Data for Better Lives

World Development Report 2021

WORLD BANK GROUP

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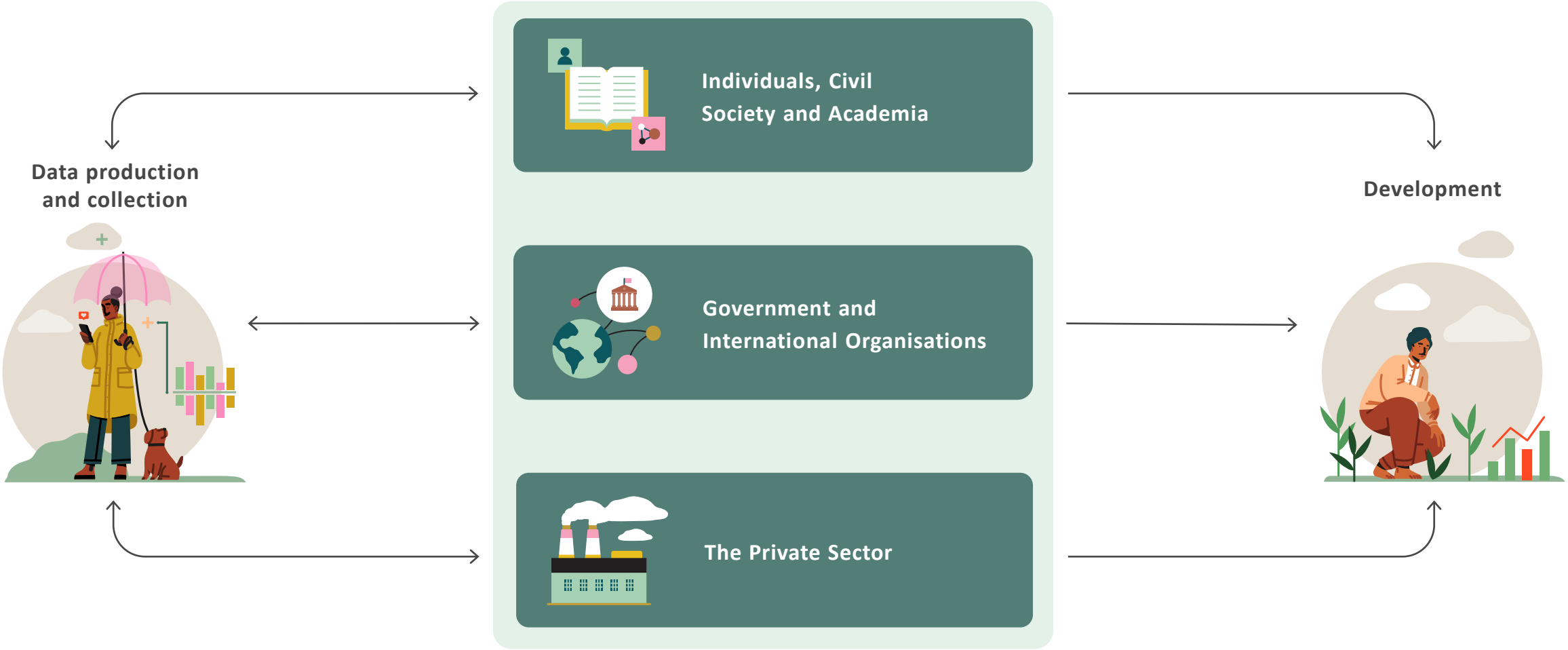
Data saves lives

Odisha's investment in data:
from **10,000** fatalities to just **38**

Cyclone Phailin
Photo credit: EU/ECHO Samuel Marie-Fanon

Data for development: 3 pathways

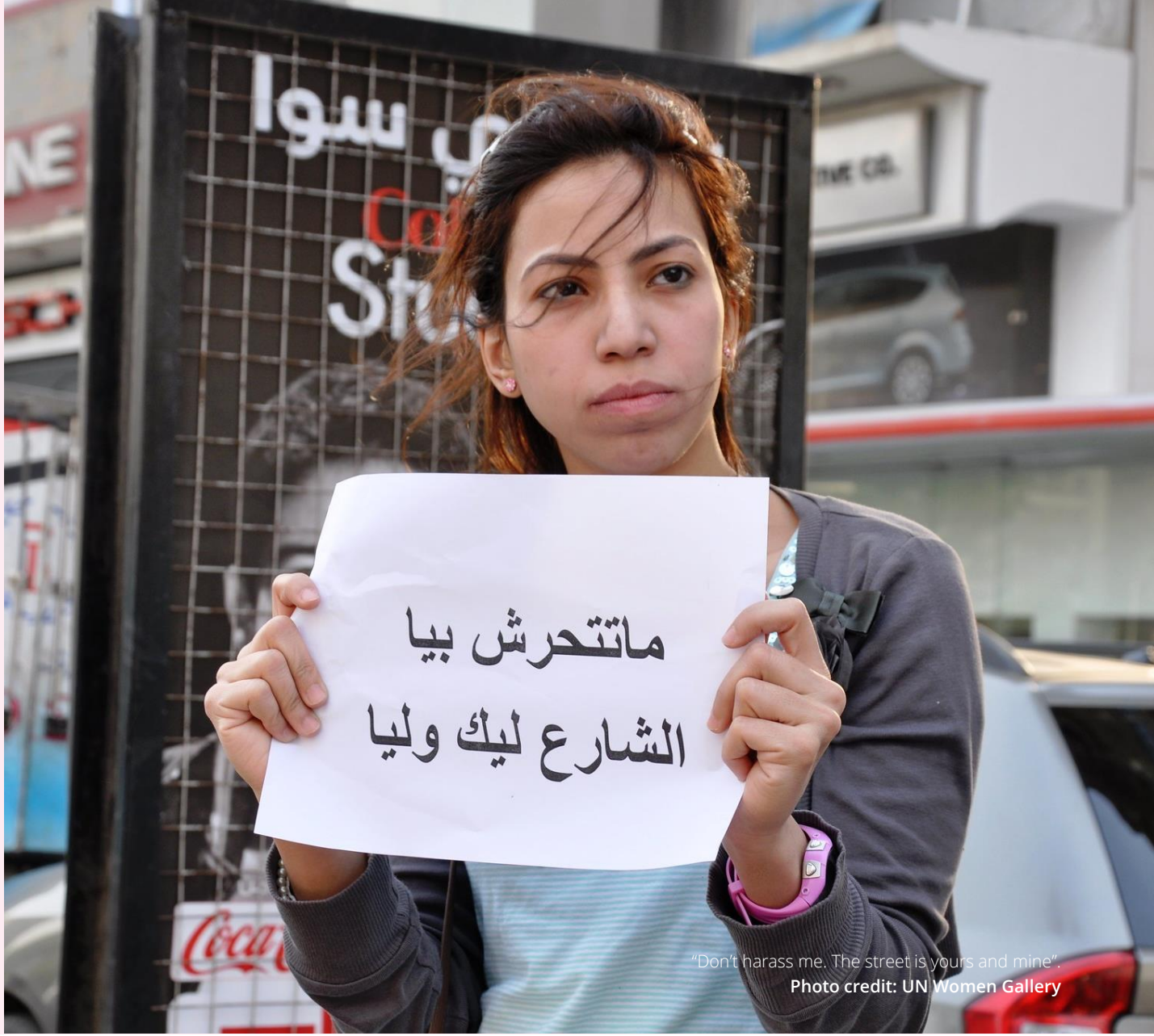


Egypt

HarassMap

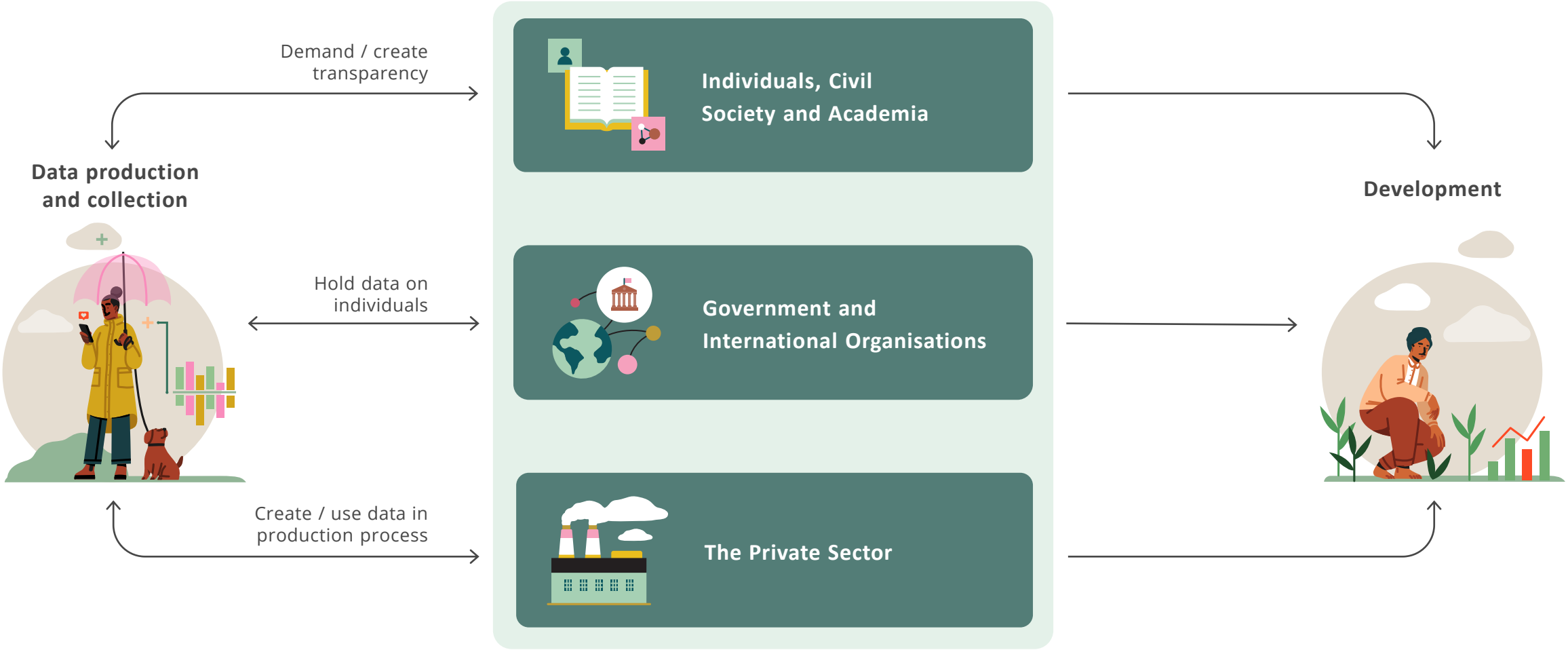
Citizen data for public good

Citizens can create data to fill gaps in public and private data, to address the problems they face. HarassMap is a citizen-generated map based on individual reports of sexual harassment.



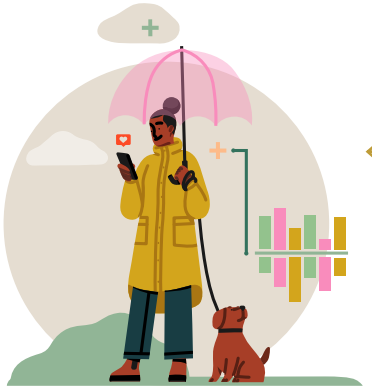
"Don't harass me. The street is yours and mine".
Photo credit: UN Women Gallery

Data for development: 3 pathways



Data for development: potential benefits

Data production and collection



Individuals, Civil Society and Academia

Government and International Organisations

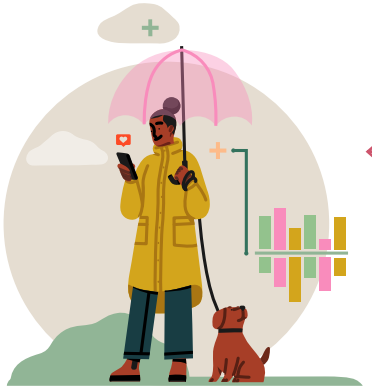
The Private Sector

- Greater accountability
- Policy design / evaluation
  Service delivery
- Business opportunities

Development

Data for development: potential harms

Data production and collection



Individuals, Civil Society and Academia

Government and International Organisations

The Private Sector

- Criminal activity
  Dark net
- Corruption
  Surveillance
- Widening inequality
  Market concentration

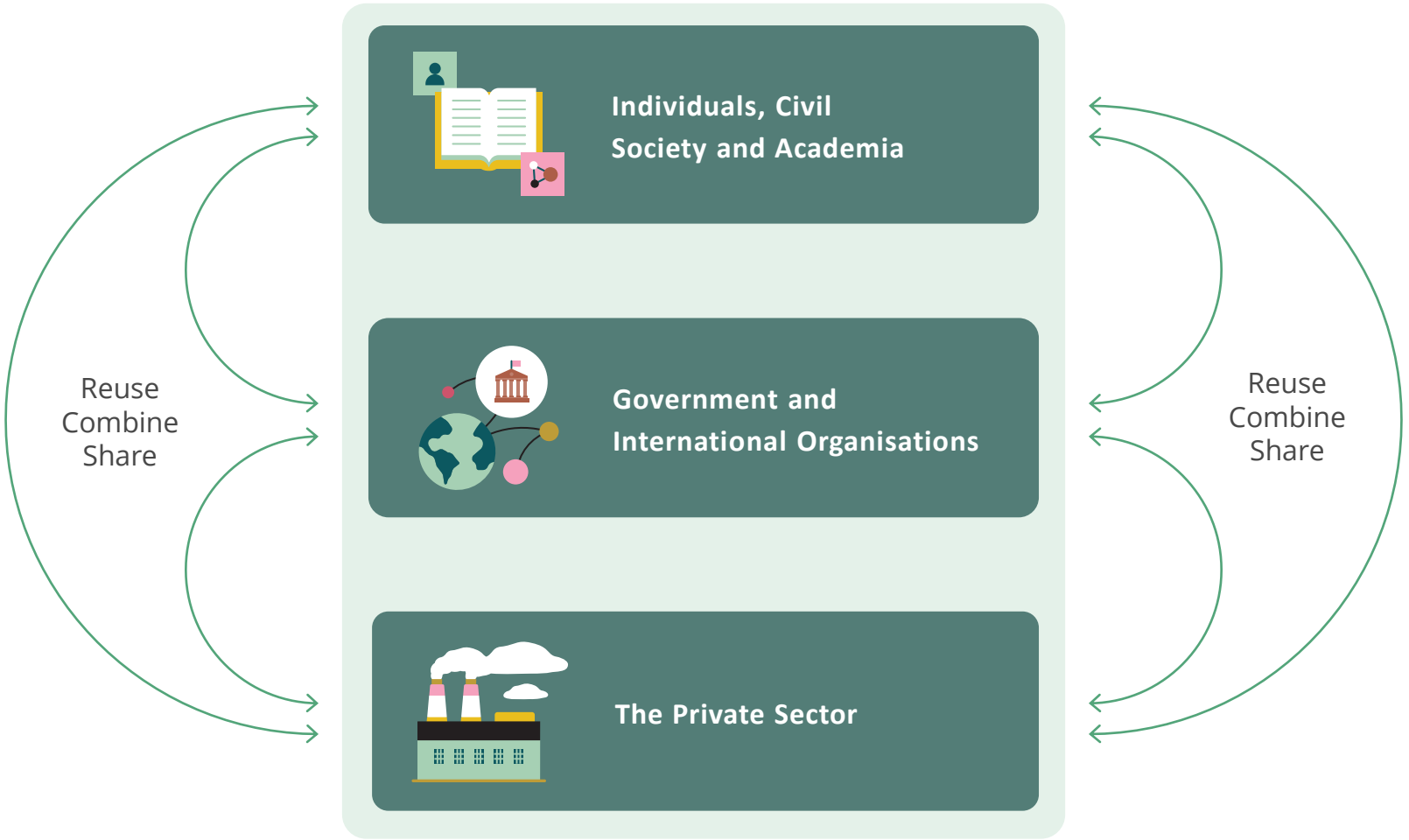
Development

Not just another report on data

- A **poverty lens** on the value of data
- Prioritising poor people and poor countries

The Government of Madagascar provide 80,000 extreme poor households with regular cash transfers, such as here in Betafo
Photo credit: Mohammad Al-Arief / World Bank

Unlocking potential by reusing data



Kenya

Road traffic deaths

Combining and repurposing sources

Researchers worked with the National Police Service to create the first digital and geolocated administrative dataset of individual crashes in Nairobi. Combining digitized official paper records with commuter reports on traffic conditions revealed new insights: 5% of roads experienced 50% of road traffic deaths.

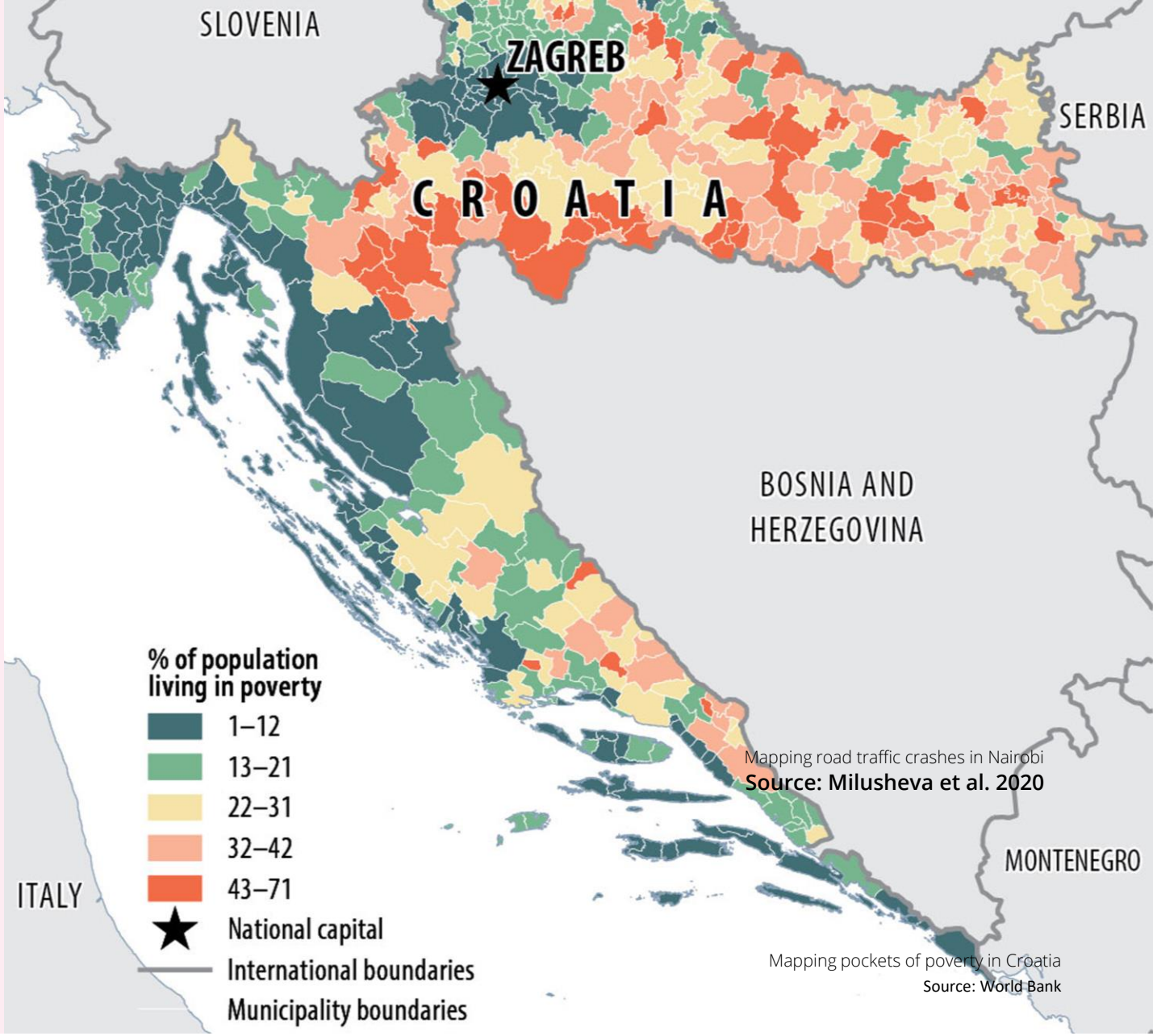
Mapping road traffic crashes in Nairobi
Source: Milusheva et al. 2020

Croatia

Pinpointing poverty

Combining sources

Traditional household survey data was previously used to determine deprivation and allocate EU funding, based on regional GDP. This means that resources weren't reaching poor municipalities in nonpoor regions. Combining the household data with the population census and administrative data revealed large differences in living standards within regions, fuelling proposals for new funding divisions.

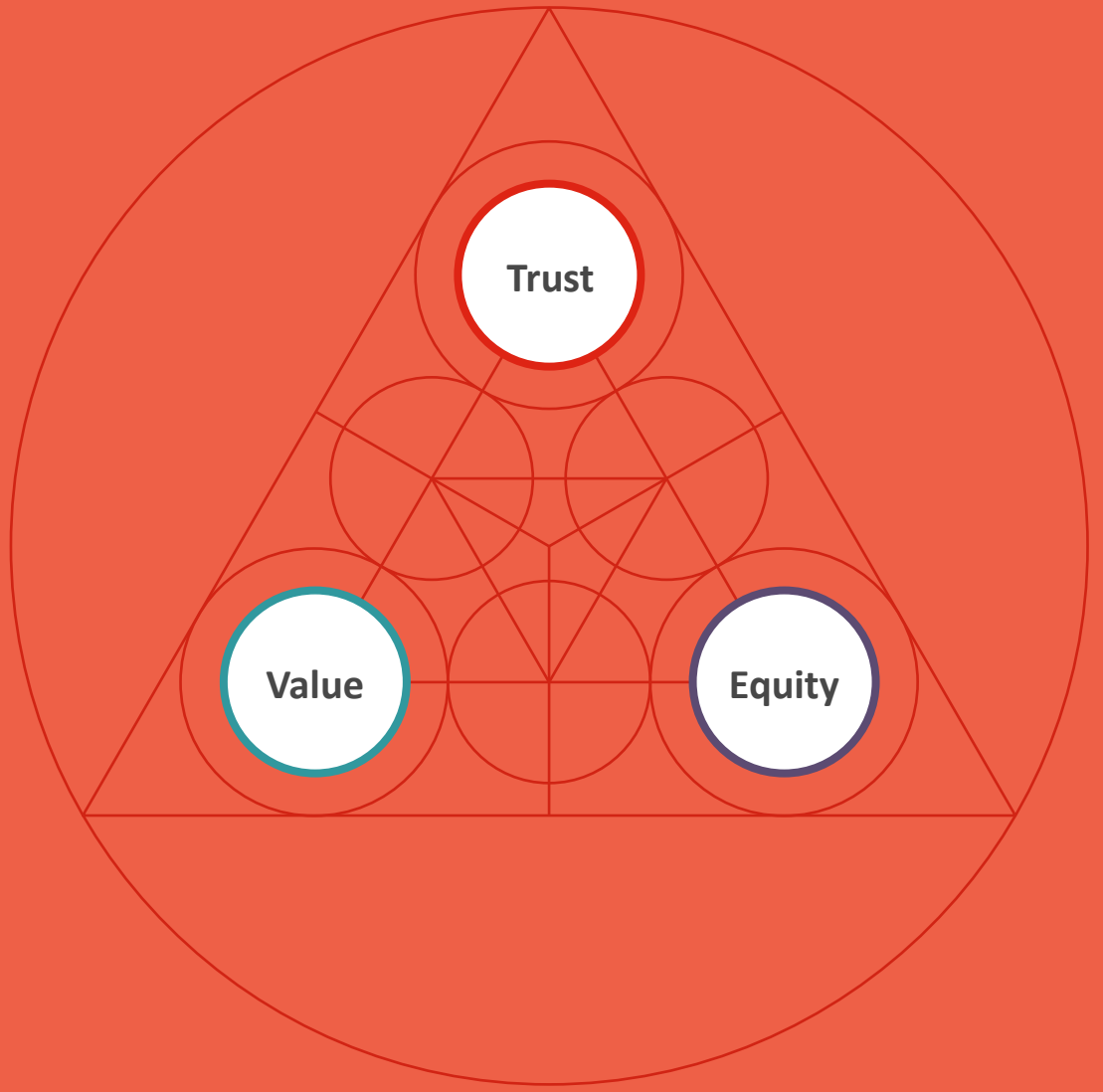


Mapping road traffic crashes in Nairobi
Source: Milusheva et al. 2020

Mapping pockets of poverty in Croatia
Source: World Bank

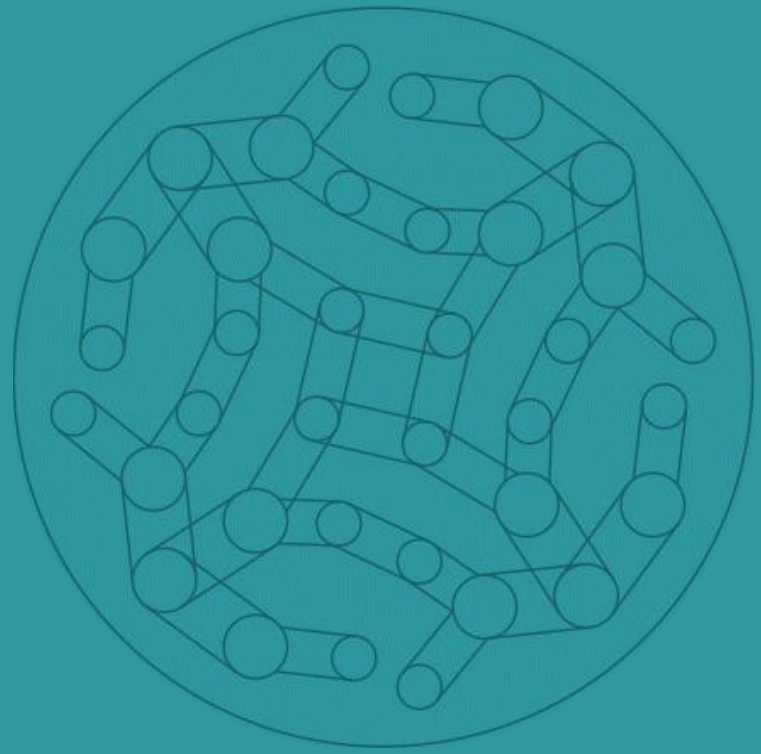
The social contract for data

The three elements of a social contract for data: Value, Equity and Trust



Value

Economic and social value comes from sharing, reusing, and combining data sources to generate greater insight

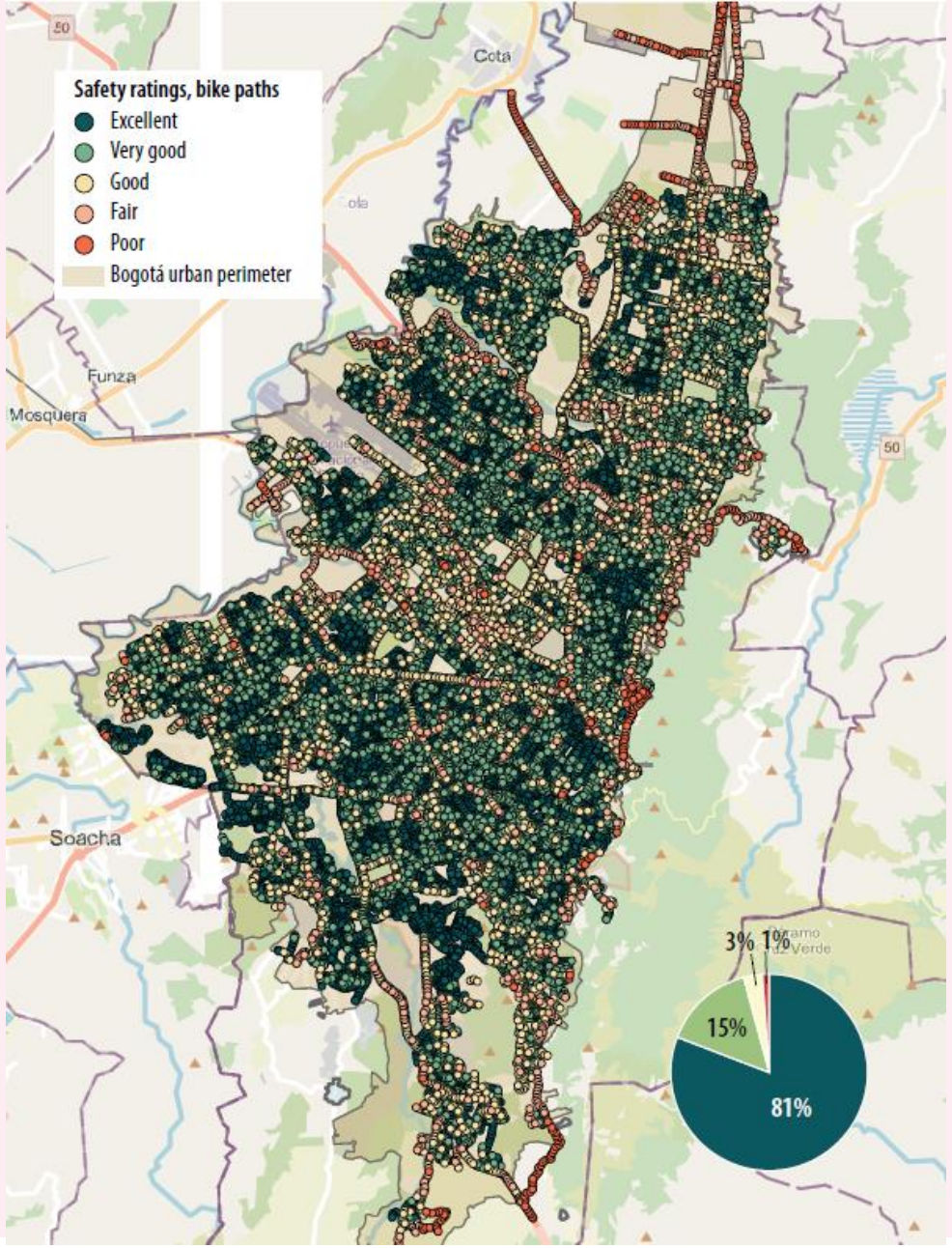


Bogota

Improving public safety

Using citizen generated data

The map-based mobile app Safetipin allows users to report mobility and safety issues in cities related to lighting, walk paths, visibility, public transport, and security. In Bogotá, Colombia, the city government used this tool to improve safety around bike paths.

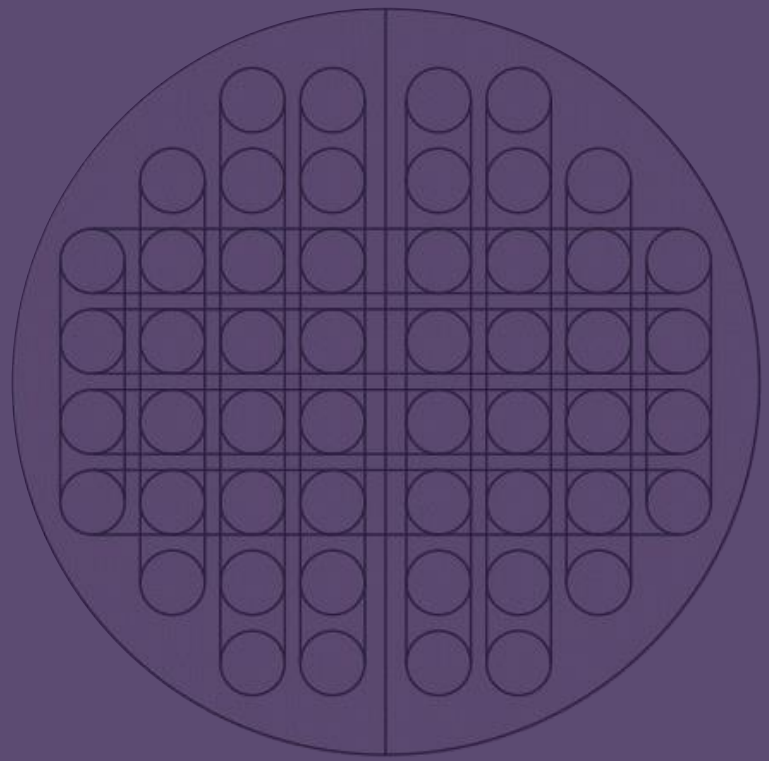


Source: Safetipin 2016

Note: Safety ratings of poor to excellent for Bogotá bike paths are based on safety scores.

Equity

Data capture, infrastructure, and trade need to include poorer communities and countries equitably



COVID-19

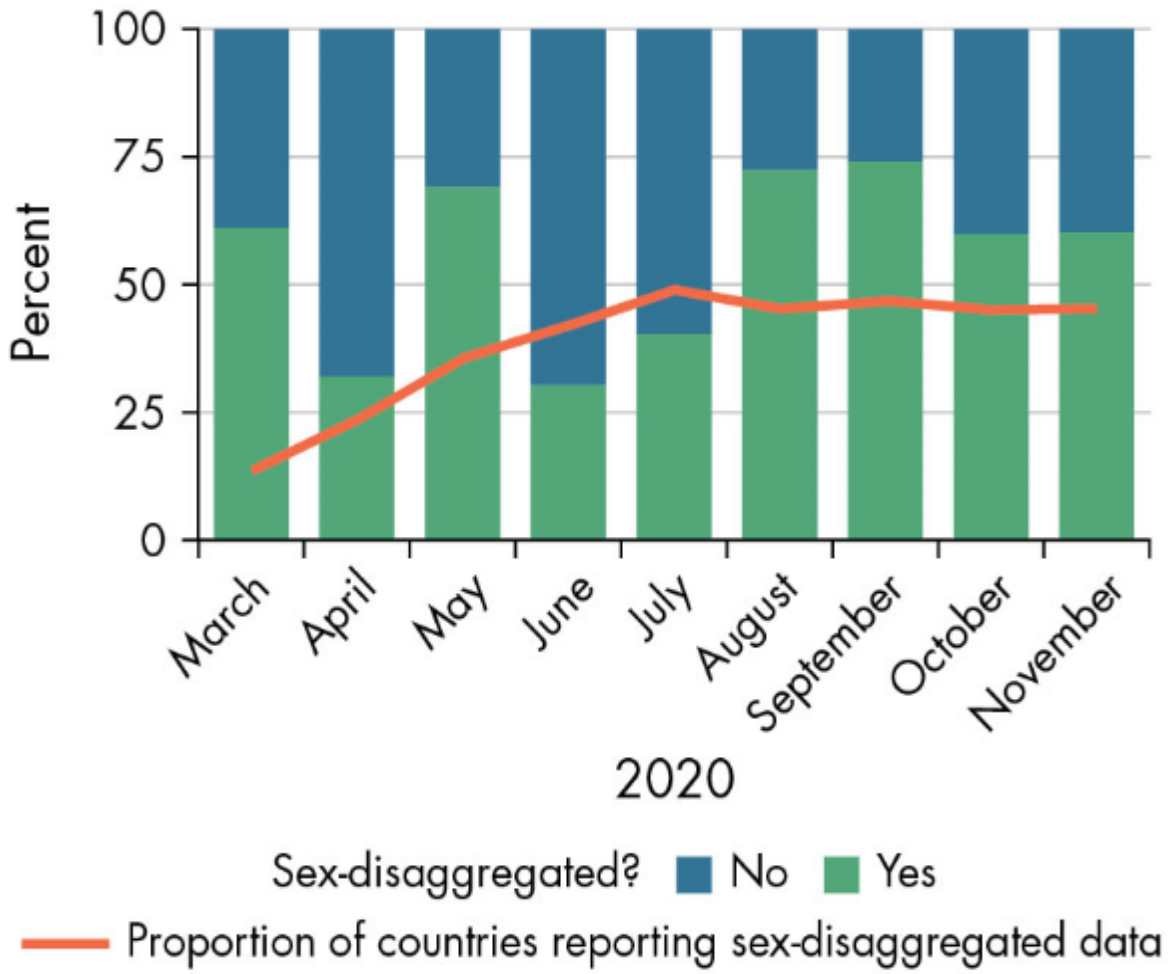
Gender data gaps

Sex disaggregated data during the pandemic

Throughout the ongoing COVID-19 pandemic, gaps in sex-disaggregated data have been pronounced, rendering at best, a partial understanding of the differential impacts of the crisis on men and women. In March 2020, only 61% of reported COVID-19 cases were disaggregated by sex, with only 26 countries providing these data. By November 2020, reporting had grown to 80 countries, but the proportion surprisingly still stood at 60%.

***Source**: WDR2021, Data for Better Lives. Based on contributions from Mayra Buvinic (Center for Global Development), Lorenz Noe (Data2x), and Eric Swanson (Open Data Watch), with inputs from the WDR 2021 team.*

Figure B2.3.1 Proportion of COVID-19 cases reported with sex-disaggregated data for 190 countries



Example: Rwanda

Digital Ambassadors Program

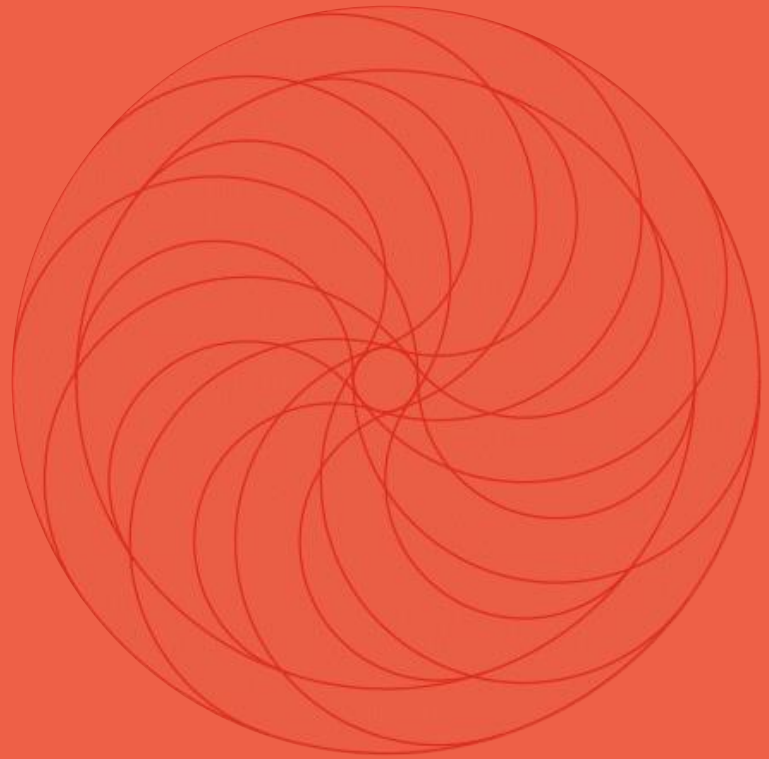
Digital literacy for everyone

In early 2017, the Rwandan government launched the Digital Ambassadors Program, which trained 5,000 youth posted to all 30 districts in the country to provide digital skills training to 5 million Rwandans over a four-year period.

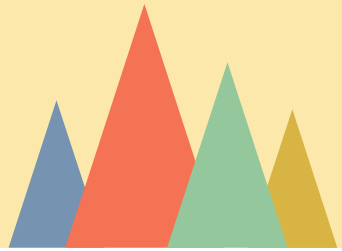
Women of Takalafiya-Lapai village
Photo: Arne Hoel / World Bank

Trust

Personal data and data infrastructure must be protected from misuse to avoid discrimination and cybercrime

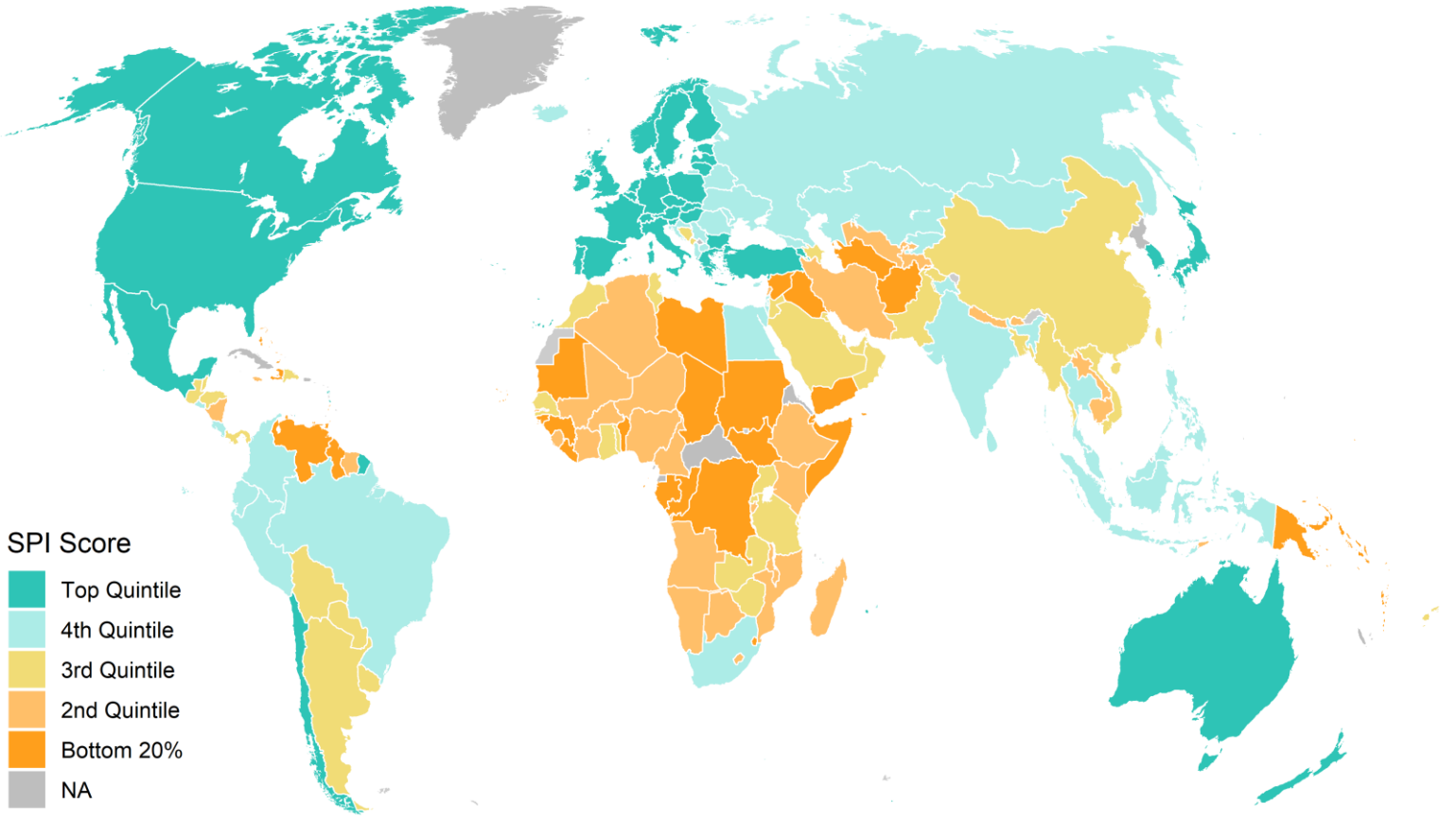


Statistical Performance Indicators (SPI) to monitor improvement in data systems – released jointly with this Report



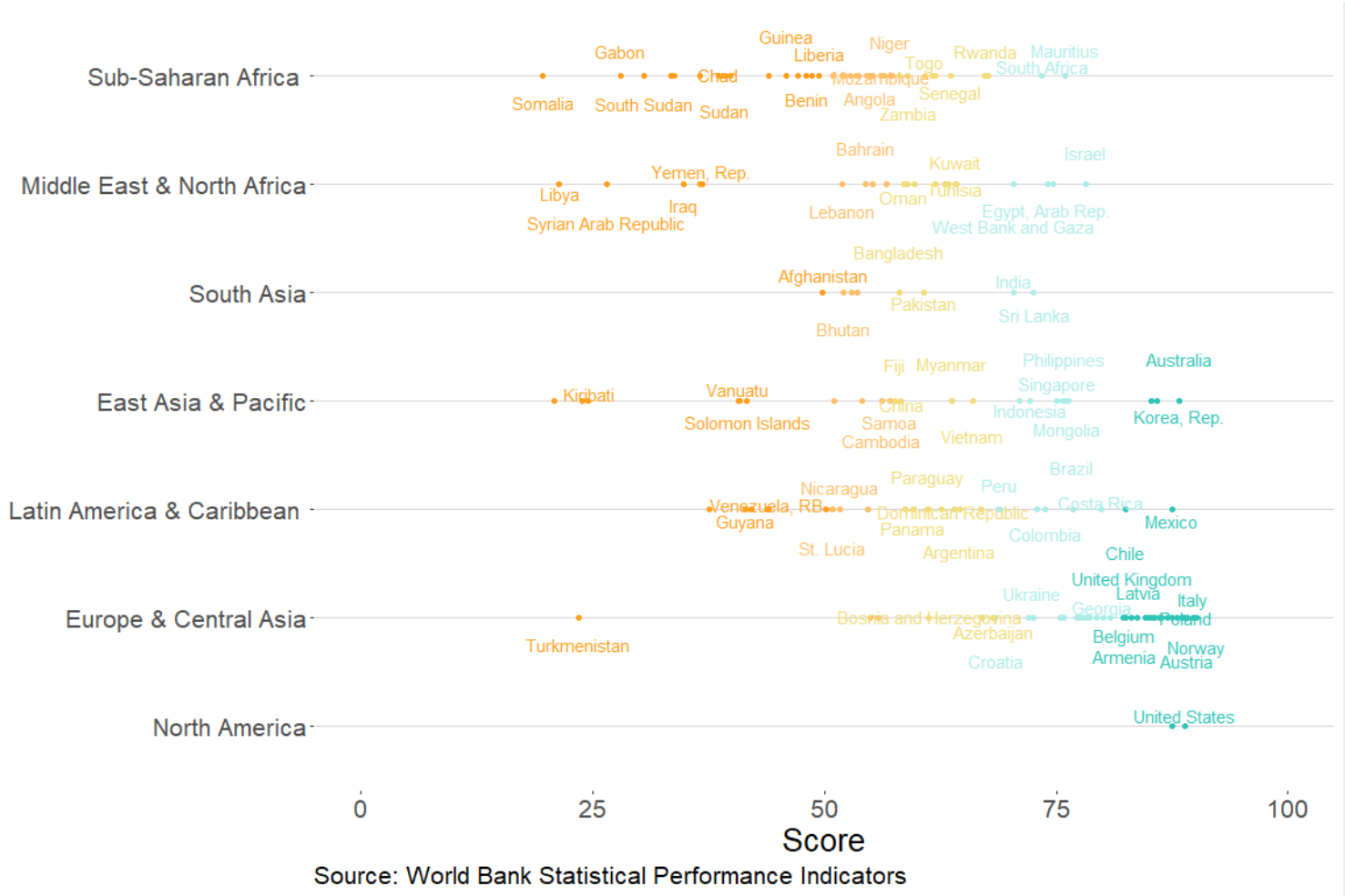
Pillars	Dimensions				
Data Use (User Types)	Legislature	Executive	Civil Society	Academia	International Bodies
Data Services (Service Types)	Quality of Data Releases	Richness and Openness of Online Access	Effectiveness of Advisory and Analytical Services Related to Statistics	Availability and Use of Data Access Services	
Data Products (Topics)	Social	Economic	Environmental	Institutional	
Data Sources	Statistical Office (Censuses and Surveys)	Administrative Data	Geospatial Data	Private Sector Data/ Citizen Generated Data	
Data Infrastructure	Legislation and Governance	Standards and Methods	Skills	Partnership	Finance (Domestically and from Donors

Global Landscape of Statistical Performance



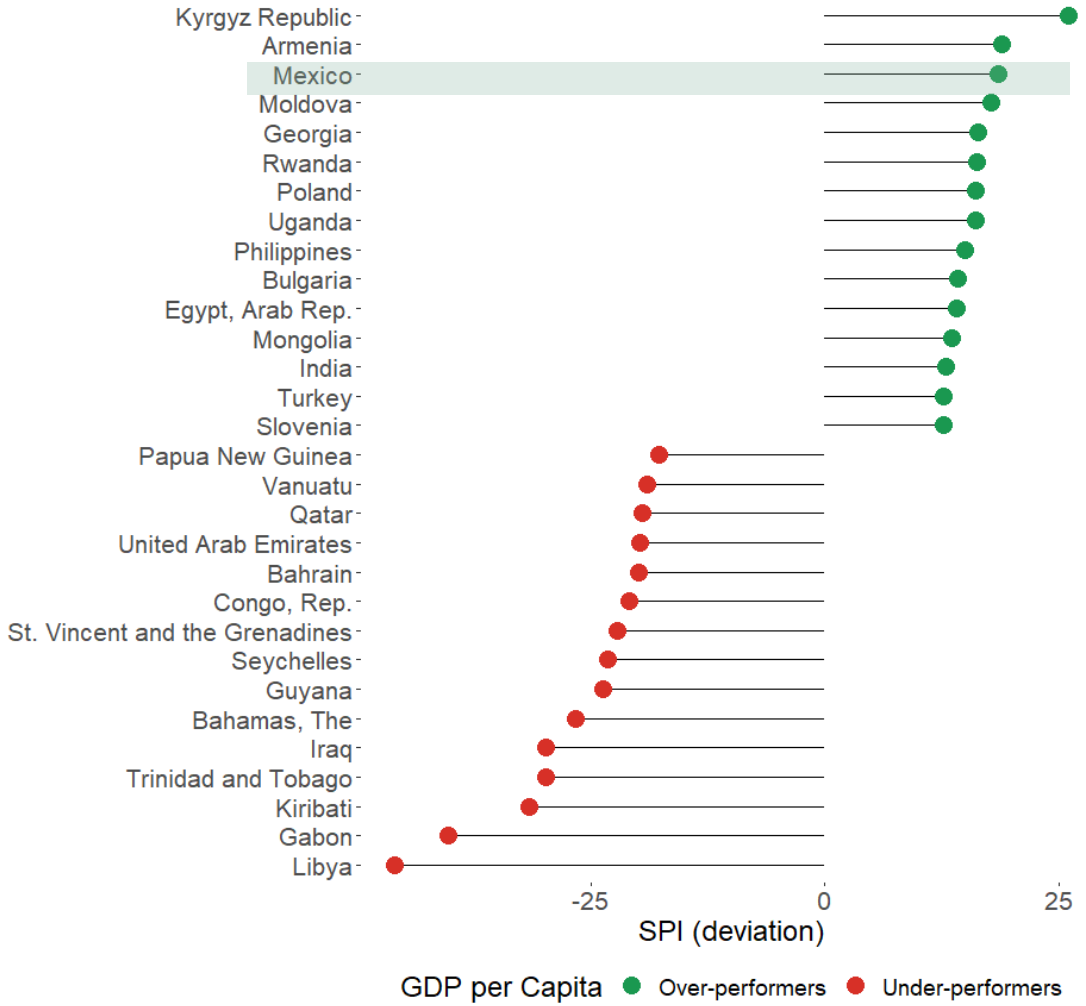
Source: World Bank. Statistical Performance Indicators

Country performance varies tremendously within regions



Source: World Bank Statistical Performance Indicators

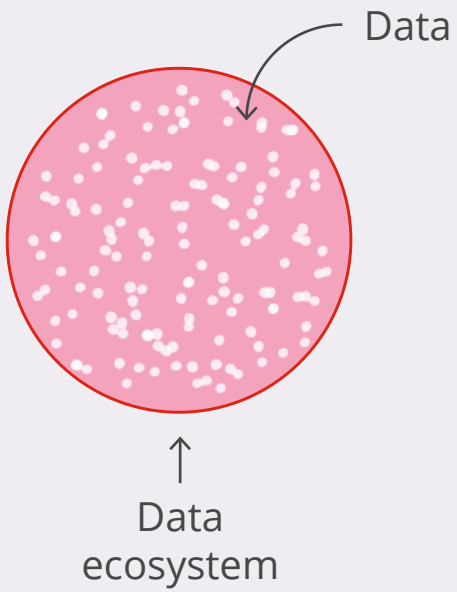
Over/Underperformers



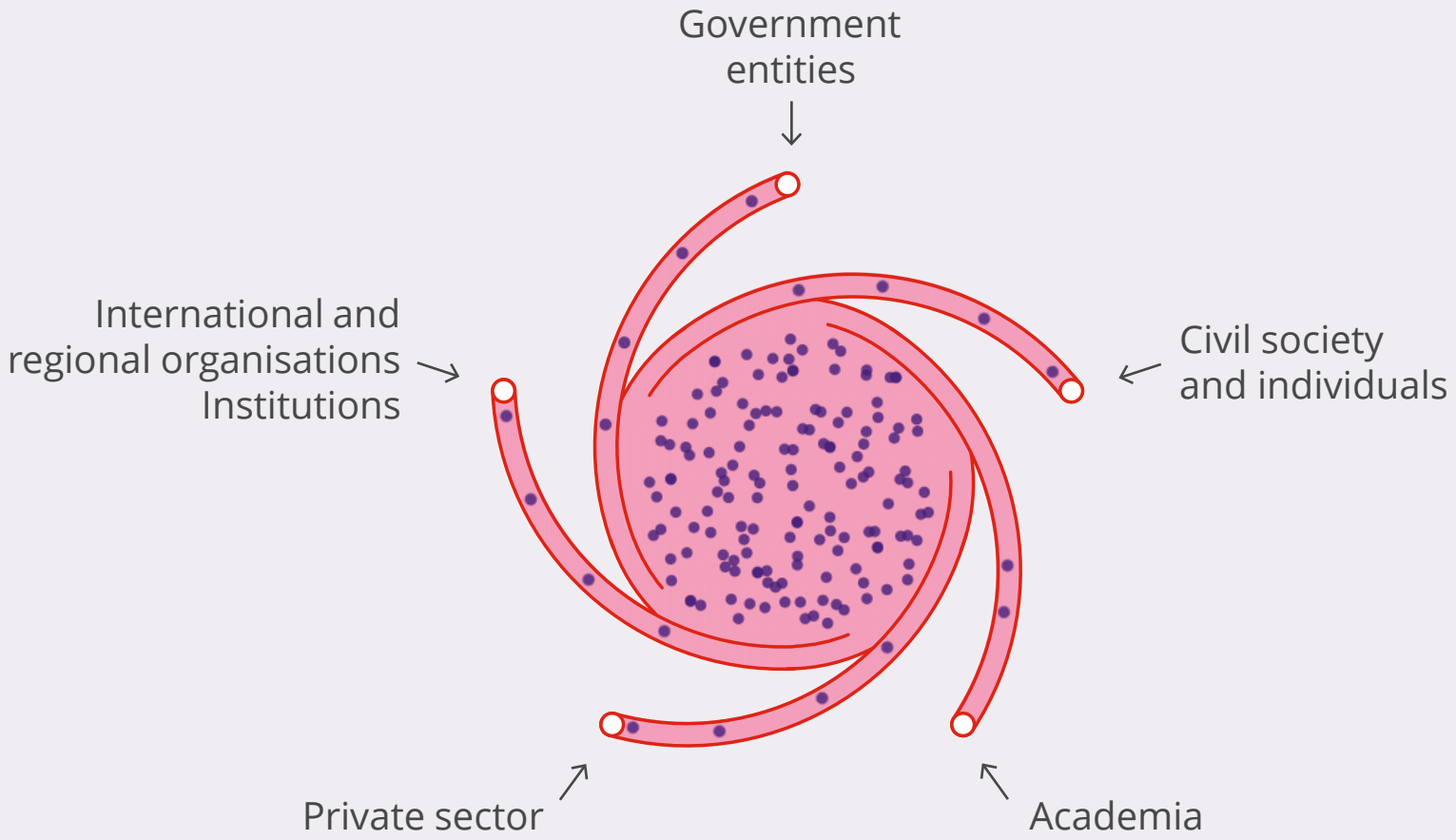
Working towards an integrated national data system (INDS)

Data in the INDS must be:

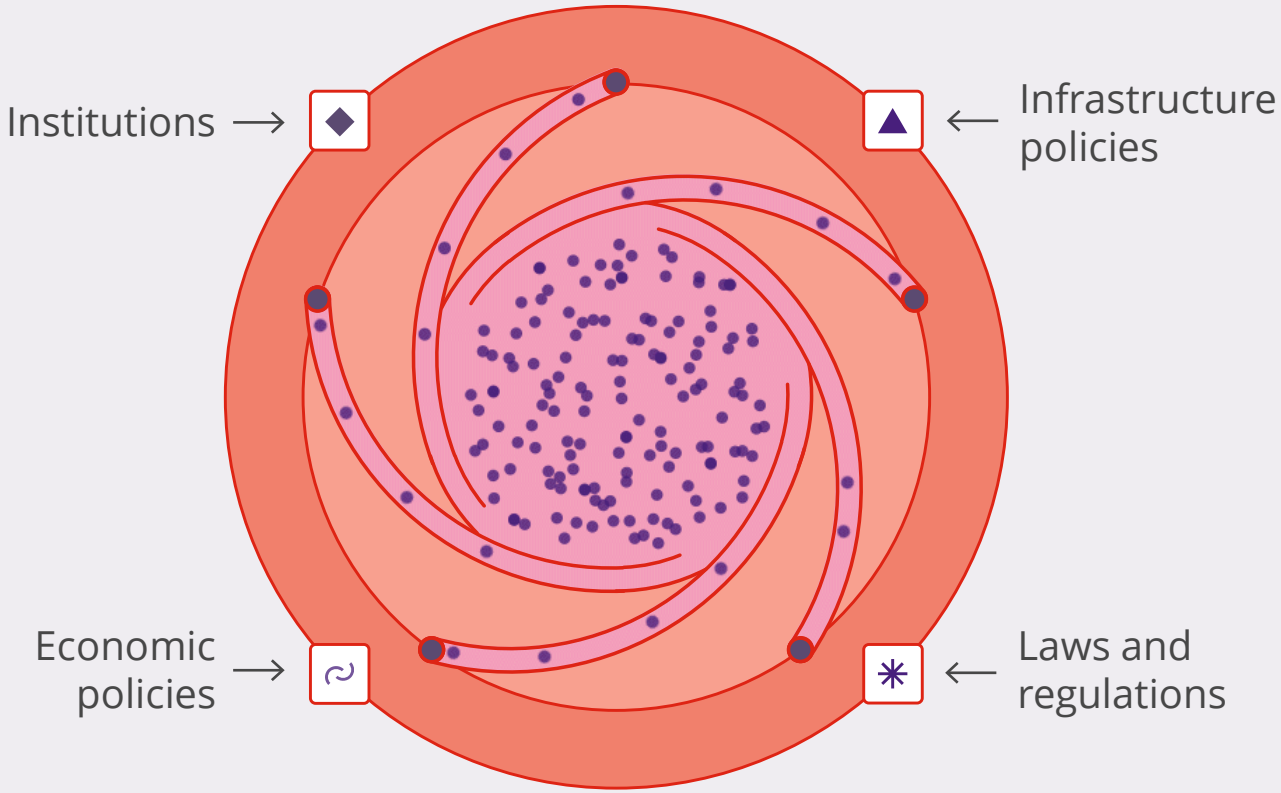
- Produced
- Protected from misuse
- Open
- Quality controlled
- Used and reused



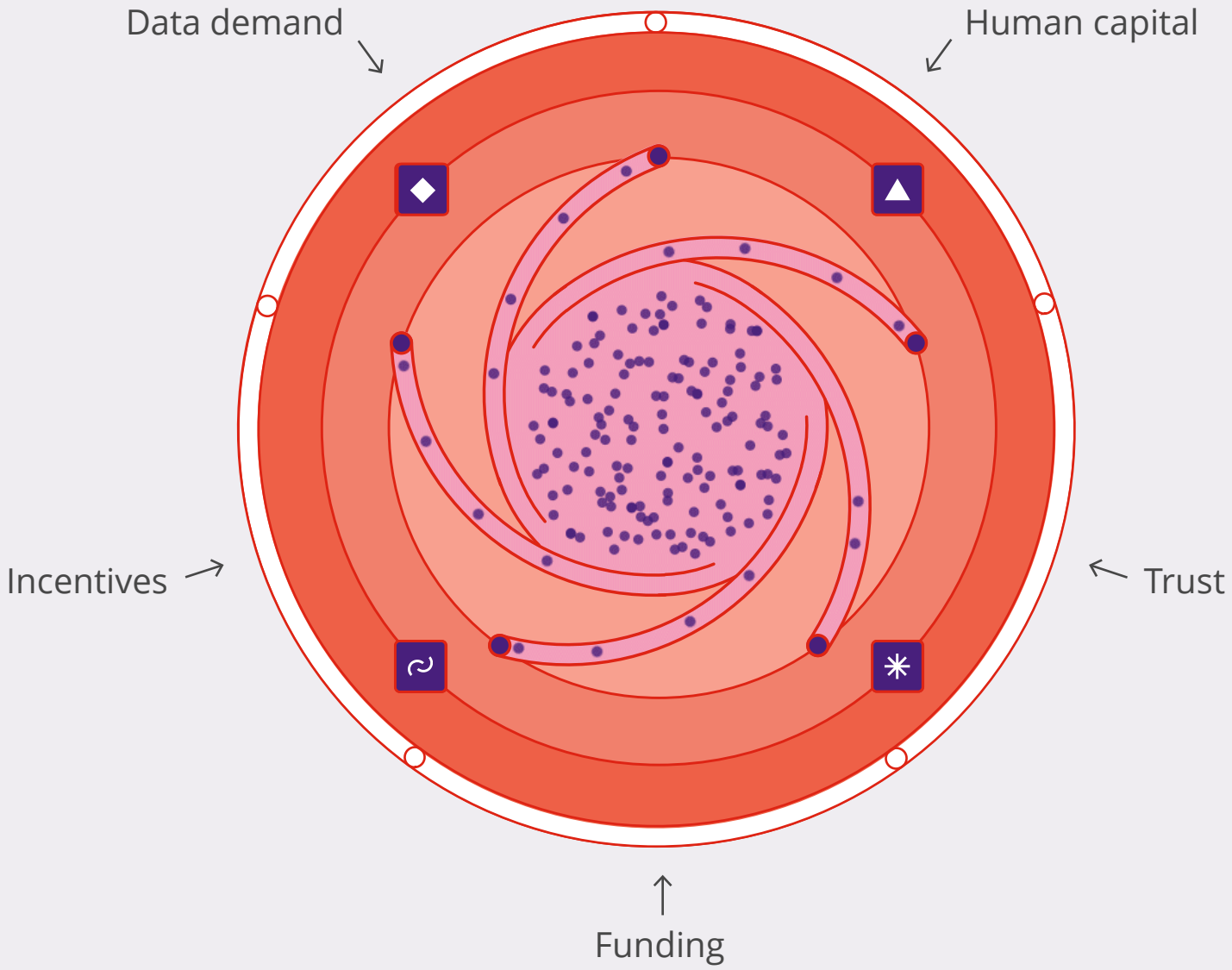
Participants in the INDS create and share data



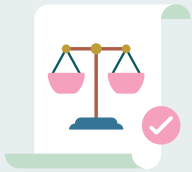
Four pillars support the INDS



Five foundations sustain the INDS



Data governance: a framework to enforce the social contract

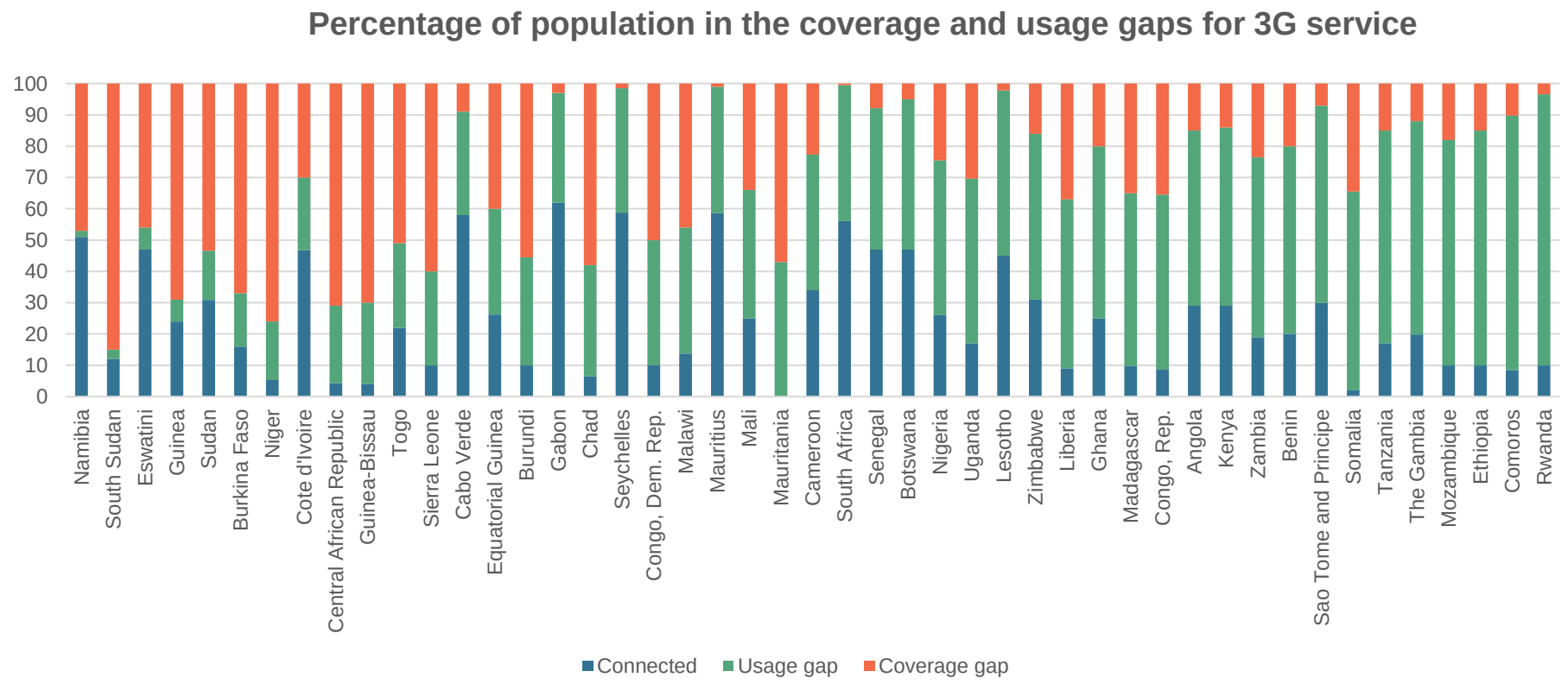


	Infrastructure policies	Laws and regulations	Economic policies	Institutions
National	Universal broadband coverage Domestic data infrastructure	Safeguards Enablers	Antitrust Trade Taxation	Government entities Other stakeholders
International	Global technical standards Regional collaboration	Cybersecurity conventions Interoperability standards	International tax treaties Global trade agreements	International organisation Cross-border cooperation

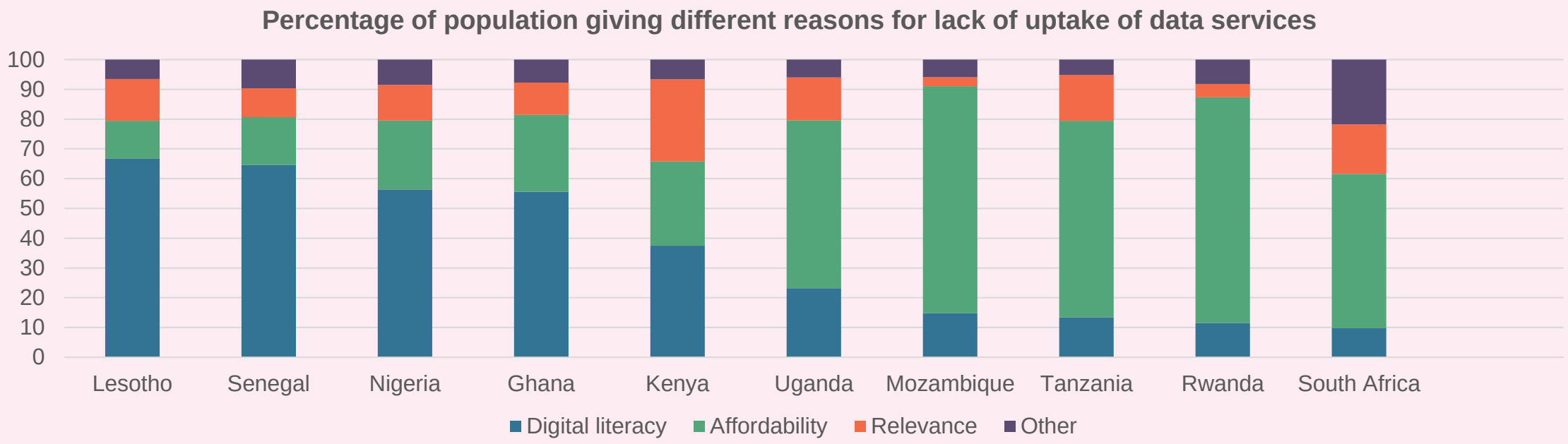
Data governance layer 1: Infrastructure policies

	Infrastructure policies	Laws and regulations	Economic policies	Institutions
National	Universal broadband coverage Domestic data infrastructure	Safeguards Enablers	Antitrust Trade Taxation	Government entities Other stakeholders
International	Global technical standards Regional collaboration	Cybersecurity conventions Interoperability standards	International tax treaties Global trade agreements	International organisation Cross-border cooperation

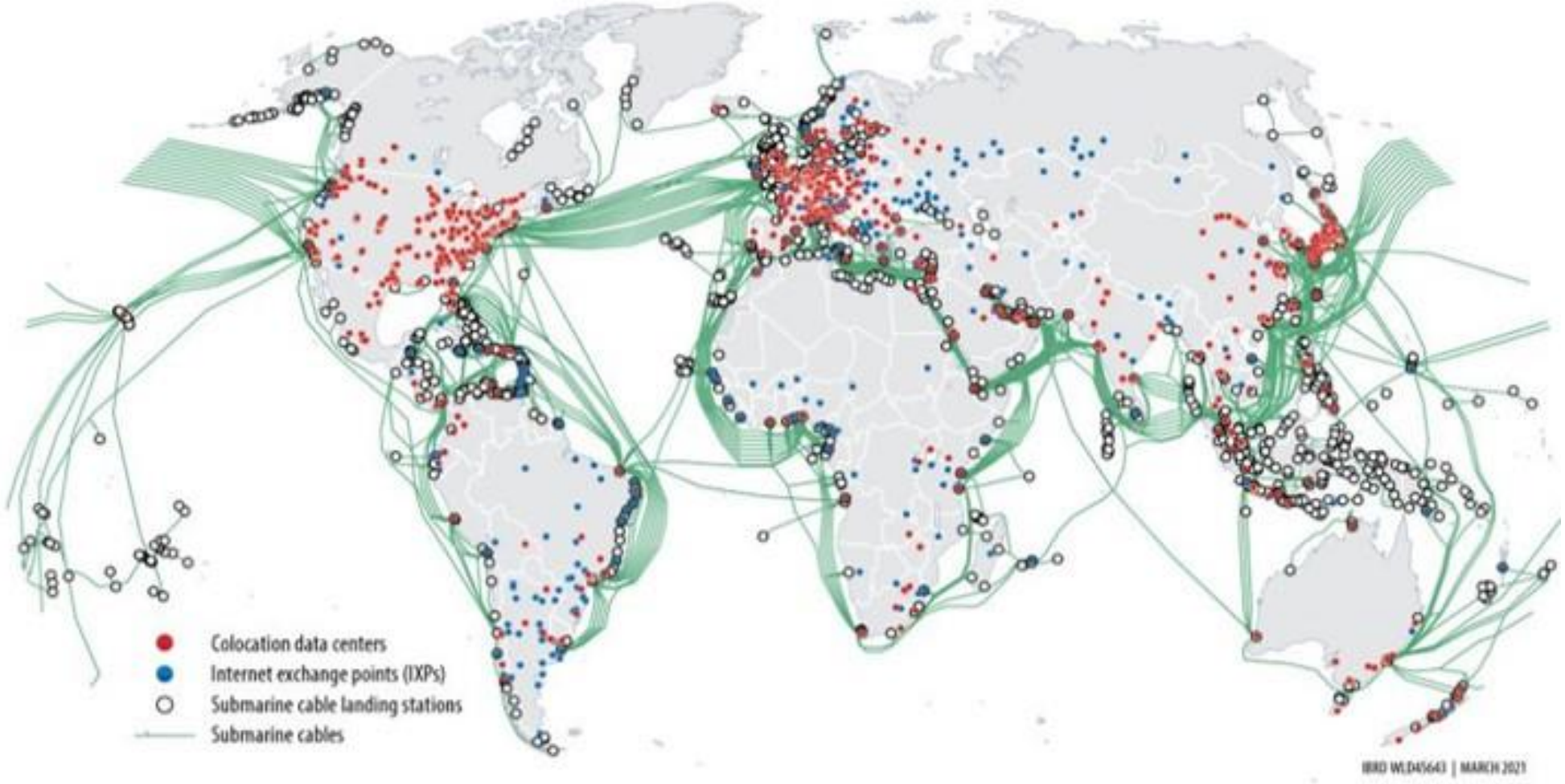
A majority of African countries now have usage gaps that far exceed their coverage gaps



Africans' reasons for remaining in the usage gap are mainly literacy in some countries and mainly affordability in others



National data infrastructure plays an increasingly critical role



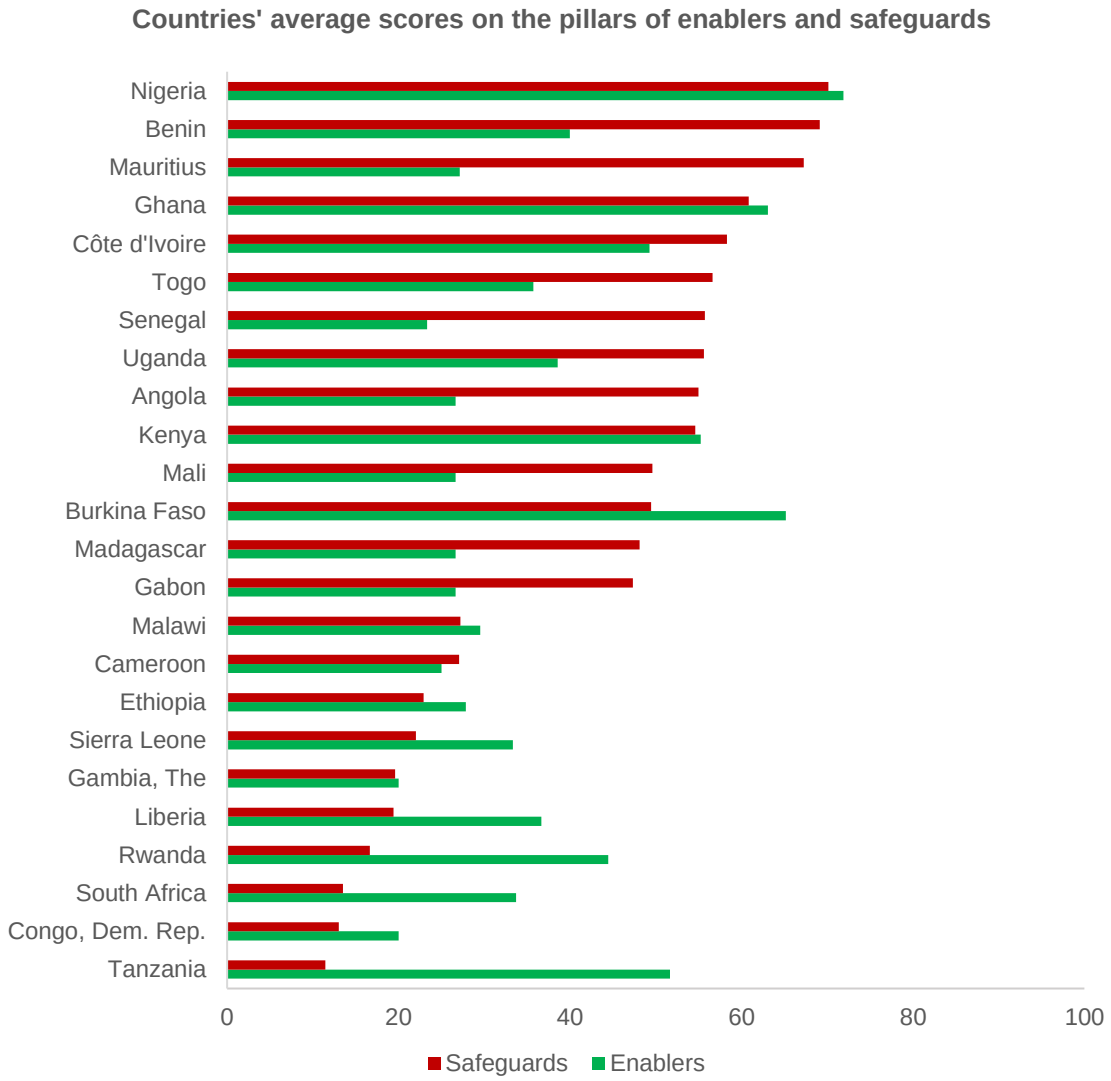
Sources: PeeringDB, Interconnection Database, https://www.peeringdb.com/; PCH Packet Clearing House, Packet Clearing House Report on Internet Exchange Point Locations (database), accessed December 14, 2020, https://www.pch.net/ixp/summary; TeleGeography, Submarine Cables (database), https://www.submarinecablemap.com/. Data at http://bit.do/WDR2021-Map-5_1.

Data governance layer 2: Laws and regulations

	Infrastructure policies	Laws and regulations	Economic policies	Institutions
National	Universal broadband coverage Domestic data infrastructure	Safeguards Enablers	Antitrust Trade Taxation	Government entities Other stakeholders
International	Global technical standards Regional collaboration	Cybersecurity conventions Interoperability standards	International tax treaties Global trade agreements	International organisation Cross-border cooperation

Data regulation should provide safeguards as well as enablers

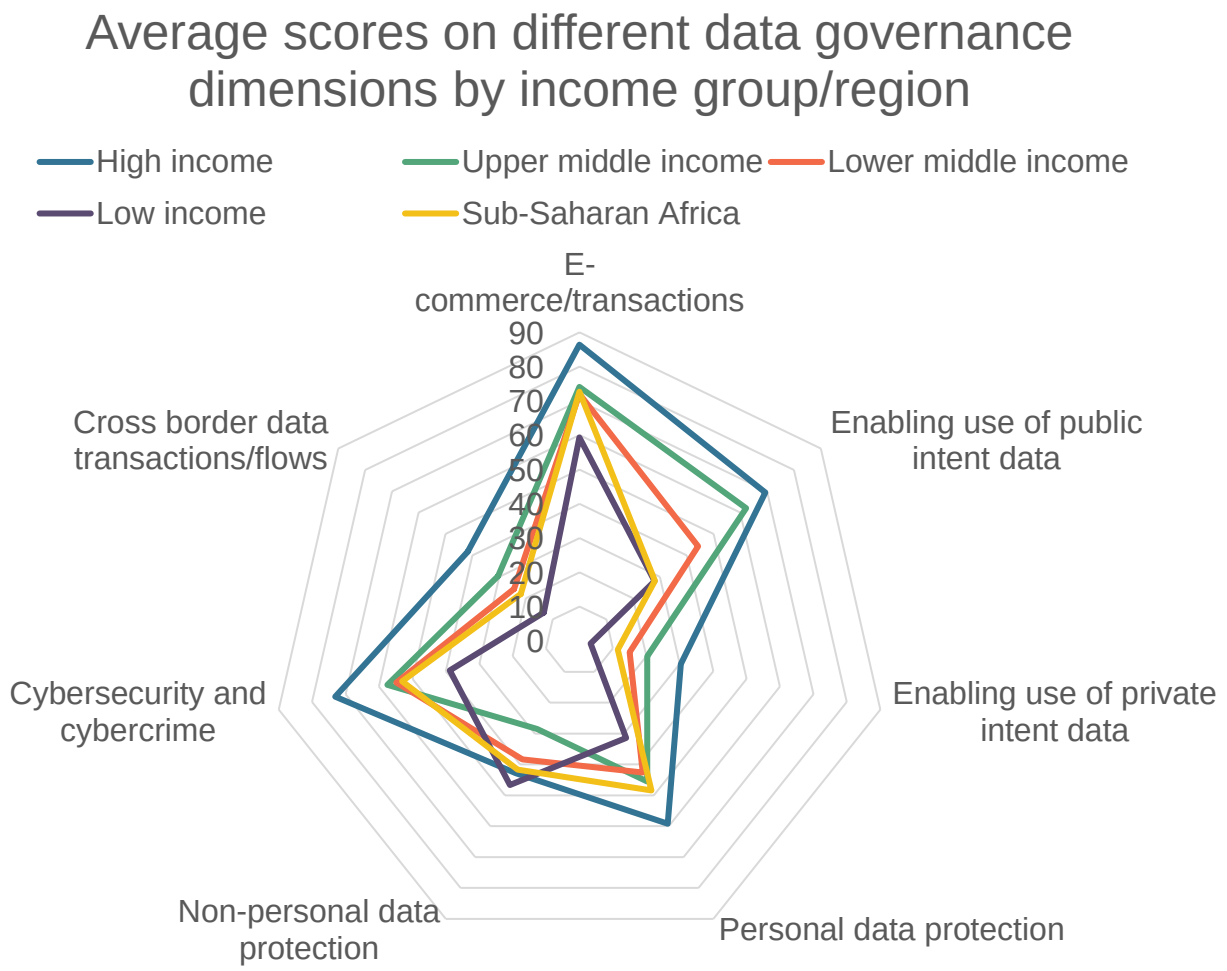
Scores for quality of data regulation environment in AFR Region, 2020



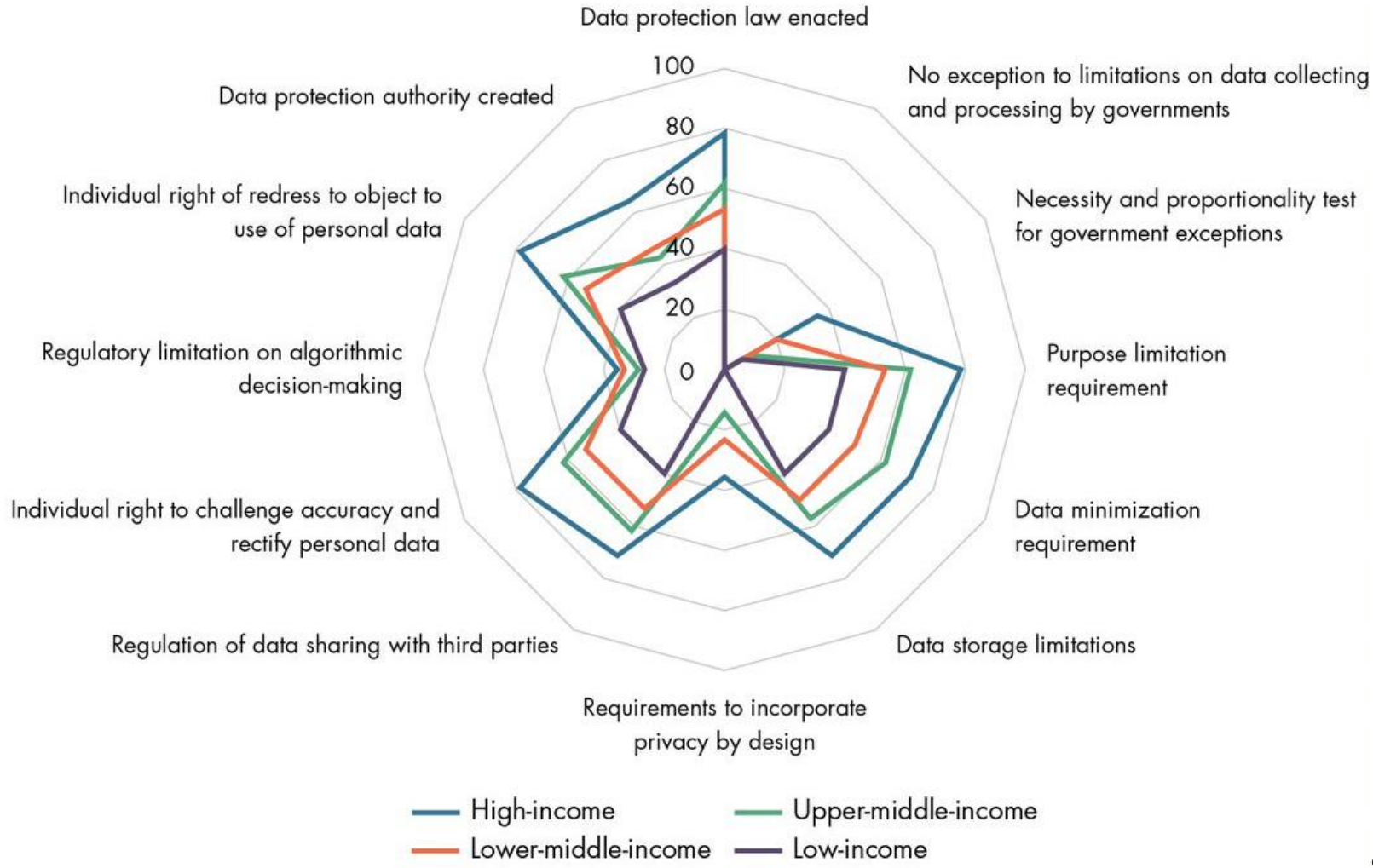
From Contact Tracing to Vaccine Certificates: Enablers & Safeguards in the time of COVID-19

Source: who.int

Performance vary across different dimensions of data regulation survey



Robustness of personal data protection legislation differs markedly across income groups



Example: Côte d’Ivoire

Limits on automated processing of data

Safeguards for trusted AI

The growing use of algorithms can add significant value but raises risks of bias, data misuse, and lack of transparency and redress. Despite these risks, only 30% of countries surveyed impose limits on their use. Of these Cote d’Ivoire has included provisions in its data protection act that prohibit the use of automated processing of personal data in judicial decision-making to prevent bias.

National Data Center Capacity Building training course
Photo: The Official CTBTO Photostream

Example: The Battle of Big Tech

When given the choice, users opt out of tracking & targeting

How Data Protection by Design fosters user trust

- WhatsApp announced change in Terms of Service in January:
  - **4,868% increase in downloads of Signal**
  - **downloads of WhatsApp fell by 16%**
  - **Delft City Council votes to drop Whatsapp in protest over ToS**

- Apple launched iOS 14.5 with enhanced data protection
  - **96% of US iPhone users opted out of allowing tracking**

Competing messenger applications available on iPhone
Photo: South China Morning Post: https://images.app.goo.gl/ZaCqtDDmJk7JRpzS7

Data governance layer 3: Economic policies

	Infrastructure policies	Laws and regulations	Economic policies	Institutions
National	Universal broadband coverage Domestic data infrastructure	Safeguards Enablers	Antitrust Trade Taxation	Government entities Other stakeholders
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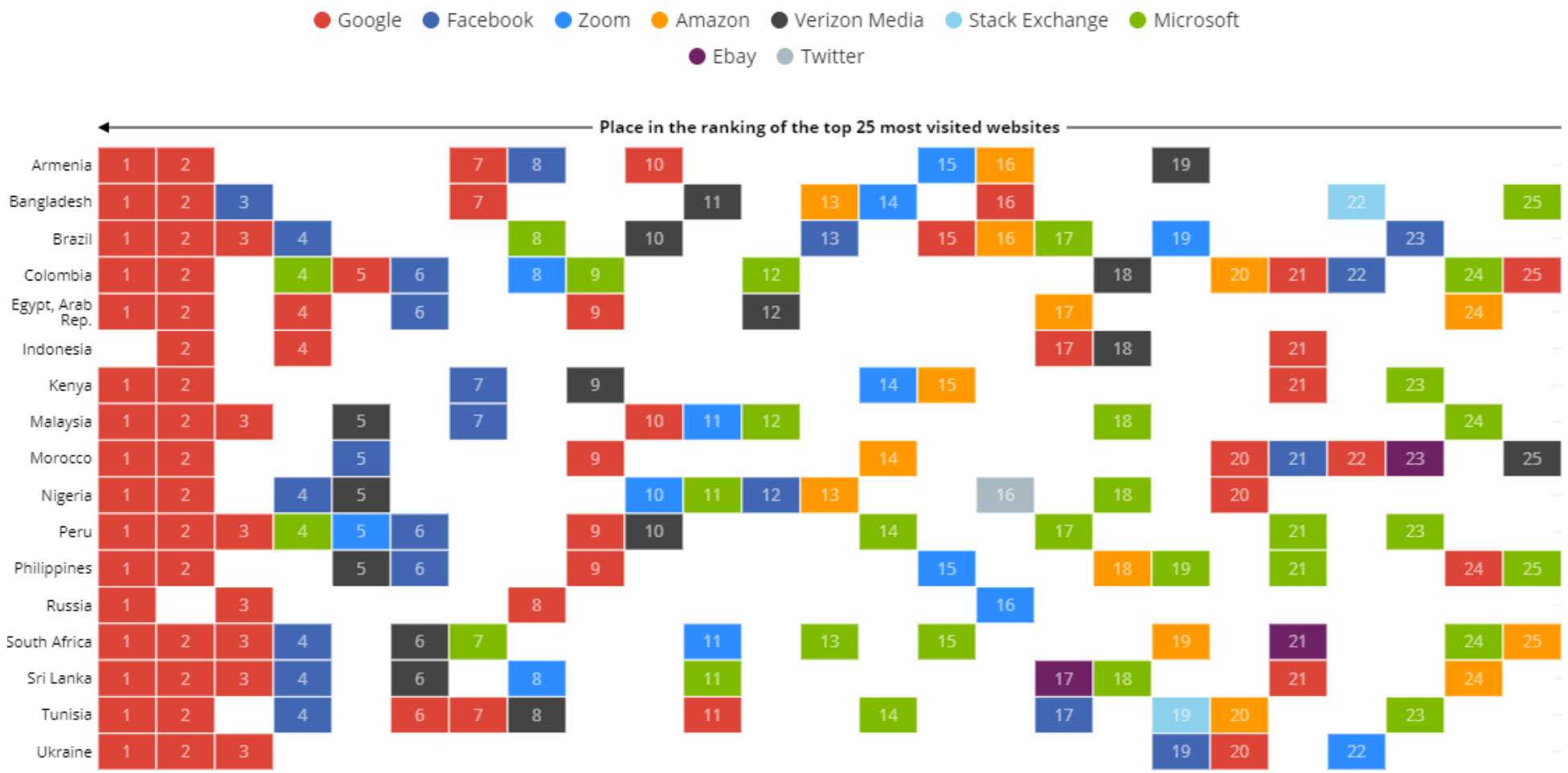
Leveling the playing field for competition



Source: Alexa (downloaded 2020:Q2).

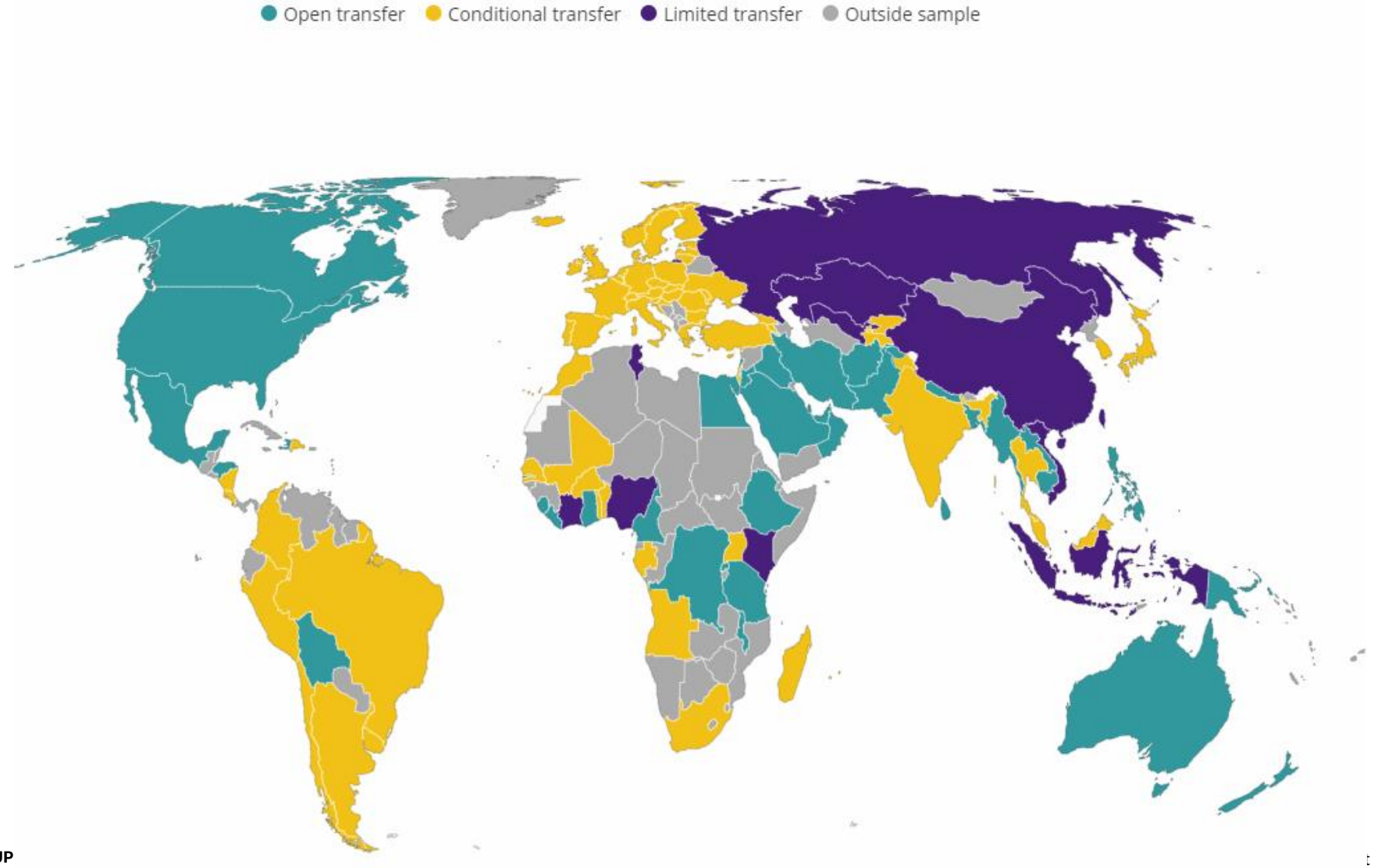
Example: Bangladesh

Augmedix

Digital services exports

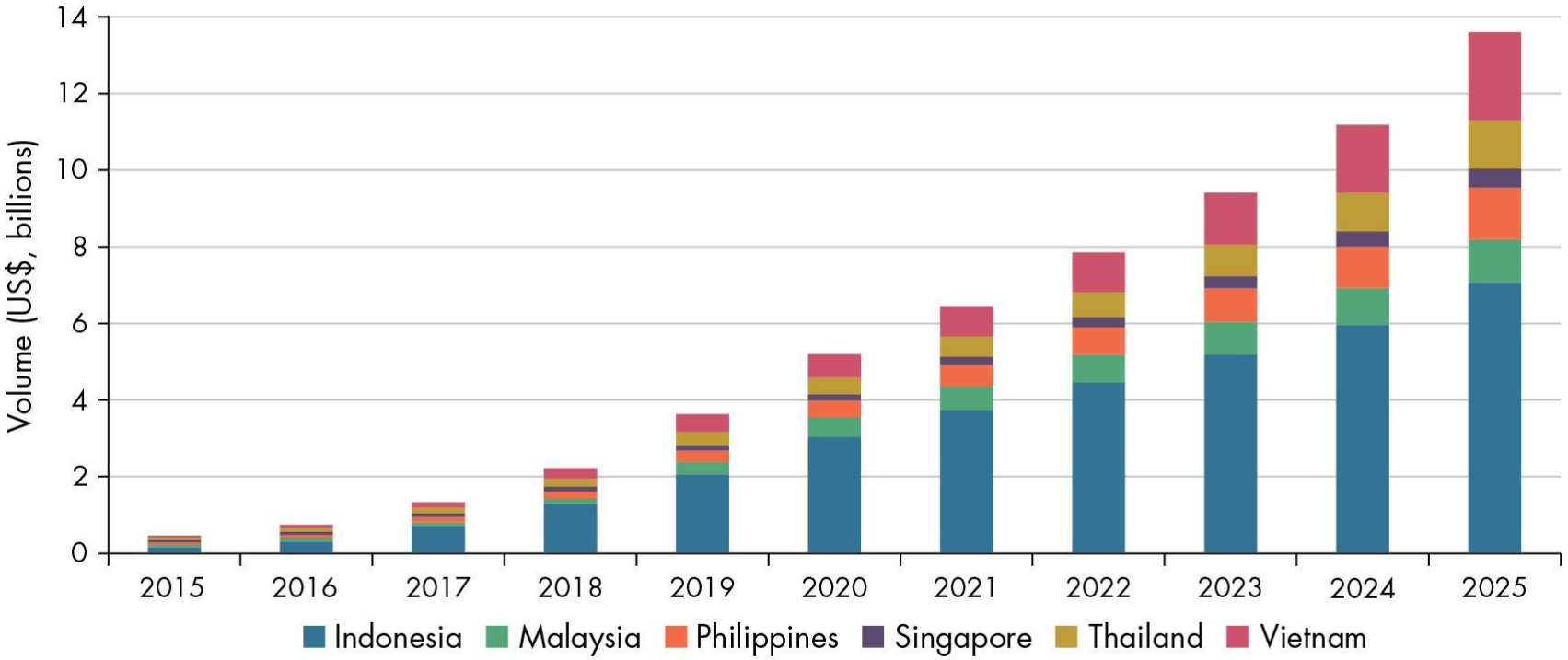
- Data-enabled services remain dominated by high income economies.
- But important success stories in middle- and low- income countries.
- Two-way access to data and digital services necessary to innovate and join “services GVCs”

Trading data across borders securely



Capturing tax revenues from data-driven businesses

Figure 7.6 East Asian countries are losing a substantial volume of tax revenue by failing to apply current VAT rules to digital services



Source: Al-Rikabi and Loeprick, forthcoming. Data at http://bit.do/WDR2021-Fig-7_6.

Note: Figure shows the indirect tax potential of business-to-consumer e-commerce. VAT = value added tax.

Example: Croatia

Collecting VAT

Capturing tax revenues from tourism platforms

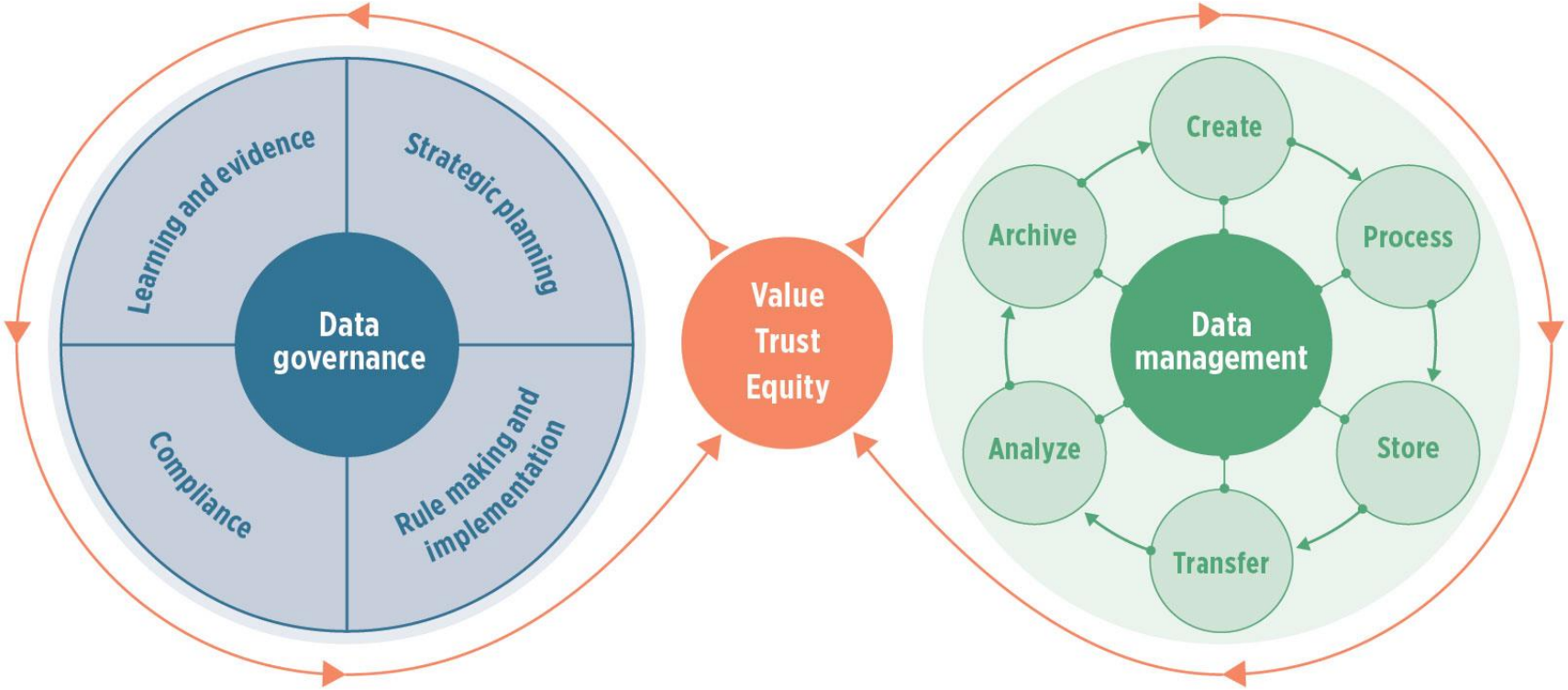
Croatia collaborated with third country tax authorities to collect information about tax returns needed to enforce VAT collection on small businesses selling tourist accommodation over tourism platforms, raising compliance above 40% baseline.

Data governance layer 4: Institutions

	Infrastructure policies	Laws and regulations	Economic policies	Institutions
National	Universal broadband coverage Domestic data infrastructure	Safeguards Enablers	Antitrust Trade Taxation	Government entities Other stakeholders
International	Global technical standards Regional collaboration	Cybersecurity conventions Interoperability standards	International tax treaties Global trade agreements	International organisation Cross-border cooperation

Functional approach to data governance and management

Figure 8.1 Data governance and data management, working seamlessly together in support of the social contract

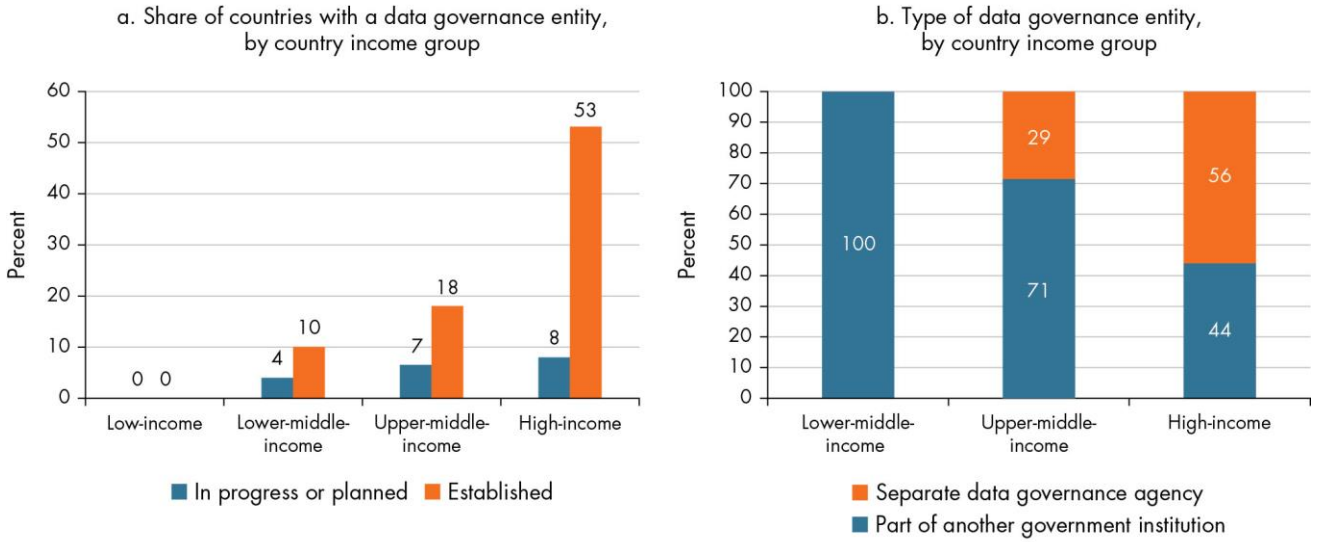


Source: WDR 2021 team.

Note: The data management life cycle at right appears in figure 1.2 in chapter 1.

Mapping key data governance functions to government entities

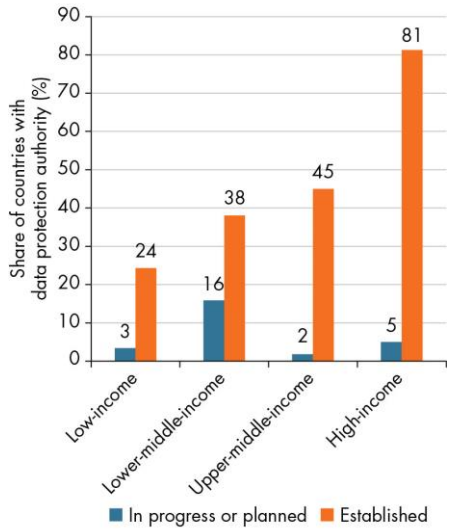
Figure 8.3 No low-income and few lower-middle-income countries have a separate data governance entity; most embed them in another government institution



Source: WDR 2021 team calculations, based on World Bank, DGSS (Digital Government/GovTech Systems and Services) (dataset), https://datacatalog.worldbank.org/dataset/digital-governmentgovtech-systems-and-services-dgss-dataset. Data at http://bit.do/WDR2021-Fig-8_3.

Note: Panel a: data are for 198 economies. Data governance entities include both separate agencies and units that are part of another institution. Panel b: data are for 58 countries. Data are only for countries that have a data governance entity established or in process. Low-income countries are not included in the figure because none has a data governance entity.

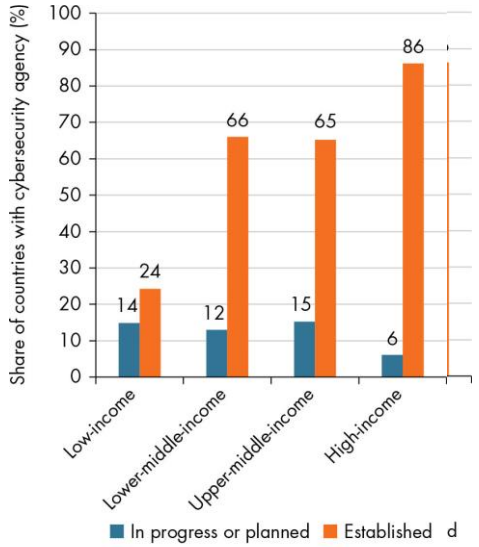
Figure 8.4 The lower the country income level, the fewer are the countries with data protection authorities



Source: WDR 2021 team calculations, based on World Bank, DGSS (Digital Government/GovTech Systems and Services) (dataset), https://datacatalog.worldbank.org/dataset/digital-governmentgovtech-systems-and-services-dgss-dataset. Data at http://bit.do/WDR2021-Fig-8_4.

Note: Data are for 198 economies.

Figure 8.6 Only about one-quarter of low-income countries have cybersecurity agencies



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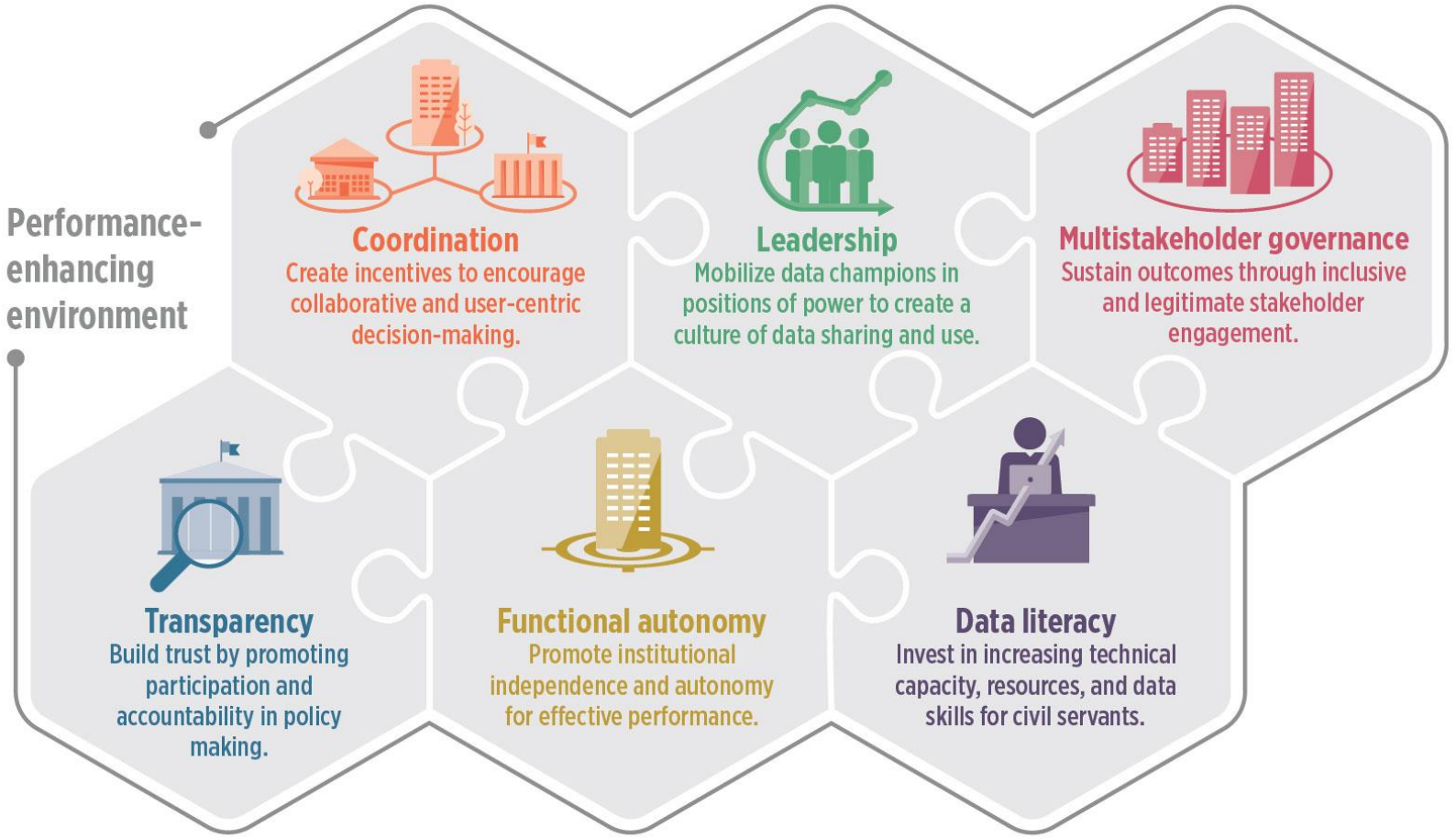
Note: Data are for 198 economies.

Governing data effectively

Figure 8.7 Features of well-functioning institutions for effective data governance



Source: WDR 2021 team.

Summary of main messages

1. We need a new social contract for data based on value, trust and equity
2. We still have a long way to go on data governance
3. Data governance has important economic implications
4. Data governance is a matter for international cooperation
5. We should aspire to the vision of an Integrated National Data System

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