Year Three Report

GLOBAL DATA GOVERNANCE MAPPING PROJECT

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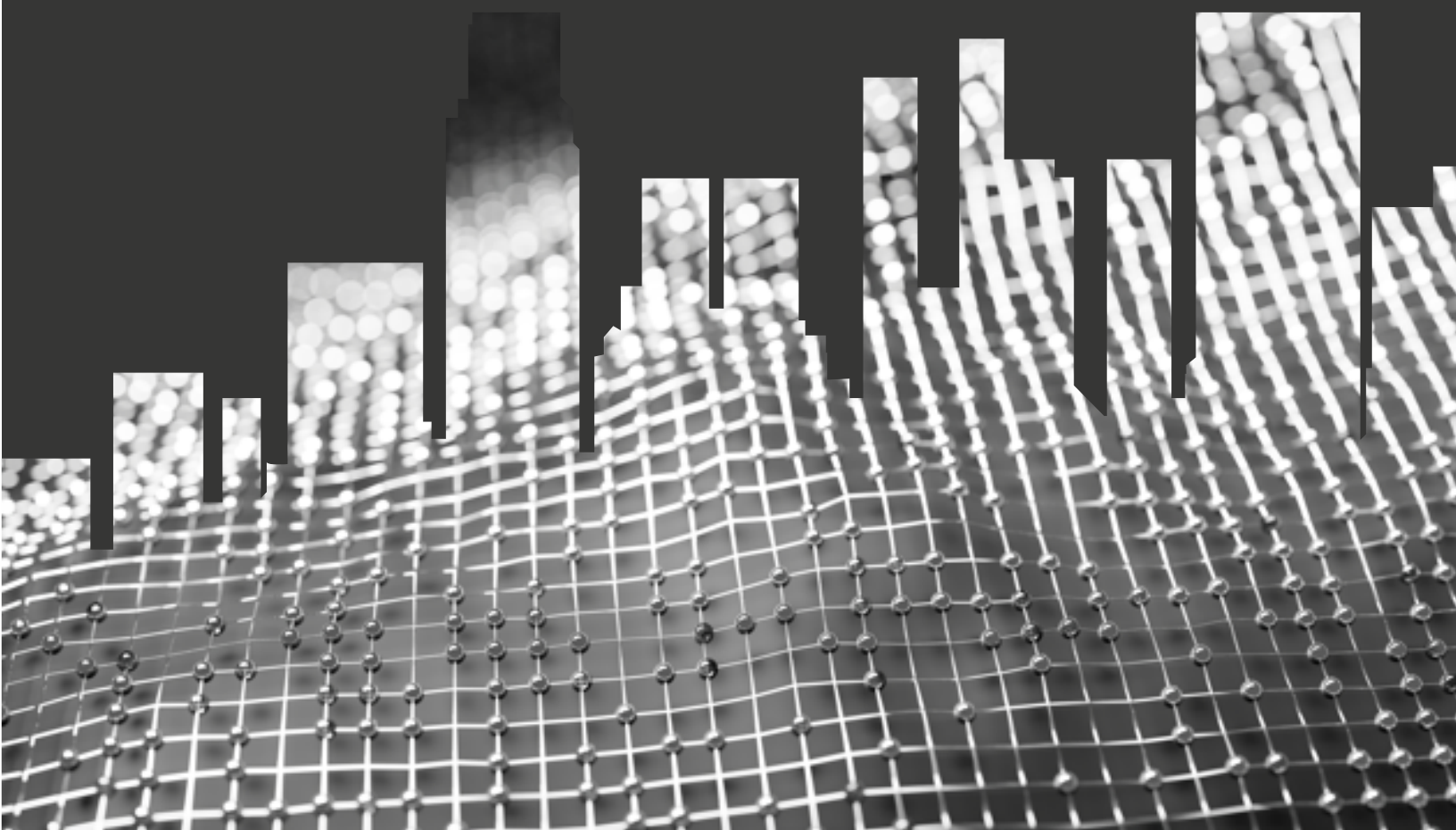

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GLOBAL DATA GOVERNANCE MAPPING PROJECT

We live in an era of data dichotomy. On one hand, variants of generative AI such as Chat-GPT have made large data sets ever more valuable and visible.[1] AI developers rely on these large data sets to "train" AI systems about the world and to influence how these systems respond to user prompts and questions. On the other hand, AI designers, developers and deployers know that AI models are only as good as the data used to train them. Yet AI designers, developers, and deployers do not put much effort into ensuring that datasets are complete, consistent, verifiable, and usable.[2]

Moreover, without effective rules and frameworks for governance, data – and thus AI – will never fully meet its potential to help researchers and policymakers solve problems and innovate.[3]

We make this point as a means of reminding readers that data governance is essential to sustaining trust in AI and the data driven economy. According to the World Bank, individuals and institutions use data governance to control risks and to capture value from data through rules and technical standards. However despite the import of data governance for our 68 countries and the EU sample, data governance is a work in progress. Although technologies are changing rapidly, we have not found significant change among countries in the governance of data.[4]

This report summarizes our third iteration of findings for the Global Data Governance Mapping Project, which began in 2020. As in year 2, we have assessed data governance in 68 countries and the EU. We did not alter our case study countries or our methodology in this year 3 report. However, in contrast with our earlier two iterations, we do not have a full year's worth of data since our year two update was completed in the fall of 2022. We usually report our findings in September each year.

Overall Findings from the first three years of the Global Data Governance Mapping Project:

- The countries that performed strongly on our metric have remained relatively consistent, The UK, Australia, Germany, France, and New Zealand remain the countries that have satisfied the most indicators

- The countries that are weakest in performance on our metric remain relatively consistent. Egypt, Algeria, Botswana, Cuba, and Iran have satisfied the fewest indicators. Data governance may not be a top priority in developing countries.

- Policymakers rely on a wide range of governance tools to govern data. Overall, this project helps show the different areas where data governance happens. While regulatory indicators tend to be some of the most satisfied indicators in the metric, countries also use strategies, ethical guidelines, institutional changes, participatory mechanisms, and international efforts to govern data.

- Policymakers today are not just concerned with protecting data. Many countries not only focus on protecting data but also on opening data and governing data-driven systems such as AI. The two most prevalent indicators both deal with opening data. 86% of countries have a freedom of information act and 84% of countries have an open data portal.

- Policymakers in richer countries are doing more to govern data than those in the developing world. Taking our attributes in sum, rich countries do more to govern data. But that is not the only difference. In general, less wealthy nations focus their data governance efforts on structural or regulatory actions to govern data rather than develop strategies or put forward human rights/ethical guidelines.

- Policymakers are generally not responsive to public concerns regarding data governance: Although most countries seek public comment on proposed laws and regulations related to data, we have little evidence that policymakers revise their data governance policies in response to public concerns. (See our report: For the People but not by the People: Public Engagement in National AI Strategies)

Year 3 Changes:

Two additional countries have adopted new comprehensive data protection laws. Tanzania and Vietnam.

Ratification of 108+. Albania, Argentina, and France have ratified Convention 108+ in the last year.

Policymakers in several countries drafted and approved a variety of strategies. For example, Chile adopted a Strategy for Data in Society 5.0, Chile Digital 2035, Canada has a Public Administration Data Strategy, the 2023–2026 Data Strategy for the Federal Public Service, and Argentina's AI strategy, Plan Nacional de Inteligencia Artificial.

A binding trade agreement. The Philippines and Ukraine are both now parties to a trade agreement with binding rules on cross-border data flows.

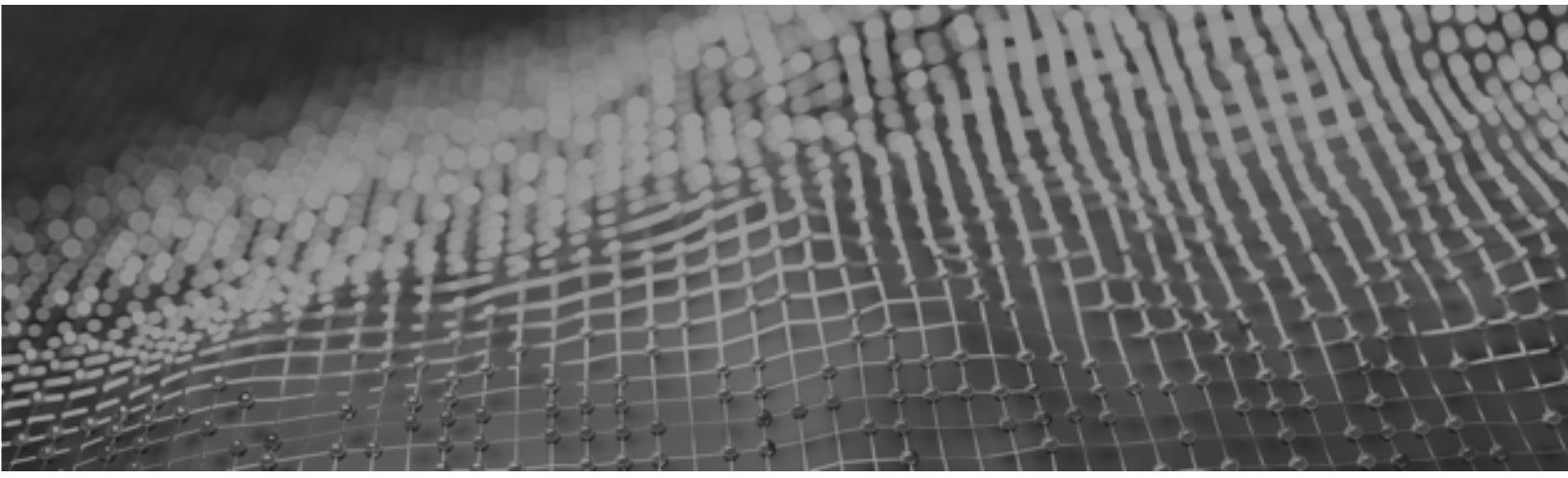
Please see figures below for more detail. The full report and underlying data is available on the research portion of our website.

FOOD FOR THOUGHT

This is the third year of the Global Data Governance Mapping Project. We hope that the metric enables policymakers, reporters, researchers to better understand the nuances and complexities of data governance.

Users have told us that they rely on the metric to advocate for policy and structural changes in their home countries. Although the report has gained public and policymaker attention, policymakers around the world are not paying adequate attention to data governance. Although we have attempted to capture different aspects of data governance, we realize that our indicators are limited–they are a picture in time of data governance.

Moreover, these attributes do not accurately portray all the policies and actions countries take to govern data. Over the three years we have seen some governments introducing new tools and institutions to govern data. For example, the EU's Data Governance Act encourages data sharing among sectors.[5] Policymakers are also rethinking their institutional structures to accommodate the challenges of data. As example, Chinese officials restructured the Ministry of Science and Technology, and created a Central Science and Technology Commission[6] that will work to coordinate state sponsored technology research. The EU established the European Centre for Algorithmic Transparency to provide technical expertise on algorithmic accountability.[7] We have also noted a trend towards focusing on rules governing specific technologies rather than rules governing data as an input to those technologies. We fear that without developing specific rules to govern



data, countries may not be able to effectively respond to the complex and varied uses of data. For example, senior ministers in Japan recently noted that the government is determined to encourage AI, and thus, it would not enforce regulations on the use of copyrighted data when it is used to create variants of AI.[8] We will monitor these trends closely.

Our work benefits from your input. If you think we have missed data, please contact Thomas Struett at tstruett@gwu.edu or Adam Zable at ajzable@gmail.com. Thank you for your feedback!

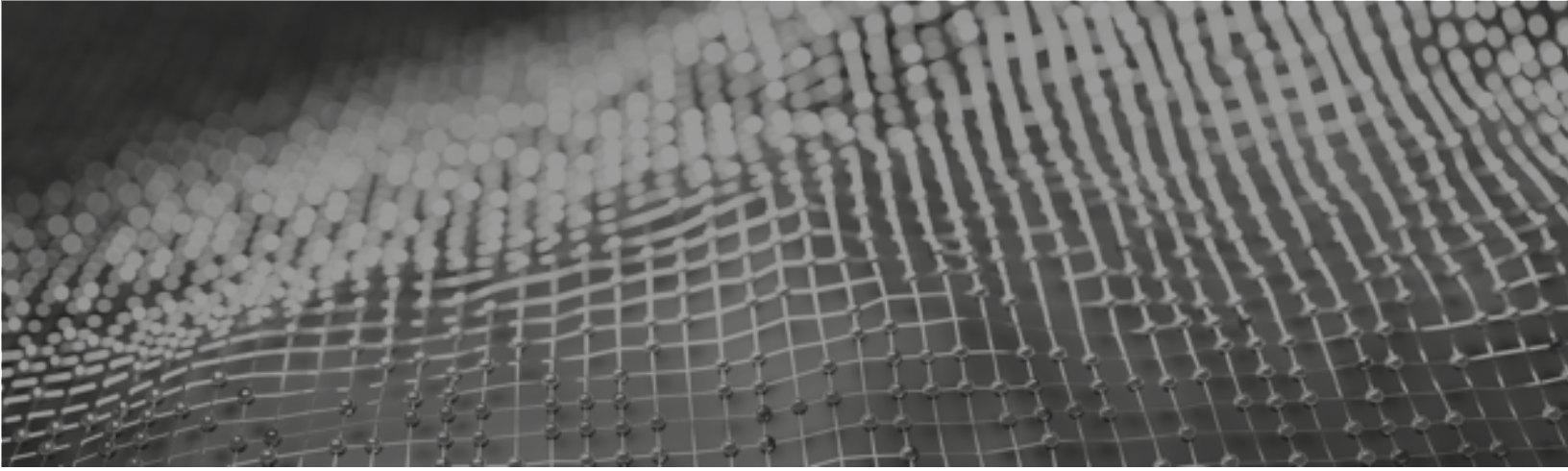
OVERVIEW

The Digital Trade and Data Governance Hub (the Hub) seeks to help policymakers and the public understand how governments are tackling this evolving responsibility of governing data. However, there is no one internationally accepted definition of data governance. The UN defines data governance as "a systemic and multi-dimensional approach to setting policies and regulations, establishing leadership for institutional coordination and national strategy, nurturing an enabling data ecosystem, and streamlining data management."[9] The World Bank notes that data governance consists of four main tasks: strategic planning, developing rules and standards; developing mechanisms of compliance and enforcement, and generating the learning and evidence needed to gain insights and address policy challenges.[10]

Because of the multifaceted nature of data, data governance often requires that government officials develop new strategies (such as AI strategies), structures (such as data protection bodies), policies (algorithmic transparency), and processes such as seeking public comment. Although data governance is an important component of 21st century governance, researchers and policymakers alike have little understanding of what a comprehensive approach to data governance looks like. Therefore, to help build this understanding, we decided to create this metric of comprehensive approaches to data governance.

This year's update, the third iteration of the metric, is an updated dataset of our previous metric. But to better understand the metric, the following sections – Countries Included in this Mapping, How We Developed Our Methodology, and Limitations/Caveats for the Hub's Metric of Data Governance – are included to help explain the metric. To see the latest data and findings jump to the Results section.

The metric helps answer the following questions:
What strategies, policies, processes, and structural changes characterize a comprehensive approach to data governance?
What is the evidence that governments are acting at the national and international level?
How do nations differ in their approaches to data governance?
How is data governance evolving over time?



COUNTRIES INCLUDED IN THIS MAPPING

In its first iteration (which included data up to 2020), our analysis covered 51 countries and the EU. In the second iteration 17 new countries were added: Albania, Algeria, Botswana, Colombia, Costa Rica, Cuba, Ecuador, Egypt, Ghana, Italy, Mauritius, Panama, Peru, Poland, Spain, Tanzania, and Tunisia. Taken in sum, these countries represent approximately one third of the world's 192 nations and include a mix of regions and income levels.

For the last two years, including this current iteration, we have examined 68 countries and the EU. A breakdown of all of the countries in this report viewed by income and region can be seen in Table 1. A full list of countries can be seen in the Detailed view of data governance mapping section of this report.

Table 1: Breakdown of Countries by Income and Region

Income category	North America	Europe & Central Asia	East Asia & Pacific	Latin America & Caribbean	Middle East & North Africa	Sub-Saharan Africa	South Asia
High income	2	14	6	2	3	0	0
Upper middle income	0	5	3	9	1	3	0
Lower middle income	0	1	3	1	5	5	3
Low income	0	0	0	0	0	2	0

HOW WE DEVELOPED OUR METHODOLOGY

Data governance, like the data-driven economy, is constantly evolving, reflecting changes in technology, society, and policymakers 'will and expertise. Consequently, data governance is a work in progress and a different experience for all nations. Nations adopting a comprehensive approach develop strategies, policies, and processes, adapt organizational structures and work to accommodate different types and contexts for data use and re-use.[11] Governments that can accommodate such change in a responsive, competent, and anticipatory manner are likely to build and maintain trust in their institutions.[12]

To create this metric, we first discussed how organizations respond to change and in particular how they formulate changes to organizational strategy and structure.[13] Next, we studied how others analyzing governance, including researchers at the Worldwide Governance Indicators and the Ibrahim Index of Governance, thought about how to define, measure, and compare it.[14] We then turned to metrics of data governance which helped us understand how to assess the impact of data governance policies on, for example, data availability, accessibility, and re-use.[15]

Building on our review, we divided data governance into what we see as its six primary attributes. These attributes, described below, can be thought of as the different dimensions of action a nation takes as it works to govern data in a comprehensive manner.

The Six Attributes of Data Governance
Strategic: The government has a vision or plan for different types of data in the economy and polity.
Regulatory: The government constructs a legal regime around data's types and/or uses.
Responsible: The government thinks about the ethical, trust, and human rights implications of data use and re-use.
Structural: The government alters institutional structures in response to data-driven transformation.
Participatory: The government informs its constituents about its activities and asks for public comment, with the intention of incorporating their feedback.
International: The government joins with other nations in shared international efforts to establish data governance rules and norms.

Once we determined the attributes, we began searching for specific pieces of evidence that we could take as indicators of the broader attributes. We ended up with 26 indicators as delineated in Table 2. For additional information on the definition and purpose of each indicator, as well as guidelines on how we made decisions, please see the Report Background and Guidelines on our website.

Table 2: 26 Indicators List

Strategic	• National Data Strategy • Public Administration Data Strategy • AI Strategy • Strategy for Data in Emerging Digital Ecosystems
Regulatory	• Personal Data Protection Law • Open Data Law for the proactive release of government information • Freedom of Information Law • Right to be protected from Automated Decision-Making • Right to Data Portability
Responsible	• Data Charter • Public Sector Data Ethics Framework • Responsible AI Initiatives • Trust Framework for Digital Identity Management • Guidelines for Nongovernmental Data Sharing
Structural	• Personal Data Protection Body • Open Data Portal • Open Data Coordinating Body • Public Sector Data Governance Body
Participatory	• Public Consultation on Data • Government Response to Consultation • Multistakeholder Advisory Body
International	• Convention 108+ • Open Government Partnership • OECD AI Principles • Binding Trade Agreements on Cross-Border Data Flows • Budapest Convention

SCORING

We determined individual country scores as follows: If a country had the indicator in full, we gave it a 1, if not we gave it a 0. We then translated these 1's and 0's into scores that could be used to compare the countries. Because we viewed each indicator as essential, the team decided to weigh each indicator equally within its attribute, regardless of the number of indicators contained within that attribute. Each attribute's score is therefore the sum of its indicators divided by the number of indicators, expressed as an integer out of 100. Similarly, we believe each of the six attributes is vital and interdependent, so we gave each of the six attributes equal weight in the final scoring by averaging the scores of the six attributes. This strategy enabled us to make each country's final score also out of 100.

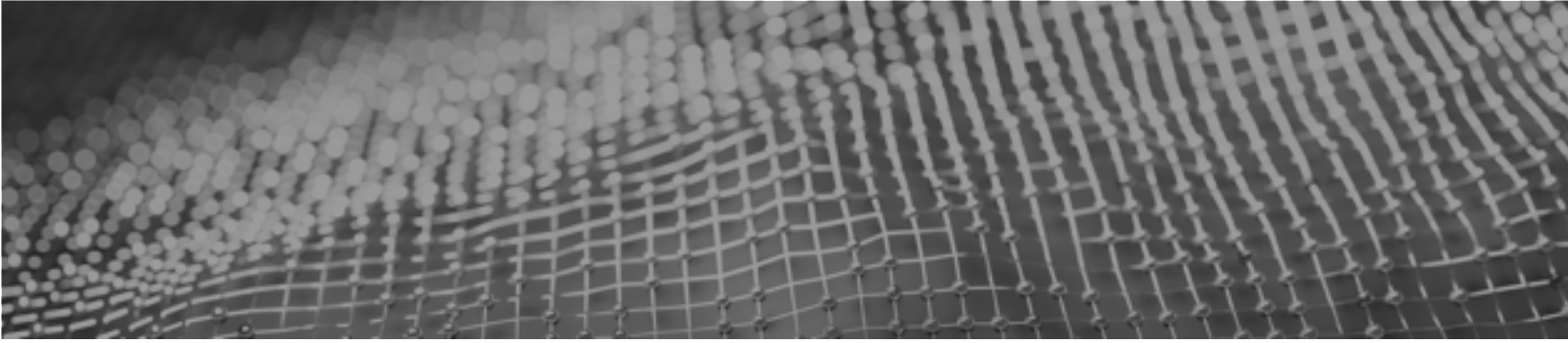
LIMITATIONS/CAVEATS FOR THE HUB'S METRIC OF DATA GOVERNANCE

We recognize that our methodology has several limitations. First, the metric covers personal, public, and indirectly proprietary data (through rules that govern the use of algorithmic decision making).[16] We do not discuss satellite or other types of data. Second, we do not claim to cover a representative sample of the world's 192 countries but instead a diverse sample of countries at different levels of development, income, or digital prowess. Third, our metric reflects our bias as citizens of a democracy. For example, we emphasize participatory and accountable governance as well as guidelines for ethical, responsible, or trustworthy data governance. Hence, while we designed the metric based on facts which we include as indicators, we acknowledge that these indicators reveal our biases.

Fourth, our indicators reflect the state of our understanding of data governance. We rely on the countries we are evaluating (and ultimately their web presence) for the data to develop our metric, an endogeneity problem. However, these countries have little incentive to misrepresent their policies, visions, and processes. Moreover, many of these nations adhere to international commitments that encourage them to make their policies in an open, participatory, and accountable manner such as the WTO or the Open Government Partnership.[17] Nonetheless, we cannot say whether or not an indicator definitively does not exist in a country. To ensure our data is as correct as possible, we constantly monitor data governance changes and will revise the metric as needed.

Fifth, we do not do correlations with our data to human rights, governance, democracy, and other indexes. We only have three years of data and that is too short a period to show change over time.

Finally, we do not measure the effectiveness of data governance among our sample nations. The indicators do not reveal whether policies or agreements are enforced; if ethical frameworks are anything more than bluster; whether new institutional structures are doing what they were designed to do; or whether policymakers actually revise policies in response to public comment.



RESULTS

Chart 1 shows each country's overall ranking by summing all 26 indicators. UK, Australia, Germany, France, and New Zealand, take the most comprehensive approach to data governance at the national and international levels. This finding is consistent with our first iteration and second year of the metric, where these countries were also in the top five. Countries with the lowest scores tend to have most of their data governance focus on regulation.

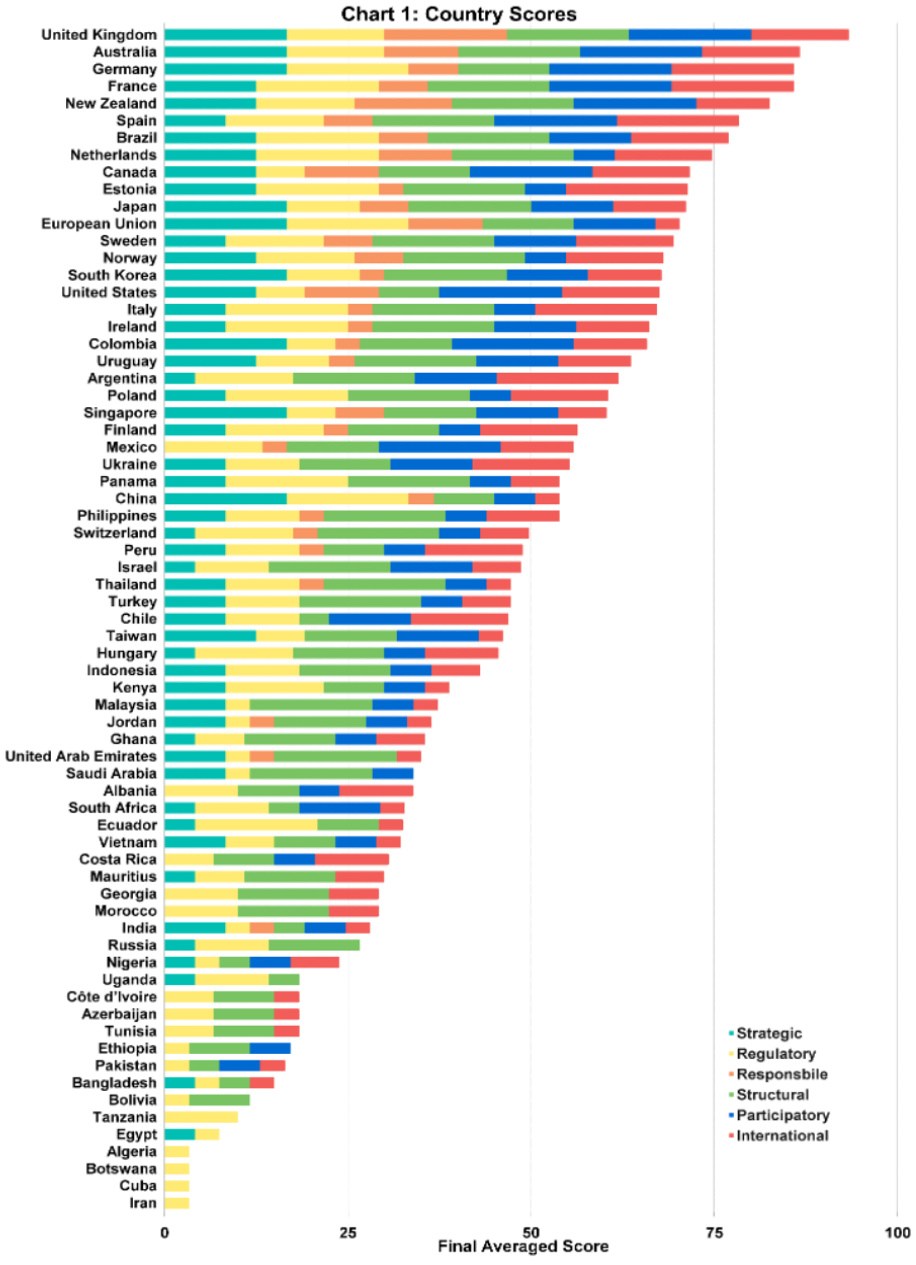


Chart 2 shows the average attribute score for the countries in our set from each of the World Bank income groups. Almost all of our case study countries have adopted regulatory and structural changes. Higher income countries tend to focus more on ethical or human rights guidelines related to data or data-driven technologies. No low-income countries met any of the responsible indicators.

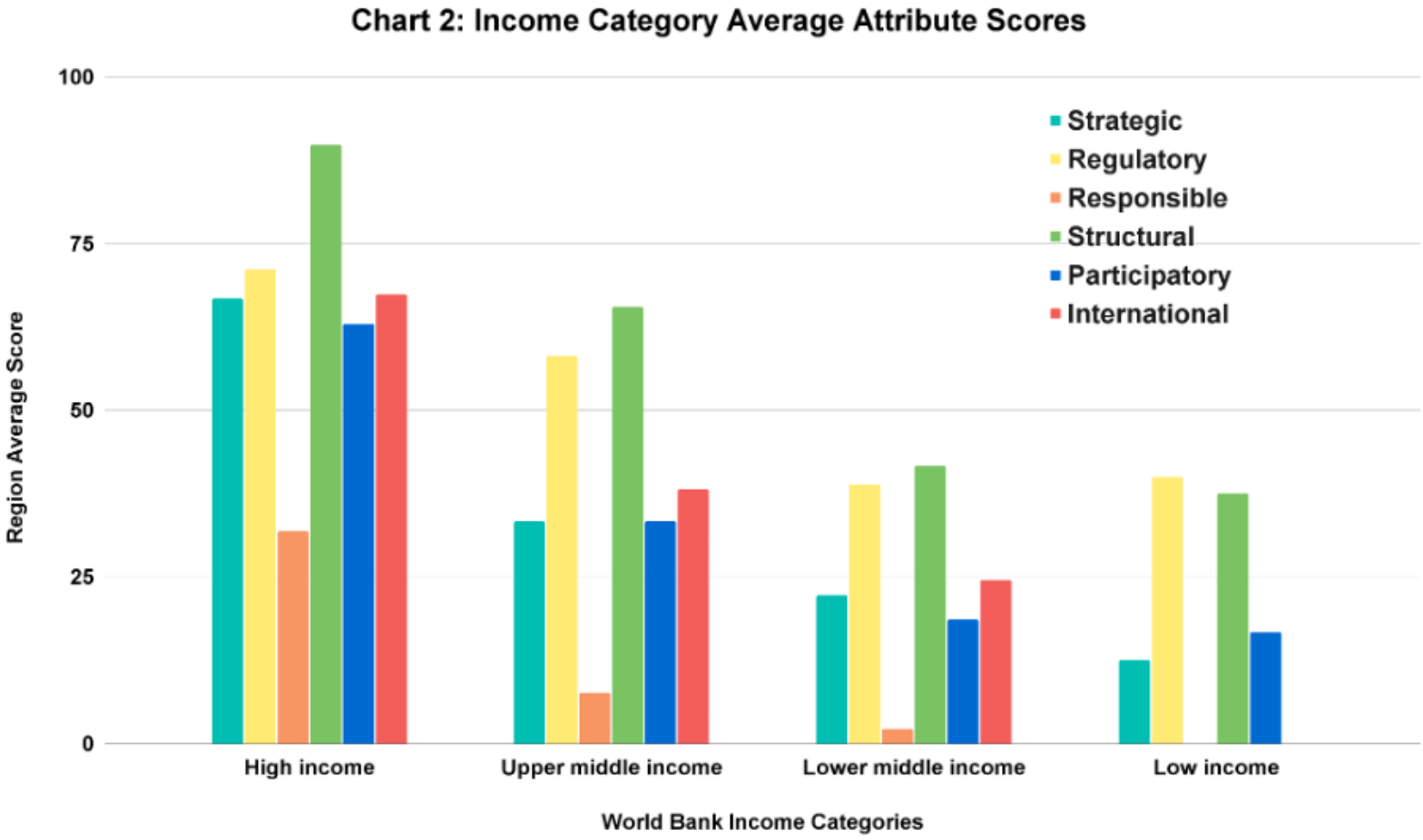


Chart 3 shows the average attribute score for the countries in our set from each of the World Bank region groups. Four of the regions, Europe & Central Asia, East Asia & Pacific, Latin America & Caribbean, Middle East & North Africa all have their highest scores in the regulatory attribute. North America's highest attribute is participatory, with both the United States and Canada satisfying the three participatory indicators. Sub-Saharan Africa achieved its highest scoring in the regulatory attribute. South Asian countries overall met fewer of the indicators.

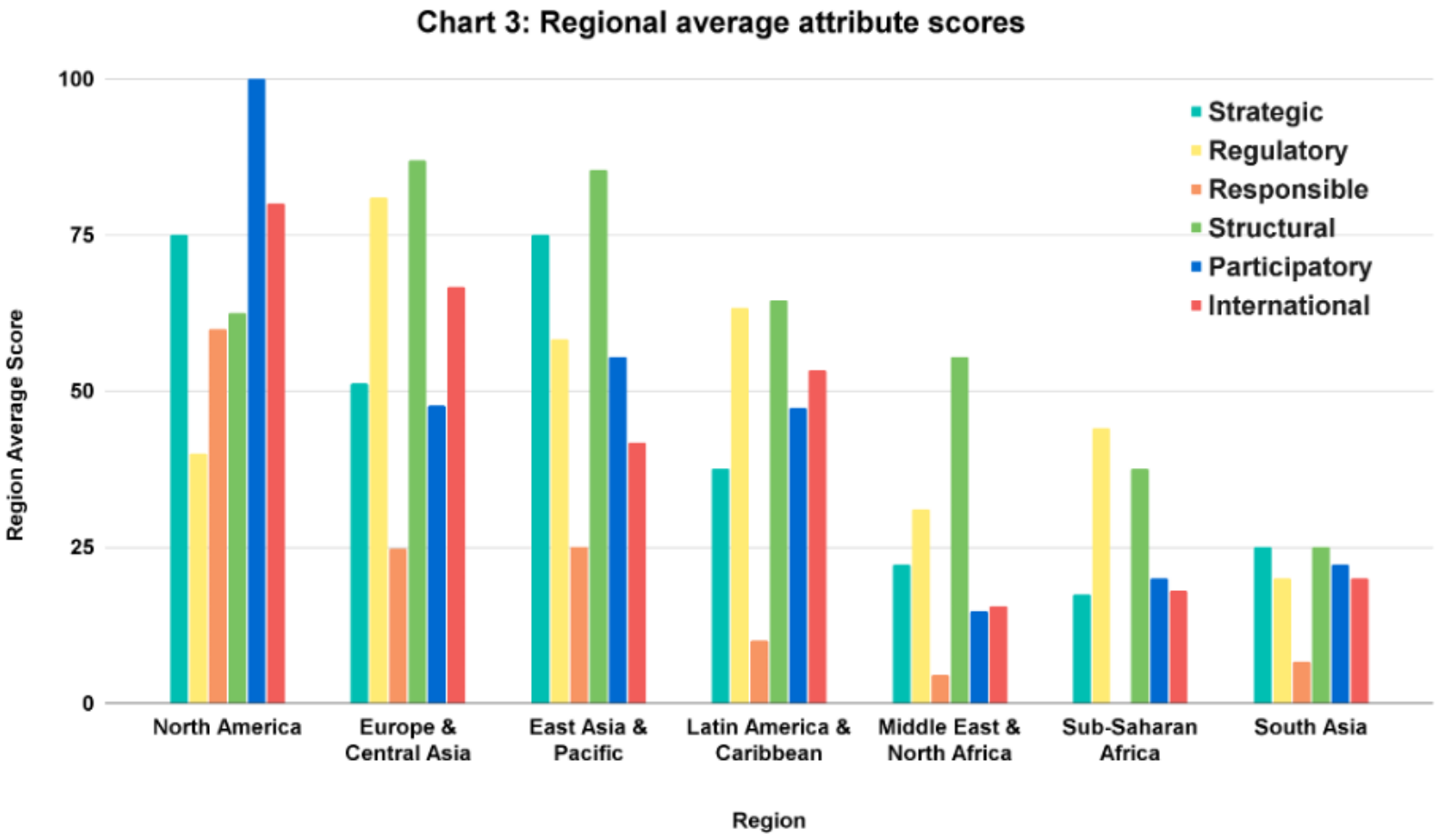


Chart 4 compares the average attribute score for our sample of 68 countries and the EU that are OECD members with those that are not members of the OECD. Overall, OECD members met significantly more indicators than non-OECD members.

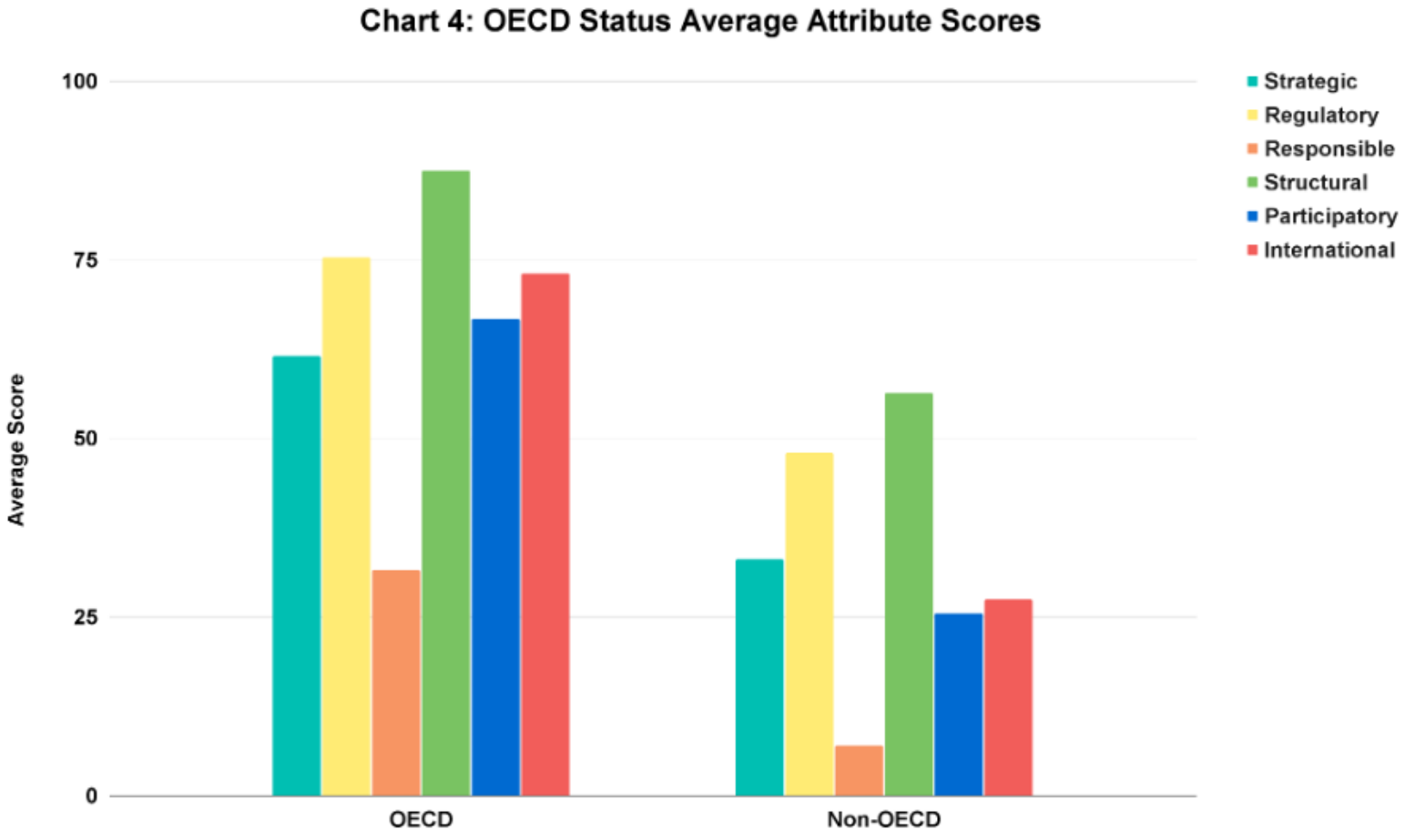
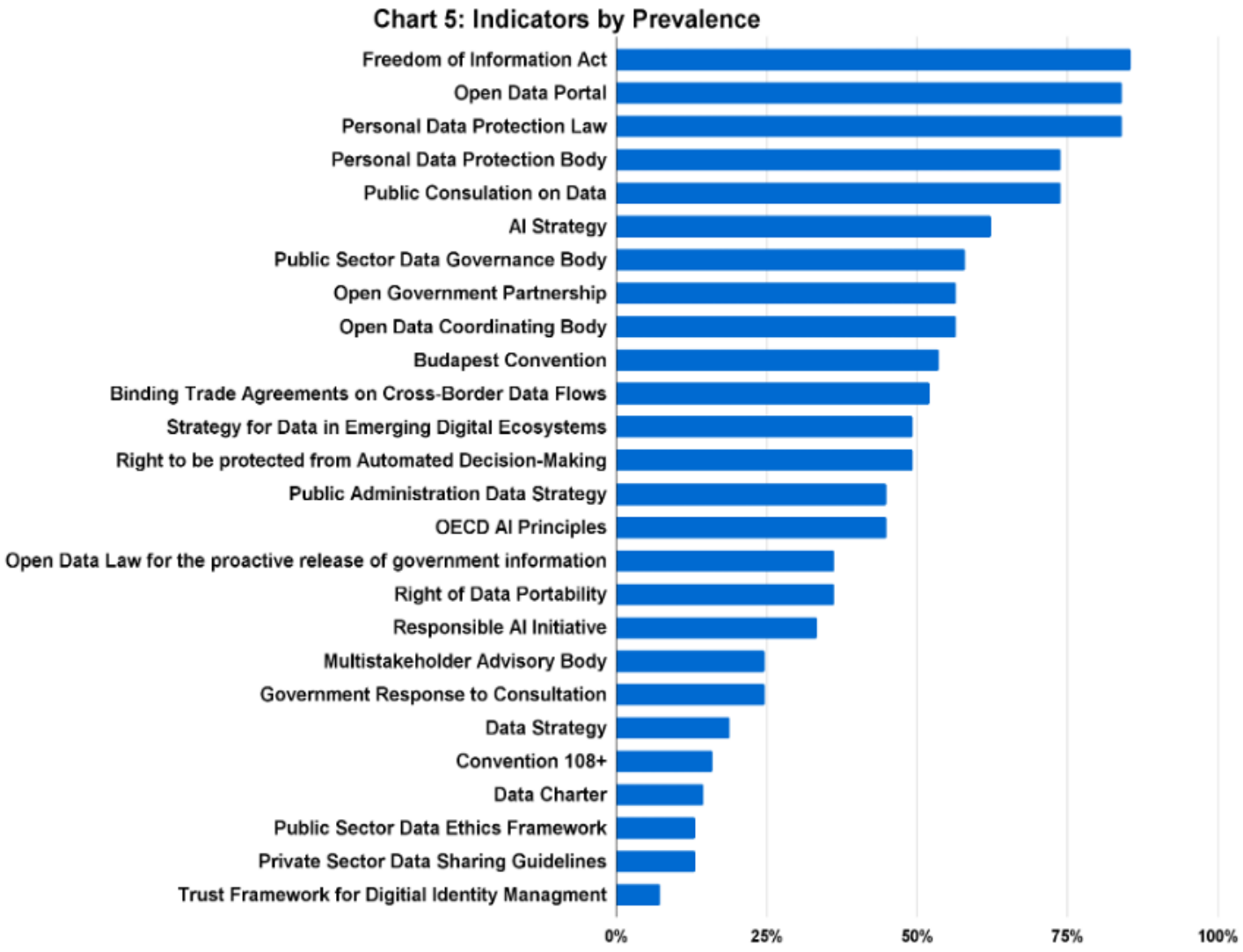


Chart 5 shows the percentage of countries in our set that satisfy each of the 26 indicators. 86% of countries have a Freedom of Information Act. This is followed closely at 84% for both open data portals and personal data protection law. The four least prevalent indicators are all from the responsible attribute.



DETAILED VIEW OF DATA GOVERNANCE MAPPING

The full list of each country and its satisfaction of each indicator is available on the following pages. To find future updates or sourcing for any of the countries please visit: https://globaldatagovernancemapping.org/

Strategic				
Country	**Data strategy**	**Public administration data strategy**	**AI strategy**	**Strategy for Data in Society 5.0**
Albania				
Algeria				
Argentina			✓	
Australia	✓	✓	✓	✓
Azerbaijan				
Bangladesh			✓	
Bolivia				
Botswana				
Brazil		✓	✓	✓
Canada		✓	✓	✓
Chile			✓	✓
China	✓	✓	✓	✓
Colombia	✓	✓	✓	✓
Costa Rica				
Côte d'Ivoire				
Cuba				
Ecuador				✓
Egypt			✓	
Estonia		✓	✓	✓
Ethiopia				
European Union	✓	✓	✓	✓
Finland		✓	✓	
France		✓	✓	✓
Georgia				
Germany	✓	✓	✓	✓
Ghana		✓		
Hungary			✓	
India			✓	✓
Indonesia		✓	✓	
Iran				
Ireland		✓	✓	
Israel		✓		
Italy		✓	✓	
Japan	✓	✓	✓	✓
Jordan			✓	✓

Kenya			✓	✓
Malaysia			✓	✓
Mauritius			✓	
Mexico				
Morocco				
Netherlands		✓	✓	✓
New Zealand	✓	✓		✓
Nigeria				✓
Norway	✓	✓	✓	
Pakistan				
Panama		✓		✓
Peru		✓	✓	
Philippines			✓	✓
Poland		✓	✓	
Russia			✓	
Saudi Arabia	✓		✓	
Singapore	✓	✓	✓	✓
South Africa				✓
South Korea	✓	✓	✓	✓
Spain			✓	✓
Sweden		✓	✓	
Switzerland	✓			
Taiwan		✓	✓	✓
Tanzania				
Thailand		✓		✓
Tunisia				
Turkey			✓	✓
Uganda				✓
Ukraine			✓	✓
United Arab Emirates		✓	✓	
United Kingdom	✓	✓	✓	✓
United States		✓	✓	✓
Uruguay		✓	✓	✓
Vietnam			✓	✓

Regulatory

Country	Personal Data Protection Law	Open Data Law for the proactive release of government information	Freedom of Information Act	Right to be protected from Automated Decision-Making	Right of Data Portability
Albania	✓		✓	✓	
Algeria	✓				
Argentina	✓	✓	✓	✓	
Australia	✓	✓	✓		✓
Azerbaijan	✓		✓		
Bangladesh			✓		
Bolivia			✓		
Botswana	✓				
Brazil	✓	✓	✓	✓	✓
Canada		✓	✓		
Chile	✓	✓	✓		
China	✓	✓	✓	✓	✓
Colombia	✓		✓		
Costa Rica	✓	✓			
Côte d'Ivoire	✓		✓		
Cuba	✓				
Ecuador	✓	✓	✓	✓	✓
Egypt	✓				
Estonia	✓	✓	✓	✓	✓
Ethiopia			✓		
European Union	✓	✓	✓	✓	✓
Finland	✓		✓	✓	✓
France	✓	✓	✓	✓	✓
Georgia	✓	✓	✓		
Germany	✓	✓	✓	✓	✓
Ghana	✓		✓		
Hungary	✓		✓	✓	✓
India			✓		
Indonesia	✓		✓	✓	
Iran			✓		
Ireland	✓	✓	✓	✓	✓
Israel	✓	✓	✓		
Italy	✓	✓	✓	✓	✓
Japan	✓	✓	✓		
Jordan			✓		
Kenya	✓		✓	✓	✓
Malaysia		✓			
Mauritius	✓			✓	
Mexico	✓	✓	✓	✓	
Morocco	✓		✓	✓	

Netherlands	✓	✓	✓	✓	✓
New Zealand	✓	✓	✓		✓
Nigeria			✓		
Norway	✓		✓	✓	✓
Pakistan			✓		
Panama	✓	✓	✓	✓	✓
Peru	✓		✓	✓	
Philippines	✓		✓		✓
Poland	✓	✓	✓	✓	✓
Russia	✓		✓	✓	
Saudi Arabia	✓				
Singapore	✓				✓
South Africa	✓		✓	✓	
South Korea	✓	✓	✓		
Spain	✓		✓	✓	✓
Sweden	✓		✓	✓	✓
Switzerland	✓		✓	✓	✓
Taiwan	✓		✓		
Tanzania	✓		✓	✓	
Thailand	✓		✓		✓
Tunisia	✓		✓		
Turkey	✓		✓	✓	
Uganda	✓		✓	✓	
Ukraine	✓		✓	✓	
United Arab Emirates	✓				
United Kingdom	✓		✓	✓	✓
United States		✓	✓		
Uruguay	✓		✓	✓	
Vietnam	✓		✓		

Responsible

Country	Data Charter	Public Sector Data Ethics Framework	Responsible AI Initiatives	Trust Framework for Digital Identity Management	Non-Governmental Data Sharing Guidelines
Albania					
Algeria					
Argentina					
Australia		✓	✓	✓	
Azerbaijan					
Bangladesh					
Bolivia					
Botswana					
Brazil	✓		✓		
Canada	✓		✓	✓	
Chile					
China			✓		
Colombia			✓		
Costa Rica					
Côte d'Ivoire					
Cuba					
Ecuador					
Egypt					
Estonia	✓				
Ethiopia					
European Union	✓		✓		✓
Finland			✓		
France			✓	✓	
Georgia					
Germany		✓	✓		
Ghana					
Hungary					
India			✓		
Indonesia					
Iran					
Ireland		✓			
Israel					
Italy	✓				
Japan			✓		✓
Jordan			✓		
Kenya					
Malaysia					
Mauritius					
Mexico			✓		
Morocco					
Netherlands		✓	✓		✓

New Zealand		✓	✓	✓	✓
Nigeria					
Norway			✓		✓
Pakistan					
Panama					
Peru	✓				
Philippines					✓
Poland					
Russia					
Saudi Arabia					
Singapore			✓		✓
South Africa					
South Korea			✓		
Spain	✓	✓			
Sweden		✓	✓		
Switzerland			✓		
Taiwan					
Tanzania					
Thailand			✓		
Tunisia					
Turkey					
Uganda					
Ukraine					
United Arab Emirates					✓
United Kingdom	✓	✓	✓	✓	✓
United States	✓	✓	✓		
Uruguay	✓				
Vietnam					

Structural

Country	Personal Data Protection Body	Open Data Portal	Open Data Coordinating Body	Public Sector Data Governance Body
Albania	✓	✓		
Algeria				
Argentina	✓	✓	✓	✓
Australia	✓	✓	✓	✓
Azerbaijan	✓	✓		
Bangladesh		✓		
Bolivia		✓		✓
Botswana				
Brazil	✓	✓	✓	✓
Canada	✓	✓	✓	
Chile		✓		
China	✓			✓
Colombia	✓	✓	✓	
Costa Rica	✓		✓	
Côte d'Ivoire	✓	✓		
Cuba				
Ecuador		✓	✓	
Egypt				
Estonia	✓	✓	✓	✓
Ethiopia		✓		✓
European Union	✓	✓	✓	
Finland	✓	✓		✓
France	✓	✓	✓	✓
Georgia	✓	✓		✓
Germany	✓	✓	✓	
Ghana	✓	✓		✓
Hungary	✓	✓		✓
India		✓		
Indonesia		✓	✓	✓
Iran				
Ireland	✓	✓	✓	✓
Israel	✓	✓	✓	✓
Italy	✓	✓	✓	✓
Japan	✓	✓	✓	✓
Jordan		✓	✓	✓
Kenya	✓	✓		
Malaysia	✓	✓	✓	✓
Mauritius	✓	✓	✓	
Mexico	✓	✓	✓	
Morocco	✓	✓	✓	
Netherlands	✓	✓	✓	✓

New Zealand	✓	✓	✓	✓
Nigeria	✓			
Norway	✓	✓	✓	✓
Pakistan		✓		
Panama	✓	✓	✓	✓
Peru	✓	✓		
Philippines	✓	✓	✓	✓
Poland	✓	✓	✓	✓
Russia	✓	✓		✓
Saudi Arabia	✓	✓	✓	✓
Singapore	✓	✓		✓
South Africa	✓			
South Korea	✓	✓	✓	✓
Spain	✓	✓	✓	✓
Sweden	✓	✓	✓	✓
Switzerland	✓	✓	✓	✓
Taiwan		✓	✓	✓
Tanzania				
Thailand	✓	✓	✓	✓
Tunisia	✓	✓		
Turkey	✓	✓	✓	✓
Uganda	✓			
Ukraine	✓	✓	✓	
United Arab Emirates	✓	✓	✓	✓
United Kingdom	✓	✓	✓	✓
United States		✓		✓
Uruguay	✓	✓	✓	✓
Vietnam		✓		✓

Participatory

Country	Public Consultation on Data	Government Response to Consultation	Multistakeholder Advisory Body
Albania	✓		
Algeria			
Argentina	✓	✓	
Australia	✓	✓	✓
Azerbaijan			
Bangladesh			
Bolivia			
Botswana			
Brazil	✓		✓
Canada	✓	✓	✓
Chile	✓	✓	
China	✓		
Colombia	✓	✓	✓
Costa Rica	✓		
Côte d'Ivoire			
Cuba			
Ecuador			
Egypt			
Estonia	✓		
Ethiopia	✓		
European Union	✓		✓
Finland	✓		
France	✓	✓	✓
Georgia			
Germany	✓	✓	✓
Ghana	✓		
Hungary	✓		
India	✓		
Indonesia	✓		
Iran			
Ireland	✓		✓
Israel	✓		✓
Italy	✓		
Japan	✓	✓	
Jordan	✓		
Kenya	✓		
Malaysia	✓		
Mauritius			
Mexico	✓	✓	✓
Morocco			
Netherlands	✓		
New Zealand	✓	✓	✓

Nigeria	✓		
Norway	✓		
Pakistan	✓		
Panama	✓		
Peru	✓		
Philippines	✓		
Poland	✓		
Russia			
Saudi Arabia	✓		
Singapore	✓	✓	
South Africa	✓	✓	
South Korea	✓		✓
Spain	✓	✓	✓
Sweden	✓		✓
Switzerland	✓		
Taiwan	✓		✓
Tanzania			
Thailand	✓		
Tunisia			
Turkey	✓		
Uganda			
Ukraine	✓	✓	
United Arab Emirates			
United Kingdom	✓	✓	✓
United States	✓	✓	✓
Uruguay	✓	✓	
Vietnam	✓		

International

Country	Convention 108+	Open Government Partnership	OECD AI Principles	Binding Trade Agreements on Cross-Border Data Flows	Budapest Convention
Albania	✓	✓			✓
Algeria					
Argentina	✓	✓	✓	✓	✓
Australia		✓	✓	✓	✓
Azerbaijan					✓
Bangladesh					✓
Bolivia					
Botswana					
Brazil		✓	✓	✓	✓
Canada		✓	✓	✓	✓
Chile		✓	✓	✓	✓
China				✓	
Colombia		✓	✓		✓
Costa Rica		✓	✓		✓
Côte d'Ivoire		✓			
Cuba					
Ecuador		✓			
Egypt					
Estonia	✓	✓	✓	✓	✓
Ethiopia					
European Union				✓	
Finland	✓	✓	✓	✓	
France	✓	✓	✓	✓	✓
Georgia		✓			✓
Germany	✓	✓	✓	✓	✓
Ghana		✓			✓
Hungary			✓	✓	✓
India				✓	
Indonesia		✓		✓	
Iran					
Ireland		✓	✓	✓	
Israel			✓		✓
Italy	✓	✓	✓	✓	✓
Japan			✓	✓	✓
Jordan		✓			
Kenya		✓			
Malaysia				✓	
Mauritius	✓				✓
Mexico		✓	✓	✓	
Morocco		✓			✓
Netherlands		✓	✓	✓	✓

New Zealand		✓	✓	✓	
Nigeria		✓			✓
Norway		✓	✓	✓	✓
Pakistan					✓
Panama		✓			✓
Peru		✓	✓	✓	✓
Philippines		✓		✓	✓
Poland	✓		✓	✓	✓
Russia					
Saudi Arabia					
Singapore			✓	✓	
South Africa		✓			
South Korea		✓	✓	✓	
Spain	✓	✓	✓	✓	✓
Sweden		✓	✓	✓	✓
Switzerland			✓		✓
Taiwan					✓
Tanzania					
Thailand				✓	
Tunisia		✓			
Turkey			✓		✓
Uganda					
Ukraine		✓	✓	✓	✓
United Arab Emirates				✓	
United Kingdom		✓	✓	✓	✓
United States		✓	✓	✓	✓
Uruguay	✓	✓		✓	
Vietnam				✓	

ENDNOTES

[1] https://www.washingtonpost.com/technology/interactive/2023/ai-chatbot-learning/

[2] https://dl.acm.org/doi/abs/10.1145/3411764.3445518

[3] https://www.cigionline.org/publications/could-a-global-wicked-problems-agency-incentivize-data-sharing/

[4] https://wdr2021.worldbank.org/stories/governing-data/

[5] https://digital-strategy.ec.europa.eu/en/policies/data-governance-act-explained

[6] https://asia.nikkei.com/Spotlight/Caixin/The-remaking-of-China-s-Science-and-Technology-Ministry

[7] https://algorithmic-transparency.ec.europa.eu/about_en

[8] https://petapixel.com/2023/06/05/japan-declares-ai-training-data-fair-game-and-will-not-enforce-copyright/

[9] United Nations Department of Economic and Social Affairs, "UN/DESA Policy Brief #89: Strengthening Data Governance for Effective Use of Open Data and Big Data Analytics for Combatting COVID-19, Department of Economic and Social Affairs, UNDESA, December 21, 2021, https://www.un.org/development/desa/dpad/publication/un-desa-policy-brief-89-strengthening-data-governance-for-effective-use-of-open-data-and-big-data-analytics-for-combating-covid-19/

[10] World Bank,"World Development Report: Data for Better Lives," 2021, https://www.worldbank.org/en/publication/wdr2021

[11] Benfeldt Nielsen, Olivia, "A Comprehensive Review of Data Governance Literature" (2017). Selected Papers of the IRIS, Issue Nr 8 (2017). 3. https://aisel.aisnet.org/iris2017/3

[12] https://www.oecd.org/governance/trust-in-government/

[13] Following Alfred D. Chandler, Jr. Strategy and Structure: Chapters in the History of the Industrial Enterprise. MIT Press, 1962.

[14] The World Bank defines governance as "the traditions and institutions by which authority in a country is exercised." The Bank's Worldwide Governance Indicators assesses 6 dimensions of governance, which include policies, processes, and feedback loops (Daniel Kaufmann, Aart Kraay and Massimo Mastruzzi, Worldwide Governance Indicators: Methodology and Analytical Issues, Policy Research Working Paper 5430, September 2010, p.4). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1682130. In contrast the Ibrahim Index of Governance defines governance as the provision of political, social, and economic public goods and services that every citizen has the right to expect and that the government should deliver to its citizens.https://mo.ibrahim.foundation/iiag.

[15] We reviewed the OECD's Our data Index, World Bank's Statistical Performance Indicators, the Open Data Inventory, and the European Open Data Maturity Assessment.

[16] We do not address financial data, intellectual property rights, research data, government statistics, ICT and digital infrastructure, or cybersecurity. We also do not include data on the quality, enforcement, outcomes, or public opinion of data governance.

[17] For example, 68 of the 68 countries and the EU countries in our original sample (except for Iran) are obligated to make domestic regulations that can affect trade (such as personal data protection rules) in a transparent accountable manner and to encourage public comment or they could be challenged in a trade dispute. On the WTO see, Susan Ariel Aaronson and M. Rodwan Abouharb, "Unexpected Bedfellows: The GATT, the WTO and Some Democratic Rights," International Studies Quarterly, 2011) 55, 379—408. In addition, 32 of our case studies are members of the Open Government Partnership. OGP, countries have to commit to uphold the principles of open and transparent government by endorsing the Open Government Declaration. Open Government Declaration.