



# Global Data Facility: Putting Mobile Phone Data Work for Policy

- Trevor Monroe, Analytics and Tools, DECDG



<https://www.worldbank.org/en/programs/global-data-facility>

**Mobile Phone Big Data:** anonymized, aggregated data generated from personal mobile devices and mobile network operators.



# A Global Opportunity



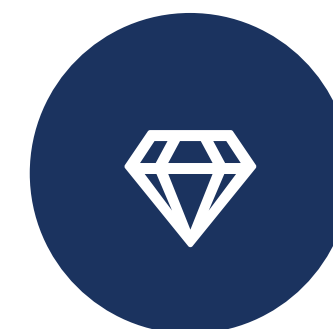
## Current Situation

- **Global Pandemic accelerated the use of Mobile Big Data (MBD)** for higher-resolution insights on population dynamics. Maturing methods, standards, tools, responsibly use MBD for policy



## Challenges

- **Repurposing MBD into policy insights requires local capacity,** data infrastructure, data safeguards, and data agreements. Less than 20% of NSOs have capacity to use sophisticated data for Policy (World Development Report)



## Opportunity

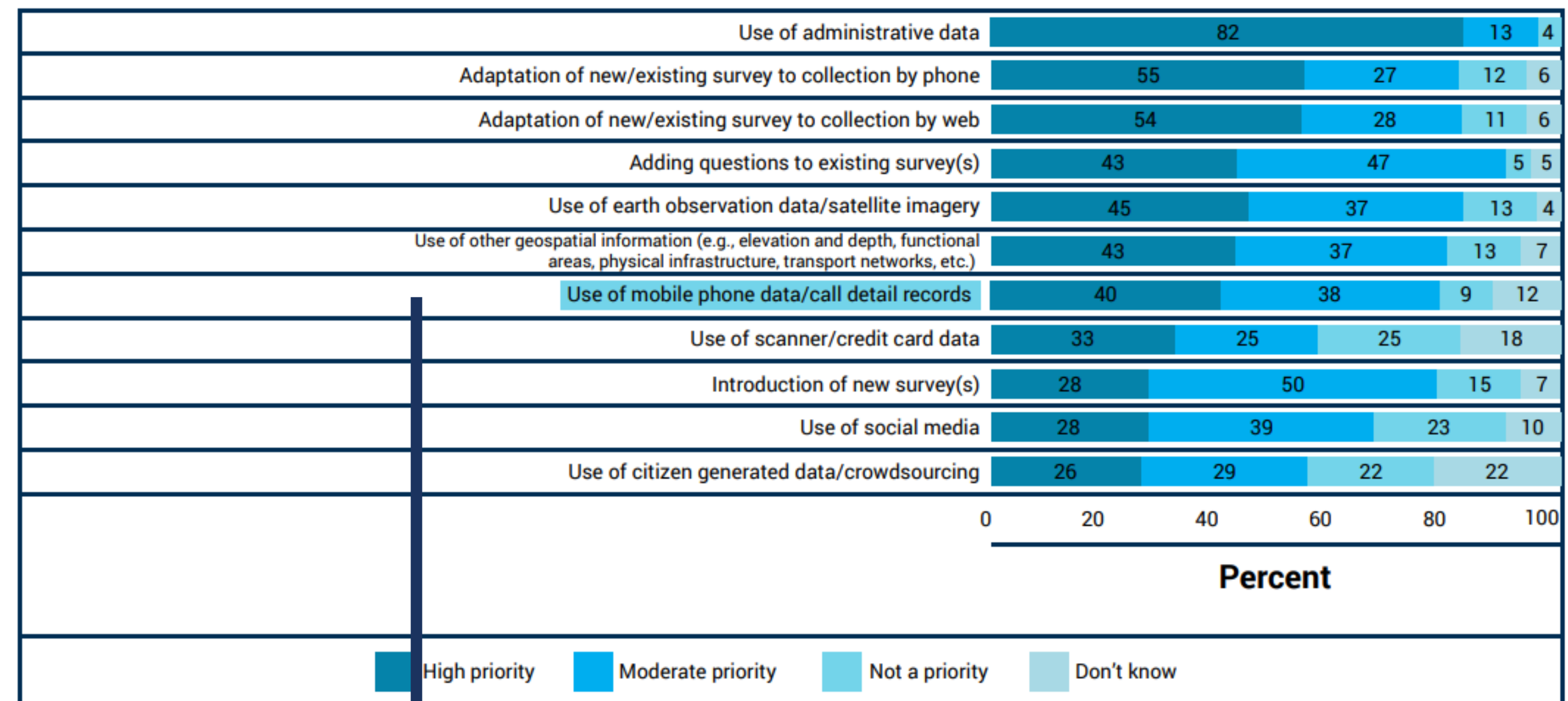
- **Mobilize investments to accelerate local capacity to integrate the responsible use of anonymized, aggregated MBD** into National Data systems for real-time statistics and responsive policy solutions.



# MPD Capacity is a Priority for NSOs

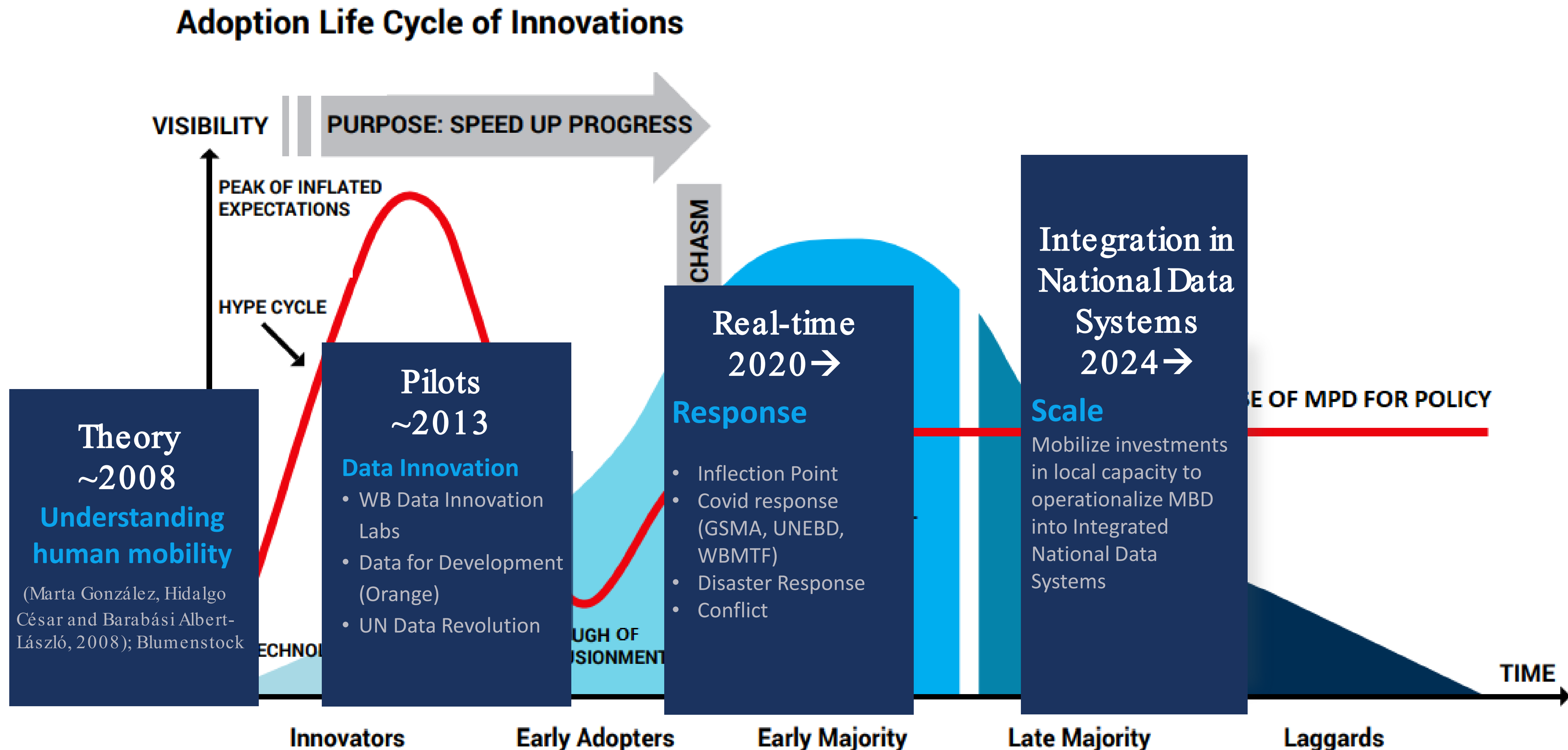
## National Statistical Office Priorities for capacity development

**Question: In the next three years, does your NSO want to expand capacity in the following areas to respond to the new data demands of the 2030 Agenda for sustainable development/SDGs and more recently the COVID-19 pandemic?**



- 78% of National Statistical Offices consider Mobile Big Data a priority over the next three years (CTAP Round 1)

# Pathway to Scale MPD for Policy



CDR data

Signaling data

GPS data

# What is Mobile Phone Data for Policy?



Spatial/Temporal Resolution



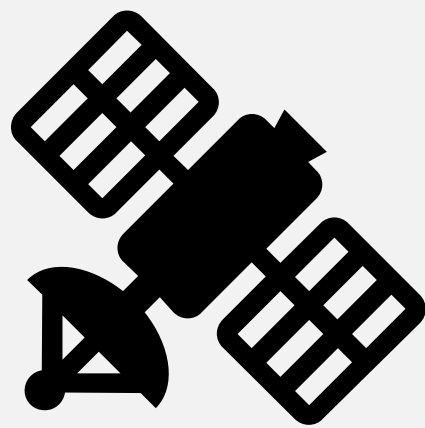
# TOP SOURCES OF MBD FOR POLICY



## CALL DETAIL RECORDS

**Description:** Admin meta-data (*not-content*) of voice, text, data events collected by **Mobile Network Operators** (MNO) for billing purposes. Anonymized and Aggregated for policy use.

(+)	More representative of bottom 40% of population in Low-income countries
(+)	Event driven (voice/text), medium spatial and temporal resolution mapped to closest cell tower
(-)	Difficult to access, needs high performance computing and storage, data sharing arrangements with MNOs, and local capacity to analyze



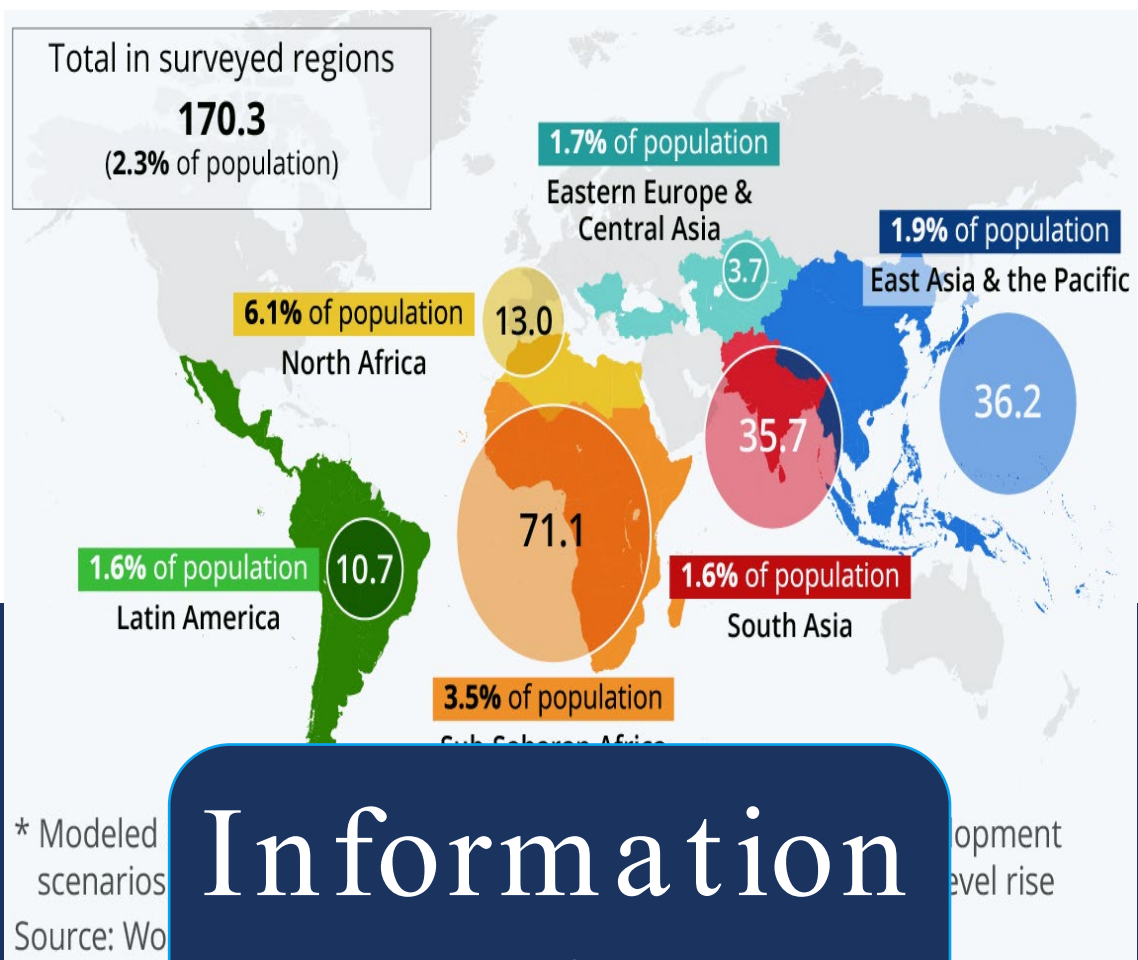
## GLOBAL POSITIONING SYSTEM (GPS)

**Description:** Location coordinates (*not content*) generated from usage of **location-enabled smartphone applications**. Chipsets on smartphones communicate with global navigation satellite systems (GNSS). Anonymized and Aggregated for policy use.

(+)	High spatial and temporal resolution
(+)	Readily Accessible via third party aggregators or big tech products (Cuebiq, Veraset)
(-)	Less representative of bottom 40% of population in Low-income countries
(-)	High Performance Computing and technical capacity may be needed to process raw data



# Mobility insights can address critical Development Challenges



Data Reuse

Displacement  
& Migration

Public  
Health

Information  
Society

Policy Insights

Real-time insights into human mobility patterns during crisis

Predicting the spread of infectious disease

Understanding Internet Use, Mobile Phone Use patterns, Ownership, penetration

Policy Actions

Targeting cash transfers and social assistance services

Optimizing the delivery of public health services

Better resource allocation to improve connectivity





# Maturing MPD for Policy Methods (UN-CEBD)

Measurements	Description
Dynamic Population Mapping	Population dynamics, characteristics can be produced at various admin unit levels to inform a wide range of policy indicators.
Migration Statistics	The World Development Report 2024 calls for countries to mind the migration gap in official statistics. CDR and GPS data can be used to understand and predict human mobility patterns
Displacement & Disaster	CDR data can be useful for producing statistical information to supplement traditional survey data in disaster contexts.
Information Society	Produce internationally agreed information and communication technology (ICT) indicators that are included in the SDG monitoring framework
Tourism	MBD is as an alternative (non-traditional) source for generating and/or filling the gap in tourism statistics.



# How can we operationalize MPD in National Data Systems?

## Pillars and foundations

Institutions

Policies

Laws and regulations

Infrastructure

Funding

Trust

Human resources

Information systems

## Participants

Government entities

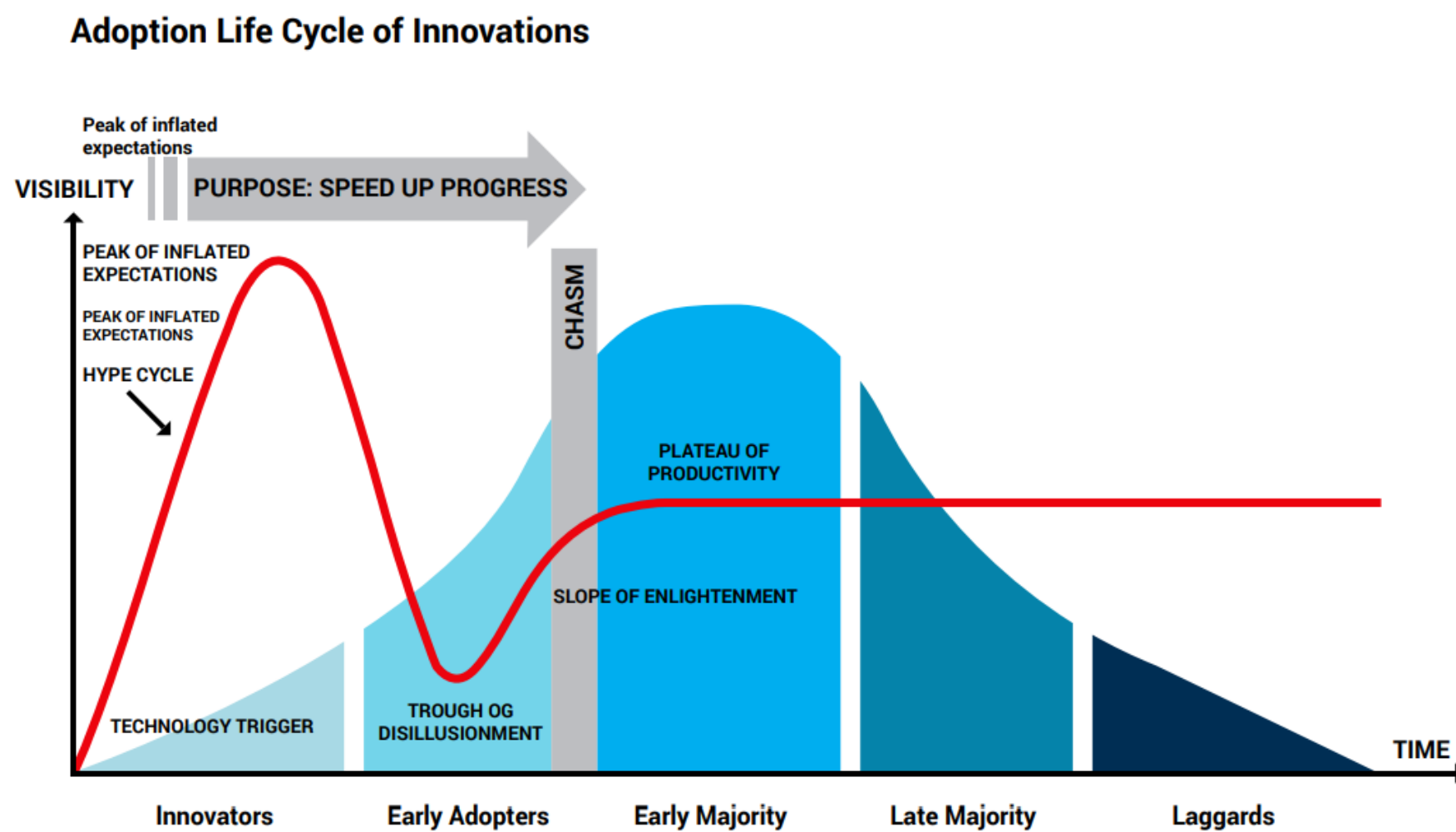
Civil society and individuals

Academia

Private sector

International organizations

# Adoption Challenges



## Variation

Adoption efforts need to be tailored to local ecosystem and institutional environment

## Software

Special software & often hardware must be provisioned on MNO network to store/process CDR.

## Safe guards

Good practices for data security, privacy preservation, and legal protections.

## Standards

Guidance for developing measurements, official statistics. Standard data sharing agreements.

## Capacity

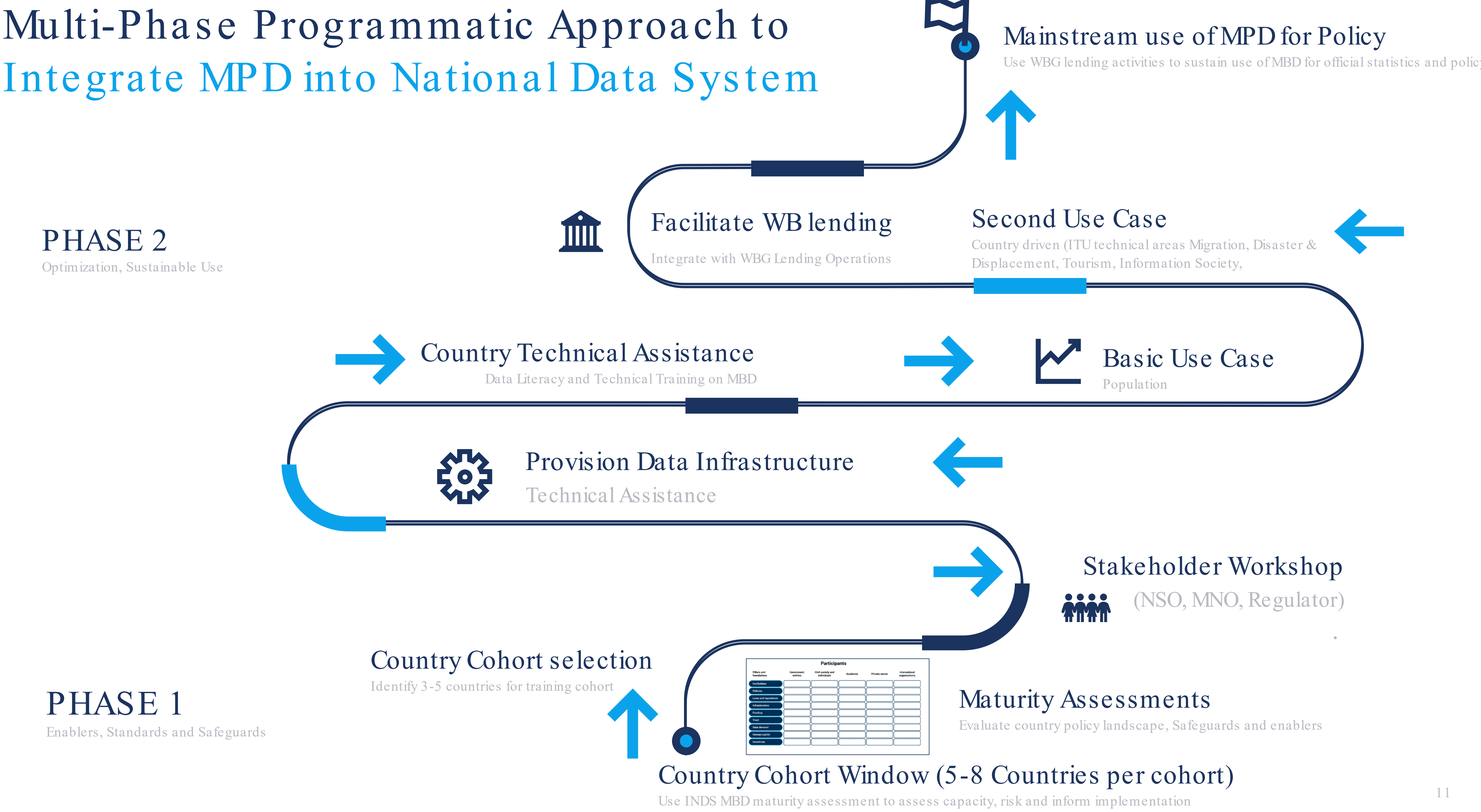
Only 20% of countries have capacity to use sophisticated data in Policy (WDR 2022)

## Funding

Funding to date has been project level for on-off pilot, research efforts. Programmatic funding is needed



# Multi-Phase Programmatic Approach to Integrate MPD into National Data System





# Return on Impact

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30

X 2030

60M PEOPLE

Across Sub-Saharan Africa could have better access to healthcare due to better positioning of health care services (GSMA Report)

120M LIVES SAVED

As result of better-informed measures to limit air pollution (GSMA report)

30X

Cost effectiveness. \$30 for every \$1 dollar invested in Integrated National Data Systems (WB ROI report)

10-50X

Faster and more cost-effective production of small area estimates of poverty and population (Blumenstock; Tatem)



An innovative World Bank global funding instrument  
for the world's most critical data impact opportunities

Learn more about the Global Data Facility here:  
<https://www.worldbank.org/global-data-facility>

### Partnership Council

- Advises on strategy and direction.
- Members: World Bank and Global Data Facility contributors.

- **To modernize national data systems** through public-private partnerships, data science and AI skills, data governance, security, ethics to responsibly integrate MBD into national data systems

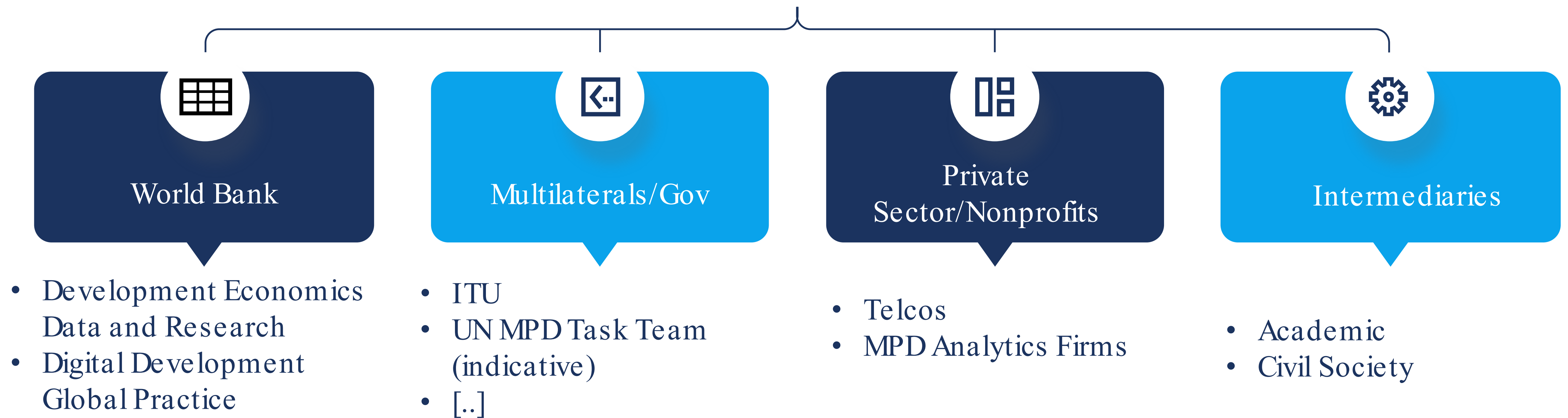
### Technical Advisory Group

- Provides Partnership Council with input and feedback on technical and implementation issues to enable collaboration and coordination.
- Members: Invited by World Bank with input from contributors.

**GDF** GLOBAL DATA FACILITY



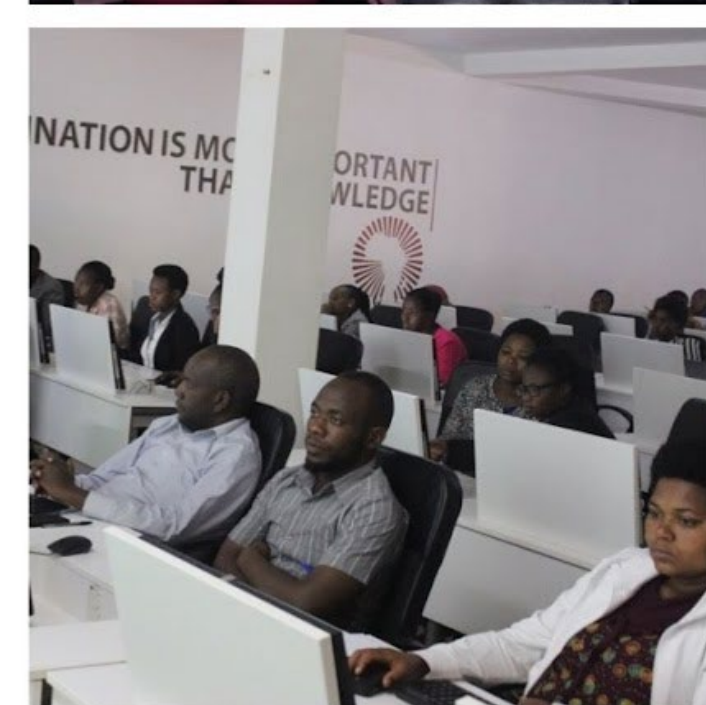
## GDF-MPD Implementation Partners







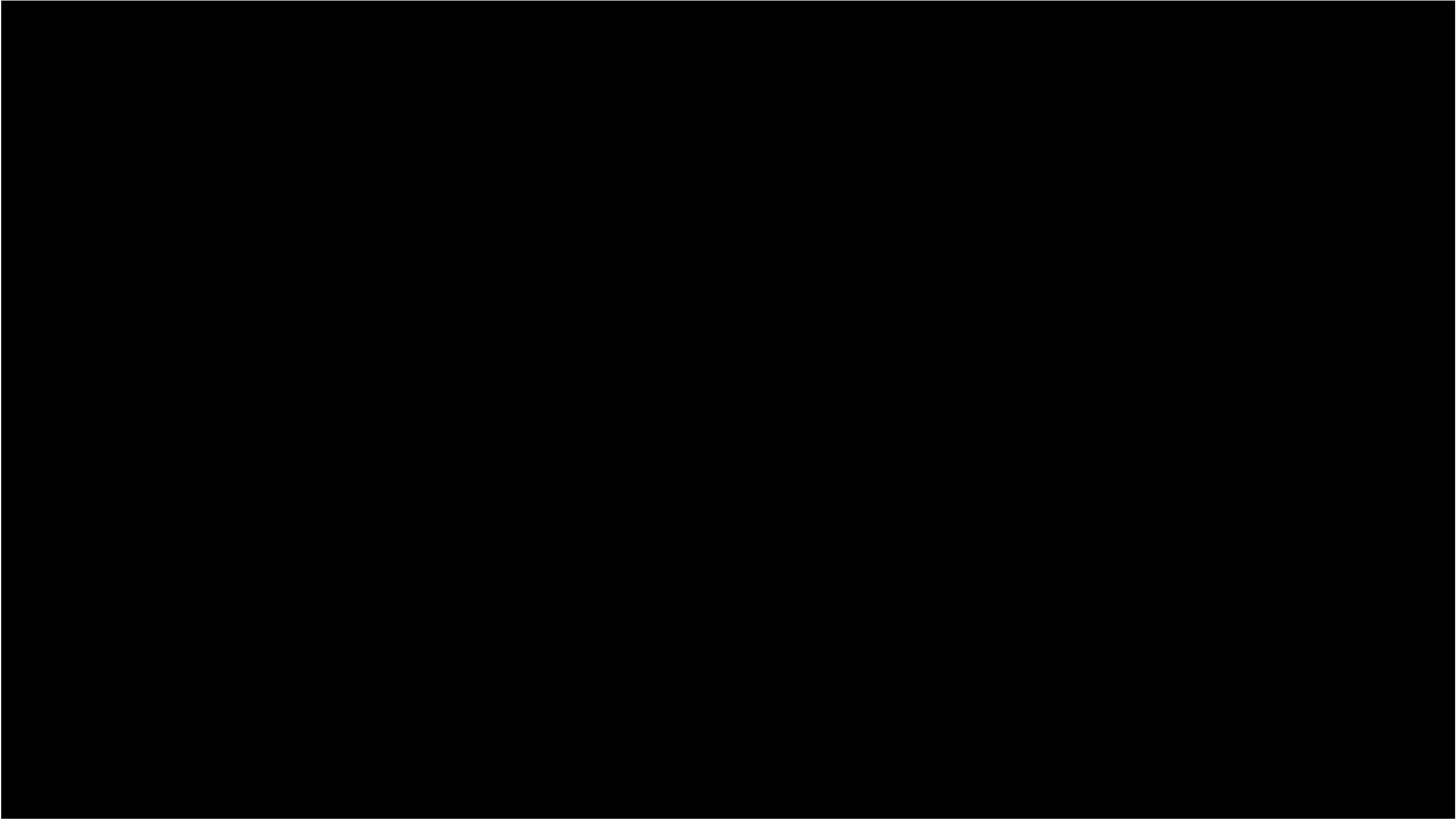
# Learning Resources: [MPD for Policy](#)



- [Flowminder](#): [FlowGeek knowledge center](#)
- [UN CEBD for Official Statistics](#): [Mobile Phone Data Awareness Course](#)
- [GSMA](#): [Big Data Analytics and Artificial Intelligence](#)
- [World Bank](#): Open Learning Campus: [Mobile Phone Data Module](#) | [Mobile Phone Data Video](#) | [Mobility Task Force - Code repository](#)

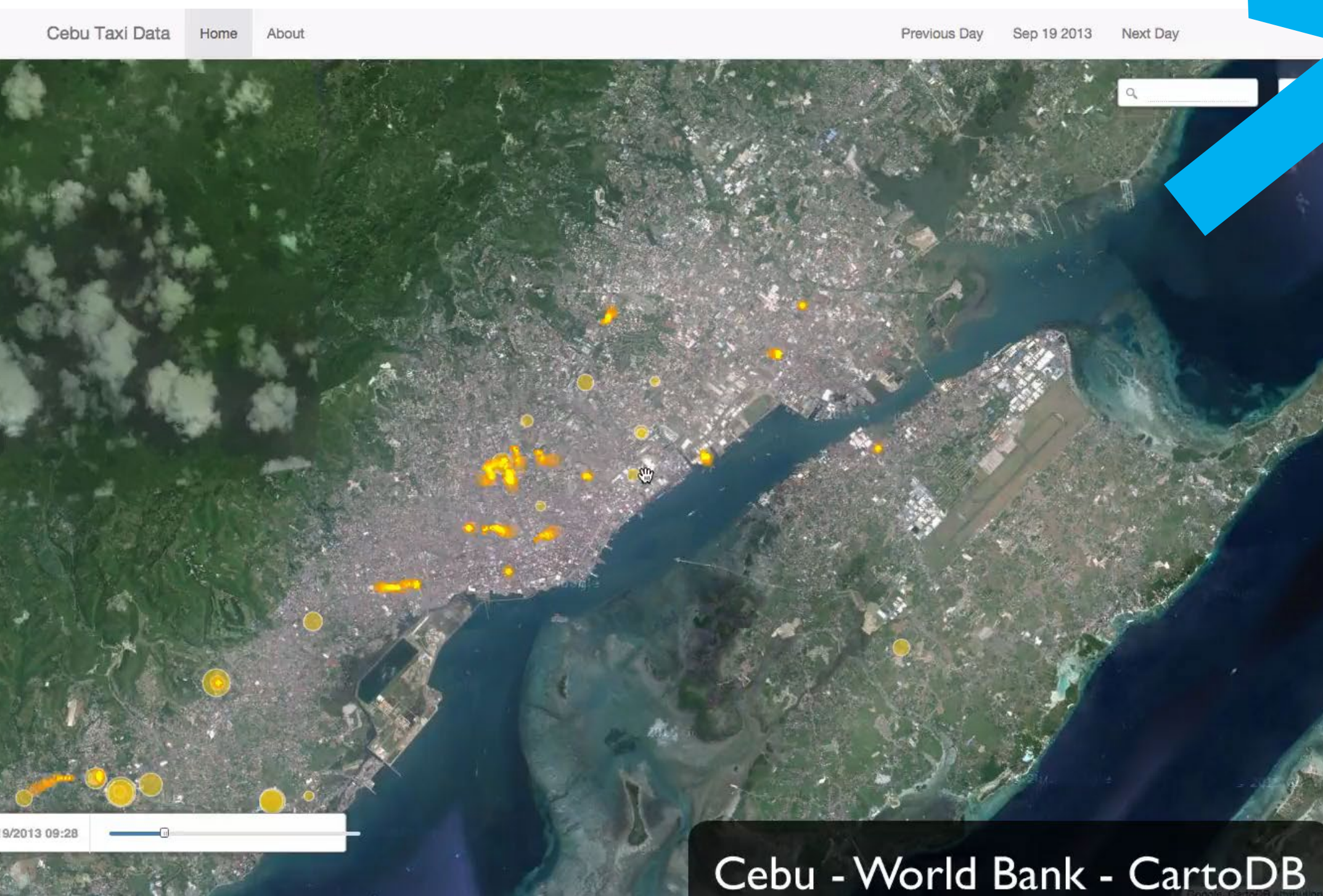








# Thank You!



## Partner with the Global Data Facility to Put Mobile Phone Data to Work for Policy

### Contact Information

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# Assess MPD for Policy Enabling Environment

## Key Stakeholders

- Regulators
- National Statistical Offices
- Mobile Network Operators

✓ Integrated National Data System Maturity Assessment

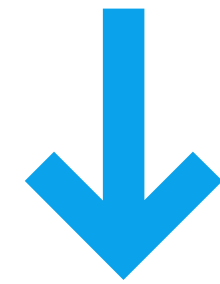
Participants					
Pillars and foundations	Government entities	Civil society and individuals	Academia	Private sector	International organizations
Institutions					
Policies					
Laws and regulations					
Infrastructure					
Funding					
Trust					
Data demand					
Human capital					
Incentives					





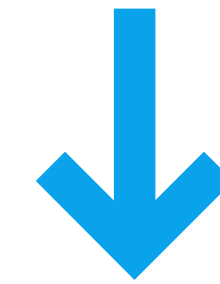
97%

Of the Global  
Population has mobile  
network coverage



90%

Of populations in Least  
Developed Countries  
(LDCs) have mobile  
network coverage



67

Out of 100 people in  
LDCs have mobile  
cellphone subscriptions



45%

Of the Global  
Population owns a  
smartphone

Mobile Big Data – Always On, Global Data Source