DEEP KNOWLEDGE GROUP

COVID-19 Regional Safety Assessment

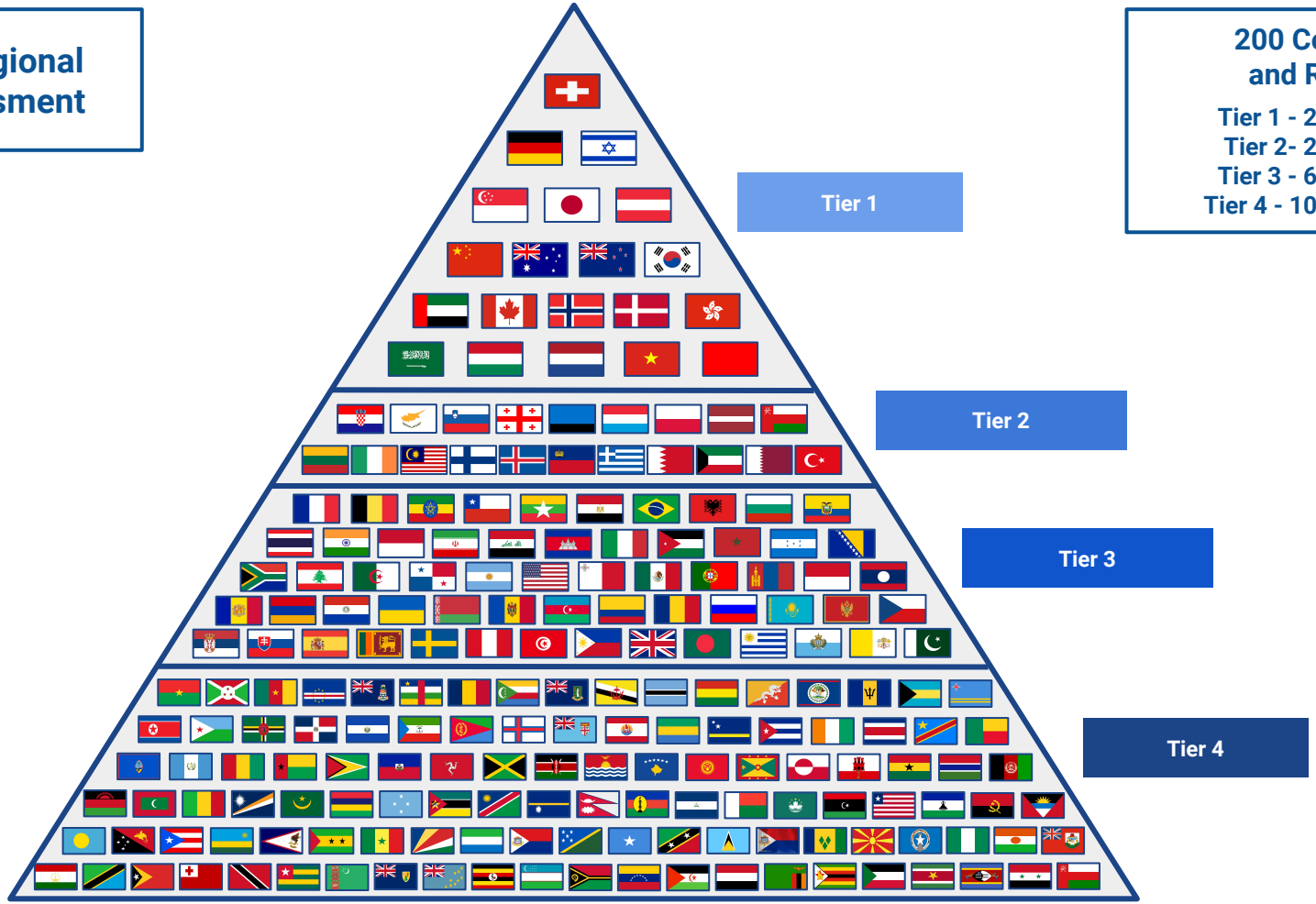
Big Data Analysis of 200 Countries and Regions COVID-19 Safety Ranking and Risk Assessment

COVID-19 200 Regional Safety Assessment

COVID-19 Regional Safety Assessment

200 Countries and Regions:

Tier 1 - 20 Entities
Tier 2- 20 Entities
Tier 3 - 60 Entities
Tier 4 - 100 Entities



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COVID-19 Ranking of 200 Countries and Regions

Rank	Region	Score
1	Switzerland	752
2	Germany	749
3	Israel	748
4	Singapore	744
5	Japan	738
6	Austria	726
7	China	717
8	Australia	716
9	New Zealand	715
10	South Korea	712
11	United Arab Emirates	700
12	Canada	699
13	Hong Kong	698
14	Norway	685
15	Denmark	671
16	Taiwan	667
17	Saudi Arabia	657
18	Hungary	656
19	Netherlands	651
20	Vietnam	637
21	Kuwait	633
22	Iceland	600
23	Bahrain	592
24	Finland	584
25	Luxembourg	576

Rank	Region	Score
26	Qatar	575
27	Liechtenstein	572
28	Poland	570
29	Lithuania	566
30	Malaysia	565
31	Latvia	564
32	Slovenia	564
33	Oman	562
34	Greece	560
35	Estonia	556
36	Croatia	556
37	Turkey	556
38	Ireland	551
39	Georgia	550
40	Cyprus	550
41	Chile	549
42	Montenegro	548
43	Czech Republic	545
44	Malta	544
45	Spain	543
46	Portugal	542
47	Thailand	541
48	Bulgaria	541
49	Greenland	538
50	Mexico	537

Rank	Region	Score
51	Uruguay	536
52	Vatican City	535
53	Italy	533
54	Serbia	532
55	Philippines	532
56	India	532
57	Romania	531
58	USA	530
59	Slovak Republic	530
60	France	529
61	Russia	525
62	Argentina	524
63	Belarus	523
64	Monaco	523
65	Sweden	522
66	Ukraine	520
67	Gibraltar	518
68	United Kingdom	513
69	South Africa	512
70	San Marino	509
71	Kazakhstan	508
72	Bosnia and Herzegovina	508
73	Iran	505
74	Ecuador	505
75	Azerbaijan	499

Rank	Region	Score
76	Mongolia	499
77	Lebanon	499
78	Belgium	498
79	Andorra	498
80	Cayman Islands	491
81	Armenia	484
82	Moldova	483
83	Myanmar	482
84	Bangladesh	482
85	Sri Lanka	482
86	Egypt	480
87	Tunisia	478
88	Albania	476
89	Jordan	475
90	Panama	471
91	Brazil	470
92	Morocco	465
93	Algeria	461
94	Honduras	457
95	Paraguay	455
96	Peru	453
97	Indonesia	450
98	Cambodia	448
99	Laos	442
100	Bahamas	440

COVID-19 Ranking of 200 Countries and Regions

Rank	Region	Score
101	Isle of Man	435
102	St. Lucia	434
103	North Macedonia	431
104	Dominica	430
105	Antigua and Barbuda	429
106	Dominican Republic	429
107	Grenada	429
108	Kyrgyzstan	429
109	Mauritius	429
110	Barbados	428
111	Bermuda	428
112	Maldives	428
113	São Tomé and Principe	428
114	Cuba	427
115	Micronesia, Fed. Sts.	427
116	Nigeria	426
117	Palau	426
118	Gabon	424
119	French Polynesia	423
120	Fiji	421
121	Uzbekistan	421
122	Botswana	419
123	El Salvador	416
124	Tajikistan	414
125	Costa Rica	413

Rank	Region	Score
126	Suriname	412
127	Togo	412
128	Belize	409
129	North Korea	408
130	Mozambique	407
131	Turkmenistan	403
132	New Caledonia	402
133	Timor-Leste	402
134	Namibia	401
135	Seychelles	400
136	Sierra Leone	399
137	Guyana	398
138	Aruba	396
139	Guam	394
140	Bhutan	392
141	Jamaica	391
142	Nepal	390
143	Uganda	385
144	Gambia	380
145	Vanuatu	378
146	Comoros	374
147	Kenya	372
148	Pakistan	370
149	Zambia	369
150	Colombia	367

Rank	Region	Score
151	Zimbabwe	367
152	Madagascar	364
153	Equatorial Guinea	363
154	Sint Maarten (Dutch part)	362
155	Papua New Guinea	360
156	Guinea-Bissau	358
157	Ghana	356
158	Libya	356
159	Nicaragua	354
160	Angola	350
161	British Virgin Islands	350
162	Cabo Verde	350
163	Curaçao	350
164	Niger	350
165	Solomon Islands	350
166	St. Kitts and Nevis	350
167	St.Vincent and Grenadines	350
168	Trinidad and Tobago	350
169	Djibouti	349
170	Guatemala	347
171	St. Martin (French part)	345
172	Lesotho	343
173	Haiti	340
174	Ethiopia	338
175	Mauritania	338

Rank	Region	Score
176	Bolivia	337
177	Guinea	336
178	Malawi	336
179	Burundi	334
180	Cameroon	332
181	Eritrea	332
182	Côte d'Ivoire	331
183	Sudan	331
184	Venezuela, RB	331
185	Benin	329
186	Senegal	327
187	Somalia	326
188	Congo, Rep.	325
189	Yemen, Rep.	325
190	Central African Republic	323
191	Iraq	323
192	Syrian Arab Republic	321
193	Burkina Faso	318
194	Tanzania	314
195	Liberia	311
196	Afghanistan	310
197	Chad	305
198	Mali	300
199	Rwanda	300
200	South Sudan	300

COVID-19 Regional Safety Assessment: Introduction

A comprehensive and quantitative analysis of the far-reaching global pandemic arising from the novel coronavirus is a critical challenge that must be carried out in order to plan the best strategic measures to reduce and neutralize negative repercussions of the outbreak until the final solution of a vaccine are within the reach of the scientific and medical community. With this in mind, Deep Knowledge Group's new COVID-19 special analytical case study is designed to classify, analyze and rank the economic, social and health stability achieved by 200 regions, countries and territories, as well as the strengths, weaknesses, opportunities, and threats or risks that they present against the global health and economic crisis triggered by COVID-19.

The analysis utilizes a subset of 20 parameters from the full pool of 130 qualitative and quantitative parameters (grouped into 6 broad and top-level categories) previously developed for Deep Knowledge Group's first COVID-19 Regional Safety Assessment, in combination with certain qualitative characteristics, to group 200 regions and territories into 4 distinct Tiers, and then applies distinct subsets of those 130 parameters to rank the regions in each different Tier: Tier 1 (20 regions, 130 parameters per region), Tier 2 (20 regions, 60 parameters), Tier 3 (60 regions, 60 parameters) and Tier 4 (100 regions, 40 parameters). Additionally, Tiers 3 and 4 use specific qualitative parameters to conduct their groupings as well. Tier 2 is made up of territories that scores as well as expected given their general (non-pandemic) level of healthcare and government management efficiency, while Tier 3 consists of regions that scored significantly lower than expected. Meanwhile, Tier 4 consists of territories in which significant data unavailability and reliability prevented a fully comprehensive analysis from being conducted.

It is Deep Knowledge Group's aim that, regardless of whether the conclusions and recommendations presented in this special analytical case study are adopted wholesale, the present analysis can serve as a starting point for discussion and a resource for governments to optimize current and post-pandemic safety and stability, and as a toolset for establishing the best possible action plans for each particular region, in order to maintain the health and economic well-being of their populations and reverse the collateral damage caused by COVID- 19.

Key Developments Since Previous Edition: New Changes to Top-5 Safest Regions

Notably, the list of the top-5 safest regions has changed since the release of the first edition of the report, which applied the same core analytical framework to just 20 regions globally, signifying how fast the global dynamic of the COVID-19 pandemic is changing, and how quickly the levels of regional vulnerability and resilience of specific regions and territories can transform.

Specifically, Switzerland now occupies the #1 position (surpassing both Israel and Germany in comparison to the previous list), with Germany now at #2 (surpassing Israel on the one hand, but also being surpassed by Switzerland), and with Israel now occupying the #3 position (down from the #1 position in the previous list).

These changes in the list of top-scoring regions reflect recent transformations in the fundamental nature of the pandemic itself, and what regional safety and stability means in practice in light of COVID-19. In our previous safety and risk assessment, regions which had very high levels of emergency preparedness and a capacity to efficiently manage national crises achieved the highest score because they had the greatest likelihood of managing the early stages of the pandemic.

Now, however, as regions begin to prepare for relaxing lockdown conditions and economic freezing mandates, factors which impact their capacity to withstand economic fallout as a result of the pandemic take on greater levels of importance.

Thus, recent developments in the analyzed region's category-specific scores for parameters relating to economic vulnerability and sustainability have increased, resulting in comparatively higher cumulative scores for certain territories. Switzerland and Germany achieve the #1 and #2 positions in this new special case study specifically because of their economy's resilience, and due to the careful ways in which they are attempting to relax lockdown and economic freezing mandates in a fact and science-based manner, without sacrificing public health and safety.

Safety Score 20 Most Safe Regions

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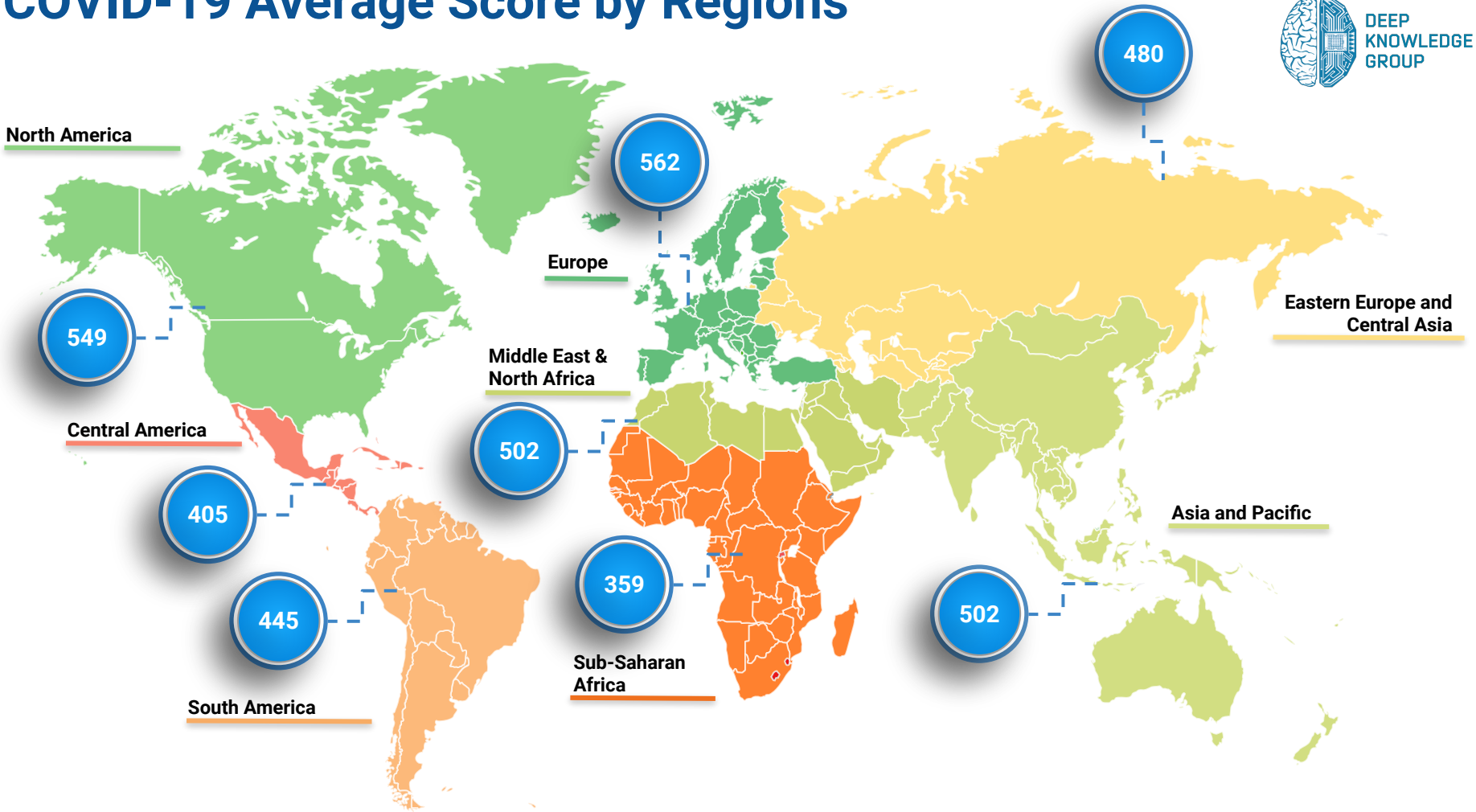
COVID-19 Average Score by Regions



COVID-19 Analytical Scope and Main Parameters

Quantity of Parameters

- 130 Parameters for Tier 1
- 60 Parameters for Tier 2 and Tier 3
- 40 Parameters for Tier 4

Data Resources and Data Points

- 500 Data Sources
- 7800 Data Points
- 6 Categories and 30 Indicators

Quantity of Regions

- Tier 1: 20 Regions
- Tier 2 and Tier 3: 80 Regions
- Tier 4: 100 Regions

Proprietary Analytics

- 1 Proprietary Index Category
- 6 Proprietary Indicators
- 11 Proprietary Parameters

COVID-19 Regional Safety Assessment Analytical Framework

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Quarantine Efficiency

- Scale of Quarantine
- Quarantine Timeline
- Criminal Penalties for Violating Quarantine
- Economic Support for Quarantined Citizens
- Economic Supply Chain Freezing
- Travel Restrictions

Government Efficiency of Risk Management

- Level of Security and Defense Advancement
- Rapid Emergency Mobilization
- Efficiency of Government Structure
- Economic Sustainability
- Pandemic Readiness
- Legislative Efficiency

Monitoring and Detection

- Monitoring Systems & Disaster Management
- Scope of Diagnostic Methods
- Testing Efficiency
- AI for Diagnostics and Prognostics
- Government Surveillance Technology for Monitoring
- Reliability and Transparency of Data

Healthcare Readiness

- COVID-19 Equipment Availability
- Mobilization of New Healthcare Resources
- Quantity and Quality of Medical Staff
- Level of Healthcare Progressiveness
- Level of Technological Advancement
- Epidemiology System Level of Development

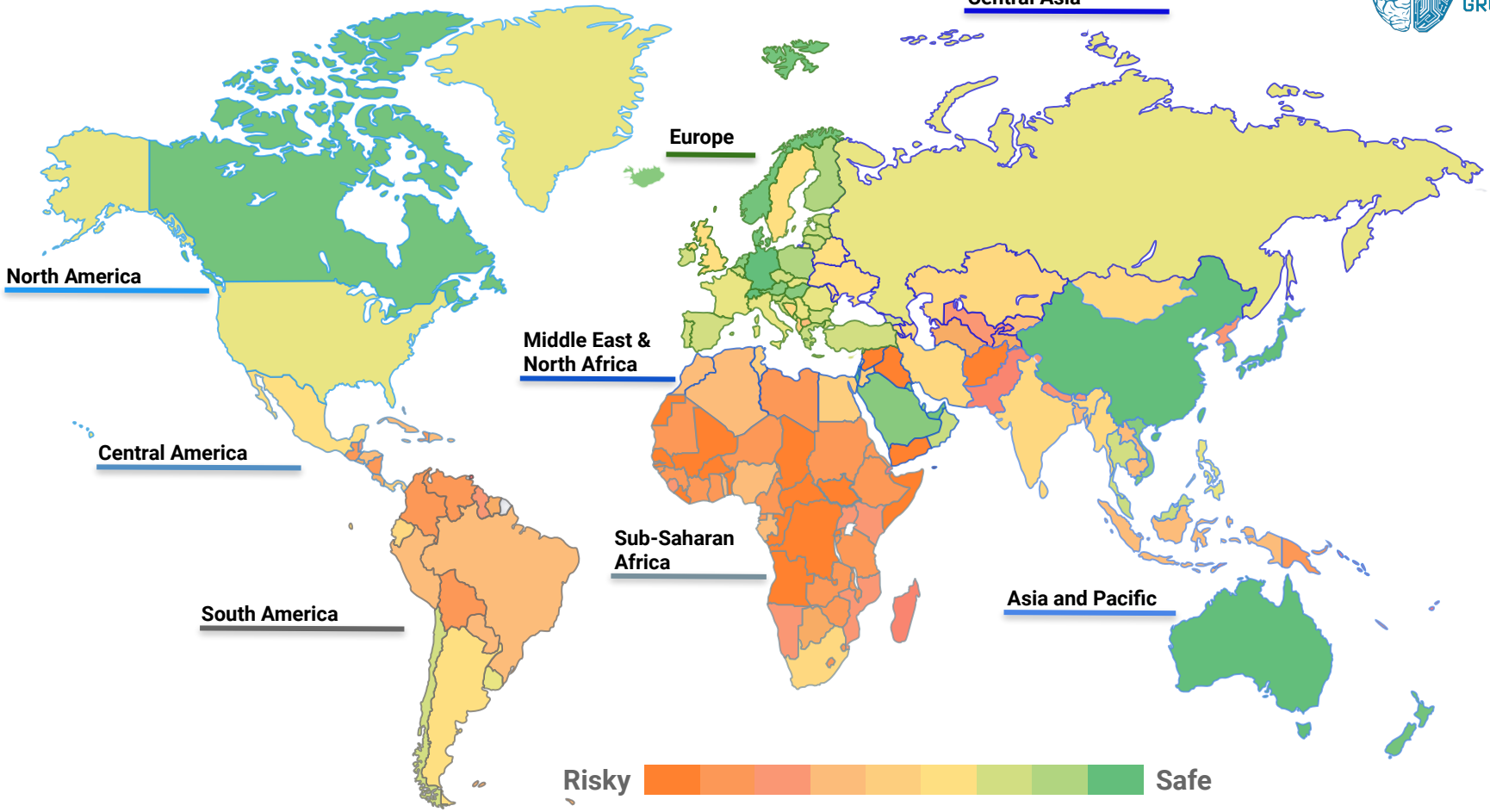
Regional Resiliency

- Infection Spread Risk
- Culture Specifics and Societal Discipline
- Level of Modern Sanitization Methods
- Demography
- Chronic Diseases
- Geopolitical Vulnerability

Emergency Preparedness

- Societal Emergency Resilience
- Emergency Military Mobilization Experience
- Surveillance Capabilities
- Previous National Emergency Experience

Safety Score of 200 Regions and Territories



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Safety Score of Asia and Pacific Region

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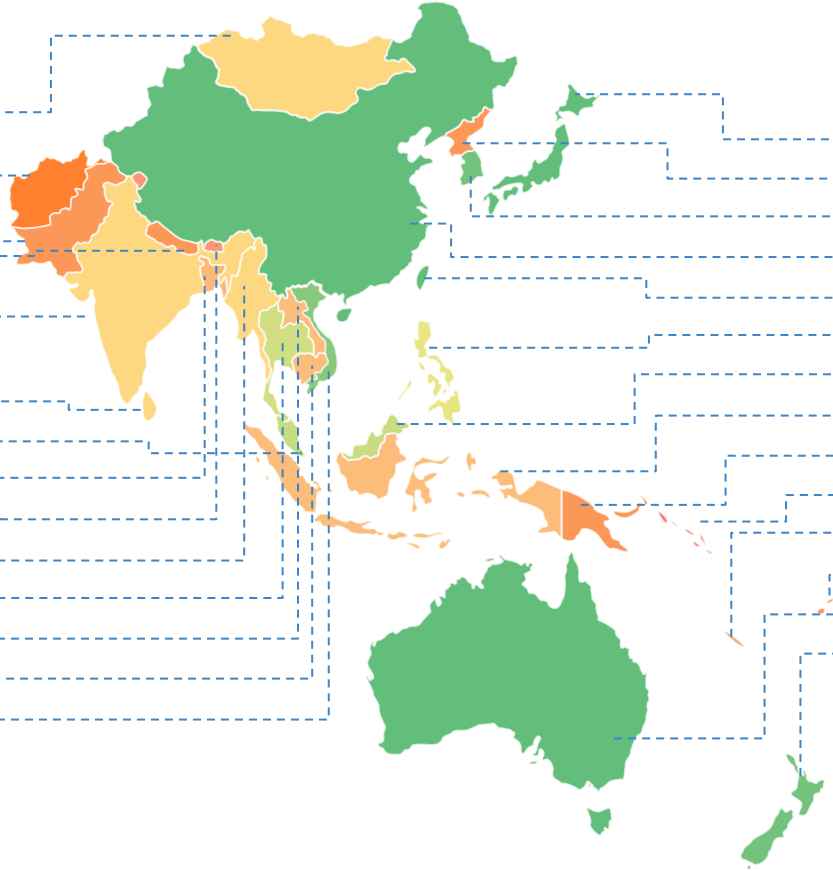

Mongolia	499
Afghanistan	310
Pakistan	370
India	535
Nepal	390

Sri Lanka	482
Singapore	744
Bangladesh	482
Bhutan	392
Myanmar	482
Thailand	541
Laos	442
Cambodia	448
Vietnam	637
Maldives	428

Japan	738
North Korea	408
South Korea	712
China	717
Taiwan	667
Philippines	532
Malaysia	565
Indonesia	450
Papua New Guinea	360
Solomon Islands	350
New Caledonia	402
Fiji	421
Australia	716
New Zealand	715
Micronesia, Fed. Sts.	427
Palau	426
French Polynesia	423
Timor-Leste	402
Guam	394
Vanuatu	378

310 740

Safety Score of Europe Regions

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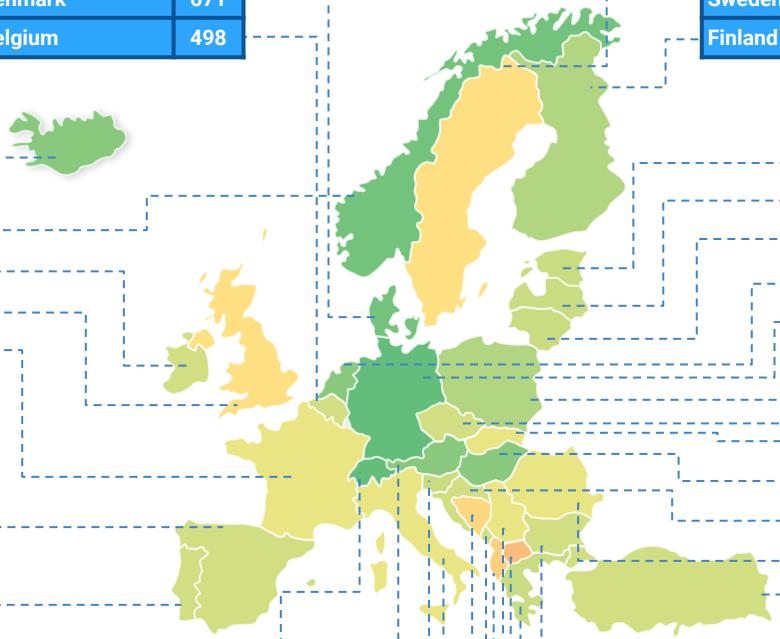
Denmark	671
Belgium	498

Sweden	522
Finland	584



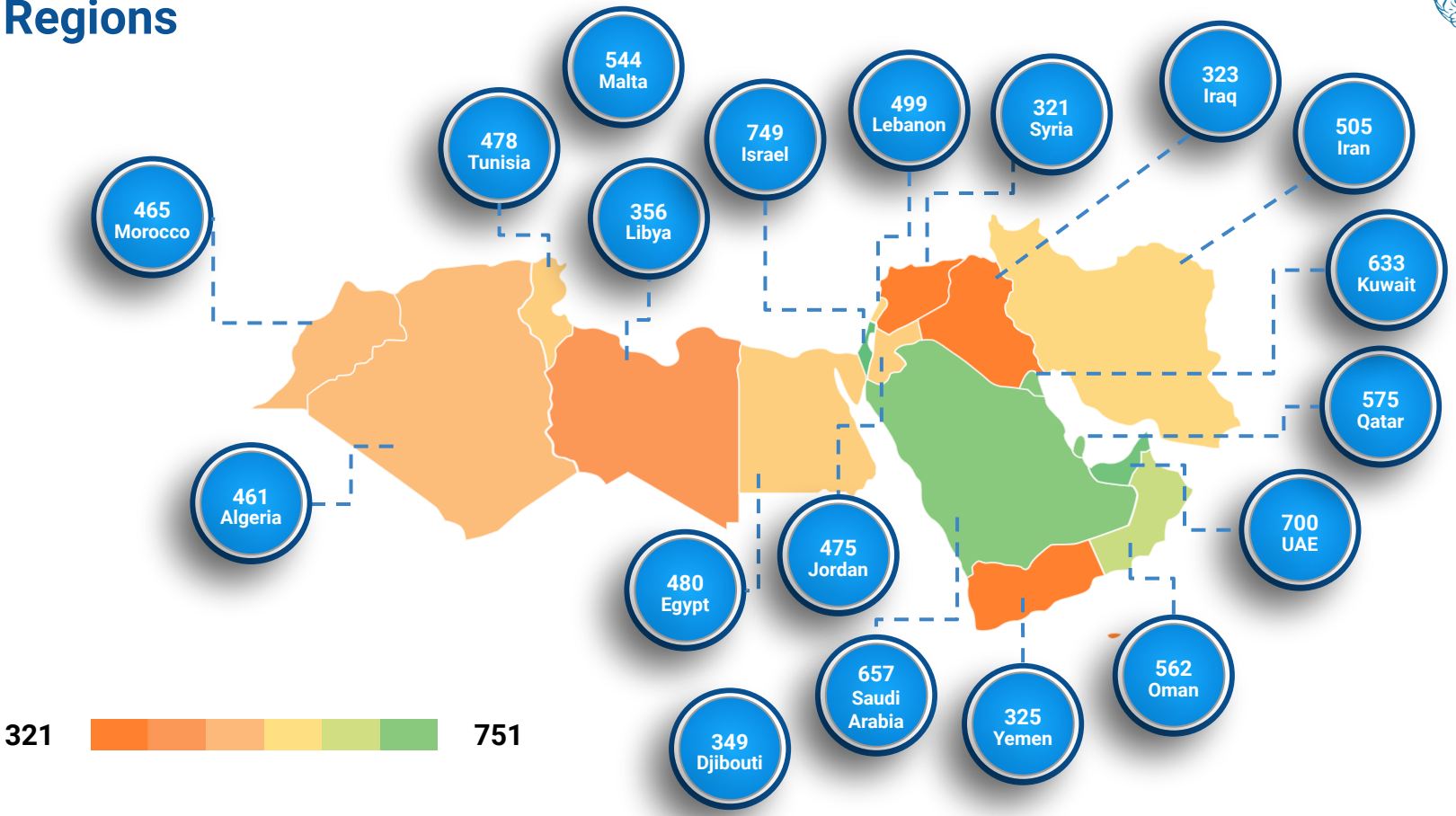
Iceland	600
Norway	685
Ireland	551
United Kingdom	513
France	529
Spain	543
Portugal	542
Luxembourg	576
Liechtenstein	572
Vatican City	535
Monaco	523
Gibraltar	518
San Marino	509
Isle of Man	431

Estonia	556
Latvia	564
Lithuania	566
The Netherlands	651
Germany	749
Poland	570
Czech Republic	545
Slovakia	530
Hungary	656
Croatia	556
Romania	531
Turkey	556
Bosnia and Herzegovina	508
Serbia	532
Bulgaria	541
North Macedonia	431
Cyprus	550

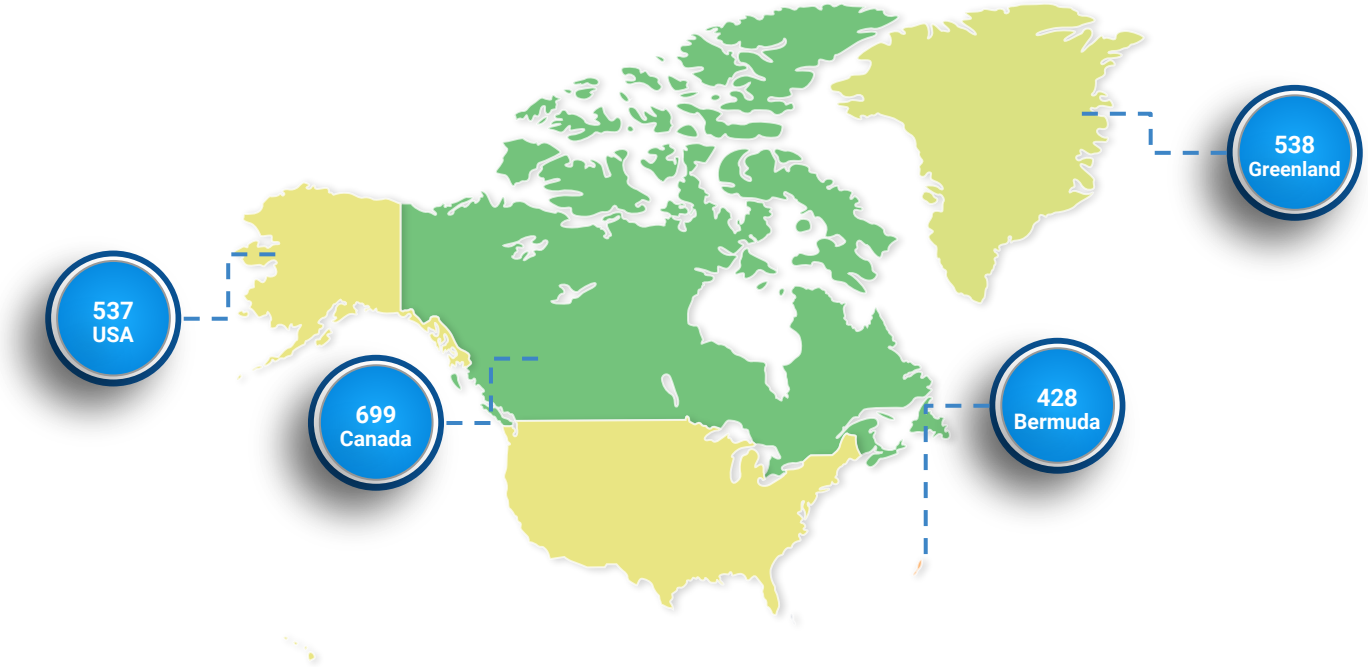
Switzerland	752
Austria	726
Slovenia	564
Italy	533
Albania	476
Montenegro	548
Greece	560

431 749

Safety Score of Middle East & North Africa Regions

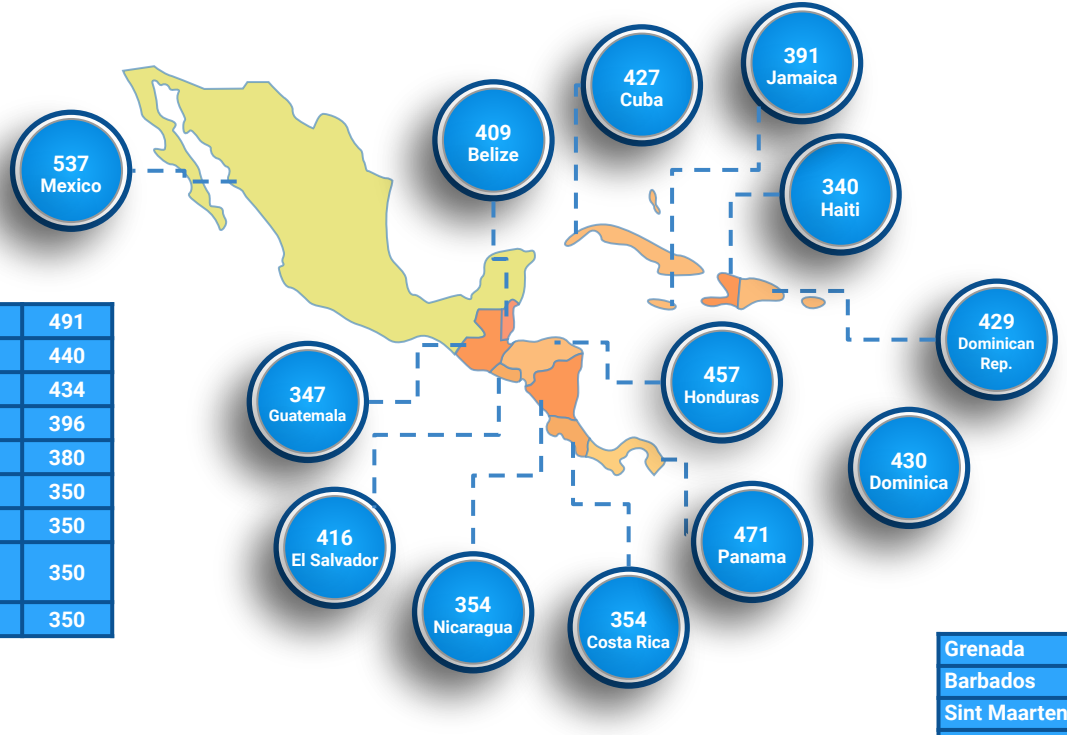


Safety Score of North America



428 699

Safety Score of Central America

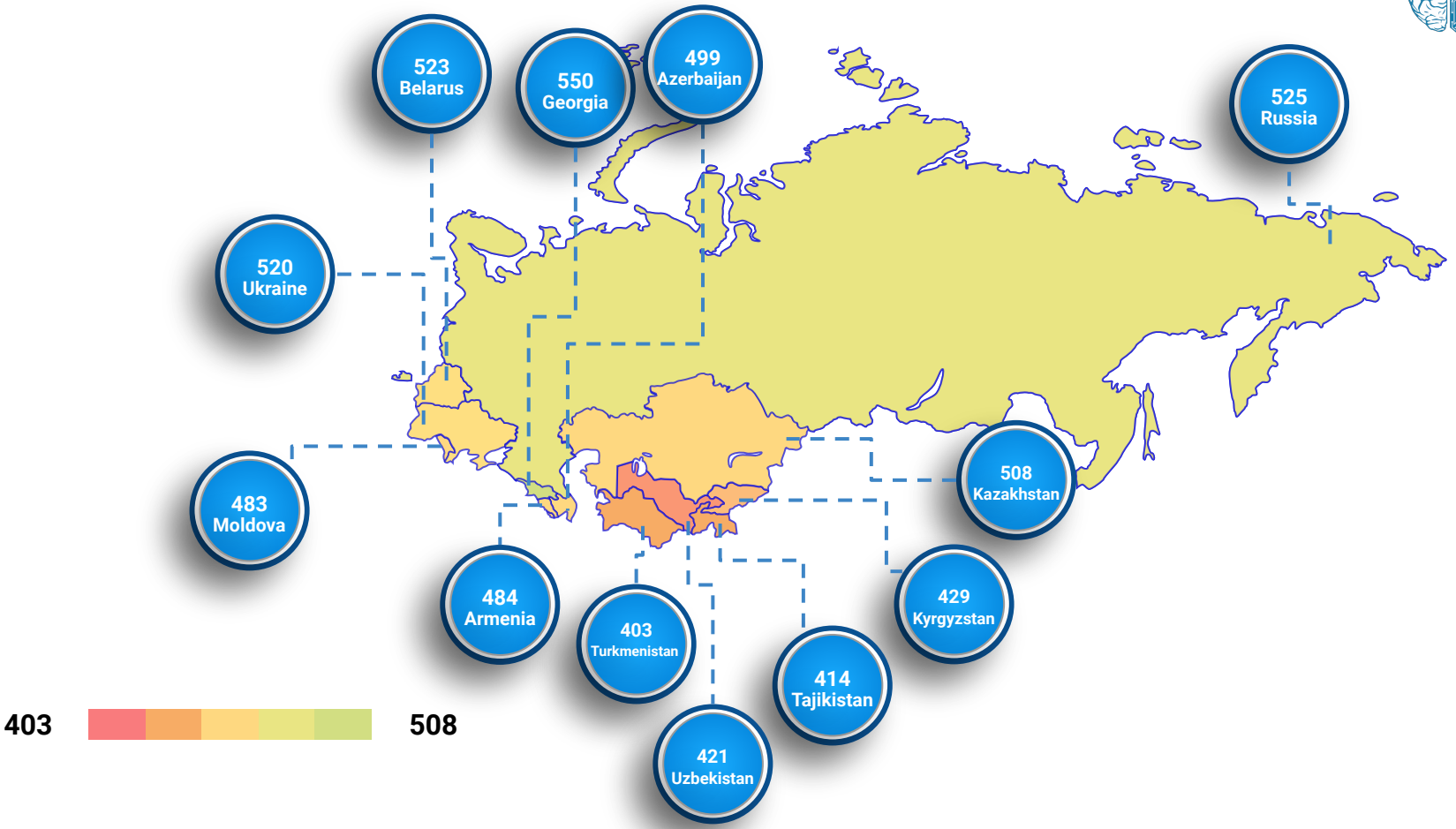


Cayman Islands	491
Bahamas	440
St. Lucia	434
Aruba	396
Antigua and Barbuda	380
Curaçao	350
St. Kitts and Nevis	350
St. Vincent and the Grenadines	350
Trinidad and Tobago	350

Grenada	429
Barbados	428
Sint Maarten (Dutch part)	362
British Virgin Islands	350
St. Martin (French part)	345

340 537

Safety Score of Eastern Europe and Central Asia



Safety Score of Sub-Saharan Africa Regions

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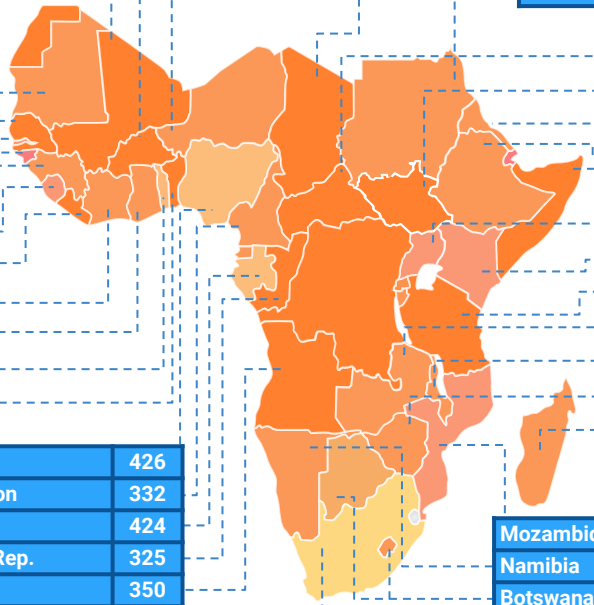
Mali	300
Burkina Faso	318
Niger	350
Sudan	331
Chad	305

Rwanda	300
Burundi	334

Cabo Verde	350
Mauritania	338
Senegal	327
Gambia	380
Guinea	336
Guinea Bissau	358
Sierra Leone	399
Liberia	311
Côte D`Ivoire	331
Ghana	356
Togo	412
Benin	329



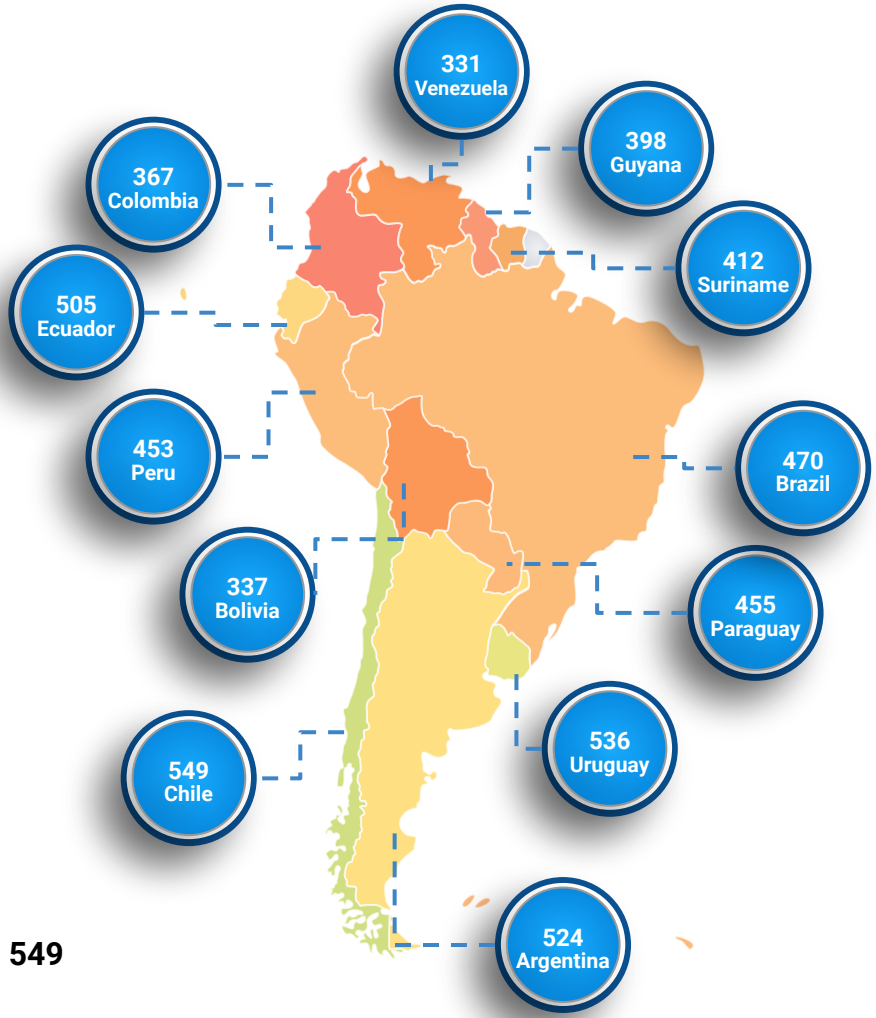
Central African Rep.	323
South Sudan	300
Eritrea	332
Ethiopia	338
Somalia	326
Uganda	385
Kenya	372
Tanzania	314
Zambia	369
Malawi	336
Zimbabwe	367
Madagascar	364
Seychelles	400

Nigeria	426
Cameroon	332
Gabon	424
Congo, Rep.	325
Angola	350
Equatorial Guinea	363

Mozambique	407
Namibia	401
Botswana	419
South Africa	512
Mauritius	429
São Tomé and Principe	428
Comoros	374
Lesotho	343

300 512

Safety Score of South America



331 549

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Geographic Distribution of Key Healthcare Parameters

Deep Knowledge Group's general methodological approach is to utilize reputable public sources of data as the raw input for specifically-designed analytical frameworks and methodologies that apply specific data and parameter categorization and weighting in order to relevantly and realistically account for importance and impact of different factors, as well as for potential issues with data unreliability.

As such, while the present special analytical case study utilizes a wide variety of public sources of data, the extent with which they are utilized, and the degree with with they are weighted in the report's overall analytical framework, varies in accordance with these considerations (i.e., with the relative importance and degree of data unavailability or unreliability as determined by Deep Knowledge Group analysts).

The following section presents average geography-specific levels of a number of datapoints and parameters, which serve as a high-level visual overview of various relevant positive and negative factors impacting the COVID-19 resiliency or vulnerability of different regions, including access to basic sanitation facilities, size of elderly population, the prevalence and death rate of specific diseases such as diabetes, obesity, endocrine disorders, tuberculosis, and key healthcare parameters such as density of hospital beds and doctors, and healthcare access and quality index rankings.

In some cases, there are specific reasons to cautiously doubt the official public numbers and records of specific parameters of specific geographic regions, often as a result of the same factors impacting general levels of data unavailability and unreliability associated with particular geographic territories.

In the following pages, any public numbers that Deep Knowledge Group analysts consider potentially divergent with the real status of the region, and which therefore should be taken with some degree of caution, have been marked with an asterisk.

Access to Basic Sanitation Facilities
% of Total Population

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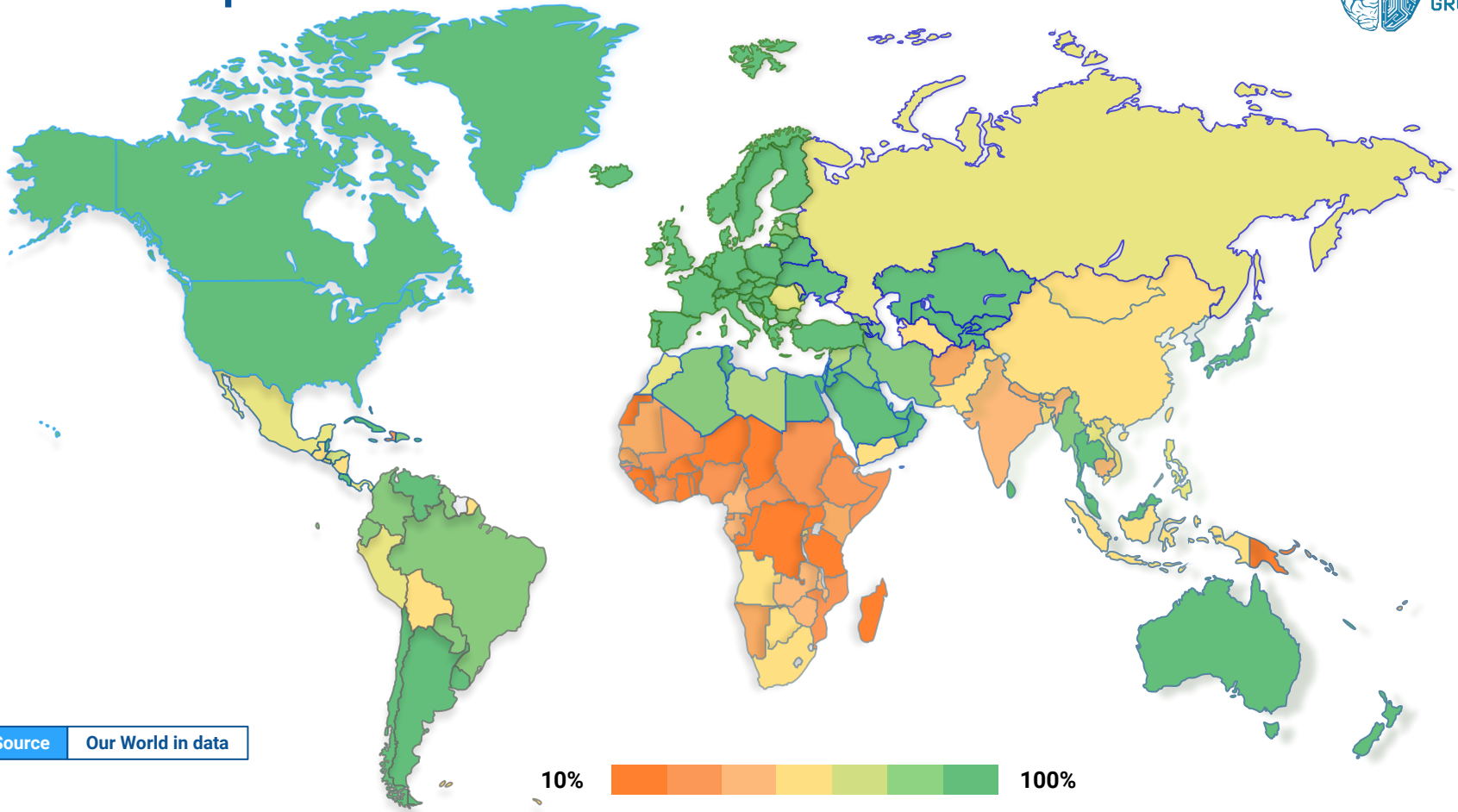
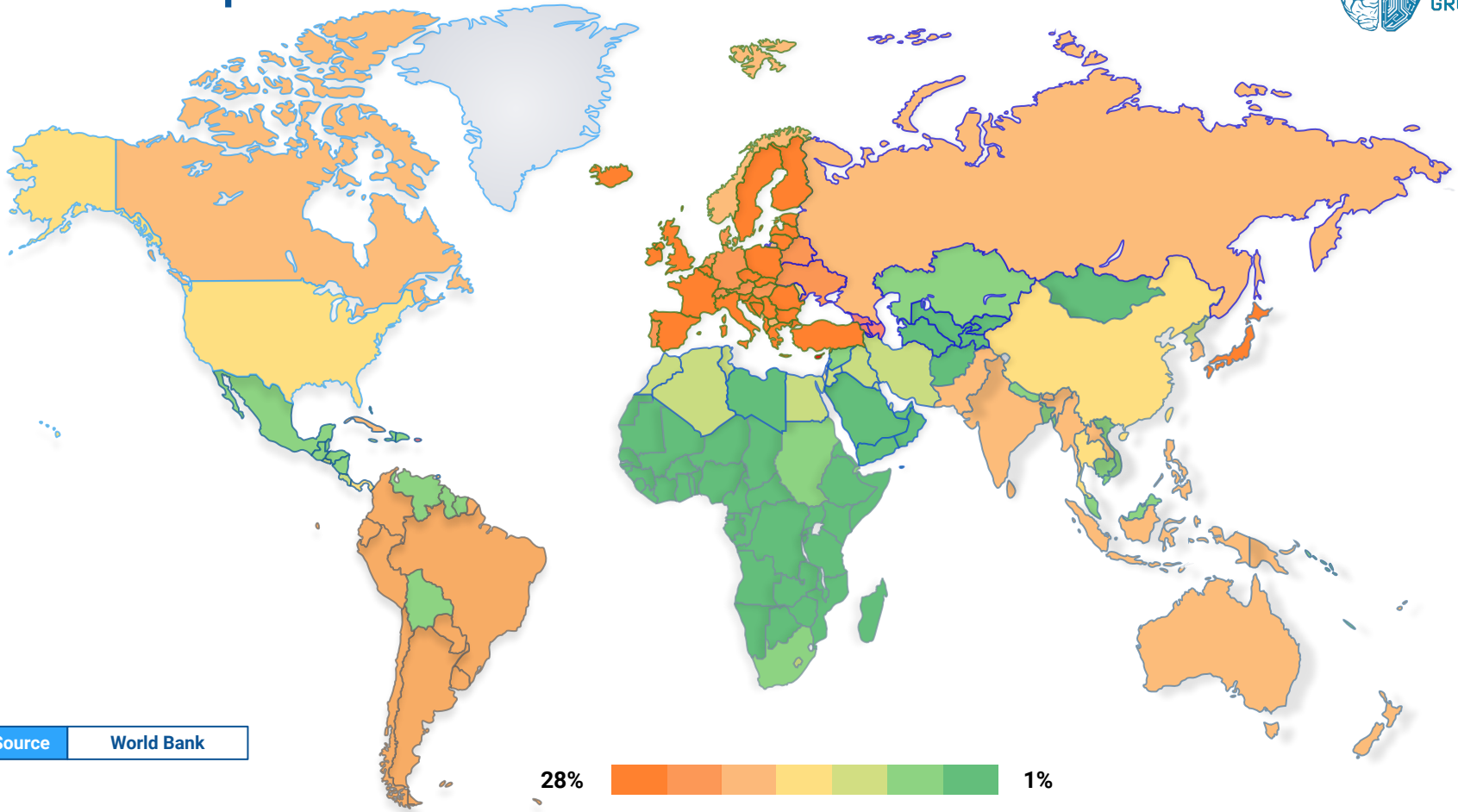


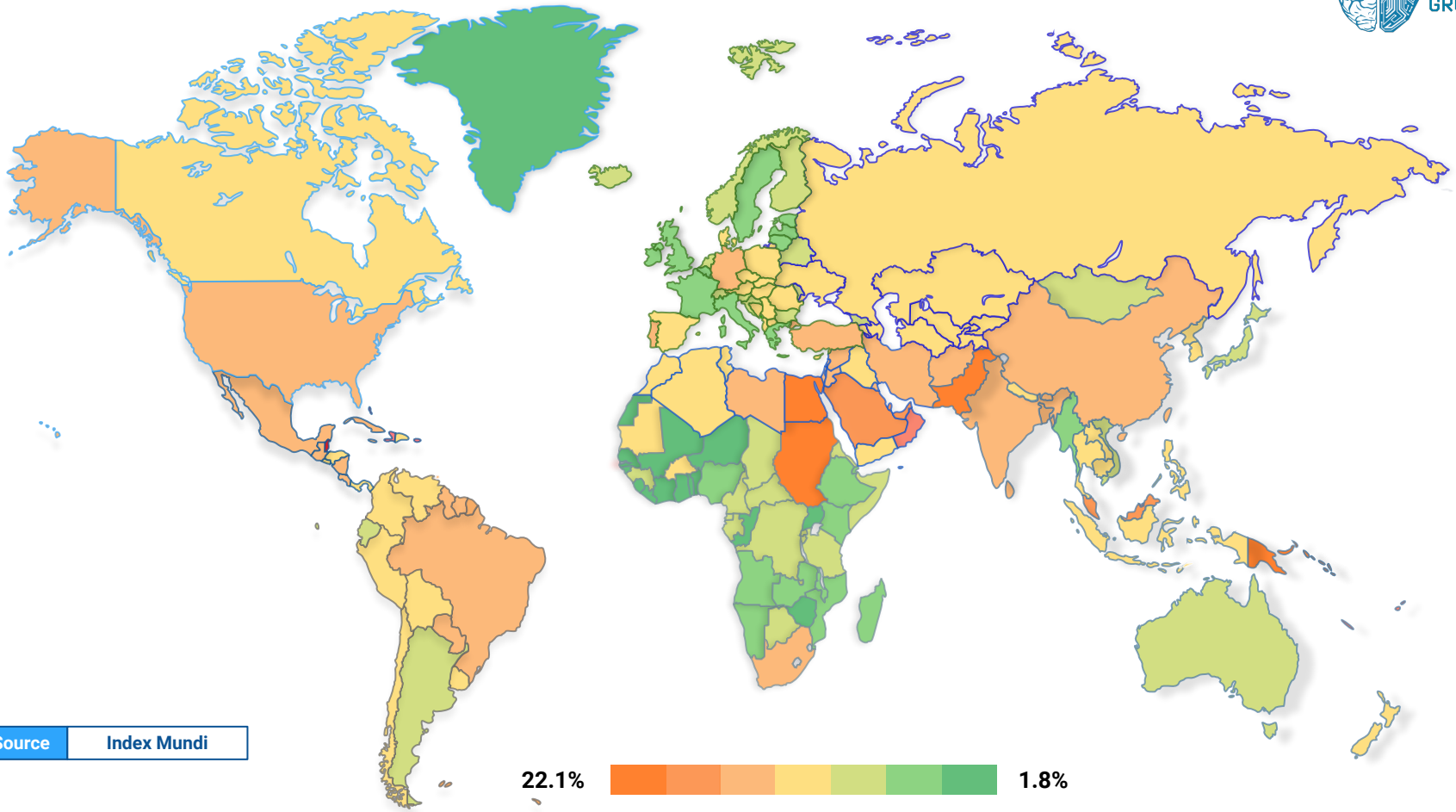
Source	Our World in data

Size of Elderly Population by Regions
% of Total Population



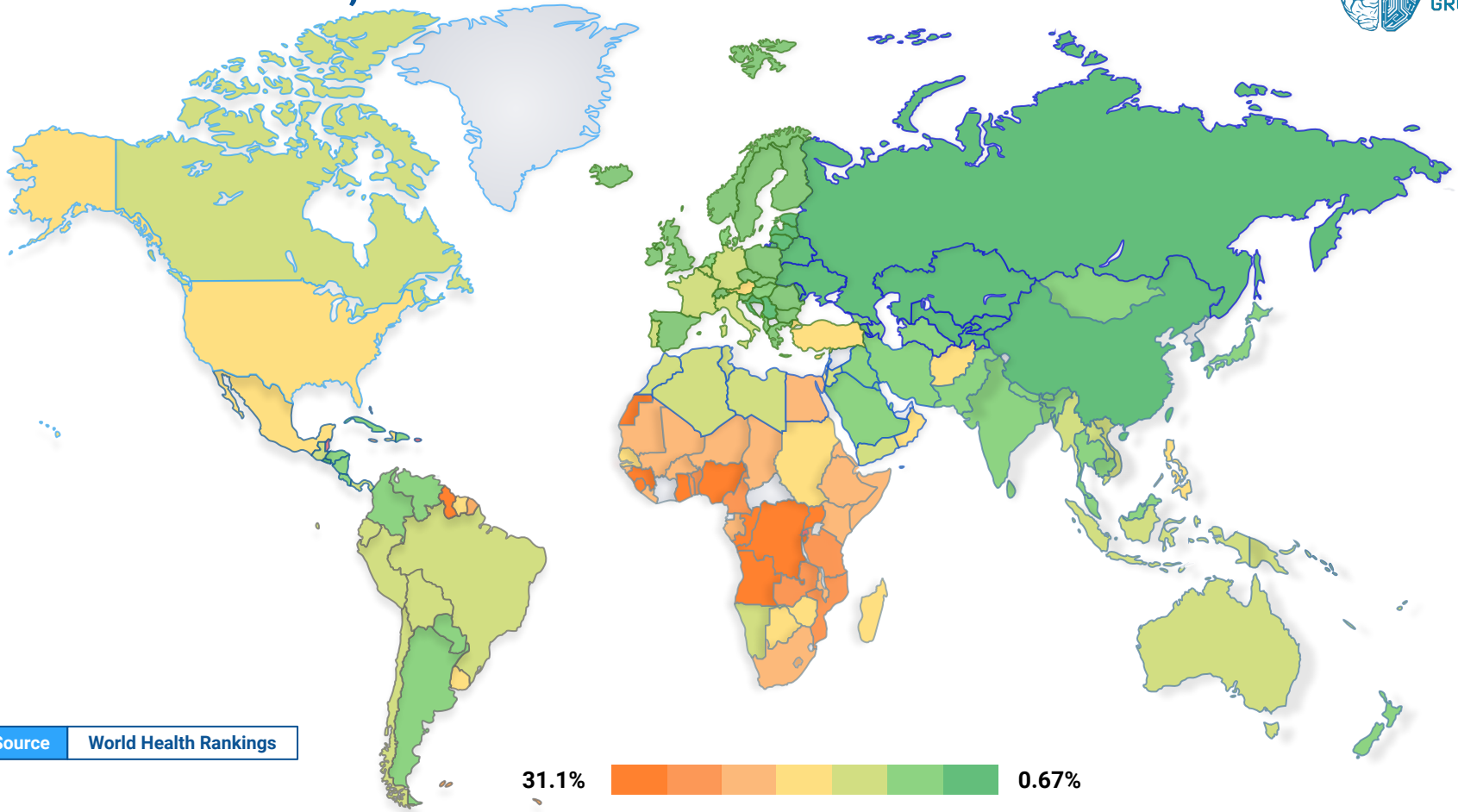
Source	World Bank

Diabetes Prevalence % of Population Ages 20 to 79



Source	Index Mundi

Endocrine Disorders
Death Rate Per 100,000



Source	World Health Rankings

Incidence of Tuberculosis per 100,000 People

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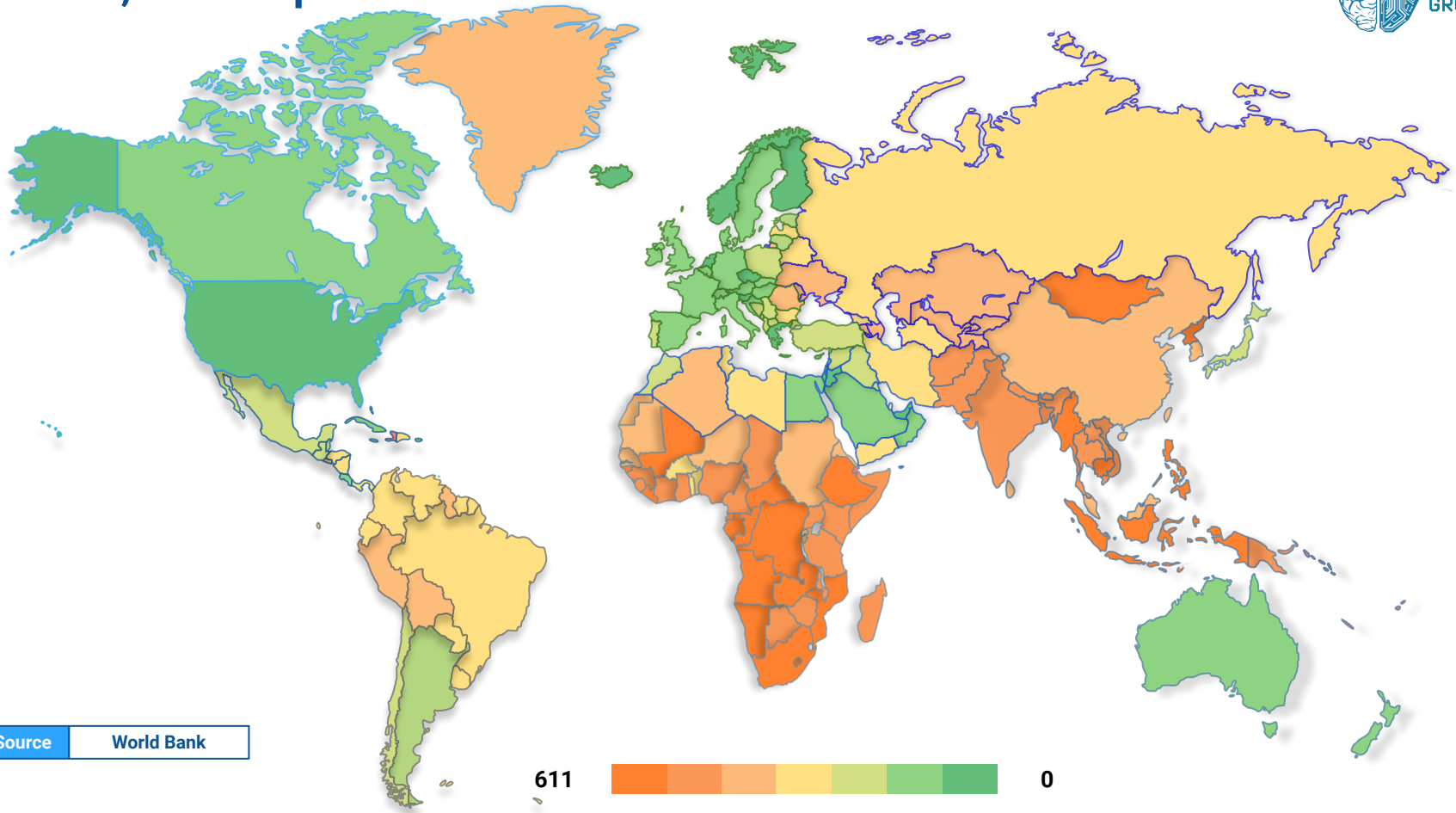
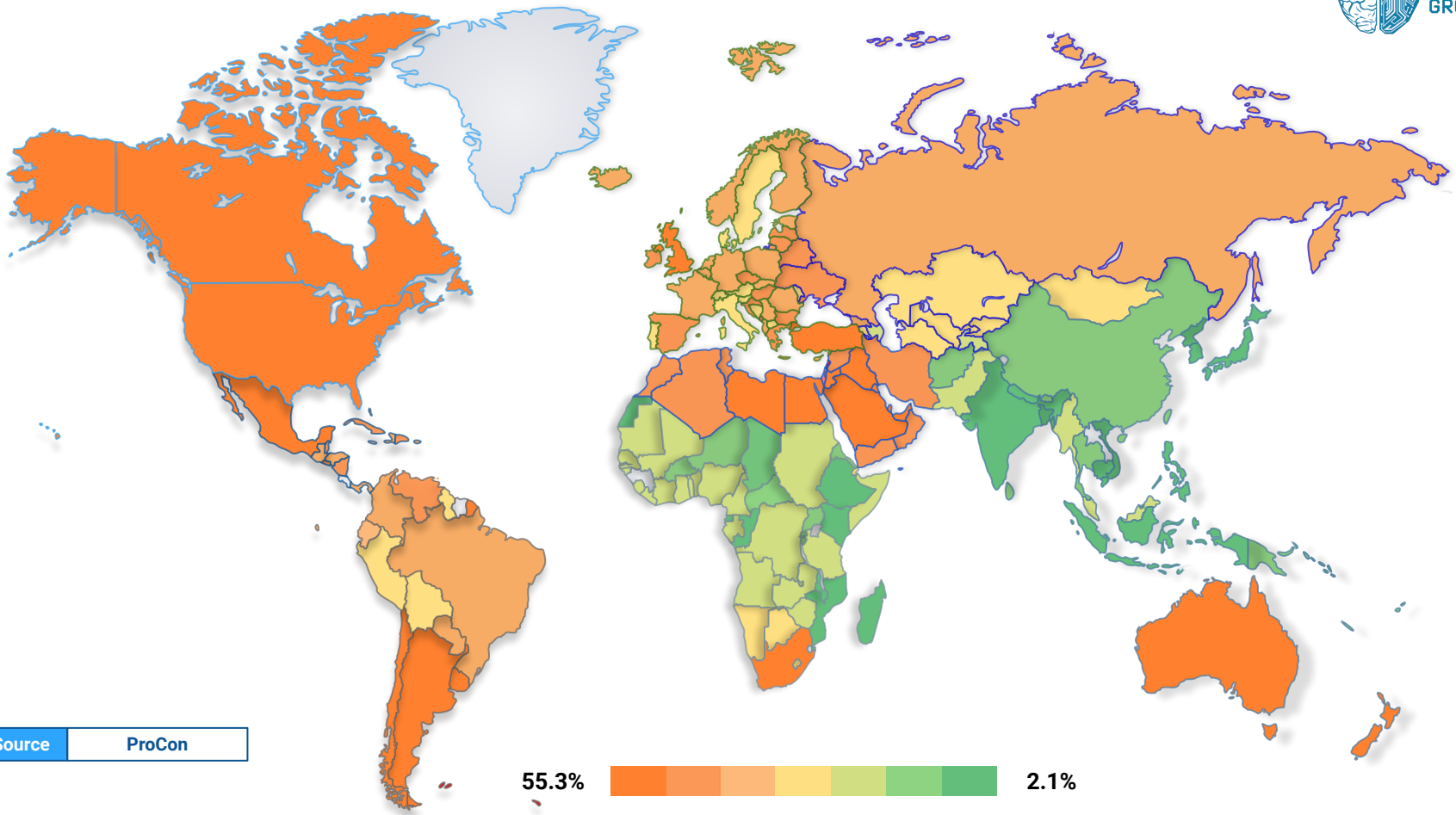


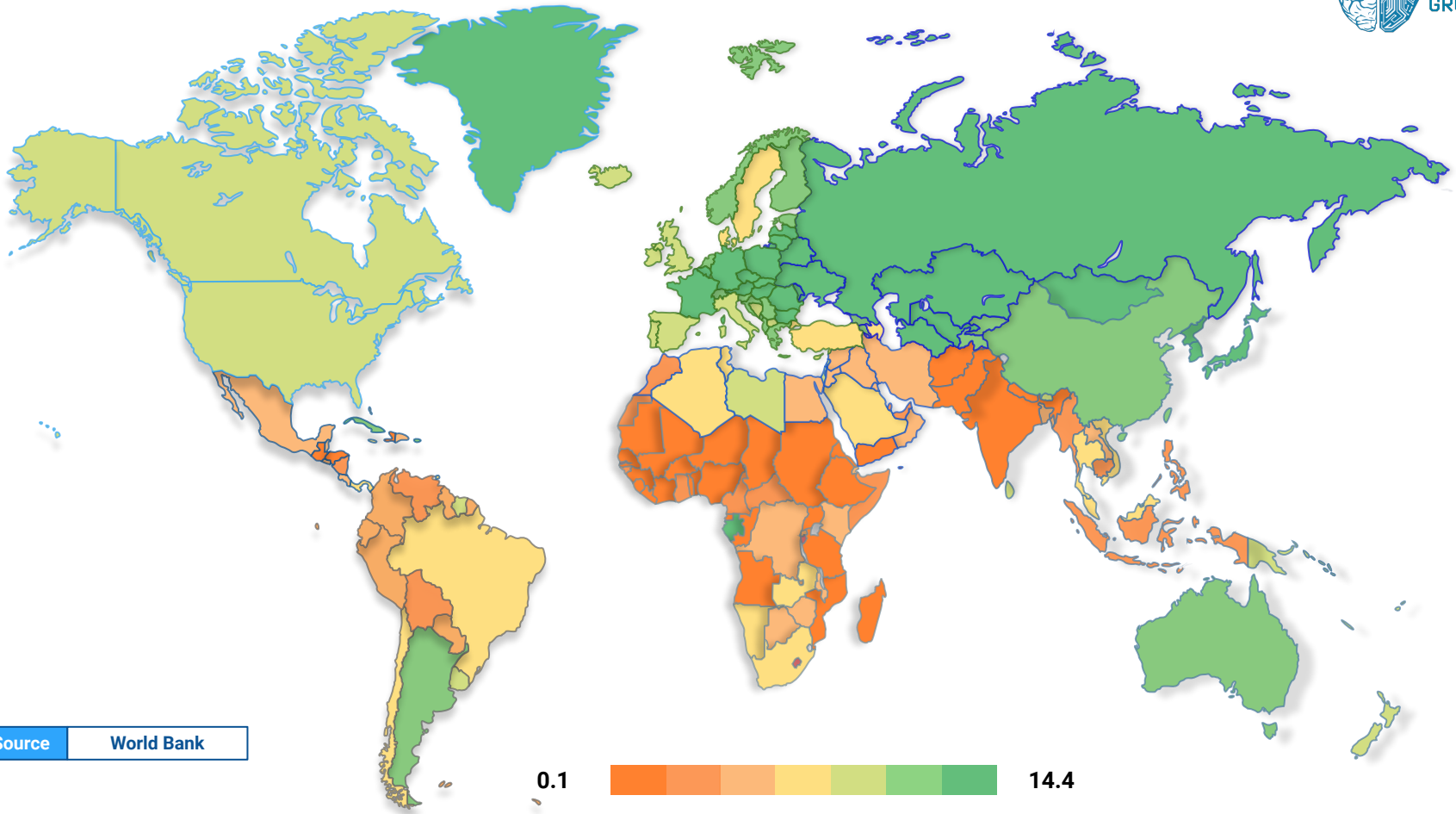
Source	World Bank

Obesity % of Population Ages 20 to 79



Source	ProCon

Hospital Beds per 1,000 People



Source	World Bank

Number of Doctors per 1,000 People

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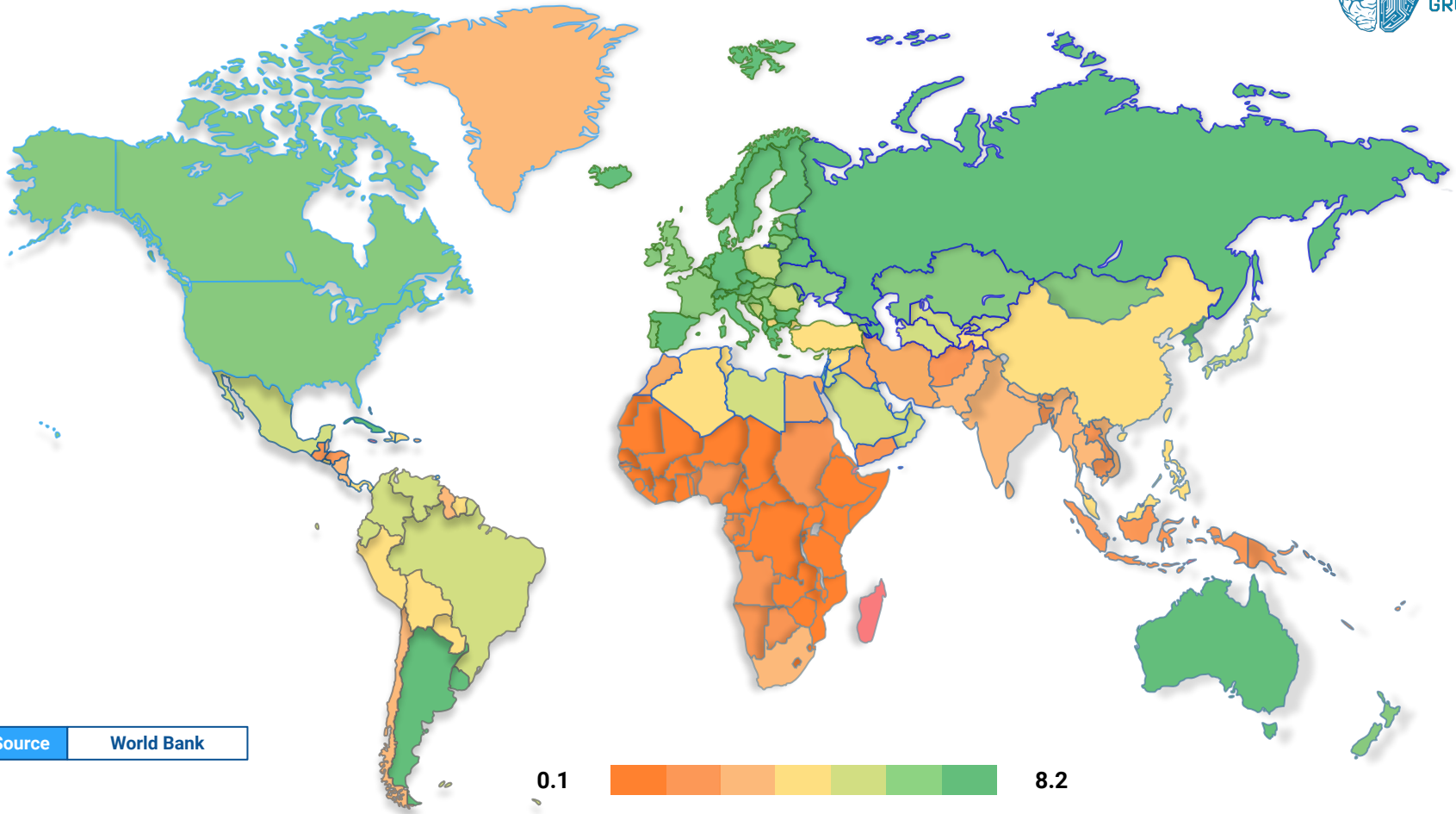

Source	World Bank

HAQ (The Healthcare Access and Quality Index)

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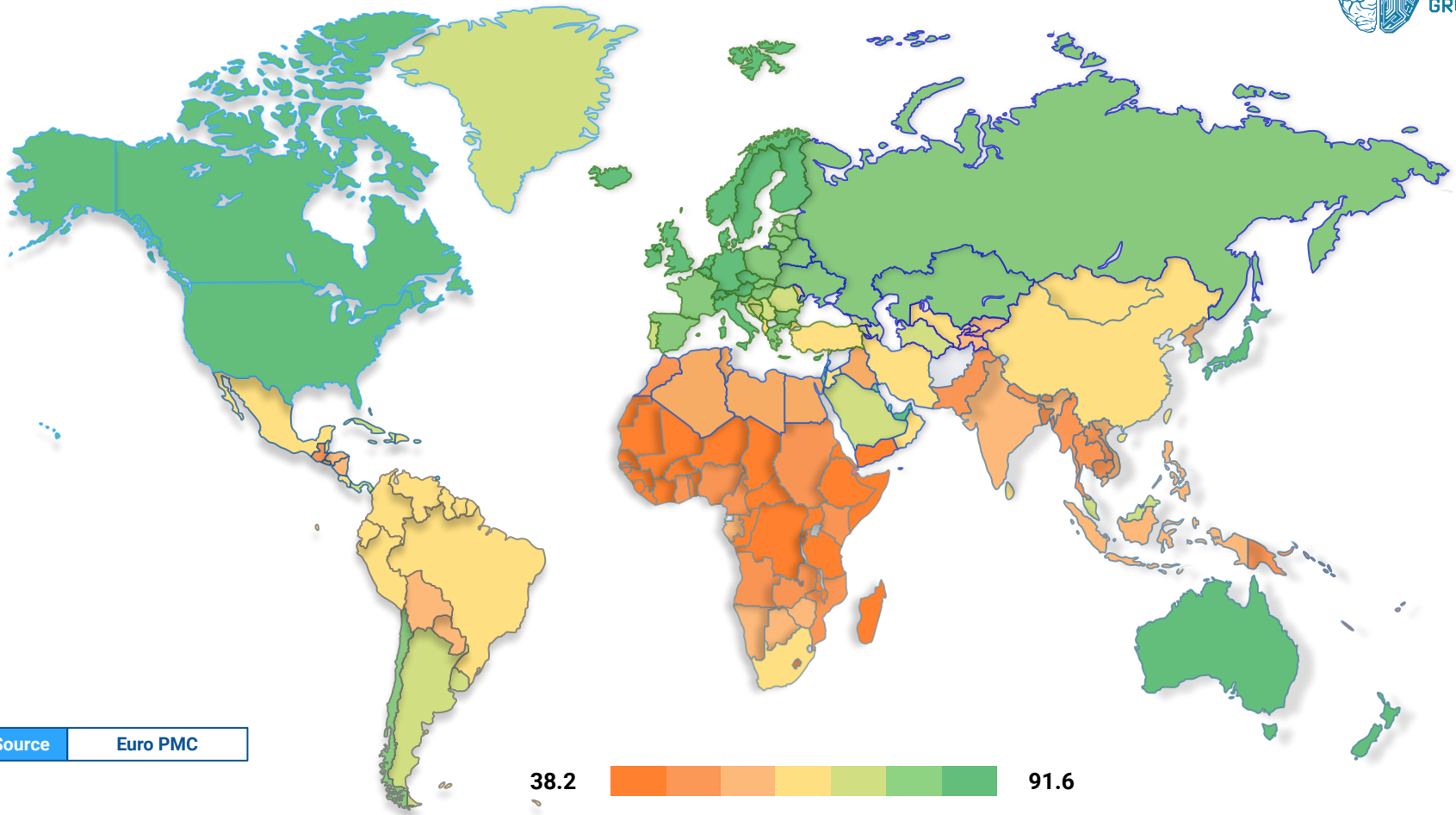
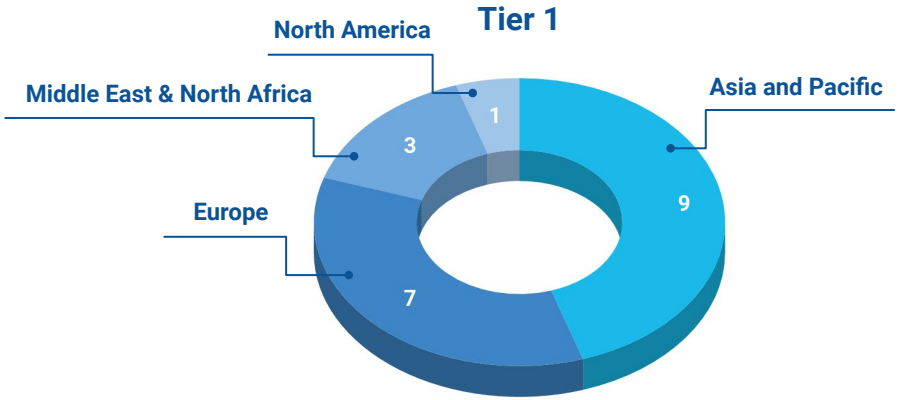
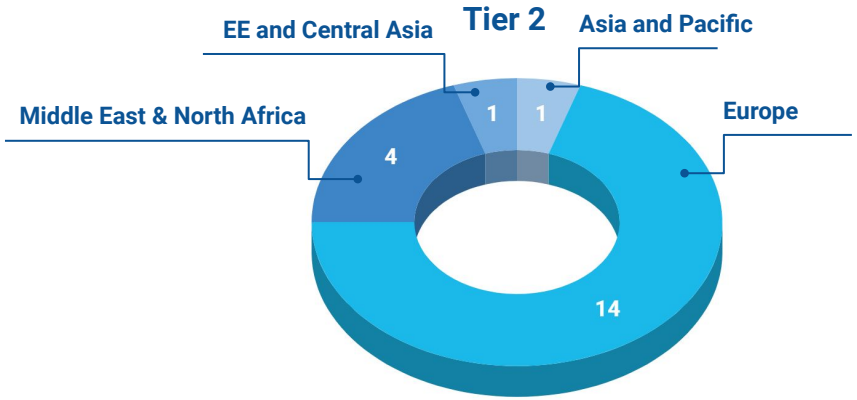
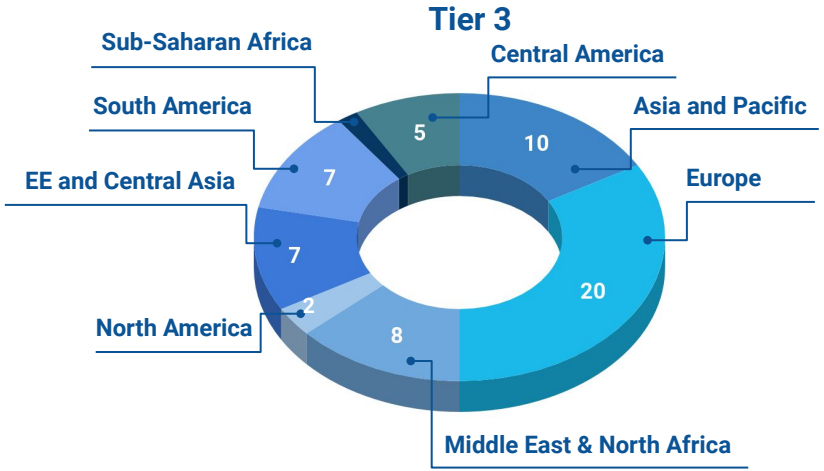


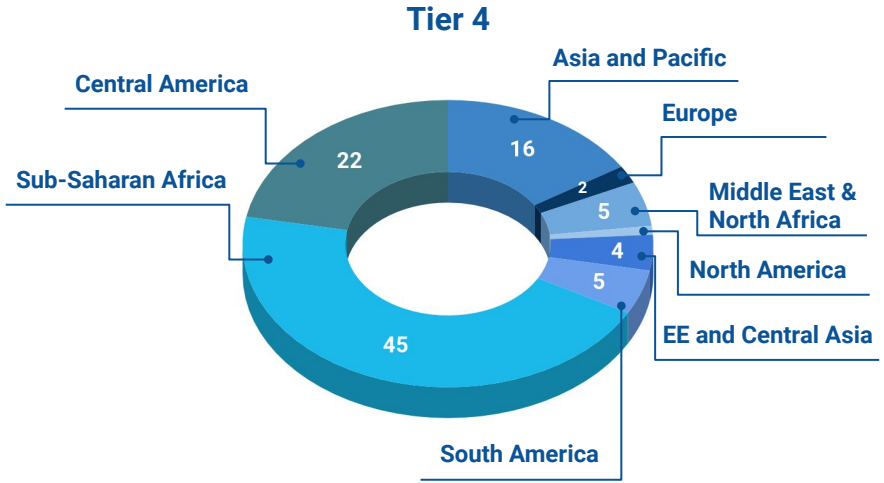
Source	Euro PMC

Tier-Specific Geographic Distribution









Average Ranking Per Regional Tier

Tiers	Rankings								
	Access to Basic Sanitation Facilities (% of Total Population)	Size of Elderly Population (% of Total Population)	Diabetes Prevalence (% of Population Ages 20 to 79)	Endocrine Disorders (Death Rate Per 100,000)	Incidence of Tuberculosis (Per 100,000 people)	Obesity (% of Population Ages 20 to 79)	Hospital Beds (Per 1,000 People)	Number of Doctors (Per 1,000 People)	HAQ (The Healthcare Access and Quality Index)
Tier 1	96.72	15.10	7.76	4.28	26.94	19.85	4.94	3.02	87.82
Tier 2	96.06	12.85	8.01	3.74	20.35	25.08	3.58	2.69	85.92
Tier 3	87.20	10.18	7.53	4.51	80.45	21.70	3.84	2.42	79.46
Tier 4	55.15	4.84	8.08	9.98	137.70	14.75	2.08	0.87	63.82

COVID-19 Regional Safety Assessment: Report Scope and Aim

The global challenge of this particular moment in history, which keeps the world's population in constant vigilance and hopeful for an immediate solution, is not only a medical and scientific challenge; it is also a political and governmental challenge, an economic and trade challenge, the trigger for a global monetary transition, a reconfiguration of what national and international security means in practice, and a technological opportunity. And above all these things, it can be considered as a data science and an analytical challenge. Deep Knowledge Group recognizes that we are faced with the obligation, not only for ourselves but for society as a whole, to analytically disentangle the different facets of the crisis caused by the global pandemic of COVID-19, in order to establish optimal risk reduction and conflict resolution strategies to accelerate regional recoveries and the transition to a positive post-pandemic era.

Deep Knowledge Group seeks to utilize equally complex analytical frameworks to derive actionable insights and answers into how different aspects of the COVID-19 pandemic should be addressed: attending to all available data resources, using them to achieve a systemic approach to the different variables or dimensions that pre-determine it, in such a way that allows decision makers to influence these variables in practice and achieve the most positive outcomes in terms of reducing collateral damage and maximizing the likelihood of optimal post-pandemic national healthcare systems and economies.

These assessments present particular opportunities that the regions included in the present analysis may employ to improve their performance and outputs in the short and medium term in the fight against the pandemic, and to establish themselves as solid economies in the post-pandemic era. In the same way, the study has also allowed us to identify and characterize essential risks and threats that must be addressed early to avoid further outbreaks, deepening of economic damage and the collapse of healthcare systems. **The ultimate aim of the framework is to analyze and score different regions according to their overall level of stability**, both in terms of optimizing current health and wellness outcomes of their population amid the COVID-19 pandemic, as well as their prospects and likelihood of enabling geopolitical stabilization and economic recovery in the post-pandemic era.

COVID-19 Regional Safety Assessment: Brief Methodology Description

Deep Knowledge Group's COVID-19 Regional Safety Assessment is a hybrid index compiled from specific parameters and indicators originally formulated as part of the group's Global COVID-19 Safety and Risk Ranking Frameworks, in order to create a new framework designed to take into account safety and vulnerability factors simultaneously.

Certain metrics used for advanced and qualitative assessment were formulated by Deep Knowledge Group analysts in coordination with specific experts and consultants using proprietary sources and techniques. Therefore, such rankings may be adjusted over time depending on the corresponding underlying information and in coordination with ongoing enhancements to our underlying analytical methodologies.

The current global COVID-19 pandemic is a complex system involving more than typical disease tracking and management techniques, affected not just by biology but by the behaviour of individual humans, and the larger-scale actions of companies, institutions and governments. It is heavily influenced by the current healthcare, medical, economic, governance and geopolitical actions, behaviours and situations of entire nations. Our consortium's various analytical subsidiaries have extensive experience in conducting Big Data Analytics for highly complex topics, industries and domains. *Now, Deep Knowledge Group has adapted its existing analytical frameworks, previously applied to the Longevity Industry, AI for Drug Discovery, GovTech and NeuroTech, to conduct analytics, ranking and forecasting on the global COVID-19 pandemic.*

From the multiparameter analysis of 20 selected regions, encompassing more than **130 variables**, this study has been able to identify, and qualitatively and quantitatively characterize the 3 best-positioned regions in terms of safety, stability and resilience against the myriad effects of the COVID-19 crisis.

COVID-19 Regional Safety Index: Analytical Approach Behind the 4-Tiered Ranking System

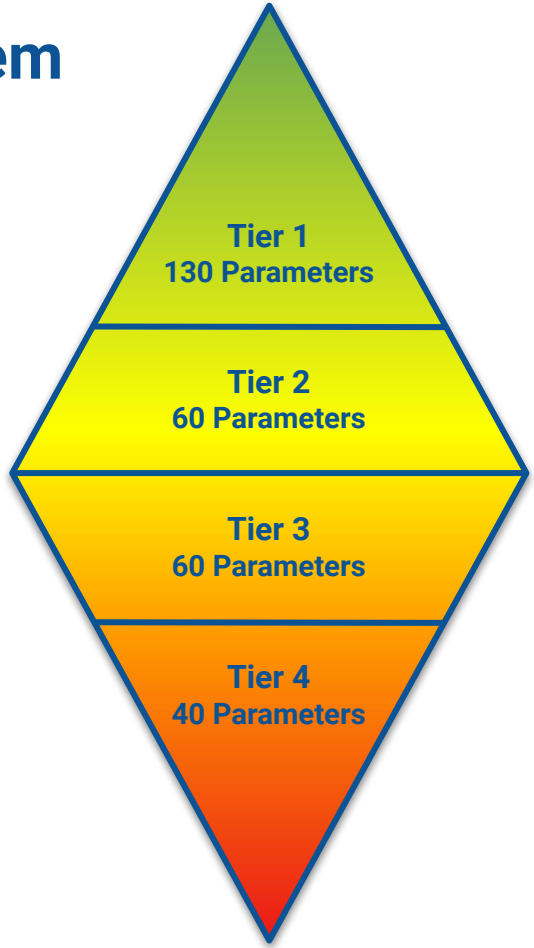
Tier 1 consists of 20 regions with exceptionally high level sof regional safety, as determined by the full application of all 130 parameters across all 6 Regional Safety Index Categories.

Tier 2 consists of 20 regions that scored comparatively well in terms of regional safety according to the phase-1 analysis using 20 parameters, but not as well as those in Tier 1. After being located in Tier 2, they were ranked amongst each other using a subset of 60 parameters.

Tier 3 consists of 60 regions that scored much less favourably during the first-phase analysis that would be expected considering their general pre-pandemic levels of Quarantine Efficiency, Government Efficiency of Risk Management, Monitoring and Detection Efficiency, Health Readiness, Regional Resilience and Emergency Preparedness).

Tier 4 consists of 100 regions that scored least favourably during the first-phase analysis, and which suffer from high levels of data unavailability or unreliability. After being placed in Tier 4, they were ranked amongst each other using a subset of 40 parameters (due to data availability issues which prevented a more comprehensive analysis).

The aim of this approach is to conduct as comprehensive analysis an analysis as possible considering each region's unique levels of data availability and reliability.



Index Category Weight

COVID-19 Quarantine Efficiency

2.2 WEIGHT

	Weighting factor
Scale of Quarantine	18%
Quarantine Timeline	17%
Criminal Penalties for Violating Quarantine	14%
Economic Support for Quarantined Citizens	18%
Economic and Supply Chain Freezing	15.50%
Travel Restrictions	17.50%

COVID-19 Emergency Preparedness

1.5 WEIGHT

	Weighting factor
Societal Emergency Resilience	27%
Emergency Military Mobilization Experience	23%
Surveillance Capabilities (Scale, Scope and Technological Sophistication)	27%
Previous National Emergency Experience	23%

COVID-19 Government Efficiency of Risk Management

2.2 WEIGHT

	Weighting factor
Level of Security and Defense Advancement	17%
Rapid Emergency Mobilization	16%
Efficiency of Government Structure	18%
Economic Sustainability	17%
Legislative Efficiency	16%
Political Stability	16%

COVID-19 Healthcare Readiness

1.3 WEIGHT

	Weighting factor
COVID-19 Equipment Availability	18%
Mobilization of New Healthcare Resources	17.50%
Quantity and Quality of Medical Staff	16%
Level of Healthcare Progressiveness	15%
Level of Technological Advancement	17%
Epidemiology System Level of Development	16.50%

COVID-19 Monitoring and Detection

1.5 WEIGHT

	Weighting factor
Monitoring Systems and Disaster Management	18%
Scope of Diagnostic Methods	15%
Testing Efficiency	18%
AI for Diagnostics and Prognostics	15%
Government Surveillance Technology for Monitoring	17%
Reliability and Transparency of Data	17%

COVID-19 Regional Resiliency

1.3 WEIGHT

	Weighting factor
Infection Spread Risk	6.50%
Culture Specifics and Societal Discipline	18%
Level of Modern Sanitization Methods	15%
Demography	15.50%
Chronic Diseases	18%
Societal Risks	17%

COVID-19 Regional Safety Index: Data Sources

Data collection is an essential stage of the research. Accurate data collection is essential to maintaining the integrity of research. To answer relevant questions of the working paper and evaluate outcomes, data used for this analysis was collected from credible sources.

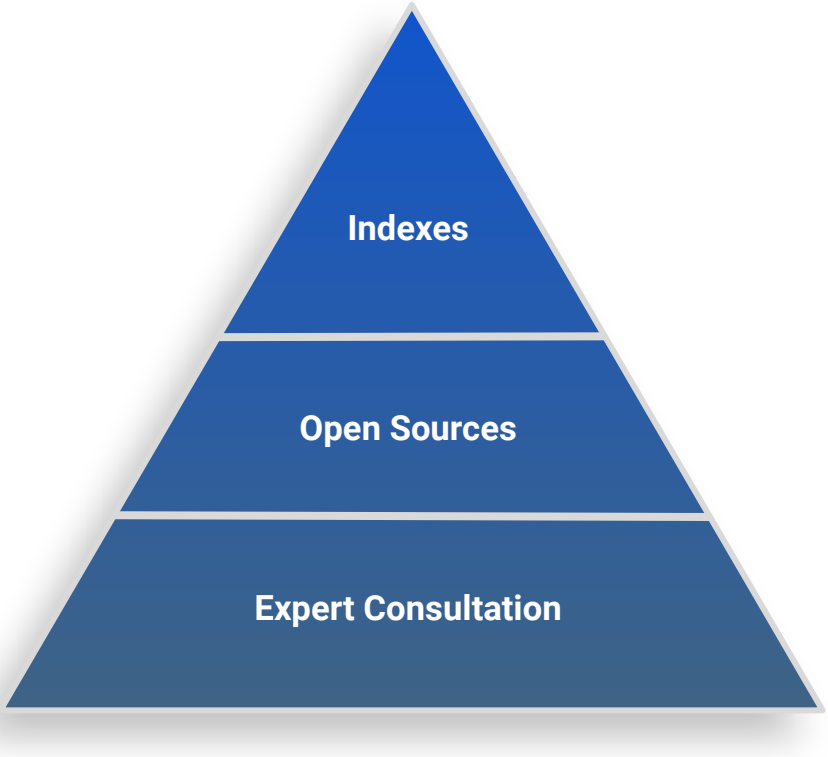
- World Health Organization
- World Bank Open Data
- Peer-Reviewed Scientific Publications
- E-Government Development Index
- UNdata
- IndexMundi
- World Population Review
- EuropePMC
- GHS Index
- WCRF International
- OECD Data
- Government Reports
- Worldometers
- Human Development Index
- Corruption Perceptions Index
- Our World in Data
- TheGlobalEconomy.com
- The Lancet
- WORLD LIFE EXPECTANCY
- ProCon.org

COVID-19 Regional Safety Index: Data Accuracy Review

The index utilizes a combination of publicly available databases (including but not limited to indexes and region statistics), as well as manually-curated and researched quantitative and qualitative data obtained by manual searches using search engines, media and governmental reports, and the use of expert opinions and consultations in cases where data was not available.

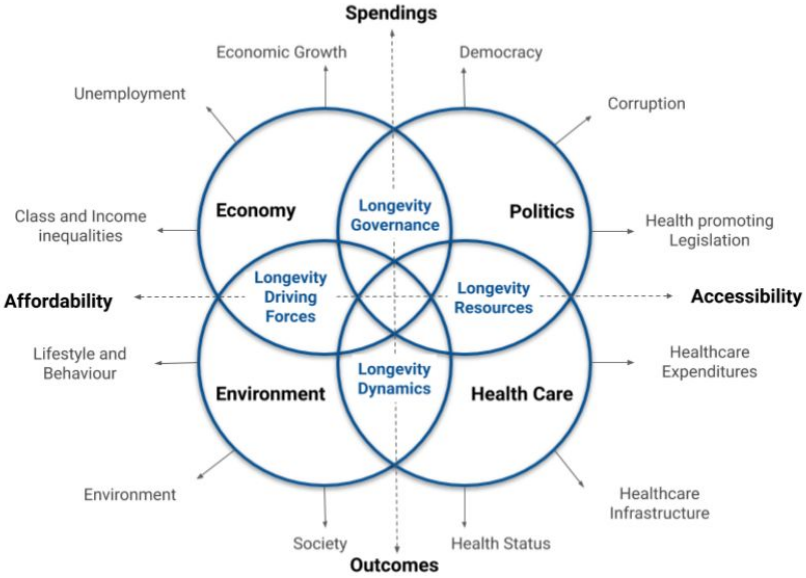
In utilizing three qualitatively distinct sources of data, Deep Knowledge Group analysts have attempted to overcome barriers in conducting a robust and comprehensive, yet reliable and methodologically-rigorous analysis by utilizing the largest and most reputable databases (usually constructed by an unbiased international group or foundation) where possible, by consulting region-specific resources in cases when open-source international databases are not possible, and finally by utilizing expert opinion in all cases where publicly-accessible regional and/or international sources of data are unavailable.

By utilizing this approach, the present analysis attempts to find an optimal balance between using maximally transparent and reliable sources of data, and including data which are only obtainable from expert consultation.



Previous Analytical Precedents: Big Data Analysis of 50 Countries Healthcare Progressiveness

One of the analytical precedents used in the creation of the present special case study (and its corresponding analytical framework) is "*Global Longevity Governance Landscape: 50 regions Big Data Comparative Analysis of Longevity Progressiveness*", a special analytical case study developed by its Longevity-focused analytical subsidiary that applied Big Data Analysis (utilizing **200 parameters** applied to **50 regions**, encompassing **10,000 data points in total**) to rank the effectiveness of nation's Longevity Progressive Medicine Policy/Governance efforts.



Previous Analytical Precedents: Big Data Analysis of 50 Countries Healthcare Progressiveness

Featured below are the **200 specific parameters** utilized in the Big Data Comparative Analysis of 50 regions' level of Longevity and healthcare progressiveness conducted in Aging Analytics Agency's Global Longevity Governance special analytical case study. The report utilized 10,000 data to conduct intelligible and fact-driven benchmarking of 50 nations in relation to their respective levels of Healthy Longevity, as measured by Health-Adjusted Life Expectancy (HALE), their current gaps between HALE and unadjusted life expectancy, their current levels of success in growing and maintaining National Healthy Longevity, and in dealing with the issue of aging.

The results of this analysis were then used to provide tangible region specific policy recommendations on how each of the 50 nations analyzed can either maintain or improve their current international standing and optimize their levels of National Healthy Longevity, and to identify social policy, healthcare, medical, financial and socioeconomic factors having the greatest effect on the gap between life expectancy at birth and Health Adjusted Life Expectancy (HALE).

6 Layers and 200 Parameters

Socio-economic Conditions

1. Adjusted net enrolment rate female, 2016
2. Adjusted net enrolment rate male, 2016
3. Adjusted savings: net national savings (% of GNI), 2010
4. Adjusted savings: net national savings (% of GNI), 2016
5. Average salary (US$), 2016
6. Average salary growth rate, %
7. Balance of trade (US$), 2016
8. Both Sexes HALE, 2016
9. Both Sexes Life Expectancy, 2016
10. Consumer Price Index, 2016
11. Democracy Index, 2016
12. Early retirement age Men
13. Early retirement age Women
14. Easy Doing Business, 2016
15. Education Index, 2016
16. Educational attainment at least Bachelor's female, 2016
17. Educational attainment at least Bachelor's male, 2016
18. Financial institution account female, 2016
19. Financial institution account male, 2016
20. GDP per Capita (current US$), 2010
21. GDP per Capita (current US$), 2016
22. GDP (current US$), 2010
23. GDP (current US$), 2016
24. GDP growth rate, %
25. Global Competitiveness Index Score, 2016-2017
26. Global Gender Gap Index, 2016
27. Human Development Index, 2010
28. Human Development Index, 2016
29. Inclusive Development Index Score, 2017
30. Income Gini coefficient Inequality in income or consumption 2010 (World Bank estimate)
31. Income Gini coefficient - Inequality in income or consumption 2016 (World Bank estimate)
32. Key interest rate (%), 2016
33. Labor force participation rate, % of male population ages 15-64 (modeled ILO estimate), female
34. Labor force participation rate, % of male population ages 15-64 (modeled ILO estimate), male
35. Labor force with advanced education female, 2016
36. Labor force with advanced education, male, 2016
37. Minimum wage (US$), 2016
38. Net ODA received (% of GNI) % of people 65+ in employment
39. Normal retirement age Men
40. Normal retirement age Women
41. Number of WHO age friendly cities and communities
42. Primary education, 2016
43. Tourism, % of GDP
44. Unemployed persons, 2016
45. Unemployment rate, %

Demography

46. Age Dependency Ratio, 2010
47. Age Dependency Ratio, 2016
48. Age over 65, % (by 2010) Size of aged demographic
49. Age over 65, % (by 2016) Size of aged demographic
50. Crude birth rate (per 1 000 people), 2010
51. Crude birth rate, 2016
52. Crude death rate (per 1 000 people), 2010
53. Crude death rate, 2016
54. Fertility rate, 2016
55. Global Gender Gap Index 2016
56. Life expectancy both sexes, 2000
57. Life expectancy both sexes, 2001
58. Life expectancy both sexes, 2002
59. Life expectancy both sexes, 2003
60. Life expectancy both sexes, 2004
61. Life expectancy both sexes, 2005
62. Life expectancy both sexes, 2006
63. Life expectancy both sexes, 2007
64. Life expectancy both sexes, 2008
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66. Life expectancy both sexes, 2010
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68. Life expectancy both sexes, 2012
69. Life expectancy both sexes, 2013
70. Life expectancy both sexes, 2014
71. Life expectancy both sexes, 2015
72. Life expectancy both sexes, 2016
73. Life expectancy female, 2010
74. Life expectancy female, 2016
75. Life expectancy male, 2010
76. Life expectancy male 2016
77. Net migration
78. Total population
79. Population density, number of people/km2
80. Population growth rate, %
81. Population over 65, 2016 (%)
82. Senior Poverty Ratio
83. Total age dependency ratio (per 1000 of working-age population)
84. Total fertility rate (per woman)
85. Urban Population (% of Total)

Health Care and Health Status

86. Adult mortality rate, 2016
87. Adult mortality rate female, 2016
88. Adult mortality rate male, 2016
89. Alcohol Consumption per Capita (litres of pure alcohol), 2010
90. Alcohol Consumption per Capita (litres of pure alcohol), 2016
91. Anemia pregnant, 2016
92. Anemia reproductive, 2016
93. Annual Cigarette Consumption (per Capita), 2010
94. Annual Cigarette Consumption (per Capita), 2016
95. Biomedical engineers density (per 10 000 population), 2017
96. Cause of death by communicable diseases both sexes, 2016
97. Cause of death by communicable diseases female, 2016
98. Cause of death by communicable diseases male, 2016
99. Cause of death, by injury, ages 35-59, % of relevant age group (2016)
100. Cause of death, by injury, ages 35-59, % of relevant age group female (2016)
101. Cause of death, by injury, ages 35-59, % of relevant age group male (2016)
102. Cause of death by non-communicable diseases both sexes, 2016
103. Cause of death by non-communicable diseases female, 2016
104. Cause of death by non-communicable diseases male, 2016
105. Current health expenditure per capita (current US$), 2010
106. Current health expenditure per capita (current US$), 2016
107. HALE both sexes, 2000
108. HALE both sexes, 2001
109. HALE both sexes, 2002
110. HALE both sexes, 2003
111. HALE both sexes, 2004
112. HALE both sexes, 2005
113. HALE both sexes, 2006
114. HALE both sexes, 2007
115. HALE both sexes, 2008
116. HALE both sexes, 2009
117. HALE both sexes, 2010
118. HALE both sexes, 2011
119. HALE both sexes, 2012
120. HALE both sexes, 2013
121. HALE both sexes, 2014
122. HALE both sexes, 2015
123. HALE both sexes, 2016
124. Healthcare Access and Quality Index), 2016
125. DALY rates per 100 000 population, 2010
126. DALY rates per 100 000 population, 2016
127. Domestic general government health expenditure
128. Domestic private health expenditure (% of current health expenditure), 2010
129. Domestic private health expenditure , 2016
130. Inbound mobility rate, 2016(%)
131. Inbound mobility rate female, 2016 (%)
132. Inbound mobility rate male, 2016 (%)
133. Female HALE, 2016
134. Incidence of tuberculosis (per 100 000 population per year), 2016
135. Medical Equipment (per 1.000.000), 2013
136. Male HALE, 2016
137. Mortality caused by road traffic injury (per 100,000 people)
138. Mortality from CVD, cancer, diabetes or CRD between exact ages 30 and 70 (%)
139. Mortality rate attributed to household and ambient air pollution, age-standardized (per 100,000 population)
140. Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (per 100,000 population)
141. Out-of-pocket expenditure, 2010
142. Out-of-pocket expenditure (% of current health expenditure), 2016
143. Physicians (per 100.000 People)
144. Population of Adults with AIDs (%), 2010 and 2016
145. Prevalence of anemia among pregnant women (%)
146. Prevalence of anemia among women of reproductive age (% of women ages 15-49)
147. Prevalence of insufficient physical activity among adults aged 18+, 2016
148. Prevalence of obesity (% of population), 2016
149. Prevalence of obesity female (% of population), 2016
150. Prevalence of obesity male (% of population), 2016
151. Prevalence of overweight among adults, BMI ≥ 25 (age-standardized estimate) (%), 2010
152. Prevalence of overweight among adults, BMI ≥ 25 (age-standardized estimate) (%), 2016
153. Prevalence of undernourishment (% of population), 2010
154. Prevalence of undernourishment (% of population), 2016
155. Prevalence of underweight (% of population), 2016
156. Prevalence of underweight female (% of population), 2016
157. Prevalence of underweight male (% of population), 2016

Health Care and Health Status

158. Public Health Care Expenditure (as % of GDP), 2010
159. Public Health Care Expenditure (as % of GDP), 2016
160. Risk of catastrophic expenditure for surgical care (% of people at risk), 2016
161. Road traffic injury, 2016
162. Smoking prevalence (% of population), 2016
163. Smoking prevalence female (% of female population), 2016
164. Smoking prevalence male (% of male population), 2016
165. Suicide mortality rate both sexes, 2016
166. Suicide mortality rate female, 2016
167. Suicide mortality rate male, 2016
168. Total alcohol consumption both sexes, 2016
169. Total alcohol consumption female, 2016
170. Total alcohol consumption male, 2016

Health Care Policy

171. Existence of a set of time-bound national targets based on WHO guidance for NCDs (Yes - 1 / No - 0), 2016
172. Existence of an operational, multisectoral national NCD policy, strategy or action plan that integrates several NCDs and their risk factors (Yes - 1 / No - 0), 2017
173. Existence of any policies to reduce population salt consumption (Yes - 1 / No - 0), 2017
174. Existence of operational policy/strategy/action plan for cancer (Yes - 1 / No - 0), 2017
175. Existence of operational policy/strategy/action plan for cardiovascular diseases (Yes - 1 / No - 0)
176. Existence of operational policy/strategy/action plan for chronic respiratory diseases (Yes - 1 / No - 0)
177. Existence of operational policy/strategy/action plan to decrease tobacco use (Yes - 1 / No - 0
178. Existence of operational policy/strategy/action plan for diabetes (Yes - 1 / No - 0) Existence of operational policy/strategy/action plan for oral health (Yes - 1 / No - 0)
179. Existence of operational policy/strategy/action plan to reduce the harmful use of alcohol (Yes - 1 / No - 0)
180. Existence of operational policy/strategy/action plan to reduce physical inactivity (Yes - 1 / No - 0)
181. Existence of operational policy/strategy/action plan to reduce unhealthy diet related to NCDs (Yes - 1 / No - 0)
182. Implementation of physical activity public awareness program (Yes - 1 / No - 0), 2017
183. Stand-alone law for mental health (Yes - 1 / No - 0)
184. Stand-alone policy or plan for mental health (Yes - 1 / No - 0)

Environmental Factors

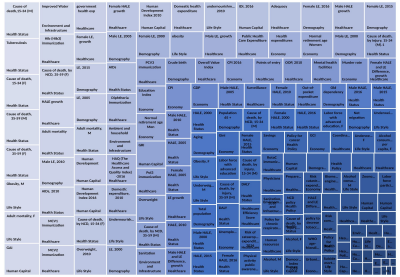
185. Ambient air pollution, concentration of fine particulate matter PM2.5 (ug/m3), 2010
186. Ambient air pollution, concentration of fine particulate matter PM2.5 (ug/m3), 2016
187. Ambient and household air pollution attributable death rate (per 100 000 population), 2010
188. Ambient and household air pollution attributable death rate (per 100 000 population), 2016
189. Daily maximum air temperature, 2016
190. Daily mean air temperature, 2016
191. Daily minimum air temperature, 2016
192. Dew point, 2016
193. Diurnal temperature variation calculations, 2016
194. People using safely managed sanitation services (% of population), 2010
195. People using safely managed sanitation services (% of population), 2015
196. Population Using Improved Water Sources (%)
197. People using at least basic sanitation services (% of population)
198. People using at least basic drinking water services (% of population)
199. Relative humidity, 2016
200. Sunshine hours, 2016

Previous Analytical Precedents: Big Data Analysis of 50 Countries Healthcare Progressiveness

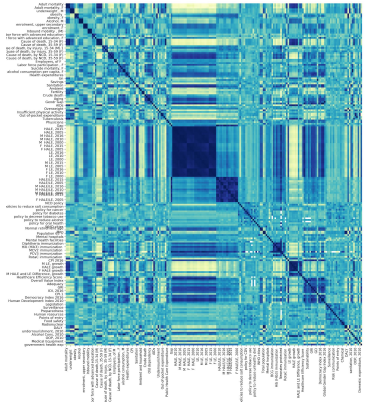
Region Ranking: Health-Adjusted Life Expectancy (HALE) and Gap Between HALE and Life Expectancy

50 regions

6 Layers and 200 Parameters



Correlations Between Parameters



200 Parameters + 50 regions Heat Map

The special case study was produced by Aging Analytics Agency as an enhanced follow-up to its previous "*National Longevity Development Plans: Global Overview 2019*" report, which applied a similar analysis on a smaller scale.

As an official supporting partner and source of data for the UK All-Party Parliamentary Group (APPG) for Longevity, Aging Analytics Agency presented key findings from that report at the APPG for Longevity's official launch event in UK Parliament, as well as in several key Advisory Board Meetings.

COVID-19 Regional Safety: General Findings

For the multiparametric analytical evaluation of the 200 selected regions, six (6) central variables have been chosen that show highly positive correlation with the degree of efficiency, defense and resilience of each region against the COVID-19 crisis. These six variables, which we formally call Categories, can be imagined as large data sets or data matrices, made up of sub-variables which at the same time contain other minor sub-variables inside; the former have been called Indicators, while the latter, Parameters. The six Categories evaluated for each region are, in order, those that follow.

- **Quarantine Efficiency**, the capacity evidenced by a region to establish timely social norms that allow the containment, reversal or neutralization of viral spread to be achieved and avoid saturation of the health system, particularly of Intensive Care Units (ICUs).
- **Government Efficiency of Risk Management**, the executing capacity of political institutions and their leaders to establish adequate national emergency plans, attending to the particular deficits and risks of each region.
- **Monitoring and Detection**, a measure of the technological and procedural resources made available in a region for epidemiological surveillance, emphasizing the use of digital tech and AI for risk analysis, population monitoring, or diagnosis.
- **Healthcare Readiness**, understood as the region's health system capacity to withstand critical emergencies related to COVID-19.
- **Regional Resiliency**, which should be understood not only as the capacity of the region to resist, respond and fight against the multiple economic, health and humanitarian impacts of the emergency, but also as its post-pandemic recovery capacity.
- **Emergency Preparedness**, a comprehensive measure of the specific resilience of the community and also of the mobilization capacities of regions' security and defense forces, taking into account both their previous exposure to various comparable emergency experiences, as well as whether or not they already have plans of containment in place to apply in similar scenarios.

From the extensive data sets analyzed using multidimensional statistical techniques such as PCA, the present analysis derives a ranking of 200 regions in terms of how well-equipped and positioned they are against regional and global crisis situations resulting from the current global COVID-19 pandemic.

COVID-19 Regional Safety: General Findings

Overall, the analysis revealed a significant degree of variance in terms of the overall regional safety ranking of the 200 regions analyzed, with the largest factors impacting a given region's specific score being either their their raw capacity to slow infection spread and treat COVID-19 cases, or the specific policies and strategies they use regardless of their raw capabilities.

Interestingly, the analysis revealed a large number of regions that should have scored well given their general pre-pandemic levels of healthcare quality, readiness and technological sophistication, their capacities for stringent and actionable monitoring and detection, government management efficiency, emergency preparedness and other critical factors, but which in practice received comparatively low regional safety rankings when considered in the context of the full set of parameters used to compute their scores.

We find many technological and economic superpowers suffering some of the highest infection spread and mortality rates, for example the USA and UK, which is a surprising result that requires precise and tangible explanation, given that their scores are unlikely to be a result of their raw capacity to slow infection spread and treat critical COVID-19 cases.

This finding strongly exemplifies the conclusion that one of the most critical factors impacting regional safety is not the general level of different region's theoretical capacity to withstand and neutralize national emergency situations, but rather the specific policies and crisis management strategies and tactics they employ.

Regions which began closing borders, lockdown mandates and economic freezing measures comparatively late in the overall pandemic timeline, which continue to prioritize economic recovery over public health and safety, which do not utilize sufficiently widespread testing, and which do not proactively build bridges across government departments and across the private and public sector to strengthen surplus healthcare resources against the threat of future outbreaks consistently score lower than one would expect considering their raw resources, capacity and *potential* to maintain and optimize regional safety amid the current pandemic.

COVID-19 Regional Safety: Geography-Specific Findings

The analysis also revealed several interesting findings in terms of the geographic distribution of regional safety, and which broad geographic territories have the highest average levels of regional safety, which have the largest number of individual high-ranking regions, and which have the greatest overall variance of regional safety levels (i.e., the size of the gap between highest and lowest-scoring regions).

East Asia and Pacific shows a comparatively higher level of diversity among the rankings of its regions than other broad geographical groups featured in the present analysis. The majority of positively-scoring territories are located in Asia specifically (with the exception of New Zealand), and one of the most common factors among them include governments with a high degree of emergency preparedness and rapid mobilization of resources (e.g., Singapore and China). Meanwhile, other regions appear to score well due to a high degree of healthcare modernization, as well as cultural and citizen responsibility (eg., Japan and Australia).

Europe is dominated by a large number of average-ranking countries, with a smaller number scoring exceptionally high or low in terms of regional safety. We do see a number of so-called “outliers” in the region as well, i.e., countries who should score well given their generally high degrees of healthcare robustness, such as France and especially the United Kingdom, but which do not. This observation is a strong indicator that one of the most critical factors impacting regional safety and stability is not the general level of healthcare sophistication in non-pandemic times, but the specific governmental crisis management strategies and policies used to combat pandemics.

The regions within the Middle East and North Africa group that scored well in terms of cumulative regional COVID-19 safety have a few commonalities which impact their comparatively optimal ranking. For example, many of them (e.g. Bahrain, Kuwait, UAE, Oman, Qatar, etc) have in recent years have made substantial investments in medical modernization and the development of cutting edge healthcare technologies and facilities. Another commonality among the positively-scoring regions within this group is tangible experience with national emergency management and rapid mobilization of resources for crisis management.

COVID-19 Regional Safety: Geography-Specific Findings

North America has just one country in Tier 1 (Canada), two countries in Tier 3 (United States and Greenland), and one in Tier 4 (United States). This, the region is marked by a single exceptional outlier, and three countries that score comparatively negatively. The US is an interesting outlier considering its raw assets and capacity for government management efficiency, emergency preparedness, monitoring and detection, and healthcare readiness, the central factor impacting its current situation and its specific ranking are the specific policies and crisis management strategies that its federal and state-level governments have deployed. Canada, by contrast, has been much slower to relax its lockdown and social distancing mandates, and to re-open its economy, which is one of the factors impacting its exceptionally high regional safety score, and it position as one of the 20 territories located in Tier 1.

Central America is marked by a large number of countries that score comparatively negatively in the present analysis, with the majority falling in Tier 4, and the rest in Tier 3, and none in Tiers 1 or 2. Common factors among many of the lower-scoring countries in Central America include smaller economies, lower healthcare efficiency and substandard public health infrastructure (and even among the wealthier low-scoring regions, poor rankings in healthcare parameters tend to lower their cumulative scores), as well as economic and geographic isolation.

We tend to see a general trend of consistently low scores for Central Asia regions, in part due to a generally lower degree of healthcare efficiency, modernization and technological sophistication, and lower levels of investments into robust technologies for monitoring and surveillance. We also see a high degree of data unavailability and unreliability in Central Asian regions as well, which precludes a more thorough and comprehensive analysis of regional safety. Central Asia does have some particular outliers who received significantly lower scores than their neighbors due largely to inefficiencies with government management and policy. While many Central Asian regions begin imposing lockdown mandates in mid-March, Tajikistan did not impose any sort of quarantine measures until Mid-May, while Turkmenistan has not imposed any to date, which is a large factor impacting their comparatively lower scores.

COVID-19 Regional Safety: Geography-Specific Findings

Generally speaking, our analysis revealed scores for Eastern European regions that are on the lower end of average, similarly due in part to lower healthcare modernization and technological sophistication. These factors, however, are offset by the fact that many Eastern European regions implemented lockdown measures much earlier on average than Western European countries, which seems to have led to average COVID-19 growth rates and death tolls substantially lower than Western Europe. However, this is not a universal trend within Eastern Europe.

We see a great deal of variance among the regional safety scores of Sub-Saharan Africa. While the broad region's COVID-19 growth and death rates are markedly lower than the majority of other territories included in the present analysis, its overall healthcare infrastructure and efficiency, as well as sanitation levels, are markedly lower, and generally the region has a much lower capacity to deal with future increases in COVID-19 infection spread than other regions.

We see a remarkable degree of variance in the regional safety scores for South America. Chile has received a higher-than-average score in part due to its widespread testing efforts, which has helped keep the region's mortality rate much lower than the global average. A common factor among the majority of regions with significantly higher-than-average regional safety scores in South America include very early, proactive government responses (such as Chile, Uruguay, Peru and Ecuador). Uruguay, for example, declared a health emergency (closing schools and closing its borders) the same day that it detected its first four cases. And while it has not imposed mandatory lockdown measures, it has encouraged voluntary isolation, which has been largely adopted by its low-density population. Costa Rica has a higher-than-average score in part due to a high degree of integration and coordination of its government response, and a high degree of cooperation between private and public sectors for accelerated production and distribution of needed medical equipment, which has prevented the region from having its healthcare infrastructure over-capacitated by COVID-19 patients.

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COVID-19 Regional Safety: Tier-Specific Geographic Distribution

Interestingly, Tier 1 consists overwhelmingly of regions from Asia Pacific (and of that, the majority are in Asia) and Europe, with just 15% from Middle East and North Africa, and just 5% from North America. Thus, on average Asia and Europe appear to be maintaining regional safety more efficiently than the rest of the world, although the actual distribution of Asian and European regions that fall within and outside of Tier 1 considers substantially as well, with a larger proportion of European countries being located outside of Tier 1.

The majority of regions within Tier 2 are European countries (70%), with 20% from the Middle East and North Africa, 5% from Eastern Europe and Central Asia, and 5% from Asia Pacific. Thus, the majority of Asia Pacific regions that rank above Tiers 3 and 4 fall into Tier 1 (25%), whereas the majority of European regions that fall above Tiers 2 and 3 are located in Tier 2 (32%).

Meanwhile, Asia Pacific regions falling below Tier 2 are overwhelmingly located in Tier 4 (45%), whereas European countries falling below Tier 2 are majoritively in Tier 3 (47%). Therefore, on average Asia Pacific regions rankings either exceptionally high or low in terms of regional safety, whereas the overall distributional gap for European countries is smaller, with a roughly half falling within Tiers 1 and 2, approximately half into Tier 3, and very few (5%) in Tier 4.

From this we can gather several interesting observations, including the fact that regions within Asia have the highest total number of territories that score exceptionally well, but also a wider variation among individual scores (large number falling within Tiers 1 and 4), with a significant number of regions scoring particularly poorly, whereas Europe has a lesser number of individual countries that score exceptionally well, but also a smaller number that score exceptionally poorly as well, with a generally narrower variance (with the majority of countries falling within Tiers 2 and 3.

In analyzing the overall geographic distribution of regions within each broad geographic territory, several interesting insights emerge, which can be used to gain further actionable insights into best and worst-case strategies for combating the current pandemic and optimizing post-pandemic health and economic consequences of the months and years to come.

General COVID-19 Recommendations for Future Pandemic Readiness and Prevention

- Government leaders should seek to improve cross-department coordination, especially as it pertains to links between public health authorities and security forces including military and law enforcement officers.
- Regional governments and international policy organizations should proactively develop the capacity and infrastructure for addressing fast-moving pandemic threats.
- A dedicated normative international organization should be created to promote early identification of global pandemic threats and reduction in health-risks imposed by advances in modern technology, such as international travels, which are one of the root causes of the current pandemic's global reach.
- Regions should be more proactive in stress-testing their health security capacities and in conducting and publishing the results of after-action reviews. By holding periodic health security simulations, such regions can simultaneously demonstrate their commitment to maintaining a well-functioning health security system and transparently identify weak points in their health security infrastructure in order to improve them for future scenarios of epidemiological relevance.
- The majority of regions should increase the level of domestic financing for health security maintenance, development and improvement, and should be tied to specific benchmarks within national action plans.
- Governments should develop specific mechanisms for facilitating private sector coordination for rapid mobilization of emergency pandemic responses (e.g. equipment production, test and treatment development, etc.)
- Overall utilization of AI-enabled GovTech platforms must be increased to create better cross-department coordination efforts.
- Medical and safety equipments storages must be addressed proactively.
- Regions should seek to establish intra-border cooperation and emergency response efforts jointly to prevent disease spread.
- Above all else, regions should not put economic recovery above public health and safety. Efforts to ease economic freezing and lockdowns should be coupled by vigilant and widespread testing, monitoring and detection.

General COVID-19 Conclusions

Based on the results of our analysis, we can conclude that the 20 selected regions show considerably high overall scores in terms of availability of medical, economic and technological resources to monitor, detect and neutralize the pathogenic agent causing COVID-19 within their own borders, as well as to establish programs that attempt to maintain economic and social security, and stability.

The analysis finds that the regions' main challenge lies perhaps more in attending to their capacities to efficiently manage these resources, fundamentally with regard to changing the pre-existing dynamics of conflict resolution. One of the central measures used to combat previous economic and humanitarian crises, such as the financial crisis of 2008, has been the government policy of money issuance and financial rescue. The current global crisis is not just an economic crisis; it is a combined health and economic crisis with major systematic impacts on all areas of resource management. The majority of regions included in the present analysis are well conditioned, in terms of availability of material and human resources, to establish new, more comprehensive emergency preparation measures, and to create the heightened levels of international coordination necessary to account for and attend to the different facets and demands of this conflict in such a way that regional safety and stability can be achieved.

It should be highlighted that one of the greatest risks that the analysis identifies is the possibility that governments make their respective states of emergency and quarantine measures more flexible too soon, in an effort to re-initiate economic activity. The risk of successive COVID-19 outbreaks is a constant that remains immovable, and the scientific and health community has only just begun to understand the nature of this infectious agent and its population dynamics.

It is a key security issue that the reopening process of national economies is carried out with caution, assessing the potential and intensity of future outbreaks, and continuing widespread and aggressive testing, monitoring and detection efforts, otherwise all the sacrifice and joint work of citizens, governments and organizations will have been meaningless. **Despite this fact, many governments appear to be prioritizing economic concerns over healthcare priorities, easing partial lockdowns and reviving economies without giving sufficient signs of caution and without corresponding increases in testing. This is the most critical risk identified by the analysis.**

DISCLAIMER

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Deep Knowledge Group is using its best efforts to continuously update its COVID-19 analytics based on dynamic, publicly available metrics deemed reliable, such as World Health Organization, Worldometers, CDC, Johns Hopkins University, and other publicly available sources.

Certain metrics used for advanced and qualitative assessment were formulated by Deep Knowledge Group analysts in coordination with specific experts and consultants using proprietary sources and techniques. Therefore, such rankings may be adjusted over time depending on the corresponding underlying information and in coordination with ongoing enhancements to our underlying analytical methodologies.

Information provided herein is intended for indicative and informational purposes only. Opinions, estimates and analysis represented constitute the current judgment and opinion of the author.

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