



## Inclusivity Index

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## Critical Values: Law of the Minimum

Indicator	Threshold Value (red light)	Explanation
Trust	15	Approx. 25% of countries fall below that value
CPI	30	Approx. 25% of countries fall below that value
GDP	3.000 USD	Subject for discussion
CGD	60% GDP	Maastricht Criteria
CO2 PC	6t	Subject for discussion
EPI	35	Approx. 25% of countries fall below that value
Gini	> 0,4	Approx. 25% of countries are above that value
HDI	0,6 (0,55 maybe)	Approximated breakoff point between low and medium HDI
FSI	80	Approx. 25% of countries are above that value
CSPI	0,5	Approx. 25% of countries fall below that value

- Further, we assume that for any society to be successful/healthy, every of these dimensions must be fulfilled to a certain extent
  - We call these the “critical minimums.”
- Thus, identifying and addressing is a key task for researchers and policymakers alike
- The first step in this procedure is to define these minimum standards for each index
- In order to achieve this, we use three modes of determination
  - research-based assumptions (Good reasons)
  - Popular conventions used in politics and the economy
  - Free determination if the preceding points produce no satisfying answers

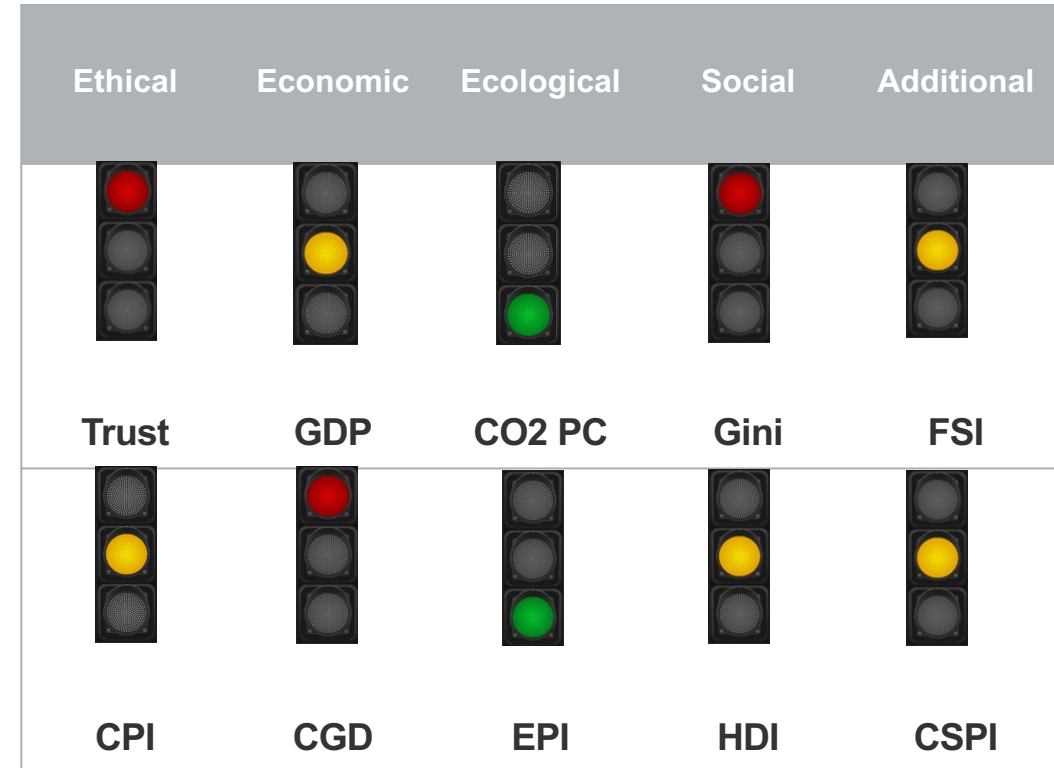
## Critical Values: Limits for Maximum Threshold Values

Indicator	Threshold Value (green-light)	Explanation	Median
Trust	33,5	Approx. 25% of countries are above that value	21
CPI	55	Approx. 25% of countries are above that value	40
GDP	50.000 USD	Subject for discussion	7.650
CGD	40% of GDP	Approx. 25% of countries fall below that value	54
CO2 PC	3t	Subject for discussion	2,6
EPI	75	Approx. 25% of countries are above that value	58
Gini	< 0,3	Approx. 25% of countries fall below that value	0,37
HDI	0,8	Breakoff point between high and very high HDI	0,74
FSI	50	Approx. 25% of countries fall below that value	69
CSPI	0,8	Approx. 25% of countries are above that value	0,7

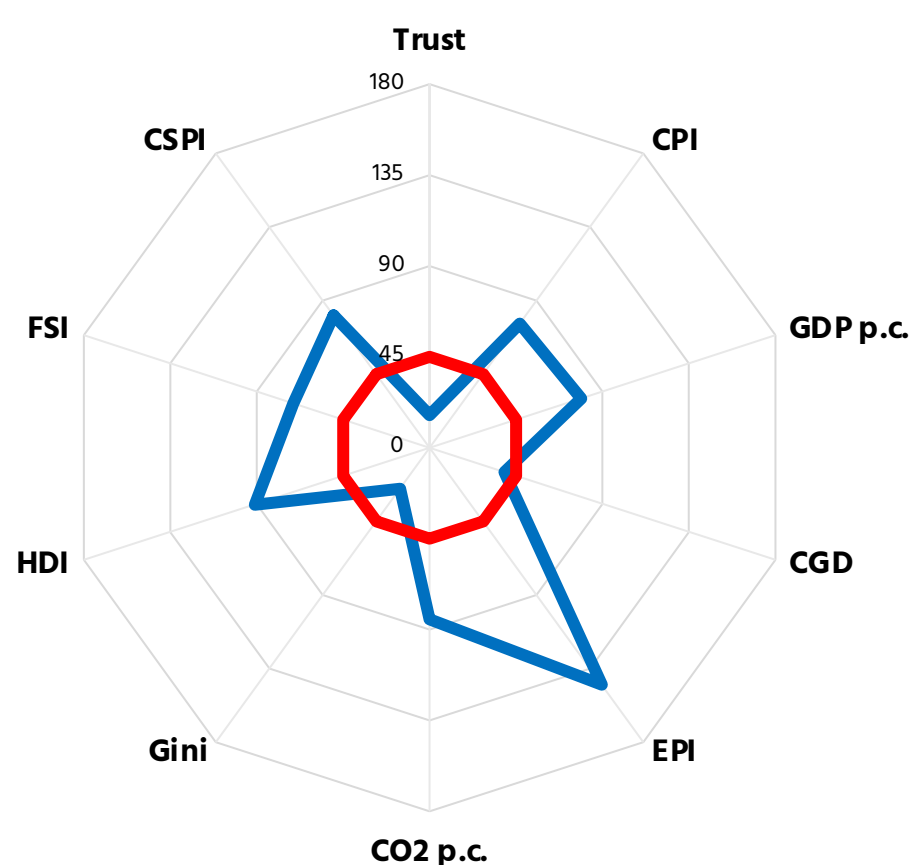
- Analogous to the Law of the Minimum, we define maximum critical values
- We will refer to them as maximum threshold values
- These will be used for normalising the index values when calculating the Inclusivity Index
- Using threshold values instead of absolute maximums reduces the effect of outliers
- Perhaps we can assign a bonus for countries that are over the maximum and malus for countries below that value
- However, this is currently subject to further discussion

## Traffic Lights: A value-based way (Alternative zu den Rangbasierten System, dass wir bis jetzt benutzt haben. Siehe nächste zwei Folien)

Index	Threshold Value (red light)	Threshold Value (green light)	Value Brazil
Trust	15	33,5	6,5
CPI	30	55	36
GDP	3.000 USD	50.000 USD	8917,67491
CGD	60% GDP	40% of GDP	81,4751729
CO2 PC	6t	3t	2,2t
EPI	35	75	78,2
Gini	> 0,4	< 0,3	0,489
HDI	0,6 (0,55 maybe)	0,8	0,76
FSI	80	50	74,5
CSPI	0,5	0,8	0,671



## Country Profiles as a Starting Point for „De-Bottlenecking“: The Case of Brazil



Abbreviation	Indicator	Rank (World-Wide)
Trust	Trust	82 (out of 90)
CPI	Corruption Perception Index	104
GDP p.c.	GDP per capita	101
CGD	Central Government Debt	141
EPI	Environmental Performance Index	35
CO <sup>2</sup> p.c.	CO <sup>2</sup> Emissions per capita	95
Gini	Gini-Coefficient	155
HDI	Human Development Index	89
FSI	Fragile State Index	71
CSPI	Civil Society Participation Index	99

## “Traffic Light Visualization” by the Example of Brazil



Trust



CPI



GDP per capita



CSPI



HDI



CGD



EPI



CO2 per capita



FSI



Gini

## Discussion of Critical Issues on traffic light deltas

- In total, we used different types of traffic light approaches to determine the degree of inclusivity in a given country
- While the former (Squared Lights) is based on the absolute index value, the latter (Round Lights) is based on the index value relative to other countries
- Most often, the change in method does not change the result
- However, there are some cases where the result changes when the method is changed



## Method: Inclusivity Index

**Basic Inclusivity Index: Mean Aggregation of Normalised Indices (n = normalised, N = Number of available Indices)**

$$\frac{\sum V_n}{N_i} = \frac{Trust_n + CPI_n + GDP_n + CGD_n + CO2_n + EPI_n + HDI_n + Gini_n + FSI_n + FSPI_n}{N_i}$$

### **Normalising Values: Two Ways**

If the Index Value is smaller than the maximum Critical Value ( $V_I$  = Value Index,  $V_C$  = maximum Critical Value,  $V_n$  = Normalised Index)

$$\frac{V_I}{V_C} = V_n$$

If the Index Value is equal to or bigger than the Maximum Critical Value

$$V_n = 1$$

• The Inclusivity Index is calculated in the following manner:

1. Data on all selected indices is collected for each country
2. Index values are normalised on a range of 0 to 1 by dividing the index value for each country by the maximum critical value. If the Index value exceeds the maximum threshold value, the normalised value is automatically 1
3. The normalised values are aggregated, and the mean of the normalised values for all indices is calculated.



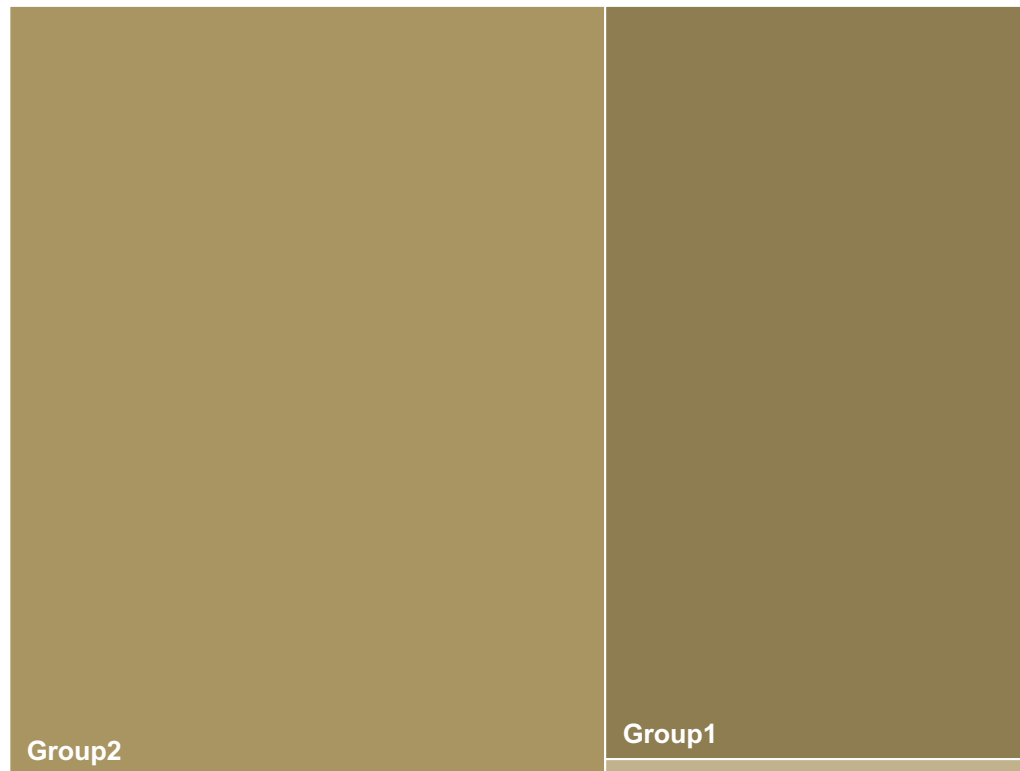
## Inclusivity Index: Differences in Availability of the selected Indices

- The Indices chosen for building the Inclusivity Index are all available for most countries
- The Trust Index has the smallest availability as it is only available for 90 countries. Most other Indices are available for approximately 180 countries or more
- Therefore, one challenge when building the Inclusivity Index is to account for the different data availability for each country
- We do this by dividing the countries into four different Groups

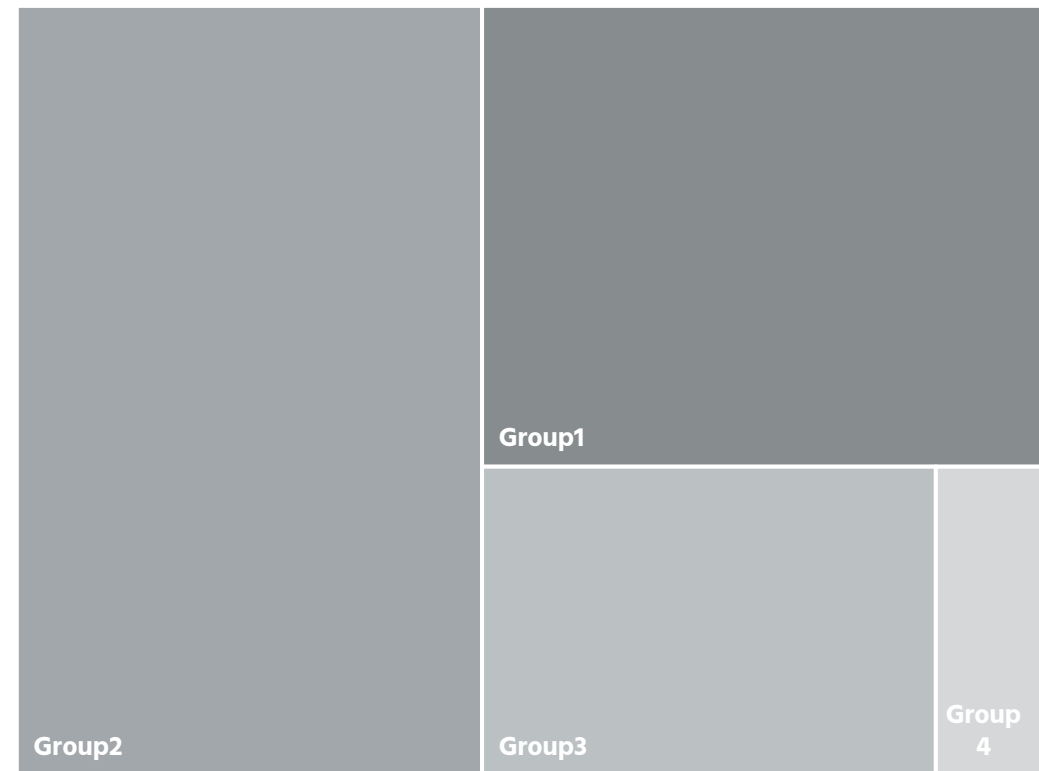
Group	Number of Indices available	Number of Countries	Accumulated Population
Group 1	10	70	3.243.853.465
Group 2	8-9	97	4.591.557.735
Group 3	2-7	38	73.049.326
Group 4	1	9	740.717

## Inclusivity Index: Differences in Availability of the selected Indices

SHARE OF EACH GROUP FROM THE WORLD'S  
POPULATION



SHARE OF EACH GROUP THE TOTAL NUMBER OF  
COUNTRIES



## Inclusivity Index: Differences in Availability of the selected Indices

- The majority of countries fall either in Group 1 or Group 2
- Thus, the Inclusivity Index can reliably be estimated for most countries
- Further, Group 1 and Group 2 account for 99,1% of the World's Population
- Most missing cases concern either small countries or (semi-) autonomous territories

Group	Population Percentage	Example Countries/ Territories
Group 1	41,01%	Germany, United States, Italy, Denmark; Turkey, Tunisia, Peru, Ethiopia, Kenya
Group 2	58,05%	China, India, Saudi Arabia, South Africa, North Macedonia, Ghana, Niger, Laos
Group 3	0,92%	Palau, Belize, Liechtenstein, San Marino, Saint Kitts and Nevis, Micronesia
Group 4	0,01%	Monaco, American Samoa, Saint Martin, Guam, Virgin Islands

## Share of each Group from Global Population













Group	Population Percentage	Example Countries/Territories
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## Inclusivity Index: Differences in Availability of the selected Indices

- Three Requirements for Indices:
  - Availability: Need to be available for most countries
  - Regular Updates: Data needs to be up to date
  - Normative Relevance: Need to assist in giving meaningful full advice
- Regarding availability, we can see three things
  - Per Definition, no Index is Missing in Group 1
  - The Trust Index is the most missing Index across all Groups
  - In Group 3, missing Indices are more evenly spread. However, some are more available than others
  - The only Index available in Group 4 is GDP per Capita

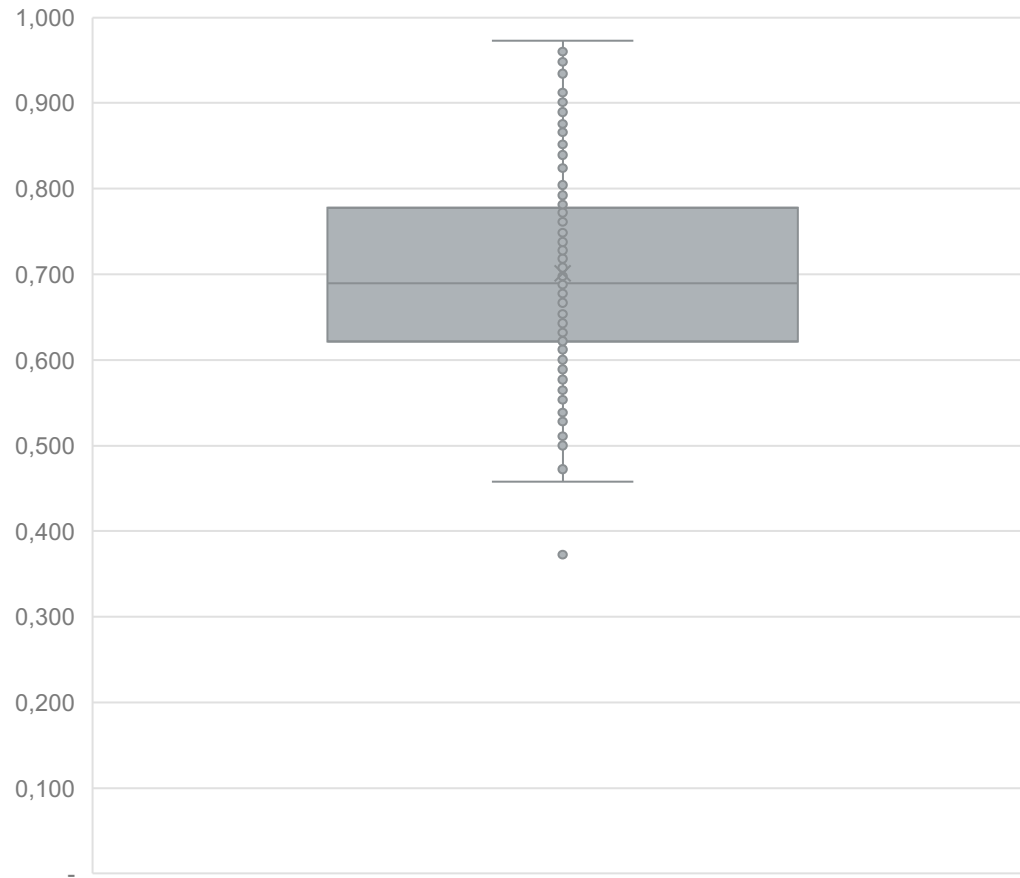
Indicator	N for Countries	Number of times missing in Group1	Number of times missing in Group2	Number of times missing in Group3	Number of times missing in Group4
Trust	20-90	0	92	36	9
CPI	180	0	0	27	9
GDP	180	0	0	0	0
CGD	180+	0	7	23	9
CO2 PC	180+	0	3	8	9
EPI	180	0	0	24	9
Gini	180+	0	5	24	9
HDI	180	0	0	13	9
FSI	180	0	3	27	9
CSPI	173	0	2	32	9

## Global: Top and Low 12

Country Name	Flag	Inclusivity Index	Rank (out of 179)
Sweden		0,973	1
Denmark		0,960	2
Switzerland		0,948	3
Norway		0,934	4
Germany		0,915	5
Netherlands		0,912	6
Austria		0,909	7
Australia		0,907	8
Finland		0,906	9
Luxembourg		0,902	10
New Zealand		0,901	11
Malta		0,901	12

Country Name	Flag	Inclusivity Index	Rank out (of 179)
Eritrea		0,373	179
Libya		0,458	178
Myanmar		0,472	177
Syria		0,476	176
Yemen		0,500	175
Turkmenistan		0,511	174
South Sudan		0,514	173
Bahrain		0,528	172
Somalia		0,531	171
Burundi		0,537	170
Lebanon		0,538	169
Sudan		0,541	168

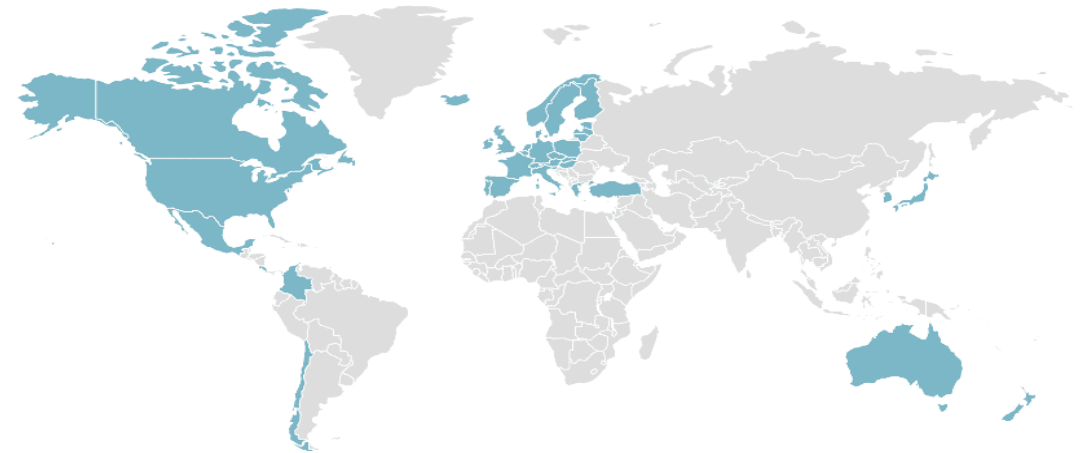
## Global: Inclusivity Scores



- The values of the Inclusivity Index range from 0,373 (Eritrea) to 0,973 (Sweden)
- Eritrea (0,373) can be deemed as a statistical outlier
- They have a Mean of 0,701 and a Median of 0,690
- The values deviate on average 0,113 points from the mean
- 50% of values between 0,776 and 0,623













## Inclusivity Index: Country Cluster OECD













- The OECD consist currently 38 countries, all of whom have committed themselves to democracy and free markets
- Most OECD countries are often perceived as part of the “Developed World”
- Further, the majority of OECD countries is located in the either Europe or North America



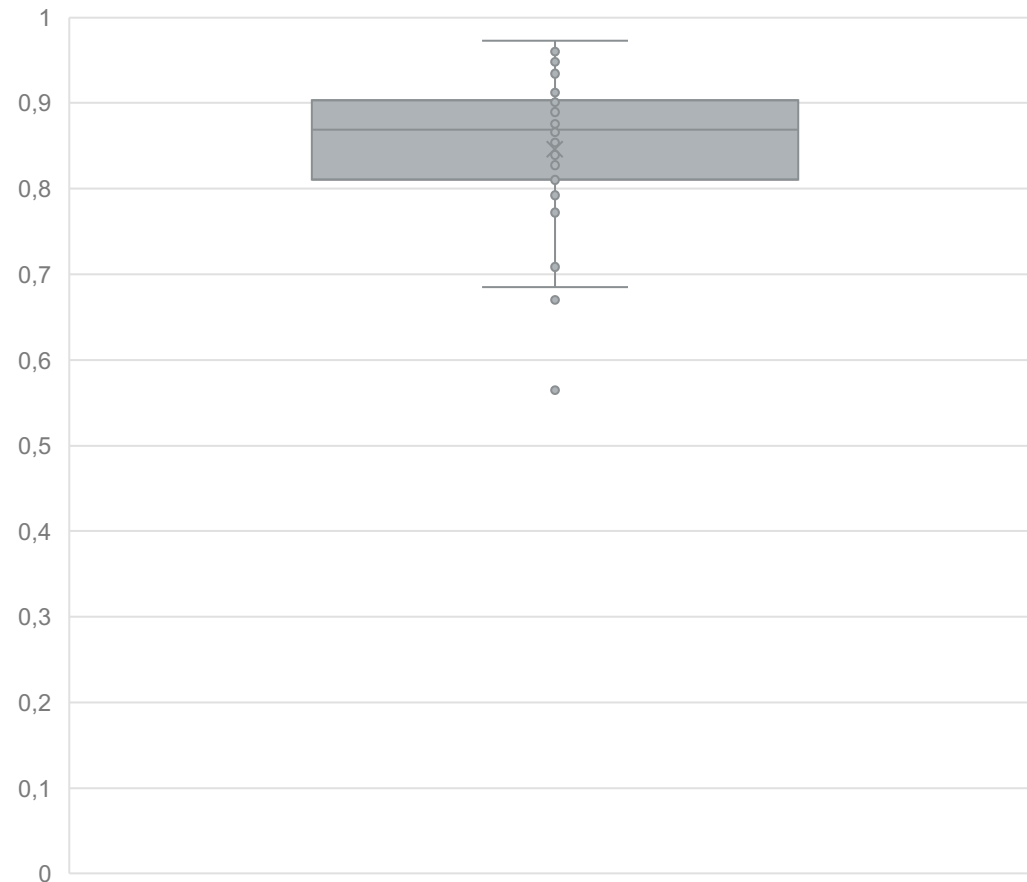


## OECD: Top and Low 12

Country Name	Flag	Inclusivity Index	Rank (out of 38)
Sweden		0,973	1
Denmark		0,960	2
Switzerland		0,948	3
Norway		0,934	4
Germany		0,915	5
Netherlands		0,912	6
Austria		0,909	7
Australia		0,907	8
Finland		0,906	9
Luxembourg		0,902	10
New Zealand		0,901	11
Lithuania		0,894	12

Country Name	Flag	Inclusivity Index	Rank (out of 38)
Turkey		0,565	38
Mexico		0,67	37
Colombia		0,685	36
Greece		0,709	35
Hungary		0,772	34
Chile		0,778	33
Portugal		0,792	32
Japan		0,794	31
United States		0,81	30
Slovakia		0,811	29
Poland		0,811	28
Italy		0,828	27

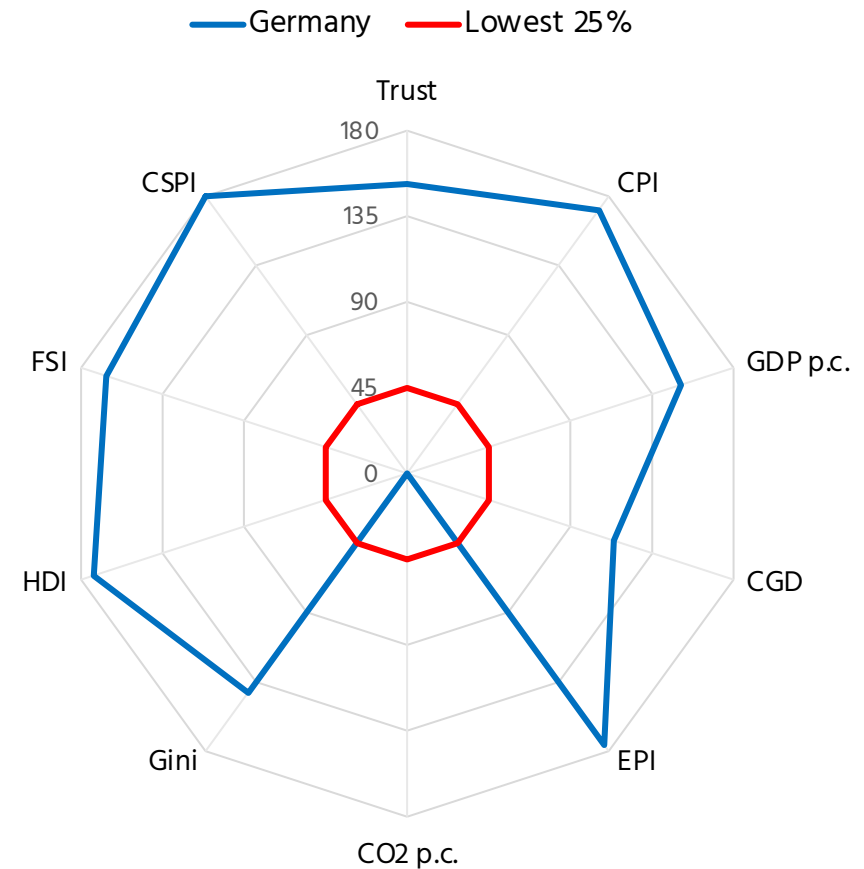
## Inclusivity Index: Country Cluster OECD



- Most OECD Countries (50% of all countries) reach a high inclusivity score with values approximately between 0,8 and 0,9
- The Median and Mean are not far apart, with values of 0,869 (Median) and 0,846 (Mean)
- The two countries with the smallest values can be counted as outliers (outside 1,5 inter-quartile range)
  - Turkey: 0,565
  - Mexico: 0,670
- The globally highest-scoring countries are OECD countries (Sweden, Denmark, Switzerland)

## Inclusivity Index: Country Cluster OECD

- The ten highest-ranking OECD countries are exclusively located in Europe and Oceania
- These countries are scoring high in almost all dimensions, with usually CO2 per Capita being comparatively weak
- Although also there is some variation within this category, with Germany (8t) and Australia (15t) having significantly higher emissions than Sweden (3,6t) and Switzerland (4t)









## Inclusivity Index: Country Cluster Central Asia

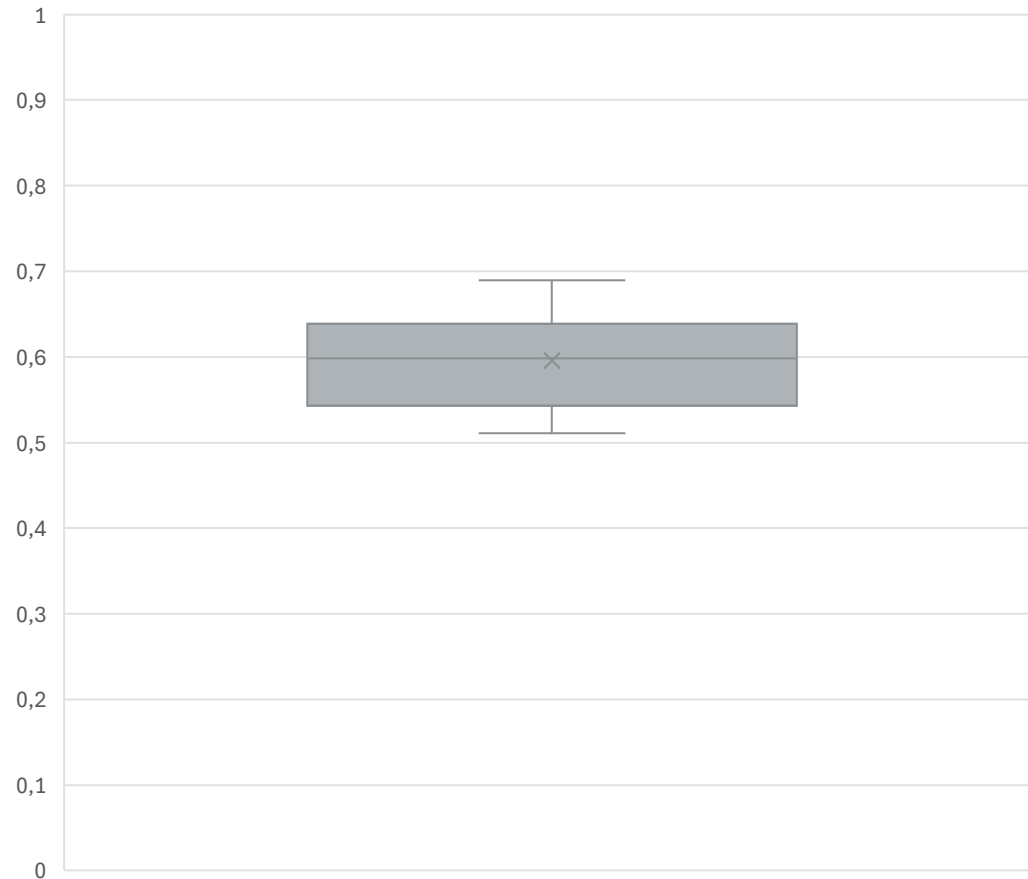
- Most Central Asian Countries have problems in almost all dimensions of inclusivity
- Thus, comparing the central Asian countries with the OECD member states might yield useful insights for further developing the Inclusivity Index



## Regional Ranking: Central Asia

Country Name	Flag	Inclusivity Index	Rank (out of 6)
Kazakhstan		0,690	1
Kyrgyzstan		0,622	2
Uzbekistan		0,603	3
Tajikistan		0,594	4
Afghanistan		0,554	5
Turkmenistan		0,511	6

## Inclusivity Index: Country Cluster Central Asia



- The Central Asian countries score significantly lower on the inclusivity Index than most OECD countries
  - Exceptions are Turkey, Colombia and Mexico
- Even though the Central Asian countries reach similar scores on the Inclusivity Index, they strongly vary in the individual indices constituting the index
- Example CO<sub>2</sub>:
  - Kirgizstan: 1,6t
  - Turkmenistan: 12,9t

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## Methodological Questions: Q&A

- How was the data gathered?
  - The Data was gathered from openly available data banks of international organisations, Research institutions and think tanks.
- Where can I find the used data?
  - All Sources and Links to the used data are available on the slide in the end of the presentation.
- How is the Inclusivity Index estimated?
  - The Inclusivity Index is estimated by calculating the mean of the normalised values of the used indices
- How are the index values normalised?
  - The index values are normalised by dividing each index value by the maximum threshold value
- How are the maximum threshold values determined?
  - The maximum threshold values are individually determined. For more detailed information refer to the slides above

## Sources: Data

Index	Sources	Link 1	Link 2	Link 3
Trust	World Value Survey	<a href="https://www.worldvaluessurvey.org">WVS Database (worldvaluessurvey.org)</a>		
CPI	Transparency International	<a href="#">CPI2023_Global_Results__Trends.xlsx (live.com)</a>		
GDP	World Bank	<a href="https://data.worldbank.org">World Development Indicators   DataBank (worldbank.org)</a>		
CGD	International Monetary Fund + World Bank	<a href="https://data.imf.org">Global Debt Database - Central Government Debt (imf.org)</a>	<a href="https://data.worldbank.org">World Development Indicators   DataBank (worldbank.org)</a>	
GGD	International Monetary Fund	<a href="https://data.imf.org">Global Debt Database - General Government Debt (imf.org)</a>		
GINI	World Bank + World Factbook + World Economics	<a href="https://data.worldbank.org">World Development Indicators   DataBank (worldbank.org)</a>	<a href="https://www.cia.gov">Gini Index coefficient - distribution of family income (cia.gov)</a>	<a href="#">Gini Coefficient   Latest   Data   World Economics</a>
HDI	United Nations Development Programm (EU)	<a href="https://data.undp.org">Human Development Index   Human Development Reports (undp.org)</a>		
CO2 PC	European Commission (EDGAR) + World Bank	<a href="#">EDGARv8.0_FT2022_GHG_booklet_2023_fossilCO2_only.xlsx (live.com)</a>	<a href="https://data.worldbank.org">World Development Indicators   DataBank (worldbank.org)</a>	
EPI	Yale Center for Environmental Law & Policy	<a href="https://www.yale.edu">Biodiversity Habitat Index   Environmental Performance Index (yale.edu)</a>		
FSI	The Fund for Peace	<a href="https://www.fundforpeace.org">Download Data in Excel Format   Fragile States Index</a>		
CSPI	Our World in Data + Varieties of Democracy (V-Dem)	<a href="https://ourworldindata.org">Civil society participation index, 2022 (ourworldindata.org)</a>	<a href="https://www.v-dem.net">The V-Dem Dataset – V-Dem</a>	