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Foreword

Data governance is the subject of intense debate in advanced economies and increasingly among large emerging markets. And yet many complex policy questions remain unanswered. In response, *World Development Report 2021: Data for Better Lives* surveys the emerging landscape and provides policy makers with a framework for thinking through the issues, opportunities, and trade-offs. One thing is clear: the perspective of lower-income countries has so far been largely absent from these global debates and urgently needs to be heard.

Data are a double-edged sword. On the one hand, they offer tremendous potential to create value by improving programs and policies, driving economies, and empowering citizens. On the other hand, data accumulation can lead to a concentration of economic and political power, raising the possibility that data may be misused in ways that harm citizens. Data are a resource that can be used and reused repeatedly to create more and more value, but there is a problem—the more data are reused, the higher is the risk of abuse.

It is hard to imagine a more dramatic example of these opportunities and tensions than the COVID-19 pandemic. Countries around the world have moved swiftly to repurpose mobile phone records to monitor the spread of the virus. But at the same time, they have struggled to balance this benefit against privacy concerns and the risk of misuse.

Beyond pandemic times, the statistical capacity to produce and effectively use core economic and social data is limited. Many poor countries are unable to accurately track public finances, report on external debt, or monitor their development goals. Without such data, the ability to hold governments accountable and track progress withers.

Data governance arrangements to facilitate greater use of data while safeguarding against misuse remain in their infancy. The legal and regulatory frameworks for data are inadequate in lower-income countries, which all too often have gaps in critical safeguards as well as shortages of data-sharing measures. There, the data systems and infrastructure that enable interoperability and allow data to flow to more users are incomplete; less than 20 percent of low- and middle-income countries have modern data infrastructure such as colocation data centers and direct access to cloud computing facilities. Even where nascent data systems and governance frameworks exist, a lack of institutions with the requisite administrative capacity, decision-making autonomy, and financial resources holds back their effective implementation and enforcement.

To address these concerns, *World Development Report 2021* calls for a new social contract for data—one that enables the use and reuse of data to create economic and social *value*, promotes *equitable* opportunities to benefit from data, and fosters citizens' *trust* that they will not be harmed by misuse of the data they provide. However, in seeking such a social contract, lower-income countries are too often disadvantaged because they lack the infrastructure and skills to capture data and turn them into value; the scale and agency to participate equitably in global data markets and their governance; and the institutional and regulatory frameworks to create trust in data systems.

Forging a new social contract for data is a pressing domestic policy priority that will require strengthening national data systems and engaging all stakeholders at the national level. Because of the global scale of data, some of the most challenging aspects of the social contract also call for closer international cooperation to harmonize regulations and coordinate policies—bilaterally,



regionally, and globally. Critical areas for international engagement include reform of international taxation rights for data-driven businesses, World Trade Organization arrangements for trade in data-enabled services, regional collaboration on the development of data infrastructure, international harmonization of technical standards to support interoperability, and bilateral collaboration on law enforcement and antitrust regulation.

The World Bank stands ready to support its client countries on this important and challenging agenda. The findings of this *World Development Report* will shape support for client countries by identifying where public and private sector investments are the most critical, defining a rich program for policy reform and technical assistance, and highlighting areas in which global initiatives can help to convene and facilitate cross-border cooperation.

Realizing the full value of data will depend on a substantial commitment and effort, and it will be difficult. But the cost of failure is a world of missed opportunities and greater inequities.

David R. Malpass
President
The World Bank Group

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The WDR team consulted policy makers, international organizations, civil society organizations, private sector companies, development partners, academics, research institutions, as well as the offices of the World Bank's Executive Directors and Bank colleagues. This year's *World Development Report* faced the additional challenge of the COVID-19 pandemic, which made it impossible to conduct the usual face-to-face consultation meetings. Nonetheless, the team was able to turn this into an advantage because virtual consultation events enabled much wider participation by hundreds of stakeholders. Due to travel restrictions, the team conducted consultations using a digital format and partner networks, thereby allowing more people with diverse backgrounds to participate. Some of the events focused on regional and targeted stakeholder consultations in multiple languages, allowing hard-to-reach organizations to join the discussion. Interactions with core contributing units to the *World Development Report* as part of ongoing debates in certain areas such as taxes leveraged wider consultations taking place on these



related issues. Team members also drew heavily on their own experiences and interactions with the many data professionals, statisticians, data scientists, civil society organizations, and policy makers working in often difficult conditions to use data to achieve development outcomes.

The consultations were launched in October 2019 with a high-level roundtable—a side event of the World Bank’s annual meetings—and continued until October 2020. The team also conducted a series of bilateral consultations from April through June 2020 with the national statistical offices of Canada, Chile, Ethiopia, India, Indonesia, Mexico, the United Kingdom, and West Bank and Gaza. The team thanks the organizers of the many events that brought together a wide variety of stakeholders, including government officials, civil society organizations, academic institutions, the private sector, and international organizations. The organizers were Germany’s Federal Ministry for Economic Cooperation and Development (BMZ) and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ); Canada’s International Development Research Centre (IDRC), which organized consultations across Africa, Asia, and Latin America and the Caribbean in French, Spanish, and English; the Global Partnership for Sustainable Development Data (GPSDD); the GW Elliott School of International Affairs; Columbia and Cornell Universities; the Mastercard Advocacy Center of Excellence; A. T. Kearney’s Global Business Policy Council; the Fletcher School of Law and Diplomacy’s Institute for Business in the Global Context at Tufts University; Committee for the Coordination of Statistical Activities (CCSA); United Nations World Data Forum (UNWDF); Organisation for Economic Co-operation and Development’s Development Assistance Committee (DAC); Global Data Barometer; and the Open Gov Hub.

The team organized and held a dedicated consultation event for civil society members and several bilateral consultations with technology firms, platform-based businesses, internet exchange points, payment industries, and cybersecurity firms in the private sector. They included Alibaba, Amazon, CADE (Brazilian competition authority), De Novo, Facebook, Google, LinkedIn, Lori Systems (Kenya), Mastercard, Power2SME (India), and UA-IX (Ukrainian Internet Exchange Point). The team also reached out for guidance on specific topics from experts based in institutions that included Aalex Legal (law firm, Abuja, Nigeria), Atlantic Council (think tank), DataPrivacy.Com.Br (São Paulo, Brazil), Georgetown University, Hamu and Company (law firm, Lagos, Nigeria), Hogan Lovells (privacy and cybersecurity law firm), Hunton Andrews Kurth (global privacy and cybersecurity law firm), Interswitch (Lagos, Nigeria), New York University, Organisation for Economic Co-operation and Development, Oxford Internet Institute, Rockefeller Foundation, the United Nations Conference on Trade and Development (UNCTAD), the University of Southern California, and WilmerHale (data and cybersecurity law firm). Detailed information about all consultations and contributors can be found at <https://www.worldbank.org/en/publication/wdr2021/consultations>.

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Abbreviations

A4AI	Alliance for Affordable Internet
AI	artificial intelligence
AIS	automatic identification system
APEC	Asia-Pacific Economic Cooperation
API	application programming interface
ARPU	average revenue per user
ASEAN	Association of Southeast Asian Nations
ATAF	African Tax Administration Forum
ATI	access to information
BEPS	OECD/G20 Inclusive Framework on Base Erosion and Profit Shifting
BRICS	Brazil, Russian Federation, India, China, South Africa
B2B	business to business
B2C	business to consumer
B2G	business to government
CDR	call detail record
CPTPP	Comprehensive and Progressive Agreement for Trans-Pacific Partnership
CSIRT	Computer Security Incident Response Team
CSO	civil society organization
DEPA	Digital Economy Partnership Agreement
DLT	distributed ledger technology
DPA	data protection authority
DTA	Digital Trade Agreement
EITI	Extractive Industries Transparency Initiative
EU	European Union
FAIR	findability, accessibility, interoperability, and reuse
FAO	Food and Agriculture Organization
FCS	fragile and conflict-affected situations
FRAND	fair, reasonable, and non-discriminatory
GATS	General Agreement on Trade in Services
GDP	gross domestic product
GDPR	General Data Protection Regulation (EU)
GHG	greenhouse gas
GIS	geographic information system
GNI	gross national income
GPS	global positioning system
G2B	government to business
G2C	government to consumer
G2G	government to government
HAPS	high-altitude platform station
ICT	information and communication technology
ILO	International Labour Organization
IMF	International Monetary Fund
INDS	integrated national data system



IoT	Internet of Things
IP	Internet Protocol
IPRs	intellectual property rights
IRB	Institutional Review Board
ISO	International Organization for Standardization
ISP	internet service provider
IT	information technology
ITU	International Telecommunication Union (UN)
IUCN	International Union for Conservation of Nature
IXP	internet exchange point
KIXP	Kenya Internet Exchange Point
LEO	low Earth orbiting
LSMS	Living Standards Measurement Study
M&E	monitoring and evaluation
ML	machine learning
MLAT	mutual legal assistance treaty
MNE	multinational enterprise
MNO	mobile network operator
MPA	Marine Protected Area
MSMEs	micro, small, and medium enterprises
NGO	nongovernmental organization
NIC	news flow indices of corruption
NPDR	Non-Personal Data Regulation (EU)
NSDS	National Strategies for the Development of Statistics
NSO	national statistical office
ODbL	Open Database License
OECD	Organisation for Economic Co-operation and Development
OGP	Open Government Partnership
ONS	Office for National Statistics (UK)
PARIS21	Partnership in Statistics for Development in the 21st Century
PIMS	personal information management system
PPP	public-private partnership
PTA	preferential trade agreement
RADD	Radar Alerts for Detecting Deforestation
SCC	standard contractual clause
SDGs	Sustainable Development Goals
SINTyS	National Tax and Social Identification System (Argentina)
SMEs	small and medium enterprises
SPI	Statistical Performance Indicators
SSO	standard setting organization
TFP	total factor productivity
TVWS	TV white space
UN	United Nations
UNCITRAL	United Nations Commission on International Trade Law
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNICEF	United Nations Children's Fund
USITC	United States International Trade Commission
USMCA	United States–Mexico–Canada Agreement
USSD	unstructured supplementary service data
VAT	value added tax
WFP	World Food Programme
WHO	World Health Organization