The

Global Sustainable Competitiveness Index

2023

About this Report

The Sustainable Competitiveness Report, ***12th edition***

November, 2023

Methodology, data gathering, calculation, & report compilation by SolAbility.

Acknowledgements

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About SolAbility

SolAbility is an independent sustainability think-tank with a fairly successful history in sustainable management implementation in large corporations.

SolAbility is the proud publisher of the Global Sustainable Competitiveness Index and the maker of 3 DJSI Super-Sector Leaders.

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Zürich/Seoul, November 2023

The 12th edition of the Global Sustainable Competitiveness Index

Everything, Everywhere, All At Once

The best scoring country in the Global Sustainable Competitiveness Index scores 61.9 out of a possible 100. The global average is 46. What is not sustainable is not competitive. And what is not competitive is not sustainable, as we are currently experiencing first-hand. 2023 is different - it might go into the books as the year climate change is starting to hit home.

The physics of global heating is simple: sunlight travels through the atmosphere. The light that is not reflected by clouds and light-coloured surfaces (mainly snow and ice) is absorbed and transferred into heat energy. Heat radiates back in the form of infrared waves. The heat is absorbed by greenhouse gases - CO_2, CH_4, SF_6, and others – and stays within the atmosphere, creating an energy imbalance. That energy imbalance – the amount of energy that should, but cannot escape - is now equivalent to 800'000 bombs like the one dropped on Hiroshima. Every day. Unprecedent heat-waves, droughts, wild fires, torrential rain, storms, flash-floods are the consequences: everything, everywhere, all at once. It is not that we did not know: the effect of CO_2 concentration in the air has first been experimentally proven and measured in 1856; the first calculation of the impact on our earth' climate of continued burning of fossils was published in 1906.

The economic reasons for climate change are even simpler: climate change is a market failure. The price of fossils does not include its real cost.

The policy reasons are also simple: absence of sustainable competitiveness.

A sustainable competitive entity would have acted a long time ago. We are sitting in this boat all together. We have all the tools – logic dictates that it is not possible that we are really unable to tackle this. But we do not have time.

The GSCI 2023 therefore spotlights Gulf Corporation Countries and their performance in sustainable competitiveness, and the opportunities associated with the challenge of replacing the fossil income: Sustainable. Competitive.

The Global Sustainable Competitiveness Report 2023 provides a comprehensive overview of the current State of the World – global, regional, and national - on the six sustainable competitiveness pillars: Natural Capital, Resource Intensity-Efficiency, Intellectual Capital, Economic Sustainability, Social Capital and Governance Performance.

National performance – development, growth - needs to be measured in a comprehensive and integrating way beyond the still prevailing focus on economic parameters. The Global Sustainable Competitiveness Index measures national development and success beyond pure financial outcomes and GDP.

We are in a climate emergency – we hope you will find this information helpful nevertheless.

1 Global Sustainable Competitiveness Index 2023

1.1 Sustainable Competitiveness

Sustainable competitiveness is the ability to generate and sustain inclusive wealth without diminishing the future capability of sustaining or increasing current wealth levels.

The Global Sustainable Competitiveness Index (GSCI) is measuring country performance, trends, and growth potential based on 190 quantitative indicators:

- grouped into the pillars of national development: natural capital, resource efficiency, social capital, intellectual & innovation capital, economic sustainability, and governance performance;
- based on purely quantitative ("measurable" KPIs;
- taking into account 196 indicators derived from renown global data sources (World Bank, various UN agencies, IMF);
- evaluating latest available data points and trends over time to better reflect future potential

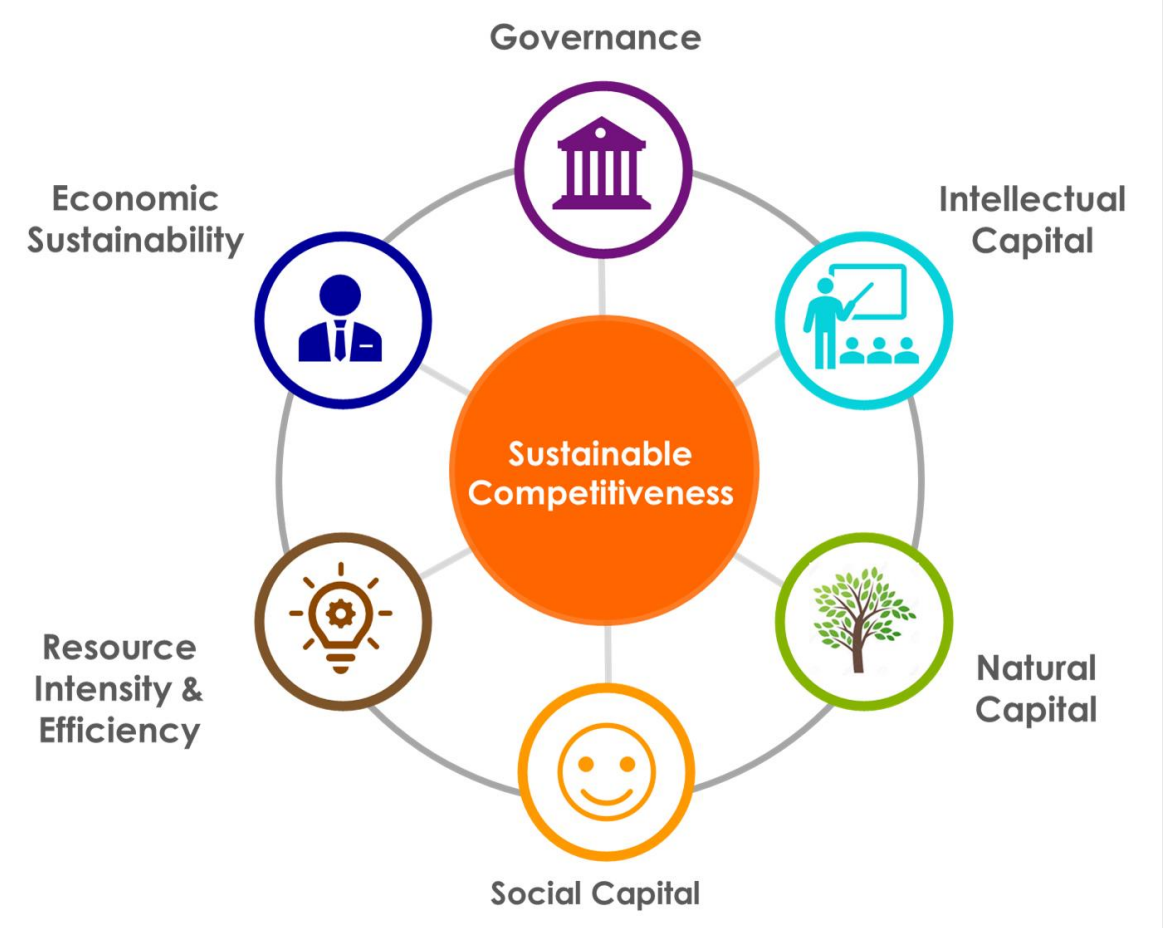
Why Sustainable Competitiveness?

The Gross Domestic Product (GDP) is still the most commonly used parameter to express the size & power (total GDP) or the wealth (GDP per capita) of a nation. However, the functioning of a nation-state is a highly complex mechanisms influenced by numerous factors. Current used measurements, including GDP, do not do justice to this complexity:

- The GDP is a measurement based on purely macro-economic numbers.
- GDP does not take into account the "intangibles" that make and contribute to the final economic outcome
- Similarly, sovereign bond ratings and other country ratings – which determine the interest rate on the international financial markets – are based on macro-economic indicators, fiscal status, and - often subjective - political risk definition
- Neither GDP nor credit ratings GDP therefore reflect performance, status, risks and opportunities
- There is a lack of comprehensive, integrated SWOT analysis for countries on a global level

The integration of all relevant dimensions of competitiveness leads to a broader and more accurate reflection of nation-economies. We believe the Global Sustainable Competitiveness Index is the currently most comprehensive and accurate measurement of the competitiveness of nation-states and their future potential – as a general measurement, for creditors seeking to evaluate country-specific risks, and other relevant private and public parties to evaluate both risk and opportunities in specific sectors.

The Sustainable Competitiveness Model



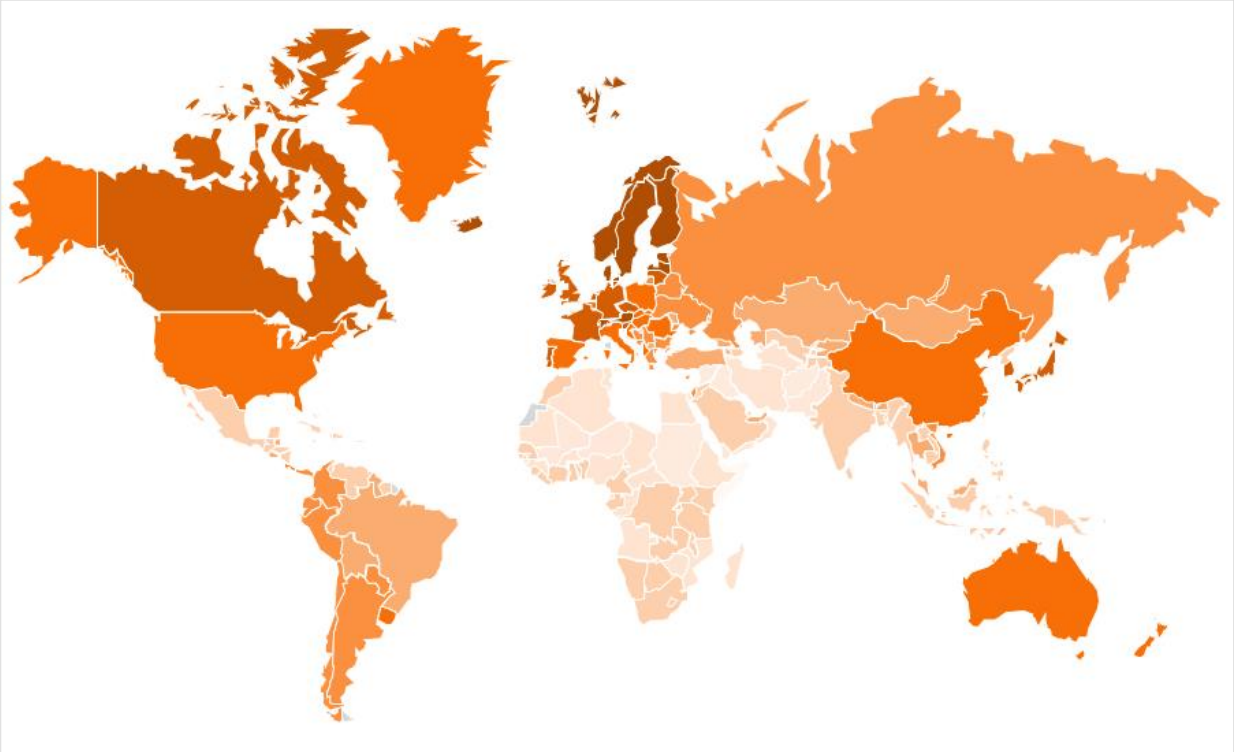
The Sustainable Competitiveness Index is based on 5 pillars of equal importance:

- **Natural Capital**: the given natural environment, including the availability of resources, and the level of the depletion of those resources.
- **Resource Efficiency**: the efficiency of using available resources as a measurement of operational competitiveness in a resource-constraint World.
- **Social Capital**: health, security, freedom, equality and life satisfaction, facilitating development.
- **Intellectual Capital**: the capability to generate wealth and jobs through innovation and value-added industries in the globalised markets.
- **Economic Sustainability:** Economic Sustainability & Competitiveness reflects the ability to generate wealth through sustainable economic development that makes use of all potential
- **Governance Performance** is the provision of a framework for sustained and sustainable wealth generation trough resource allocation, infrastructure, market and employment structure guidance.

1.2 Highlights from the GSCI 2023

- Scandinavia continues to top the Sustainable Competitiveness Index: of the top 6 spots, 5 are Scandinavian. Sweden keeps topping the Index;
- The top 20 are dominated by Northern European countries;
- Only one country in the Top 20 is not European: Japan on 12 (South Korea 21);
- For the first time, China ranked 30, overtakes the US on rank 32 – China is strong in Intellectual Capital, but low on Natural Capital & Resource Efficiency;
- The USA is ranked 32, performing particularly low in resource efficiency and social capital – potentially further undermining the global status of the US in the future;
- Germany ranks 15, The UK 16, and France 18;
- Brazil ranks 65, India 121, and Nigeria – Africa's most populous nation – 156;
- Some of the least developed nations have a considerable higher GSCI ranking than their GDP would suggest (e.g. Colombia, Peu, Nepal, Bhutan, Bolivia, …)
- Asian nations (South Korea, Japan, Singapore, and China) lead the Intellectual Capital Index – the basis of innovation. However, achieving sustained prosperity is potentially compromised by Natural Capital constraints and increasing resource consumption.
- The Social Capital Index ranking is headed by Northern European (Scandinavian) countries, the result of economic growth combined with a commonly accepted social consensus

Sustainable Competitiveness World Map 2023

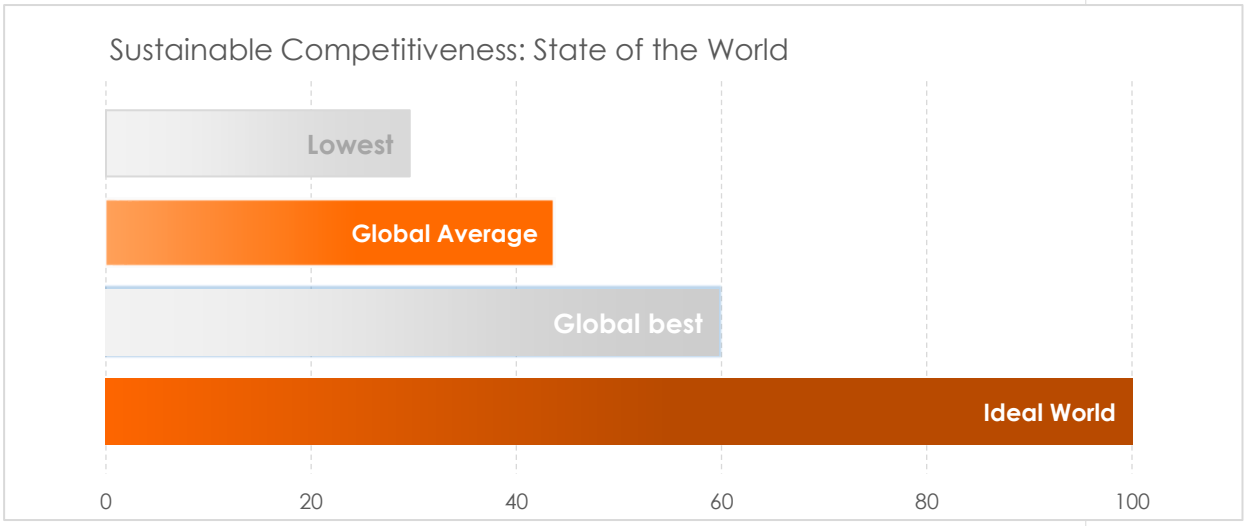


The Sustainable Competitiveness World Map. Dark areas indicate high competitiveness, light areas low competitiveness

1.3 Key take-aways: State of the World 2023

The Global Competitiveness Index shows that, in fact, the World is not in a sustainable state:

- The Global average Sustainable Competitiveness score in 2023 is 43.3 – out of a possible maximum of 100.
- **The global gap to a perfect sustainable competitive World is 56.7 – we are far from an inclusive and circular society** that lives in equilibrium with the natural environment.
- In the Natural Capital dimension, ore than 50% of all indicators globally are pointing the wrong way. We have to expect further decline of the natural environment in the future.
- Improvements in resource efficiency can be observed. However, the pace of small positive changes in is insufficient to avoid climate disaster. The necessary technology is available, but is no political vision to direct the markets is visible.
- The corporate world is driven by competition and cost-benefit considerations – and is therefore ahead of politics (e.g. actual roadmaps to net-zero by 2025-2030)
- The large gap between low and high performers in Intellectual Capital dimension raises the question: is education the key to development, or the result of development?
- Trend analysis shows small but positive developments in Social and intellectual Capital, where slow but steady development could be expected in the right circumstances
- Tribalism, unnecessary cultural wars, struggles for perceived power, and armed conflict initiated by small minorities are complicating (if not preventing) the implementation of simple, efficient and readily available solutions.
- There is immense untapped potential. Policies geared to maximise efficiency improvements could lead to significant positive developments throughout all dimensions

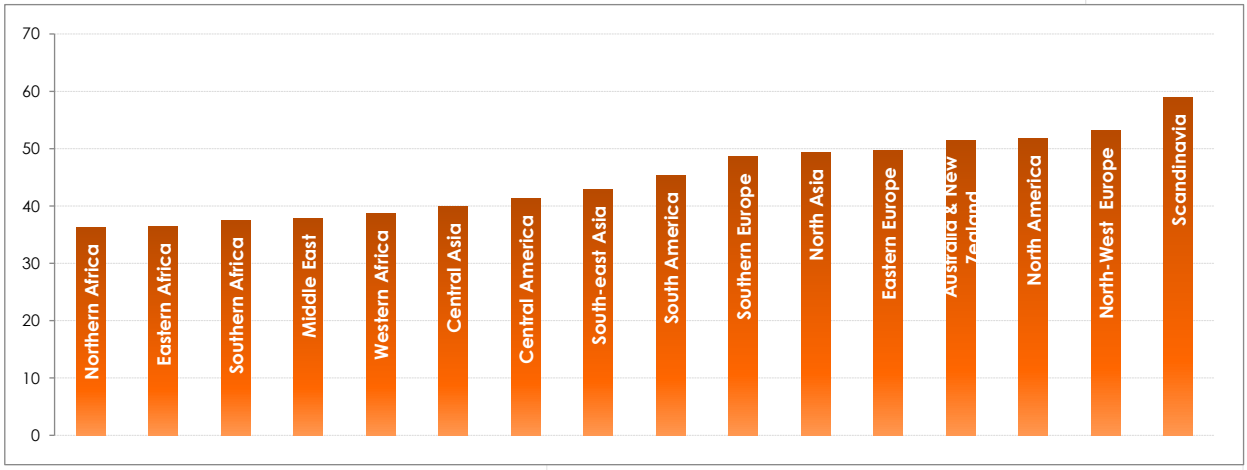


Global average, lowest and highest country score. GSCI 2023

Regional breakdown

The regional differences on development level are not fully unexpected, with a few exceptions:

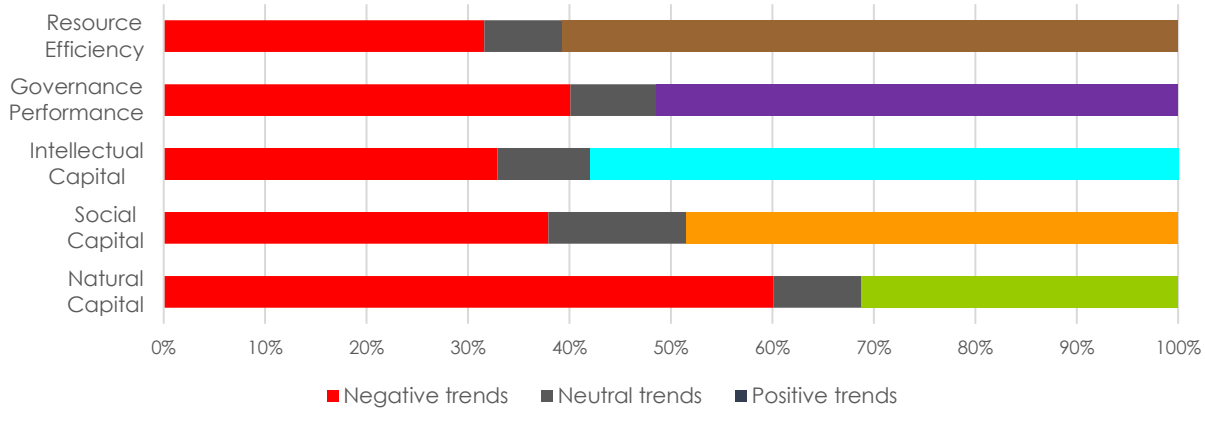
- Scandinavia scores highest in sustainable competitiveness, before Western Europe, North America, and North-East Asia
- Africa and the Middle East are lowest in sustainable competitiveness score
- North-East Asia score is significantly affected by North Korea's low score. Without NK, East Asia scores equal to Western Europe
- Asia is leading Europe in Intellectual Capital, Europe in Social Capital and Resource Efficiency



Sustainable Competitiveness score by region. GSCI 2023

Trend Analysis: Natural Capital Declining

- Intellectual Capital has a high percentage of positive drivers (58%), mostly driven by Asian Nations. Positive development can therefore be expected in the future. However, these developments take time to translate into sustainable growth.
- Social Capital and Governance trends are small but positive
- More than 60% of Natural Capital trends are negative. Unfortunately, we have to expect further decline of the natural environment in the future.



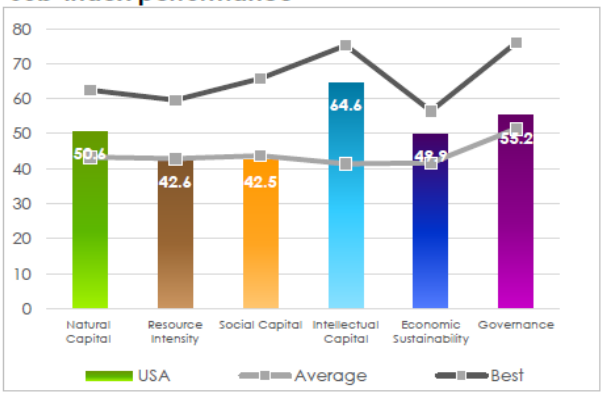
Percentage of positive/negative developing indicators. GSCI

1.4 Sustainable Competitiveness 2023: Selected Countries

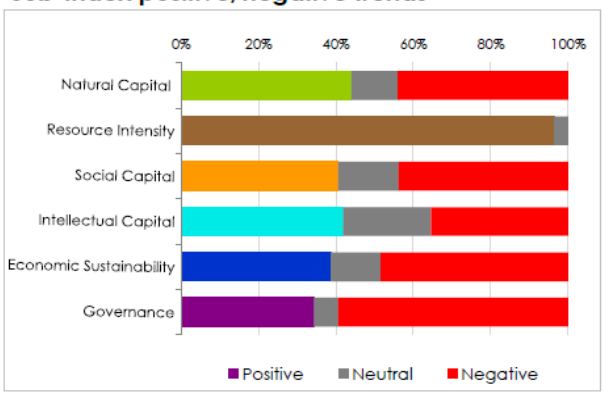
USA

Rank 32 / Score: 50.9 (85.4% of best)

Sub-Index performance



Sub-Index positive/negative trends



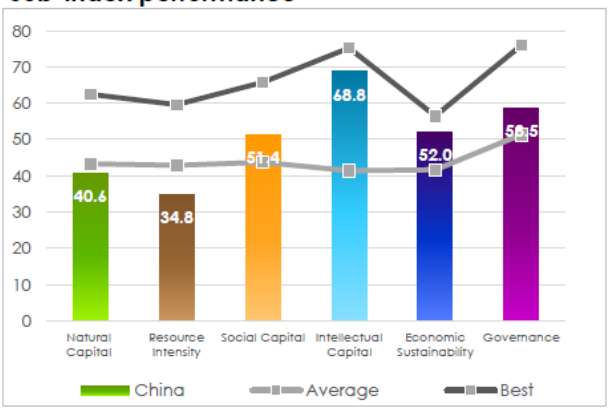
The US is scoring in line or slightly above the global average in 4 of the 6 dimensions –, resource efficiency, social capital, and governance performance – reflecting a somewhat mediocre performance. The US scores comparable high in intellectual capital - the key dimension to maintain competitiveness in an innovation-driven global economy. A look at the trends reveals a mixed picture: while resource efficiency is improving with shift to renewables, a significant proportion of indicators in governance, social capital and natural capital show declining trends.

GSCI performance reports for all countries are available on our website.

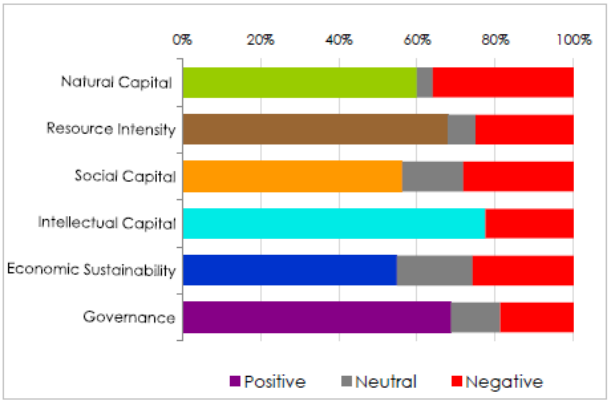
China

Rank 30 / Score: 51.1 (85.6% of best)

Sub-Index performance



Sub-Index positive/negative trends

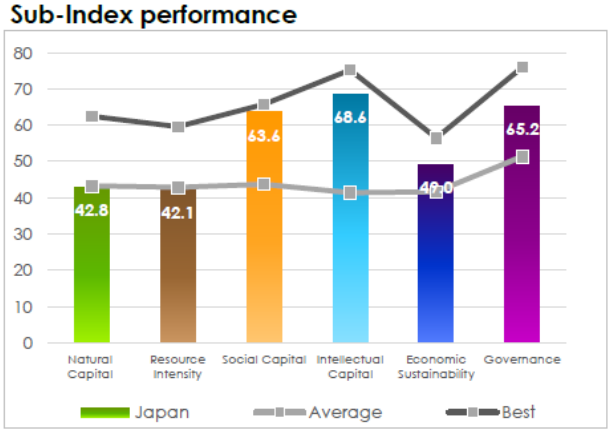


China scores above global averages in social capital, governance performance, economic sustainability, and is ranked 3rd globally in intellectual capital. On the other hand, China's development could be negatively affected by low (significantly below global average) scores in both natural capital and resource efficiency. However, a majority of trends in natural capital and resource efficiency are positive, indicating that these dimensions could improve into the future. A majority of trends in social capital, intellectual capital and governance performance show the right direction, suggesting that China is on a path to improve its sustainable competitiveness in the future.

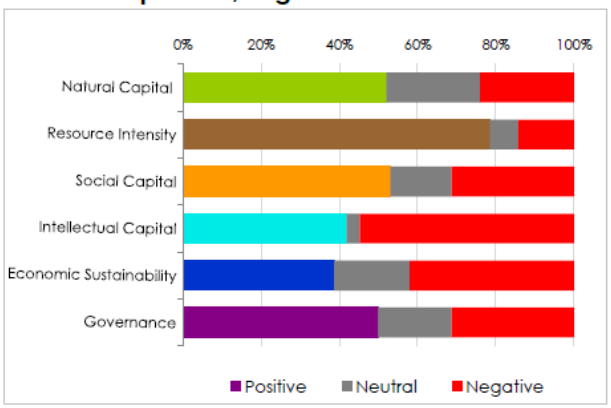
Japan

Rank 12 / Score: 55.3 (92.7% of best)

Sub-Index performance



Sub-Index positive/negative trends

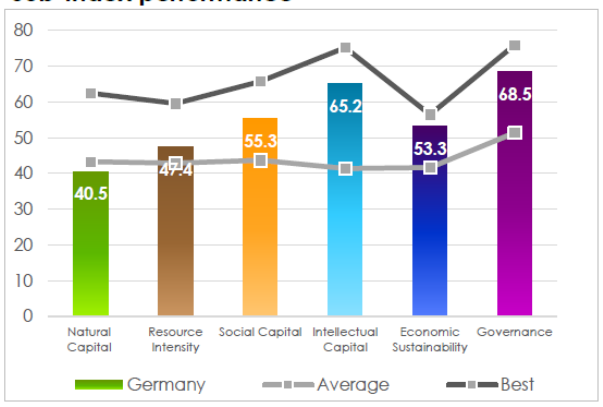


Japan ranks average scores in both natural capital and resource efficiency, while scoring above average in social capital and is amongst the global leaders in intellectual capital and governance. On the positive side, nearly 80% of indicators in resource efficiency are going the right direction, indicating that Japan could improve its standing over time with increased efforts in circular economy and renewable energy.

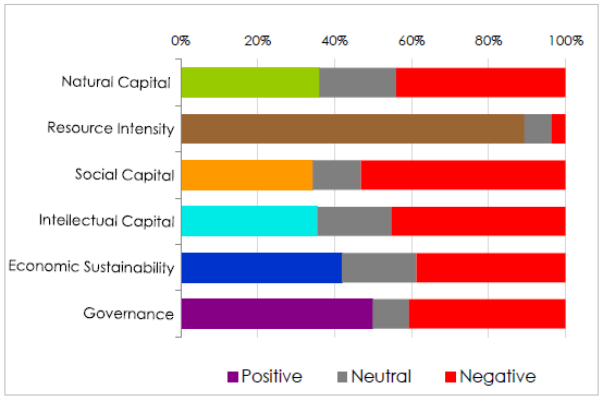
Germany

Rank 15 / Score: 55.1 (92.3% of best)

Sub-Index performance



Sub-Index positive/negative trends

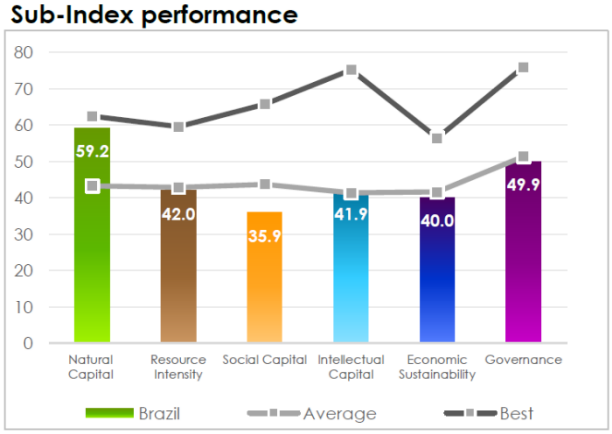


Germany shows a good performance in social capital, intellectual capital, governance performance, and economic sustainability while being in the global average in natural capital & resource intensity. In addition, a significant proportion of natural capital trends are negative, adding further pressure. What is more worrying, however, is the percentage of not-improving and negative trends in intellectual capital in an economy that is based on exporting high-tech and quality goods.

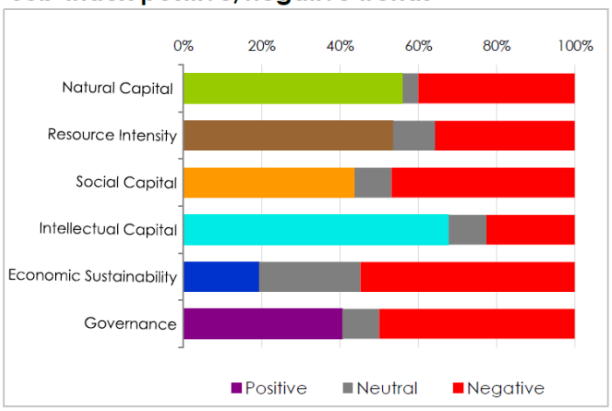
Brazil

Rank 65 / Score: 44.8 (75.2% of best)

Sub-Index performance



Sub-Index positive/negative trends

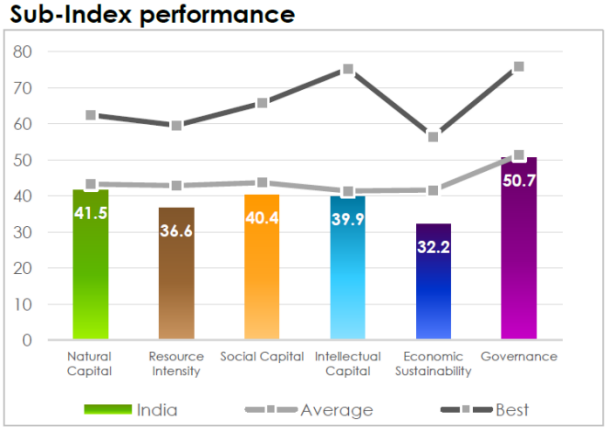


Brazil's performance is in line with global averages in resource efficiency, but below in social capital and economic sustainability. Thanks to a rich and diverse natural environment the natural capital score is amongst the highest. However, nearly 60% of natural capital indicators are negative, indicating that Brazil is chipping away on its main resource, the natural capital. On a positive side, intellectual capital indicators are mostly positive, hopefully translating into improved sustainable competitiveness performance over time.

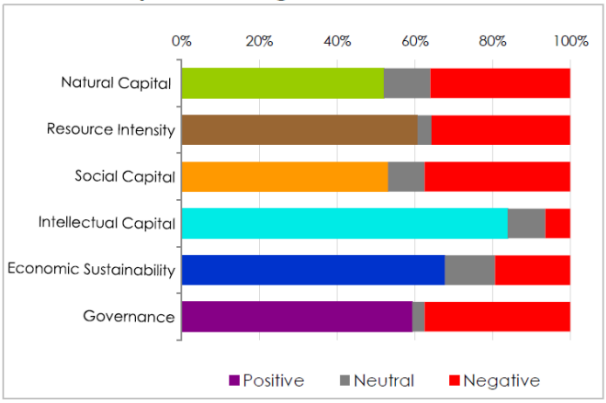
India

Rank 121; Score: 40.2 (67.5% of best)

Sub-Index performance



Sub-Index positive/negative trends



India performs in the average in natural capital and governance, but below averages in resource efficiency, social capital and intellectual capital, resulting in a low global ranking. In addition, a high proportion of natural capital indicators are negative, putting further strain on the densely populated country. On a positive note, more than 80% of intellectual capital indicators are positive, raising hopes that the country can improve its future standing through improved education

Individual overview and score sheets for all countries are available on our website.

1.5 Sovereign Bond Ratings Fail to Reflect the Full Reality

The sovereign bond rating of a country – commonly referred to as credit rating - determines the level of interest a country has to pay for loans and credits on the financial markets. It is therefore a very important parameter for every economy – it defines the level of capital cost for new investments, and the cost of debt. Credit ratings also affect the risks investors are willing to take in overseas investments.

The sovereign risk rating market is dominated by the "three sisters": Moody's, S&P, and Fitch. Sovereign risks are calculated based on a mix of economic, political and financial risks. All of these criteria represent current risks that, like GDP calculations, do not take into account the actual causes that generate the current situation. They do not consider the wider environment – the education availability, the ability and motivation of the workforce, the health, well-being and the social fabric of a society, the physical environment (natural and man-made) that are the fundament of the current situation. Credit ratings describe symptoms, they do not look at the root causes. It is therefore questionable whether credit ratings truly reflect investor risks of investing in a specific country, in particular for long-term bonds and investments.

Sustainable vs. conventional country credit rating; Comparison of country risk & performance evaluation models:

Model and influences used to calculate conventional credit ratings

The GSCI model – including all influences that shape the success of a nation

The Global Competitiveness Model is based on 5 pillars, aiming to cover & evaluate performance of all elements that make economic development (the root). Conventional ratings are based on 4 areas of results. Conventional credit ratings rate the outcome (the end-result); the GSCI the root cause of the outcome.

Rating comparisons and implications

In order to test the implications of the conventional applied sovereign bond ratings, a virtual sustainability-adjusted credit rating was calculated. The sustainability-adjusted rating is equally based on GSCI ratings and conventional ratings (average of Moody's, S&P, and Fitch).

Credit ratings vs Sustainable Ratings of selected countries 2023:

Country	Current Credit Rating Average Moody's, S&P, Fitch	GSCI ESG Rating	ESG vs. Current Rating
Ireland	AA-	AA-	0
Japan	A+	AA-	1
Kuwait	A+	CCC+	-12
Luxembourg	AAA	AA-	-3
Malaysia	A-	BBB-	-3
Maldives	B-	BBB-	7
Mongolia	B	BBB-	5
Saudi Arabia	A	B+	-8
Slovenia	A	AA	4
Spain	A-	A	1
Suriname	CCC-	BB-	6
United Kingdom	AA-	AA-	0

Country	Current Credit Rating Average Moody's, S&P, Fitch	GSCI ESG Rating	ESG vs. Current Rating
Australia	AAA	A+	-4
Brazil	BB	BBB	4
Canada	AAA	A+	-4
China	A+	A	-1
Denmark	AAA	AA+	-1
France	AA	AA-	-1
Germany	AAA	AA-	-3
Ghana	CC	BB-	7
India	BBB-	B+	-4
Indonesia	BBB	BB+	-2
Italy	BBB	A+	4
Tanzania	B	BB-	2
USA	AAA	A	-5

Based on sustainable competitiveness, countries dependent on exploitation of natural resources would receive a significant lower credit rating. On the other hand, some developing nations would receive higher ratings (and therefor lower interest rates) based on their development potential.

In the asset management world, it is now standard procedure to integrate "E, S and G" into financial investment risk/opportunity evaluation, while credit ratings do exclude ESG risks - and therefore do not cover all investor risks. Key observations:

- Sovereign bond ratings show a high correlation to GDP/capita levels: ***Poor countries have to pay higher interest rates than rich countries.***
- Sovereign bond ratings do not reflect the non-tangible risks and opportunities associated with nation economies
- ***Sustainable adjusted ratings and conventional ratings show significant differences.*** Under a sustainability-adjusted credit rating, countries with high reliance on exploitation of natural resources would be rated lower, while poor country with a healthy fundament (biodiversity, education, governance) would receive higher ratings.

It is high time that credit ratings include sustainability in their risk calculations.

For more information on ESG country ratings, please refer to the detailed Report available on the SolAbility website.

1.6 Sustainable Competitiveness Ranking 2023

Previous indexes and data can be downloaded from the SolAbility website.

Rank	Country	Score	Rank	Country	Score	Country	Rank	Score	Rank	Country	Score
1	Sweden	59.6	46	Argentina	47.5	Rwanda	91	42.2	136	Benin	39.1
2	Finland	59.4	47	Russia	47.0	Sri Lanka	92	42.0	137	Zambia	39.1
3	Iceland	59.2	48	Peru	47.0	Dominican	93	41.9	138	Azerbaijan	39.1
4	Switzerland	59.1	49	Panama	46.6	Democratic	94	41.9	139	Ethiopia	39.0
5	Norway	57.7	50	Ecuador	46.6	Gabon	95	41.8	140	Cape Verde	38.9
6	Denmark	57.6	51	Colombia	46.6	Sierra Leone	96	41.8	141	Trinidad and	38.9
7	Estonia	56.7	54	Vietnam	46.3	Kenya	97	41.7	142	West Bank and	38.8
8	Austria	56.2	52	Bosnia and	46.4	Nicaragua	98	41.6	143	Republic of	38.6
9	Latvia	56.1	53	Belarus	46.3	Cuba	99	41.6	144	Guinea	38.6
10	Slovenia	55.7	55	Serbia	46.3	Malawi	100	41.6	145	Turkmenistan	38.5
11	Portugal	55.5	56	Montenegro	46.2	Laos	101	41.5	146	Angola	38.3
12	Japan	55.3	57	Ukraine	46.2	Tanzania	102	41.4	147	Madagascar	38.3
13	Ireland	55.2	58	Fiji	46.1	Samoa	103	41.3	148	Oman	38.2
14	Lithuania	55.1	59	Solomon Islands	45.9	Burma	104	41.2	149	Zimbabwe	38.2
15	Germany	55.0	60	Moldova	45.8	Mexico	105	41.1	150	Antigua and	38.0
16	United Kingdom	54.8	61	Georgia	45.5	Cote d'Ivoire	106	41.1	151	Tunisia	37.9
18	France	54.4	62	North	45.3	Papua New	107	41.1	152	Algeria	37.8
17	Czech Republic	54.7	63	Turkey	45.3	Suriname	108	41.1	153	Mozambique	37.8
19	Netherlands	54.1	64	Timor-Leste	44.8	Senegal	109	41.0	154	St. Kitts and	37.7
20	Luxembourg	53.6	65	Brazil	44.8	Dominica	110	41.0	155	Bahamas	37.7
21	South Korea	53.2	66	Kazakhstan	44.7	Cambodia	111	41.0	156	Nigeria	37.6
22	Canada	53.1	67	Nepal	44.4	Honduras	112	41.0	157	Guinea-Bissau	37.5
23	Croatia	52.9	68	Bhutan	44.3	Ghana	113	40.9	158	Equatorial	37.3
24	Italy	52.3	69	Armenia	44.3	Namibia	114	40.8	159	Eswatini	36.9
25	Australia	52.3	70	Mongolia	44.3	Venezuela	115	40.7	160	Kuwait	36.9
26	Slovakia	51.9	71	Malaysia	44.3	Palau	116	40.7	161	Iran	36.9
27	New Zealand	51.9	72	St. Vincent and	44.2	Jamaica	117	40.6	162	Djibouti	36.9
28	Belgium	51.7	73	Bolivia	44.2	Micronesia	118	40.5	163	Chad	36.8
29	Poland	51.6	74	Maldives	44.1	Brunei	119	40.4	164	Egypt	36.7
30	China	51.0	75	Tonga	44.0	Morocco	120	40.4	165	Bahrain	36.6
31	Uruguay	50.9	76	Guyana	43.8	India	121	40.2	166	Burundi	36.6
32	USA	50.9	77	El Salvador	43.8	Botswana	122	40.2	167	Central	36.5
33	Spain	50.8	78	Kiribati	43.7	Cameroon	123	40.0	168	Mauritania	36.4
34	Albania	49.8	79	Kyrgistan	43.6	Jordan	124	39.9	169	Burkina Faso	36.3
35	Malta	49.6	80	Sao Tome and	43.6	Tajikistan	125	39.9	170	Aruba	36.0
36	Singapore	49.4	81	Thailand	43.6	Saudi Arabia	126	39.8	171	Niger	35.7
37	Romania	49.4	82	Vanuatu	43.5	Togo	127	39.8	172	Comoros	35.1
38	Hungary	49.4	83	Belize	43.5	Uganda	128	39.7	173	Pakistan	34.4
39	Costa Rica	49.3	84	United Arab	43.2	Qatar	129	39.7	174	Mali	34.3
40	Chile	48.6	85	Seychelles	42.8	Bangladesh	130	39.6	175	Haiti	34.3
41	Paraguay	48.4	86	Indonesia	42.8	South Africa	131	39.6	176	Yemen	34.0
42	Cyprus	48.0	87	Grenada	42.7	Liberia	132	39.4	177	Syria	33.9
43	Greece	47.9	88	Mauritius	42.6	Gambia	133	39.4	178	Afghanistan	33.8
44	Bulgaria	47.9	89	Uzbekistan	42.4	Lesotho	134	39.2	179	South Sudan	33.1
45	Israel	47.7	90	Philippines	42.3	Guatemala	135	39.1	180	Sudan	32.7

Focus 2023

Climate Change
The Gulf Countries
Scandinavia

2 Spotlight: Climate Change, Gulf Countries, Scandinavia

2.1 Sustainable Competitiveness & Climate Change

2023 is the year climate change is starting to hit home: heat waves, droughts, wild fires, storms, floodings. The climate data anomalies observed in 2023 – ocean temperatures, surface temperatures, the loss of ice sheets, the amount of rainfall - are so absurd that scientists describe them as "gobsmackingly bananas". If it does not get cooler quick – and it will not – it is only a question of time before global harvests of staple foods are affected.

For whatever reasons, humanity seems unable to react.

We already have all the technology required to go fossil free and stop adding more CO2 to the atmosphere by burning fossils. That technology is also a lot cheaper than the current fossil technology. We also have the economic tools to make a transition happening, fast: taxing fossils.

2.1.1 Climate Tax'n'Cash

We are taught it the markets resolve everything. Climate change is a market failure: the price of fossils does not include external costs, including the cost to the climate. It is so cheap to heat the planet.

The market solution is therefore to tax fossils. Heavily, because we are a little late. And because climate change is a global problem, it requires global solutions: a globally co-ordinated fossil tax. A global climate tax on fossils.

Taxing fossils will make energy-intensive products and service mere expensive, yes. There's a danger that the economy might be slightly disrupted by increasing energy cost, yes,

That is why **50% of the generated fossil tax revenues have to be immediately re-distributed to the people (climate cash**). Individual energy consumption is directly correlated to individual wealth. A majority of people therefore will have more cash in their hands, thanks to climate cash – money they will spend in the local economy. The economy will not be disrupted. On the contrary – climate cash serves as fuel to the economy.

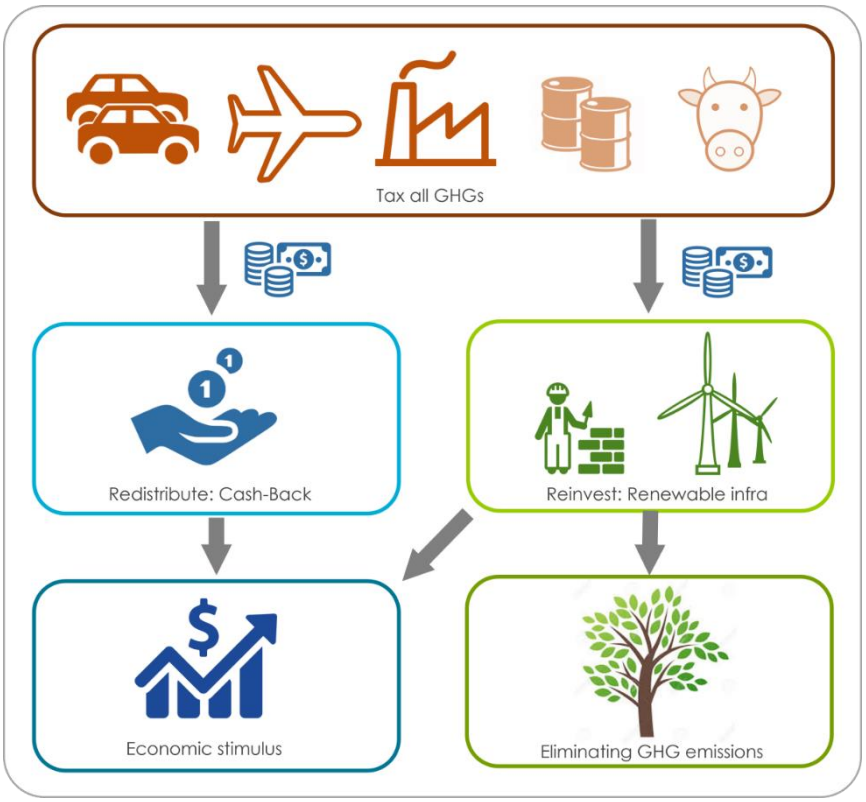
The other **50% of the fossil tax revenues are used to build renewable infrastructure** – generation, storage, grids, and replacing fossil with electricity-powered appliances. Transforming the energy system, and creating millions and millions of jobs.

Taxing fossils at U$ 100 per ton CO_2e, and then increase the tax by U$ 100 every year, would generate sufficient revenues to build a fossil free infrastructure by 2035.

Global energy cost would be reduced by 4-6% of global GDP.

The Climate Tax Scheme

1. ***All fossil fuels (oil/gas/coal)* and other climate-active substances (SF6, HCFPs, etc) are taxed**
2. **The climate tax is levied at the same rate per ton of CO_2, *EVERYHWERE*. Globally.**
2. The tax is gradually introduced to allow the economy to adjust. **The tax starts at U$100/ton CO_2 equivalent in year 1, increasing by U$100 every year to a maximum of U$ 1500/tCO_2e by year 15**
4. **The tax is levied *AND* redistributed at country level, at the point of emissions** (point of sale to the end-consumer, like a VAT)
5. **ALL tax revenues are redistributed, completely fiscal neutral**
    1. **50% as climate cash** directly to each individual, re-distributed regressively (low-income brackets receive higher cash-back) to balance the temporarily increasing energy bill
    2. **40% for building renewable energy** infrastructure (excluding nuclear, bio-fuels and carbon capture technologies), public transport, and the replacement of fossil-fuelled appliances
    3. **7% for re-forestation**, information, R&D, and mitigation
    4. **3% into a global fund** in support of the most affected and the least developed nations
6. Agriculture contributes 15-25% of global GHG emissions. **Meat and dairy products therefore need to be taxed according to their associated CO_2e emissions**
7. **Countries that do not participate in a global climate tax scheme are taxed a flat import tariff of at least 30% on *all* imports** (services and goods). These tariffs will be redistributed to the population as cash-back.



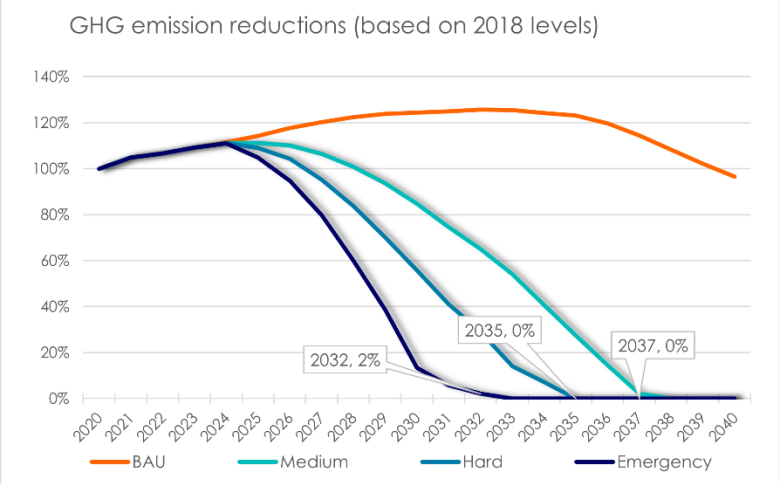
Climate Tax'n'Cash: emission reductions & cost savings

Energy-related CO2 emissions of climate tax'n'cash:

When applying a fossil tax of U$ 100/ten, increasing by U$ 100 annually, re-invested 50% as climate cash and 50% in renewable infra, there will be sufficient renewables to replace all fossils by 2035.

If the tax is higher or lower, real-zero will be reached earlier or later than 2035 accordingly.

Data source: historic data by IEA, BP, IRENA. Simulation by SolAbility based on projections by IEA, IRENA

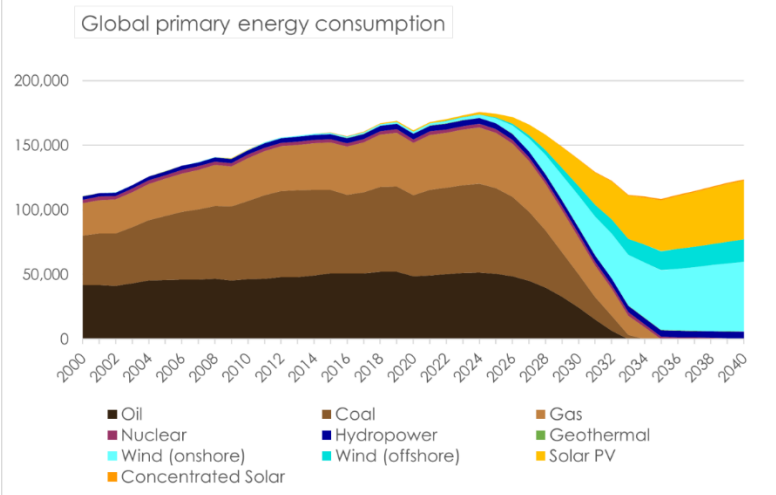


Climate Tax'n'Cash energy mix:

Fossil energy consumption will start to fall gradually after 2025, accelerating after 2028, by 2035, the global energy demand is covered by renewables.

Electricity is much more efficient than fossil-fired technology: electric appliances use less primary energy (all the energy contained in an energy carrier). The replacement of fossil through electric technology leads to lower total energy usage after 2027/2028.

Data source: historic data by IEA, BP, IRENA. Simulation by SolAbility based on projections by IEA, IRENA

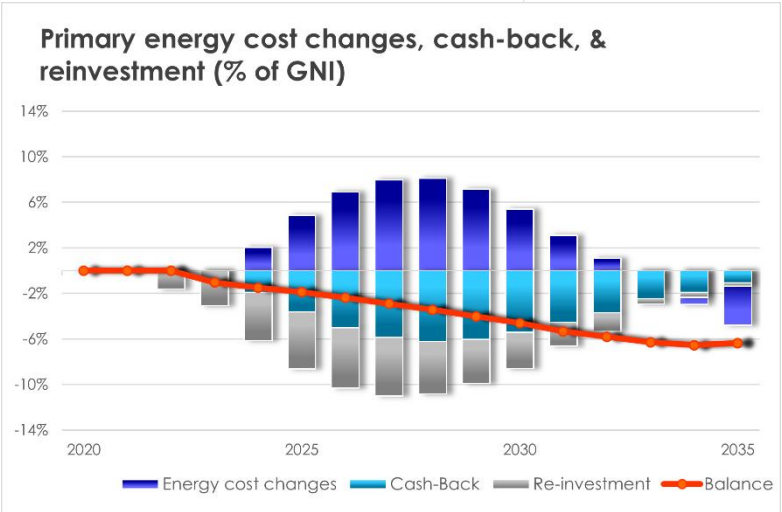


Fossil Tax Economics:

Due to direct re-investment of all tax revenues, the overall economic impacts of the proposed fossil tax will be positive from year one.

The cash-back will increase disposable income for 60-70% of the population, while investments in renewable infrastructure will create business opportunities and jobs. Global energy cost will be more than 50% lower after the transition, and no longer be subjected to geo-political volatility.

Simulation by SolAbility based on projections by IMF, World Bank, IEA, IRENA



For more details, please refer to the full simulation report here.

2.2 The oil exporting Gulf countries: ready for declining fossil demand ?

In China, demand for fossils is expected to peak in 2024; the International Energy Agency projects global demand to peak in 2025.

For countries that generated income from fossils that means decreasing and eventually disappearing income. The higher the fossil income proportion, the higher the exposure to decline in standard of life. The question is the timing of "eventually disappearing", and when the oil income decline is starting to seriously impact government revenues.

The global economy has seen significant dynamics of renewable technology markets, picking up pace in the replacement of fossils including (but not limited to) the road transport sector. With renewables becoming even more cheaper, deployment will only intensify. With declining demand, oil prices and profits decline. And that is before accounting for any potential future market policies in response to climate change.

- **In a business-as-usual world, oil revenues will start to decline drastically by 2030 at the latest. More likely after 2027.**
- **Oil revenues and profits will be marginal after 2035 compared to today**
- **Oil producing countries: how to replace the oil income?**

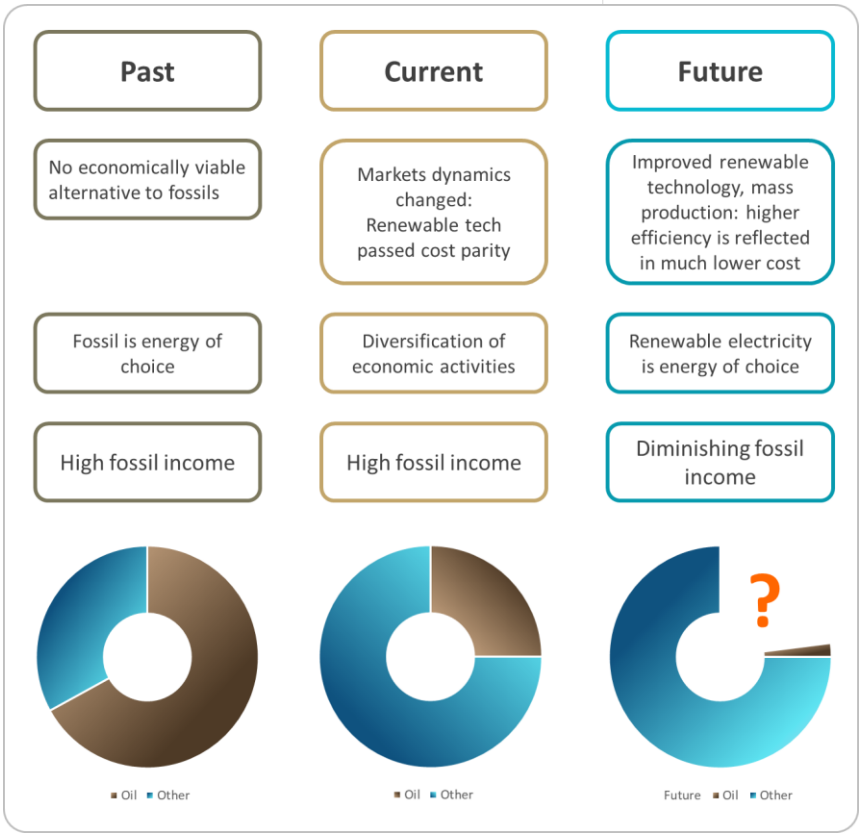
The countries in the gulf country co-operation – Bahrain, Kuwait, Oman, Qatae, Saudi Arabia and the United Arab Emirates (UAE) - generate between 15-40% of their GDP from the sales of fossils. Are they prepared to replace the oil income?

Oil Income in Gulf countries, past & future

Gulf countries, some a bi more than others – have invested oil income in other economic areas and have successfully developed their economies

Development of renewable technology, the markets and climate change suggest that oil income will be reduced and then marginalised in the near future.

If Gulf countries intend to maintain their current high standard of life, they urgently need to develop serious alternatives to completely replace fossil income. The sooner the better for themselves.



2.2.1 Background: renewables vs fossil consumption cost

Renewable technology is now cheaper throughout the board

Physics is simple, defined by the laws of nature. Converting fossil energy to heat and then to power (e.g. in the form of moving a car) has a physical maximal efficiency grad of around 35%. A higher efficiency grade is physically not possible according the thermodynamic laws. Electricity to power (movement) has an efficiency grad of 100%. Three times more than burning fossils.

Electricity-powered systems are 3 times as efficient, and now also drastically cheaper than equivalent fossil-burning systems, across all energy areas:

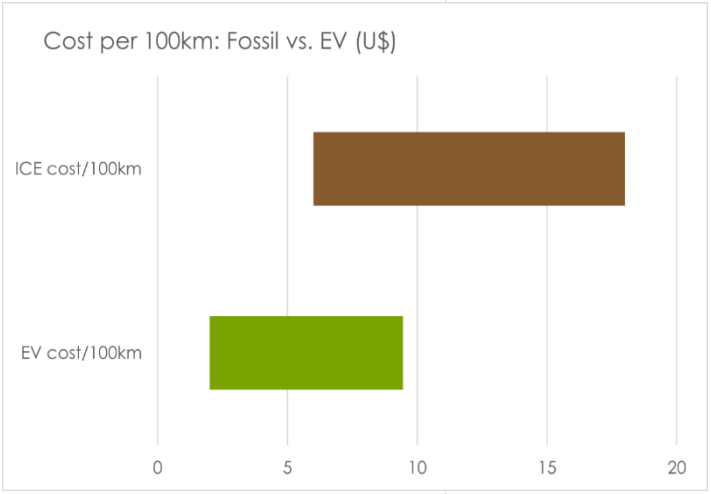
- transport,
- appliances
- residential heating & cooling.

Electric car vs gasoline car travel cost

The efficiency of an internal combustion engine is limited by the laws of thermo-physics, and can reach a maximum of 35%, In ICE cars, between 20-25% of the energy contained in the gasoline is turned into moving energy.

Electric motors directly convert energy to movement, and can reach up to 100% efficiency.

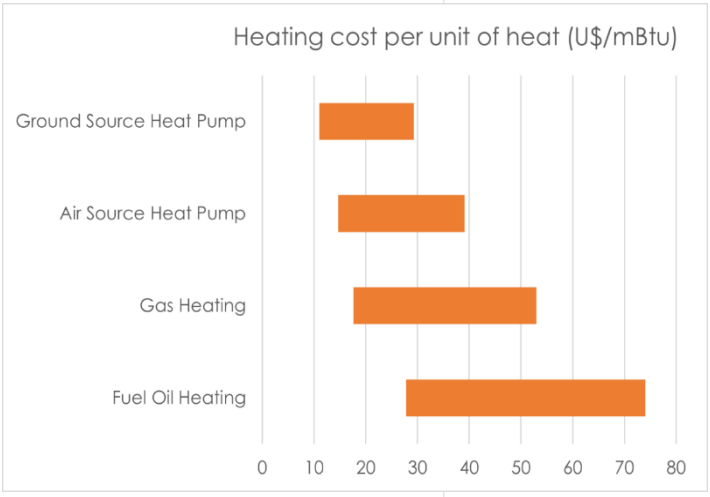
Data source: RMI, Bloomberg



Heat pumps vs oil-fired heating

The operating cost of a heating devices depends on a set of variables – electricity generation cost, taxes and/or tax breaks on fossil energy, and VAT.

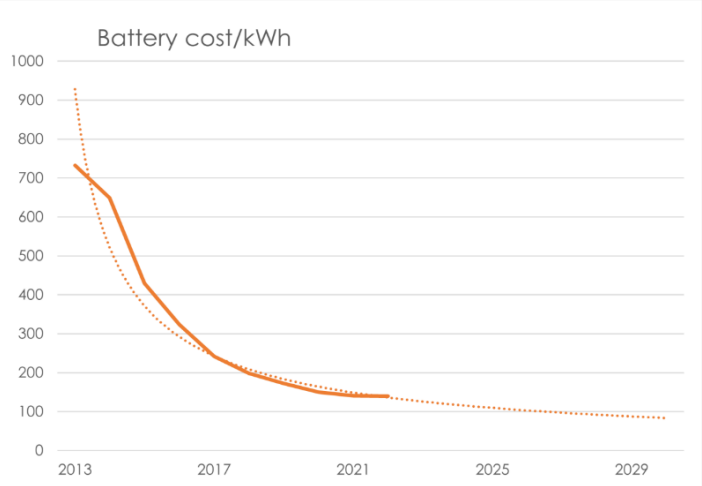
In the worst case, heat pump operating costs are comparable to fossil-fired heating systems. Under normal circumstances, heat pump's operating costs are significantly lower due to the higher factor between energy input and energy output.



Background: renewables vs fossil consumption cost (continued)

Battery costs

Battery cost have been reduced 4-fold since 2010, Given the global investment push into battery technology, costs are expected to decline further significantly. Making renewable electricity and electric road transport even more competitive.



Commercial aviation is the only area where fossils still enjoy a monopoly. Renewable technology is now a lot cheaper than fossil technology, not just by some percentage points, but by factors of 2 and 3 – and forecasted to further half costs within the next 5 to 10 years. The replacement of fossils is therefore happening either way. Economically correct speaking, fossils are toast.

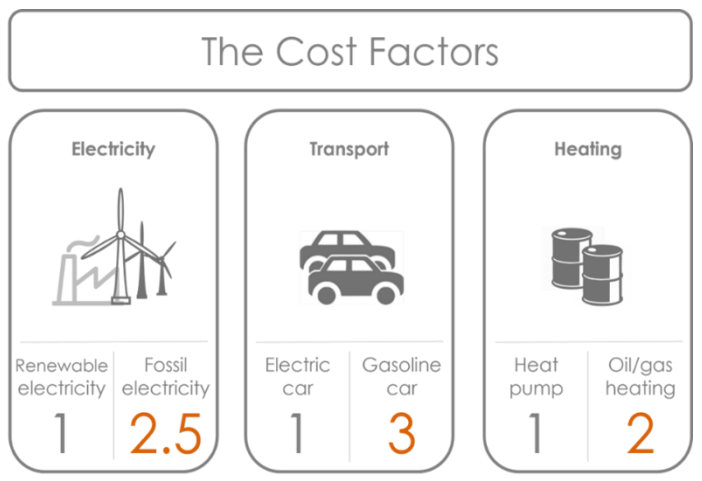
It is not a question if fossils will be replaced. Only when.

How fast the deployment of renewables and the replacement of fossils will happen is a political question. Climate change suggest that should happen a lot faster than it currently is. Climate policies could further accelerate the deployment of renewables and replacement of fossils.

Renewables are now a lot cheaper

New renewable technology – generation, heating, and transport - is now cheaper than fossil equivalents: by a factor of 2 or more. Investments driven by market dynamics are set to further improve technology and reduce costs in the near future – by around 50% in the next 5 to 10 years, putting a factor of 4 or more between renewable electricity and fossil. The economic argument is set.

Capital that seeks a return on investment is going to renewables. Fossils are no longer competitive.



Rise of renewable, decline of fossil

Gulf countries have successfully diversified their economies in logistics, finance, tourism, and hospitality amongst others, thereby reducing their dependency on fossil income. All countries have development visions that would further reduce dependency in the future.

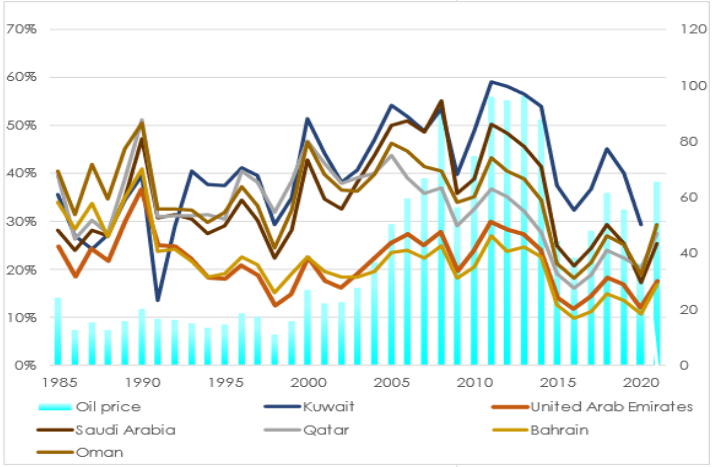
However, the currently formulated visions paths seem insufficient in the face of the expected rapid loss of fossil demand and income by 2035. At the same time, Gulf countries have built the foundation and resources to change the challenges to an opportunity.

15-40% of GDP is oil

Depending on the year (and the global market price of oil), the share of oil income on the GDP ranges from 15 to 40%

- For the UEA and Bahrain, the fossil share of GDP has been 15-20% for the last 10 years
- For Saudi Arabia, Qatar and Oman, 20-30%
- For Kuwait, 40%

These figures are even more extreme if we look at the share of fossil exports: between 50% (UEA) and 90% (Kuwait) of exports are generated from fossils. Making matters more complicated, most government revenues (the state budgets) are almost exclusively financed by fossil revenues.



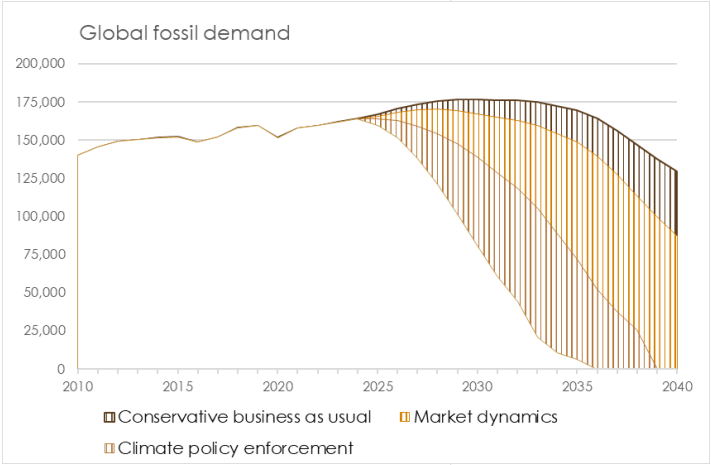
Data source: IEA, BP, World Bank

Oil demand decline: 40+% by 2035

Demand for oil is to peak in 2025 according to the IEA. With increasing speed of replacement of gasoline cars and fossil heating systems, demand will decrease further thereafter.

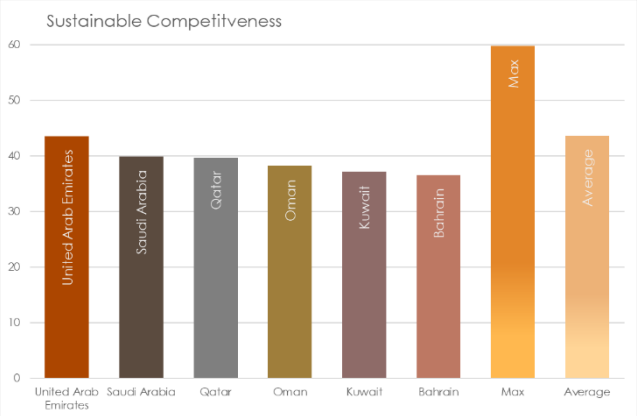
The pace of demand decline is driven by market dynamics, and accelerated by potential climate policies to reduce fossils - supply and demand are also affecting prices and margins.

Even under the most conservative scenario, Gulf countries need to replace between 10 and 20% of the current fossil income with different sources by 2040. More realistically, this number will be much higher and happening much earlier.

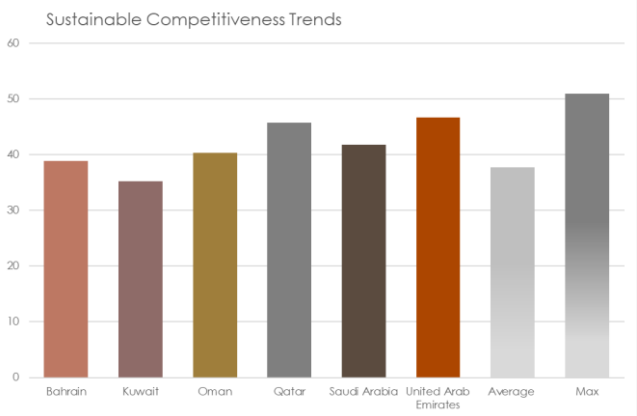


Data source: IEA, BP. Projections: IEA, SolAbility

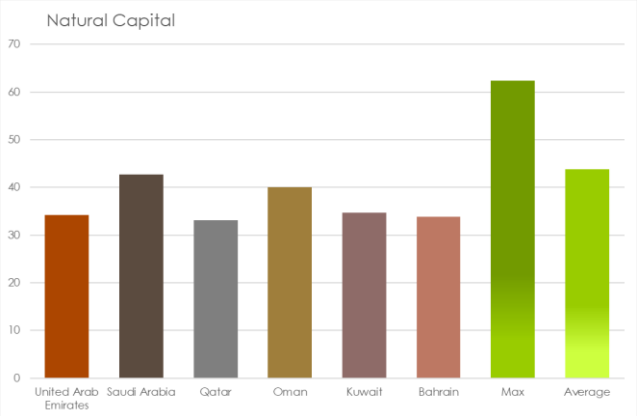
2.2.2 Gulf country's sustainable competitiveness



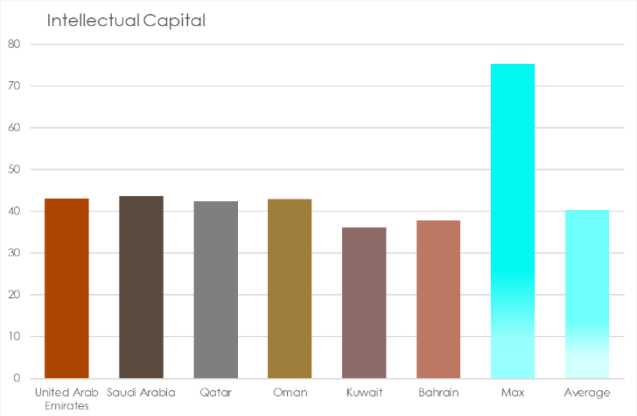
Sustainable Competitiveness
All GCC countries score below the global average. The UAE is ranked 84, Saudia Arabia 128, Qatar 132, Oman 148, Kuwait 161, and Bahrain 168



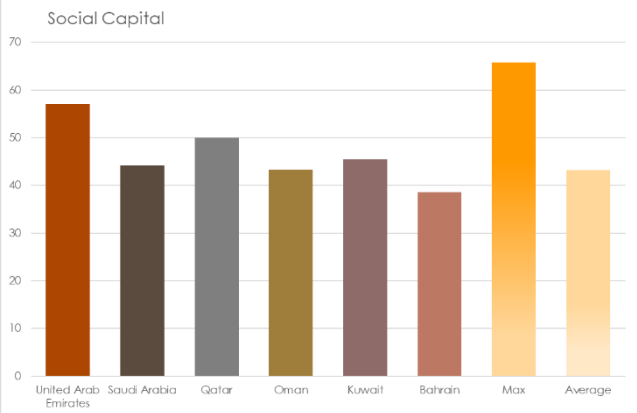
Trends
The picture is distinctively more positive when looking at developments: the UAE and Qatar are amongst the fasted improving nations globally



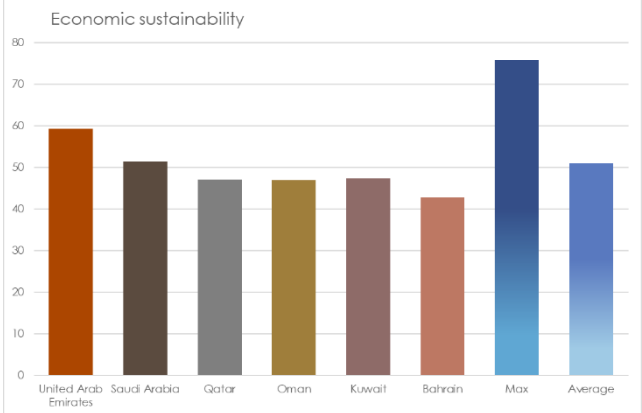
Natural Capital
Given the climatic characteristics of the region, it is not surprising that the GCC countries perform below the global average



Intellectual Capital
GCC countries are scoring slightly above the global average, but significantly below leading nations. However, trends suggest that improvements can be expected.



Social Capital
GCC score in line with global averages. The UAE however is amongst the global leading countries in social capital



Economic Capital

2.2.3 Gulf Co-operation Countries: Challenges & Opportunities

If the golf countries intend to maintain their current high standards of income and standard of life,

they need to make contingency plans to replace 80% of their fossil income by 2030, and more thereafter.

The challenges

- GCC countries need to replace a significant proportion (20-30%) of the national GDP within the next 5 -15 years
- As a consequence, nearly 100% of government revenues must be replaced – either by taxing people and businesses, or generating income through state-business. Either way, the coming changes represent a challenging shift, for governments and population alike
- While future development plans incorporate reducing reliance on fossil income, these plans remain vague – and are insufficiently timed in light of the pace of current developments
- Delaying the details and fine-planning of an alternative vision far beyond plans for 3 or more years most likely will result in significant loss of GDP and government revenues
- National oil/gas companies and their suppliers need to re-define their business model - or risk becoming marginalised
- GCC countries need a sustainable competitiveness vision & implementation strategy

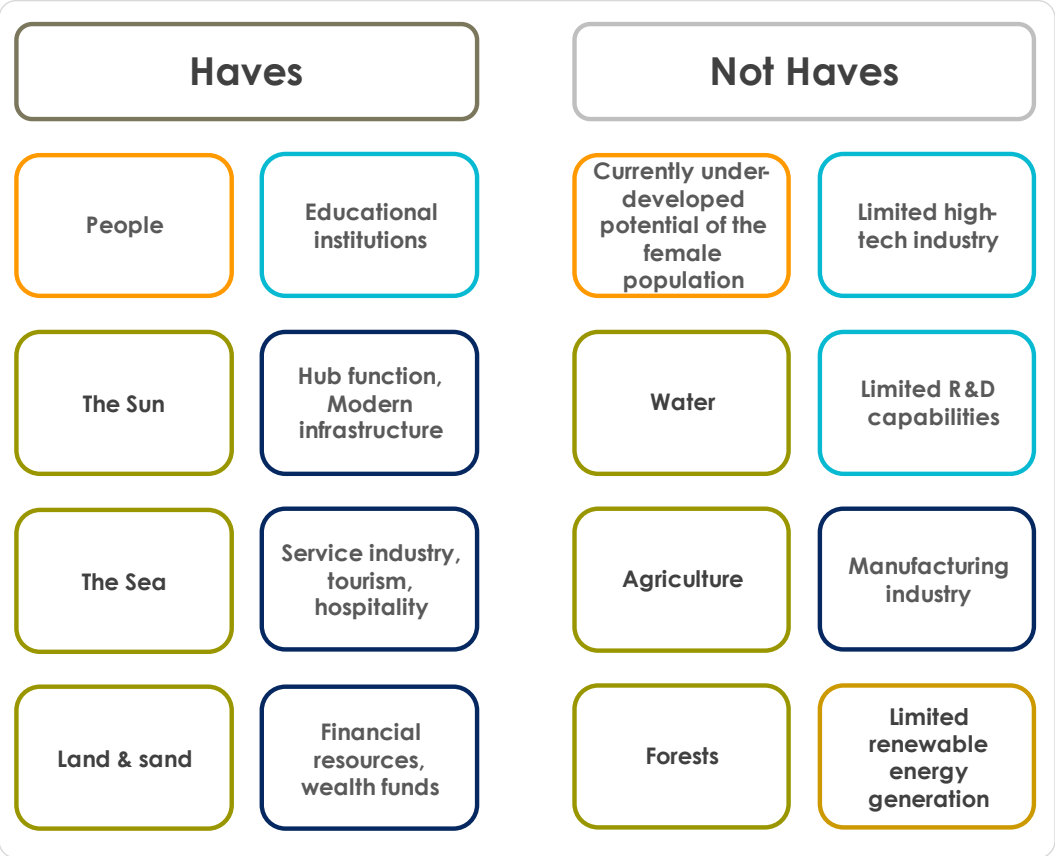
The opportunities

- Social Capital: GCC countries have invested significantly in Social Capital => a key element and basis of sustainable & competitive development in an innovation-driven global economy
- The path so far: the UAE has successfully diversified its economy over the past 30 years, proving that the reliance on fossil income can be overcome. Other countries in the GCC have also started diversification efforts, but are not yet that far.
- The location, part one: GCC is geographically and through investments a hub between Asia, Europe and Africa – potential that can further be exploited
- The location, part two: past investments in infrastructure and amenities have made the GCC a magnet for expats with high educational level. There is large pool of young & educated expats: intellectual capital and bright minds to facilitate the necessary transition – and more can be attracted
- Business opportunities: when technologies become redundant, new technologies emerge. Every technological transition (challenge) carries new opportunities in the new technology fields
- Capital reserves: GCC countries have accumulated large capital reserves and national funds. Financing the further sustainable competitiveness transition

Haves and not haves

The basis to develop alternatives, is a strength-weakness analysis: identifying – areas which the Gulf region countries already have developed, and areas that are (as of now) less competitive:

Gulf countries' current strengths and weaknesses



In an ideal case, the current "haves" can be used an combined to develop or improve the current "not-haves" to counter the threats (diminishing fossil income)-

Given the current specifics of Gulf countries, the following areas could potentially develop into key future revenue streams:

- Water
- New agriculture technologies
- Greening deserts
- Solar energy, solar fuels, solar plastics
- Tourism
- Culture
- Specific IT areas related to the key areas
- Global service providers

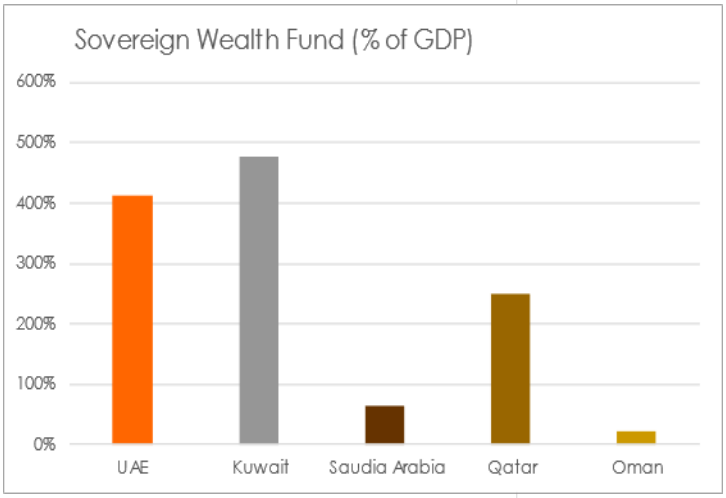
Capital Resources

Thanks to continuous demand for oil, Gulf countries have enjoyed a continuous flow of income over the last decades, nearly amounting to what economists call a "free lunch". Some of that income has been diverted for future use in sovereign wealth funds. Gulf countries therefore have considerable financial resource at their disposal to finance the required transition.

Gulf Countries' Sovereign Wealth Funds

Kuwait & UAE in good position

Kuwait's and the UAE's wealth fund exceed 400% of the respective countries annual GDP, putting these two countries in a particular strong position to finance a meaningful transition. Qatar's wealth fund is also more than 200% of its GDP, while Saudi Arabia's savings are around 60% of GDP.



Based on financial resources, Kuwait, the UAE and Qatar appear to be in the strongest position to finance effective transition, while Saudi Arabia – the World's largest exporter of fossils, and the region's largest country by population and economy – seems in a less advantageous position to finance a comprehensive and speedy transition.

Collaboration to identify key development areas

In collaboration of government agencies, universities and the private sector, Gulf countries should identify priority business and technology areas aligned with the respective country characteristics.

In a next step, cost-benefit analysis on a range of potential projects and development areas identified need to be conducted to facilitate informed resource allocation.

Resources and investments need to be allocated wisely in areas that promise the highest return on investment in terms of sustainable competitiveness.

The problem is: this needs to happen fast.

Potential alternatives include (but are not limited to):

Water tech

Water scacity is a key issue in the Golf region and beyond, and is likely to become a more pressing issue in many parts of the world. Future technologies related to water efficiency include

- **Desalination**
- **Smart irrigation**
- **Smart distribution**
- Water recycling & efficiency

New agriculture tech

GCC countries rely on imports to cover the needs of their population – arid hot regions are not particular fertile. In addition, climate change is making traditional agriculture significantly more volatile

- **Vertical indoor agriculture and aquacultures**
- **Low-tech sustainablr agriculture**
- **Cultured meat**
- **Synthetic diary product alternatives**:

Solar energy, fuels & plastic

For some specific usages and applications, fossils remain difficult to subsidise – in particular commercial aviation, and in the petro-chemicals, plastics and fertilizer industries. Non-fossil alternatives are emerging, however. Given the GCC's expertise with fossils, it seems manifest to capitalise on possible replacements in these areas to guarantee new income streams

- **Synthetic solar fuels**
- **Synthetic solar plastics**
- **Solar electricity**

R & D investment – fostering new enterprises

Developing a knowledge-based economy through investments in technology, innovation, and R & D can yield significant returns. High-quality universities and research facilities also attract students and seasoned researchers alike. Strong co-operation of government agencies, universities and the private sector can facilitate the development of start-ups, new technologies industries and income streams.

Global Service Providers

The Gulf countries have invested heavily in modern infrastructure, and are home to some of the World's most modern cities. Combined with the geographical location between Europe, Asia, and Africa should enable GCC's to attract globally active service providers – e.g. in the financial, insurance, or IT service development industries, creating jobs and income

Tourism, Hospitality, and Culture

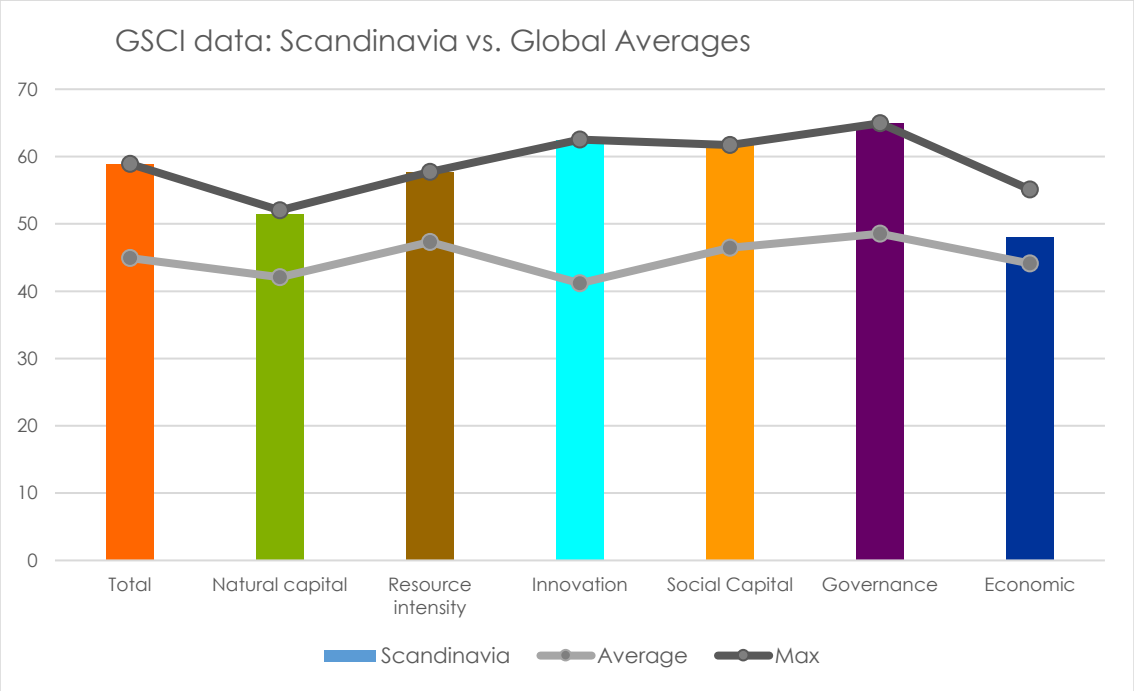
The Gulf region has tremendous potential for tourism due to its rich culture, investments in the cultural sector, its historical sites, and beautiful landscapes. By developing this sector further, Gulf countries could attract more tourists and generate revenue through hospitality, entertainment, and related services.

For a more detailed analysis, please refer to the detailed Report, How to replace 30% Oil Income? Available on the SolAbility website.

2.3 Why always Scandinavia?

Why is Scandinavia leading most country indexes?

Scandinavian nations have topped the Global Sustainable Competitiveness Index since its inception in 2012. Scandinavian countries also tend to be found on the top of non-financial rankings, such as the now defunct Happiness Index, life satisfaction, and environmental indexes. How come…? What are Scandinavian countries doing differently?



Scandinavian averages vs, other World regions across all GSCI scores, 2022

Based on GSCI data, we can see that Scandinavia tops in all dimensions that form sustainable competitiveness, except for economic sustainability, which suggests the success is based on a combination of factors.

Natural Capital & Resource Intensity: Scandinavia is comparably sparsely populated, and has large areas covered by forests, as well as abundant water resources, allowing for agricultural production despite the comparable cold climate, and the production of hydro-electricity – all countries (except Denmark) cover a large percentage of their domestic energy needs through CO2-free hydroelectricity. In combination with a highly developed high-tech industry leads to high scores in both Natural Capital and Resource Intensity/Efficiency

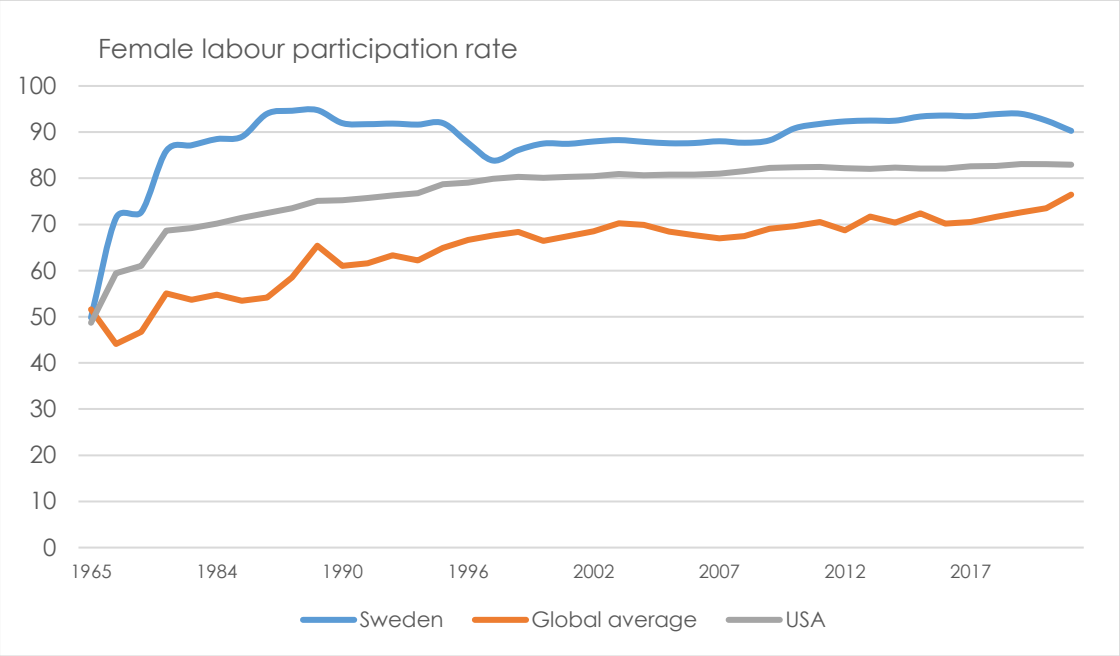
Everything else is somewhat more difficult to explain.

However, when looking for individual indicators in which Scandinavia has consistently excelled over time, there are three outstanding observations:

- Female integration in all aspects of life, including the labour markets
- Consistent outspending on education
- Comparable small income differences and disparity

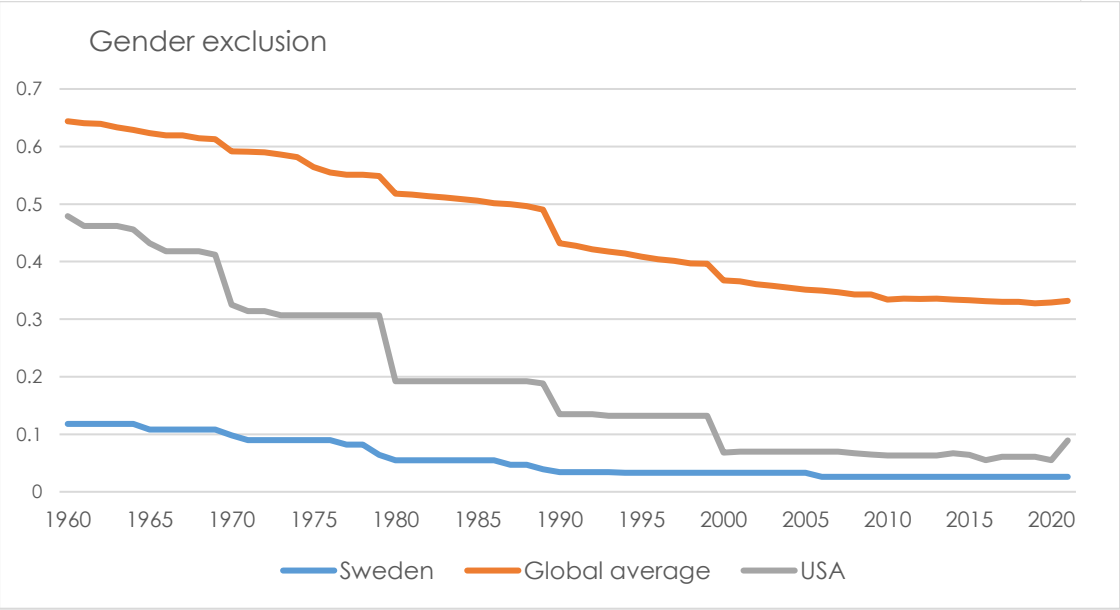
Female integration

Scandinavia is famous for a long-standing state-provided or supported child care, including day-care for small children. The provision of these facilities allowed new mothers to stay in the labour markets, which is reflected in female labour participation rates far above the global average and other developed economies since the 1960s:



Female labour participation rate, Sweden vs USA vs global average, 1968-2020, Data courtesy of ILO/World Bank 2022

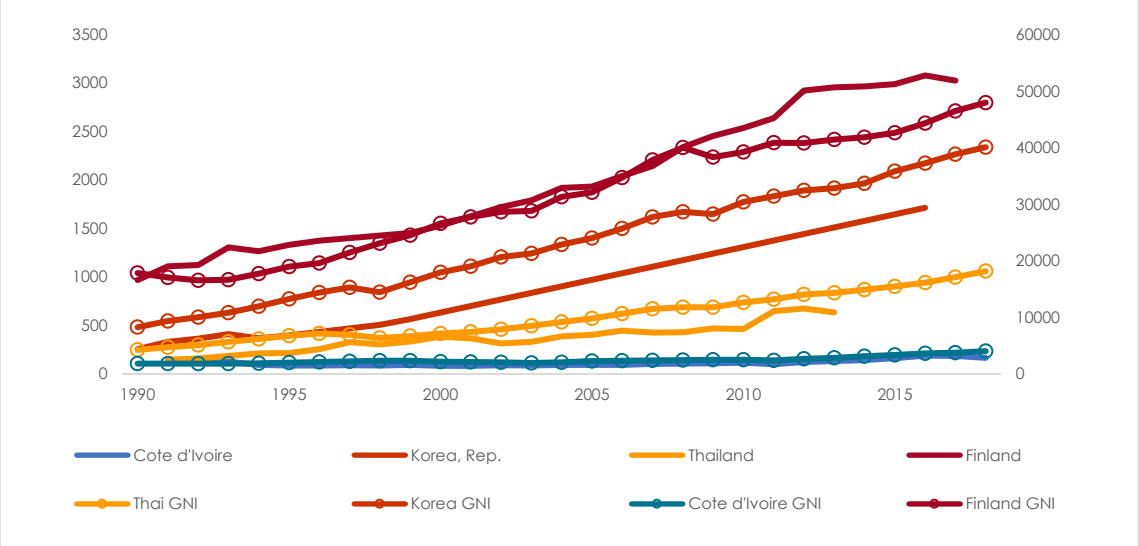
Maybe as a consequence of the above, or maybe due to cultural factors, the exclusion of women in Scandinavia is far below the global average, as shown in the gender exclusion indicators across all aspects of society (not limited to labour, but including politics, management, and the role of women in general):



Female exclusion index, 1960-2021, Sweden vs USA vs global average. Data courtesy of V-Dem Project

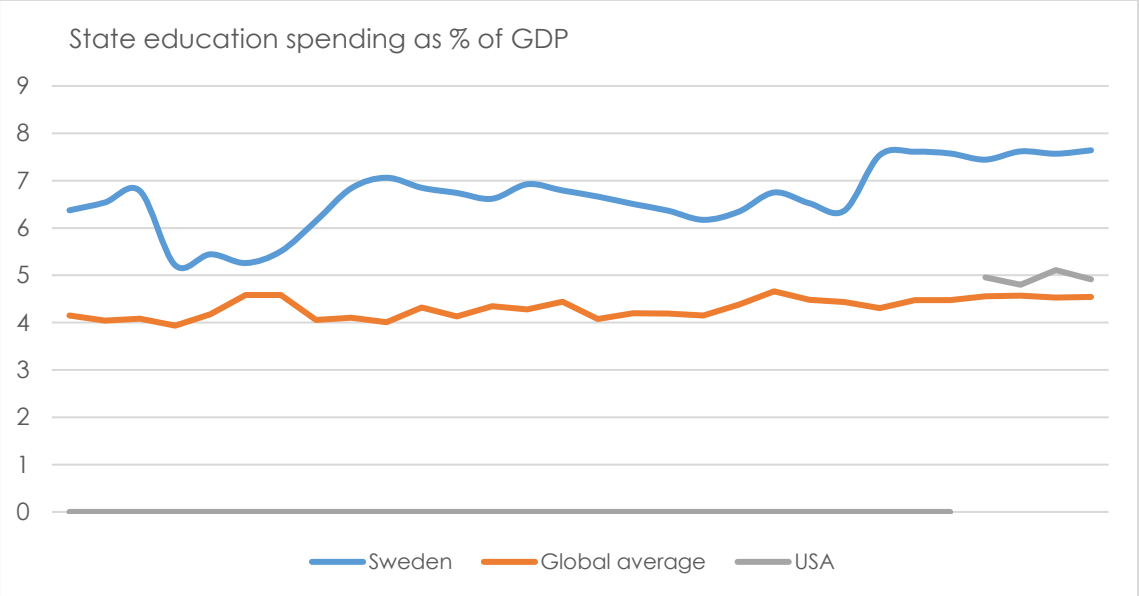
Public Education

Education is a key element for sustained and integrated development (see also the following section). The correlation between educational spending and growth can be observed globally:



Education spending and GDP/capita development for selected countries, 1980-2020 Data: World Bank, UNESCO

Scandinavian countries have long allocated considerable resources to public education. While the total per-capita spending (including private expenses) might be higher in some other countries in absolute terms, education in mostly free in Scandinavia.

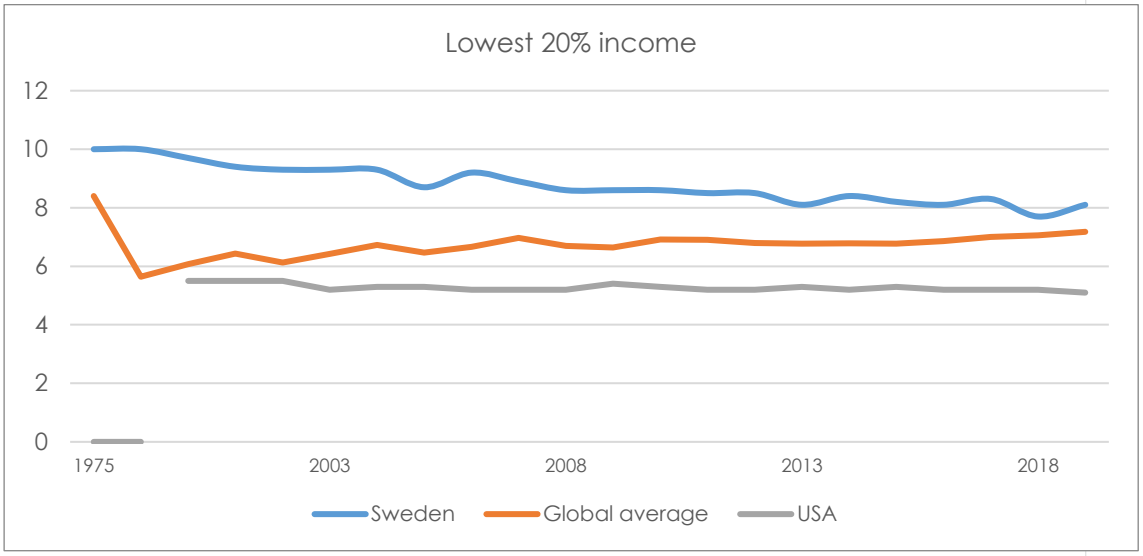


Government education spending, Sweden, USA, global average, 1980-2020. Data: World Bank

Sweden's government spending on education is almost double the World average -measured as percentage of GDP - and significantly higher than most other advanced nations. Higher education spending, combined with accessibility of education for all, leads to a higher qualified work-force, and more innovation down the line, as reflected in Scandinavia's high standing in the high-tech sectors.

Income disparity

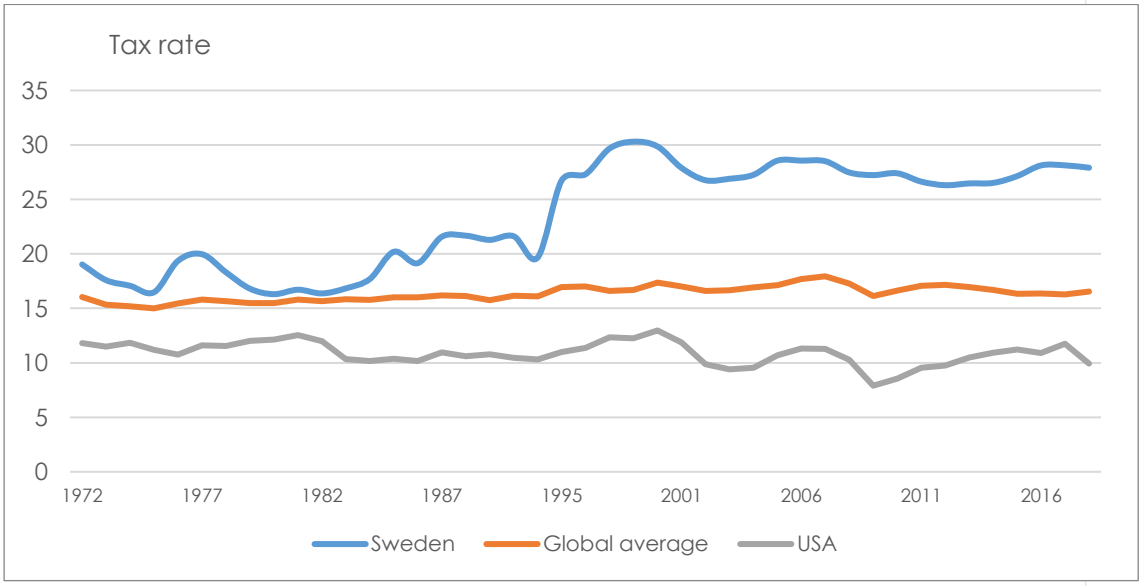
While the connection between GSCI, GDP and income disparity is complex – is one of them a precursor to the other? – the observation is clear: in comparison to the global average and most developed economies, income disparity in Scandinavian countries is significantly smaller.



Income share of the lowest 20%, Sweden, USA, global average, 1975-2020. Data: World Bank

Or is it the tax rate, in the end?

Apart from the above 3 observations, Scandinavia also has a significantly higher total tax rate compared to the global average as well as compared to most developed economies:



Tax rates, Sweden, USA, global average, 1970-2020. Data: World Bank

In the Scandinavia system, many services are state-provided and most free – education, child care, health care, explaining the higher tax rate. In addition, the state budget allows for the provision and maintenance of the built and technical infrastructure – and, as a side effect, leads to lower income disparity.

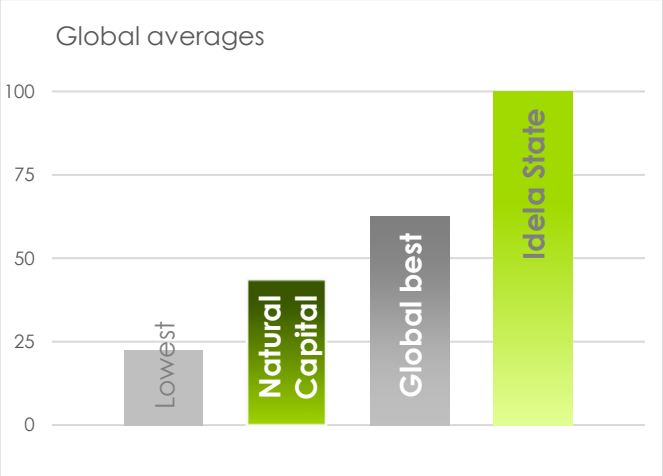
Natural Capital Index

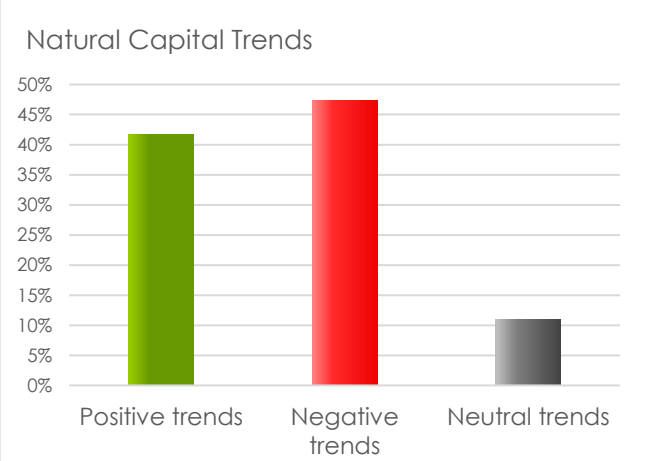
3 Natural Capital Index

Natural capital is the basis on which a country is built: the physical environment and climatic conditions, combined with the extent of human activities that have or will affect the natural environment. The Natural Capital of a country reflects its ability to sustain the population and the economy, now and into the future.

A nation's natural capital is a given value – it is as it is – i.e. there are limitations to human ability to improve or change the availability of natural capital. However, continuing exploitation and extension of human activities diminish the existing Natural Capital.

State of the World: Natural Capital





The average global score in Natural Capital is 45.2 – 55 points off the ideal state. Natural Capital is under stress, almost everywhere on the World. The large gap between the lowest (less than 25) and the best performance (72) reflects the unequal distribution of biodiversity across the globe.

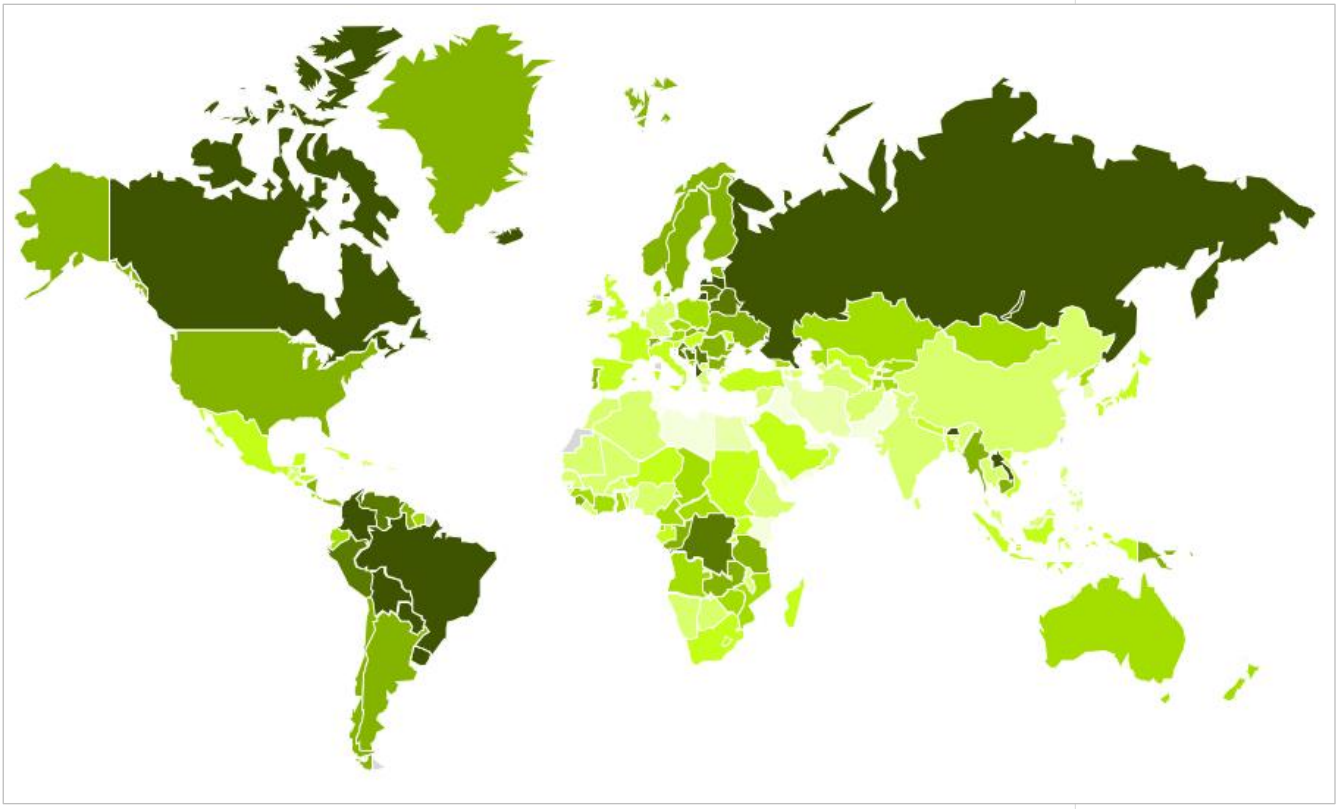
However, what is more worrying is the large percentage of negative trends across all indicators: 49% of all indicators show further deteriorating developments, while only 34% are positive. Given the absence of meaningful policies that protect the remaining biosphere and incentivises green alternatives and finally attaches a cost tag to collateral environmental destruction, we unfortunately have to expect a further decline of environmental parameters into the future – which in term will affect other pillars of sustainable competitiveness.

The Natural Capital Index 2023 – Key Take-aways

High-ranking countries are characterised by abundant water availability, the source of a rich biodiversity. Many of the highest scoring countries are located in tropical areas. While some of these countries currently may lack social, intellectual and governance capital, their Natural Capital would allow them to develop sustainable competitive economies over time. A certain correlation with the level of human activities and population density can also be observed: large countries with a comparably small population density and rich biodiversity tend to score higher.

- The Natural Capital Index 2023 is topped by Uruguay, followed by Paraguay, Iceland, Brazil and Canada
- South America nations, with their large biodiversity pool, score high in Natural Capital
- Scandinavian countries, thanks to low population density, high forest coverage and the availability of water are all ranked in the top 30s,
- The US is ranked 44
- African countries in the tropical belt are ranked fairly high – including the 2 Congo's, Gabon, and Cameroon
- The two most populated countries, China (116) and India (106) are both affected by a combination of arid climate, high population density and high natural depletion levels, raising concerns over those countries' ability to self-sustain their large populations in the long term.

Natural Capital Index World Map

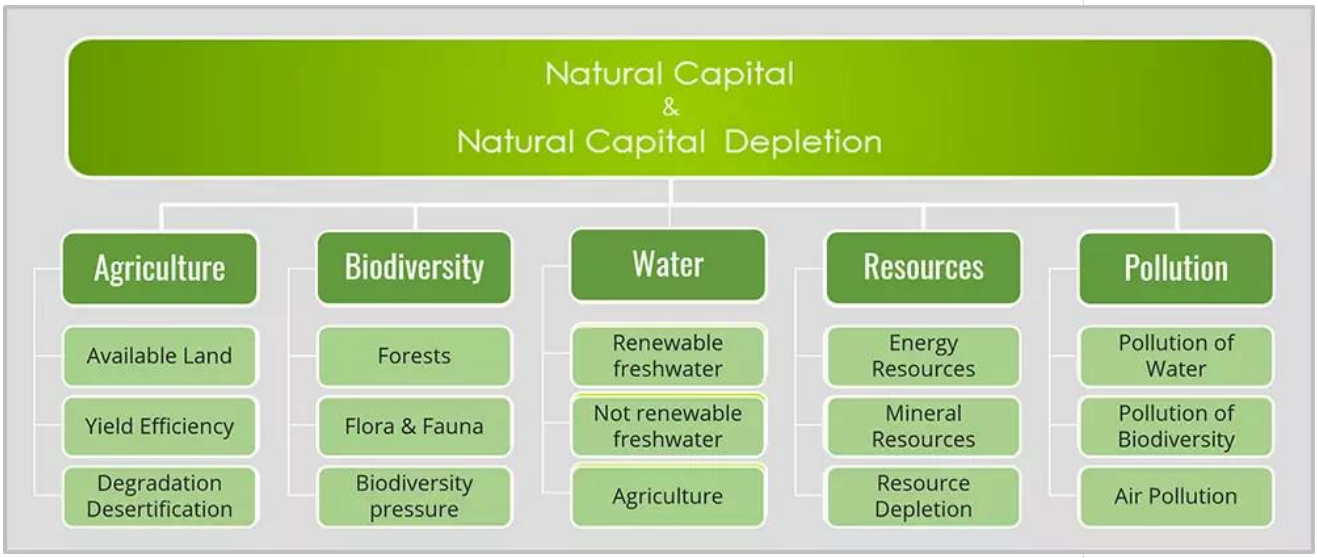


The Natural Capital World Map. Dark areas indicate high, light areas low levels of natural capital

Natural Capital Components

The Natural Capital of a country is defined by the natural physical environment. The Natural Capital model incorporates the essence of resources available that allow a country to be completely self-sustaining: land, water, climate, biodiversity, food production and capacity, as well as renewable and non-renewable energy and mineral resources. In addition, the level of depletion or degradation of those resources that could endanger future self-sufficiency are taken into account to reflect the full picture of the available natural capital.

The number of data points related to natural capital available from a variety of sources is nearly endless. The main challenge is to select the most relevant and meaningful indicators amongst the wealth of available data. In order to define meaningful and relevant, the core issues affecting the sustainable use of natural capital have been defined in the natural capital model below:



Key elements of competitiveness drivers in the Natural Capital Sub-Index

Natural capital indicators

Based on the definition of the key natural capital areas, data series are chosen as indicators that reflect the sustainable competitiveness of a country based on its natural resources (natural capital).

The indicators have been analysed for the latest data point available as well as their development over time, reflecting the current status and the future outlook in relation to the size and population of a country. In addition, indictors that measure the depletion or degradation of the natural resources have been taken into account. The combination of these indicators reflects the current status as well as the ability to sustain the population and the national economy.

As some of the above key areas are difficult to express in numerical values, some quantitative scores compiled by UN agencies have been used for certain indicators, such as biodiversity potential, resource depletion, and the ecological footprint.

Natural Capital Index 2023

Country	Rank	Score	Country	Rank	Score	Country	Rank	Score	Country	Rank	Score
Uruguay	1	62.4	Ecuador	46	49.9	Spain	91	43.6	Ethiopia	137	38.8
Paraguay	2	59.8	Kyrgistan	47	49.7	Mexico	92	43.3	Greece	136	38.8
Bhutan	3	59.7	Ireland	48	49.6	South Africa	93	43.1	Netherlands	138	38.8
Iceland	4	59.4	Suriname	49	49.4	Togo	94	43.0	Sri Lanka	139	38.7
Canada	5	59.3	Georgia	50	49.3	Lesotho	95	43.0	Thailand	140	38.6
Brazil	6	59.2	Equatorial	51	49.2	Japan	96	42.8	Mauritius	141	38.0
Latvia	7	58.9	Poland	52	49.2	Saudi Arabia	97	42.7	Palau	142	38.0
Bolivia	8	58.7	Cote d'Ivoire	53	49.0	Bangladesh	98	42.5	Benin	143	37.9
Colombia	9	58.5	Austria	54	49.0	Cuba	99	42.5	Antigua and	144	37.6
Russia	10	58.3	Zimbabwe	55	49.0	Sudan	100	42.4	Eswatini	145	37.4
Albania	11	57.6	Central African	56	48.9	Hungary	101	42.2	Iran	146	37.1
Laos	12	57.0	South Sudan	57	48.8	Tonga	102	42.0	Egypt	147	36.8
Lithuania	13	56.3	Cameroon	58	48.6	Azerbaijan	103	42.0	Malta	148	36.6
Peru	14	56.2	Kazakhstan	59	48.3	North	104	41.7	Micronesia	149	36.4
Democratic	15	55.9	Belize	60	48.3	Malawi	105	41.6	Seychelles	150	36.2
Venezuela	16	55.7	Denmark	61	48.3	India	106	41.5	Djibouti	151	36.1
Croatia	17	55.6	Czech Republic	62	48.1	Burundi	107	41.5	Vanuatu	152	35.9
Serbia	18	54.6	Angola	63	47.9	Turkmenistan	108	41.5	South Korea	153	35.9
Belarus	19	54.4	Tajikistan	64	47.7	Guatemala	109	41.2	Kiribati	154	35.5
Bosnia and	20	54.3	Mozambique	65	47.6	Nigeria	111	40.9	Libya	155	34.9
Sweden	21	53.8	New Zealand	66	47.5	Namibia	110	40.9	Kuwait	156	34.7
Romania	22	53.6	Chad	67	47.3	Mali	113	40.8	Gambia	157	34.5
Estonia	23	53.6	Costa Rica	68	47.2	Philippines	112	40.8	Kenya	158	34.4
Finland	24	53.5	Guinea	69	46.6	Luxembourg	114	40.8	Comoros	159	34.4
Nicaragua	25	53.4	Australia	70	46.2	Afghanistan	115	40.7	Haiti	160	34.3
Chile	26	53.4	Montenegro	71	46.1	Guinea-Bissau	117	40.6	United Arab	161	34.3
Panama	27	53.4	Mongolia	72	46.0	China	116	40.6	Bahrain	162	33.9
Norway	28	53.3	France	74	45.9	Germany	118	40.5	Maldives	163	33.7
Sierra Leone	29	52.9	Turkey	73	45.9	Liberia	119	40.4	Yemen	164	33.7
Guyana	30	52.6	United Kingdom	75	45.9	Syria	120	40.4	Pakistan	165	33.2
Cambodia	31	52.4	El Salvador	76	45.7	Dominican	121	40.4	Iraq	166	33.1
Argentina	32	52.1	Gabon	77	45.6	Burkina Faso	122	40.3	Timor-Leste	167	33.1
Fiji	33	51.6	Uganda	78	45.6	Malaysia	123	40.2	Qatar	168	33.1
Burma	34	51.6	Vietnam	79	45.6	Senegal	125	40.1	Eritrea	169	32.9
Slovakia	35	51.4	Indonesia	80	45.5	Jamaica	124	40.2	Cyprus	170	32.7
Switzerland	36	51.3	Italy	81	45.4	Oman	126	40.1	Sao Tome and	171	32.3
Tanzania	37	51.1	Nepal	82	45.0	St. Vincent and	127	39.9	Trinidad and	172	32.2
Ukraine	38	51.0	Madagascar	83	44.7	Armenia	128	39.9	Jordan	173	31.7
Republic of	39	50.8	Uzbekistan	84	44.5	Dominica	129	39.7	Tunisia	174	31.7
USA	40	50.6	Solomon Islands	85	44.4	Botswana	130	39.4	Bahamas	175	31.2
Papua New	41	50.6	Niger	87	44.2	Morocco	131	39.4	Belgium	176	31.2
Portugal	42	50.3	Honduras	86	44.3	Samoa	132	39.3	Israel	177	30.8
Zambia	43	50.2	Slovenia	88	44.2	Brunei	133	39.2	Grenada	178	30.0
Bulgaria	44	50.1	Moldova	89	44.0	Mauritania	134	39.0	Cape Verde	179	29.4
Ghana	45	50.0	Rwanda	90	43.7	Algeria	135	38.9	Singapore	180	29.0

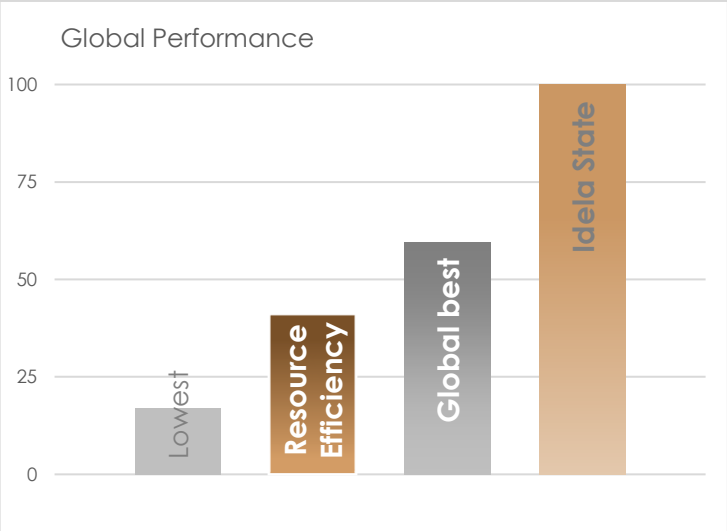
Resource Efficiency Index

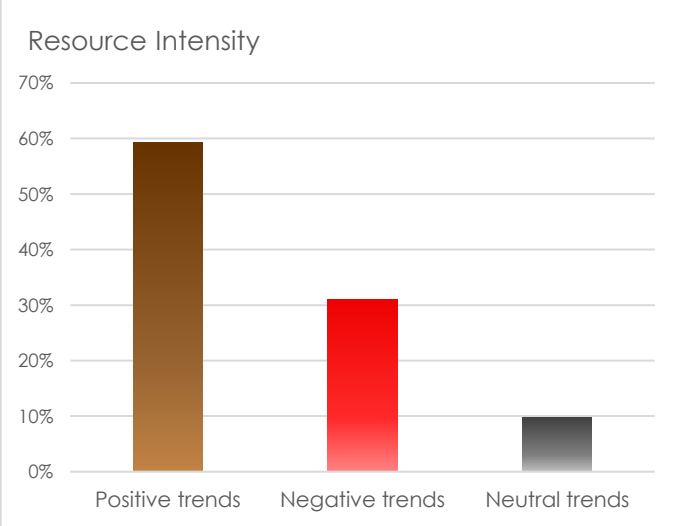
4 Resource Efficiency Index

Resource efficiency determines the ability to manage the available resource (natural capital, human capital, financial capital) efficiently – regardless of whether the capital is scarce or abundant. Whether a country does or does not possess resources within its boundaries (natural and other resources), efficiency in using resources is a cost factor affecting the competitiveness and in extension the wealth of nations. Over-exploitation of existing natural resources also affects the natural capital of the country, i.e. the ability of a country to support its population and economy with the required resources into the future.

In addition, non-renewable resources that are used today might be scarce and therefore expensive tomorrow, affecting competitiveness, wealth and the quality of life in the future. A number of factors are pointing to rising cost for resources in the future, in particular natural resources: scarcity and depletion of energy, water, and mineral resources, increasing consumption (particular in non-OECD countries), financial speculation on raw materials, and possibly geo-political influences. The objective of the resource efficiency index is therefore to evaluate a country's ability to deal with rising cost and sustain economic growth in the face of rising prices in the global commodity markets, manage scarcity of other natural resources (in particular: water), while protecting the natural environment.

State of the World – Resource Efficiency/Intensity





The global average in resource intensity is 46, while the highest achieved is 64. Even the best performing countries are a long way from being sustainable competitive, i.e. achieving net-zero in a circular economy. However, the large represents immense potential – for new business, and cost reduction.

On the positive side, roughly 60% of all indicators across all countries show positive development; we therefore can expect slow but steady improvements into the future. However, the current pace of changes is most likely insufficient to avoid climate disaster.

Measuring Resource Efficiency

The Resource Efficiency & Intensity Index measured both efficiency and intensity of a country's economy. Resource efficiency measures the economic efficiency represented by the amount of resources consumed per unit of value and wealth produced. The intensity measures the footprint of a country – per capita.

Key elements of competitiveness drivers in the Resource Efficiency Index

Vital natural resources include water, energy, and raw materials. Most of the resources used today are non-renewable, or only partly renewable: fossil-based energy, and minerals. Water aquifers and other natural products (e.g. wood) are renewable, as long as their capacity is not overused and the replacement patterns are not drastically altered, e.g. trough depletion, biodiversity loss, pollution, or climate change.

The availability of accurate global data is not as wide as in other criteria, particularly in terms of usage of raw materials. Other than steel & cement usage, reliable raw material usage statistics are not readily available on a global level. The focus is therefore on energy, energy sources, water, steel & cement usage, as well as GHG emission intensity and productivity. For the full list of indicators, refer to the methodology section.

Resource efficiency index indicators are evaluated both in terms of intensity (per capita) and efficiency (relative GNI). The scores are calculated relative to population (e.g. GHG per capita) as well as relative to economic output (e.g. energy consumption per GDP). Indicators measured against population (per capita) clearly favour countries with low resource and raw material consumption (i.e. less developed countries), while indicators scored relative to GDP measure economic efficiency.

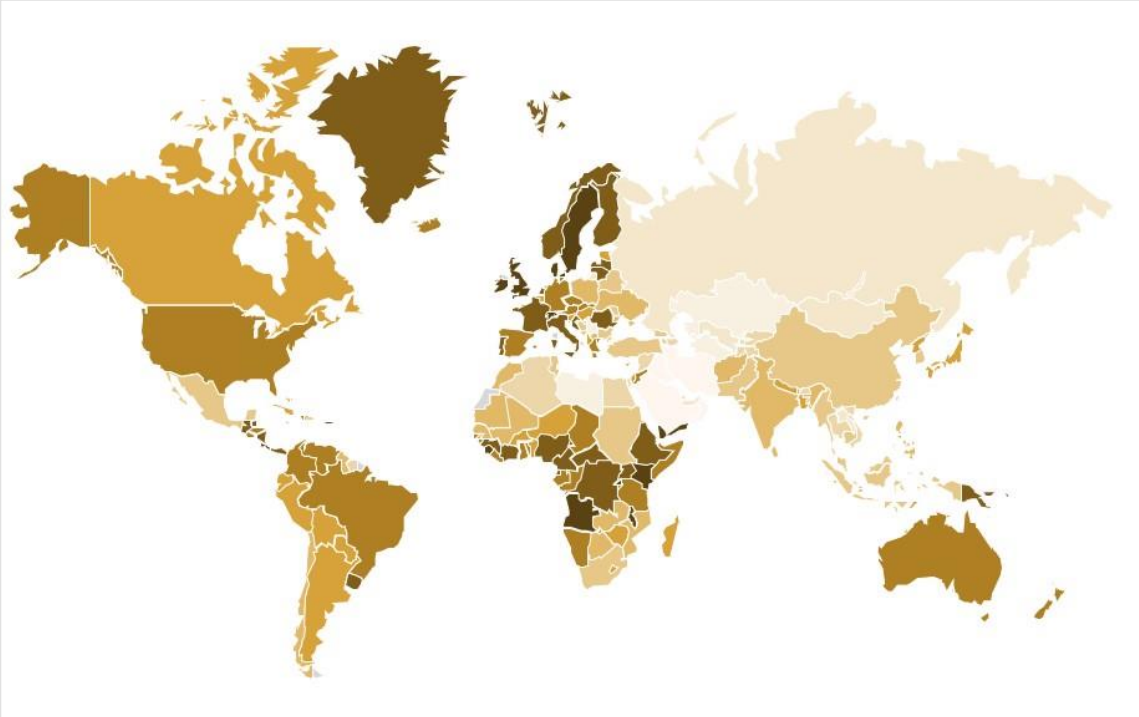
The resource intensity map shows that the resource intensity of less developed countries seems to be – generally speaking - lower than that of higher developed economies. However, indicators are measured both against economic output (GNI/GDP) and against per-capita performance. While the per-capita intensity is naturally lower in less developed economies, the per-output performance in efficient developed countries is lower than in the developing countries.

Resource Intensity/Efficiency Index – Key Take-Aways

The Resource Intensity & Efficiency Index is based on both per-capita measurement (intensity) and measurement against total economic output, per- e.g. water usage per unit of GDP (economic efficiency; resource usage per unit of value generated)). The countries with low resource consumption – per capita and per $ – generally achieve a higher score in terms of intensity, while industrial economies with modern efficient production processes general achieve a higher score in terms of efficiency. As a result, the Resource Intensity /Efficiency sees both developed and lesser developed nation on the top:

- When only looking at the Intensity Inex (per capita resource consumption) the lesser developed countries come out on top
- Ehn looking at the Resource Efficiency Index (per unit of value generated resource consumption), the highly developed economies transitioning to service economies come out on top
- The Resource Efficiency/Intensity Index is topped by Papua New Guinea, followed by the UK, followed by Sweden, Luxembourg, and Switzerland
- Congo, Sierra Leone, Malawi, and the Central African Republic are all ranked in the top 20
- Germany is ranked 44, the US 88, and Japan 92
- China is ranked 141 – both due to the presence of heavy industries, construction activities, but also due to low resource efficiency

The main implications of a high or low score in resource efficiency/intensity is related to stability and sustained economic growth. The global prices for raw materials and energy are subject to high volatility due to geo-political risks and hedging due to expected demand/supply imbalances. Countries in the lower ranks will face substantial higher costs and challenges to maintain their growth compared to countries with higher efficiency and intensity scores, as the volatility following the Russian aggression against Ukraine has shown.



The Resource Intensity World Map. Dark areas indicate low, light areas indicate high Resource Efficiency/Intensity scores.

Resource Efficiency Index 2023

Country	Rank	Score	Country	Rank	Score	Country	Rank	Score	Country	Rank	Score
United Kingdom	1	63.5	Netherlands	46	53.0	Albania	91	47.5	Sudan	134	41.1
Sweden	2	62.5	Togo	47	53.0	Liechtenstein	183	0.0	Montenegro	135	41.1
Costa Rica	3	61.4	Iceland	48	52.8	North Korea	183	0.0	Mexico	136	41.0
Sierra Leone	4	60.1	Chad	49	52.6	Bangladesh	92	47.4	Bosnia and	137	40.9
Switzerland	5	60.1	El Salvador	50	52.5	Bolivia	93	47.3	Burma	138	40.3
Ireland	6	60.0	Haiti	51	52.5	Benin	94	47.2	Turkey	139	40.2
Denmark	7	59.9	Guinea-Bissau	52	52.4	Zimbabwe	95	47.0	Moldova	140	40.0
Malawi	8	59.7	Austria	53	52.3	Japan	96	47.0	Micronesia	141	40.0
Kenya	9	59.7	Spain	54	52.2	Lesotho	97	47.0	Armenia	142	39.9
Yemen	10	58.5	Ghana	55	52.1	Estonia	98	47.0	Pakistan	143	39.8
Rwanda	11	58.1	Tanzania	56	52.1	Ecuador	99	46.8	Cambodia	144	39.4
Angola	12	57.9	Gambia	57	52.0	Timor-Leste	100	46.8	Tunisia	145	39.3
Djibouti	13	57.7	Somalia	58	52.0	Cuba	101	46.5	Malaysia	146	39.1
Uruguay	14	56.9	Gabon	59	51.9	Israel	102	46.5	West Bank and	147	38.9
Solomon Islands	15	56.7	Germany	60	51.8	Nepal	103	46.4	Georgia	148	38.8
Central African	16	56.3	Liberia	61	51.7	Hungary	104	46.4	Belarus	149	38.7
Latvia	17	56.2	Honduras	62	51.5	Peru	105	46.2	South Africa	150	38.6
Democratic	18	56.1	Eritrea	63	51.3	Burkina Faso	106	46.2	South Korea	151	38.5
Belize	19	55.9	Fiji	64	51.2	Poland	107	45.9	Lebanon	152	38.4
Cote d'Ivoire	20	55.7	Venezuela	65	51.2	Mali	108	45.8	Brunei	153	38.1
Panama	21	55.5	Malta	66	51.1	Eswatini	109	45.8	China	154	38.1
Luxembourg	22	55.2	New Zealand	67	51.1	Botswana	110	45.7	Mauritius	155	37.9
Comoros	23	55.2	Australia	68	51.0	Cyprus	111	45.5	Syria	156	37.9
Nigeria	24	55.2	Slovakia	69	50.9	Sri Lanka	112	45.0	Suriname	157	37.7
Finland	25	54.9	Vanuatu	70	50.7	Afghanistan	113	44.8	Thailand	158	37.5
France	26	54.8	Namibia	71	50.4	Ukraine	114	44.8	Egypt	159	37.5
Croatia	27	54.6	Brazil	72	50.4	Morocco	115	44.7	Azerbaijan	160	36.9
Romania	28	54.6	Czech Republic	73	49.9	Chile	116	44.4	Bahrain	161	36.7
Equatorial	29	54.5	Greece	74	49.8	Mozambique	117	44.4	Kyrgistan	162	36.7
Kiribati	30	54.4	Colombia	75	49.7	Zambia	118	44.4	Qatar	163	36.4
Lithuania	31	54.3	Sao Tome and	76	49.6	Senegal	119	44.0	Algeria	164	36.4
Dominica	32	54.1	Jordan	77	49.4	Bahamas	120	43.8	Tajikistan	165	36.1
St. Vincent and	33	54.0	Burundi	78	49.3	Samoa	121	43.7	Bhutan	166	35.9
Ethiopia	34	53.9	Republic of	79	49.1	Philippines	122	43.7	Vietnam	167	35.5
Greenland	35	53.9	USA	80	49.1	Mauritania	123	43.5	Singapore	168	34.6
Nicaragua	36	53.8	Tonga	81	49.1	Maldives	124	43.1	Kuwait	169	34.0
Papua New	37	53.7	Paraguay	82	48.9	North	125	43.0	Seychelles	170	33.8
Grenada	38	53.6	Canada	83	48.7	Guyana	126	42.6	Laos	171	33.6
Cameroon	39	53.6	Belgium	84	48.3	St. Kitts and	127	42.5	Uzbekistan	172	33.5
Norway	40	53.4	South Sudan	85	48.1	Jamaica	128	42.5	United Arab	173	33.1
Guinea	41	53.3	Cape Verde	86	48.0	India	129	42.1	Mongolia	174	33.0
Uganda	42	53.3	Slovenia	87	47.9	Indonesia	130	41.9	Russia	183	0.0
Italy	43	53.1	Madagascar	88	47.8	Dominican	131	41.6	Serbia	175	31.7
Guatemala	44	53.1	Argentina	89	47.7	Bulgaria	132	41.6	Kazakhstan	176	31.6

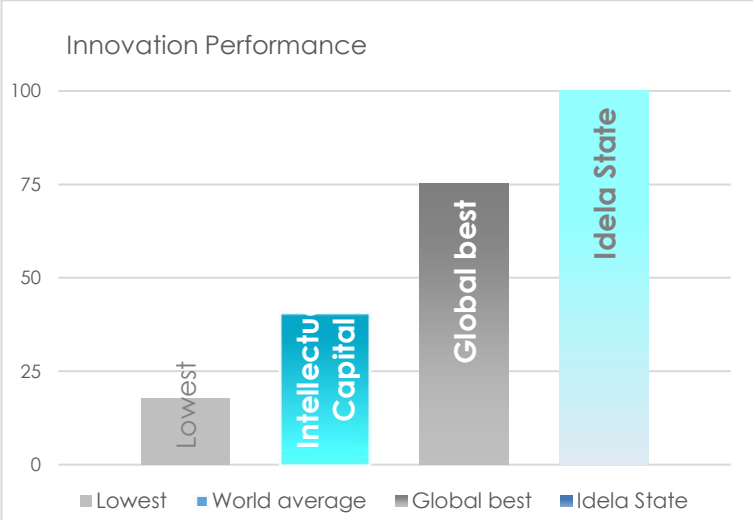
Intellectual Capital Index

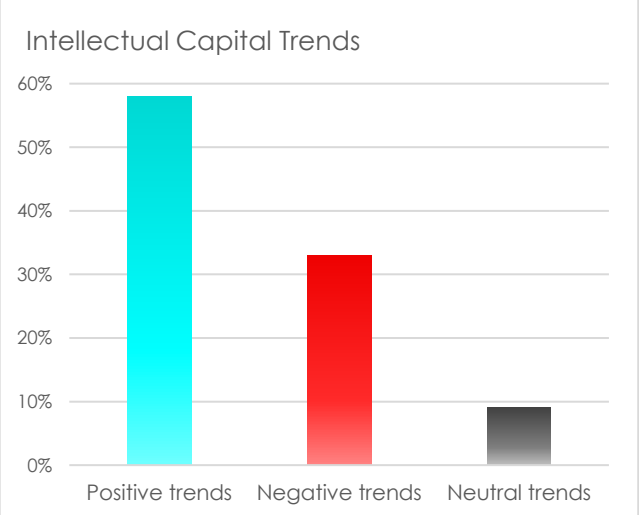
5 Intellectual Capital & Innovation Index

In order to create and sustain wealth, jobs and income for the population are required. Providing jobs requires producing goods and providing services that people or businesses, domestically or abroad, are willing to buy. This in turn requires products and services to be competitive in the global market in terms of quality and price. To maximise the domestic benefits, the value chain is ideally covered within the boundaries of a national economy - the largest share of adding value is contained in processing raw materials and/or parts to finished products.

Sustainable competitiveness therefore requires high R&D capabilities (based on solid education), and business entrepreneurship. In addition, sustained economic success requires a healthy balance between service and manufacturing sectors. Over-reliance on the service sector sooner or later leads to diminishing growth potential and loss of knowledge.

State of the World – Intellectual & Innovation Capital



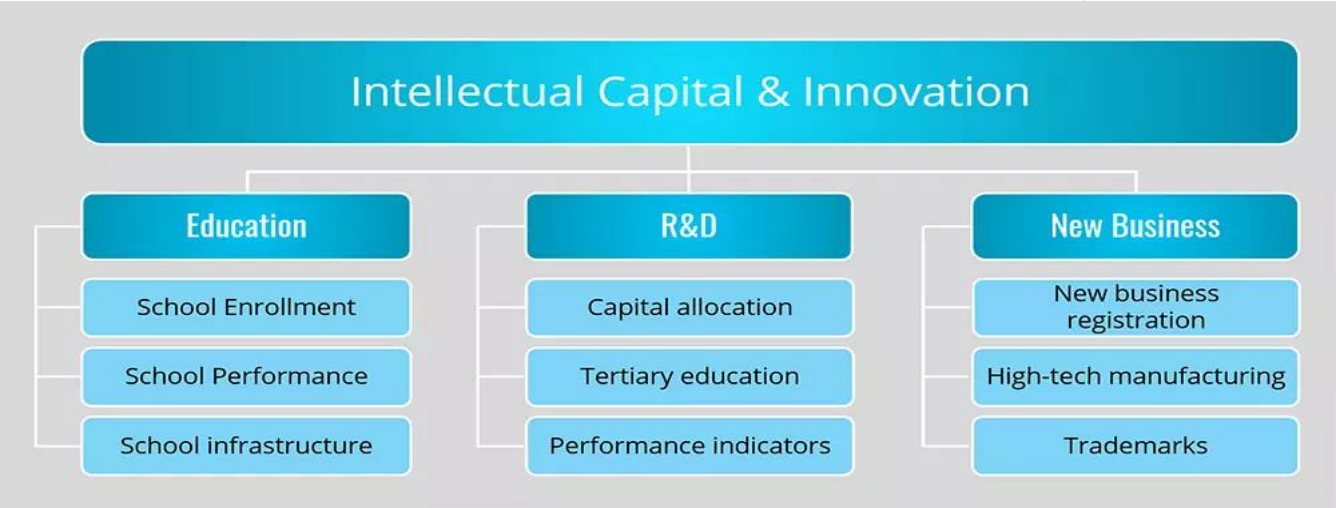


The global average in the Intellectual Capital Index is 40 – the gap to a perfect World 60. The Difference between low-performing countries (lowest: 15) and the highest score (78) is striking, and reflects – even stronger than a GNI comparison – the North-South reflect. A high score in the Intellectual Capital Index is the basis for future innovation and therefore economic success. Unfortunately, poor countries also score poor in Intellectual Capital, raising the fear that large parts of Africa will remain trapped in poverty.

On a positive note, nearly 60% of all indicators show positive development globally. However, most of the improvements seem to be originating in Europe, Far & South-East Asia, and Americas (excluding Central America).

Measuring Innovation

Quality and availability of education in the past are an indication for today's R&D and innovation capabilities, and today's education performance reflect future innovation capabilities. Strength and depth of R&D activities is the basis for the development of value-added technologies and services. Educational performance indicators are therefore highly important to estimate the ability for sustained innovation and competitiveness.



Key elements of competitiveness drivers in the Intellectual Capital (innovation capabilities) Sub-Index

Additional indicators include performance data on R&D activities and new business development indicators.

Further indicators relate to the actual business entrepreneurship – new business registration, trademark applications, and the health of the balance between agricultural, industrial and service sectors of an economy.

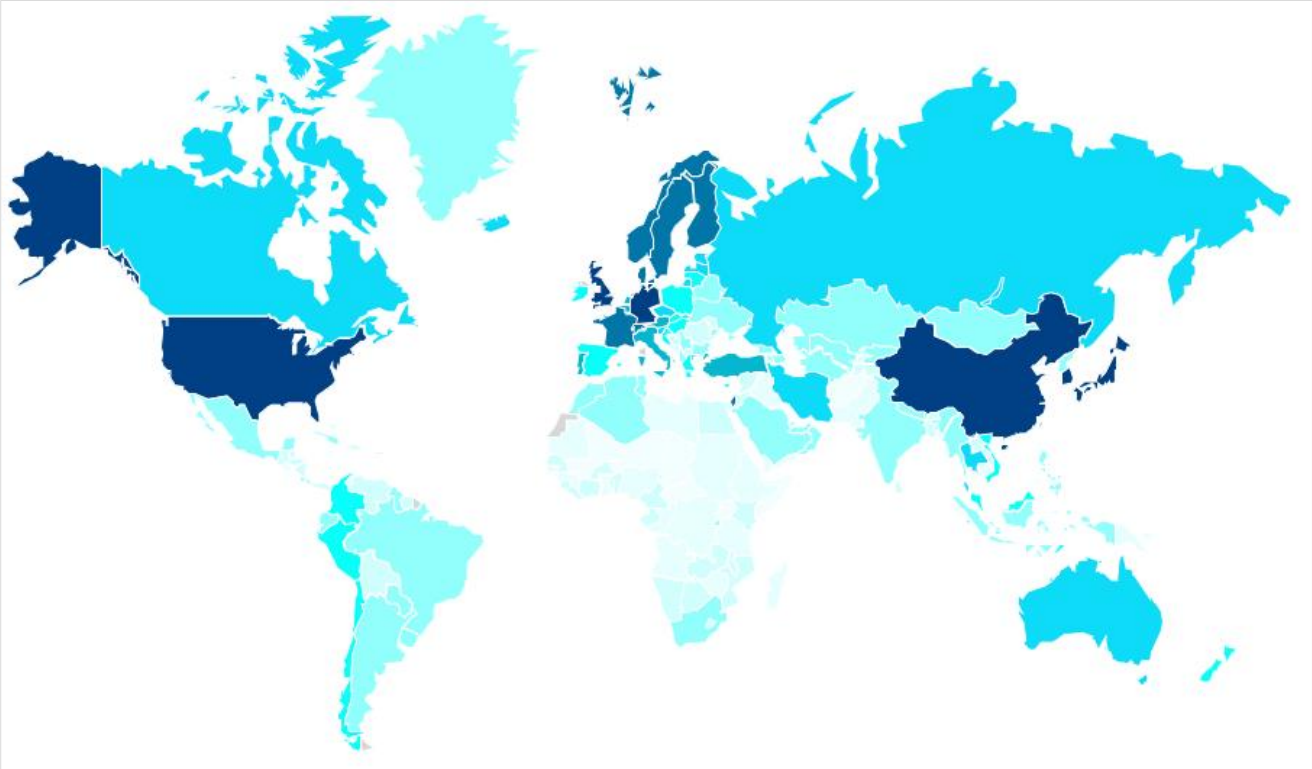
All indicators used to assess the innovation capability and sustainable competitiveness have been scored against size of the population and/or against GNI in order to gain a full picture of the competitiveness, independent of the size of a country. In addition, developments (trend analysis) of performance indicators have also been taken into account.

For the full list of indicators used, please refer to the methodology section.

The Intellectual Capital Index 2023

Countries with a high score in this ranking are more likely than others to develop (or sustain) successful economies through research and know-ledge driven industries, i.e. high-value added industries, and therefore achieve higher growth rates. Key observations include:

- The Innovation ranking continues to be topped by South Korea – by a considerable margin.
- China is ranked 3, the US 7
- North-Eastern Asian nations (S. Korea, China, Japan, Singapore) dominate the intellectual capital sub-index of the GSCI.
- North-East Asia trend show a faster development than their counterparts in "The West"
- Scandinavian Nations are all within the top twenty, as is Israel
- The UK is ranked 5, Germany 6
- Brazil is ranked 70, and India 84.
- Morocco (54) and South Africa (59) are the highest ranked nation on the African continent
- Most of Africa is unfortunately still underperforming in the global intellectual capital comparison, raising fear of prolonged entrapment in poverty



The Intellectual Capital World Map. Dark areas indicate high, light areas low availability of Intellectual Capital

Intellectual Capital Index 2023

Country	Rank	Score	Country	Rank	Score	Country	Rank	Score	Country	Rank	Score
South Korea	1	74.4	Brazil	46	45.9	Qatar	91	36.6	Lesotho	136	27.4
Japan	2	68.7	Croatia	47	45.8	Dominica	92	36.4	Senegal	137	27.3
China	3	68.1	Peru	48	44.1	Philippines	93	36.4	Trinidad and	138	27.0
United Kingdom	4	67.0	Colombia	49	44.0	Suriname	94	35.9	Libya	139	26.8
Germany	5	64.4	Malaysia	50	44.0	St. Vincent and	95	35.8	Gabon	140	26.8
Sweden	6	64.1	Kiribati	51	43.6	Romania	96	35.4	Zimbabwe	141	26.7
Switzerland	7	62.8	Greece	52	43.4	South Africa	97	35.2	Honduras	142	26.4
Norway	8	62.7	United Arab	53	43.3	Nepal	98	35.1	Republic of	143	26.4
Israel	9	62.3	Vietnam	54	43.2	Vanuatu	99	34.5	Cambodia	144	25.7
Finland	10	61.7	Solomon Islands	55	43.1	Bahrain	100	34.2	Cote d'Ivoire	145	25.4
Denmark	11	61.6	Samoa	56	43.1	Belize	101	34.2	Guatemala	146	25.2
France	12	61.5	Belarus	57	42.7	Sri Lanka	102	33.9	Cameroon	147	25.1
USA	13	60.8	Fiji	58	42.4	Guyana	103	33.7	Liberia	148	25.1
Singapore	14	59.7	Tonga	59	42.3	North	104	33.6	Papua New	149	25.0
Netherlands	15	58.9	Kyrgistan	60	41.7	Armenia	105	32.8	Bangladesh	150	24.8
Austria	16	58.5	Tunisia	61	41.5	Bosnia and	106	32.6	Jordan	151	24.6
Iceland	17	58.3	Serbia	62	41.4	Yemen	107	32.6	Burkina Faso	152	24.3
Portugal	18	57.3	West Bank and	63	41.2	Turkmenistan	108	32.3	Djibouti	153	24.2
Belgium	19	57.2	Kazakhstan	64	41.1	Lebanon	109	32.3	Haiti	154	24.0
Slovenia	20	56.5	Oman	65	41.1	Jamaica	110	32.1	Ethiopia	155	23.7
Czech Republic	21	55.5	Bulgaria	66	40.9	Kenya	111	32.0	Burundi	156	23.2
Iran	22	54.9	Micronesia	67	40.7	Tajikistan	112	31.4	Sudan	157	23.2
Italy	23	53.8	Morocco	68	40.7	Cape Verde	113	31.2	Malawi	158	23.1
Estonia	24	53.6	Mexico	69	40.7	St. Kitts and	114	31.1	Mozambique	159	22.6
Turkey	25	52.6	Algeria	70	40.0	Seychelles	115	30.6	Nigeria	160	22.5
Poland	26	52.4	Mongolia	71	39.7	Dominican	116	30.6	Pakistan	161	22.2
Malta	27	52.4	Uruguay	72	39.7	Namibia	117	30.4	Gambia	162	22.1
Canada	28	52.3	Georgia	73	39.7	Eswatini	118	30.2	Democratic	163	22.0
Luxembourg	29	51.0	Indonesia	74	39.3	Bhutan	119	30.0	Mali	164	21.4
Latvia	30	50.9	Costa Rica	75	39.3	Laos	120	29.6	Tanzania	165	21.1
Thailand	31	50.7	Ecuador	76	39.3	Botswana	121	29.5	Somalia	166	20.7
Lithuania	32	50.1	Brunei	77	38.9	El Salvador	122	29.4	Guinea-Bissau	167	20.6
Slovakia	33	49.9	Sao Tome and	78	38.8	Venezuela	123	29.4	Comoros	168	20.5
Australia	34	49.7	Azerbaijan	79	38.7	Syria	124	29.3	Benin	169	20.5
Cyprus	35	49.7	Argentina	80	38.6	Iraq	125	29.3	Central African	170	20.4
New Zealand	36	49.1	Moldova	81	38.5	Sierra Leone	126	29.0	Niger	171	20.2
Greenland	37	49.0	Uzbekistan	82	38.3	Grenada	127	28.9	Zambia	172	20.0
Ireland	38	48.8	Egypt	83	38.2	Togo	128	28.8	Mauritania	173	19.9
Timor-Leste	39	47.9	Bolivia	84	38.0	Nicaragua	129	28.8	Equatorial	174	19.6
Hungary	40	47.9	Burma	85	37.4	Panama	130	28.7	Chad	175	19.3
Ukraine	41	47.3	Cuba	86	37.4	Rwanda	131	28.2	Guinea	176	18.7
Spain	42	47.2	Albania	87	37.1	Maldives	132	27.9	South Sudan	177	18.5
Mauritius	43	46.9	Kuwait	88	36.8	Paraguay	133	27.8	Eritrea	178	18.4
Chile	44	46.7	India	89	36.7	Ghana	134	27.6	Angola	179	17.6
Saudi Arabia	45	46.6	Montenegro	90	36.6	Bahamas	135	27.4	Afghanistan	180	16.9

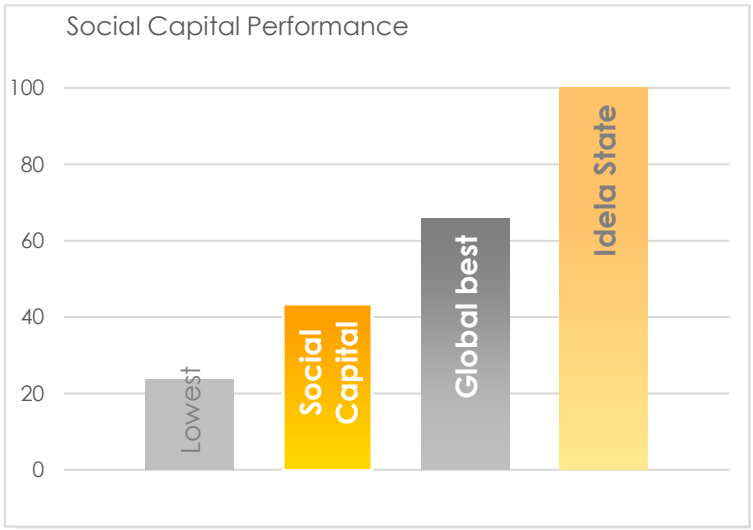
Social Capital Index

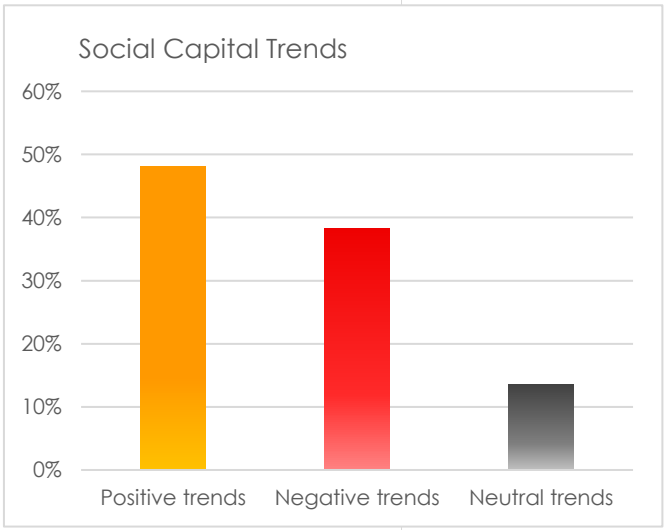
6 Social Capital Index

The Social Capital of a nation is the sum of social stability and the well-being (perceived or real) of the entire population. Social Capital generates social cohesion and a certain level of consensus, which in turn delivers a stable environment for the economy to thrive, and prevents natural resources from being over-exploited. Social Capital is not a tangible value and therefore hard to measure and evaluate in numeric values. In addition to local historical and cultural influences, the social consensus in a specific society is affected by several factors: health care systems and their universal availability/affordability (physical health); income and asset equality, which are correlated to crime levels; demographic structure (to assess the future generational balance within a society); freedom of expression and freedom from fear; and the absence of violent conflicts that are required for businesses to be able to generate value.

While a direct connection of social cohesion to creating wealth and sustain economic development might be difficult to establish scientifically, a certain degree of equality, adequate health systems, freedom from fear and equal opportunities (without which no American Dream ever would have been possible) are pre-requisites to achieve the same. The absence or deterioration of social cohesion in turn leads to lower productivity (health), rising crime rates, and potentially social unrest, paralysing economic development and growth.

State of the World – Social Capital



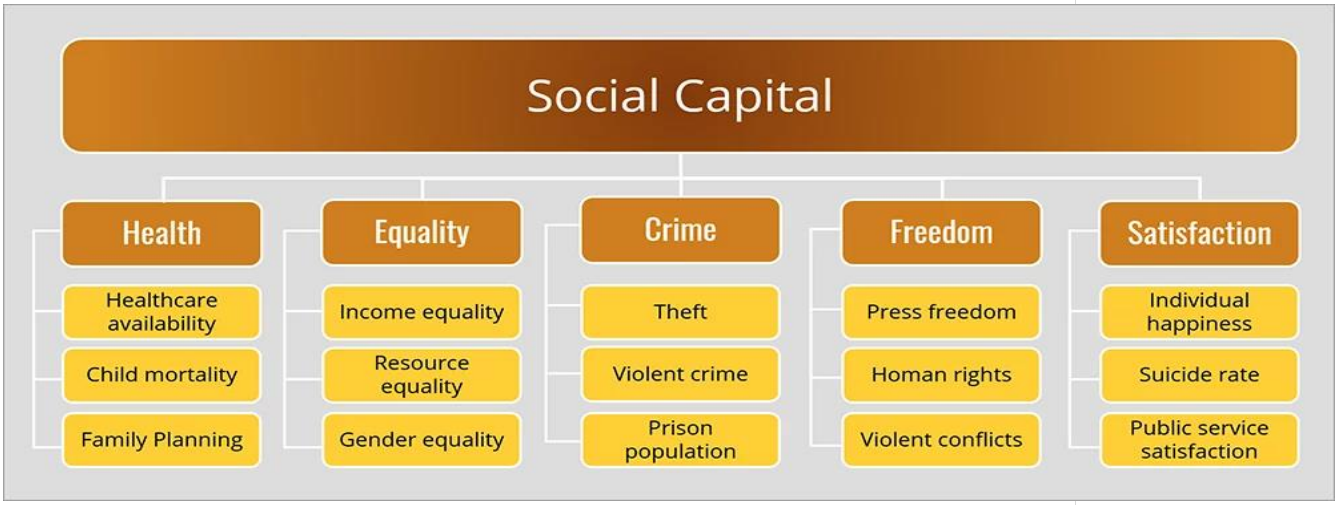


The global average Social Capital Score is 44; the global best 64 – a gap of 56 to a perfect state. Not surprisingly, the nations in the North (particularly Scandinavia) are significantly ahead of countries in the South (particular Africa and Central Asia).

48% of all indicators across all nations show positive development, while 38% are negative, while 14% do not show a clear trend in either direction. Given that nearly 50% of the indicators show positive development, we can expect small positive changes in the future.

Measuring Social Capital

The Social Capital of a nation is the sum of social stability and the well-being (perceived or real) of the entire population. Social Capital generates social cohesion and a certain level of consensus, which in turn delivers a stable environment for the economy, and prevents natural resources from being over-exploited.



Key elements of competitiveness drivers in the Social Capital Sub-Index

The indicators selected to measure social cohesion have been selected from the 5 themes above (health, equality, crime, freedom and age structure).

Some of these indicators (e.g., "happiness") are qualitative, i.e., not based on performance data that can be measured. Instead, qualitative indicators from surveys and other sources compiled by recognised organisations were used to measure the qualitative aspects of social cohesion, including single indicators from the Happy Planet Index (New Economics Foundation), the Press Freedom Index (Reporters Without Borders), and the Global Peace Index (Institute for Economics and Peace).

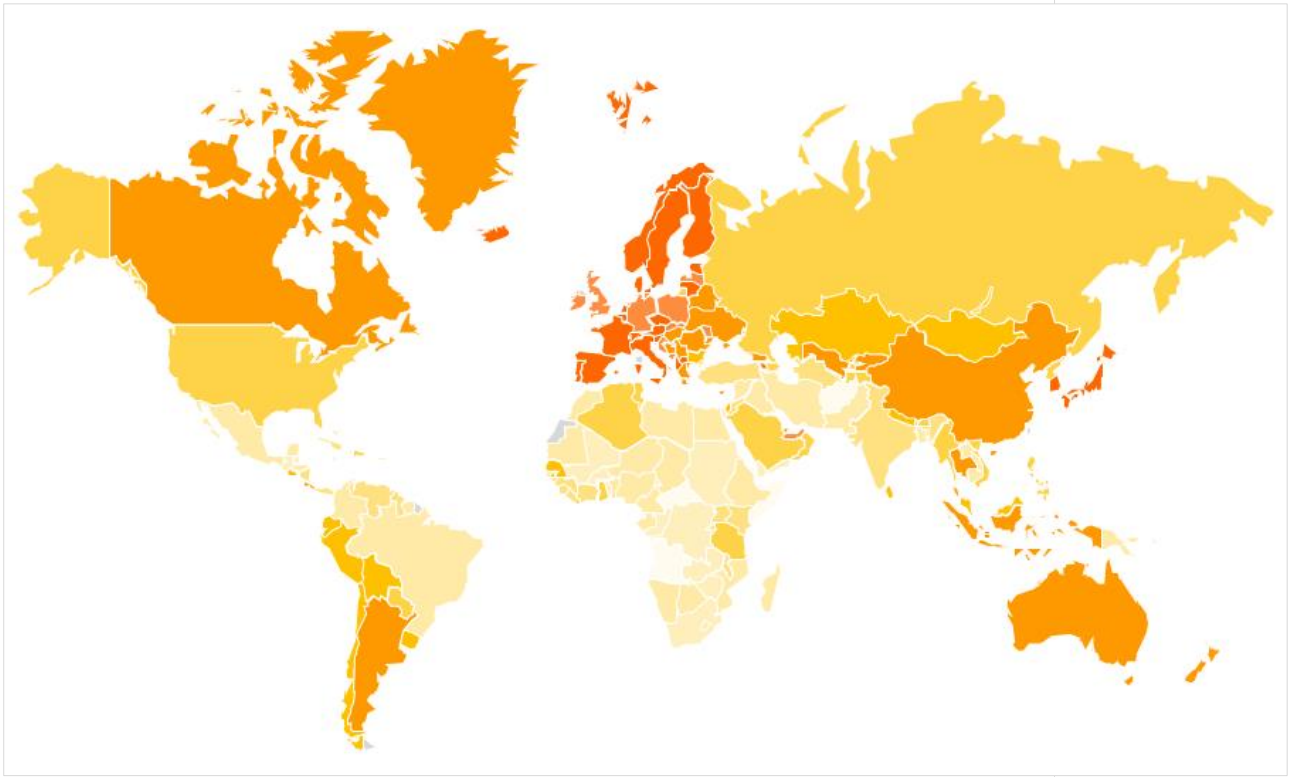
The indicators used to calculate the Social Capital score of countries is composed of health and health care factors (availability and affordability), the quantitative equality within societies (income, assets, and gender equality), freedom indicators (political freedom, freedom from fear, individual happiness), crime levels, and demographic indicators. As with all other indicators in the GSCI, original data has been normalised per capita and/or GNI. In addition, a trend analysis has been conducted for each indicator, influencing the final score.

Social Capital Index World Map

A certain level of social balance or social consensus is required to maintain a stable environment in which economic activities can take place. The higher the social capital of a country, the better the economy can flourish. The higher the social consensus, the higher the motivation of individuals to contribute to the wider good, i.e. the sustainable development of the nation – and the less likely they are to fall off the track into illegal paths of wealth generation that eventually hurt the wider legal economy.

Key observations include

- The Social Capital Index is topped by Finland. Iceland, Norway and Sweden are also in the top 10, with Denmark on 12
- The top 30 of the Social Capital sub-index is dominated by Western European countries and the Baltics – except for Japan (4) and South Korea (14), and the United Arab Emirates (24)
- The USA, due to comparable high crime rates, low availability of health services, and rising inequality, is ranked 89, just below Tajikistan and above Tunesia.
- China is ranked 47, India 100, Nigeria 137, and Brazil 138
- The highest ranked South American countries are Costa Rica (56), followed by Argentina (58), Peru (66), Uruguay (67) and Chile (70); the highest-ranking African nations are Senegal (63), Algeria (81), and Tunisia (91)
- Most African nations, particular within and south of the Sahel zone, are at the bottom of this list, due to a combination of low availability of health care services and child mortality, limited freedom of expression, and unstable human rights situation



The Social Capital World Map. Dark areas indicate high, light areas low maturity of Social Capital

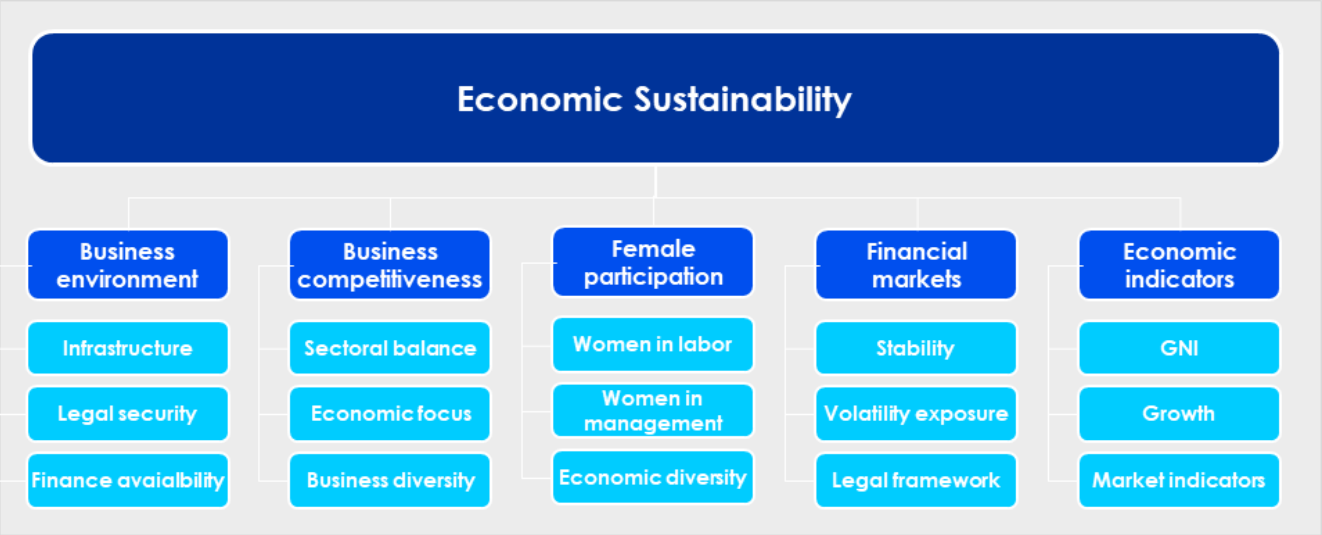
Social Capital Index 2023

Country	Rank	Score	Country	Rank	Score	Country	Rank	Score	Country	Rank	Score
Iceland	1	66.0	Greenland	46	51.7	Tanzania	91	43.9	Brazil	136	38.4
Finland	2	63.6	Canada	47	51.7	Trinidad and	92	43.8	Libya	137	38.4
Japan	3	62.9	Montenegro	48	51.7	Bangladesh	93	43.5	Turkmenistan	138	38.3
Slovenia	4	62.8	New Zealand	49	51.6	Jordan	94	43.4	Burundi	139	37.9
Norway	5	62.7	Indonesia	50	51.3	Panama	95	43.4	Samoa	140	37.9
South Korea	6	61.9	United Kingdom	51	50.8	Turkey	96	43.4	Iraq	141	37.6
Portugal	7	61.3	Uzbekistan	52	50.7	Kenya	97	43.3	Colombia	142	37.1
Denmark	8	60.4	Israel	53	50.3	Dominican	98	42.9	Bahamas	143	37.1
United Arab	9	60.3	Mongolia	54	50.3	Guinea	99	42.7	Syria	144	37.1
Sweden	10	60.2	Ukraine	55	50.1	Paraguay	100	42.6	Gabon	145	36.8
Netherlands	11	60.1	Hungary	56	50.0	West Bank and	101	42.4	Suriname	146	36.7
Austria	12	60.0	Bulgaria	57	49.7	India	102	42.4	Mozambique	147	36.6
Armenia	13	59.8	Seychelles	58	49.6	Vanuatu	103	42.3	Micronesia	148	36.6
Italy	14	59.7	Thailand	59	49.4	Bahrain	104	42.2	St. Kitts and	149	36.5
Estonia	15	58.9	Bhutan	60	49.4	Cuba	105	42.1	Togo	150	36.2
Belgium	16	58.5	Sri Lanka	61	49.3	Bolivia	106	42.0	Laos	151	36.2
Spain	17	58.5	Kuwait	62	49.1	Grenada	107	41.8	Mauritania	152	36.2
Poland	18	58.4	Saudi Arabia	63	49.1	Sierra Leone	108	41.8	Madagascar	153	36.2
Cyprus	19	58.1	Georgia	64	49.1	Cambodia	109	41.7	Morocco	154	36.2
Maldives	20	58.1	Senegal	65	48.9	Nicaragua	110	41.5	Mali	155	35.6
Luxembourg	21	57.9	Burma	66	48.7	USA	111	41.4	Chad	156	35.6
Slovakia	22	57.9	Oman	67	48.5	Ghana	112	41.2	Belize	157	35.5
Czech Republic	23	57.4	Chile	68	48.5	Kiribati	113	41.1	Burkina Faso	158	35.4
Croatia	24	57.4	Peru	69	48.1	Solomon Islands	114	41.0	Papua New	159	35.3
France	25	57.3	Uruguay	70	48.0	Cameroon	115	40.8	Democratic	160	34.6
Albania	26	57.1	Mauritius	71	48.0	Benin	116	40.5	Dominica	161	34.5
Singapore	27	57.0	Argentina	72	47.6	Ethiopia	117	40.4	Lesotho	162	34.3
Lithuania	28	56.8	Malaysia	73	47.3	Rwanda	118	40.3	Sudan	163	33.6
Switzerland	29	56.7	Azerbaijan	74	47.2	Nigeria	119	40.0	Egypt	164	33.4
North	30	56.5	Kazakhstan	75	47.2	Liberia	120	40.0	Djibouti	165	33.4
Moldova	31	56.3	Ecuador	76	47.1	Gambia	121	39.9	Botswana	166	33.2
Serbia	32	55.8	Nepal	77	47.1	Mexico	122	39.9	Zimbabwe	167	33.0
Germany	33	55.3	Sao Tome and	78	46.5	St. Vincent and	123	39.6	Zambia	168	32.9
Ireland	34	55.2	Lebanon	79	46.3	Cote d'Ivoire	124	39.5	Comoros	169	32.8
Belarus	35	55.0	Brunei	80	46.2	Niger	125	39.4	Angola	170	32.3
Kyrgyzstan	36	54.8	El Salvador	81	46.0	Pakistan	126	39.4	Equatorial	171	32.3
China	37	54.8	Costa Rica	82	45.8	Venezuela	127	39.2	Yemen	172	32.2
Latvia	38	54.0	Cape Verde	83	45.7	Guyana	128	39.1	Guatemala	173	32.0
Bosnia and	39	53.5	Algeria	84	45.6	Guinea-Bissau	129	38.9	South Africa	174	32.0
Greece	40	53.5	Tunisia	85	45.3	Fiji	130	38.9	Haiti	175	31.9
Timor-Leste	41	53.4	Tajikistan	86	45.2	Namibia	131	38.8	Afghanistan	176	31.6
Australia	42	53.3	Tonga	87	45.0	Honduras	132	38.8	Republic of	177	31.5
Romania	43	53.1	Malawi	88	44.8	Uganda	133	38.5	South Sudan	178	31.1
Malta	44	52.6	Vietnam	89	44.6	Jamaica	134	38.4	Somalia	179	30.5
Qatar	45	52.3	Philippines	90	44.5	Iran	135	38.4	Eritrea	180	29.9

Economic Sustainability Index

7 Economic Sustainability Index

"Economy" stems from the Greek terms "oikos" (meaning "house") and "nomos" ("custom" or "law") and means "household management". Economics is the social science that studies the factors which determine the production, distribution and consumption of goods and services. The ultimate goal of the economy is to improve the living conditions of people in their everyday life; the level of economic development is how "success" and the status of a nation is defined.

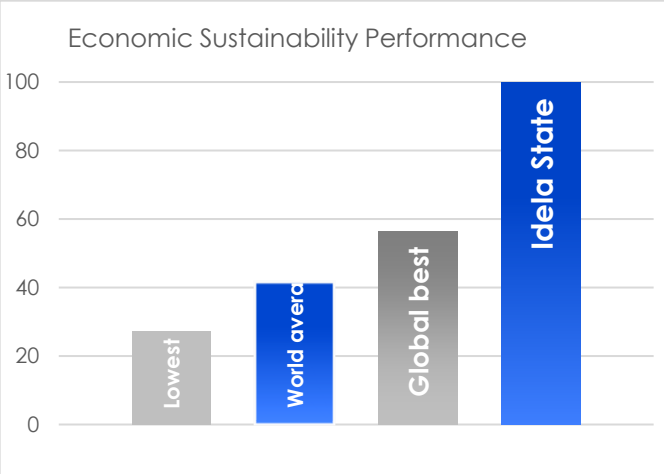


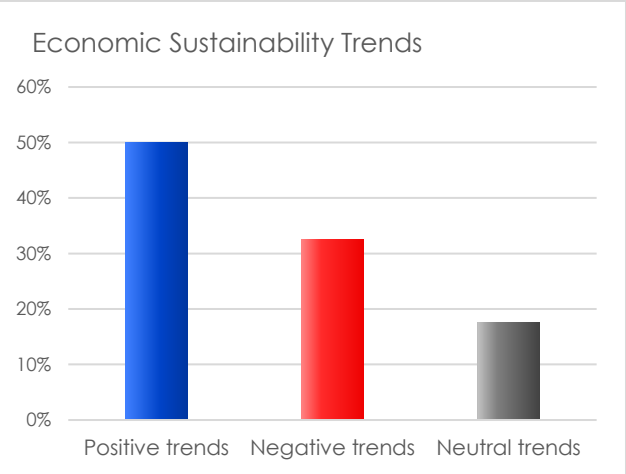
Measuring Economic Sustainability

Economic sustainable competitiveness is determined by a set of external and internal factors, including the regulatory environment, government efficiency, level of education as a basis for innovation, sectoral balance, inclusiveness, and equal opportunities. The Economic Capital Index does not make qualitative evaluate of systems. The Economic Capital Index is based on measuring quantitative outcomes of the systems.

Economic Sustainability

Economic Sustainability reflects the ability to generate wealth through sustainable and inclusive economic development. The global average level of economic sustainability in 2023 is 41, the highest achieved score is 62. 50% of all trends are positive, while 37% are pointing the wrong direction.

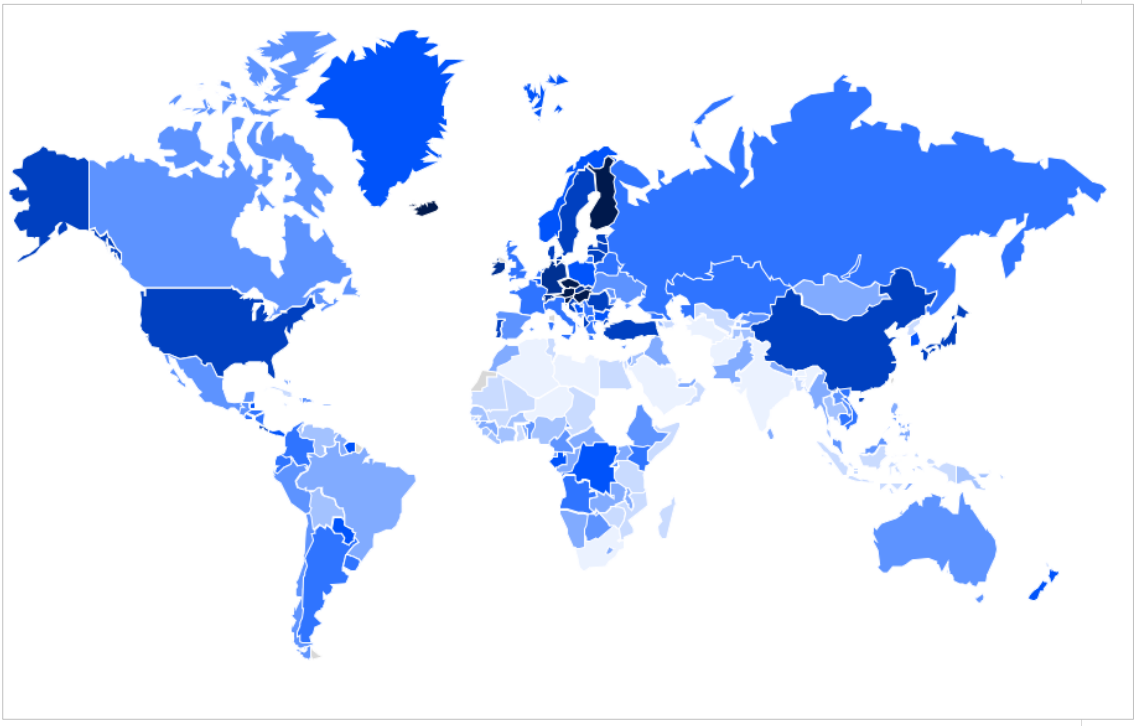




Key take-aways of Economic Sustainability Index 2023:

- The Economic Capital ranking is topped by Slovenia, followed by Austria, The Check Republic, Iceland and Finland
- The highest score in this Index is 57 – the gap between top and low performers is small compared to the other indexes
- Germany is ranked 8, France 39, the UK 46
- China is ranked 11, the US 21
- Brazil is ranked 101, Nigeria 139, and India 172
- Economies in Central and Eastern Europe score all in the upper quarter

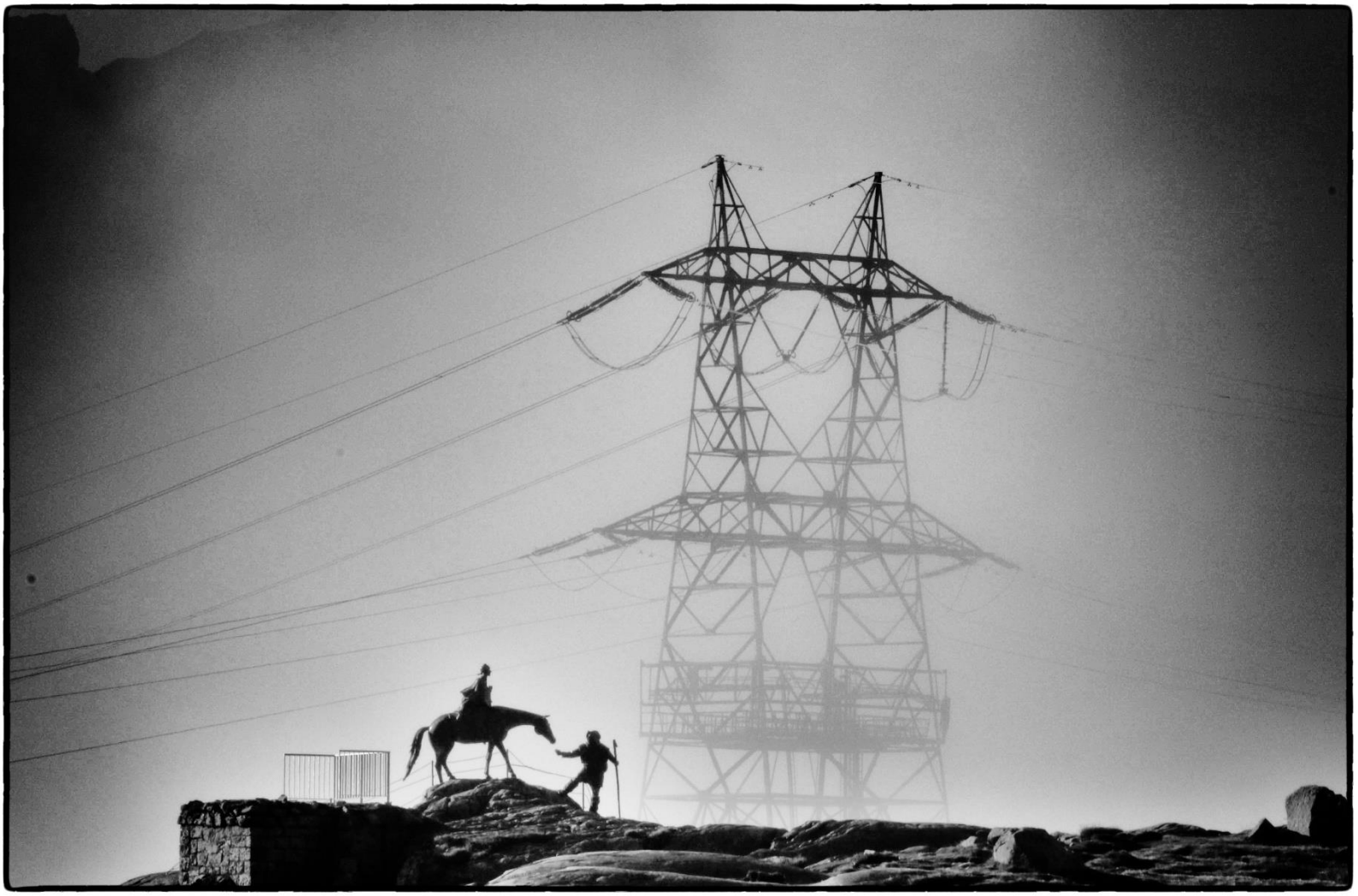
Economic Sustainability World Map



Economic Sustainability Scores 2023

Ran	Country	Score	Ran	Country	Score	Ran	Country	Score	Ran	Country	Score
1	Slovenia	61.6	46	Bulgaria	47.1	91	Nicaragua	41.6	136	Central	37.0
2	Ireland	60.6	47	Australia	47.0	92	Samoa	41.5	137	Comoros	37.0
3	Austria	58.0	48	Kazakhstan	47.0	93	Vanuatu	41.4	138	Lebanon	36.8
4	Finland	57.8	49	Paraguay	46.9	94	Guatemala	41.2	139	Brunei	36.8
5	Germany	56.8	50	Fiji	46.8	95	Timor-Leste	41.2	140	Iraq	36.7
6	Denmark	56.7	51	Malta	46.8	96	Sri Lanka	40.9	141	Oman	36.7
7	Hungary	55.9	52	Canada	46.6	97	Benin	40.9	142	Jamaica	36.5
8	China	55.8	53	Kiribati	46.3	98	Haiti	40.8	143	Burkina Faso	36.5
9	South Korea	55.5	54	Tonga	46.2	99	Ghana	40.4	144	Malawi	36.3
10	Portugal	55.5	55	Albania	46.0	100	Georgia	40.4	145	Nepal	36.3
11	Switzerland	55.4	56	Moldova	46.0	101	St. Kitts and Nevis	40.3	146	Niger	35.8
12	USA	55.4	57	Colombia	45.9	102	Egypt	40.2	147	Zimbabwe	35.8
13	Sweden	55.4	58	Argentina	45.8	103	North Macedonia	40.2	148	Tajikistan	35.7
14	France	54.1	59	El Salvador	45.7	104	Cuba	40.2	149	Nigeria	35.7
15	Lithuania	53.7	60	Belarus	45.0	105	Tanzania	40.0	150	Tunisia	35.7
16	Italy	53.5	61	Thailand	44.6	106	Guinea	40.0	151	Saudi Arabia	35.6
17	United	53.4	62	Grenada	44.6	107	Republic of	39.9	152	Zambia	35.6
18	Iceland	53.3	63	Peru	44.5	108	United Arab	39.9	153	Bhutan	35.5
19	Croatia	53.2	64	Suriname	44.4	109	Rwanda	39.8	154	Afghanistan	35.5
20	Costa Rica	53.1	65	Dominican	44.3	110	Morocco	39.8	155	Mozambique	35.4
21	Czech	52.6	66	Bosnia and	44.0	111	Democratic	39.8	156	Gambia	34.8
22	Latvia	52.4	67	St. Vincent and	43.9	112	Bangladesh	39.8	157	Pakistan	34.7
23	Slovakia	52.3	68	Mexico	43.8	113	Namibia	39.4	158	Trinidad and	34.6
24	Singapore	52.1	69	Malaysia	43.5	114	Belize	39.3	159	Madagascar	34.1
25	Greece	52.1	70	Angola	43.4	115	Brazil	39.3	160	Uzbekistan	34.0
26	Belgium	52.1	71	Laos	43.2	116	Dominica	39.2	161	Papua New	33.7
27	Japan	51.7	72	Kenya	43.1	117	Eswatini	39.2	162	Turkmenistan	33.6
28	Romania	51.6	73	Philippines	43.1	118	Guyana	39.2	163	Libya	33.5
29	Luxembourg	51.5	74	Cyprus	42.9	119	Armenia	39.1	164	Azerbaijan	33.5
30	Greenland	51.0	75	Montenegro	42.8	120	Mongolia	39.0	165	South Sudan	33.4
31	Gabon	50.9	76	Cambodia	42.7	121	Cape Verde	38.9	166	South Africa	33.0
32	Israel	50.7	77	Burma	42.7	122	Maldives	38.8	167	Bahrain	32.9
33	Panama	50.6	78	Djibouti	42.6	123	Uganda	38.7	168	Seychelles	32.6
34	Norway	50.5	79	Jordan	42.6	124	Botswana	38.7	169	Syria	32.4
35	Estonia	50.5	80	West Bank and	42.5	125	Honduras	38.5	170	Mali	32.2
36	Netherlands	50.3	81	Bolivia	42.5	126	Ethiopia	38.4	171	Algeria	32.2
37	Turkey	50.3	82	Indonesia	42.5	127	Senegal	38.4	172	Qatar	32.2
38	Poland	50.0	83	Togo	42.4	128	Guinea-Bissau	38.3	173	Iran	32.0
39	Uruguay	49.7	84	Sao Tome and	42.0	129	Sierra Leone	38.2	174	India	31.5
40	New	49.1	85	Bahamas	42.0	130	Solomon Islands	38.1	175	Eritrea	31.4
41	Serbia	48.5	86	Mauritius	42.0	131	Venezuela	38.0	176	Burundi	31.1
42	Spain	48.4	87	Cameroon	41.9	132	Mauritania	38.0	177	Lesotho	31.0
43	Ukraine	47.5	88	Vietnam	41.9	133	Kyrgistan	37.5	178	Chad	30.6
44	Ecuador	47.4	89	Cote d'Ivoire	41.9	134	Equatorial Guinea	37.1	179	Yemen	30.4
45	Micronesia	47.1	90	Chile	41.6	135	Liberia	37.1	180	Sudan	28.4

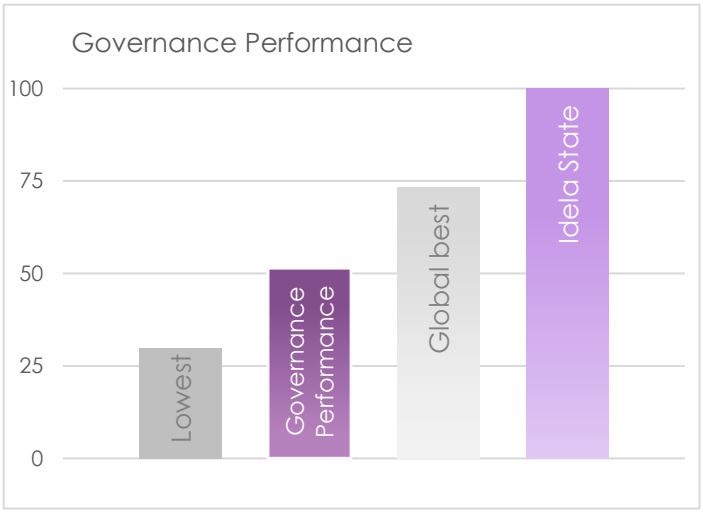
Global Governance Index

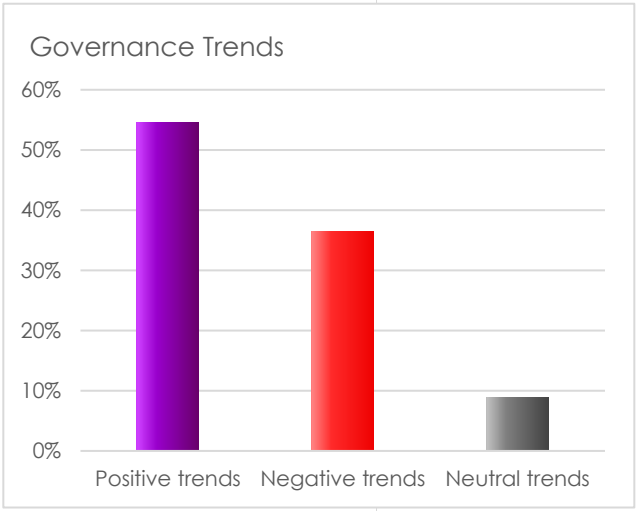


8 Governance Performance Index

Governance outcomes define the environment the society – individual and businesses – operate in. The Governance Sub-Index of the Global Sustainable Competitiveness Index is based on quantitative data series – i.e., *not* based on qualitative evaluation of government systems and policies. In addition, some aspects of government direction impacts (such as human rights, freedom of press, etc.) are assigned to the Social Capital Index. The Governance Sub-Index aims at evaluating the performance of a country's regulatory framework and infrastructure environment to facilitate sustainable competitiveness. The regulatory and infrastructure framework should enable an environment in which the country's natural, social and intellectual capital can flourish to generate new and sustain existing wealth.

Governance Index – State of the World





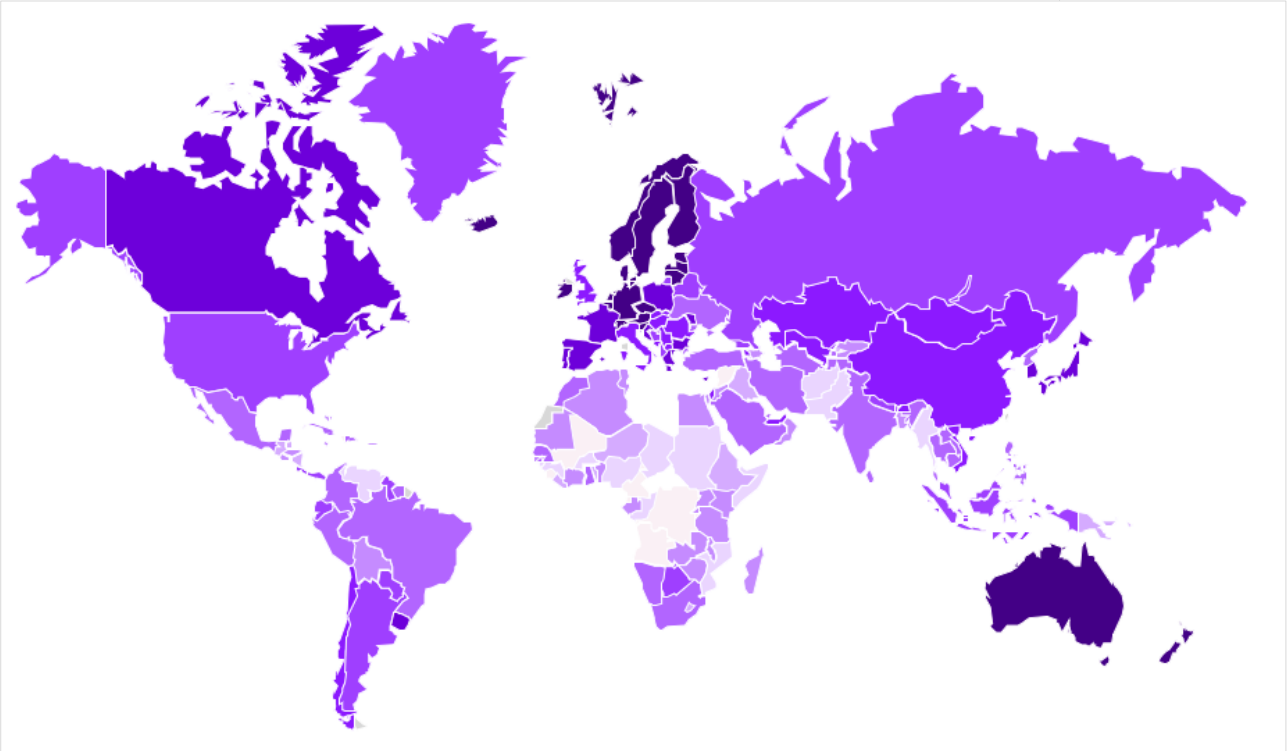
The Global average in Governance Performance is 51 – the highest of all five dimensions considered in the Global Sustainable Competitiveness Index. However, discrepancies are rather large from 27 (lowest) to 74 (highest).

55% of indicators are showing a positive development, while 36% are negative. In the sum, we can expect positive – if small – developments for the global average in Governance Performance

The Governance Performance index 2023:

- The Economic Capital ranking is topped by Estonia, followed by Switzerland, Norway, Denmark and Sweden
- Germany is ranked 15, France 25, the UK 41
- The ranking is dominated by Central European nations, except for New Zealand (10) and Australia (19), South Korea (20), and Japan (24)
- China is ranked 51, the US 61
- India is ranked 91, South Africa 88, Brazil 95, and Nigeria 161
- The map shows a clear north-South gap: all African countries score comparable low (except for South Africa)

The Governance World Map

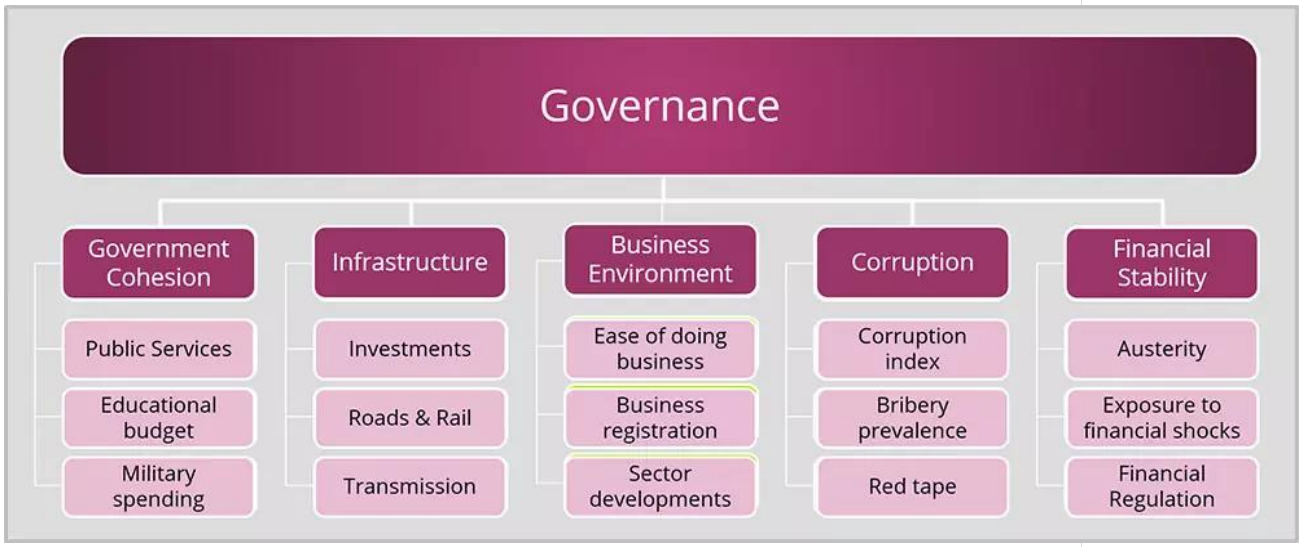


The Governance World Map. Dark areas indicate high, light areas low levels of Governance quality

Governance = National Development: Shaping Social and Economic Capital

The base of the Sustainable Competitiveness Pyramid – the Natural Capital of a country, is given. Everything else – the society, the economy - is shaped by the legal, regulatory and physical (human built) framework. This framework – the environment in which society exists and businesses operate - is developed, maintained and updated by authorities and institutions, most often government bodies. The Governance Sub-Index therefor encompasses all aspects that shape the framework of society (the Social Capital), and in which the economy (Intellectual Capital, Resource Management) operates. Key aspects of the Governance aspects include:

- Strategic direction of government-led development (the balance between the key elements of government spending: health, education, infrastructure, security).
- The built physical environment (infrastructure) required for smooth operation of the society and businesses, the availability and quality of public services,
- The framework provided to businesses (formal in terms of business regulations, and informal in terms of red tape and corruption negatively affecting businesses),
- Exposure to volatility in terms of government balance sheets, and exposure to volatility shocks as posed by financial market fluctuations.



Key elements of competitiveness drivers in the Governance Sub-Index

Measuring Governance

The result of qualitative governance quality & strategy evaluation depends very much on the evaluator. The Sustainable Competitiveness Index therefore relies on purely quantitative data series to exclude all subjectivity in evaluating and calculating the Governance Sub-Index. In addition, some qualitative indicators (perceived quality of public services and perceived levels of corruption determined through reliable and international surveys) have been incorporated.

For the full list of indicators used, please refer to the methodology section.

Governance Performance Index 2023

Country	Rank	Score	Country	Rank	Score	Country	Rank	Score	Country	Rank	Score
Estonia	1	73.2	Cyprus	46	57.8	Morocco	91	52.3	Rwanda	136	44.2
Ireland	2	71.7	Greece	47	57.8	Montenegro	92	52.1	Comoros	137	44.2
Czech Republic	3	69.7	Italy	48	57.7	Ethiopia	93	52.1	Laos	138	43.9
Finland	4	66.3	Sweden	49	57.6	Kiribati	94	51.6	Nicaragua	139	43.4
Germany	5	65.0	Egypt	50	57.4	Jordan	95	51.6	Honduras	140	43.4
Japan	6	64.7	North	51	57.2	Malaysia	96	51.0	Guinea	141	43.4
New Zealand	7	64.4	Belarus	52	57.2	Ecuador	97	50.8	Iraq	142	43.4
Liechtenstein	8	64.2	Russia	53	57.1	Grenada	98	50.6	Uganda	143	43.3
Iceland	9	64.1	Bangladesh	54	57.1	Colombia	99	50.5	Cameroon	144	43.2
Austria	10	64.0	Israel	55	57.1	Micronesia	100	50.5	Afghanistan	145	43.1
Denmark	11	64.0	Seychelles	56	57.0	Trinidad and	101	50.4	Eswatini	146	42.2
Uzbekistan	12	63.8	Bhutan	57	56.8	Nigeria	102	50.4	Mauritania	147	42.1
Spain	13	63.7	Mongolia	58	56.4	Bahrain	103	50.4	Namibia	148	42.0
Slovenia	14	63.7	Singapore	59	56.2	Timor-Leste	104	50.4	Haiti	149	42.0
Croatia	15	63.6	Kuwait	60	56.0	Tajikistan	105	50.2	Sao Tome and	150	41.5
Malta	16	63.4	Cote d'Ivoire	61	55.9	Burma	106	50.2	Mali	151	41.5
Latvia	17	62.6	United Kingdom	62	55.7	Tonga	107	50.2	Niger	152	41.5
Luxembourg	18	62.5	Brunei	63	55.5	Samoa	108	50.2	Sierra Leone	153	41.4
Poland	19	62.3	Costa Rica	64	55.4	Oman	109	50.0	Belize	154	41.2
Switzerland	20	62.2	Paraguay	65	55.4	Qatar	110	49.7	Lebanon	155	40.8
Georgia	21	62.0	Senegal	66	54.9	Tunisia	111	49.6	South Africa	156	40.4
Moldova	22	61.7	Panama	67	54.8	Thailand	112	49.2	Djibouti	157	40.4
Kazakhstan	23	61.7	Saudi Arabia	68	54.6	Algeria	113	49.0	Guinea-Bissau	158	40.0
Bulgaria	24	61.7	Australia	69	54.6	Azerbaijan	114	49.0	Democratic	159	39.8
Romania	25	60.9	Philippines	70	54.5	Burkina Faso	115	49.0	Zimbabwe	160	39.1
Portugal	26	60.9	El Salvador	71	54.4	Kenya	116	49.0	Central African	161	38.7
South Korea	27	60.8	Chile	72	54.4	Vanuatu	117	48.7	Madagascar	162	38.6
Armenia	28	60.7	Ghana	73	54.3	Dominica	118	48.5	Lesotho	163	38.5
Slovakia	29	60.7	Uruguay	74	54.3	Pakistan	119	48.4	Burundi	164	38.4
Serbia	30	60.5	Iran	75	54.2	India	120	48.3	Brazil	165	38.3
Belgium	31	60.4	Botswana	76	54.2	Canada	121	48.3	Malawi	166	37.8
Sri Lanka	32	60.0	Argentina	77	53.9	Tanzania	122	47.9	Syria	167	37.3
Norway	33	59.9	Cambodia	78	53.9	Guyana	123	47.4	Sudan	168	37.0
Netherlands	34	59.7	Fiji	79	53.6	Gambia	124	47.3	Mozambique	169	36.9
Bosnia and	35	59.4	Bahamas	80	53.6	Solomon Islands	125	46.9	Venezuela	170	36.8
Lithuania	36	59.3	Dominican	81	53.6	Guatemala	126	46.4	Papua New	171	36.1
United Arab	37	59.2	Mexico	82	53.6	Cuba	127	46.4	Libya	172	36.1
Hungary	38	59.1	Kyrgistan	83	53.1	Bolivia	128	46.1	Angola	173	35.7
Turkey	39	59.1	Benin	84	53.1	Jamaica	129	45.5	Eritrea	174	34.6
St. Kitts and	40	59.0	Turkmenistan	85	53.0	Maldives	130	45.5	Chad	175	33.7
Mauritius	41	58.9	USA	86	53.0	Suriname	131	45.3	Republic of	176	33.4
Indonesia	42	58.7	Peru	87	52.9	Gabon	132	45.1	Liberia	177	33.1
Nepal	43	58.6	Albania	88	52.8	Togo	133	45.0	Equatorial	178	32.5
France	44	58.3	Ukraine	89	52.7	Zambia	134	45.0	Somalia	179	31.5
China	45	58.2	Vietnam	90	52.6	West Bank and	135	44.9	South Sudan	180	31.4

Sustainable Competitiveness

9 Sustainable, Competitive

9.1 GSCI vs GDP: measuring green growth

What is not sustainable is not competitive. What is not competitive is not sustainable.

Development that is not sustainable is not development.

Conventional country comparisons, rankings and ratings are based on economic and/or financial indicators. However, economic and financial indicators - *at best* - reflect current economic success. They do not look at or explaining what makes the economic success possible. They also fail to account for current developments – financial and non-financial - that shape future success or decline.

GDP and other measurements are solemnly based on financial and economic indicators do not fully reflect the current state. To counter the lack of integral competitiveness measurement of nations, the GSCI integrates all three dimensions of sustainable development: the environment, the society, the economy.

In addition, economic activities have adverse side-effects on the environment and societies: pollution and depletion of natural resources, climate change, health impacts, inequality and impacts on the socio-cultural fabric of a country. Neglect of these factors can diminish the very basis of current economic output and success measured in conventional ratings.

Economic and financial indicators are therefore insufficient measurements for risk and investment analysis – or credit ratings. In other words: "competitiveness" in its current meaning and commonly used financial/industrial indicators, e.g. **the GDP, is an insufficient basis for making policy and investment decisions.**

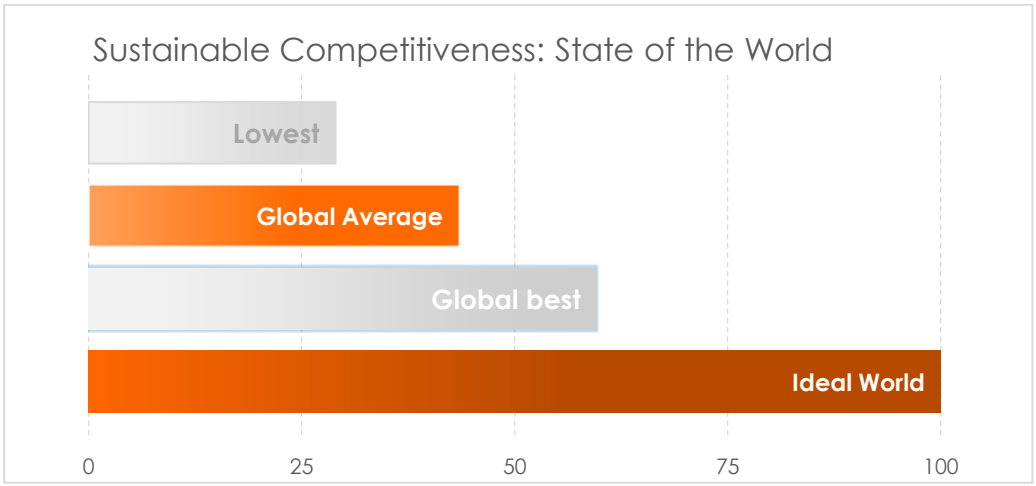
The Global Sustainable Competitiveness Index: Measuring Green Growth since 2012

There is talk of green new deal all over the World – even if the details of everyday implementation are still lacking. The Sustainable Competitiveness Index is based on a model that integrates economic and financial indicators with the pillars that make the business success possible in the first place. It is based purely on comparable and measurable performance data (therefore minimising subjectivity), collected by renown international agencies. We believe that the Index presents the currently most accurate basis to compare countries amongst each other. In essence, the Global Sustainable Competitiveness measures green growth - with all the shades that are required for implementation of "Green Deals". The tracking of green growth throughout all dimensions facilitates the identification of gaps and policy insufficiencies.

9.2 Challenges are opportunities: the untapped potential

The GSCI translates performance data to a sustainability/competitiveness score based on realistic possible best practice. In other words – real sustainable competitiveness is only achieved by perfect score of 100.

The average Sustainable Competitiveness score across all countries in 2023 is 43.1; the highest score, achieved by Sweden, is 61.9.



The current global gap to an ideal World is 56.9 points. The World is not doing particularly well. In other words: there are countless opportunities and there is endless potential. Not even imagination is a frontier.

However – politics currently seems to be stuck in tribalism, in many parts of the world, as well as on the international stage. Tribalism blocks the implementation of efficient solutions that would be readily available. Tribalism and power-grabbing is stifling the huge potential of new technologies, markets, and positive, inclusive development across all pillars of sustainable competitiveness. Countries that fall into the tribalism trap are circling within, fighting cultural wars instead of developing sustainable competitive policies, and therefore are likely to lose ground relative to politically les tribal or autocratic economies.

In Resource Intensity, even the highest ranked countries score comparable low, indicating a) that the World as a whole is not very environmentally sustainable at the moment, and b) the requirement to apply market tools in the form of real costing.

At the same time, business have progressed far beyond politics, e.g. in terms of implementing actual roadmaps to net-zero by 2025 or 2030, as a significant number of large companies are doing. They calculate in risks and costs. Wherever there is cost – i.e. when a resource becomes scarcer or more expensive – innovation jumps in. Businesses react.

Real costing of external costs – to the environment to the climate, to human health, equally and globally applied according scientific calculation of external cost – will unleash innovation and direct the economy to a win-win path across all dimension and. The economy is not stupid. Real costing is the way towards innovation-based sustainable competitiveness.

9.3 Education & Sustainable Competitiveness

The chicken or the egg?

Sustainable competitiveness means that current wealth levels are not in danger of being reduced or diminished through over-exploitation of resources (i.e. natural and human resources), the lack of innovation investments required to compete in the globalised markets (i.e. education), or the discrimination, marginalisation or exploitation of segments of a society.

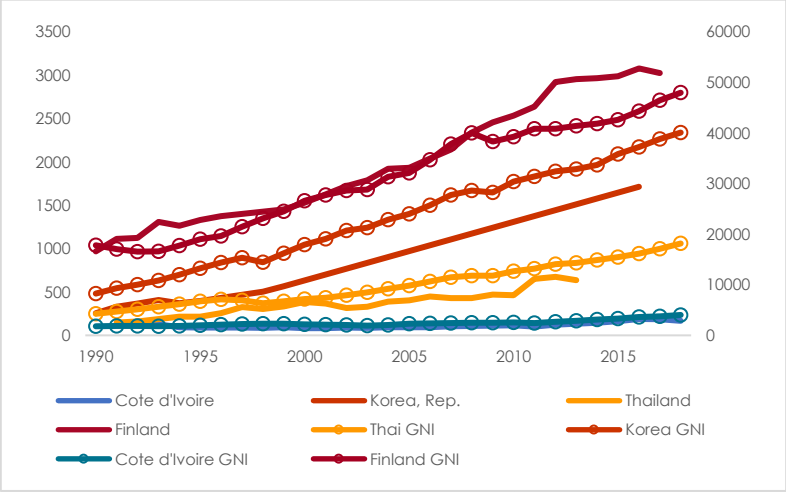
The leading nations on the GSCI ranking are mostly high-income countries, suggesting a certain correlation between Sustainable Competitiveness score and GDP per capita, or income levels (high income = high sustainability). The same is true when visualizing average deviations of GDP per capita and the sustainable competitiveness score.

GDP/capita and sustainable competitiveness

However, the correlation is superficial and refuted by too many exceptions to the rule. Resource economies (e.g. Sadia Arabia, Kuwait) are ranked significantly below their GDP ranks. This indicates that **the correlation is** not from GDP to sustainable competitiveness, but rather **from sustainable competitiveness to income levels**. In other words: higher sustainable competitiveness can be associated with higher income levels.

The presence of large natural resources allows for exploitation of the natural capital (e.g. the oil-rich countries of the Middle East). However, such wealth is highly unsustainable and the wealth generated will diminish with depletion of the resources in the absence of an adequate alternative development and fostering of all 5 pillars.

The GSCI reveals a large gap in Intellectual Capital between average and high-scoring countries, reflecting the north-side divide: the "rich" countries in the north have better public education. Or are they richer because they have had public education for a much longer time, and can now afford to provide more resources for education?



Education spending and GNI development show a very strong corelation – regardless of the development state of a country

The influence of sustainable competitiveness on GDP is not immediate; it is time-deferred. Policy decisions therefore have to be made in light of sustainable competitiveness to achieve desired results at a later stage.

In other words:

Sustainability is the chicken *AND* the egg.

9.4 Achieving Sustainable Competitiveness

The GSCI evaluates the competitiveness of nation-economies. But what actually is competitiveness?

Policy and investment decision in all pillars of competitiveness are inter-acting and affect the competitiveness of a country:

- The availability and state of **natural capital** does not affect short-term economic development or recovery – unless the capital in question is oil or other commodities in demand on the global market. Exploitation of natural resources (natural capital) can bring short-term economic benefits, but is often accompanied by diminishing the basis of future development (e.g. in the case of forest exploitation)
- **Resource intensity** is cost. The higher the resource efficiency, the higher the competitiveness of an economy. However, resource intensity is not directly linked to short-term economic development. While resource usage is increasing with initial development, efficiency tends to increase with higher development and investments. However, economic decline (as has occurred in Greece since 2010), leads to lower resource consumption.
- **Social capital** is negatively affected by economic decline. A declining economy leads to fewer financial resources available for social capital aspects (health, community development, integration, …), and leads to higher criminality as well as individual despair – all of which negatively affects the competitiveness of a nation-economy on the long term.
- There seems to be a fairly direct corelation of **Intellectual capital** availability and positive/negative economic development. All countries that have cut investments (including, but not restricted to, innovation, R&D and education), have seen a slower recovery or even further decline since the financial crisis – and vice versa. While it may look sensible at first glance to cut expenditure to reduce deficits, cuts do not work because they also cut the required base to kick-start growth. Cutting investments is unsustainable competitive, i.e. not sustainable competitive. Sustainable competitiveness means: analysing the likely outcome of measurements before they are implemented – i.e. calculating not only the cuts, but also the cost of cuts. A majority of policy makers these days seem to be blind to the long-term cost of cuts and benefits of investments. They do not look ahead.
- The analysis of individual indicators suggests a fairly straightforward connection between the **Governance framework** provided to the economy: countries who cut investments (infrastructure, general investments), countries with a large (uncontrolled) domestic financial investment market, and a low industrial base have all declined more and recovered slower than countries with higher investments, smaller domestic financial markets and a better industrial base. It also seems straightforward that a steep increase of financial market size in short term seems to be the indication of an imminent burst of a bubble.

In a sustainable efficient entity, powers are balanced. Imbalance in power between individuals, groups, and entities always lead to lower efficiency over time. Low efficiency means higher overall cost, less benefits. What might appear competitive now (e.g. the exploitation of natural non-renewable resources), but is not into the future, is not competitive. Competitiveness that is not sustainable is not competitive.

In a sustainable entity, the economy does not run against nature and/or communities/society. All dimensions of an entity are all running in parallel in win-win interactions. The fundamentals hat make an economy, a society, and the natural environment in which both of the above operate/live in, are balanced interacting:

The Sustainable Competitiveness Framework:

Sustainable competitiveness only requires two fundamentals as its base:

- Equal opportunities, everywhere
- Decision-making based on science and sustainable cost-benefit analysis that leads to l**ow-cost, high-benefit solutions** (**LCHB**s)

9.5 System requirements for Sustainable Competitiveness

Sustain able competitive economies/nation-states are characterised by high efficiency – i.e. systems and policies that enable and foster efficiency. We need efficient systems of governance, free of any religious, political or special interest views

Sustainable governance

- Efficient governance systems that have built-in guarantees against authorism with clear assigned and shared responsibilities
- Direct democracy (citizens can not only elect politicians, but also vote on legislation and policies)
- Efficient legal framework and judicial system that is available and equal for and to all
- Financial markets that serve the real economy, not vice-versa
- Simple tax regime that taxes all forms of income equally. Public services, including health, education and infrastructure, are financed through progressive income taxes
- Harmonised tax rates across regions and countries
- Efficient and well-maintained transport infrastructure, and other public infrastructure (health, education, recreation)
- Corruption prevention
- Wise allocation of state resources, balancing social, environmental and economic interests

Innovation

- Equal quality education for all, constantly adjusted to changing requirements, including vocational training
- A national/regional economic development strategy/vision supported by government policies, co-ordination, and incentives
- An environment that supports and rewards investment in R&D
- Curbing the power of monopoly-like entities

Social cohesion

- Universal public health services for all, with additional private health services beyond the basics
- Respected law enforcement deeply integrated in local communities and related services to curb crime
- Treatment of diseases as diseases, not as crimes (e.g. drug addiction)
- Equal opportunities for all genders, races and minority groups
- New models of employment and public participation in public services in light of increasing automatization (robotics and artificial intelligence)

Resource intensity

- Introducing sustainable balance-sheets for all economic activities (integration of externalities): polluter pays principle for all substances and activities. Cost to the environment and/or society are factored into the cost of all products and services

- Harmonised global taxing of greenhouse gases, to be reinvested in renewable energy technologies and climate change impact mitigation
- Resource efficiency – supporting the development of the circular economy
- Improvement and streamlining of organic food production

Natural capital

- Legal protection of the leftover natural biodiversity
- Restoring biodiversity where possible through sustainable agriculture and land management
- Reforestation
- Protection of waterways, investment in desalination facilities

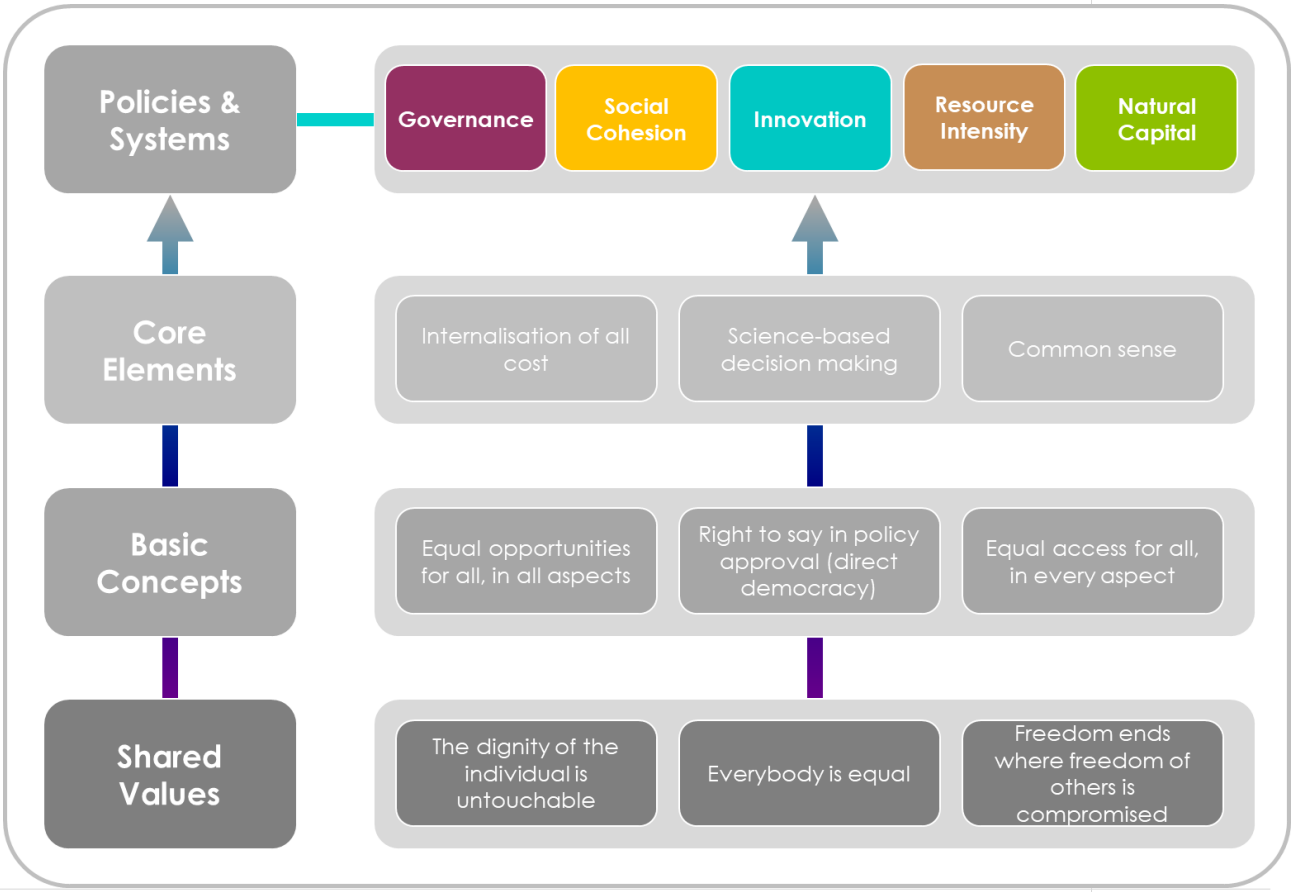
9.6 Basic Commons

At the base of sustainable economy, we need simple shared values:

- The dignity of the individual is untouchable.
- All individuals are free. The freedom of an individual (or group) ends where the freedom of others is compromised.

The economics of sustainable competitiveness is equally simple:

- Provision of equal opportunities and equal access for all.
- Internalising all cost, tangible and intangible, in the balance sheets – of products, services, and in project and policy appraisal.



9.7 Outlining Sustainable Governance

The following is a rough outline of issues to be considered when aiming for a real sustainable & competitive framework:

- **Governance update**: Our current systems were designed when monarchies were the going power structures: elected presidents replace the king. It is stupid to concentrate power in a single pair of hands, be that in a company, an organisation, local authorities or on the state level. We don't need kings, presidents, prime ministers and CEOs. We need teams of decision makers.
- **Democracy upgrade**; We currently have systems that allow us to choose between different versions of jokes every couple of years. That is not democracy. We need real democracy – we need systems that allow citizens to vote on policy and regulation changes on a regular basis.
- **Legal equality:** As is, justice is for the rich and powerful. Suing for your legal rights and defending yourself in court requires significant financial resources. If you don't have financial resources, you are seriously restricted in obtaining your legal rights, and being sued can ruin you. The justice system has to be available to all, while there should be barriers for people/entities that sue for the sake of suing.
- **Financial markets reboot**: The real economy (the producing economy) currently serves as collateral for the rent seeking/gambling industry that we call "the financial markets". We need financial markets that serve for what they were initially intended: provide money transfer and provision of capital for innovation and production.
- **Taxing re-start**
  There will and should always be different levels of wealth. But the: discrepancies have gone completely out of hand, with taxing favouring those that already have. Being at the right place at the right time or being a CEO should be neither grounds for amassing millions/billions, nor for yielding influence and power.
- **Integrating the environment in the economy**: If pollution dos not have a price, pollution does happen. We need a system that quantifies pollution, and then can be integrated into the price of resources and materials. The price has to be paid before the pollution occurs. For example - we need a global climate tax. Now.
- **The role of the state:** Privatisation of infrastructure-based public services (railroad services, water provision, electricity, gas, health care provision) has led to lower quality, more frequent disruption, higher prices. The role of the state in provision of infrastructure-based service provision therefore has to be discussed, and frameworks to ensure efficient management and prevention of corruption in public services have to be developed. Or should the state be a player in the markets itself?
- **Economic co-operation:** Countries that have a close relationship and co-ordination (e.g. South Korea, China) have experienced above-average success over the past decades. While such close relationships are not without their own inherited complications, a closer alignment of national development priorities and the private sector can be highly beneficial and should be more closely scrutinised.
- **Intelligent investment:** Investment decisions need to be based on a broader assessment of impacts – both negative and positive – and further into the future. In addition, they should be aligned with a clear development strategy, to allocate the limited resources at the highest

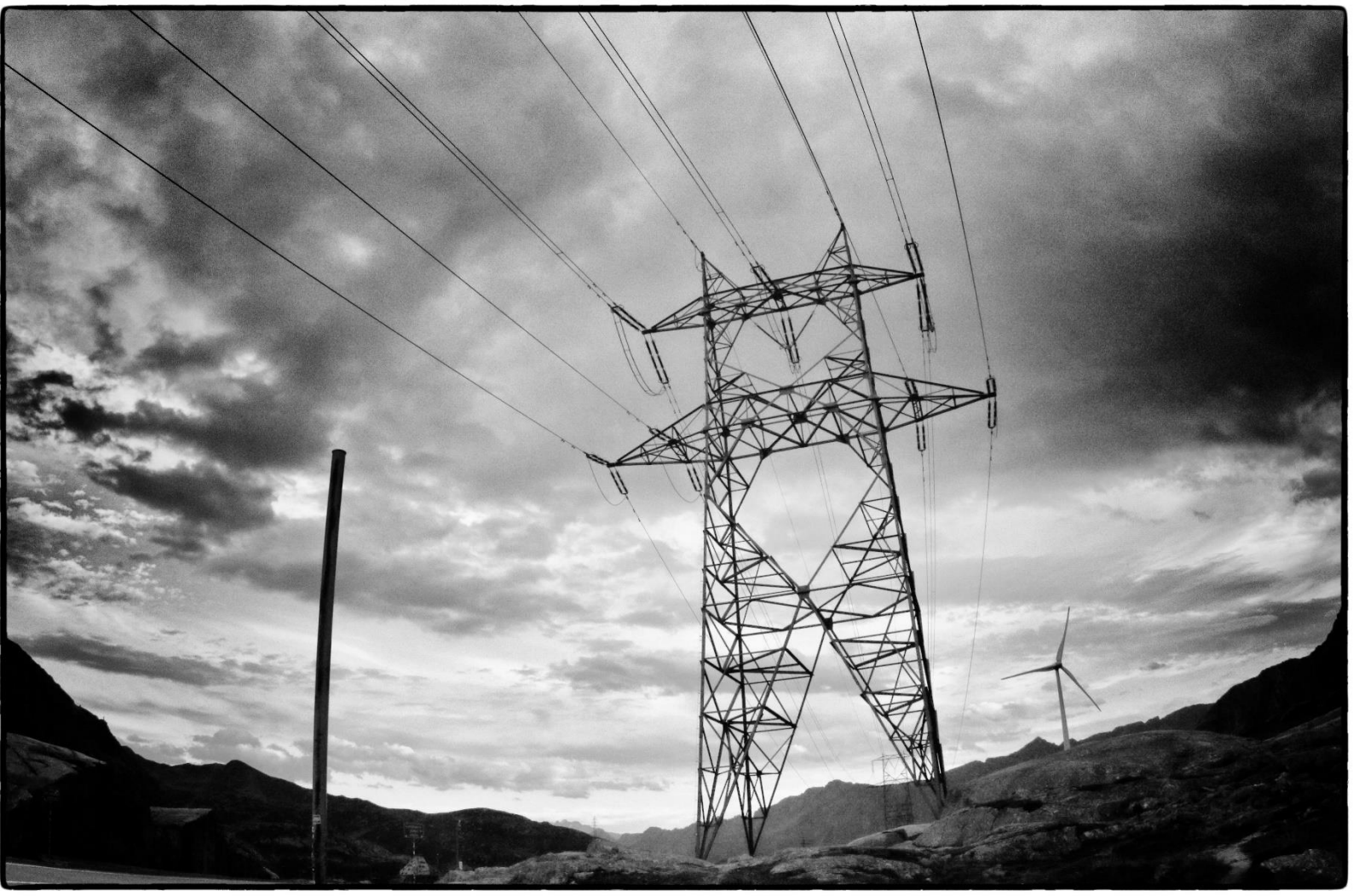
possible return for society, the economy, the environment and the countries

- **Harvesting on technology:** New technologies potentially can bring huge benefits to humanity – clean energy technologies, nano-technologies, artificial intelligence, robotics, further digitalisation. A clear strategy is required to prioritise and support beneficial technologies and applications leads to guided development that is beneficial
- **Labour markets and labour security:** Digitalisation, robotics and artificial intelligence are expected to substitute a significant percentage of today's labour. It is highly likely that there will not be jobs for everybody into the future. Alternative models of labour – for example through a base salary tied to work in organic agriculture, elderly care and other community services, to name a few – need to be evaluated and discussed timely.
- **Public service upgrades**: The private sector has completely failed to deliver efficient services in monopolistic distribution environments (e.g. running water, rail transport, electricity, …). We need systems that guarantee efficient management of public infrastructure and services.
- **Freeing the press**: lies and conspiracy theories is not free speech, it is spreading lies and conspiracy theories. Pushing the opinions of owners of media companies is also not free speech. We need a completely independent fact-based press. Less opinions, more facts. Easy in theory, very complex in reality.
- **Education update**: We need better and adequate education for all, including practical skills. Vocational training needs to be increased and improved, and curriculums updated regularly based on technology and societal developments.
- **Health re-loaded**
  Basic health care has to be available to all, paid for by all. That probably: requires state-guided policies, state-managed insurance, and state-managed health services
- **Greening agriculture:** Industrial agriculture is based on the use of fertilisers, pesticides, and managing land in mono-cultures. All three of these have to be replaced with organic approaches. However, organic agriculture is inevitably more labour intensive. Solutions to keep the cost of food product within reasonable scope for the wider public therefore have to be discussed.
- **Saving the biosphere:** We need more protection for vital eco-systems, such as the Amazon and other rain-forests. However – it is not only the rainforests. We need more biodiversity across this World – in all countries, in all regions. More land needs more land to be protected as parks, and sustainable management of the resources has to be implemented in line with the communities living in these areas. Water is vital to the survival of humanity; waterways ned to be protected better.

9.8 12 Key Points to achieve sustainable competitiveness

1. **A global climate tax.** Climate change is a gigantic market failure. We need a global climate tax - introduced in phases, paid back to the people in cash and reinvested in a renewable energy infrastructure - to avoid disaster. Now.
2. **More democracy.** In the 21st century, it is not possible that individuals decide over whole countries. The people need to be consulted on policy and law changes through mandatory referenda, and the possibility to induce issues on the governing agenda. And - it is not possible that people have to stand in line to vote in the 21st century.
3. **Better governance.** It's silly to assign responsibility for an entity as complex a country to a single individual, and winner-takes-it-all-systems allow minorities to govern. Ministries should be assigned according to national voter share, cabinet meetings are chaired by one of the ministers, in turns. The same applies in the corporate World: we don't need presidents and we don't need CEOs; we need teams of decision makers.
4. **Real market economy.** Markets only work when all costs are incorporated. The environmental costs of substances, materials and processes have to be integrated in the market price – based on a globally agreed level. The taxes generated need to be fiscally neutral (cash-back and/or used to offset the environmental cost).
5. **Quality education for all.** We need quality education, equal for all; taxed and re-distributed at the national level so the same resources are available to each student
6. **Working financial markets.** We need financial markets that support the real economy, and not vice-versa. This can be achieved through a transaction tax on, and/or minimal holding periods for all financial instruments.
7. **Health care and social security for all.** We need affordable basic health care for all – paid for as percentage of income, directly deducted, with the choice of additional insurance for more luxurious health care.
8. **Impartial and efficient justice system accessible to all.** The justice system has to work fast, efficient, accessible to all while minimising abuse. Judges need to be completely impartial, appointed through a process that is safeguarded from any political influence.
9. **Unitary Taxing.** We need a global approach to tax multi-national corporations (e.g. by a combination of revenues/employees/sourcing per country), as well as private tax. These are not normal times. A wealth tax on the rich, maybe for a limited time, needs to be seriously considered.
10. **Fact-based, impartial information.** We need impartial, science- and fact-based information, not opinions. Financed through taxes, but safe-guarded against any control attempts by governments/politicians.
11. **Freedom for, and from, religion.** Faith is a choice. Science is not. Everybody is free to practice their faith, and nobody has their freedom impaired by other people's faith We need a total separation of state governance and religion.
12. **Total equality.** It is a shame that this has to be mentioned in the 21st century – but we need total equality. Between genders, races, regions, wealth.

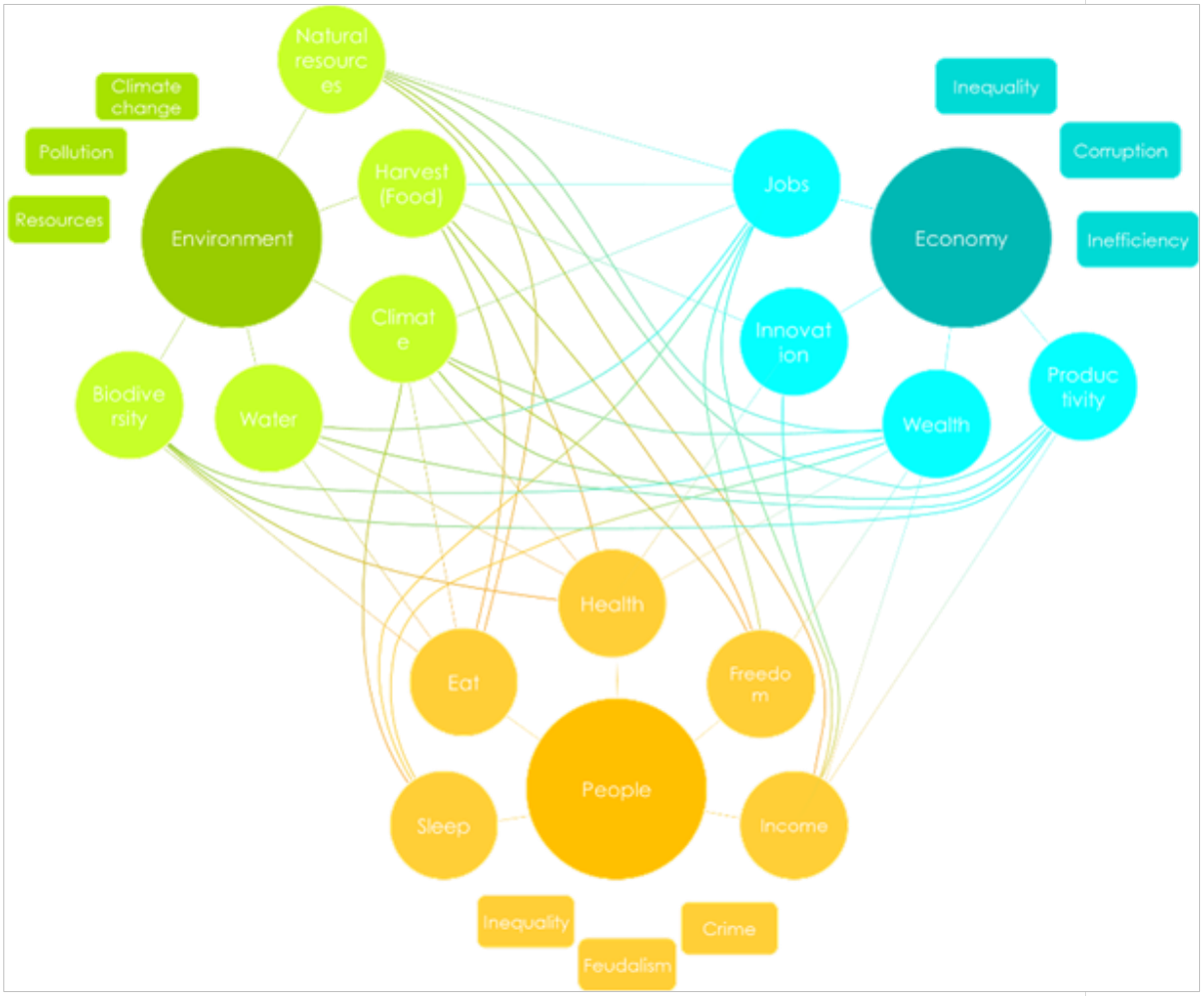
GSCI Methodology



10 Model & Index Methodology

10.1 The Sustainable Competitiveness Model

The three-dimensional sustainability model of reconciling the economy, the environment and the society is often used and applied in the corporate world to evaluate and manage sustainability issues and performance, now mostly referred to as "ESG"-



The ESG model

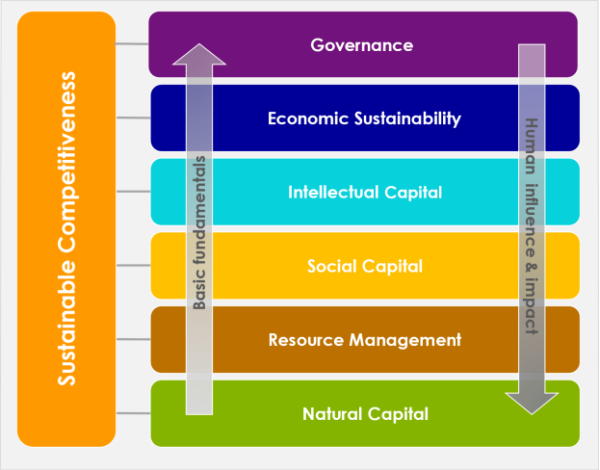
However, corporations are entities that operate in very different boundaries and with different goals than states and nation-economies. The elements of the model therefore have to be adapted to the characteristics of nations and their fundament of sustained prosperity.

While corporate or economic entities (depending on the nature of their business) are working with natural capital, they do not depend on the location of the capital (natural, human, financial) they utilize, and therefore can move their operations to where the external conditions are most favourable, both in terms of physical location (offices/factories) and markets, as well as in terms of business fields. Transport and international trade have made countries and people less dependent on their immediate environment through international trade of resources, including water. However, countries and population cannot simply

move should fundamental resources (water, agricultural output) become scarce or the country inhabitable due to climate change. At the end of the day people rely on, and life off, the natural capital of their environment for better or worse.

The Sustainable Competitiveness Pyramid

Sustainable competitiveness - they ability to generate and sustain inclusive wealth and dignifying standard of life for all citizens in a globalised world of competing economies, consists of 5 key elements that interact and influence each other: natural capital (the given natural environment and climate, minus human induced degradation and pollution), social capital, intellectual capital (the ability to compete in a globalised market through sustained innovation), resource management (the ability to extract the highest possible value from existing resources (natural, human, financial), and governance (the framework given, normally by government policies & investments, in which a national economy operates).

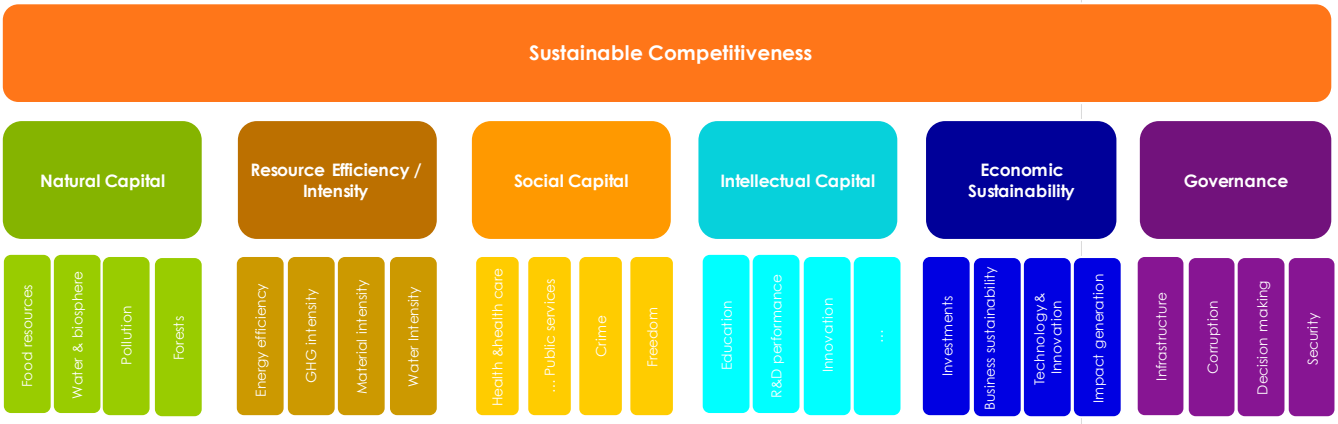


The Sustainable Competitiveness Pyramid

It is now widely accepted that economic activities have adverse impacts or side-effects on the non-financial assets of a country. The negative impacts of economic activities - including negative impacts on the social fabric and cohabitation within a society - can undermine or even reverse future growth and wealth creation. Due to the omission of key non-financial indicators and performance that are fundamental to sustain economic activities, conventionally used measurements to measure wealth of nations such as the GDP have limited informative value for the future development of a country.

Sustainable competitiveness means the ability of a country to meet the needs and basic requirements of current generations while sustaining or growing the national and individual wealth into the future without depleting natural and social capital.

The Sustainable Competitiveness Index is built and calculated based on the sustainable competitiveness model that covers 106 data indicators grouped in5 pillars:



Social Cohesion is the fundamental stability required to maintain interruption-free economic activities: the health of populations, equality, security and freedom within a country

- Natural Capital is the base to sustain a society and economic activities: the given natural environment within the frontiers of a country, including availability of resources, and the level of the depletion of those resources.
- Resource Intensity is a measurement of efficiency, and thus an element of competitiveness: the efficiency of using available resources (domestic or imported) as a measurement of operational competitiveness in a resource-constraint World.
- Social Cohesion is the fundamental stability required to maintain interruption-free economic activities: the health of populations, equality, security and freedom within a country
- Sustainable Innovation is key to sustain economic development in the globalised market: the capability of a country to generate wealth and jobs through innovation and value-added industries in the globalised markets
- The Governance framework is the environment businesses and a national economy are operating in. It is key to future development, not only for software, but also hardware.

Methodology Development

The competitiveness of a nation is influenced by a wide range of factors, i.e. is a complex matter. We are striving to develop a model that can reflect all aspects that define the level of competitiveness. The methodology for the Sustainable Competitiveness is therefore constantly reviewed and has evolved over time. The changes to the Sustainable Competitiveness Model and indicators have been undertaken based on past experiences, new research, data availability, and back-track analysis.

We prioritise accuracy over consistency. Due to changes in methodology, year-on-year comparison of rankings have a somewhat limited informative value. From an index point of view, it might be preferable to base rankings on the same methodology and data. However, we believe that delivering the most accurate result possible is more important than direct of year-on-year rankings comparison. The main changes that have been implemented as a result of the methodology review include changes to the model of competitiveness on which the calculation is based, and further adaptation to availability of congruent data series.

The sustainable competitiveness model has been adapted to better reflect the elements that characterise and influence sustainable competitiveness of nation-economy, and how those elements influence and impact each other. The model used for the first Index consisted of 4 key elements – Natural Capital, Resource Intensity, Sustainable Innovation, and Social Cohesion. Since 2014, the Sustainable Competitiveness model is based on a pyramid with 5 levels. In 2022, the methodology was further extended to 6 dimensions to better reflect the reality of a ntion-economy. The basic conditions form the basis of the pyramid, on which the next level is built. Vice-versa, the higher levels of the pyramid are influencing the performance of the levels below.

- The base level of the Pyramid is the **Natural Capital** (the given physical environment and resources) – the resources that feed the population, provide energy, and materials
- The second level is **Resource Efficiency** – the ability to use available resources at the highest possible efficiency - natural resources, human resources, intellectual resources, financial resources.
- The third level is the **Social Capital** of a country, the cohesion between generations, genders, income groups and other society groups. Social cohesion is required for the prosperous development of human capital, i.e. Social Capital is the provision of a framework that facilitates the third level of the pyramid
- The fourth level is the **Intellectual Capital**, the fundament for the ability to compete and generate wealth in a globalised competitive market through design and manufacturing of value-adding products and service. It is the basis for management capabilities
- The fifth level is the **Business Sustainability**, encompassing all elements that allow businesses to develop in a sustainable and competitive manner.
- The sixth and highest level is **Governance Performance**– the direction and framework provided by government interventions, expenditure, and investments. Government policies (or the absence of such policies) have strong influence and or impact on all lower levels of the Sustainable Competitiveness Pyramid.

10.2 Competitiveness Elements

The sustainable competitiveness model is based on a pyramid, where each level is required to support the next higher level. In the top-down direction, the different levels of the pyramid influence the state of the lower levels.

Natural Capital

The natural capital is the base of the pyramid, and is defined by the characteristics of the given physical environment of a country. The natural capital consists of a mixture of size, population, geography, climate, biodiversity and availability of natural resources (renewable and non-renewable), as well as the level of depletion/degradation of the available resources. The combination of these **factors and the level of depletion of the non-renewable resources due to human activity and climate change represents the potential for sustaining a prosperous** livelihood for the population and the economy of a nation into the future.

Resource Intensity

The more efficient a nation is using resources (natural, human, financial), the more wealth the country is able to generate. In addition, higher efficiency means smaller negative impacts of potential supply scarcity of resources (food, energy, water, minerals). Higher efficiency is also equal to lower cost per production unit throughout all sectors, private and public. Efficient use of resources and energy is an indicator for a nation's ability to maintain or improve living standard levels both under a future business-as-usual Indicators used cover water usage and intensity, energy usage, intensity and energy sources, climate change emissions and intensity as well as certain raw material usage. However, global data availability for raw materials consumption other than steel is limited and therefore could not be included.

Indicators used cover water usage and intensity, energy usage, intensity and energy sources, climate change emissions and intensity as well as certain raw material usage. However, global data availability for raw materials consumption other than steel is limited and therefore could not be included.

Social Capital

The economy requires stability to operate smoothly. Nations and societies therefore need a minimum level of social cohesion, coherence, and solidarity between different regions, between authorities and the people, between different interest groups, between income levels, between generations, and between individuals. A lack of social cohesion in any of the above aspects results in social gaps that eventually lead to increased crime, violence and insecurity that can seriously undermine the stability the economy requires as a basis to thrive in the long run.

Indictors used cover health performance indicators, birth statistics, income differences, equal opportunities (gender, economic), freedom of press, human

rights considerations, the level of crime against both possession and humans, and perceived levels of well-being and happiness.

Intellectual Capital

The backbone of sustained economic success is the ability to continuously improve and innovate on all levels and throughout all institutions (not limited to the private sector). Sustaining competitiveness also requires a long-term view beyond momentary political interests or opinions, and long-term investments in crucial areas (education, infrastructure). Economies that are being deprived from investments sooner or later face decline, as some nations of the formerly "leading" West are currently learning the hard way. Indicators used for the innovation capability sub-index cover education levels, R&D performance indicators, infrastructure investment levels, employment indexes, and the balance of the agricultural-industrial-service sectors.

Economic Sustainability

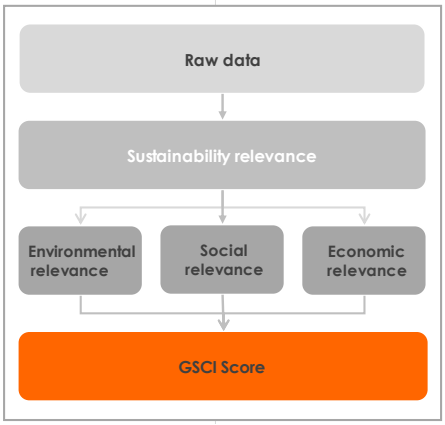
Economic Sustainability reflects the ability to generate wealth through sustainable and inclusive economic development.

Governance Index

With the given physical environment and conditions in place, the sustained competitiveness of a country is determined by what the society and the economy is able to extract from available resources. This, in turn, is characterized by the framework provided by authorities. The framework of a country provides the basis for businesses and the social consensus. Governance indicator consist of both physical indicators (infrastructure) as well as non-physical attributes (business legislation, level of corruption, government investments, exposure to business and volatility risks, exposure to financial risks, etc.)

10.3 Index calculation

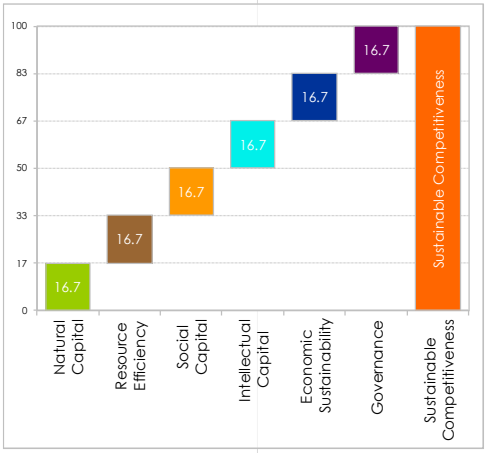
The raw data consist of numerical values. While values can be ranked against each other, they cannot be compared or added to other values. It is therefore necessary to extract a scalable and comparable score from the raw data as a first step.



Calculating scores from raw data

When comparing raw data of variables of different countries, an "absolute best" cannot be defined in most cases. Scores therefore often cannot be calculated against a real or calculated best score. For the purpose of this index, the raw data was analysed and ranked for each indicator individually. Trough calculation of the average deviation, the best performing 5% receive the highest score (100), and the lowest 5% receive the lowest possible score (0). Scores between the highest and the lowest 5% are linearly assigned relative to the best 5% and the worst 5%.

In a second step, the relative importance (weight) of the indicator is assessed against their impact on the E, S and G. The resulting weightings are used to calculate weighted scores for the 6 sub-indexes. The Sustainable Competitiveness Index is then calculated based on the sub-indexes, each weighted equally, i.e. at 16.67%.



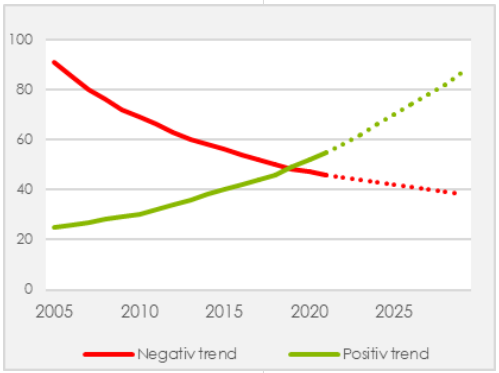
Each level of the Sustainable Competitiveness Pyramid is equally important and therefore equally weighted

Data in perspective

Raw data has to be analysed in perspective: 5000 ha of forest might be a large area for a country like Andorra, but it is a small area in China. Depending on the indicator, the denominator might be the land area, the size of the population, or intensity measurements, e.g. GDP. For certain indicators, (e.g. energy efficiency, but also innovation indicators), the performance is evaluated against two denominators (normally population size and GDP) in order to gain a more altruistic picture of the national sustainability performance that incorporates economic and human efficiency.

Trend analysis: Integrating recent developments

Current data limits the perspective to a momentary picture in time. However, the momentary status is not sufficient to gain a true picture of the sustainable competitiveness, which is, by definition, forward-looking. Of equal importance are therefore the trend developments. Analysing trends and developments allow for understanding of where a country is coming from – and, more importantly - indicates the direction of future developments. Increasing agricultural efficiency, for example, indicates a country's capability to feed an increasing population in the future, or the opposite if the trends are decreasing. Where sufficient data series are available, the trend was calculated for the latest 5 years available and scored to evaluate the current level as well as the future outlook and sustainability potential of a country based on recent developments.



In order to reflect a dynamic performance picture, performance trends are analysed, scored and integrated in the Sustainable Competitiveness Index

Data Sources

Over 90% of the sustainable competitiveness indicators are purely quantitative performance indicators. Data sources were chosen according to reliability and availability of global data. The largest percentage of indicators was derived from the World Bank's indicator database, followed by data sets and indicators provided by various UN agencies. Index calculation

Data reliability & accuracy

The accuracy of the index relies on the accuracy of the underlying data. Given the many individuals and agencies involved in data collected around the World, it cannot be excluded that some of the data is not completely accurate. Data sources chosen for this Index (World Bank, UN agencies, OECD, IEA) are considered reasonably reliable. Raw data from the various databases was used as a basis for calculation as-is, i.e. without verifying the actual data.

Limitations of quantitative analysis

In order to exclude subjectivity, only quantitative data has been taken into account. However, quantitative indicators sometimes are not able to differentiate or express real and actual levels of quality. High spending on health care for example does not necessarily guarantee high quality health care system available for the average citizen. Equally, the percentage of school enrolment (on all levels, form primary levels to college and universities) is not necessarily an expression of the quality of the education. However, for some indicators, quality is equally important to quantity from a sustainability viewpoint. For such indicators, quantitative indicators have limited informative value and serve as a proxy.

While explanatory power of quantitative indicators is limited, conducting a qualitative evaluation of the indicators used on the global level would go far beyond the limitations of this index. For indicators with a potentially low correlation between quantity and quality, the weighting has been adjusted accordingly. In order to integrate some qualitative aspects, results of global surveys have been included, e.g. for the quality of public services, or perceived life satisfaction.

Time frame of data used

The Sustainable Competitiveness Index 2023 is based on the latest available data. For most data series, the latest data available dates 2022. Where 2022 data is not available, the latest available data pint is used.

Availability of data

For some indicators data is not available for all countries (in particular for the less or least developed economies). If non-available data points would be converted to a 0 (zero) score, the rankings would be distorted. In order to present a balanced overall picture, the missing data points from those countries have been replaced with calculated values, extrapolated based on regional averages, income and development levels, as well as geographical features and climatic averages.

10.4 Data Tables – Global Sustainable Competitiveness Index

Rank	Country	Score	Rank	Country	Score	Country	Rank	Score	Rank	Country	Score
1	Sweden	59.6	46	Argentina	47.5	Rwanda	91	42.2	136	Benin	39.1
2	Finland	59.4	47	Russia	47.0	Sri Lanka	92	42.0	137	Zambia	39.1
3	Iceland	59.2	48	Peru	47.0	Dominican	93	41.9	138	Azerbaijan	39.1
4	Switzerland	59.1	49	Panama	46.6	Democratic	94	41.9	139	Ethiopia	39.0
5	Norway	57.7	50	Ecuador	46.6	Gabon	95	41.8	140	Cape Verde	38.9
6	Denmark	57.6	51	Colombia	46.6	Sierra Leone	96	41.8	141	Trinidad and	38.9
7	Estonia	56.7	54	Vietnam	46.3	Kenya	97	41.7	142	West Bank and	38.8
8	Austria	56.2	52	Bosnia and	46.4	Nicaragua	98	41.6	143	Republic of	38.6
9	Latvia	56.1	53	Belarus	46.3	Cuba	99	41.6	144	Guinea	38.6
10	Slovenia	55.7	55	Serbia	46.3	Malawi	100	41.6	145	Turkmenistan	38.5
11	Portugal	55.5	56	Montenegro	46.2	Laos	101	41.5	146	Angola	38.3
12	Japan	55.3	57	Ukraine	46.2	Tanzania	102	41.4	147	Madagascar	38.3
13	Ireland	55.2	58	Fiji	46.1	Samoa	103	41.3	148	Oman	38.2
14	Lithuania	55.1	59	Solomon Islands	45.9	Burma	104	41.2	149	Zimbabwe	38.2
15	Germany	55.0	60	Moldova	45.8	Mexico	105	41.1	150	Antigua and	38.0
16	United Kingdom	54.8	61	Georgia	45.5	Cote d'Ivoire	106	41.1	151	Tunisia	37.9
18	France	54.4	62	North	45.3	Papua New	107	41.1	152	Algeria	37.8
17	Czech Republic	54.7	63	Turkey	45.3	Suriname	108	41.1	153	Mozambique	37.8
19	Netherlands	54.1	64	Timor-Leste	44.8	Senegal	109	41.0	154	St. Kitts and	37.7
20	Luxembourg	53.6	65	Brazil	44.8	Dominica	110	41.0	155	Bahamas	37.7
21	South Korea	53.2	66	Kazakhstan	44.7	Cambodia	111	41.0	156	Nigeria	37.6
22	Canada	53.1	67	Nepal	44.4	Honduras	112	41.0	157	Guinea-Bissau	37.5
23	Croatia	52.9	68	Bhutan	44.3	Ghana	113	40.9	158	Equatorial	37.3
24	Italy	52.3	69	Armenia	44.3	Namibia	114	40.8	159	Eswatini	36.9
25	Australia	52.3	70	Mongolia	44.3	Venezuela	115	40.7	160	Kuwait	36.9
26	Slovakia	51.9	71	Malaysia	44.3	Palau	116	40.7	161	Iran	36.9
27	New Zealand	51.9	72	St. Vincent and	44.2	Jamaica	117	40.6	162	Djibouti	36.9
28	Belgium	51.7	73	Bolivia	44.2	Micronesia	118	40.5	163	Chad	36.8
29	Poland	51.6	74	Maldives	44.1	Brunei	119	40.4	164	Egypt	36.7
30	China	51.0	75	Tonga	44.0	Morocco	120	40.4	165	Bahrain	36.6
31	Uruguay	50.9	76	Guyana	43.8	India	121	40.2	166	Burundi	36.6
32	USA	50.9	77	El Salvador	43.8	Botswana	122	40.2	167	Central	36.5
33	Spain	50.8	78	Kiribati	43.7	Cameroon	123	40.0	168	Mauritania	36.4
34	Albania	49.8	79	Kyrgistan	43.6	Jordan	124	39.9	169	Burkina Faso	36.3
35	Malta	49.6	80	Sao Tome and	43.6	Tajikistan	125	39.9	170	Aruba	36.0
36	Singapore	49.4	81	Thailand	43.6	Saudi Arabia	126	39.8	171	Niger	35.7
37	Romania	49.4	82	Vanuatu	43.5	Togo	127	39.8	172	Comoros	35.1
38	Hungary	49.4	83	Belize	43.5	Uganda	128	39.7	173	Pakistan	34.4
39	Costa Rica	49.3	84	United Arab	43.2	Qatar	129	39.7	174	Mali	34.3
40	Chile	48.6	85	Seychelles	42.8	Bangladesh	130	39.6	175	Haiti	34.3
41	Paraguay	48.4	86	Indonesia	42.8	South Africa	131	39.6	176	Yemen	34.0
42	Cyprus	48.0	87	Grenada	42.7	Liberia	132	39.4	177	Syria	33.9
43	Greece	47.9	88	Mauritius	42.6	Gambia	133	39.4	178	Afghanistan	33.8
44	Bulgaria	47.9	89	Uzbekistan	42.4	Lesotho	134	39.2	179	South Sudan	33.1
45	Israel	47.7	90	Philippines	42.3	Guatemala	135	39.1	180	Sudan	32.7

Natural Capital Competitiveness Scores

Country	Rank	Score	Country	Rank	Score	Country	Rank	Score	Country	Rank	Score
Uruguay	1	62.4	Ecuador	46	49.9	Spain	91	43.6	Ethiopia	137	38.8
Paraguay	2	59.8	Kyrgistan	47	49.7	Mexico	92	43.3	Greece	136	38.8
Bhutan	3	59.7	Ireland	48	49.6	South Africa	93	43.1	Netherlands	138	38.8
Iceland	4	59.4	Suriname	49	49.4	Togo	94	43.0	Sri Lanka	139	38.7
Canada	5	59.3	Georgia	50	49.3	Lesotho	95	43.0	Thailand	140	38.6
Brazil	6	59.2	Equatorial	51	49.2	Japan	96	42.8	Mauritius	141	38.0
Latvia	7	58.9	Poland	52	49.2	Saudi Arabia	97	42.7	Palau	142	38.0
Bolivia	8	58.7	Cote d'Ivoire	53	49.0	Bangladesh	98	42.5	Benin	143	37.9
Colombia	9	58.5	Austria	54	49.0	Cuba	99	42.5	Antigua and	144	37.6
Russia	10	58.3	Zimbabwe	55	49.0	Sudan	100	42.4	Eswatini	145	37.4
Albania	11	57.6	Central African	56	48.9	Hungary	101	42.2	Iran	146	37.1
Laos	12	57.0	South Sudan	57	48.8	Tonga	102	42.0	Egypt	147	36.8
Lithuania	13	56.3	Cameroon	58	48.6	Azerbaijan	103	42.0	Malta	148	36.6
Peru	14	56.2	Kazakhstan	59	48.3	North	104	41.7	Micronesia	149	36.4
Democratic	15	55.9	Belize	60	48.3	Malawi	105	41.6	Seychelles	150	36.2
Venezuela	16	55.7	Denmark	61	48.3	India	106	41.5	Djibouti	151	36.1
Croatia	17	55.6	Czech Republic	62	48.1	Burundi	107	41.5	Vanuatu	152	35.9
Serbia	18	54.6	Angola	63	47.9	Turkmenistan	108	41.5	South Korea	153	35.9
Belarus	19	54.4	Tajikistan	64	47.7	Guatemala	109	41.2	Kiribati	154	35.5
Bosnia and	20	54.3	Mozambique	65	47.6	Nigeria	111	40.9	Libya	155	34.9
Sweden	21	53.8	New Zealand	66	47.5	Namibia	110	40.9	Kuwait	156	34.7
Romania	22	53.6	Chad	67	47.3	Mali	113	40.8	Gambia	157	34.5
Estonia	23	53.6	Costa Rica	68	47.2	Philippines	112	40.8	Kenya	158	34.4
Finland	24	53.5	Guinea	69	46.6	Luxembourg	114	40.8	Comoros	159	34.4
Nicaragua	25	53.4	Australia	70	46.2	Afghanistan	115	40.7	Haiti	160	34.3
Chile	26	53.4	Montenegro	71	46.1	Guinea-Bissau	117	40.6	United Arab	161	34.3
Panama	27	53.4	Mongolia	72	46.0	China	116	40.6	Bahrain	162	33.9
Norway	28	53.3	France	74	45.9	Germany	118	40.5	Maldives	163	33.7
Sierra Leone	29	52.9	Turkey	73	45.9	Liberia	119	40.4	Yemen	164	33.7
Guyana	30	52.6	United Kingdom	75	45.9	Syria	120	40.4	Pakistan	165	33.2
Cambodia	31	52.4	El Salvador	76	45.7	Dominican	121	40.4	Iraq	166	33.1
Argentina	32	52.1	Gabon	77	45.6	Burkina Faso	122	40.3	Timor-Leste	167	33.1
Fiji	33	51.6	Uganda	78	45.6	Malaysia	123	40.2	Qatar	168	33.1
Burma	34	51.6	Vietnam	79	45.6	Senegal	125	40.1	Eritrea	169	32.9
Slovakia	35	51.4	Indonesia	80	45.5	Jamaica	124	40.2	Cyprus	170	32.7
Switzerland	36	51.3	Italy	81	45.4	Oman	126	40.1	Sao Tome and	171	32.3
Tanzania	37	51.1	Nepal	82	45.0	St. Vincent and	127	39.9	Trinidad and	172	32.2
Ukraine	38	51.0	Madagascar	83	44.7	Armenia	128	39.9	Jordan	173	31.7
Republic of	39	50.8	Uzbekistan	84	44.5	Dominica	129	39.7	Tunisia	174	31.7
USA	40	50.6	Solomon Islands	85	44.4	Botswana	130	39.4	Bahamas	175	31.2
Papua New	41	50.6	Niger	87	44.2	Morocco	131	39.4	Belgium	176	31.2
Portugal	42	50.3	Honduras	86	44.3	Samoa	132	39.3	Israel	177	30.8
Zambia	43	50.2	Slovenia	88	44.2	Brunei	133	39.2	Grenada	178	30.0
Bulgaria	44	50.1	Moldova	89	44.0	Mauritania	134	39.0	Cape Verde	179	29.4
Ghana	45	50.0	Rwanda	90	43.7	Algeria	135	38.9	Singapore	180	29.0

Resource Intensity Competitiveness Scores

Country	Rank	Score	Country	Rank	Score	Country	Rank	Score	Country	Rank	Score
Papua New	1	59.6	Gabon	46	47.0	Benin	91	42.2	Vietnam	136	35.5
United Kingdom	2	58.0	Uganda	47	47.0	Japan	92	42.1	Cambodia	137	35.2
Sweden	3	58.0	Austria	48	47.0	Afghanistan	93	42.1	Belarus	138	35.2
Luxembourg	4	57.2	Rwanda	49	46.8	Argentina	94	42.0	Burma	139	35.1
Switzerland	5	55.7	Comoros	50	46.7	Hungary	95	42.0	Aruba	140	34.8
Democratic	6	55.1	Liberia	51	46.4	Brazil	96	42.0	China	141	34.8
Sierra Leone	7	54.9	Tanzania	52	46.2	Samoa	97	41.8	Singapore	142	34.6
Yemen	8	54.8	Burundi	53	46.1	Poland	98	41.5	Bosnia and	143	34.5
Central African	9	54.0	Somalia	54	46.0	Botswana	99	41.0	South Africa	144	34.5
Denmark	10	53.9	Togo	55	45.8	Uruguay	100	40.7	Sudan	145	34.2
Solomon Islands	11	53.8	Djibouti	56	45.7	Maldives	101	40.7	South Korea	146	34.0
St. Vincent and	12	53.2	Namibia	57	45.6	Timor-Leste	102	40.6	Malaysia	147	33.9
Australia	13	52.7	Madagascar	58	45.5	Nicaragua	103	40.6	Palau	148	33.8
Dominica	14	52.3	Fiji	59	45.3	Colombia	104	40.6	Syria	149	33.6
Malawi	15	52.3	Italy	60	45.2	St. Kitts and	105	40.5	Mexico	150	33.4
Belize	16	52.1	Romania	61	45.2	Sri Lanka	106	40.4	Egypt	151	33.2
Iceland	17	51.9	Lesotho	62	45.1	Chile	107	40.3	Pakistan	152	32.7
El Salvador	18	51.1	Slovenia	63	44.9	Bolivia	108	40.2	Tunisia	153	32.4
Equatorial	19	50.9	Chad	64	44.9	Mali	109	40.2	Indonesia	154	32.2
Latvia	20	50.7	Venezuela	65	44.9	Ecuador	110	40.1	Bhutan	155	32.1
Guinea-Bissau	21	50.2	Jordan	66	44.8	Burkina Faso	111	40.1	Qatar	156	32.0
Finland	22	50.1	Canada	67	44.7	Albania	112	40.0	Moldova	157	31.0
Grenada	23	50.1	Guinea	68	44.7	Bangladesh	113	39.9	North	158	30.8
Ireland	24	49.9	Zimbabwe	69	44.6	Trinidad and	114	39.8	Thailand	159	30.7
Portugal	25	49.8	Paraguay	70	44.5	Bahamas	115	39.8	Mongolia	160	30.4
France	26	49.8	Estonia	71	44.3	Eritrea	116	39.2	Mauritius	161	30.3
Haiti	27	49.5	Croatia	72	44.2	South Sudan	117	39.1	Kyrgistan	162	29.8
Angola	28	49.4	Montenegro	73	44.2	Guyana	118	38.6	Bahrain	163	29.6
Kiribati	29	49.1	Cyprus	74	44.2	Mozambique	119	38.6	Georgia	164	29.4
Gambia	30	49.1	Belgium	75	44.1	Nepal	120	38.5	Seychelles	165	29.4
Sao Tome and	31	48.9	Greece	76	43.9	Philippines	121	38.4	Russia	166	29.2
Vanuatu	32	48.9	Cote d'Ivoire	77	43.7	Antigua and	122	38.3	Armenia	167	28.7
Norway	33	48.8	Ghana	78	43.7	Brunei	123	38.2	Turkmenistan	168	28.5
Netherlands	34	48.6	Republic of	79	43.3	Peru	124	37.4	Kuwait	169	28.2
Malta	35	48.6	Slovakia	80	43.2	Cape Verde	125	37.3	Kazakhstan	170	27.8
Spain	36	48.5	Guatemala	81	43.2	West Bank and	126	37.2	Azerbaijan	171	27.7
Nigeria	37	48.4	Niger	82	43.1	Mauritania	127	37.0	Tajikistan	172	27.0
Costa Rica	38	48.3	Cuba	83	43.0	Morocco	128	36.9	Algeria	173	26.9
Kenya	39	48.2	Israel	84	42.9	Micronesia	129	36.7	Turkey	174	26.8
Panama	40	48.0	Ukraine	85	42.8	Dominican	130	36.6	Suriname	175	26.7
Honduras	41	47.5	New Zealand	86	42.7	India	131	36.6	United Arab	176	26.1
Lithuania	42	47.4	Tonga	87	42.7	Senegal	132	36.5	Uzbekistan	177	26.0
Germany	43	47.4	USA	88	42.6	Zambia	133	36.4	Lebanon	178	25.8
Cameroon	44	47.4	Czech Republic	89	42.6	Bulgaria	134	35.6	Saudi Arabia	179	25.8
Ethiopia	45	47.3	Jamaica	90	42.3	Eswatini	135	35.5	Serbia	180	25.5

Social Capital Competitiveness Scores

Country	Rank	Score	Country	Rank	Score	Country	Rank	Score	Country	Rank	Score
Finland	1	65.8	Australia	46	51.7	Tunisia	91	42.1	Benin	136	36.3
Iceland	2	64.9	China	47	51.4	Tanzania	92	41.9	Nigeria	137	36.1
Slovenia	3	63.7	Greece	48	51.1	Dominican	93	41.7	Brazil	138	35.9
Japan	4	63.6	Georgia	49	50.9	Burma	94	41.5	Suriname	139	35.4
Norway	5	63.5	Timor-Leste	50	50.6	Lebanon	95	41.4	Laos	140	35.3
Sweden	6	62.4	Seychelles	51	50.5	Ghana	96	41.3	Samoa	141	35.2
Estonia	7	61.0	Ukraine	52	50.4	Paraguay	97	41.1	Antigua and	142	35.1
Netherlands	8	60.9	Kyrgistan	53	50.3	Solomon Islands	98	40.9	Pakistan	143	34.9
North	9	60.8	Qatar	54	50.0	Malawi	99	40.6	Bahamas	144	34.7
Armenia	10	60.7	Indonesia	55	49.8	India	100	40.4	St. Kitts and	145	34.7
Portugal	11	59.9	Costa Rica	56	49.3	Jordan	101	40.2	Niger	146	34.7
Denmark	12	59.9	Thailand	57	49.2	Vanuatu	102	40.2	Honduras	147	34.6
Belgium	13	59.1	Argentina	58	49.2	Kenya	103	39.9	Madagascar	148	34.3
South Korea	14	59.1	Bulgaria	59	49.0	Panama	104	39.8	Iraq	149	34.3
Italy	15	58.9	Israel	60	49.0	Turkmenistan	105	39.6	Morocco	150	34.1
Austria	16	58.0	Mongolia	61	48.7	Cuba	106	39.4	Lesotho	151	34.0
Spain	17	57.8	Sri Lanka	62	48.4	Turkey	107	39.4	Mozambique	152	33.9
Lithuania	18	57.7	Senegal	63	47.8	Guyana	108	38.9	Cameroon	153	33.8
Switzerland	19	57.4	Mauritius	64	47.7	Sierra Leone	109	38.6	Gabon	154	33.8
Albania	20	57.3	Malaysia	65	47.7	Bahrain	110	38.6	Libya	155	33.8
France	21	57.2	Peru	66	47.3	Cote d'Ivoire	111	38.5	Togo	156	33.6
Czech Republic	22	57.2	Uruguay	67	47.0	Guinea	112	38.4	Micronesia	157	33.3
Moldova	23	57.0	Kazakhstan	68	46.3	Nicaragua	113	37.9	Chad	158	33.3
United Arab	24	57.0	Ecuador	69	46.3	St. Vincent and	114	37.8	Egypt	159	33.1
Ireland	25	56.8	Chile	70	45.9	Burundi	115	37.7	Papua New	160	33.1
Slovakia	26	56.5	Bolivia	71	45.8	Fiji	116	37.7	Botswana	161	33.1
Cyprus	27	56.1	Kuwait	72	45.5	Guinea-Bissau	117	37.7	Syria	162	33.0
Croatia	28	55.8	Nepal	73	45.3	Venezuela	118	37.6	Republic of	163	32.8
Poland	29	55.3	El Salvador	74	45.2	Liberia	119	37.4	Belize	164	32.5
Germany	30	55.3	Tonga	75	45.2	Palau	120	37.3	South Africa	165	32.4
Luxembourg	31	55.1	Azerbaijan	76	44.6	West Bank and	121	37.3	Zambia	166	32.4
Maldives	32	54.6	Sao Tome and	77	44.3	Uganda	122	37.2	Guatemala	167	31.8
Latvia	33	54.5	Saudi Arabia	78	44.1	Rwanda	123	37.1	Burkina Faso	168	31.6
United Kingdom	34	53.8	Bhutan	79	44.0	Mexico	124	37.0	Comoros	169	31.1
Malta	35	53.8	Philippines	80	43.9	Gambia	125	37.0	Mali	170	31.1
Montenegro	36	53.0	Algeria	81	43.9	Bangladesh	126	37.0	Dominica	171	30.7
Singapore	37	53.0	Trinidad and	82	43.7	Ethiopia	127	36.9	Democratic	172	30.3
Serbia	38	52.7	Oman	83	43.3	Cambodia	128	36.9	Sudan	173	30.0
Belarus	39	52.5	Vietnam	84	43.2	Aruba	129	36.8	Zimbabwe	174	30.0
New Zealand	40	52.4	Russia	85	43.1	Mauritania	130	36.8	Yemen	175	29.7
Canada	41	52.3	Cape Verde	86	43.0	Namibia	131	36.7	Djibouti	176	29.4
Uzbekistan	42	52.2	Brunei	87	42.9	Jamaica	132	36.6	Angola	177	28.6
Hungary	43	52.1	Tajikistan	88	42.8	Iran	133	36.6	Equatorial	178	27.8
Bosnia and	44	51.9	USA	89	42.5	Kiribati	134	36.5	Haiti	179	26.7
Romania	45	51.9	Grenada	90	42.4	Colombia	135	36.4	Afghanistan	180	26.4

Intellectual Capital Competitiveness Scores

Country	Rank	Score	Country	Rank	Score	Country	Rank	Score	Country	Rank	Score
South Korea	1	75.2	Croatia	46	46.4	Armenia	91	39.3	Gabon	136	33.3
Singapore	2	68.9	Micronesia	47	46.1	Rwanda	92	39.2	Cote d'Ivoire	137	33.0
China	3	68.8	Slovakia	48	46.0	Samoa	93	39.1	Mozambique	138	32.8
Japan	4	68.6	Malaysia	49	45.7	St. Vincent and	94	39.0	Liberia	139	32.2
United Kingdom	5	65.2	Greece	50	45.5	Bulgaria	95	38.8	Trinidad and	140	32.1
Germany	6	65.2	Timor-Leste	51	45.1	Aruba	96	38.6	Burkina Faso	141	32.0
USA	7	64.6	Uruguay	52	44.7	Uzbekistan	97	38.2	Nicaragua	142	31.9
Switzerland	8	63.6	Kiribati	53	44.4	Belarus	98	38.0	Venezuela	143	31.2
Israel	9	61.8	Morocco	54	44.3	Bhutan	99	37.9	Benin	144	31.1
France	10	61.6	Ecuador	55	44.2	Bahrain	100	37.8	Sierra Leone	145	31.0
Finland	11	61.4	Fiji	56	43.8	Jordan	101	37.8	Malawi	146	30.9
Sweden	12	60.7	Saudi Arabia	57	43.6	Grenada	102	37.7	Honduras	147	30.9
Denmark	13	60.5	Kazakhstan	58	43.5	Belize	103	37.7	Burundi	148	30.8
Norway	14	60.4	South Africa	59	43.5	Egypt	104	37.7	Lesotho	149	30.4
Netherlands	15	59.9	United Arab	60	43.1	St. Kitts and	105	37.5	Zambia	150	30.3
Austria	16	59.6	Mauritius	61	42.9	Dominican	106	37.4	Yemen	152	29.9
Belgium	17	59.1	Philippines	63	42.9	Dominica	107	37.3	Botswana	151	30.0
Portugal	18	58.8	Oman	62	42.9	Eswatini	108	37.3	Cape Verde	153	29.8
Turkey	19	58.6	Solomon Islands	64	42.6	Senegal	109	37.2	Ghana	154	29.3
Italy	20	57.4	Qatar	65	42.4	Maldives	110	37.2	El Salvador	155	29.1
Canada	21	55.7	West Bank and	66	42.3	Moldova	111	37.0	Haiti	156	28.6
Iceland	22	55.3	Mexico	67	42.1	Laos	112	37.0	Cambodia	157	28.5
Czech Republic	23	55.2	Mongolia	68	42.0	Guatemala	113	36.9	Lebanon	159	28.3
Thailand	24	55.1	Azerbaijan	69	42.0	Bolivia	114	36.8	Tanzania	158	28.5
Slovenia	25	55.0	Brazil	70	41.9	Sri Lanka	115	36.7	Ethiopia	160	28.3
Estonia	26	55.0	Argentina	71	41.8	Bangladesh	116	36.3	Pakistan	161	27.8
Australia	27	53.5	Paraguay	72	41.8	Jamaica	117	36.2	Republic of	162	27.6
Russia	28	53.3	Nepal	73	41.6	Kuwait	118	36.2	Comoros	163	27.6
Iran	29	53.0	Algeria	75	41.5	Tajikistan	119	36.1	Libya	164	26.9
Latvia	30	52.8	Georgia	74	41.6	Montenegro	120	36.1	Iraq	165	26.9
Poland	31	51.9	Kyrgistan	76	41.5	Brunei	121	36.0	Democratic	166	26.7
Malta	32	50.6	Burma	78	41.2	Bahamas	122	35.5	Zimbabwe	167	26.4
Cyprus	33	50.6	Ukraine	77	41.2	Gambia	123	35.4	Guinea	168	26.1
Lithuania	34	50.0	Serbia	79	41.0	Syria	124	35.4	Sudan	169	25.9
New Zealand	35	49.7	Tunisia	80	40.5	Kenya	125	35.3	Mauritania	170	25.8
Ireland	36	49.2	Indonesia	81	40.4	Panama	126	35.3	Angola	171	25.8
Chile	37	49.1	Cuba	82	40.1	Romania	127	35.0	Madagascar	172	25.7
Vietnam	38	49.0	Guyana	83	40.0	Suriname	128	34.9	Papua New	173	25.7
Luxembourg	39	48.9	Costa Rica	85	39.9	Togo	129	34.7	Nigeria	174	25.4
Hungary	40	48.5	India	84	39.9	Cameroon	130	34.4	Mali	175	24.7
Palau	41	48.2	Sao Tome and	86	39.8	Bosnia and	131	34.0	Uganda	176	24.4
Peru	42	47.7	Turkmenistan	87	39.7	Namibia	132	33.8	Chad	177	24.4
Tonga	43	47.5	Albania	88	39.6	Antigua and	133	33.8	Central African	178	23.6
Colombia	44	47.1	Vanuatu	90	39.5	North	134	33.5	Afghanistan	179	23.5
Spain	45	46.5	Seychelles	89	39.5	Djibouti	135	33.4	Somalia	180	22.8

Economic Sustainabilty Scores

Ran	Country	Score	Ran	Country	Score	Ran	Country	Score	Ran	Country	Score
1	Slovenia	61.6	46	Bulgaria	47.1	91	Nicaragua	41.6	136	Central	37.0
2	Ireland	60.6	47	Australia	47.0	92	Samoa	41.5	137	Comoros	37.0
3	Austria	58.0	48	Kazakhstan	47.0	93	Vanuatu	41.4	138	Lebanon	36.8
4	Finland	57.8	49	Paraguay	46.9	94	Guatemala	41.2	139	Brunei	36.8
5	Germany	56.8	50	Fiji	46.8	95	Timor-Leste	41.2	140	Iraq	36.7
6	Denmark	56.7	51	Malta	46.8	96	Sri Lanka	40.9	141	Oman	36.7
7	Hungary	55.9	52	Canada	46.6	97	Benin	40.9	142	Jamaica	36.5
8	China	55.8	53	Kiribati	46.3	98	Haiti	40.8	143	Burkina Faso	36.5
9	South Korea	55.5	54	Tonga	46.2	99	Ghana	40.4	144	Malawi	36.3
10	Portugal	55.5	55	Albania	46.0	100	Georgia	40.4	145	Nepal	36.3
11	Switzerland	55.4	56	Moldova	46.0	101	St. Kitts and Nevis	40.3	146	Niger	35.8
12	USA	55.4	57	Colombia	45.9	102	Egypt	40.2	147	Zimbabwe	35.8
13	Sweden	55.4	58	Argentina	45.8	103	North Macedonia	40.2	148	Tajikistan	35.7
14	France	54.1	59	El Salvador	45.7	104	Cuba	40.2	149	Nigeria	35.7
15	Lithuania	53.7	60	Belarus	45.0	105	Tanzania	40.0	150	Tunisia	35.7
16	Italy	53.5	61	Thailand	44.6	106	Guinea	40.0	151	Saudi Arabia	35.6
17	United	53.4	62	Grenada	44.6	107	Republic of	39.9	152	Zambia	35.6
18	Iceland	53.3	63	Peru	44.5	108	United Arab	39.9	153	Bhutan	35.5
19	Croatia	53.2	64	Suriname	44.4	109	Rwanda	39.8	154	Afghanistan	35.5
20	Costa Rica	53.1	65	Dominican	44.3	110	Morocco	39.8	155	Mozambique	35.4
21	Czech	52.6	66	Bosnia and	44.0	111	Democratic	39.8	156	Gambia	34.8
22	Latvia	52.4	67	St. Vincent and	43.9	112	Bangladesh	39.8	157	Pakistan	34.7
23	Slovakia	52.3	68	Mexico	43.8	113	Namibia	39.4	158	Trinidad and	34.6
24	Singapore	52.1	69	Malaysia	43.5	114	Belize	39.3	159	Madagascar	34.1
25	Greece	52.1	70	Angola	43.4	115	Brazil	39.3	160	Uzbekistan	34.0
26	Belgium	52.1	71	Laos	43.2	116	Dominica	39.2	161	Papua New	33.7
27	Japan	51.7	72	Kenya	43.1	117	Eswatini	39.2	162	Turkmenistan	33.6
28	Romania	51.6	73	Philippines	43.1	118	Guyana	39.2	163	Libya	33.5
29	Luxembourg	51.5	74	Cyprus	42.9	119	Armenia	39.1	164	Azerbaijan	33.5
30	Greenland	51.0	75	Montenegro	42.8	120	Mongolia	39.0	165	South Sudan	33.4
31	Gabon	50.9	76	Cambodia	42.7	121	Cape Verde	38.9	166	South Africa	33.0
32	Israel	50.7	77	Burma	42.7	122	Maldives	38.8	167	Bahrain	32.9
33	Panama	50.6	78	Djibouti	42.6	123	Uganda	38.7	168	Seychelles	32.6
34	Norway	50.5	79	Jordan	42.6	124	Botswana	38.7	169	Syria	32.4
35	Estonia	50.5	80	West Bank and	42.5	125	Honduras	38.5	170	Mali	32.2
36	Netherlands	50.3	81	Bolivia	42.5	126	Ethiopia	38.4	171	Algeria	32.2
37	Turkey	50.3	82	Indonesia	42.5	127	Senegal	38.4	172	Qatar	32.2
38	Poland	50.0	83	Togo	42.4	128	Guinea-Bissau	38.3	173	Iran	32.0
39	Uruguay	49.7	84	Sao Tome and	42.0	129	Sierra Leone	38.2	174	India	31.5
40	New	49.1	85	Bahamas	42.0	130	Solomon Islands	38.1	175	Eritrea	31.4
41	Serbia	48.5	86	Mauritius	42.0	131	Venezuela	38.0	176	Burundi	31.1
42	Spain	48.4	87	Cameroon	41.9	132	Mauritania	38.0	177	Lesotho	31.0
43	Ukraine	47.5	88	Vietnam	41.9	133	Kyrgistan	37.5	178	Chad	30.6
44	Ecuador	47.4	89	Cote d'Ivoire	41.9	134	Equatorial Guinea	37.1	179	Yemen	30.4
45	Micronesia	47.1	90	Chile	41.6	135	Liberia	37.1	180	Sudan	28.4

Governance Efficiency Competitiveness Scores

Country	Rank	Score	Country	Rank	Score	Country	Rank	Score	Country	Rank	Score
Estonia	1	76.0	Costa Rica	42	59.7	Tonga	92	50.6	Honduras	141	43.6
Switzerland	2	74.0	China	51	58.5	Turkey	89	51.0	Bahamas	136	44.3
Norway	3	73.0	Vietnam	45	59.2	Cuba	96	49.8	Malawi	135	44.6
Denmark	4	72.4	Timor-Leste	50	58.7	India	91	50.7	Tanzania	139	44.1
Ireland	6	72.2	North	47	59.0	St. Vincent and	94	50.3	Cote d'Ivoire	138	44.1
Sweden	5	72.2	Armenia	52	58.2	Brazil	95	49.9	Algeria	143	43.5
Luxembourg	7	71.7	Uzbekistan	48	59.0	Thailand	97	49.4	Benin	140	43.7
Finland	9	71.2	Montenegro	53	58.0	St. Kitts and	98	48.8	Gabon	142	43.5
Netherlands	8	71.3	Serbia	54	57.9	Cape Verde	100	48.7	Zimbabwe	144	43.2
New Zealand	10	70.1	Kazakhstan	55	57.6	Cambodia	99	48.7	Bahrain	145	43.2
Lithuania	11	70.0	Hungary	56	57.4	Tajikistan	101	48.5	Lesotho	146	43.0
Slovenia	12	69.7	Georgia	57	56.9	Morocco	102	48.4	Belize	148	42.5
Belgium	13	69.2	Malaysia	58	56.1	Namibia	104	48.2	Togo	147	42.6
Iceland	14	68.6	Paraguay	59	55.7	Antigua and	106	48.0	Liberia	149	42.5
Germany	15	68.5	Botswana	62	55.2	Philippines	103	48.4	Ethiopia	150	41.1
Latvia	16	68.5	Bosnia and	60	55.5	Palau	107	47.8	Nicaragua	151	40.0
Czech Republic	17	67.5	USA	61	55.2	Ukraine	105	48.0	Iraq	154	39.9
Austria	18	67.3	Nepal	64	54.9	Senegal	113	47.4	Niger	152	40.0
Australia	19	67.0	Panama	65	54.7	Sri Lanka	111	47.6	Papua New	156	39.7
Bulgaria	21	66.2	Argentina	68	54.1	Mexico	108	47.7	Guatemala	155	39.7
South Korea	20	66.3	Solomon Islands	67	54.4	Aruba	110	47.6	Lebanon	153	40.0
Uruguay	22	65.6	Kiribati	66	54.5	Kuwait	112	47.5	Djibouti	158	38.3
Japan	24	65.2	Indonesia	69	54.1	Iran	114	47.3	Pakistan	157	38.8
Spain	23	65.5	Albania	70	53.9	Oman	120	46.8	Burma	159	37.8
Malta	26	65.1	Mauritius	71	53.7	Ghana	116	47.0	Mozambique	160	37.7
France	25	65.2	Sao Tome and	72	53.7	West Bank and	118	47.0	Somalia	161	37.7
Singapore	27	64.8	Maldives	63	54.9	Kyrgistan	121	46.8	Nigeria	162	37.5
Croatia	28	64.7	Fiji	73	53.6	Qatar	109	47.7	Afghanistan	164	37.0
Moldova	29	64.6	Jamaica	76	53.0	Dominica	115	47.3	Republic of	163	37.1
Portugal	30	63.9	Belarus	77	52.8	Jordan	119	46.9	Comoros	168	36.2
Canada	32	63.4	Ecuador	75	53.4	Brunei	117	47.0	Venezuela	165	36.4
Seychelles	31	63.8	Guyana	74	53.4	Gambia	123	46.3	Sudan	166	36.4
Cyprus	33	63.0	Trinidad and	78	52.6	Bangladesh	122	46.6	Burkina Faso	169	36.2
Poland	34	62.8	Samoa	79	52.5	El Salvador	125	45.6	Guinea-Bissau	167	36.3
Greece	35	62.7	Russia	80	52.0	Kenya	124	45.8	Guinea	171	35.2
Chile	36	61.7	Peru	84	51.7	Zambia	127	45.2	Chad	170	35.9
Israel	39	61.2	South Africa	88	51.4	Mauritania	131	44.8	Sierra Leone	173	34.6
Slovakia	38	61.4	Suriname	83	51.8	Madagascar	130	44.9	Democratic	172	34.9
Romania	37	61.4	Laos	82	51.8	Uganda	137	44.2	Equatorial	174	34.4
Italy	40	60.6	Turkmenistan	87	51.4	Tunisia	126	45.4	Angola	175	33.9
United Kingdom	41	59.9	Grenada	86	51.6	Bolivia	132	44.8	Mali	176	33.8
Vanuatu	46	59.1	Dominican	81	52.0	Rwanda	134	44.7	Syria	177	33.5
Mongolia	49	58.9	Saudi Arabia	85	51.7	Egypt	129	45.0	Cameroon	178	33.3
United Arab	44	59.3	Colombia	93	50.5	Eswatini	128	45.1	Burundi	179	32.7
Bhutan	43	59.4	Micronesia	90	50.9	Azerbaijan	133	44.7	Eritrea	180	32.5

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The

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State of the World 2023

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