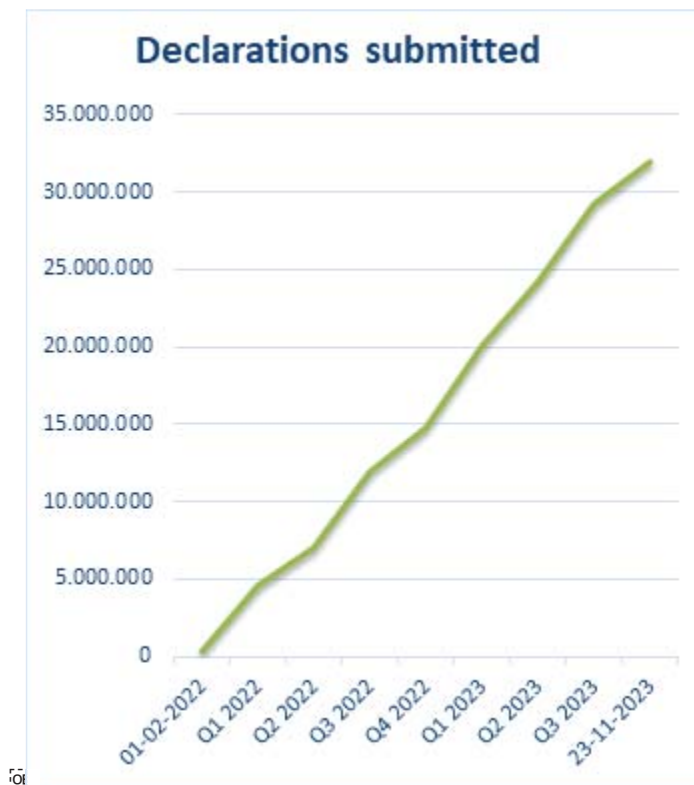
Total number of active authorities in IMI



Administrative cooperation procedures supported by IMI



In 2022, a new interface linked to IMI for the submission of posting declarations in the road transport sector and an information exchange to enforce posting rules in that sector was launched. Since then, road transport operators have submitted 34 million declarations. These operators who are making use of the simple online procedure and the harmonised uniform content of the uniform posting declaration available in 23 languages. They are also saving time and resources and reducing bureaucracy. The portal linked to IMI significantly contributes to the smooth functioning of the road transport sector in the Single Market.

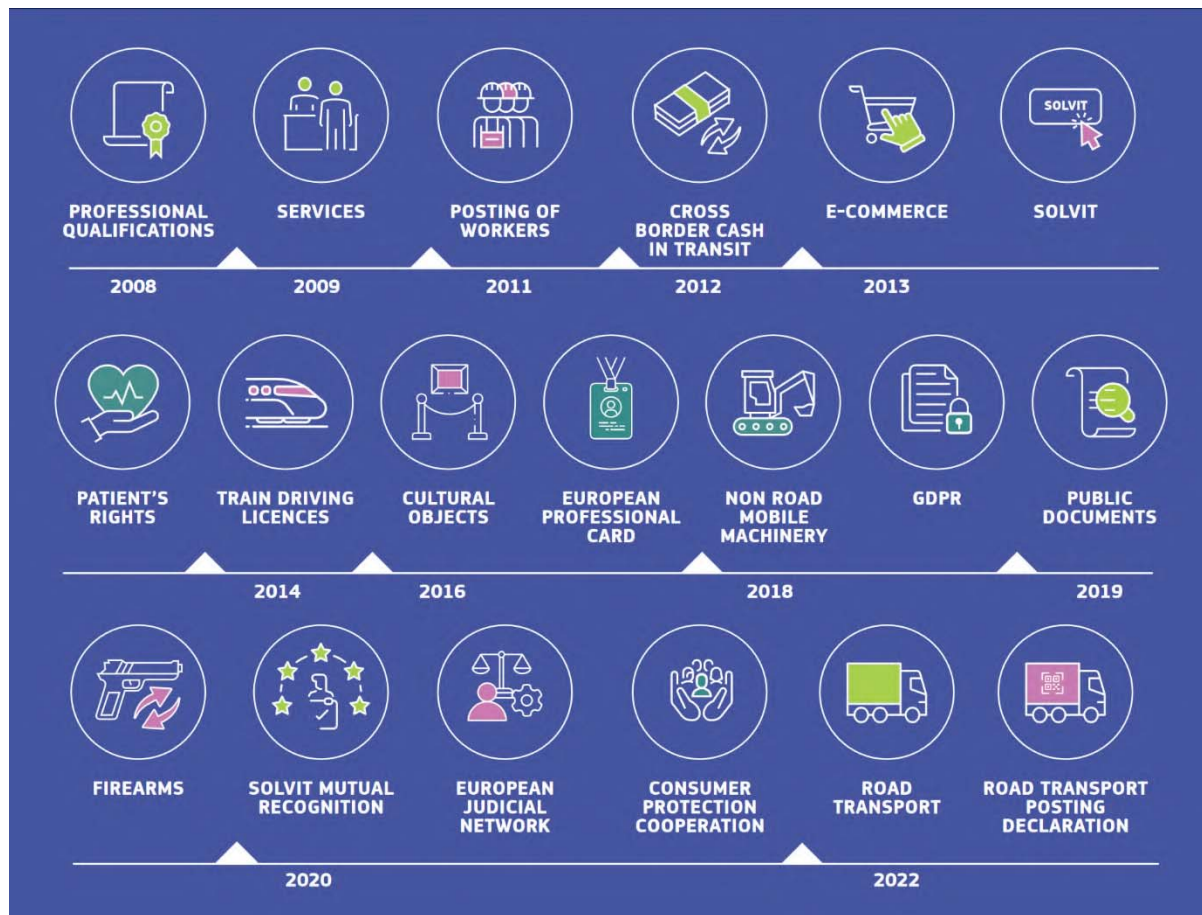


The integration of the Regulated Professions Database²³ into IMI is being finalised and will be launched in early 2024. This integration is important for from many reasons: (i) it will result in improved data quality; (ii) given that IMI already supports many administrative cooperation procedures in the area of the recognition of professional qualifications, authorities already using IMI will have access to all relevant modules in one system; and (iii) In addition, the integration also takes into account the notification requirements introduced under the Single Market Transparency Directive²⁴ and therefore contributes to improved transparency in the area of the recognition of professional qualifications.

IMI currently supports 19 policy areas:

²³ [Regulated Profession Database \(europa.eu\)](https://europa.eu).

²⁴ [EUR-Lex - 310304_1 - EN - EUR-Lex \(europa.eu\)](https://eur-lex.europa.eu/lexuri/ui.do?uri=urisrv:310304_1).



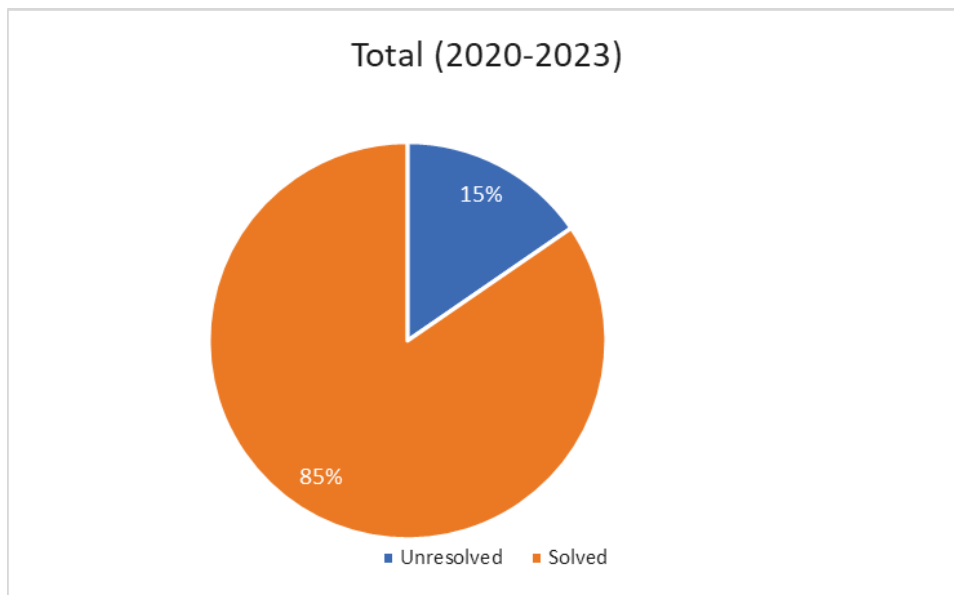
SOLVIT

SOLVIT is a network of national centres²⁵, designed to help businesses and individuals get the best out of the EU Single Market. Created in 2002, it provides an alternative and informal approach to solving a dispute without the need to consult a lawyer or go to court. SOLVIT centres, based in national administrations, are tasked with acting as channels of communication channels between and within Member State authorities. They aim to find swift and pragmatic solutions to problems that people and businesses encounter with public authorities and decision-makers when exercising their rights under Single Market rules²⁶

From 10 March 2020 (adoption date of the Single Market enforcement action plan) up to 10 November 2023 November 23, SOLVIT has dealt with more than 8 800 cases of which more than 80% were resolved for European people and businesses.

²⁵ SOLVIT is a service provided by the national administration in each EU country and in Iceland, Liechtenstein and Norway.

²⁶ COM (2001) 0702 final.



SOLVIT continues to further deepen the cooperation with other European networks and organisations, such as the Enterprise Europe Network and the European Labour Authority. SOLVIT continues dealing with the cases linked to the principle of mutual recognition of goods lawfully marketed in another Member State and will contribute to the evaluation of the Regulation on the mutual recognition of goods lawfully marketed in another Member State²⁷, which takes place in 2024.

The SOLVIT database (SOLVIT IMI Application) is being revamped. Besides facilitating better case handling, another important feature will be the creation of a repository for recording systemic issues (structural and recurrent cases detected via SOLVIT cases).

This will ensure an easier access to and an overview of systemic issues, allowing for more efficient reporting to policy makers. In addition, work is ongoing to improve the visualisation of SOLVIT data.

In March 2023, the Commission proposed a benchmark for Member States to solve a minimum of 90% of the cases received through SOLVIT within 12 months²⁸.

This 90% resolution rate is applies to Member States when their SOLVIT centre is acting as lead centre (i.e. the centre in the country of the authority that created the problem). The ability to solve the cross-border case received by SOLVIT and comply with the 90% benchmark depends on numerous many factors. These factors include: (i) cooperation with the home centre; (ii) the willingness of Member States' authorities to cooperate with SOLVIT; (iii) the nature of the case; and (iv) its authority/place in the Member States' national administrations.

When a case cannot be solved informally through SOLVIT, it is up to the Member States to take the necessary measures to solve the case using through other means to solve the case.

This new benchmark is monitored and published in the annual Single Market and Competitiveness Scoreboard.

²⁷ [EUR-Lex - 32019R0515 - EN - EUR-Lex \(europa.eu\)](#).

²⁸ The single market at 30, (COM(2023) 162).

Your Europe portal

Your Europe²⁹, the official web portal of the Single Digital Gateway (SDG) since 2020, supports SMEs' competitiveness by providing a one-stop-shop for reliable administrative and regulatory information, assistance services (e.g. SOLVIT) and online procedures at all levels of public administration across the EU.

As part of the 2023 SME Relief Package³⁰, the first implementation report on the SDG³¹ outlined the SDG's very promising start and what would be done to deepen its impact. About 100 million visits to Your Europe and its associated national websites are registered every year, and 1.2 million business cases have been taken on by the assistance services so far, with an over 90% satisfaction rate of over 90%.

In December 2023, the Commission in close cooperation with Member States launched the core infrastructure of the 'Once-Only Technical System' (OOTS) making it much easier for citizens and SMEs to request or submit official documents required for an administrative procedure (e.g. certificates or permits). With the following gradual onboarding of 80 000 national competent authorities, SDG and Your Europe will keep helping businesses, notably SMEs, to cut red tape and to fully benefit from the Single Market. At the same time, Member States supported by the Commission work for the last important milestone: to offer fully online digital administrative procedures needed by citizens and businesses when they want to move or do business in another EU country.

Guidance tools for national authorities and businesses

In December 2022, the Commission published practical and up-to-date **guidance to help EU countries with the application of important pieces of EU law in the area of the Single Market for services**³². The guidelines respond to demands requests by Member States and also by stakeholders to support the application of the Services Directive³³. They strengthen EU and national efforts for a consistent and robust application of these central pieces of legislation and thus improve the EU Single Market.

The **updated Handbook on the implementation of the Services Directive**³⁴ provides easily accessible and specific guidance on the day-to-day application of this important directive. The previous Commission Handbook from 2007 was widely appreciated as an efficient tool assisting Member States in the implementation of the Services Directive. Changes in the European Court of Justice's case law, policy developments, and new legislation and market developments feed into this new edition, making it a state-of-the-art reference tool.

²⁹ https://europa.eu/youreurope/index_en.htm

³⁰ COM(2023) 535 final.

³¹ COM(2023) 534 final.

³² [Single Market for services webpage.](#)

³³ Directive 2006/123/EC. [EUR-Lex - 32006L0123 - EN - EUR-Lex \(europa.eu\).](#)

³⁴ The Handbook was updated in 2022: [Implementation \(europa.eu\).](#)

The **Guidance on the assessment of proportionality pursuant to the Proportionality Test Directive**³⁵ – published in December 2022³⁶ – supports national authorities in carrying out proportionality assessments of new national regulations before their adoption that restrict access to professions or the exercise of them. This covers, for instance, rules restricting advertising, limiting the use of corporate structures to exercise a profession or mandatory membership in professional bodies. A thorough, evidence-based and Single-Market-oriented assessment of proportionality of national regulations before they are adopted greatly benefits the Single Market and reduces the need to resort to enforcement action. This directive is part of the increased emphasis put on prevention. To reap its full benefits, it is important that the directive is translated into strong ex-ante proportionality assessment procedures before adoption at national level and that the proportionality criteria are correctly understood and applied. The guidance explains the logic of this new preventative approach and provides specific concrete examples of do's and don'ts when evaluating proportionality.

Furthermore, to facilitate the notification of measures related to different notification obligations in the area of services (Services Directive, Professional Qualifications Directive/Proportionality Test Directive), the Commission aligned the **information on proportionality** under the different notification systems. Improvements to the notification form will guide better the users better by essentially providing on-screen instructions on the information that Member States should provide about the notified requirements. These changes to the notification form should also significantly improve transparency: they will help users understand the reasons that led Member States to adopt such measures in the area of services and reduce the need for follow-up questions due to missing information or a lack of unclarity after notifications have been sent.

³⁵ Directive (EU) 2018/958. [EUR-Lex - 4353947 - EN - EUR-Lex \(europa.eu\)](#).

³⁶ [Services Directive Handbook/Proportionality Test Directive Guidance \(europa.eu\)](#).

INDUSTRIAL STRATEGY

The Commission's updated industrial strategy of May 2021³⁷ seeks to drive the transformation to a more sustainable, digital, resilient and globally competitive economy, while responding to the lessons learnt from the COVID-19 crisis to boost the recovery and strengthen the EU's open strategic autonomy. It proposes measures to strengthen the resilience of the Single Market, especially in times of crisis³⁸. It addresses the need to better understand our dependencies in key strategic areas and presents a toolbox to address them. It offers new measures to accelerate the green and digital transitions. It also responds to calls to identify and monitor the main indicators of the competitiveness of the EU economy as a whole: Single Market integration, productivity growth, international competitiveness, public and private investment and R&D investment.

This annex presents some of the key achievements of the industrial strategy³⁹.

³⁷ COM(2021) 350 final.

³⁸ See also the June 2023 joint communication on "European economic security strategy", JOIN(2023) 20 final

³⁹ Since 2021, the Commission has been publishing an update of the implementation of the actions set up in the March 2020 industrial strategy and its update in May 2021 as part of the Annual Single Market Report. This annex summarises some of the key achievements of the strategy.

STRENGTHENING SINGLE MARKET RESILIENCE

Single Market Emergency Instrument (SMEI) / Internal Market Emergency and Resilience Act (IMERA)

The Single Market is central to functioning supply chains, for the free movement of people and the access to services and goods, especially in difficult times. However, the existing rules and tools for the Single Market are insufficiently adaptable to handle crises and emergencies effectively.

Therefore, the Commission proposed a Single Market Emergency Instrument (SMEI)⁴⁰ on 19 September 2022. The SMEI will ensure greater transparency and coordination when a critical situation emerges and will help mitigate the any harmful impacts on the Single Market, safeguard the free movement of people, goods and services and maximise the availability of products needed in the a crisis response.

The SMEI aims to establish create a comprehensive preparedness and crisis response architecture made up of the main features described below.

- A **governance body** to ensure adequate coordination and advise the Commission on the appropriate measures for preventing or addressing the impact of the crisis on the Single Market.
- A **framework for contingency planning**: this will ensure arrangements for crisis protocols, trainings and simulations, as well as an early warning system for any incidents that could disrupt the functioning of the Single Market.
- A **framework for Single Market vigilance**: this will be the framework for impacts of incidents whose impact has not yet led into a full-blown Single Market emergency. It will and include a set of vigilance measures, such as monitoring of the supply chains of goods and services of strategic importance.
- A **framework for Single Market emergencies**: this will include measures for re-establishing and facilitating free movement, a list of prohibited restrictions of free movement rights during a Single Market emergency, measures to improve transparency and the possibility for the Commission to procurement of crisis-relevant goods by the Commission on behalf of Member States.

A number of exceptional measures are included in the emergency framework to ensure the availability and supply of crisis-relevant goods that require additional (dual) activation: requests for information from economic companies, calls for priority rated requests and targeted derogations of harmonised product legislation (contained in the accompanying omnibus proposals).

It is expected that the proposal for the SMEI (renamed IMERA) and the accompanying omnibus proposals⁴¹ will be adopted by Parliament and Council the co-legislators in 2024, based on a provisional political agreement reached on 1 February 2024⁴².

⁴⁰ COM(2022) 459 final.

⁴¹ [Proposal for a Regulation](#) establishing a Single Market Emergency Instrument and repealing Council Regulation (EC) 2679/98; [proposal for a Regulation](#) for the laying down measures to facilitate the supply and availability of crisis-relevant goods in the context of a Single Market emergency and amending Regulation (EU) 2016/424, Regulation (EU) 2016/425, Regulation (EU) 2016/426, Regulation (EU) 2019/1009;

DEALING WITH STRATEGIC DEPENDENCIES: OPEN STRATEGIC AUTONOMY IN PRACTICE

Monitoring the EU's foreign strategic dependencies

The EU becomes more resilient from being open and integrated in global value chains (i.e. through cost reduction, economies of scale, risk reduction, access to foreign inputs). However, supply chains are subject to a risk of disruptions, which are likely to affect products and inputs that are particularly critical for the EU's society and economy. Events such as the COVID-19 pandemic, the Russian's full-scale invasion of Ukraine and the energy crisis have exposed limits to supply chains' resilience.

Countries all over the world and the EU have started to address tackle challenges to their economic security, including the EU. The recent communication on a European economic security strategy⁴³ aims to minimise the risks associated with specific economic flows amidst heightened geopolitical tensions and rapid technological changes, and maintaining high levels of economic openness and dynamism. The strategy intends to **promote** EU's competitiveness; to **protect** our economic security through a range of policies and tools, including strengthening our toolbox where needed; and to build **partnerships** with the broadest possible range of countries globally. It identifies four risk categories as priorities for intra-EU risk assessment in the areas of:

- Supply chain resilience
- Critical infrastructure
- Technology security and security-relevant technology leakage
- Weaponisation of economic dependencies and economic coercion

The Commission has already adopted data-driven methodologies to identify EU strategic dependencies across sensitive industrial ecosystems⁴⁴ and those dependencies subject to single point of failures or choke points, which are more likely to become vulnerable areas for the EU's economic security. In 2021, the Commission carried out a first analysis of Europe's strategic dependencies⁴⁵, developing a novel bottom-up assessment of product dependencies⁴⁶. It reviewed more than 5 000 products imported by the EU, and identified those that relied too much on foreign sources, were significantly scarce in the EU, and had

[proposal for a Directive](#) amending Directives 2000/14/EC, 2006/42/EC, 2010/35/EU, 2013/29/EU, 2014/28/EU, 2014/29/EU, 2014/30/EU, 2014/31/EU, 2014/32/EU, 2014/33/EU, 2014/34/EU, 2014/35/EU, 2014/53/EU and 2014/68/EU and introducing emergency procedures for the conformity assessment, adoption of common specifications and market surveillance in the context of a Single Market emergency.

⁴² [SMEI / IMERA: Council and Parliament strike a provisional deal on crisis preparedness – Consilium \(europa.eu\)](#)

⁴³ JOIN(2023) 20 final.

⁴⁴ Sensitive industrial ecosystems relate to areas affecting security and safety, the health of Europeans as well as the ability to access goods, services and technologies that are key for the green and digital transitions at the core of the EU's priorities.

⁴⁵ SWD(2021) 352 final.

⁴⁶ A product is considered as foreign dependent if it fulfils three criteria: 1) the bulk of non-EU imports originates in less than three foreign countries; 2) non-EU imports are at least half of the total EU imports; and 3) non-EU imports are higher than total EU exports.

limited potential for domestic substitution. It was accompanied by a the first wave of in-depth reviews on six strategic areas⁴⁷ where the EU faces dependencies. The Commission published a second wave of in-depth analyses of dependencies⁴⁸ in five key areas⁴⁹ in 2022, and updated its bottom-up methodology in 2023.

The latest analysis carried out by the Commission identifies 204 dependent products in sensitive industrial ecosystems⁵⁰. About 20% of those face significant additional risks due to global single points of failure (SPOFs), which refer to vulnerable geographical points⁵¹. In other words, dependent products subject to SPOFs are particularly vulnerable and at risk of being weaponised for geopolitical purposes given their particularly limited potential for diversification. The disruption at these points could result in failures across entire global supply chains.

The various assessments carried out by the Commission in the identified critical areas underpinned targeted policy actions to mitigate and reduce identified risks within the sectors concerned. Examples include legislative initiatives such as the European Chips Act, proposed in 2022 by the Commission, and the European Critical Raw Materials Act and the Net-Zero Industry Act, both proposed in 2023.

Legislative initiatives move in parallel with the openness agenda of the EU⁵², aiming to leverage international trade to:

- increase efficiency of EU companies by connecting them to growth poles and creating economies of scale;
- improve the access to the inputs needed for the green transition; and,
- increase the resilience of supply chains by diversifying and securing sources of supply.

In 2023, the Commission also published a Union List of Critical Medicines⁵³, to foster the security of supply of medicines considered as critical. In addition, recently launched international partnerships on sustainable raw materials (for example, with Canada and Ukraine in 2021, Namibia and Kazakhstan in 2022, and Argentina and Chile, Democratic Republic of Congo, Zambia, Greenland and Rwanda in 2023) and ongoing industrial alliances will help make supply chains more diversified and resilient, both for the EU and its partners. These measures underscore the Commission's commitment to proactively curb foreign harmful foreign dependencies and boost resilience in strategic areas.

⁴⁷ Raw materials, batteries, active pharmaceutical ingredients, clean hydrogen, semiconductors and cloud and edge technologies.

⁴⁸ SWD(2022) 41 final.

⁴⁹ Rare earths and magnesium, chemicals, solar panels, cybersecurity and IT software.

⁵⁰ The underpinning methodology was updated in 2023 to reflect the latest data developments: [An enhanced methodology to monitor the EU's strategic dependencies and vulnerabilities \(europa.eu\)](#). Among the 204 products, 64 come from China, 38 from US and 15 from Russia. In import values, China is a main source of strategic dependencies. Examples of dependent products include cell phones and laptops (China), turbines and certain vehicle types (US), and iron, steel and coal (Russia).

⁵¹ SPOFs occur when: 1) world production is concentrated in a single country,; and 2) that country's production is central to many other countries in an international trade network.

⁵² Trade agreements also contribute to the EUs openness agenda: for example the recently signed trade agreements with New Zealand, Chile, and Kenya, together with the EU commitment to push forward with negotiations with Australia, India, Indonesia and Thailand and to finalise agreements with Mercosur and Mexico.

⁵³ Availability of critical medicines | European Medicines Agency (europa.eu)

European Chips Act

The **European Chips Act**⁵⁴ entered into force on 21 September 2023. It strengthens the semiconductor ecosystem and strengthens manufacturing activities in the EU, ensures the resilience of supply chains and supports scale-up and innovation across the whole value chain, and reduces external dependencies. It is built on three pillars that summarise the strategy: (1) Chips for Europe initiative; (2) security of supply and (3) monitoring and crisis response.

Pillar 1, the Chips for Europe initiative, aims to support large-scale technological capacity building and innovation in the EU. The initiative supports the development of pilot lines to prototype and scale up innovation, to bridge from the lab to the fab. The first call under the initiative, setting up four pilot lines, was published by the Chips Joint Undertaking in December 2023. As of 2024, the initiative will also support design capacity and a network of competence centres across the EU.

Pillar 2 focuses on the security of supply of semiconductors in the EU. The approach aims to attract investments and improve production capacity in semiconductor manufacturing as well as advanced packaging, test and assembly. Since the publication of the Chips Act proposal in February 2022, investments of over EUR 100 billion in investment in manufacturing capacity have been announced, including for advanced cutting-edge manufacturing facilities. The second microelectronics Important Project of Common European Interest was approved in 2023. With a budget of EUR 21 billion (of which EUR 8.1 billion is public funding), it supports innovative, state-of-the-art industrial projects by 56 companies in 68 projects across 14 Member States.

Pillar 3, monitoring and crisis response, enables the EU to anticipate future chips crises and tackle them by closely coordinating with Member States, through the European Semiconductor Board,. It also and equips the EU with the instruments and measures needed to ensure supply to critical sectors in case of severe shortages. Supply chains and critical bodies in Member States have been identified. The Semiconductor Alert System was set up to allow stakeholders to flag critical disruptions along semiconductors supply chains.

Furthermore, international collaboration on semiconductor policies takes place is established via the trade and technology councils with the USA and India, and via digital partnerships with Japan, Korea, Singapore, and Canada. Cooperation is focused on monitoring supply chains, subsidy transparency, skills, and research collaboration in research.

European Critical Raw Materials Act (CRMA)

In March 2023, the Commission proposed the **European Critical Raw Materials Act (CRMA)**⁵⁵, a comprehensive set of measures to ensure the EU's access to a secure, diversified, affordable and sustainable supply of critical raw materials. In November 2023, the European Parliament and the Council reached a political agreement on the Act.

Critical raw materials are essential for many strategic sectors, including the net-zero industry, the digital industry, and the aerospace and defence sectors. The EU is heavily dependent on

⁵⁴ European Chips Act | Shaping Europe's digital future (europa.eu).

⁵⁵ This initiative comprises a [regulation](#) and a [communication](#). The regulation sets a regulatory framework to support the development of domestic capacity and strengthen the sustainability and circularity of the critical raw material supply chains in the EU. The communication proposes measures to support the diversification of supply chains through new international mutually supportive partnerships.

critical raw materials from a number of non-EU countries. This dependency, combined with the growing global demand due to the shift towards a digital and green economy makes supply chains vulnerable.

The European Critical Raw Materials Act⁵⁶ will strengthen the EU's critical raw materials capacity along all stages of the value chain. It aims to: (i) increase our resilience; (ii) diversifying the EU's imports and reduce strategic dependencies; (iii) increase preparedness and improve the EU's capacity to monitor and mitigate risks of disruptions to the supply of critical raw materials; and (iv) promote supply chain sustainability and circularity. Circular economy solutions are crucial to promote recovery and recycling of materials, use of secondary raw materials, decrease the dependence on imported raw materials, and strengthen the resilience and strategic autonomy.

Net-Zero Industry Act

In March 2023, the Commission also proposed the **Net-Zero Industry Act**⁵⁷, to help strengthen the European manufacturing capacity of net-zero technologies and overcome barriers to scaling up this capacity. A provisional political agreement has been reached by the European Parliament and the Council on 6 February 2024.

The measures in the Act will increase the competitiveness of the net-zero technology industrial base and improve the EU's energy resilience. By accelerating the development and production of net-zero technologies, the Act also aims to reduce the risk of replacing EU reliance on Russian fossil fuels with other strategic dependencies that might hinder our access to key technologies and components for the green transition.

Together with the proposal for a European Critical Raw Materials Act and the reform of the electricity market design⁵⁸, the Net-Zero Industry Act sets out a clear European regulatory framework to reduce the EU's reliance on highly concentrated imports. The proposals also aim to create a predictable and simplified regulatory environment for net-zero industries, as announced in the Green Deal industrial plan⁵⁹. By drawing on the lessons learnt from the COVID-19 pandemic and the energy crisis sparked by Russia's full-scale invasion of Ukraine, it will help make Europe's clean energy supply chains more resilient.

European industrial alliances

Industrial alliances play a significant role in achieving key EU policy objectives, by revealing opportunities and bottlenecks and setting up joint action to address them. They serve as a platform to attract private investors, build up pipeline projects and discuss new business partnerships in an open and transparent way. They bring together a wide range of stakeholders from entire value chains (including the public, and private sectors and civil society), to help contribute to the delivery of EU policy objectives. Alliances are significant delivery vehicles for different Commission strategies (e.g. the hydrogen strategy, the Net-Zero Industry Act and the European Critical Raw Materials Act).

⁵⁶ [Critical Raw Materials Act \(europa.eu\)](#).

⁵⁷ [Net Zero Industry Act \(europa.eu\)](#).

⁵⁸ [Reform of the EU electricity market design \(europa.eu\)](#).

⁵⁹ [The Green Deal Industrial Plan \(europa.eu\)](#).

The following alliances have been launched since 2017 and are operational to date⁶⁰: the European Battery Alliance, the Circular Plastic Alliance, the European Raw Materials Alliance, the European Clean Hydrogen Alliance, the Alliance for Industrial Data, Edge and Cloud, the Renewable and Low- Carbon Fuels Value Chain Industrial Alliance, the Alliance for Zero-Emission Aviation, and the European Solar Photovoltaic Industry Alliance⁶¹.

The **European Battery Alliance (EBA)** has also played a central enabling role in delivering on the 2018 strategic action plan on batteries. For example, e.g. the number of announced lithium-ion gigafactories increased from 26 to 30, i.e. around 70 GWh of installed capacity by the end of 2022.

The European Battery Alliance also directly supports SMEs as part of the European Battery Alliance EBA Business Investment Platform process, to accelerate their project development.

The **Clean Hydrogen Alliance** has reached a total of 1 755 members, including 541 SMEs. The Alliance also contributes to the work of the High-Level Forum on European Standardisation (which was set up as a follow-up to the new EU standardisation strategy); for example, the Alliance prepared a roadmap on hydrogen standardisation.

A more recent alliance, the **Alliance for Zero-Emission Aviation** is the only organisation bringing together all the different stakeholders (EU and non-EU) of the aviation ecosystem (it has 150 members). To achieve the decarbonisation of aviation technologies, the Alliance's objectives span over more than 15 years, starting with drawing up a roadmap for the entry into operation of electric- and hydrogenpowered aircrafts.

ACCELERATING THE TWIN TRANSITIONS

Transition pathways

The updated European industrial strategy⁶² announced the creation of transition pathways for the most relevant industrial ecosystems. This is as a co-creation between the Commission, Member States, industry and other stakeholders to identify the actions needed to achieve the twin transitions, giving a better understanding of the scale, benefits and conditions required. They form an 'actionable plan in favour of sustainable competitiveness'. They address key elements such as infrastructure; investments and funding; regulation and public governance; research and innovation, techniques and technological solutions; skills; the social dimension; and sustainable competitiveness. Plans also take into account the industrial technology roadmaps, a core action in the new European Research Area strategy⁶³, that also supports the twin transition through guidelines for knowledge valorisation⁶⁴, including the promotion of standardisation and intellectual assets management in research⁶⁵.

⁶⁰ https://single-market-economy.ec.europa.eu/industry/strategy/industrial-alliances_en

⁶¹ The Alliance on Processors and Semiconductor Technologies was launched in 2021, but it is not yet operational.

⁶² COM(2021) 350 final.

⁶³ [COM\(2020\) 628 final](#)

⁶⁴ [Council Recommendation \(EU\) 2022/2415 of 2 December 2022 on the guiding principles for knowledge valorisation](#)

⁶⁵ [Commission Recommendation \(EU\) 2023/499 of 1 March 2023 on a Code of Practice on the management of intellectual assets for knowledge valorisation in the European Research Area and Commission Recommendation \(EU\) 2023/498 of 1 March 2023 on a Code of Practice on](#)

The work on transition pathways⁶⁶ started in June 2021 and since then it has progressed steadily for all relevant ecosystems concerned since (9 industrial ecosystems developing 10 transition pathways). Five transition pathways have been published and are being implemented (Tourism, Proximity & Social Economy, Chemicals, Construction, and Textiles), one is upcoming (Mobility), and four transition pathways launched consultations in July 2023 (Aerospace & Defence, Agri-food, Metals, and Retail). To help this work, the Industrial Forum⁶⁷ prepared a common blueprint, which sets out key elements and considerations for the creation of pathways.

Each pathway follows a process of information gathering, pre-consultation, preparation, publication and implementation, in an open and collaborative way open to all stakeholders. The process involved is not only a co-creation process but also co-implementation to support the industrial ecosystem in the twin transitions.

Lastly, the European Monitor of Industrial Ecosystems project⁶⁸ aims to analyse the green and digital transformation of industrial ecosystems and progress made over time. The focus is on 14 industrial ecosystems and 15 green and digital technology groups that are analysed from different perspectives.

[standardisation in the European Research Area](#)

⁶⁶ [EU Transition Pathways \(europa.eu\)](#).

⁶⁷ [Register of Commission expert groups and other similar entities \(europa.eu\)](#).

⁶⁸ [European Monitor of Industrial Ecosystems \(europa.eu\)](#)

SME STRATEGY

In March 2020, the Commission adopted the SME strategy for a sustainable and digital Europe⁶⁹. Its aim was to unleash the power of Europe's SMEs to lead the twin transitions. Many new challenges have emerged for SMEs since the adoption of the SME strategy. As a result, the priorities identified in the strategy have only gained in importance: digitalisation helped SMEs weather the COVID-19 pandemic, and sustainable practices helped them lower their energy bills in periods of high inflation. To support SMEs even beyond the actions contained in the SME Strategy, the Commission adopted an SME Relief Package in September 2023⁷⁰ (see Annex 3a).

This annex presents some of the key achievements of the 2020 SME strategy.

⁶⁹ COM(2020) 103 final.

⁷⁰ COM(2023) 535 final.

CAPACITY BUILDING AND SUPPORT FOR THE TWIN TRANSITIONS

Competitive sustainability is Europe's guiding principle for the future. Achieving a climate neutral, resource efficient and agile digital economy requires the full mobilisation of SMEs. Many actions under the SME strategy supported SMEs in reaping the full potential of the twin transitions. In January 2022, the new Enterprise Europe Network, including the sustainability advisers, took up its work⁷¹. Moreover, the Digital Innovation Hubs⁷², the digital crash courses and the intellectual property action plan⁷³ helped SMEs access new digital technologies.

SMEs can benefit from over EUR 45 billion under the Recovery and Resilience Facility⁷⁴ (of which EU countries must dedicate at least 20% to the digital transition and 37% to the climate transition). EUR 300 million have been made available to SMEs to encourage breakthrough innovations delivering Green Deal objectives under the European Innovation Council. In addition, to help SMEs find skilled employees, the Skills Pact was launched in 2020⁷⁵. In 2021, the European Institute of Innovation and Technology (EIT) has put more than EUR 100 million funding in more than 1670 pre-seed and seed start-ups and scale-ups in strategic sectors, which has attracted nearly EUR 1.9 billion in investment.⁷⁶ The EIT's Regional Innovation Scheme (RIS)⁷⁷ has so far supported more than 900 start ups in modest to moderate innovation countries since its creation. By the end of 2025, the EIT will have hubs in all RIS-eligible areas.

REDUCING REGULATORY BURDEN AND IMPROVING MARKET ACCESS

European SMEs perceive legislation to be complex and burdensome, especially due to the different procedures in Member States. These barriers deter many of them from doing cross-border business and scaling up. To reduce regulatory burden, the Commission has introduced the SME filter identifying legislation of particular relevance for SMEs, and has set up the Single Market Enforcement Task Force⁷⁸.

The Single Digital Gateway, accessible through the Your Europe portal, was implemented and facilitates online access to information, administrative procedures, and assistance services that people and businesses may need in another EU country. Following up to the

⁷¹ <https://een.ec.europa.eu/about-enterprise-europe-network/advice-support/sustainability>

⁷² <https://european-digital-innovation-hubs.ec.europa.eu/home>

⁷³ COM(2020) 760.

⁷⁴ https://ec.europa.eu/economy_finance/recovery-and-resilience-scoreboard/assets/thematic_analysis/3_SME.pdf

⁷⁵ https://pact-for-skills.ec.europa.eu/index_en

⁷⁶ Since its creation, the EIT' supported start-ups and scale-ups have attracted EUR 5.8 billion in investment. You can consult the EIT Business Creation Catalogue here:

https://eit.europa.eu/sites/default/files/final_-_accepted_tc_-_bc_catalogue_2022-23_2.pdf. More information about the EIT: <https://eit.europa.eu/>

⁷⁷ <https://eit.europa.eu/activities/eit-regional-innovation-scheme-ris-closing-innovation-divide-europe>

⁷⁸ COM(2020) 94 final.

SME Strategy⁷⁹, the Commission adopted a proposal to further digitalise company law⁸⁰ in March 2023, with a view to supporting SMEs and reducing administrative burden on companies. The proposal will reduce or remove formalities in cross-border situations and is expected to cut administrative burden for companies by around EUR 437 million per year thanks to, among others, the multilingual EU Company Certificate, removing the apostille for company documents and applying the “once-only principle” for setting up cross-border subsidiaries and branches. The Commission also helped set up an Early Warning Europe Mentor Academy that created a training programme for business mentors working with companies in financial distress.

To support start-ups, a joint Member State declaration for a European Start-up Nations Standard was launched in March 2021, and the Europe Startup Nations Alliance has been operational since July 2022⁸¹. The European Blockchain Regulatory Sandbox has fostered dialogue and cooperation by allowing making it possible for developers to present their business cases and discuss legal guidance with regulators. The aim is to remove legal and regulatory uncertainties for use cases based on decentralised blockchain solutions.

Furthermore, to help SMEs engage in markets beyond the EU, the Access2Markets’ (A2M) information portal has been launched⁸², and the Erasmus for Young Entrepreneurs Global scheme⁸³ was extended in March 2021 to six non-European destinations. Since the adoption of the SME strategy, the Commission has also adopted the long-term competitiveness strategy in March 2023 and has committed to reducing the burden of reporting obligations by 25% without compromising any policy objectives, such as social or environmental imperatives. In addition, the Commission provides support to Member States through the Technical Support Instrument, to improve the business environment.

IMPROVING ACCESS TO FINANCING

Access to finance is essential for SMEs to finance the investment needs for the transition. However, at all stages of development, small businesses struggle more than large enterprises to get finance. Therefore, the Commission included, within the InvestEU programme, the SME window⁸⁴, aiming at guaranteeing lending and equity support to EU SMEs and small midcaps. Since the signature of the InvestEU Guarantee Agreement in 2022 with the European Investment Bank Group, and notably the European Investment Fund, more than 1,800 SMEs and small mid-caps received over EUR 800 million in debt and equity financial support, which helped them improve their competitiveness, benefit from solvency support and foster their innovation, digitalisation and transition to sustainability. The SME Window includes measures aiming at e.g. favouring the access of SMEs to public equity markets via the “IPO initiative”, providing scaling up financing through the ESCALAR initiative⁸⁵, supporting green tech and gender-smart finance initiatives. In addition, the State aid rules to promote risk finance investments have been simplified, and some of their key

⁷⁹ In which the Commission committed to consult and assess the need for additional company law measures to facilitate cross-border expansion and scale-up by SMEs.

⁸⁰ COM(2023) 177 final.

⁸¹ <https://startupnationsstandard.eu/>

⁸² <https://trade.ec.europa.eu/access-to-markets/en/home>

⁸³ <https://eyeglobal.eu/>

⁸⁴ https://single-market-economy.ec.europa.eu/access-finance/investeu/investeu-fund-sme-window_en

⁸⁵ Link to the ESCALAR call for expression of interest: <https://www.eif.org/InvestEU/escalar-call-for-expression-of-interest/index.htm>

concepts clarified.⁸⁶ Some of these actions (e.g., ESCALAR, gender-smart financing) and others aimed at facilitating access to finance for young and innovative companies, particularly deep tech scale-ups, are in the process of being implemented as part of the New European Innovation Agenda, which was adopted by the European Commission in July 2022. Over the last year, the European Innovation Council Fund has taken more than 150 investment decisions into deep-tech companies, worth around EUR 1 billion. Over 50 of the EIC companies have already completed their investment rounds leveraging approximately 3.5 Euro of additional equity investment for every Euro of EIC investment.

GOVERNANCE

The SME strategy needed commitment and actions at both EU and national levels. The SME Envoy Network, which brings together the Commission, Member States' SME policy makers and SME organisations, has been essential in exchanging best practices on SME support, and in identifying SME-relevant policy initiatives through the SME filter. The EU SME Envoy was appointed on 31 January 2024⁸⁷, as reiterated in the SME Relief Package⁸⁸ adopted in September 2023.

⁸⁶ See in particular Communication from the Commission – Guidelines on State aid to promote risk finance investments, OJ C508, 16.12.2021; Communication from the Commission – Framework for State aid for research and development and Innovation, OJ 2022/C 414/01; Commission Regulation (EU) 2023/1315 amending Regulation (EU) No 651/2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty ("GBER"), OJ L 167, 30.6.2023.

⁸⁷ On 31 January 2024, Markus Pieper was appointed as EU SME Envoy. He will report directly to President Ursula von der Leyen. Mr Pieper will take office in the Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (DG GROW) and he will also report to the Commissioner for Internal Market on all SME-related activities. The date of effect of his appointment will be determined later.

⁸⁸ COM(2023) 535 final.

ANNEX 3

SME RELIEF PACKAGE⁸⁹

Policy tracker

⁸⁹ COM (2023) 535 final.

MAKING THINGS EASIER FOR SMEs	STAT US	ACTION	DESCRIPTION
	✓	Action 1: propose a tax simplification directive establishing a Head Office Tax System for SMEs	In September 2023, the Commission proposed a Directive establishing a Head Office Tax System for SMEs ⁹⁰ . This gives SMEs operating cross-border through permanent establishments the option to deal with only one tax administration, instead of having to comply with multiple tax systems. The proposed Directive is now being discussed by the co-legislators and agreed by the European Parliament and the Council to reach an agreement before its adoption and entry into force.
	2024	Action 2: systematically consider specific SME-friendly provisions in new legislative proposals, where appropriate, justified and in line with Union EU policy objectives	Under development.
	✓	Action 3: appoint a dedicated EU SME Envoy reporting directly to the President	The EU SME Envoy was appointed on 31 January 2024.
	⌚	Action 4: ensure the EU SME Envoy's participation in Regulatory Scrutiny Board RSB hearings on initiatives that have a high impact on SMEs	To be implemented when the SME Envoy has taken office. The EU SME Envoy was appointed on 31 January 2024.
	2024	Action 5: promote with the co-legislators the implementation of an 'on the spot' assessment of the impact of their substantial amendments on SMEs and competitiveness of their substantial amendments	Under development.
	2024	Action 6: engage with EU agencies to make it easier for SMEs to use the agencies' services	Under development.
	2024	Action 7: work with Member States to promote regulatory sandboxes	Under development.
	✓	Action 8: launch by the end of 2023 the once-only technical system in co-operation with Member States and further expand	The Commission has proposed expanding the SDG's scope in its proposals on short-term rentals ⁹¹ , the Net-Zero industry Act ⁹² , the Critical Raw Materials Act ⁹³ , the Data

⁹⁰ COM (2023) 528 final ([Head Office Tax System for SMEs \(europa.eu\)](#)) .

⁹¹ COM(2022) 571 final.

⁹² COM(2023) 161 final.

⁹³ [Critical Raw Materials Act \(europa.eu\)](#).

		d. build a dataset based on the small mid-cap definition and assess possible measures to support these companies in their growth (including potential application in adapted form of certain measures favouring SMEs).	
	2024	Action 19: assess framework conditions for business transfers in Member States together with the network of SME Envoys – by Q2 2024	Under development.

Date: 1 February 2024

✓ Implemented

⌚ Launched /
Under preparation

2024: To be
launched

ANNEX 4

The Single Market at 30¹⁰⁶

Policy tracker





¹⁰⁶ COM (2023) 162 final.

		ACTION	DESCRIPTION
ENFORCING SINGLE MARKET RULES AND REMOVING MEMBER STATE-LEVEL BARRIERS	✓	Monitor selected indicators from the Single Market and Competitiveness Scoreboard ¹⁰⁷ and other relevant sources related to enforcement and the business environment	In the Single Market and Competitiveness Scoreboard, the Commission monitors how EU Single Market rules are implemented in Member States (e.g. transposition and conformity deficits, public procurement, payment delays by public authorities and availability of digital public services), using as well as indicators developed in the reform recommendations for professional services.
	✓	Setting up a single notification entry point for Single Market notifications	The Single Notification Window (SNW) ¹⁰⁸ was launched on 19 September 2023 and is now available online. The platform gives national administrations a better overview of the notification requirements relevant for the Single Market. It which simplifies the procedural steps for notifications to the Commission and helps Member States to ensure compliance with EU law.
	✓	Launching a priority process, together with Member States, to tackle barriers to the free movement of services in industrial ecosystems with a high-services content (construction, retail, tourism and business services)	The Commission initiated a process whereby it is working with Member States and stakeholders to analyse and address barriers to the provision of services in the construction, retail and tourism ecosystems.
	✓	The Commission proposes to each Member State to establish a dedicated Single Market office to address Single Market barriers.	The Single Market needs a dedicated voice presence within national administrations. The office should have senior leadership, and appropriate resources, and a standing brief to proactively raise issues and propose solutions within the national decision-making system. Discussions and exchange of good practices on the organisation of the services responsible for the Single Market offices are ongoing within the SMET. SMET members ¹⁰⁹ have agreed to share their best practices to further develop the concept for these offices.
	✓	Adapting the Services Directive notification tool and providing additional targeted guidance to Member States for applying	The Services Directive notifications tool has been significantly improved and strengthened. This has been done by




¹⁰⁷ [The Single Market and Competitiveness Scoreboard | Single Market and Competitiveness Scoreboard \(europa.eu\).](#)

¹⁰⁸ [Single notification window \(europa.eu\).](#)

¹⁰⁹ [Members and Sherpas - Single Market Enforcement Taskforce \(SMET\) - European Commission \(europa.eu\)](#)

		the proportionality criteria.	introducing a detailed assessment grid and guidance for Member States' proportionality assessments, aligning it with the data input form for regulated professions. The Internal Market Information system (IMI) ¹¹⁰ online tool was improved and adjusted so that Member States can use the new form for notifications as of February 2024. This will contribute significantly to better and less restrictive regulation and avoid recourse to costly and unnecessarily confrontational <i>ex post</i> enforcement.
		Introducing a common e-declaration for posted workers	The Commission is promoting the timely agreement and widespread implementation by interested Member States of a common electronic form of electronic form for declaring posted workers. In parallel, the Commission is working to make a multilingual portal available so that companies can submit posting declarations online in their own language for all Member States that decide to make use of this tool.
		Monitoring specific enforcement targets set on enforcement	This aims to limit both the transposition and the conformity deficit to 0.5%. Monitoring will be done via the Single Market and Competitiveness Scoreboard.
		Monitoring benchmark on SOLVIT	This aims to solve a minimum of 90% of the cases (when cross-border rights in the Single Market are breached) within 12 months in each Member State. Monitoring will be done via the Single Market and Competitiveness Scoreboard. It is up to the Member States to try to informally solve those cross-border cases through their SOLVIT centres. Those cases that, due to their nature, cannot be solved through SOLVIT, need to be addressed through other, possibly formal, means, including infringement procedures.
		Reporting on progress in solving Single Market barriers using cooperative tools, such as SMET	The Single Market Enforcement Task Force (SMET) is a useful cooperation tool for removing or easing barriers in the Single Market. Member States are working on significant projects, such as improving the permitting for renewable energy; streamlining the requirements for the cross-border provision of services; removing prior checks and documents

¹¹⁰ [Internal Market Information System \(IMI\) - The EU Single Market - European Commission \(europa.eu\).](https://ec.europa.eu/imi/)

CONTINUING TO FOSTER THE GREEN AND DIGITAL DIMENSIONS OF THE SINGLE MARKET			requirements for the recognition of professional qualifications;, and IBAN discrimination ¹¹¹ .
		Creating and interconnecting common European data spaces in strategic sectors and domains of public interest.	<p>Since 2021 the Commission has published several calls for proposals under the Digital Europe programme for to create data spaces in strategic sectors and key areas of public interest that to strengthen digital capacity across the EU.</p> <p>The work on the data spaces is accompanied by a review of the policy and legislative framework for data access and use. This includes the Data Governance Act¹¹², the Data Act¹¹³, and the Implementing Act on High-value datasets¹¹⁴ under the Open Data Directive¹¹⁵, which was adopted in December 2022.</p>
		The unitary patent will be accompanied by a reform of standard essential patents setting out the global licensing standards	On 27 April 2023, the Commission proposed a new framework for standard essential patents (SEP) ¹¹⁶ . This should maximise R&D investment by holders and implementers alike of EU standard essential patents. Other proposals of the patent package related to supplementary protection certificates and compulsory licensing in case of emergencies, will also bring more transparency, legal certainty, and efficient procedures in the Single Market, benefiting EU companies, SMEs and individuals alike.
		Presenting an initiative on digitalising social security coordination	On 6 September 2023, the Commission proposed new steps to further digitalise the coordination of social security in the EU ¹¹⁷ with the aim to make access to social security services across borders quicker and simpler.

¹¹¹ More detailed information on the achievements of the taskforce is available in the SMET report: [The Single Market Enforcement Taskforce \(europa.eu\)](#).

¹¹² [European Data Governance Act | Shaping Europe's digital future \(europa.eu\)](#). The Data Governance Act entered into force on 23 June 2022 and, following a 15-month grace period, is has been applicable since September 2023.






¹¹³ [Data Act | Shaping Europe's digital future \(europa.eu\)](#). On the 28 June 2023, a [political agreement](#) was reached between the European Parliament and the Council of the EU on the Data Act.

¹¹⁴ [EUR-Lex - 32023R0138 - EN - EUR-Lex \(europa.eu\)](#).

¹¹⁵ [EUR-Lex - 32019L1024 - EN - EUR-Lex \(europa.eu\)](#).

¹¹⁶ COM(2023) 232 — Proposal for a regulation of the European Parliament and of the Council on standard essential patents and amending Regulation (EU) 2017/1001. This proposal was part of the Commission “patents package” that included other proposals in the area of supplementary protection certificates (four regulations: COM(2023) 221, COM (2023) 222, COM (2023) 223, COM (2023) 231) and on compulsory licensing (COM(2023) 224).

¹¹⁷ COM(2023) 501 final.

		Working on a pilot project for the European Social Security Pass (ESSPASS)	The first phase of ESSPASS piloting activities took place between 2021 and - 2022. A second phase is taking place from 2023 to 2025 ¹¹⁸ . Based on the outcomes of the pilot projects, the Commission will decide on the next steps,. This includes deciding on on the feasibility of deploying ESSPASS throughout Europe and whether this would need a new legislative framework.
		Introducing a single corporate tax rulebook for the EU via the Business in Europe: Framework for Income Taxation (BEFIT) , creating a coherent approach to business taxation throughout the EU	On 12 September 2023, the Commission adopted a key package of initiatives to reduce tax compliance costs for large, cross-border businesses in the EU ¹¹⁹ . BEFIT will reduce tax compliance costs for large businesses, primarily those who operate in more than one Member State, and make it easier for national authorities to determine what taxes are rightly due.
		Reforming the Customs Union	On 17 May 2023, the Commission released proposals for an ambitious and comprehensive reform of the EU Customs Union ¹²⁰ . The proposed measures aim to simplify customs processes for businesses. By embracing digital transformation, the reform will reduce burdensome customs procedures, and will provide customs authorities with the tools and resources to properly assess and stop imports that pose real risks to the EU, its people, and its economy.
		Exploring with Member States the possibility of using the European professional card and a common training test and similar tools more widely	The Commission is preparing potential common training frameworks in co-operation with Member States and stakeholders. The Commission is also preparing a study on the better use of digitalisation to make the recognition of qualifications more efficient, which includes the concept for the European professional card.
		Facilitating the recognition of qualifications of third-country nationals	On 15 November 2023, the Commission adopted a Recommendation on the

¹¹⁸ Currently, 12 Member States' institutions are piloting ESSPASS to digitally issue and verify citizens' social security entitlements documents used across borders, such as the 'Portable Document A1' for work purposes and the EHIC in healthcare: [European Social Security Pass - Employment, Social Affairs & Inclusion - European Commission \(europa.eu\)](#).

¹¹⁹ COM(2023) 532 final ([Business in Europe: Framework for Income Taxation \(BEFIT\) \(europa.eu\)](#)).

¹²⁰ COM(2023) 257 final, COM(2023) 258 final, COM(2023) 259 final, COM(2023) 262 final ([EU Customs Reform \(europa.eu\)](#)).

ANNEX 5

OVERVIEW OF RESILIENCE MEASURES OF KEY INTERNATIONAL PARTNERS

NB: This document is a non-exhaustive list of resilience measures to date taken by the EU's key international partners .

Type of resilience measures examined

1. Early warning system: market and supply chain monitoring, in-depth analysis (strategic dependencies, industrial capacities, etc.)
2. Collection of key supply chain information from public authorities and industry
3. Funding/subsidies, tax incentives, support to investments, R&D etc., in specific sectors/value chains
4. Public procurement measures used in support of domestic production capacities, resilience, and security of supply, etc.
5. Stockpiling of critical inputs
6. Prioritisation of supplies of goods and services
7. Trade and investment measures: tariffs, export restrictions, anti-coercion measures, standards, etc.
8. International partnerships

Included countries and territories

US, UK, Canada, Japan, China, Singapore, Korea, India, Australia, and Taiwan

List of acronyms

Afa – Alliances for Action, **Singapore**

ALMM - Approved list of models and manufacturers, **India**

CET - Critical and emerging technologies, **US**

CSF – Centre for Strategic Futures, **Singapore**

CFIUS – Committee on Foreign Investment in the United States, **US**

DPA – Defense Production Act, **US**

EDI – Economic deterrence initiative, **UK**

EIS – Enterprise Innovation Scheme, **Singapore**

EO – Executive orders, **US**

ESPA – Economic Security Promotion Act, **Japan**

EST – Emerging Stronger Taskforce, **Singapore**

FABS - Facilitating American-Built Semiconductors, **US**

FEPO - Future Economy Planning Office, **Singapore**

FIRB – Foreign Investment Review Board, **Australia**

FSC – Korea Financial Services Commission, **South Korea**

GPA – Government Procurement Agreement, **US**

GX – Green transformation, **Japan**

H2Hubs – Regional clean hydrogen hubs, **US**

IPEF – Indo-Pacific Framework for Prosperity

IRA – Inflation Reduction Act, **US**

ITC – Investment tax credit, **Taiwan**

ITM – Industry Transformation Map, **Singapore**

JOGMEC – State-owned Japan Oil, Gas and Metals National Corporation, **Japan**

KOMIR – Korea Mine Rehabilitation and Mineral Resources Corporation, **South Korea**

MAFF – Ministry of Agriculture, Forestry and Fisheries, **Japan**
METI – Ministry of Trade and Industry, **Japan**
MHLW – Ministry of Healthy, Labour and Welfare, **Japan**
MLCCs – Multilayer ceramic capacitors, **Japan**
MLIT – Ministry of Land, Infrastructure, Transport and Tourism, **Japan**
MoA – Memorandum of agreement
MoC – Memorandum of cooperation
MoU – Memorandum of understanding
MoTIE – Ministry of Trade, Industry and Energy, **South Korea**
NdFeB – Neodymium-iron-boron, **US**
NDS – National defence stockpile, **US**
NEMS – National emergency management stockpile capability, **Australia**
NKPs – National key R&D programmes, **China**
NEV PTE – NEV purchasing, **China**
NSIA – National Security and Investment Act, **UK**
ODI – Outward direct investment, **UK**
PIPL – Personal Information Protection Law, **China**
PLI – Production linked incentive, **India**
PPE – Personal protective equipment, **Australia, UK**
R&D – Research and development
RIE2025 – Research innovation entrepreneurship programme, **Singapore**
RISE – Partnership for Resilient and Inclusive Supply-chain Enhancement, **Japan**
SCMs – Specified critical minerals, **Japan**
SLACIP Act – Security Legislation Amendment Critical Infrastructure Protection Act, **Australia**
SMA – Southeast Asia Manufacturing Alliances, **Singapore**
SPECS – Promotion of manufacturing of electronic components and semiconductors, **India**
TSMC – Taiwan Semiconductor Manufacturing Company, **Japan**
UFLPA – Uyghur Forced Labour Prevent Act, **US**

Introduction

Although Europe has and will gain resilience from being open and integrated in global value chains, recent crises such as the COVID-19 pandemic and the Russian invasion of Ukraine have highlighted that economic dependencies in global trade can be weaponised to our own disadvantage. To address such dependencies, governments all over the world are adopting measures to secure their supply chains and, more broadly to accelerate the green and digital transformation in their countries. For example, in the context of the G7 and in line with the European Economic Security Strategy, the G7 members have collaborated intensively on issues pertaining to Economic Security including by setting up a dedicated platform of coordination on economic coercion.

To increase our understanding of today's emerging context of "geopolitics of supply chains", this annex aims to give a non-exhaustive picture¹²⁵ of measures taken by some of the EU's main international partners to reduce their strategic dependencies and reinforce the resilience of their supply chains necessary for the digital and green transitions.

Gaining a better understanding of how international partners unilaterally reinforce their supply chains can help the EU to mitigate its own strategic dependencies and strengthen its open strategic autonomy. What is more, it sheds light on measures that could also potentially reinforce supply risks for the EU by, for example, aiming at encouraging delocalisation and future disinvestment decisions.

With a strong focus on measures adopted after the COVID 19 pandemic (mostly since 2020) - which is considered as a pivotal shift for countries in addressing their strategic dependencies, the inventory below lists the resilience measures that the Commission and EU delegations are aware of in partner countries and territories, at the time of adoption of this document, and depending on the level of information for each country.

In consequence, this toolbox should not be considered as an exhaustive account of all resilience measures across the world, but rather as an illustrative list reflecting some key measures taken by third countries. It is therefore likely that the actual number of resilience measures adopted by international partners could be far greater.

This annex specifically looks at policies undertaken in the US, the UK, Canada, Japan, China, Singapore, South Korea, India, Australia, and Taiwan- which are the most prominent international economic players that have been the most active in mitigating their dependencies and reinforcing their resilience in a context of arising risks from geopolitical tensions and unfair international competition.

After scrutinising the collected data, third country measures have been classified into 8 specific categories:

1. Early-warning system: market and supply chain monitoring, in depth-analysis (strategic dependencies, industrial capabilities etc...
2. Collection of key supply chain information from public authorities and industry

¹²⁵ The data used in this inventory is publicly available and has been collected through the knowledge and intelligence of Commission services and EU delegations, notably in media articles, press releases, official governmental documentation, as well as from interactions with respective public authorities.

3. Funding/subsidies, tax incentives, support to investment, R&D etc... in specific sectors/value chains
4. Public procurement measures used in support of domestic production capabilities, resiliency and security of supply, etc...
5. Stockpiling of critical inputs
6. Prioritisation of supplies of goods and services
7. Trade, and Investment Measures: tariffs, export restrictions, anti-coercion measures, standards, etc...
8. International partnerships

These categories have been chosen as they mirror policy instruments and components within various EU legislations and instruments - such as the EU Internal Market Emergency and Resiliency Act and the EU Critical Raw Materials Act – all embedded with the objectives of **promoting** our economic, industrial and technologic base in strategic areas, **protecting** our economic security and safeguarding the global level-playing field by strengthening our trade defence instruments, and **partnering** with international allies to coordinate policies on supply chain resilience and to diversify sources of supply.

Despite of the non-exhaustive nature of the toolbox, the scope of the categories is deliberately granular to easily classify and regroup together third countries measures as well as grasp the policy rationale, objectives and means of international partners in reinforcing the resilience of their supply chains.

As a result, we have identified to date 14 early warning systems measures; 6 measures on the collection of key supply chain information from public authorities and industry; 57 measures related to funding and subsidies, tax incentives, support to investments, R&D etc., in specific sectors and values chains; 10 measures on public procurement; 10 measures on stockpiling of critical inputs; 8 measures related to the prioritisation of the supplies of goods and services; 23 trade and investment measures; and 27 international partnerships.

However, classifying a third country policy measure is not always clear cut and a specific measure may consequently be counted in several categories. Therefore, the total number of policy measures may not be exactly accurate, but nevertheless the inventory sheds light on the various types of policy instruments used by international partners in reinforcing their respective resilience and competitiveness.

1. Early warning system: market and supply chain monitoring, in-depth analysis (strategic dependencies, industrial capacities, etc.)

- **US: Executive Order 14017 'America's Supply Chains'**: The involved publication, in 2022, of reports on: semiconductor manufacturing and advanced packaging; large-capacity batteries, including for electric vehicles; critical minerals, including rare earths; and pharmaceuticals and their active ingredients. The reports include assessments of and strategies to strengthen supply chains for the following industrial sectors: energy; transportation; production and distribution of agricultural commodities and food products; public health and biological preparedness; ICT; and defence.
- **US: The Supply Chain Disruption Task Force, created in June 2021**, is a coordinating inter-agency process on supply chain issues.
- **US: Executive Orders 13953 (Addressing the Threat to the Domestic Supply Chain from Reliance on Critical Minerals From Foreign Adversaries and Supporting the Domestic Mining and Processing Industries) of 30 September 2020, and 13817 (A Federal Strategy to Ensure Secure and Reliable Supplies of Critical Minerals) of 17 December 2017**. EO13953 entrusted the Secretary of the Interior to with the task of producing every 180 days a report on critical minerals supplies and potential risks from foreign powers. EO13817 launched an in-depth review of critical minerals supply chains necessary for the US economy and national defence and investigated expanding mining production in the US.
- **UK: The critical imports and supply chains strategy** which was published in January 2024 sets out how the UK government intends to help businesses build secure and reliable supply chains in areas which are vital to the UK's economic prosperity, national security, and the delivery of essential services. The strategy builds on the existing sectoral strategies, such as the critical raw materials and semiconductors strategies, which aim to ensure that UK is a centre of excellence on supply chains, building on the analytical work undertaken to date. The defined critical sectors are chemicals, civil nuclear, communications, defence, emergency services, energy, finance, food, government, health, space, transport and water. Moreover, The identified growth sectors set out are digital technology, green industries, life sciences, advanced manufacturing and creative industries. It complements the **advanced manufacturing plan**, adopted in December 2023.
- **UK: The UK established its first Critical Minerals Intelligence Centre** in July 2022, which provides ongoing intelligence on the supply of and demand for critical minerals. The centre advises the government on economic, environmental, ethical, and geopolitical issues linked to supplies of critical mineral resources. The centre has already published reports on the UK's future demand of for critical raw materials for EV electric vehicle batteries, and on the UK's dependency for the UK on 26 critical materials.
- **UK: The Integrated Review Refresh 2023** outlines how the UK government needs to respond to the deteriorating global security environment. The strategy identifies energy security, economic security, and democratic and wider societal resilience as priority areas to address the UK's vulnerabilities. It builds on the Integrated Review from 2021 which included a supply chains resilience framework based on the following five areas: diversification, international partnerships, stockpiling and surge capacity, onshoring, and demand management. The review sets out to identify whether it may be beneficial to manage the demand for components or goods, considering substitutes and alternatives,

innovation, and circularity. The review's recent Refresh from 2023 emphasises economic security.

- **Japan:** As part of the **Economic Security Promotion Act (ESPA)**, an umbrella instrument adopted in May 2022, and intended for full implementation within the next 2 years, the Japanese government selected 11 materials as 'specified critical materials (SCMs)' which are strategically important to the country. Measures to ensure a stable supply of these products were included in the comprehensive economic stimulus package in 2022. The list covers 11 sectors and 4 ministries (list below). For each of these critical products, the ministries have published **sectoral policy guidelines** that: (i) analyse their importance for Japan's economic security, external dependencies and supply chains; (ii) lists all existing sectoral policies and measures; and (iii) explains why supplementary measures are necessary on economic security grounds. In November 2023, the government announced its intention to designate additional critical commodities. The list of critical products is evolving with the upcoming decisions to designate **new critical products such as uranium** (as one of the critical minerals) and **multilayer ceramic capacitors (MLCCs)** by the end of 2023.
 - i. **Ministry of Trade and Industry (METI) (8):** **semiconductors, cloud computing, storage batteries, permanent magnets, critical minerals, machine tools and industrial robots, aircraft part materials and LNG.**
 - ii. **Ministry of Land, Infrastructure, Transport and Tourism (MLIT) (1):** maritime transport / shipping equipment (engines, propellers, navigational equipment (sonar) etc.); to support maritime transport.
 - iii. **Ministry of Agriculture, Forestry and Fisheries (MAFF) (1):** **fertiliser raw materials.** The establishment of a stockpiling system and state support on storage fees for fertilisers held by private companies (e.g. fertiliser manufacturers) will be considered.
 - iv. **Ministry of Health, Labour and Welfare (MHLW) (1):** antimicrobials.
- **Ministry of Health, Labour and Welfare (MHLW) (1):** antimicrobials.
- **Australia:** In 2021, the Australian government created the Office of Supply Chain Resilience under the Prime Minister. The office is dedicated to monitoring Australian supply chains' resilience. Its tasks of the Office include: health, safety and wellbeing, economic stability and viability, national security and international partners. The office advises the Australian government on supply chain risks and potential actions to improve resilience. benefit.
- **South Korea:** since 2022, advance warning on supply chains and economic security issues are provided by: (i) the **Economic Security Centre** managed by the Ministry of Foreign Affairs; (ii) the Global Supply Chain Analysis Centre managed by the Ministry of Trade, Industry and Energy; and (iii) the Office of Economic Security managed by the Office of the President provide, since 2022, advance warning on supply chains and economic security issues.
- **South Korea:** South Korea has an early warning system in place to monitor 20 key raw materials to ensure stable supplies.
- **Singapore: Alliances for Action (AfA) (June 2020).** The AfAs are industry-led coalitions, working in partnership with the government, to prototype ideas in areas of opportunity for Singapore or to address a common challenge. A total of nine AfAs were

formed under the Emerging Stronger Taskforce (EST): - Supply Chain Digitalisation;; - Sustainability;; Digitalise Built Environment;; -Smart Commerce;- Robotics Solutions;; - Safe and Innovative Visitor Experiences;; - EduTech;; -MedTech; and, - AgriTech Ecosystem.

- **Singapore: Emerging Stronger Taskforce.** To oversee the longer-term work of responding to the structural shifts in Singapore's economy, the Emerging Stronger Taskforce (EST) was set up in May 2020 under the Future Economy Council (FEC). Chaired by the Minister for National Development and, the Minister-in-charge of Social Services Integration, and the CEO of PSA International Group CEO, the tTaskforce comprised business leaders with rich experience in key areas such as digitalisation and connectivity, and with broad perspectives on the global economy.
- **Singapore:** Singapore **established a Future Economy Planning Office (FEPO)** within its Ministry of Trade and Industry (MTI). FEPO's key roles include developing industry transformation maps (ITMs) to secure Singapore's economy resilience.
- **Singapore:** The **Centre for Strategic Futures (CFS)** is part of the Singapore's Prime Minister's Office. CSF is a foresight department whose mission is to position the Singapore government to so that it can navigate emerging strategic challenges and harness potential opportunities.

2. Collection of key supply chain information from public authorities and industry

- **US: 'Section 232 investigations'** under the Trump Administration served to collect market information from companies and stakeholders on aluminium and steel, on the dominant role of China in the supply chain, and the risks associated with the US's import dependency on China, especially for sintered magnets (100%).
- **US: The Defense Production Act (DPA)** allows the US government to obtain information from defence industry businesses, including information needed for defence industry studies.
- **US: Subpoena power of the Federal Trade Commission** grants the Consumer Protection Agency to have authority to order companies to turn over information for research purposes, a power it has used to study the privacy practices of broadband providers and start-up acquisitions by the five U.S. tech giants, among other areas.
- **Australia:** The **Security Legislation Amendment (Critical Infrastructure Protection) Act (SLACIP Act) (2022)** amends the Security of Critical Infrastructure Act 2018 (the SOCI Act) to build upon the existing framework and uplift the security and resilience of Australia's critical infrastructure. The SOCI Act contains definitions that outline each of the 11 critical infrastructure sectors. Definitions were developed in consultation with industry to ensure clear articulation of what constitutes a critical infrastructure asset within each sector.
- **Japan:** Under the **Economic Security Promotion Act (ESPA)**, when business operators (including foreign operators) engaged in the production, import or sale of 'designated critical commodities' apply to the governmental support programme (including for financial support), the operators are required to report data on the production, import, sale,

procurement or storage of such commodities or related raw materials, and may be subject to on-site inspections. Additionally, the government will screen 'critical equipment' owned by 'designated core infrastructure operators' in 14 'core infrastructure sectors': (i) electricity; (ii) gas, ; (iii) oil; (iv) water; (v) telecoms; (vi) broadcasting ; (vii) post; (viii) finance; (ix) credit cards; (x) railways; (xi) land freight; (xii) sea freight; (xiii) aviation; and (xiv) airports.

- **South Korea: South Korea's Framework Act on the supply chain management for economic security**, announced in 2022, establishes a presidential committee on economic security and supply chain management to act as a control tower to monitor the entire supply chain process, including information collection, risk -detection, risk prevention and risk management. The Act furthermore establishes a Supply Chain Stabilisation Fund to be managed by KEXIM Bank, Korea's import/export bank.

3. Funding/subsidies, tax incentives, support to investments, R&D etc., in specific sectors/values chains

- **US:** The US Energy Department of Energy announced in October 2023 USD 7 billion to launch seven **regional clean hydrogen hubs (H2Hubs)** across the US to accelerate the commercial-scale deployment of low-cost, clean hydrogen. The funding derives from the Bipartisan Infrastructure Law.
- **US: The Inflation Reduction Act (2022)** makes major federal investments designed to: (i) reduce US greenhouse gas emissions and combat climate change (USD 370 billion estimated at US Congress level, but potentially higher as the US budget is uncapped); (ii) catalyse US domestic clean energy, development, deployment, and expansion; and (iii) enhance US energy security (over USD 60 billion). Some elements of the IRA Act, notably with respect to discriminatory content and assembly requirements, have raised concerns amongst international partners, regarding distortion of international trade and investments, adverse impacts on companies not located in the US and its compatibility with World Trade Organization (WTO) rules.
- **US:** The **Chips Act (2022)** is to include a USD 52 billion budget directed towards domestic semiconductor research, design, and manufacturing.
- **US:** The **Investment and Infrastructure Jobs Act (2021)** makes available USD 1.2 trillion in investment in transport, power, and broadband infrastructure, with domestic preference ('Buy America') requirements attached.
- **US: The Facilitating American-Built Semiconductors (FABS) Act (2021)** is to provide semiconductor investment tax credits. The bill was incorporated under the Chips Act.
- **US:** The **Energy Storage and Tax Incentive and Deployment Act (2019)** creates an investment tax credit for energy storage.
- **US:** The Innovation and Competition Act creates a USD 250 billion supply chain resiliency and crisis response programme.
- **US: The Export-Import Bank** offers medium- and long-term loans and loan

guarantees available for "export-oriented domestic manufacturing projects," with a particular focus on sectors such as semiconductors, biotech and biomedical products, renewable energy, and energy storage.

- **Canada:** the The 2023 federal budget 2023 presented in March 2023 earmarks **CAD 80 billion (EUR 54 billion) worth of tax credits and infrastructural investments over 11 years** to encourage investments in low-carbon electricity, manufacturing, and other green industrial activity (the '**Made in Canada plan**'). The combined value of the tax credits is CAD 65 billion. These consist of:
 - The **clean electricity investment tax credit**, with a total cost of CAD 25.7 billion (EUR 17.4 billion) over 11 years. The 15% credit targets investments in non-emitting electricity generation systems (including large-scale hydro- and nuclear facilities), abated natural gas-fired electricity generation, stationary, fossil fuel-free storage systems, as well as electricity transmission equipment.
 - **The clean technology investment tax credit.** Announced in the 2022 Fall Economic Statement, the 30% tax credit will promote investment in areas like wind, solar, small modular nuclear reactors, and geothermal energy. Its 5-year is estimated at CAD 6.7 billion (EUR 4.3 billion). Companies cannot draw on both the clean electricity investment tax credit and the clean technology investment tax credit for the same project.
 - **The investment tax credit for clean hydrogen.** Announced in the 2022 Fall Economic Statement, the credit will vary between 15% and 40% of project capital costs, depending on the lifecycle carbon intensity of the produced hydrogen. This credit is expected to cost CAD 5.6 billion (EUR 3.8 billion) over the next 5 years, and another CAD 12.1 billion (EUR 8.2 billion) between 2028-2029 and 2034-2035.
 - **The carbon capture, utilisation and storage investment tax credit** is has been extended. Announced in the 2022 budget 2022, this update will add \$CAD 516 million (EUR 349 million) to the credit's CAD 4.1 billion (EUR 2.8 billion) total over the next 5 years.

The tax credits are complemented by a CAD 15 billion (EUR 10.1 billion) **Canada Growth Fund**. To de-risk private investment, the fund uses so-called 'contracts for difference', which provide a governmental guarantee for the future price of, for example, carbon or hydrogen. The fund will start investing from July 2023 onwards.

In addition, the budget launches:

- an **extension of the reduced tax rates** for zero-emission technology manufacturers;.
- a **CD 500 million (EUR 338 million) top-up for the Strategic Innovation Fund** to support the development and application of clean technologies in Canada.
- **Canada:** On 24 March 2023, Canada presented the **Critical Minerals Infrastructure Fund** – a new fund announced in the 2022 budget that will

allocate CAD 1.5 billion for energy and transportation projects needed to unlock priority mineral deposits. The new fund will complement other clean energy and transportation supports, such as the Canada Infrastructure Bank and the National Trade Corridors Fund, as well as other federal programmes that invest in critical minerals projects, such as the Strategic Innovation Fund.

- **UK:** In March 2023, the UK reformed the UK Infrastructure Bank and its governance. The bank was created in 2021 with a capital of GBP 22 billion to mobilise investments, including in climate-related technologies, to ensure the UK reaches its 2050 climate targets.
- **UK:** In May 2023, the UK unveiled its **national semiconductor strategy**, which includes a plan to redouble efforts in design, research, and advanced chip leadership. To do this, the government will invest up to GBP 1 billion in the next decade to improve access to infrastructure, power more research and development and facilitate greater international cooperation, with up to GBP £200 million over the years 2023-2025.
- **UK:** Announced in its Integrated Review 2023 the establishment of a new **Task & Finish Group on Critical Minerals Resilience** for UK industry, to support the delivery of the UK Critical Minerals Strategy and investigate vulnerabilities and resilience opportunities across value chains. The group had its first meeting on 20 April 2023.
- **UK:** In February 2023, the UK government launched ‘**CleanTech for UK**’, a coalition of leading clean tech entrepreneurs, investors and venture builders with combined funds of over GBP 4 billion, committed to working together to supercharge the country’s green economy and innovation for a net-zero emissions future.
- **UK:** In November 2022, the government announced over **GBP 65 million investment to help speed up the development of new green technologies**, backed by the talent and expertise of British business. This pledge will go towards the world’s first large-scale industry transition programme, by the Climate Investment Funds, to help energy-intensive industries in developing economies including India and Indonesia to go green. This comes on top of a further GBP 65.5 million for the Clean Energy Innovation Facility, which provides grants to researchers and scientists to accelerate the development of innovative clean energy technologies in developing countries.
- **UK:** The **British Industry Supercharger**, announced in February 2023, is designed to reduce industrial electricity prices for eligible energy intensive industries in Great Britain. It aims to ensure the energy costs for key Britain’s strategic energy intensive industries are in line with other major economies around the world and to tackle the challenge of indirect carbon leakage and the risk of that the policy costs imposed on energy intensive industries could lead to the displacement of production, and associated emissions. The annual value of the scheme is estimated between around £320 to £410 million per year, from which about 300 businesses in sectors including steel, metals, chemicals and paper will benefit.
- **UK:** The **critical minerals strategy**, adopted in July 2022, sets out the

government's plans for improving the resilience of critical minerals supply chains and increasing UK security of supply. Through this strategy, the UK intends to accelerate growth of the UK's domestic capabilities,; collaborate with international partners, and; enhance international markets to make them more responsive, transparent, and responsible.

- **UK: The Subsidy Control Act of April 2022**, which replaces the EU's State aid regime and is mandated by the EU Trade and Cooperation Agreement (TCA), came into force on 4 January 2023. Under the TCA, the UK is committed to establishing an effective system of control of subsidies with a view to ensuring that subsidies are not granted where they have or could have a material effect on trade or investment between the EU and the UK. The new regime diverges significantly from the EU's approach which is centralised and regulates ex-ante basis. The UK regime features a new definition of subsidies and a set of subsidy control principles, aligned with the Trade and Cooperation Agreement, against which public authorities must self-assess the compliance of proposed subsidies via an "Assessment of Compliance".
- **Australia:** On 25 October 2023, Australia announced an **AUD 2 billion expansion in critical minerals financing**, which will solidify Australia's position as a world- leading provider, help the transition to net zero, boost the economy and support more jobs and opportunities for Australians. Critical minerals, including rare earths, are the building -blocks for a clean energy future, and are essential to achieving Australia's energy transition. This significant commitment will double the capacity of the Critical Minerals Facility to finance Australian critical minerals mining and processing projects. This expansion of the Critical Minerals Facility takes the government's value-adding investments in Australian resources to AUD 6 billion.
- **Australia:** Established in 2021, Australia's **Supply Chain Resilience Initiative** provides businesses up to AUD 2 million to establish or scale up a manufacturing capability or a related activity to address supply chain vulnerabilities for a critical product or input identified in the sovereign manufacturing capability plan. The main new policy tool is the SCRI grant (AUD 50 million) to improve access to critical products in times of crisis.
- **Australia:** In 2020, the Australian government launched the its **modern manufacturing strategy with a budget of AUD 1.3billion**. The strategy is a key feature of the plan to harness Australian manufacturing capability and to drive Australian economic recovery and future resilience. The strategy's vision for the strategy is for Australia to be recognised as a high-quality and sustainable manufacturing nation that helps to deliver a strong, modern and resilient economy for all Australians. The Australian modern manufacturing strategy is implemented by the national manufacturing priority roadmaps. These road maps for the six priority areas were developed with industry through taskforces ion the following domains:medical products, resources technology & critical minerals processing, food and beverage, defence, and recycling and clean energy.
- **India:** In May 2023, the Ministry of Electronics and Information Technology launched an '**India Semiconductor Mission**' to act as the central entity coordinating all semiconductors-related policies of the Indian government and

ensure their smooth implementation. Some initiatives in place include **the Semicon India programme**, which provides USD 10 billion for 100 Indian companies in the field of electronics. Since 2022, the amended **programme for semiconductors and display fab ecosystems** provides fiscal support of 50% of project cost for all technology nodes for semiconductor fabs, fiscal support of 50% of project cost for display fabs, and fiscal support of 50% of capital expenditure for compound semiconductors, silicon photonics, sensor fab and semiconductor facilities. The **Digital India campaign** also aims to develop the electronics sector, making it worth USD 300 billion by 2026, particularly in semiconductor and design, smartphones, IT hardware, and components.

- **India:** The Ministry of New and Renewable Energy in August 2021 launched the **National Hydrogen Mission** as a blueprint for India's transition to a hydrogen-based economy, with the goal of reaching a production of 5 million tonnes of green hydrogen by 2030. The Indian government is offering special manufacturing zones to produce hydrogen, with free energy transmission across state lines and priority connection to the grid. In February 2023, the Indian government also announced an INR 350 billion (EUR 4 billion) fund to invest in energy security and green transition (with a focus on solar power and green hydrogen production), the aim of being to reach net-zero emissions by 2070.
- **India:** The **Production Linked Incentive (PLI) Scheme (2020)**, managed by the Ministry of Heavy Industries, is a scheme to help develop local supply chains. Although the scheme invites foreign companies to set up units in India, it also aims to encourage local companies to set up or expand existing manufacturing units and reduce the country's reliance on imports from other countries. Benefiting industries include the battery ecosystem (under the **'national programme on advanced chemistry cell battery storage'**), with USD 2.49 billion over 5 years in subsidies to develop 50 GWh of battery capacity in India. Beneficiaries must ensure a 60% increase in domestic value added within 5 years. An additional PLI scheme was launched to boost solar panel production in India, with a budget of USD 600 million. The goal is to attract USD 2.30 billion in private financing and to reach an additional 10 000 MW of solar electricity production capacity in India. Other schemes have been designed for the Promotion of Manufacturing of Electronic Components and Semiconductors (SPECs) initiative, and more recently in 2023 for IT Hardware to promote the localisation of components and sub-assemblies of semiconductor design, ICT manufacturing, laptops, tablets, and packaging.
- **China:** China has a NEV Purchasing tax exemption (NEV PTE), which is gradually being reduced, as follows: in 2023, exemption for 10%, no tax reduction cap; in 2024-2025, exemption for 10%, with cap of CNY 30 000; and in 2026-2027, exemption for 10%, with cap of CNY 15 000 RMB. All products are eligible for PTE, regardless of whether they are imported or locally manufactured. Electric vehicle subsidies apply only for locally made vehicles, but includes products manufactured by EU joint ventures in China.
- **China:** The **14th Five-Year Plan (2021)** included an entire chapter devoted to boosting the digital sector's added value to 10% of GDP by 2025. This notably includes targeted investments in 6G and in cloud services. According to the law "Classified Catalogue of Telecommunications Services 2015" law updated in

2019, only Chinese companies can be licensed to operate cloud services for security reasons and to guarantee a protected market for Chinese companies.

- **China:** The **implementation plan for the development of new energy storage technologies** during the 14th Five-Year Plan period implements several investment measures to develop energy production and storage in emerging fields such as compressed air, hydrogen, battery, and thermal energy, with the goal of reaching self-reliance in those fields. The goal is notably to reach 100 GW of battery storage capacity by 2030.
- **China:** The **China Hydrogen Alliance** is a public body charged with boosting hydrogen production in China. Hydrogen has been included as one of China's six industries of the future and has received important investments as part of the 14th Five- Year Plan for a modern energy system.
- **China:** The **dual circulation strategy (2020)** includes tax breaks, cheaper utility rates, low-interest loans and free or discounted land for chipmakers to: (i) meet higher technical standards; (ii) advance technology development; and (iii) incentivise reshoring and development of local capacity. Even though foreign invested companies are in principle eligible for these breaks, the goal is to achieve self-reliant economic development to have complete supply chains under Chinese control.
- **China:** Central government funding is available for fuel-cell vehicles, up to CNY 1.7 billion (EUR 230 million), for local governments that meet specific targets. Local governments will also promote the roll-out of FCVs, with the provinces of Beijing, Shanghai, Hebei, Inner Mongolia, and Shandong each aiming to have 10 000 FCVs on their streets by 2025.
- **China:** The government calls on public and private institutions to work towards technological innovation in strategic areas. State funds support public universities and research institutes to conduct research, while state-owned and private enterprises pursue R&D in high-priority areas. This is often done through **national key R&D programmes (NKP)**. Since 2016, the government has announced 66 NKP projects focusing on hydrogen technologies, with a total estimated value between CNY 1.75 and CNY 5 billion (EUR 240 and 680 million, respectively). Of these, 14 NKPs have an explicit focus on green hydrogen, with a combined estimated value between CNY 400 million and CNY 1.25 billion (EUR 54 to EU 170 million).
- **China:** The government directly or indirectly funnels credits and investment into 'strategic sectors', e.g. through '**government guidance funds**' that combine public and private investment and through lending by state-owned banks.
- **Taiwan:** The **5+2 Innovative Industries Plan (2016)** aims to upgrade Taiwan as an industrial global player in key sectors. Implementation focuses on seven industries and projects including intelligent machinery, green energy, biomedicine, national defence and aerospace, new agriculture, circular economy and 'Asia Silicon Valley'. The focus on these areas is expected to move Taiwan forward from contract manufacturing to a new commercial model centred on high-value-added business, services and solutioning.
- **Taiwan:** Last amended in June 2023, the **Statute of Industrial Innovation**

states that companies with a critical position in the global supply chain may claim investment tax credit ('ITC') of 25% on research & development R&D expenditure and 5% on procurement of machinery/equipment. The applicable period for utilising such ITCs spans 7 years, running from 1 January 2023 to 31 December 2029 (expiry date of Statute).

- **Taiwan:** The **Statue of Industrial Innovation**, last amended in 2023, represents Taiwan's largest investment tax reduction incentive in history. The effective tax rate for companies investing in the chips sector in Taiwan is 1%. For companies with technological innovations in semiconductors, electric vehicles, and 5G, the law provides a 25% reduction in expenses related to forward-looking R&D, and a 5% reduction in the purchases of new machinery or equipment for advanced processes, offset by the tax payable in the year of purchase.
- **Taiwan:** The **electric truck subsidy plan (2022)**, dedicates TWD 200 million to green logistics. Domestic companies are able to obtain subsidies to improve electric vehicles and develop greener dispatching systems, with the caveat that key project components of the project (including batteries and motors) cannot be manufactured in China.
- **Taiwan: E-bus subsidy plan (2023).** A seven-year NT\$64.3 billion (US\$2.1 billion) plan to make all buses and coaches in Taiwan battery electric by 2030. The program aims to decarbonize public transport nationwide between 2024 and 2030 as part of government efforts to achieve net-zero emissions by 2050.
- **Taiwan:** To tackle Taiwanese semiconductor talents outflow to China, the Ministry of Labour implemented two distinct rules in 2021 **prohibiting the advising or intermediation of recruitment for Taiwanese individuals to work in China**. The rules are not exclusive to engineers but apply to all sectors. The first announcement, in April 2021, prohibits labour agencies from assisting in advertising recruitment or acting as an intermediary helping personnel going to work in China. Violations of this rule can result in fines. The Ministry of Labour further specified regulations, prohibiting domestic advertising recruitment or intermediation of personnel going to work in mainland China unless by a Taiwanese company permitted by the Ministry of Economic Affairs to invest in mainland China and with actual business operations there. Different penalty amounts are specified based on the number of first-time and repeated offences.
- **Japan:** In June 2023, the Japan Investment Corporation, a government-backed fund overseen by Japan's Ministry of Economy, Trade and Industry, concluded an unprecedented buyout offer worth **USD 6.4 billion targeting JSR**, a leading Japanese listed company in photoresists, a technology needed in semiconductors value chains. At the time of the offer, the capitalisation of JSR was USD 4.7 billion.
- **Japan:** The **green transformation (GX) basic policy (May 2023)** is an investment roadmap for 150 trillion yen of public-private financing over the next 10 years. It is comprised of two main parts: (i) measures for stable energy supply (energy efficiency, renewables, nuclear, other energy sources like hydrogen, ammonia, LNG, batteries, carbon recycling); and (ii) 'growth-oriented' carbon pricing schemes. It will introduce a carbon tax by 2028, starting with a

voluntary emissions trading scheme introduced starting in 2026. The GX plan will drive forward investment in: renewables, grid flexibility, energy efficiency and the circular economy, supported by an upcoming sovereign bond to stimulate private-sector investment.

- **Japan: Partial amendment of the Japan Bank for International Cooperation Act (April 2023)** focused on: (i) enhancement of supply chain resilience to contribute towards maintaining and improving the international competitiveness of Japanese industries; (ii) assistance for Japanese companies, including start-ups, in taking further risks with expectations of such sectors such as digitalisation and green initiatives growing; and (iii) participation in the international support for the recovery of Ukraine.
- **Japan:** In October 2022, METI (the Ministry of Economy, Trade, and Industry) launched a new Resource Autonomous Economy Strategy Planning Office and new study group to design a pro-growth economy with circular economy and resource autonomy. The study group will explore ways to encourage industries to use circular resources against the backdrop of limited domestic resources, increasing global demand for critical **raw materials, unexpected supply disruptions and economic fallout from the weakening yen.**
- **Japan:** In September 2022, METI approved production plans for advanced memory semiconductors in Hiroshima by Micro Memory Japan and Micron Technology, for the with a maximum subsidy in the maximum amount of JPY 46.5 bn. The ministry emphasised that this would contribute to further strengthening of Japan-US cooperation on semiconductors since Micron conducts development and production in both the U.S. and Japan.
- **Japan:** Under the **Economic Security Promotion Act (ESPA) (May 2022)**, specific companies supplying designated critical commodities can receive financial and fiscal support over the medium to long term. Subsidies under ESPA will aim to reduce risk for private operators and encourage them to enter currently low-margin / high-risk businesses and R&D. Examples of measures under the ESPA include:
 - A package worth approx. JPY 800 billion (EUR 6.15 billion) to support the domestic semiconductor industry, including the construction of a chip plant in Kumamoto Prefecture by a joint venture of Taiwan Semiconductor Manufacturing Co. (TSMC), Sony and Denso.
 - A new economic stimulus package to support the development of production infrastructure, diversification of supply sources and development of alternative commodities. In April/August 2023, the Japanese government of Japan designated 20 critical and emerging technologies (maritime, aerospace, cyberspace, biotechnology, semiconductors, robotics and quantum, hypersonic, cybersecurity utilising AI, drones and unmanned aerial vehicles, next-generation furnaces and fusion furnaces). Selected projects are expected to begin by Q3/4 of 2023 and will be funded for up to 5 years (max. of 10 years). In this context, already JPY 500 bn (EUR 3.2 bn) has been allocated to the key technologies for economic security.
 - Re-introduction of secret patents. The recent Basic Policy Guidelines

identified 25 technologies to be covered, including technologies related to aircrafts, unmanned aerial vehicles, guided weapons, jet engines, solid fuel rocket engines, weapons with electromagnetic launchers, laser weapons, electromagnetic pulse munitions, defence against aircraft and guided missiles, telecommunications jamming, uranium and plutonium isotope separation, decomposition and reprocessing of nuclear fuel, nuclear devices, etc. The Implementation will start in 2024.

- **Japan:** 2022 saw the establishment of RAPIDUS, a corporation in which Japan's major chips manufacturers are participating to establish mass production of next-generation semiconductors.
- **Japan:** The **State-owned Japan Oil, Gas and Metals National Corporation (JOGMEC)** supports exploration and technological development by Japanese companies through equity capital and liability guarantees. JOGMEC invests in rare earth overseas projects to diversify supply involving Japanese companies to diversify supply. Its purpose, scope, structure, and obligations are set out in the **JOGMEC ACT**¹²⁶.
- **Japan:** Under the planned revision of the JOGMEC ACT, JOGMEC is to strengthen financial support for Japanese businesses' rare earths exploration and refining operations. The revised legislation is reported to: (i) increase the ceiling of JOGMEC's loan and investment ratio by expanding government's support through JOGMEC from the current level of 50% to 75% of investment in projects; (ii) allow JOGMEC to invest in or grant debt guarantees to domestic Japanese mineral-refining operations (at present JOGMEC can only support refining operations overseas, in practice in China); and (iii) allow JOGMEC to actively support overseas mining and projects involving Japanese companies (risk money support).
- **South Korea:** In August 2023, the Korea Financial Services Commission (FSC) announced a set of measures aimed at boosting support for the export industry by providing 23 trillion South Korean won (EUR 16.4 billion). These export credits will be focused on 20 strategic export sectors, which encompass the '12 new export growth engines' (secondary batteries, electric vehicles, high-value-added shipbuilding, green industries, edu-tech, agro and fishery food products, smart farming, ICT services, creative contents, pharmaceuticals/medical devices, and cosmetics), as well as Korea's eight backbone industries (chips, displays, steels, machinery, petro-chemicals, nuclear power plants, national defence, overseas construction, environmental industry).
- **South Korea:** In April 2023, President Yoon Suk Yeol announced that the government will invest 20 trillion won (USD 15.1 billion) in the electric vehicle battery industry by 2030 to turn it into a key component of the country's national security and strategic assets, along with semiconductors, and to secure a significant lead over rivals. More specifically, the government will support large research projects to develop solid-state batteries, while top battery cell makers — LG Energy Solution, Samsung SDI and SK — plan to produce prototypes of solid-state batteries domestically and then mass produce them overseas.

¹²⁶ [300052290.pdf \(jogmec.go.jp\)](#)

- **South Korea:** In April 2023, the Ministry of Economy and Finance announced that the government will invest 4.5 trillion won (USD 3.5 billion) and provide support measures, including tax benefits, to encourage private corporations to invest 150 trillion won into chips, displays and batteries. The government will also engage in strategic cooperation with countries with advanced technologies in these fields.
- **South Korea:** South Korea passed on 30 March 2023 its own 'K-Chips Act' that gives specific advantages to Korean chipmakers, with tax breaks to increase production in Korea. The goal is to encourage them to spend approximately a combined about EUR 379 billion by 2030 to facilitate South Korea becoming a global powerhouse in memory and non-memory chips. Large companies will get receive a tax credit of 15%, while SMEs' capital expenditure will get a tax break of 25%. Any additional investment in chipmaking in 2023 will receive another 10% tax break. In addition, the Act streamlines administrative procedures for chipmakers. Samsung announced in April 2023 that it would invest some EUR 212 billion into a new massive chip cluster with five advanced chip-manufacturing plants around the Korean city of Yongin by 2042. SK Hynix is also planning to establish a semiconductor cluster in the same city, investing some EUR 85 billion. Semiconductors are a key export product for South Korea, accounting for about 20% of its exports in 2022.
- **South Korea:** South Korea issued in February 2022 the **Special Act on Strengthening and Protecting Competitiveness of National High-Tech Strategic Industries** with the goal to reduce the administrative burden, speed up relevant licensing processes, and subsidise training programmes in the semiconductors sector and beyond.
- **South Korea:** In 2022 government started to apply a higher tax credit rate of 15% on facility investment in the chip industry for conglomerates, up from 8%. The rate for small and medium-sized businesses also rose from 16% to 25 %. In 2023, the government started applying an additional tax credit rate of 10% on the amount of investment, increasing year on year. The proposed plan could help the strategic industries, including rechargeable battery makers, save 3.65 trillion won (USD 2.85 billion) in taxes in 2024.
- **South Korea:** In February 2022, the national government adopted a new technology protection strategy to harmonise the different protection measures taken by various national ministries to avoid leakages of core technologies. To give special funding to the technologies that are considered strategic by the government, a Special Taxation Act has been in effect since 01 January 2023. The Act sets out a precise list of 150 strategic technologies for which Korea-based manufacturing companies can receive tax credits to the tune of 937.6 billion won (USD 711.2 million) in 2023. In April 2023, the Ministry of Industry announced that the list would be updated to include 50 extra technologies, bringing the list to 200 items.
- **Singapore:** Singapore's research priorities and funding have been detailed in the **Research Innovation Entrepreneurship Programme (RIE2025)**. RIE2025 gives priority to health, sustainability, digital economy, advanced manufacturing, and security. RIE strategies respond to new technological and societal driving

forces.

- **Singapore:** In February 2021, Singapore announced the establishment of the **Southeast Asia Manufacturing Alliances (SMA)**, a tripartite alliance (public-private) to secure supply chain resilience in the region. Grants up to SGD 1.5 million are provided by the Economic Development Board of Singapore (the Ministry of Trade and Industry's economic development body), while Enterprise Singapore (the government agency for business development) provides matching events and a platform. A network of private sector 'strategic partners' offer preferential services (reduced costs on leasing and logistics) for businesses that join the alliance.
- **Singapore:** the ["30 by 30" policy](#)— whereby Singapore intends to be able to produce 30 % of its nutritional needs by 2030 and enhanced its food security, a major endeavour to tackle food security issues.
- **Singapore:** the **Enterprise Innovation Scheme (EIS)** enhances tax deductions for businesses on activities that boost innovation, such as R&D conducted in Singapore, registration of intellectual property, and innovation carried out with Institutes of Technical Education.

4. Public procurement measures used in support of domestic production capacities, Resilience, and Security of Supply, etc.

- **US: Inflation Reduction Act (2022)** includes incentives for public procurements of significant size to 'Buy America(n)' programmes (support for US Postal Service to 'electrify' its fleet with subsidies) and the implementation of the Defence Production Act (USD 500 m earmarked for critical minerals manufacturing) without foreign bidders allowed.
- **US: 'Buy American' rules for procurement (2021)** not covered under the WTO Agreement on Government Procurement. The rules apply to all U.S. federal government agency purchases or federally financed purchases of goods valued over the micro-purchase threshold (USD 10 000). To be considered as being produced in the U.S., goods must be manufactured in the U.S. and at least 55% of the cost of their components must come from the U.S. Waivers can be granted for the public interest, non-availability or if the cost of U.S. products is unreasonable compared to equivalent foreign products. IT and 'commercial off-the-shelf' products are exempt. Impact on the US's international commitments under the Government Procurement Agreement (GPA) is not yet clear.
- **Canada:** In the 2023 federal budget 2023, the Canadian government announced that it intended to **introduce new reciprocity requirements in federal public procurement**; these would grant foreign companies an equivalent access to Canadian federal public procurement than equivalent to that granted to Canadian companies in the respective third countries. Similar reciprocity conditions will be required for foreign companies' access to Canadian tax credits as well.
- **India:** India's unified licence scheme blocks any foreign company from receiving a licence to exploit a 5G frequency. The goal is to foster the development of local companies in the

sector.

- **India:** India's 2017 '**Preference to Make in India' Order** gives preference to local production of goods and services for a wide range of products on public procurement markets. The Order introduces classes of suppliers (Class I, II and non-local suppliers) depending on how much local content those suppliers use (above 50%, 50%> and 20%> respectively). Sensitive sectors such as railways or defence require the supplier to be Class I or II for a bid to be eligible. Greatest procurement priority is allocated to tender submissions with the highest percentage of local content, and the government may mandate technology transfers.
- **China:** The **Eastern data, Western computing plan (2022)** aims to develop the digital industry in China by constructing eight computing hubs and 10 data centre clusters in key areas in eastern and western China. The plan is led by the Ministry of Industry and Information Technology. The goal of the plan is to create the required infrastructure to allow enable the development of Chinese industries in the fields of iInternet of tThings, AI, big data, and cloud computing while relying on Chinese infrastructure.
- **China:** **China's New Infrastructure plan (2020)** unlocked USD 1.4 trillion on a digital infrastructure public spending programme in the sectors of 5G networks, industrial internet, inter-city transportation and rail systems, data centres, AI, ultra-high voltage power transmission, and new-energy vehicle charging stations. The goal is to stimulate the development of strategic sectors for the Chinese economy and help the rise of Chinese 'champions' in those industries. This effort has been compounded by similar infrastructure plans developed by 25 of China's provinces.
- **China:** China applies a '**Buy National' policy**, with a few exceptions. Under its Government Procurement Law, China applies de facto market access barriers, including the 'buy national policy'" and "indigenous innovation," which give preferential treatment to goods and services developed locally. In theory, foreign-invested companies in China are to be treated like domestic companies, but in practice domestic companies are preferred.
- **China:** The medium- and long-term national plan for science and technology development directs government agencies to buy products listed in certain procurement catalogues, which include only qualified indigenous innovation products (with few exceptions).
- **Japan:** Under the **Economic Security Promotion Act (ESPA) (2022)**, the government designates designated critical, core and sensitive infrastructures in 14 sectors including aviation, railways, gas, and oil etc. If a business operator in designated infrastructure is selected as a core/ important operator by ministers in charge (not all operators), the government will have the right to pre-screen any projects in those sectors, recommend remedies and potentially order operators to change suppliers or abandon transactions.

5. Stockpiling of critical inputs

- **US:** The U.S. Departments of Energy (DoE) and Department of Defense (DoD), and the Department of State (DoS) signed a memorandum of agreement (MOA) in February 2022 that sets the foundation for a **critical minerals stockpile** to support the U.S's. transition to clean energy and national security needs. The DoD, which manages the national defence

stockpile (NDS), currently stockpiles critical minerals for national security purposes. The MOA creates a new, inter-agency process for stockpiling minerals that enable vital clean energy technologies.

- **UK:** The UK is creating **strategic reserves** of water treatment chemicals, monitoring stockpiles of chemicals and exploring stockpile requirements.
- **Australia:** The Australian government committed more than \$AUD 8 million in the 2023-2024 federal budget to establishing a **national emergency management stockpile (NEMS) capability** to provide rapid access to critical emergency management goods and services to augment state and territory emergency response and immediate relief capabilities. The NEMS is comprised of three parts: (i) a national stockpile of Australian government-owned disaster goods and services, and a seasonal strategic reserve of single-use consumables; (ii) a standing offer panel to facilitate the procurement, management and deployment of critical goods and services in a crisis; and (iii) memoranda of understanding with other Australian government humanitarian and crisis response capabilities. The panel is expected to be in operation by 1 July 2024 and will run for 3 years, with options for two 1-year extensions. The panel will ensure a continuous and reliable national stockpile of essential goods and services like emergency shelters, generators and water purification systems, to augment state and territory emergency responses to communities impacted by disasters.
- **Australia:** Australia maintains a national medicine stockpile storing medications, vaccines, antidotes, and personal protective equipment to be used in case of supply chain disruptions in the health sector.
- **China:** It is estimated that China stockpiles 1.5 million to 2 million tonnes of copper, 800 000-900 000 tonnes of aluminium, and 250 000-400 000 tonnes of zinc. China is also believed to have around 7 000 tonnes of cobalt, a key metal used in battery manufacturing.
- **China:** The government promotes the consolidation of Chinese companies into a handful of big groups per sector, often state-owned or state-led. This is meant to increase their bargaining power on international markets and to modernise the sector.
- **Japan:** The **Japan Oil Gas, Metals National Corporation (JOGMEC)** operates a national stockpiling system of rare metals to secure long-term raw materials supply. Stockpiles are sufficient to meet 60 to 180 days' demand. In addition, under the planned revision of the **Mining Act**, Japan is to restrict access to rare earth resources in Japan's exclusive economic zone (offshore deposits). JOGMEC emphasised the **importance of confidentiality in the stockpiling policy** since it is a **matter of national/economic/resource security**. This acts also as a deterrent against potential coercive practices by third countries, especially in the case of CRM critical raw materials over-dependencies on concentrated sources/limited suppliers. The less public the information is, the more difficult a potential economic coercion becomes. (Japan learnt a bitter lesson on rare earths in 2010). **JOGMEC's stockpiling plan is classified** as it includes information on selection of critical raw materials (CRM), actual quantities required for each CRM, how / when to purchase, release CRMs and conduct test exercises, the exact location of stockpiling facilities and how stocks are managed etc. The JOGMEC Act also includes confidentiality obligations for companies participating in the stockpiling.
- **Japan:** As part of its Economic Security Promotion Act (ESPA), the Japanese government of Japan announced the creation of a **'strategic surplus LNG'** system to

ensure that LNG is secured on a sustainable basis by utilising the procurement capabilities of companies. The surplus LNG secured will be sold on overseas markets in normal times and to domestic operators in times of emergency.

- **South Korea:** South Korea has a state-run reserve management and stockpiling of critical raw materials at the national level. Under the Ministry of Trade, Industry and Energy (MoTIE), the state-owned KOMIR (Korea Mine Rehabilitation and Mineral Resources Corporation), launched in September 2021, implements the government's strategies and policies pertinent to the raw materials, and. It also promotes foreign investment in overseas resource development. Moreover, Under the strategy on critical minerals released in February 2023, the stockpile of critical minerals is has been increased in order to suffice for 100 days, up from the current 54. Moreover, the government has allocated the budget of KRW 28.3 billion (20 million euro) for the stockpiling of cobalt in 2023.
- **Singapore:** Particularly in the field of food, the government can use its discretionary power to ensure a minimum quantity of private stockpiles, which need to be maintained for a stipulated period (such as the Rice Stockpile Scheme). Given its exposure to imports from Malaysia and Indonesia, Singapore has stockpiles of food to prevent crises. To affect negotiation with overseas suppliers, the presence of the stockpiles is known but not the actual numbers to affect their negotiation with overseas suppliers. Singapore maintains a national stockpile of two other essential items, such as granite used in construction, and Personal Protective Equipment (PPE), including masks, drugs, and medical supplies, following outbreaks of SARS in 2003 and H1N1 in 2009.

6. Prioritisation of supplies of goods and services

- **US:** The **Inflation Reduction Act** has domestic content requirements (clean electricity production credit, electricity produced from certain renewable resources credit, and energy credit) as well as local final assembly requirements (clean vehicle credit). These can be seen as an heavily financial incentive to change the composition of the renewable energy, battery and automotive supply chain, and to expand production and assembly in the US for the US market and beyond on US soil, resulting from the improving economies of scale generated by US production and the proximity of the electric vehicle supply chain.
- **US:** The **Defence Production Act** gives the US President the authority to expedite and expand the supply of materials and services from the U.S. industrial base needed to promote the national defence. DPA authorities may be used to:
 - require acceptance and preferential performance of contracts and orders;.
 - provide financial incentives and assistance for U.S. industry to expand productive capacity and supply needed for national defence purposes;.
 - provide antitrust protection for businesses to cooperate in planning and operations for national defence purposes, including homeland security;.
 - The DPA provides authority to obtain information from businesses, including information needed for industry studies;.
 - The US has established a DPA programme to provide loans, grants, and other

financing to build and expand the health resources industrial base.

- **UK:** The UK announced in its Integrated Review 2023 that it is working on a national supply chains and import strategy to support specific government and business action to strengthen the country's resilience in critical sectors.
- **UK:** Via the **UK Make** programme, the UK is encouraging development of domestic production capacities for personal protective equipment within the health sector.
- **India:** The Ministry of New & Renewable Energy issued in January 2019 an '**Approved models and manufacturers of solar photovoltaic modules**' (Requirements for compulsory registration) complying with the Bureau of Indian Standards and. At the same time, it published a list called entitled the 'Approved list of models and manufacturers' (ALMM). The list of manufacturers was recently updated in 2023, with an enlisted capacity of 22 389 MW and more than 70 manufacturers. The module models on the list are only eligible for use in open access and net metering projects along with government projects, government-assisted projects, and projects under various government schemes and programmes. Although the implementation of ALMM has been deferred by until 2024, ALMM protects the interests of Indian domestic manufacturers.
- **China:** The **dual circulation strategy (2020)** calls for relying principally on China's large domestic market and leveraging/building its strengths, including comprehensive and deep supply chains. Economic exchanges with the rest of the world are also encouraged, not discouraged, but 'domestic circulation' must be able to function autonomously in case of problems with foreign supplies.
- **South Korea:** The government announced its **renewed strategy on critical minerals for businesses** on 27 February 2023. The aim is to help mitigate Korea's reliance on imports from a selected certain few countries and maximise utilisation of domestic mineral resources, contributing to supply chain stabilisation. Under the new strategy, 33 critical minerals with a bearing on economic security are to be selected with regard to economic security; and out of the 33, 10 strategic critical minerals needed for stabilising the supply chain of chips and secondary batteries will be prioritised for intensive management. For the 10 strategic critical minerals, the government plans to cut by 2030 its dependency on imports from the current 80% to 50%; and to increase recycling from the current 2% to 20%. Moreover, to provide strategic minerals for the industry, KOMIR is currently carrying out 18 overseas projects in different stages of development, which include projects relating to copper, cobalt, manganese and zinc project.
- **Taiwan:** Since 2013, Taiwan has developed its **offshore wind generation** capability through public auctions. Since 2018, local content requirements have been obligatory for successful bids. The latest rules and guidelines, adopted on 15 December 2023, maintain these requirements.

7. Trade, and investment measures: tariffs, export restriction, anti-coercion measures, standards, etc.

- **US:** On 4 May 2023, the White House introduced a **standards strategy for critical and emerging technologies (CET)**, supplementing the 2021 national standards strategy. The CET includes eight strategic technologies: (i) communication & networking; (ii)

semiconductors & microelectronics; (iii) AI & machine learning; (iv) biotechnologies; (v) positioning, navigation & timing services; (vi) digital identity infrastructure & distributed ledger technologies; (vii) clean energy generation & storage; and (viii) quantum information technologies. The strategy outlines eight measures to strengthen US standard development organisations (SDOs) through 2024 federal budget funding, public-private partnerships, workforce upskilling, and collaboration with international partners.

- **US:** The '**Section 232 investigation**' was effectively concluded on 21 September 2022. The White House announced that imports of neodymium-iron-boron (NdFeB) permanent magnets threaten national security and that the Administration would implement a series of recommendations proposed in the Department of Commerce report. The Department of Commerce, however, rejected the imposition of any tariffs or restrictions on imports since 'the current severe lack of domestic production capability throughout the magnet supply chain, tariffs and quotas would have an adverse impact on consuming sectors and might incentivise businesses to move operations incorporating NdFeB magnets offshore.' The Department of Commerce also argued that the national security of U.S. allies and partners was essential to U.S. national security, partially basing its decision on Australia, Japan, and the EU's reliance on rare earth minerals or oxides. However, the report adds, the decision whether or not to impose tariffs or other import restrictions may be imposed later is left open to re-evaluation as the U.S. develops its domestic production capacity.
- **US:** Following the **Uyghur Forced Labor Prevent Act** (also known as the 'UFLPA'), which went into effect in June 2022), US Customs and Border Protection officials have seized around USD 1.3 billion worth of imports. US Customs officials have confirmed that import detentions connected to the law surged 63% from October 2022 through early January 2023, with 2,600 seizures worth USD 806 million. The majority of the detained imports were solar panels. However, as industry is figuring out what can be shipped and what violates the law, the number of US seizures may drop.
- **US:** The **Export Control Reform Act of 2018** allows the US government to enact controls on exports, re-exports, and transfers of emerging and foundational technologies if they could be used to threaten the US national security of the US or if they give a qualitative military or intelligence advantage to the US. Some 14 emerging technologies are identified, including biotech, AI, and semiconductors.
- **US:** The Defense Production Act (DPA) sets up the **Committee on Foreign Investment in the United States (CFIUS)**. The committee can review foreign investments and real estate transactions by foreign persons in the US in case those investments could present a risk to national security. It can also impose conditions on such acquisitions or refer the case to the President for decision. Australia, Canada, New Zealand, and the UK are exempted from review by CFIUS, but the EU is not.
- **UK:** In March 2023, the UK launched a **new economic deterrence initiative (EDI)** to boost its diplomatic and economic tools to respond to and deter hostile acts. With up to GBP 50 million of funding over 2 years, the initiative will improve sanctions implementation and enforcement. Currently, there is an ongoing review of export controls and emerging technologies (quantum, AI, biotech and semiconductors) due for completion by the end-2023, with the aim to identify potential gaps in the system. On outbound investments, the UK is working to develop the evidence base to enable it to assess the potential national security risks posed by outward direct investment (ODI). This work will inform how the UK can best calibrate its actions to respond effectively to these risks.

- **UK: National Security and Investment Act (NSIA) (2021).** The NSIA sets up an FDI screening regime with mandatory notifications to the government for acquisitions in 17 'most sensitive' economic sectors, including defence, communications, and energy. The government can review and potentially block acquisitions if they risk undermining the UK's national security.
- **Australia:** Reforms to the **Foreign Investment Review Board (FIRB)** in 2020 introduced a mandatory notification procedure for acquisitions connected to 'national security business' or 'national security land' or linked to critical infrastructure. Critical infrastructure covers 15 sectors including electricity, gas, water, ports, healthcare, and cloud services among others. The government can order divestment or prohibit the acquisition if it finds that it could present risks to national security. These reforms include measures to strengthen the existing framework by means of an enhanced national security review of sensitive acquisitions, extra powers and resources to ensure foreign investors comply with the terms of their approval, and amendments to streamline investment in non-sensitive areas. As of January 2021, with the implementation of an updated foreign investment regime, the government's focus has firmly been on national security and compliance. Generally, the Treasurer approves the vast majority of applications. However, FIRB has been increasingly willing to use conditions and undertakings as a mechanism to increase the government's oversight of more complex or sensitive investments. Undertakings required from FIRB may include matters relating to governance, location of senior management, listing requirements, market competition and pricing of goods and services (e.g. that all off-take arrangements must be on arm's-length terms) and other industry-specific matters. FIRB has also issued a set of standard tax conditions that apply to those foreign investments that pose a risk to Australia's revenue.
- **India:** In October 2023, India launched a new online authorisation system for imports of laptops, tablets, and personal computers to monitor the quantity of imports and where they originate from. The government may ask laptop, server and other IT hardware importers to provide an international certification attesting that their product is from a trusted source before allowing it to be imported a licence-free import of it.
- **India:** The Department of Science and Technology has launched a 'grand challenge' on the development of standards for electric vehicle charging infrastructure to help develop the local industry.
- **India:** With effect from April 2022, the Indian government has imposed a basic customs duty on the import of solar PV photovoltaic cells and solar PV modules at of 25% and 40% on the import of respectively. The aim is solar PV modules to reduce the influx of imported PV cells and modules and increase the domestic manufacturing.
- **India:** India revised its FDI policy in 2020 to make foreign acquisitions of Indian companies more difficult. Notably, companies from countries that share a border with India (China being the target here) must undergo a security analysis before an acquisition can go through. However, the government may decide to scrutinise acquisitions by any foreign entity. The Indian government has published for guidance a list of sensitive sectors in which it is likely to scrutinise acquisitions. Sectors include broadcasting, telecommunication, satellites – establishment and operation, private security agencies, defence, civil aviation and mining and mineral separation of titanium-bearing minerals and ores.
- **China: The Export Control Law (2020)** is China's primary legislation for restricting exports

of goods and technology for national security and public policy reasons. In addition to national security, it is suspected that China wields export controls to ensure preferential access of its domestic industry to inputs and to safeguard or establish technological supremacy of its industry, as well as for coercion of foreign governments, voters and businesses. Export controls of concern are numerous, but include those on rare earths, urea, gallium and germanium, drones and graphite. China's export controls are broad, often vaguely formulated, lack transparency and are poorly justified.

- **China: The Catalogue of Technologies Restricted and Prohibited for Export (2002)**, which does not fall under the Export Control Law, additionally restricts the export of technologies. The legal basis for adding technology to the catalogue is both broad and vague, ranging from national security to compliance with any Chinese legislation. It is believed that the primary purpose of the export controls on technologies on this catalogue is to safeguard China's technological edge in industries where it is dominant. It includes, notably, technologies for processing rare earths, including the production of rare-earth magnets, a key input to the green and digital transitions used in electric vehicles, robotics and wind turbines.
- **China:** Stringent data protection rules such as the **Data Security Law**, **Personal Information Protection Law (PIPL)** and the **Measures for Security Assessment for Cross-Border Data Transfers** restrict the flow of data out of China.
- **Japan:** In June 2023, the Government of Japan expanded the sectoral coverage of its inbound FDI screening to cover all 11 materials designated as "specified critical materials (SCMs)" under the Economic Security Promotion Act (ESPA).
- **South Korea:** Promotion of Tech acquisition through overseas mergers & acquisitions is promoted for areas where it is difficult to secure 'core tech' among essential items in the domestic value chain. Acquisition funds of over EUR 2 billion have been made available for advisory, consulting, and follow-up integrated management.
- **Taiwan:** The **Foreign Trade Act (2019)** provides the legal basis for managing Taiwan's export control regime and the trade of Strategic High-Tech Commodities . The Strategic High-Tech Commodities entity list currently includes over 7,000 items, for which Taiwanese exporters must require an export license from the International Trade Administration of the Ministry of Economic Affairs of Taiwan.
- **Taiwan:** The **National Security Act** (amended in June **2022**) aims to prevent the leakage of national core key technologies. The Act imposes fines of up to NT\$100 million (approx. EUR 3 million) and imprisonment for up to 12 years for the illegal transfer of national core key technologies. In December 2023, Taiwanese authorities issued the **critical technologies list** (implemented as part of the National Security Act) that designates 22 technologies believed to be Taiwan's leading technologies requiring immediate protection. The list, subject to review in early 2024, covers five domains, including (1) defence, (2) space, (3) agriculture, (4) semiconductors, and (5) information and communication security. **Taiwan:** In June 2022, authorities amended the **Regulations Governing the Approval of Investment or Technical Cooperation in Mainland China**, which now require Taiwanese firms to obtain approval if they plan to sell their local assets and factories or transfer their equities in China to avoid the risk of technology leakage.
- **Taiwan:** Stricter administrative rules issued in 2022 on FDI screening processes aim to prevent circumvention by PRC firms. These rules follow changes made in 2021 to tighten

the definition of a “PRC investor” so that a third-area company can also be defined as such.

8. International partnerships

- **US – Canada:** The US and Canada announced in March 2023 the intention to set up an **Energy Transformation Task Force** to coordinate their efforts on critical clean energy technologies and the related supply chains, including critical raw materials. The task force’s stated function is to “accelerate cooperation on critical clean energy opportunities and supply chains, including but not limited to, securing and strengthening renewable energy and electric vehicle supply chains, critical minerals and rare earths, grid integration and resilience, advanced and conventional nuclear energy and other areas” The task fForce will be chaired by the U.S. Special Presidential Coordinator for Global Infrastructure and Canada’s Deputy Prime Minister.
- **US – UK:** The two countries announced on 8th June 2023 the intention to negotiate a bilateral **critical minerals agreement**. In the intentions of President Biden and PM Sunak, this targeted agreement will ensure that five critical minerals necessary for batteries — cobalt, graphite, lithium, manganese, and nickel – that are extracted or processed in the United Kingdom count toward sourcing requirements for clean vehicles eligible for the Section 30D clean vehicle tax credit of the Inflation Reduction Act.
- **US – India:** The two countries signed an MoU on establishing a semiconductor supply chain and innovation partnership. This will seek to establish a collaborative mechanism on semiconductor supply chain resiliency and diversification, in line with the US’s CHIPS and Science Act and India’s Semiconductor Mission. The MoU also aims to leverage the complementary strengths of both countries and facilitate commercial opportunities and development of semiconductor innovation ecosystems. It also envisages mutually beneficial R&D, talent, and skill development.
- **US – Australia:** In May 2023, Australia and the United States signed the Compact on Critical Minerals and Clean Energy. On 2 October 2023 saw the inaugural meeting of the Australia- US Taskforce on Critical Minerals that arose from that the compact took place. Its aims is to expanding reliable, responsible and secure global access to critical minerals.
- **US – Japan:** The two countries signed a bilateral **agreement on critical minerals** on 28 March 2023. The agreement is expected to make Japanese companies eligible for Inflation Reduction Act subsidies. It covers five critical raw materials used in electric vehicle supply chains (cobalt,; graphite,; lithium,; manganese,; and nickel), and provides forsets out to maintaining the current practices of not imposing import and export limitations while safeguarding environmental and labour rights. It will be revised every two 2 years.
- **US – South Korea:** In May 2022, the two countries signed an MoU on the establishing

a 'Supply Chain and Commercial Dialogue' and upgrading their existing working-level industrial cooperation dialogue platform. Under the agreement, the two countries plan to hold an economic security dialogue between their respective national security councils once a year and discuss a wide range of industry and economic issues, including resilient supply chains of semiconductors and other high-tech items, the digital economy, health care technologies and exports control. They also agreed to boost cooperation on R&D, and create more business opportunities. On the occasion of President Yoon's attendance at the 2023 APEC summit in San Francisco, US companies GM, DuPont, IMC and Ecolab declared commitments to investing in South Korea on the occasion of President attendance at the 2023 APEC summit in San Francisco.

- **Canada – South Korea:** South Korea's Ministry of Trade, Industry and Energy has arranged MoUs between LG Energy and several Canadian companies to reinforce critical mineral supply chain cooperation. These MoUs will help Korean companies to establish new supply chains in North America for secondary batteries and electric vehicles, particularly in conjunction with the US Inflation Reduction Act. Through these deals, LG Energy Solution will be able to tap into Canada's stable supply stream of critical minerals for manufacturing secondary batteries in North America, and KOMIR, the Korea Mine Rehabilitation and Mineral Resources Corporation KOMIR, will be able to provide better support to private sectors with data on Canada's mining investment.
- **UK – Canada:** The two countries announced a new partnership in March 2023 to increase their cooperation on the supply of critical raw materials. This new **UK-Canada Critical Minerals Supply Chains Dialogue** has the stated objective of integrating the critical raw materials supply chains of Canada and the UK, driving higher ESG standards, and boosting research and development in the field.
- **UK – Australiasupply chain resilience capability building initiative.** This was set up in February 2022 with the goal of increasing shared understanding and insight about common dependencies and critical supply chain risks. The UK and Australia are developing a joint supply chain resilience initiative to engage interested countries in developing and improving public-sector approaches to managing critical supply chain risks. This will initially begin with a pilot project to determine further scope. The initiative will support countries that want to: -improve public- sector approaches to building critical supply chain resilience, -strengthen global supply chains through shared learning and coordinated action, -build greater transparency into key global supply chains, and -promote international action to respond to supply chain disruptions. It will include: - a series of modules designed to support the capability of interested partner governments, and will also share approaches to strengthening critical and vulnerable supply chains and enhancing global supply chain resilience for mutual benefit.
- **UK – Australia:** A working group on critical minerals was set up in 2021. Australia and the UK are continuing to identify investment opportunities that would bolster Australia's critical minerals sector and the UK's manufacturing and energy ambitions.
- **UK – Japan Critical Minerals Memorandum of Cooperation:** The UK and Japan have agreed a memorandum of cooperation (MoC) establishing a new partnership on critical minerals. The MoC delivers on a specific commitment made by leaders in the Hiroshima Accord. It will provide a framework for deepening critical minerals cooperation between the two countries and promote dialogue on a range of areas

including: research and innovation, critical minerals data and traceability, industry partnerships and public-private cooperation, infrastructure projects in third countries, cooperation to support developing producer countries, cooperation on technical standards and environmental, social and governance standards. The MoC was signed by Kemi Badenoch, the UK Secretary of State for Business and Trade, and Yasutoshi Nishimura, the Japanese Minister of Economy, Trade and Industry of Japan, at the G7 Trade Ministers' Meeting in Osaka on 28 October 2023.

- **UK – South Korea:** In February 2022, the two countries signed the Critical Supply Chain Resilience MoU signed in February 2022. The MoU called for holding both senior-level and working-level talks on a regular basis to exchange policy measures and information regarding supply chain issues and to promote two-way investment and trade. The UK and the South Korea plan to explore deeper collaboration, including by sharing approaches to building mutual capability, coordination of joint principles and responses to economic shocks, and working together in multilateral forums including, but not limited to, G7+ and G20.
- **UK – South and Southern Africa** announced a new partnership in November 2022 on minerals for future clean energy technologies to promote increased responsible exploration, production and processing of minerals in South and Southern Africa.
- **UK – Taiwan:** Announced On 14 November 2023, the UK and Taiwan announced an enhanced trade partnership focused on three priority areas: (i) investment; (ii) digital trade; and (iii) renewable energy and net zero. The two partners agreed to cooperate on green trade by developing energy infrastructure, supporting offshore wind deployment in Taiwan by developing ports capacity and financing models, and improving health and safety implementation. Additionally, they agreed to collaborate in emerging energy technologies and seek to remove barriers to trade in environmental goods and services, and work bilaterally to build a circular economy, develop skills and share best practices.
- **Australia – India:** The two countries have concluded a bilateral commercial cooperation over rare earth elements to reinforce supply chains between the two countries in these sectors.
- **Australia – South Korea:** in December 2021, the two countries signed an MoU on cooperation in critical mineral supply chains to further strengthen cooperation in resources and energy. This builds on previous commitments outlined in their 2019 MoU on energy and mineral resources cooperation.
- **India – Japan:** The two countries signed an MoU on semiconductor design, manufacturing, equipment research, and talent development to bring resilience to the semiconductors supply chain.
- **Australia – India – Japan:** Supply chain resilience initiative to cooperate on supply chain resilience in the Indo-Pacific region. Cooperation consists of sharing of best practices on supply chain resilience; and holding an investment promotion/buyer-seller matching event.
- **Australia – Singapore:** The two countries launched the Australia – Asia Sun Cable project in 2022. The goal is to develop physical interconnections between Singapore and Australia's electric grids, and to reinforce Singapore's access to green electricity via massive investments in solar farms in Australia.

- **Japan – United Arab Emirates:** On 17 July 2023, on the margins of a state visit by the Japanese Prime minister that produced 23 bilateral agreements on strategic technologies and critical raw materials, Japan and the UAE signed a memorandum of understanding for the supply of clean iron and steel. As part of the MoU, the parties will develop a joint framework for collaboration over the logistics and digital supply chain requirements, and share information and expertise on industry best practices. Abu Dhabi Ports will be responsible for providing the land for new plant, in the KEZAD Musaffah economic zone. It will also offer maritime and logistics services for the supply of iron ore to the plant, and the export of the materials around the world. Emirates Steel Arkan will provide ‘extensive decarbonisation expertise’ and use clean and green energy sources, including solar and hydrogen, to power the plant.
- **South Korea – Uzbekistan:** The two countries signed MoUs in December 2021 to establish a communication channel for energy, cooperate in the production of rare metals, and join efforts to develop industrial technology for electric vehicles.
- **South Korea – Indonesia:** South Korea and Indonesia signed a total of five MoUs in February 2022 to boost bilateral cooperation in the supply chains of key minerals and the electric car sector. The MoU on key minerals in particular called for sharing information between the two ministries of trade and industry and supporting joint related projects so as to help ensure the countries’ stable supplies of major industry items.
- **South Korea – the Philippines:** In October 2022, the two countries agreed during their annual economic cooperation committee to sign an MoU on the supply of critical minerals and other raw materials for industry purposes, and to launch working-level talks for on the details. Under the MoU, a new director-level entity on supply chains is expected to be set up.
- **South Korea – Chile:** In October 2022, on the occasion of the bilateral dialogue at prime ministerial level, the Korea Mine Rehabilitation and Mineral Resources Corp (KOMIR) signed an MoU with its Chilean counterpart on the supply of mineral resources.
- **Chip 4 Alliance (US, Japan, South Korea, and Taiwan):** Announced in March 2022, the Chip 4 Alliance is a US-led cooperation forum for governments and companies to discuss and co-ordinate policies on semiconductor supply chains, workforce development, R&D, and subsidies.
- **The Quad (US, Australia, India, and Japan) has set up a Critical and Emerging Technology Working Group** to monitor and improve the security of supply chains for critical technologies. The Quad’s CET Working Group promotes global technology markets and standards based on openness, diversity, trust, and resilience. The CET Working group cooperates on technical standards,; 5G,; horizon scanning; and technology supply chains.
- **Indo-Pacific Framework for Prosperity (IPEF) Supply Chain Agreement with the US, South Korea, Japan, India, Australia and ASEAN members:** The parties signed the agreement in 2023 to: (i) promote regulatory transparency in areas which may impact supply chains; (ii) develop a shared understanding of global supply chain risks through each pParty identifying their critical sectors and key goods in their supply chains; (iii) monitor and address supply chain vulnerabilities; and (iv) promote responsible business conduct and transparency in terms of upholding labour rights in

supply chains.