Resilience Dashboards – Global comparison

Update Summer 2023

2023

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Abstract

The European Commission's resilience dashboards assess resilience as the ability to make progress towards policy objectives amidst challenges. Following the prototype dashboards in the 2020 Strategic Foresight Report, the final dashboards were first launched in 2021. They aim to provide a holistic assessment of resilience in the EU and its Member States in relation to ongoing societal transformations and challenges ahead. Besides the Member States dashboards, the resilience dashboards also include a comparison of the EU as a whole with other global actors. This report includes the technical information underlying the update of the European Commission's resilience dashboards at global level as of Summer 2023. This most recent version of the global dashboards is based on data up to 2021. It also includes some additional refinements and adjustments to selected indicators, to further align the Member States dashboards of Spring 2023. Finally, it also includes an update of the geopolitical dashboard areas 5-7 including the most recent information available on the included indicators..

1 Introduction

The resilience dashboards (RDBs)[1] were developed by the European Commission as a follow up to the 2020 Strategic Foresight Report (European Commission, 2020) and were first published in November 2021 (European Commission, 2021). They support the transition-led EU policy agenda as they provide a holistic assessment of the Member States' ability to make progress amid challenges.

The dashboards cover four interrelated dimensions of resilience to future crises and societal transformations. The social and economic dimension includes indicators that illustrate the potential social impact of the green and digital transitions; health education and work; economic and financial stability and sustainability. The green dimension covers aspects of climate change mitigation and adaptation; sustainable use of resources; ecosystems biodiversity and sustainable agriculture. The digital dimension aims to illustrate the impact of the transition on the personal sphere, industries and public space, as well as cybersecurity aspects. The geopolitical dimension relates to Europe bolstering its 'open strategic autonomy' and global leadership role.

The Member States dashboards feature 124 quantitative indicators across the four dimensions, derived from publicly available data sources and selected in coherence with other Commission monitoring tools. They help Member States identify areas for further analysis and potential policy actions in relation to ongoing societal transformations and future challenges by identifying vulnerabilities (features that can exacerbate the negative impact of crises and transitions, or obstacles that may hinder the achievement of long-term strategic goals) and capacities (enablers or abilities to cope with crises and structural changes and to manage the transitions).

The analysis of resilience at the global level mirrors the approach developed at the Member State level. Using data from various global sources, it aims to assess the vulnerabilities and capacities of the EU and other global actors in the same four dimensions. Besides the world's largest countries in terms of their population and economy, Switzerland and Norway are also included given that they are the two largest EFTA countries.

The analysis was feasible only for a subset of the indicators included in the analysis at Member State level. Moreover, it was not always possible to balance the areas (hence we dropped them from the figures), or aspects of vulnerabilities and capacities. This report refers to the version of the global RDBs that was released during Summer 2023. Compared to the previous edition, the dashboards now refer to data up to 2021.

Synthetic resilience indices at different levels of aggregation can be calculated using the dashboard indicators. These indices are well-suited to provide an overall assessment of Member States' resilience vulnerabilities and capacities relative to the rest of the EU by dimension and area. While providing a useful overview, these synthetic measures should always be read together with the full set of indicators in the dashboards.

The structure of this report is as follows. Section 2 includes the presentation of the dashboards. Section 3 presents the synthetic indices. Section 4 provides an update of the special areas 5-7 of the geopolitical dashboard. Section 5 provides details on the indicators and corresponding data sources..

[1] The dashboards are available at https://commission.europa.eu/strategy-and-policy/strategic-planning/strategic-foresight/2020-strategic-foresight-report/resilience-dashboards_en

2 The resilience dashboards

The dashboards aim to capture vulnerabilities (features that can exacerbate the negative impact of crises and transitions, or obstacles that may hinder the achievement of long-term strategic goals) and capacities (enablers or abilities to cope with crises and structural changes and to manage the transitions in the four dimensions: social and economic, green, digital and geopolitical. Details of the methodology are described in Benczur et al. (2023).

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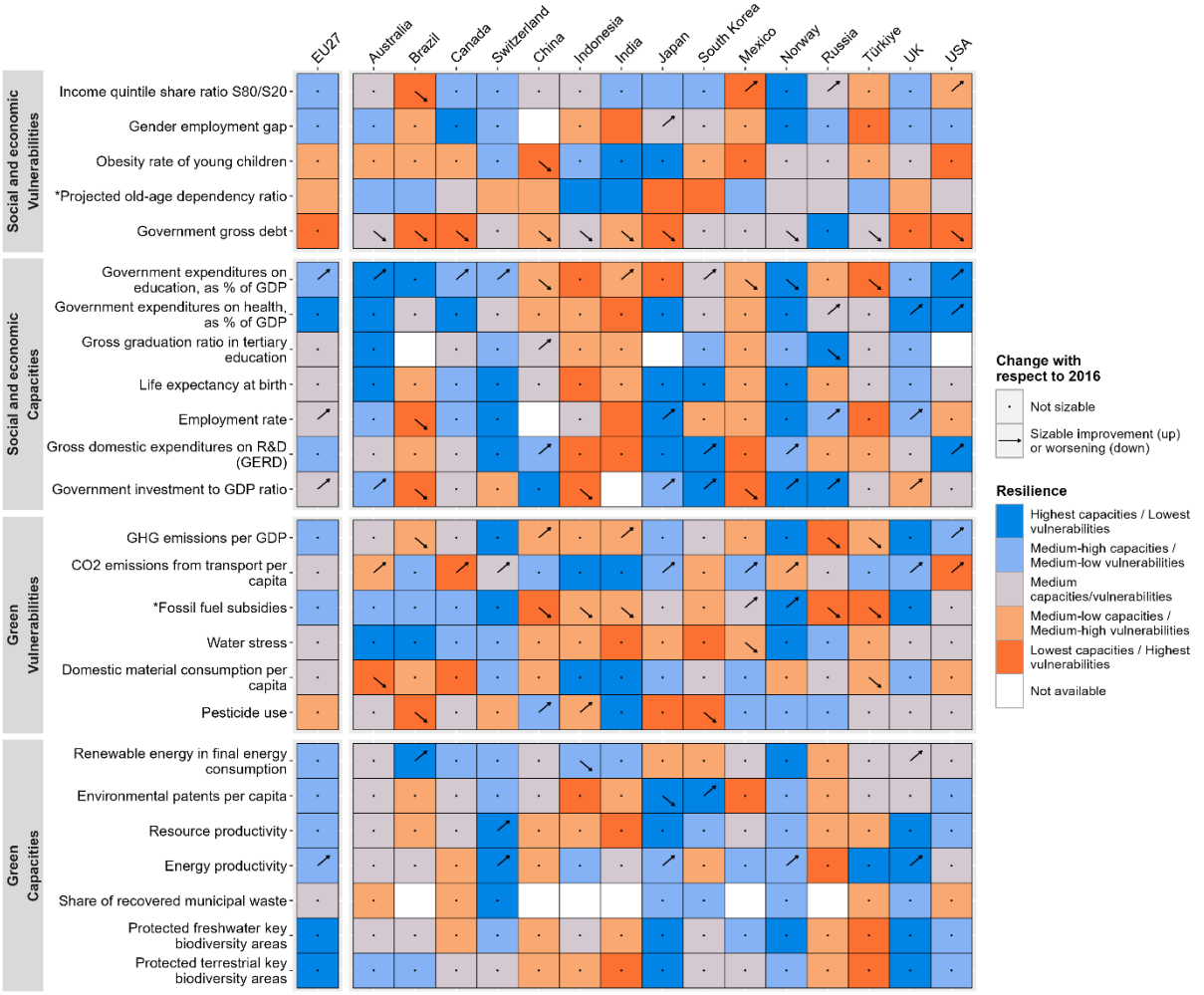
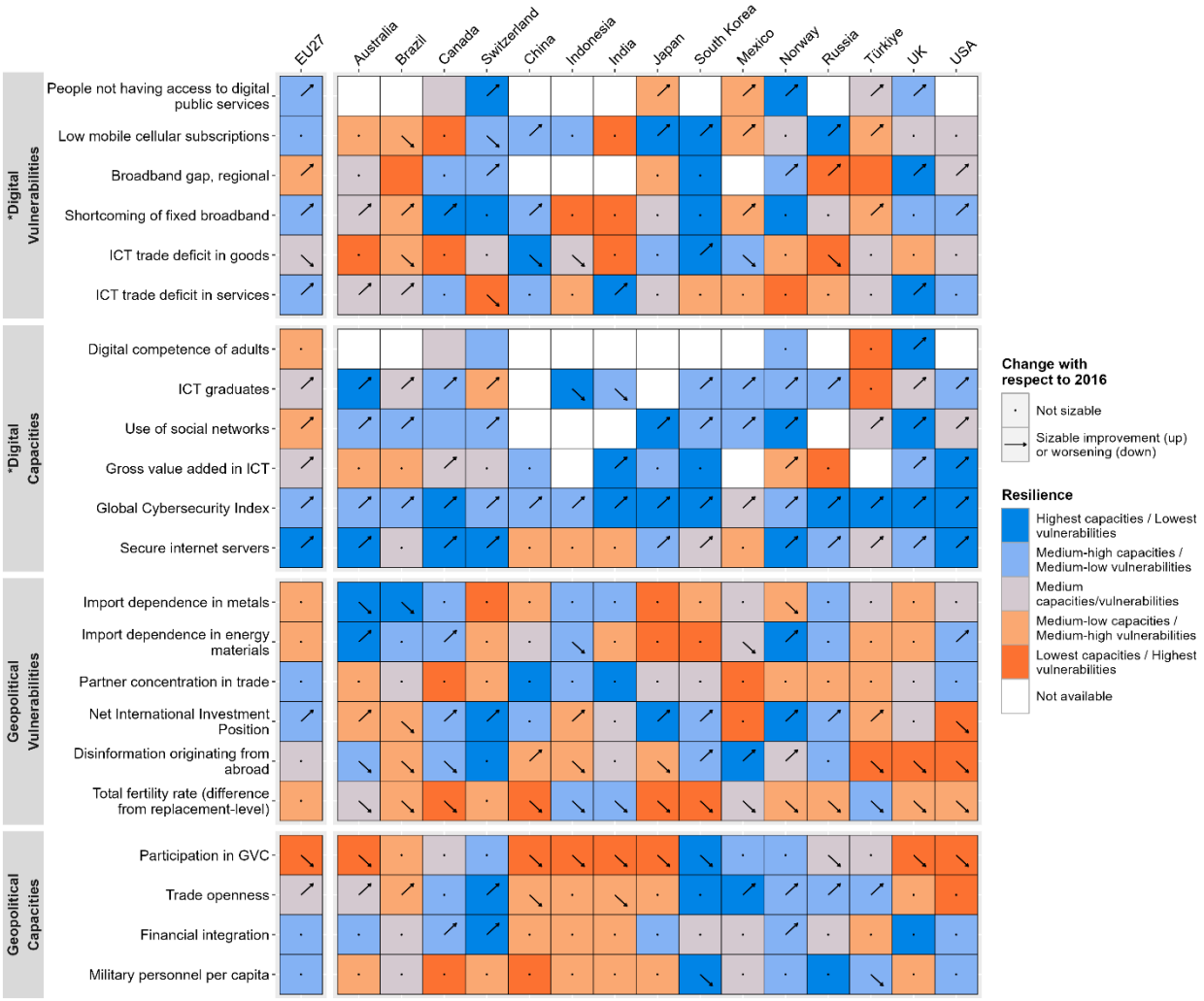
Figures 1and 2 present the updated dashboards across their four dimensions.

Figure 1: The global resilience dashboards for the social and economic and green dimensions- latest available year for each indicator up to 2021



The global dashboards include a set of indicators that show the level of vulnerability and resilience capacities within the EU27 as a whole, relative to other global actors. Data typically refers to 2018-2021. Download from data sources as of 19 September 2023. The colours indicate the position of a country in the distribution of all available values for all of the countries displayed here in the 2007-2017 reference period (2015-2021 for indicators indicated with an asterisk). An upward pointing arrow for a vulnerability indicates a substantial reduction (improvement). Please note that the colour of the EU may differ from that in the Member State level dashboard, as they rely on different reference distributions even if the indicators are very similar. See Section 5 for further details on the indicators.

Figure 2: The global resilience dashboards for the digital and geopolitical dimensions - latest available year for each indicator up to 2021 - latest available year for each indicator up to 2021



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3 Synthetic Indices

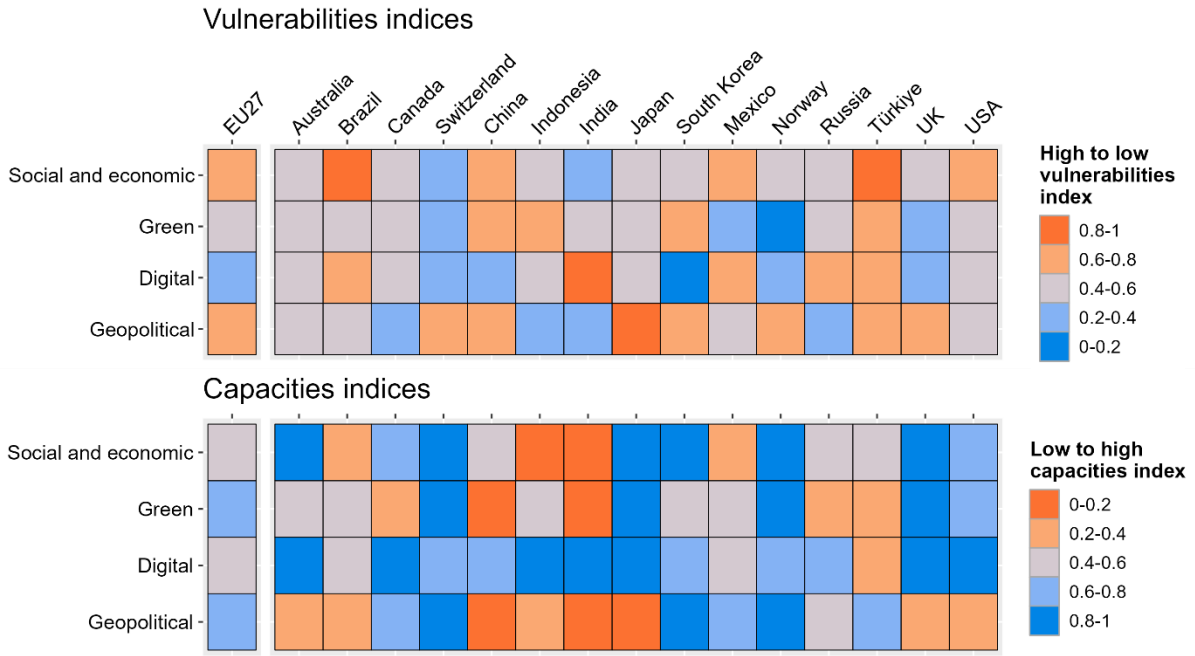
To illustrate the overall performance of the countries in terms of vulnerabilities and resilience capacities in each of the four dimensions, the dashboards are complemented by synthetic resilience indices.

The methodology behind the synthetic indices of this version of the dashboards remains unchanged compared to previous versions of the dashboards.

The synthetic resilience indices are constructed following a relative assessment consistent with the indicators in the dashboards. The overall vulnerabilities (capacities) index is obtained for a country by the median value over all the vulnerability (capacity) indicator positions. A high vulnerabilities/capacities index for a country indicates high vulnerabilities/capacities compared to other countries.

These indices allow both cross-country comparisons within a given year, and assessments of changes over time for a given country[2] and, going forward, at the EU level as the basis for comparisons with third countries. In addition, they allow the comparison of the situation across dimensions.

Figure 3 The global synthetic indices for the four dimensions (data up to 2021)



The synthetic indices of the global dashboards aggregate the relative situation of the EU27 and other countries across all considered indicators. A higher capacity index indicates higher (relative) capacities, while a higher vulnerability index shows higher (relative) vulnerabilities. Differently from the dashboards, the colours for the indices are assigned by splitting the full [0,1] range of the synthetic index into five equal intervals. This ensures comparison of colours across dimensions.

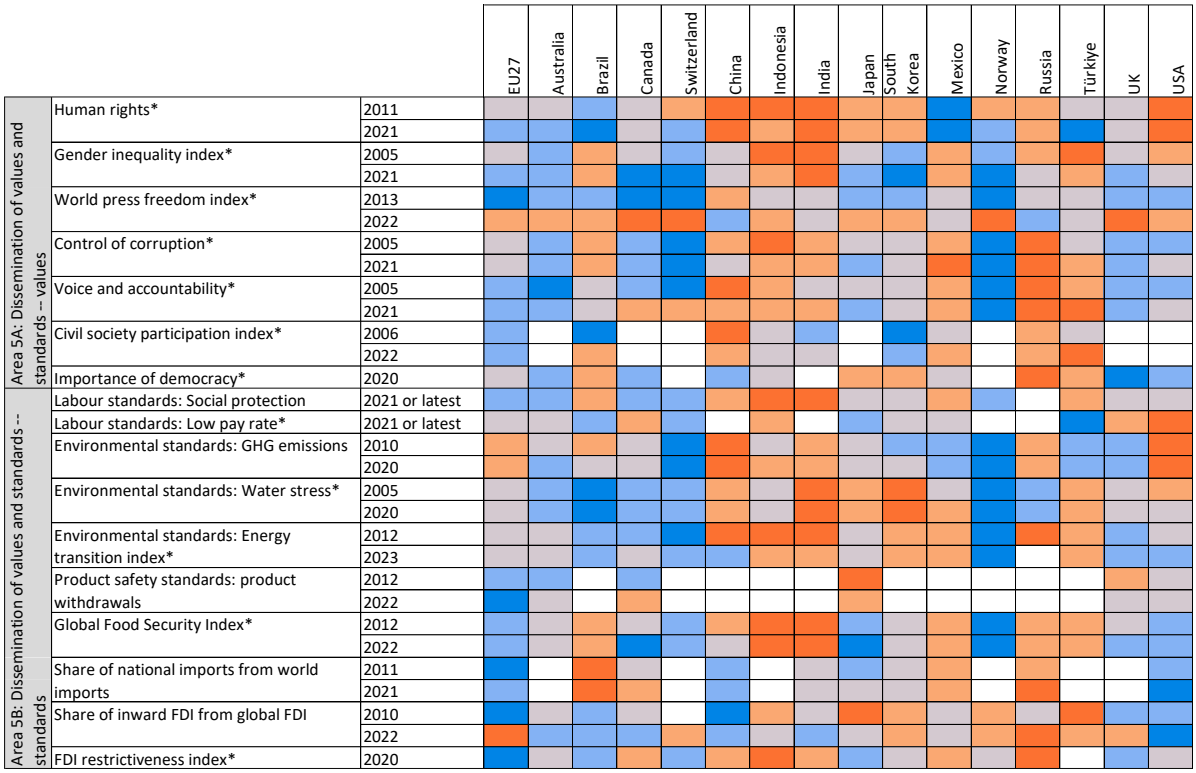
[2] The possibility to extend the indices backward could present challenges due to missing data. Future editions of the dashboards will nevertheless allow obtaining future values of the index.

4 Global areas of the geopolitical dimension

This geopolitical dimension of the resilience dashboards features many aspects where a country-level analysis is not possible or is less ready to offer conclusions (e.g. for important aspects of trade, foreign policies, or international leadership), areas for which there are no standard statistical measures (disinformation, manifestation of EU values in trade agreements or international collaboration activities), or concepts that may be difficult to quantify (ability to steer the development of global institutions and multilateralism, ability to disseminate values, or hybrid threats). These areas were included in the conceptualization of the Member States dashboards as first published in November 2021 (European Commission, 2021) and are referred to the areas 5-7 however, given their nature only present data for the EU and non-EU countries.

These three global areas that present comparisons only between the EU and some non-EU countries (e.g. the US, China, India, Japan, Russia, and the UK) complement the geopolitical dashboard both at MS and global level and an update with respect to the Figures 24-26 in see the main report (European Commission, 2021) is presented here. The EU values are represented either by EU-level indicators, or the median value of the 27 Member States along with the information for the same countries as in the global dashboards. Figure 4 to 6 indicate the relative size or situation across the countries, using a similar colouring scheme as in the fully developed dashboards. [3]

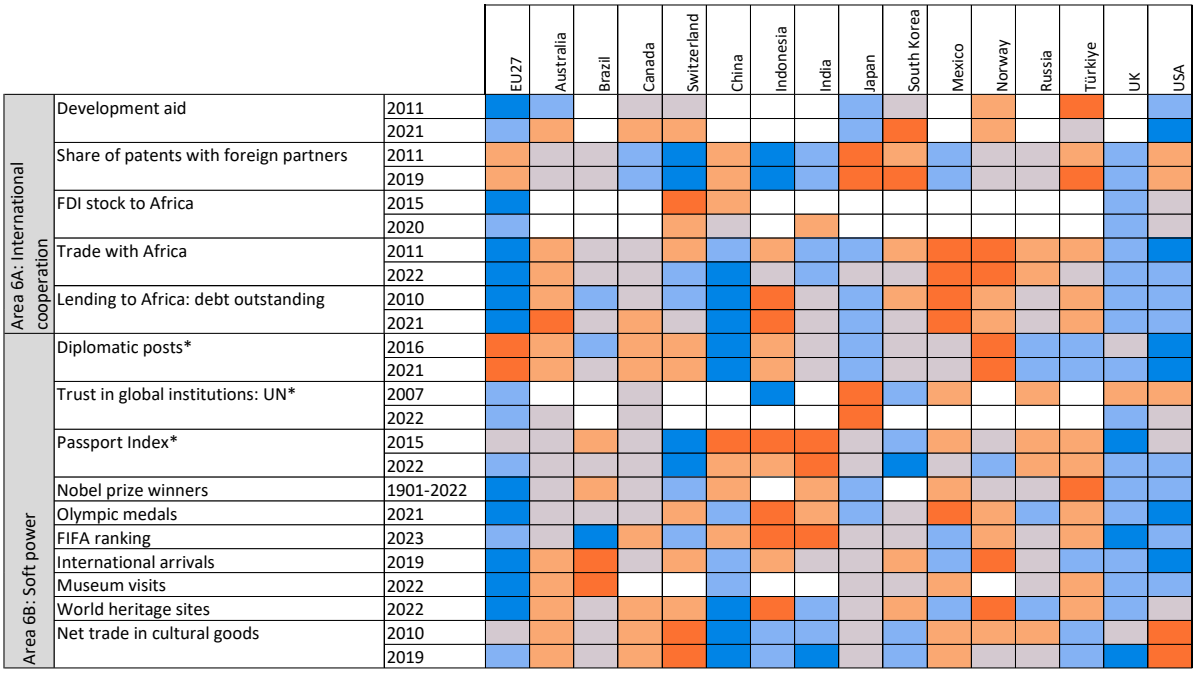
Figure 4: Dissemination of values and standards



[3] The colours use the same percentile cut-offs as in the normal dashboards, but the reference distribution contains only the values in the reported years or periods (1, 2 or 3). Colours are such that the countries with the highest values (upper 12.5% of the data) are dark blue, followed by lower values (12.5% to 37.5% of the data) in blue. Countries in the central part of the data are coloured grey. Dark orange indicates values that are in the bottom 12.5% while light orange is between the bottom 12.5% and 37.5% of the data. For some indicators the colour scheme has been reversed, as indicated in detailed tables .5 to 7.

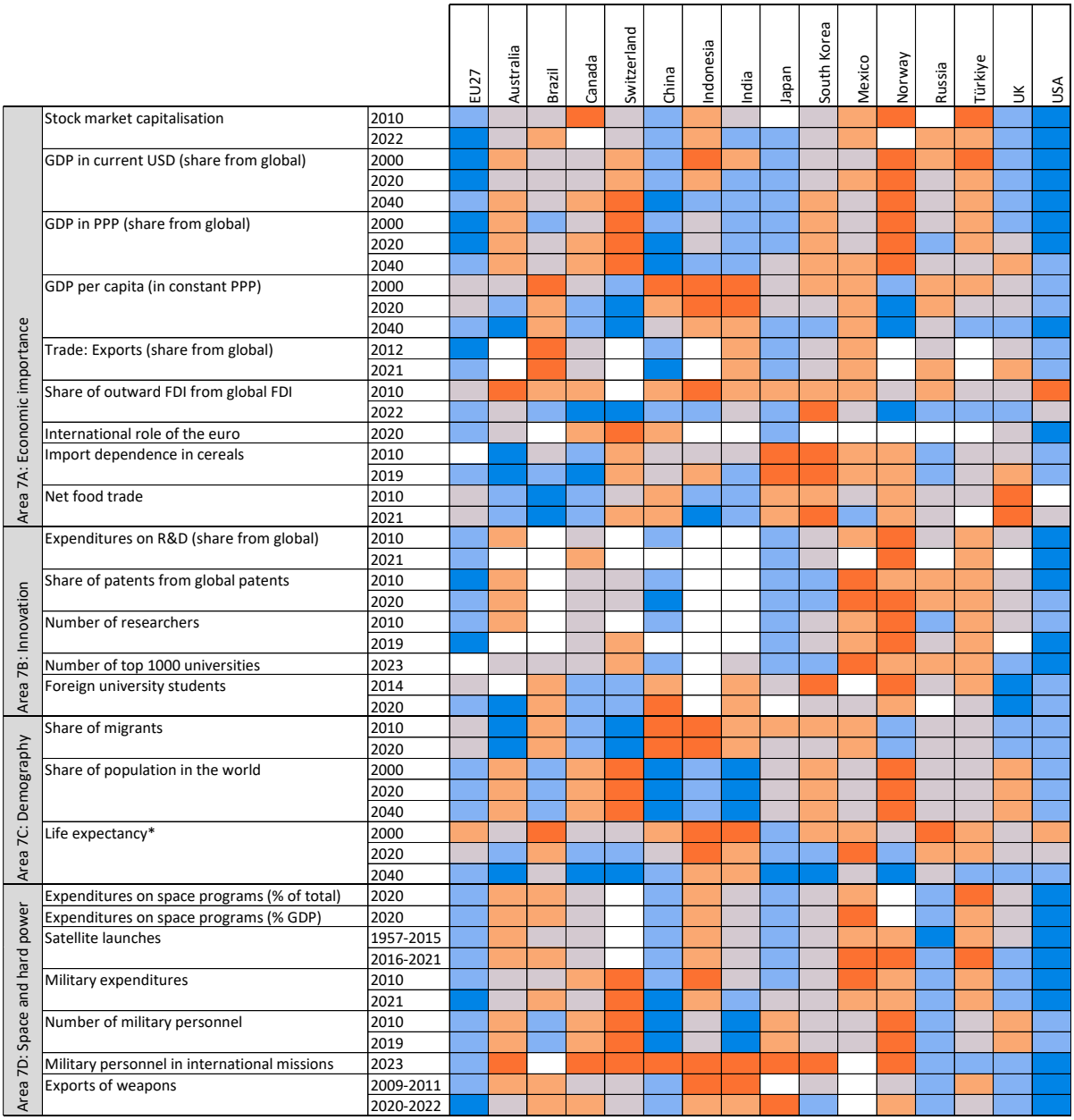
Cell colours indicate the relative position of a country-year cell among all countries considered in the reported years, from dark orange (worst) to dark blue (best). A white cell denotes a missing value. Asterisks indicate that the EU value refers to the median value across Member States.

Figure 5: International cooperation and soft power



Cell colours indicate the relative position of a country-year cell among all countries considered in the reported years, from dark orange (worst) to dark blue (best). A white cell denotes a missing value. Asterisks indicate that the EU value refers to the median value across Member States.

Figure 6: Global positions and comparisons



Cell colours indicate the relative position of a country-year cell among all countries considered in the reported years, from dark orange (worst) to dark blue (best). A white cell denotes a missing value. Asterisks indicate that the EU value refers to the median value across Member States.

5 Details on the indicators in the global analysis

Table 1: Detailed list of indicators included in the **Social and economic dimension**

Variable	label	Definition	Source	Latest available year
Social and economic dimension VULNERABILITIES				
Income quintile share ratio S80/S20	SE_G_v01	The ratio of total income received by the 20% of the population with the highest income (top quintile) to that received by the 20% of the population with the lowest income (bottom quintile).	WB	2021 (BR, ID), 2020 (MX, RU, UK, US), 2019 (CN, EU27, IN, NO, TR), 2018 (AU, CA, CH), 2016 (KR), 2013 (JP)
Gender employment gap	SE_G_v02	Difference between the employment rate of men and the employment rate of women of working age 20-64.	ILO	2021, 2019 (UK), N.A. (CN)
Obesity rate of young children	SE_G_v03	Share of children aged 5-9 with a Body Mass Index (BMI) more than 2 standard deviations above the median BMI.	WHO - GHO	2016
Projected old-age dependency ratio	SE_G_v04	The number of people aged 65+ per 100 persons of working age (20-64). The medium fertility variant model is used to calculate this indicator. 2050 projections, based on data up to 2022. For technical reasons, the reference year has been set to be 2020.	UN	2021
Government gross debt	SE_G_v05	General government gross debt, as a percentage of GDP.	IMF - World Economic Outlook	2021
Social and economic dimension CAPACITIES				
Government expenditures on education, as % of GDP	SE_G_c01	General government expenditures on education as a percentage of GDP. It includes expenditures funded by transfers from international sources to government.	WB	2020, 2019 (BR, KR), 2018 (MX)
Government expenditures on health, as % of GDP	SE_G_c02	Public expenditures on health from domestic sources as a percentage of GDP.	WB	2021 (CA, NO), 2020
Gross graduation ratio in tertiary education	SE_G_c03	Number of female and male graduates from first degree programmes (at ISCED 6 and 7) expressed as a percentage of the population of the theoretical graduation age of the most common first degree programme.	WB	2019 (CN, IN), 2018, 2017 (KR, MX, NO), 2014 (UK), 2012 (BR, US), N.A. (BR, JP, US)
Life expectancy at birth	SE_G_c04	Average number of years a newborn can expect to live, if current death rates do not change.	OECD	2021, 2020 (CA, UK), 2019 (RU, TR)
Employment rate	SE_G_c05	Proportion of a country's population that is employed (age 20-64).	ILO	2021, 2019 (UK), N.A. (CN)
Gross domestic expenditures on R&D (GERD)	SE_G_c06	Gross (total) domestic expenditures on scientific research and experimental development (R&D), as a percentage of GDP.	UNESCO	2020, 2019 (AU, CH, UK), 2018 (IN)
Government investment to GDP ratio	SE_G_c07	Gross fixed capital formation (GFCF) of the government sector, as a percentage of GDP.	OECD	2021, 2020 (BR, ID, TR), 2019 (CN, RU), N.A. (IN)

Table 2: Detailed list of indicators included in the **Green dimension**

Variable	label	Definition	Source	Latest available year
Green dimension VULNERABILITIES				
GHG emissions per GDP	G_G_v01	It is expressed as the sum of emissions of direct GHGs, divided by GDP (t CO2 equivalent per million current US dollars). The indicator does not include emissions and removals related to land use, land-use change and forestry.	WRI - Climate Watch (CAIT)	2020
CO2 emissions from transport per capita	G_G_v02	Total CO2 emission from fossil fuel combustion in the following activities: domestic aviation (commercial, private, agricultural, military, etc.), road, rail pipeline transport, domestic navigation and other non-specified transport. It is expressed as t CO2 equivalent per capita.	WRI - Climate Watch (CAIT)	2020
Fossil fuel subsidies	G_G_v03	Implicit fossil fuel subsidies refer to undercharging for environmental costs and general consumption taxes (i.e., post tax subsidies less pre-tax subsidies), expressed as a percentage of GDP.	IMF	2021
Water stress	G_G_v04	This indicator tracks how much freshwater is being withdrawn by all economic activities, with respect to the total renewable freshwater resources available. It also takes into account environmental flow requirements. It is expressed as a percentage of available freshwater resources.	UNDATA	2020
Domestic material consumption per capita	G_G_v05	Domestic material consumption (DMC) reports the amount of materials that are used in a national economy on the production side. It presents the amount of material that needs to be handled within an economy, which is either added to material stocks of buildings and transport infrastructure or used to fuel the economy as material throughput. Per capita DMC describes the average level of material use in an economy as an environmental pressure indicator. It is expressed in tonnes per capita.	UNDATA	2019
Pesticide use	G_G_v06	The pesticide use database includes data on the use of major pesticide groups (insecticides, herbicides, fungicides, plant growth regulators and rodenticides) and of relevant chemical families. Data report the quantities (in tonnes of active ingredients) of pesticides used in or sold to the agricultural sector for crops and seeds. It is normalised by the country total cropland area and expressed in tonnes per thousand hectares.	FAO	2021
Green dimension CAPACITIES				
Renewable energy in final energy consumption	G_G_c01	Total renewable energy (inclusive of solar, wind, geothermal, hydropower, bioenergy and marine sources) as a share of final (not primary) energy consumption. Energy mix includes electricity, transportation and cooking/heating fuels.	UNDATA	2020
Environmental patents per capita	G_G_c02	Number of environment-related patent applications per million inhabitants. The number of patent applications filed under the International Patent System (established by the Patent Cooperation Treaty) by Inventor(s)'s country(ies) of residence and priority data. Environmental patents include environment-related technologies, climate change adaptation technologies and sustainable ocean economy.	OECD + WB	2019
Resource productivity	G_G_c03	The ratio of GDP to domestic material consumption, expressed in constant 2015 US dollars per kilogram.	UNDATA	2019

Variable	label	Definition	Source	Latest available year
Energy productivity	G_G_c04	The ratio of GDP to total energy supplied to the economy, expressed in constant 2017 US dollars per Megajoule.	UNDATA	2020
Share of recovered municipal waste	G_G_c05	Percentage of waste that is recuperated via recycling, composting or incineration with energy recuperation, as a share of the total generated waste.	OECD	2021 (CH, NO, UK), 2020 (JP, KR, TR), 2019 (AU, EU27), 2018 (CA, US), N.A. (BR, CN, ID, IN, MX, RU)
Protected freshwater key biodiversity areas	G_G_c06	Proportion of important sites for freshwater biodiversity that are protected.	UNDATA	2021
Protected terrestrial key biodiversity areas	G_G_c07	Proportion of important sites for terrestrial biodiversity that are protected.	UNDATA	2021

Table 3: Detailed list of indicators included in the **Digital dimension**

Variable	label	Definition	Source	Latest available year
Digital dimension VULNERABILITIES				
People not having access to digital public services	D_G_v01	Percentage of individuals not using the internet for visiting or interacting with public authority websites in the last 12 months (age group 16-74).	OECD	2021, 2020 (CA, UK), N.A. (AU, BR, CN, ID, IN, KR, RU, US)
Low mobile cellular subscriptions	D_G_v02	The indicator is computed as the negative of the number of subscriptions per 100 people.	WB	2021
Broadband gap, regional	D_G_v03	Share of households with broadband access in the best connected regions minus share of households with broadband access in the lowest connected regions. Alternative to rural-urban broadband gap.	OECD	2021, 2019 (CA, US), 2018 (RU), 2017 (AU), 2013 (BR, TR), N.A. (CN, ID, IN, MX)
Shortcoming of fixed broadband	D_G_v04	Fixed broadband subscriptions refer to fixed subscriptions to high-speed access to the public Internet (a TCP/IP connection), at downstream speeds equal to, or greater than, 256 kbit/s per 100 persons. Shortcoming of fixed broadband is taken as 100 minus fixed broadband subscriptions per 100 people. Alternative to the indicator 'Lack of cloud services' from Member State dashboard.	WB	2021
ICT trade deficit in goods	D_G_v05	Information and communication technology goods imports and exports include computers and peripheral equipment, communication equipment, consumer electronic equipment, electronic components, and other information and technology goods (miscellaneous). The indicator is computed as ICT goods imports minus ICT goods exports divided by GDP.	WB	2021, 2020 (CH)
ICT trade deficit in services	D_G_v06	Computer, communications and other services imports/export include such activities as international telecommunications, and postal and courier services; computer data; news-related service transactions between residents and nonresidents; construction services; royalties and license fees; miscellaneous business, professional, and technical services; and personal, cultural, and recreational services. The indicator is computed as ICT services imports minus ICT services exports divided by GDP.	WB	2021

Variable	label	Definition	Source	Latest available year
Digital dimension CAPACITIES				
Digital competence of adults	D_G_c01	Percentage of individuals who have above basic overall digital skills (age group 16-74).	OECD	2021 (CH, EU27, NO, TR), 2020 (CA), 2019 (UK), N.A. (AU, BR, CN, ID, IN, JP, KR, MX, RU, US)
ICT graduates	D_G_c02	Share of tertiary graduates in ICT over all graduates.	UNESCO	2021 (IN), 2020, 2019 (RU), 2018 (ID), N.A. (CN, JP)
Use of social networks	D_G_c03	Percentage of all individuals using the internet for accessing social networking sites in the last three months (age group 16-74).	OECD	2021, 2020 (CA, UK), 2016 (AU), N.A. (CN, ID, IN, RU)
Gross value added in ICT	D_G_c04	Value added of the ICT sector as a share of total value added. The ICT operational definition takes into account the standard distinction between manufacturing and services, but does not include the following sectors: Manufacture of magnetic and optical media (268) and ICT trade industries (465). ICT services industries are grouped in two sub-sectors: Telecommunication (61) and Computer and related activities (582, 62, 631, 951).	PREDICT	2020, N.A. (ID, MX, TR)
Global Cybersecurity Index	D_G_c05	The Global Cybersecurity Index (GCI) is a trusted reference that measures the commitment of countries to cybersecurity at a global level – to raise awareness of the importance and different dimensions of the issue. As cybersecurity has a broad field of application, cutting across many industries and various sectors, each country's level of development or engagement is assessed along five pillars – (i) legal measures, (ii) technical measures, (iii) organizational measures, (iv) capacity building, and (v) cooperation – and then aggregated into an overall score.	ITU	2020
Secure internet servers	D_G_c06	Number of distinct, publicly-trusted TLS/SSL certificates found in the Netcraft Secure Server Survey per million people. New capacity indicator to better cover the cybersecurity area.	WB	2020

Table 4: Detailed list of indicators included in the **Geopolitical dimension**

Variable	label	Definition	Source	Latest available year
Geopolitical dimension VULNERABILITIES				
Import dependence in metals	GP_G_v01	Net imports (import-export) in metal ores divided by domestic material consumption. For the EU it includes only imports from non-EU sources.	UN - IRP	2019
Import dependence in energy materials	GP_G_v02	It is calculated from energy balances as net imports divided by total energy supply. For the EU it includes only imports from non-EU sources.	OECD - IEA (2022)	2021, 2020 (CN, EU27, ID, IN)
Partner concentration in trade	GP_G_v03	Herfindahl index of the average of import and export partners. The EU as a whole is considered as a single trade partner. Only extra-EU trade partners are included for the EU.	JRC Figaro	2019
Net International Investment Position	GP_G_v04	The net international investment position (NIIP) provides an aggregate view of the net financial position (assets minus liabilities) of a country vis-à-vis the rest of the world. The difference between an economy's external financial assets and liabilities is the economy's net IIP, which may be positive or negative. The variable is defined in a way that higher values indicate a higher vulnerability. The variable is calculated as percentage of GDP.	IMF + WB	2021
Disinformation originating from abroad	GP_G_v05	Expert responses to the question "How routinely do foreign governments and their agents use social media to disseminate misleading viewpoints or false information to influence domestic politics in this country?". Its sign is reversed in the dashboard so that a high value indicates high vulnerability.	V-Dem	2021
Total fertility rate (difference from replacement-level)	GP_G_v06	This indicator is calculated by subtracting the country's total fertility rate from 2.1, which represents the replacement rate. This way a high value indicates high vulnerability (of population decline).	WB	2021
Geopolitical dimension CAPACITIES				
Participation in GVC	GP_G_c01	Backward participation (P, C) in Global Value Chains represents the foreign value-added from a "partner" country P embodied in the gross exports of country C, as a percentage of country C's total gross exports. Forward participation in GVCs (P, C) represents the domestic value-added from country C embodied in the gross exports of foreign partner country P, as a percentage of country C's total gross exports. Both backward and forward participation in GVC are calculated for total industry only. The final indicator is the average of backward and forward participation in GVC. Intra-EU trade is not considered gross exports, that is, only extra-EU exports were included in the estimations. Calculations follow the OECD approach.	JRC calculation based on FIGARO data	2020
Trade openness	GP_G_c02	Sum of a country's exports and imports of commodities, as a percentage of GDP. It considers the EU as a single entity.	UN Comtrade	2021, 2020 (TR)
Financial integration	GP_G_c03	Sum of external assets and external liabilities, as a percentage of GDP. The term external refers to all other countries, with the EU as a single entity. Cross-border asset holdings within the EU are thus excluded.	JRC-ECFIN + WB	2019
Military personnel per capita	GP_G_c04	Armed forces personnel are active duty military personnel, including paramilitary forces if the training, organization, equipment, and control suggest they may be used to support or replace regular military forces. Personnel numbers are normalised by million inhabitants.	WB	2020

Table 5: Detailed list of indicators included in the **Geopolitical dimension Area 5** (Asterisks (*) indicate that the EU value refers to the median value across Member States.)

Variable	Label	Definition	Source	Year	EU value	EU coverage
Area 5A: Dissemination of values and standards – values						
Human rights*	GP_5A_01	Number of international human rights instruments ratified by each country.	OHCHR- United Nations Human Rights office of the high commissioner	2011, 2021	Median of MS	Full coverage
Gender inequality index*	GP_5A_02	A composite measure reflecting inequality in achievements between women and men in three dimensions: reproductive health, empowerment and the labour market. High values indicate high inequality, hence colour coding is such that high values become dark orange, while lower values are yellow or blue.	UNDP	2005, 2021	Median of MS	Full coverage
World press freedom index*	GP_5A_03	The Index ranks 180 countries and regions according to the level of freedom available to journalists. It is a snapshot of the media freedom situation based on an evaluation of pluralism, independence of the media, quality of legislative framework and safety of journalists in each country and region. High values indicate low freedom, hence colour coding is such that high values become dark orange, while lower values are yellow or blue.	RFS- reporters without borders	2013, 2022	Median of MS	Full coverage
Control of corruption*	GP_5A_04	Subindex of The Worldwide Governance Indicators (WGI): Control of Corruption.	World Bank	2005, 2021	Median of MS	Full coverage
Voice and accountability*	GP_5A_05	Subindex of The Worldwide Governance Indicators (WGI): Voice and accountability.	World Bank	2005, 2021	Median of MS	Full coverage
Civil society participation index*	GP_5A_06	Subindex of The Worldwide Governance Indicators (WGI): Civil society participation.	Bartelsman index	2006, 2022	Median of MS	Based on: BG, CZ, EE, HR, HU, LT, LV, PL, RO, SI, SK
Importance of democracy*	GP_5A_07	Share of population that consider living in a democracy "very important" and "absolutely important".	WVS	2020	Median of MS	Based on: CY, CZ , EL, NL, RO, SK
Area 5B: Dissemination of values and standards -- standards						
Labour standards: Social protection benefits*	GP_5B_01	Share of population covered by at least one social protection benefit (across both men and women).	ILO	2021 or latest available	Median of MS	missing: MT
Labour standards: Low pay rate*	GP_5B_02	Share of employees whose hourly earnings at all jobs were less than two-thirds of median hourly earnings. High values indicate a high share of employees with low earnings hence colourcoding is such that high values become dark orange, while lower values are yellow or blue.	ILO	2021 or latest available	Median of MS	Missing: BG, CY, HR, MT, RO, SE

Variable	Label	Definition	Source	Year	EU value	EU coverage
Environmental standards: GHG emissions	GP_5B_03	GHG emissions (including LUCF) in MtCO2e. colourcoding has been reverted to indicate the highest emission values with dark orange, while lower values are yellow or blue.	CAIT Climate Data Explorer	2010, 2020	EU total	From source
Environmental standards: Water stress*	GP_5B_04	Level of water stress: freshwater withdrawal as a proportion of available freshwater resources (%) High levels of water stress are indicated with dark orange, while lower values are yellow or blue.	FAO	2005, 2020	Median of MS	Missing: NL
Environmental standards: Energy transition index*	GP_5B_05	Global index that tracks the performance of energy systems at the country level. It also incorporates macroeconomic, institutional, social, and geopolitical considerations that provide enabling conditions for an effective energy transition.	World Economic Forum	2012, 2023	Median of MS	Full coverage
Product safety standards: product withdrawals	GP_5B_06	Number of mandatory and voluntary consumer product recalls for any product which were issued by a governmental body and were made publicly available.	OECD	2012, 2022	EU total calculated	Full coverage
Global Food Security Index*	GP_5B_07	Index of the overall food security environment, scores range between 0 and 100. The Global Food Security Index (GFSI) considers the issues of food affordability, availability, quality and safety, and natural resources and resilience across a set of 113 countries. The index is a dynamic quantitative and qualitative benchmarking model constructed from 59 unique indicators that measure the drivers of food security across both developing and developed countries.	The Global Food Security Index (overall score) - the Economist Intelligence Unit	2012, 2022	Median of MS	Missing: CY, EE, HR, LT, LU, LV, MT, SI
Share of national imports from world imports	GP_5B_08	Share of imports from world imports (%)	Eurostat (EXT_LT_INTROLE)	2011, 2021	EU total	from source
Share of inward FDI from global FDI	GP_5B_09	Share of inward FDI from total global inward FDI flows (%)	OECD	2010, 2022	EU value	from source
FDI restrictiveness index*	GP_5B_10	The OECD's FDI restrictiveness index measures statutory restrictions on foreign direct investment in 22 economic sectors across 69 countries. High values of the index reflecting high restrictions have been colour coded with dark orange, while lower values are yellow or blue.	OECD	2020	Median of MS	Missing: BG, CY, MT

Table 6: Detailed list of indicators included in the **Geopolitical dimension Area 6** (Asterisks (*) indicate that the EU value refers to the median value across Member States.)

Variable	Label	Definition	Source	Year	EU value	EU coverage
Area 6A: International cooperation						
Development aid	GP_6A_01	Flows of development aid by donor country in millions of USD.	OECD	2011, 2021	calculated as EU total + european institutions	Missing: HR for 2011
Share of patents with foreign partners	GP_6A_02	Share of patents with foreign partners from all patents in the country.	OECD	2011, 2019	EU value	from source

Variable	Label	Definition	Source	Year	EU value	EU coverage
FDI stock to Africa	GP_6A_03	Stocks in FDI in African countries by top 10 investors: EU (FR, NL, IT), US, UK, CN, SG, MUS, CH, SA. (in Billions of USD)	UNCTAD, 2021 Investment Report	2015, 2020	EU total calculated	Based on: FR, IT, NL
Trade with Africa	GP_6A_04	Imports of individual economies in thousands United States dollars from Africa.	UNCTAD	2011, 2022	EU total calculated	Full coverage
Lending to Africa: debt outstanding	GP_6A_05	Share of creditor's lending in total external debt stocks in African countries.	World Bank (DT.DOD.DECT.CD (total stock))	2010, 2021	EU total calculated	Full coverage
Area 6B: Soft power						
Diplomatic posts*	GP_6B_01	Combined number of staff at embassies, consulates, permanent missions and other representations. EU MS data is missing for BG, CY, LT (only 2016), LV (only 2016), MT, RO. Numbers include also intra-EU diplomatic presence.	Lowy Diplomacy Index	2016, 2021	Median of MS	Missing for 2016: BG, CY, HR, LT, LV, MT, RO; for 2021: BG, CY, HR, MT, RO
Trust in global institutions: UN*	GP_6B_02	Share of population with a very favourable or a somewhat favourable opinion of the UN. Based on BG, DE, ES, FR, IT, PL, SE, CZ, EL, HU, LT, NL, SK also for 2019.	Glocalities	2007, 2022	Median of MS	Based on for 2007: BG, DE, ES, FR, IT, PL, SE; for 2022: BE, DE, EL, ES, FR, HU, IT, NL, PL, SE
Passport Index*	GP_6B_03	Ranking of passports by their mobility score (i.e. the number of possible visa-free cross-border movements). Rank one refers to the country with the best mobility score and hence colourcoding is such that the best ranked countries (low values) are dark blue while lower ranked countries (high values) are yellow or orange.	Global passport index	2015, 2022	Median of MS	Full coverage
Nobel prize winners	GP_6B_04	Number of Nobel prize winners in physics, chemistry and medicine from 1901 until 2020.	Nobel Foundation	1901-2022	EU total calculated	
Olympic medals	GP_6B_05	Number of Olympic medals won in the Summer Olympic games 2023.	International Olympic Committee	2021	EU total calculated	

Table 7: Detailed list of indicators included in the **Geopolitical dimension Area 7** (Asterisks (*) indicate that the EU value refers to the median value across Member States.)

Variable	Label	Definition	Source	Year	EU value	EU coverage
Area 7A: Economic importance						
Stock market capitalisation	GP_7A_01	Market capitalisation of listed companies in USD. For US, data was obtained combining Nasdaq and NYSE. EU is obtained by adding up all MS stock exchanges	World Federation of Exchanges	2010, 2022	EU value calculated	based on for 2010: AT, BE,

Variable	Label	Definition	Source	Year	EU value	EU coverage
		and Euronext data has been used to substitute data for NL, BE and FR (combined) when unavailable.				BG, CY, DE, EL, ES, FR, HR, HU, IE, IT, LU, MT, NL, PL, PT, RO, SI, SK for 2022: Euronext, AT, BG, CY, CZ, DE, EL, ES, HR, HU, LU, PL, RO, SE, SI
GDP in current USD (share from global)	GP_7A_02	Share of GDP from global GDP in current USD. The share for each country is obtained from the OECD's latest long-term projections (Economic Outlook 109, October 2021). The EU total is an extrapolated value based on available data for the 24 MS. For 2000 and 2020 the extrapolation factor is the proportion between the EU24 MS and EU27 MS from the corresponding World Bank WDI series. For 2040 the proportion is obtained by extrapolating the proportion assuming the same growth between 2020 and 2040 as the one observed between 2000 and 2020. The denominator, world total, is obtained using a similar correction between the available countries and the World Bank world total.	OECD Economic Outlook	2000, 2020, 2040	EU value calculated	Extrapolated based on: AT, BE, BG, CZ, DE, DK, EE, EL, ES, FI, FR, HU, IE, IT, LT, LU, LV, NL, PL, PT, RO, SI, SK, SE
GDP in PPP (share from global)	GP_7A_03	Share of national GDP from global GDP in current PPP. The share for each country is obtained from the OECD's latest long-term projections (Economic Outlook 109, October 2021). The EU total is extrapolated based on available data for the 24 MS. For 2000 and 2020 the extrapolation factor is the proportion between the EU24 MS and EU27 MS from the corresponding World Bank WDI series. For 2040, the proportion is obtained by extrapolating the proportion assuming a same growth rate between 2020 and 2040 as the one observed between 2000 and 2020. The denominator, world total, is obtained using a similar correction between the available countries and the World Bank world total.	OECD Economic Outlook	2000, 2020, 2040	EU value calculated	Extrapolated based on: AT, BE, BG, CZ, DE, DK, EE, EL, ES, FI, FR, HU, IE, IT, LT, LU, LV, NL, PL, PT, RO, SI, SK, SE
GDP per capita (in constant PPP)	GP_7A_04	Share of national GDP from global GDP in constant PPP per capita. The share for each country is obtained from the OECD's latest long-term projections (Economic Outlook 109, October 2021). The EU total is extrapolated based on available data for the 24 MS. For 2000 and 2020 the extrapolation factor is the proportion between the EU24 MS and EU27 MS from the corresponding World Bank WDI series. For 2040 the proportion is obtained by extrapolating the proportion assuming a same growth rate between 2020 and 2040 as the one observed between 2000 and 2020. The denominator, world total, is obtained using a similar correction between the available countries and the World Bank world total.	OECD Economic Outlook	2000, 2020, 2040	EU value calculated	Extrapolated based on: AT, BE, BG, CZ, DE, DK, EE, EL, ES, FI, FR, HU, IE, IT, LT, LU, LV, NL, PL, PT, RO, SI, SK, SE
Trade: Exports (share from global)	GP_7A_05	Share of national exports from global exports.	Eurostat	2012, 2021	EU Total	From source
Share of outward FDI from global FDI	GP_7A_06	Share of outward FDI from total global outward FDI flows.	OECD	2010, 2022	EU value	From source

Variable	Label	Definition	Source	Year	EU value	EU coverage
International role of currencies	GP_7A_07	Currency shares in foreign exchange reserves with disclosed currency composition (at current exchange rates).	ECB	2020	Euro	
Import dependence in cereals	GP_7A_08	The cereal imports dependency ratio shows how much of the available domestic food supply of cereals has been imported and how much comes from the country's own production. It is computed as (cereal imports - cereal exports)/(cereal production + cereal imports - cereal exports) * 100 Given this formula the indicator assumes only values <= 100. Negative values indicate that the country is a net exporter of cereals. Three-year average. High values reflect high dependence and have been colour coded with dark orange, while lower values indicate lower dependence are coded yellow or blue.	FAO	2010, 2019	NA	
Net food trade	GP_7A_09	Exports-imports in all food products as a percent of GDP. Food consists of: food and live animals; beverages and tobacco; animal and vegetable oils, fats and waxes; oilseeds and oleaginous fruit (SITC sections 0, 1, 4 and division 22), WTO aggregates.	WTO	2010, 2021	EU Total	Full coverage
Area 7B: Innovation						
Expenditures on R&D (share from global)	GP_7B_01	Expenditures on R&D as a share from global expenditures on R&D.	OECD	2010, 2021	EU value	From source
Share of patents from global patents	GP_7B_02	Number of national patent applications filed under the PCT (priority year) as a share from total global patent applications.	OECD	2010, 2020	EU value	From source
Number of researchers	GP_7B_03	Total number of researchers in FTEs.	OECD	2010, 2019	EU value	From source
Number of top 1000 universities	GP_7B_04	Number of universities among the 1000 top rated universities worldwide.	Center of world university rankings	2023	EU Total	
Foreign university students	GP_7B_05	Total number of tertiary students from abroad (inbound students) studying in a given country minus the number of students at the same level of education from that country studying abroad (outbound students), expressed as a percentage of total tertiary enrolment in that country.	UNESCO	2014, 2020	EU value calculated	for 2014: missing: EL, ES, LT, LU, NL; for 2020: full coverage
Area 7C: Demography						
Share of migrants	GP_7C_01	International migrant stock as % of population (intra EU migrants have been excluded for EU).	UN, Department of Economic and Social Affairs	2010, 2020	EU value calculated	Full coverage
Share of population in the world	GP_7C_02	Population shares from global, past, present and projections.	UN, Department of Economic and Social Affairs	2000, 2020, 2040	EU total calculated	Full coverage
Life expectancy*	GP_7C_03	Life expectancy at birth in number of years, past, present and projections.	UN, Department of Economic and Social Affairs	2000, 2020, 2040	median	Full coverage
Area 7D: Space and hard power						

Variable	Label	Definition	Source	Year	EU value	EU coverage
Expenditures on space programs (% of total)	GP_7D_01	Expenditure on space programs in current millions of USD.	OECD: The Space Economy in Figures (2019)	2020	EU27 approximated from 2017 relative sizes	based on FR, IT, DE
Expenditures on space programs (% GDP)	GP_7D_02	Expenditure on space programs (as % of GDP).	OECD: The Space Economy in Figures (2019)	2020	EU27 approximated from 2017 relative sizes	based on FR, IT, DE
Satellite launches	GP_7D_03	Number of satellites and other functional space objects registered by country at UNOOSA.	UNOOSA yearbooks	1957-2015, 2016-2021	EU total calculated	
Military expenditures	GP_7D_04	Military expenditures include all current and capital expenditures on armed forces, including peacekeeping forces; defense ministries and other government agencies engaged in defense projects; paramilitary forces, if these are judged to be trained and equipped for military operations; and military space activities. Excluded are civil defense and current expenditures for previous military activities, such as for veterans' benefits, demobilization, conversion, and destruction of weapons. (in USD)	WB using SIPRI	2010, 2021	EU total	From source
Number of military personnel	GP_7D_05	Total number of armed forces personnel (in Thsds.).	WDI	2010, 2019	EU total	From source
Military personnel in international missions	GP_7D_06	Number of military personnel deployed to international missions.	CIA factbook for 2020, NATO	2023	EU total calculated	Full coverage
Exports of weapons	GP_7D_07	Number of weapons exported. Weapons include aircrafts, air defence systems, anti-submarine warfare weapons, armoured vehicles, artillery, angines, aissiles, sensors, satellites, ships, expressed in millions of USD. SIPRI Trend Indicator Values (TIVs), 3 year averages.	SIPRI Arms Transfers Database	2009-2011, 2020-2022	EU total calculated	Full coverage

6 Conclusions

This report presents the 2023 edition of the European Commission's global resilience dashboards and marks their second update since their inception in 2021. It provides a concise but detailed picture of the data sources', variables and methodologies used to construct the dashboards and the related synthetic indicators, and presents the most recent dashboards.

The updated version of the global dashboards refers to data up to 2021 and follows the yearly data update that was made in the series at source. Other updates include refinements and adjustments to selected indicators, or the replacement of discontinued indicators, ensuring that the dashboards are a living tool. For the particular geopolitical areas 5 to 7, the latest available data from the source has been used.

As countries continue to navigate the transitions, the dashboards will be updated in the future to maintain a holistic assessment of the EU27 and countries' vulnerabilities and capacities. This is essential as many resilience-relevant indicators are still under development and new data are being collected. Therefore, the list of indicators remains dynamic.

References

Benczur, Peter; Cariboni, Jessica; Joossens, Elisabeth; Le Blanc, Julia; Menyhert, Balint; Pagano, Andrea; Piriu, Andreea (2023): Resilience dashboards: Spring 2023 update. European Commission, Joint Research Centre (JRC) [Dataset] PID: http://data.europa.eu/89h/bfeef8b3-41b3-4068-a9d7-3fbccf93b178

European Commission (2020) *2020 Strategic Foresight Report*. Available at: https://commission.europa.eu/strategy-and-policy/strategic-planning/strategic-foresight/2020-strategic-foresight-report_en

European Commission (2021) *Resilience Dashboards Report and Annex*. Available at: https://commission.europa.eu/publications/resilience-dashboards-report-and-annex_en.

List of abbreviations and definitions

AU	Australia
BR	Brasil
CA	Canada
CN	China
CH	Switzerland
DMC	Domestic Material Consumption
EC	European Commission
ECB	European Central Bank
EFTA	European Free Trade Association
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FDI	Foreign Direct Investment
FIFA	Federation Internationale de Football Association
FIGARO	Full International and Global Accounts for Research in Input-Output Analysis
GDP	Gross Domestic Product
GCI	Global Cybersecurity Index
GERD	Gross domestic expenditure on R&D
GFCF	Gross Fixed Capital Formation
GFSI	Global Food Safety Initiative
GHG	Greenhouse Gas
GVC	Global Value Chains
ID	Indonesia
ICT	Information and Communication Technologies
ILO	International Labour Organization
IMF	International Monetary Fund
IN	India
ITU	International Telecommunication Union
JRC	Joint Research Centre
JP	Japan
KR	the Republic of Korea
MX	Mexico
NFC	Non-Financial Corporations
NIIP	Net international investment position
NO	Norway

OECD	Organisation for Economic Co-operation and Development
OHCHR	Office of the United Nations High Commissioner for Human Rights
PPP	Purchasing Power Parity
RFS	Reporters Without Borders
RDB	Resilience Dashboard
RU	the Russian Federation
TR	Türkiye
UK	United Kingdom
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNdata	United Nations statistical databases
UNDP	United Nations Development Programme
UN-IRP	United Nations International Resource Panel
UNESCO	United Nations Educational, Scientific and Cultural Organization
US	United States of America
USA	United States of America
USD	United States Dollar
WB	WorldBank
WGI	Worldwide Governance Indicators
WHO-GHO	World Health Organization - Global Health Observatory
WRI	World Resources Institute
WVS	World Values Survey

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