Global Data Facility – Mobile Phone Data for Policy Window & Support Program

Why invest in Mobile Phone Data?
Mobile phone data can be a powerful tool for better policy
More effective disease prevention as a result of better targeting of resources

Malaria in Senegal (2013)

Mobility in Senegal (2013)

Targeting of Testing

More effective transport policy as a result of measuring mobility needs in a city.
More effective disaster response by knowing where people are

Population Change in Wake of 2021 Haiti Earthquake

Saturday August 14th, 2021 - Change of subscribers presence relative to baseline

Improved mapping of poverty

More effective social protection programs due to fast targeting during crises.

Challenges

Access

Privacy

Quality

Representativeness
Opportunity

Digital investments will transform the amount of data available in low- and middle-income countries.

Data combined with rigorous methods can generate evidence and policy insights.

In turn these can increase returns to investments in transport, health, social protection and other key sectors.
How do we operationalize the use of Mobile Phone Data for Policy through the GDF-MPD Program?
Global Data Facility – Mobile Phone Data for Policy Window & Support Program

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

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**A Global Opportunity**

**Current Situation**

- Global Pandemic accelerated the use of **Mobile Phone Data (MPD)** for higher-resolution policy insights. Currently, UN, Eurostat, WB are helping to standardize methods, tools, practices to responsibly use MBD for policy at scale.

**Challenges**

- Repurposing MBD into policy insights requires local technical capacity, data infrastructure, data safeguards, and data agreements, and multi-stakeholder buy-in (**MNO, Regulators**).

**Opportunity**

- Mobilize programmatic support to strengthen local capacity to integrate the responsible use of **Mobile Phone Data** into data systems for response policy solutions and real-time statistics.
Evolution of Mobile Phone Data for Policy

- **Understanding human mobility** (~2008)
  - Marta González, Hidalgo César and Barabási Albert-László, 2008; Blumenstock

- **Pilots 2012**

- **Real-time Covid Response 2020**
  - Oliver et al, 2020
    - Ghana (Li et al 2021); The Gambia (Arai et al 2021); Hungary (Szocska et al 2021); Malawi (Green et al 2021); Spain, Germany, Italy, Romania, Portugal (Lourenco et al 2021)

- **Standardization of MPD in Data Systems 2024**

- **Scale**
  - Eurostat-MPD, UN-MPD standardizing methods, pipeline. WB Programmatic Investments in local capacity to operationalize MBD as part of Integrated National Data Systems

- **Data for Development Challenge I 2012 and 2014**
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.

| (+) 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 |
| (-) 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 |

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 |
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 Phone Data – **Always On, Global Data Source**
**How will GDF-MPD support countries to Put MPD to Work for Policy?**
Adoption Challenges

Variation
Adoption efforts need to be tailored to maturity of the Integrated National Data System

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

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

Standards

Capacity
L/MICS often lack capacity to repurpose MBD into policy data products

Funding
Funding to date has been project level for on-off pilot, research efforts. Programmatic funding is needed.
Promoting Standards in MPD Processing Pipeline (Eurostat-MPD Task Team)
Promoting Standards in MPD Methods (UN-Mobile Phone Task Team)

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Dynamic Population Mapping</td>
<td>Population dynamics, characteristics can be produced at various admin unit levels to inform a wide range of policy indicators.</td>
</tr>
<tr>
<td>Transport</td>
<td>Origin destination matrices, optimizing public transport, urban planning and mobility</td>
</tr>
<tr>
<td>Migration Statistics</td>
<td>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</td>
</tr>
<tr>
<td>Displacement &amp; Disaster</td>
<td>CDR data can be useful for producing statistical information to supplement traditional survey data in disaster contexts.</td>
</tr>
<tr>
<td>Information Society</td>
<td>Produce internationally agreed information and communication technology (ICT) indicators that are included in the SDG monitoring framework</td>
</tr>
<tr>
<td>Tourism</td>
<td>MBD is as an alternative (non-traditional) source for generating and/or filling the gap in tourism statistics.</td>
</tr>
</tbody>
</table>

Programmatic Support to Countries to enable MPD for Policy (WB GDF-MPD)

Theory of Change

- **Partner Coordination**
  - Country MPD Maturity Assessment

- **Project Selection Criteria**
  - GDF Program Support to Countries

- **GDF Window and Program Design**
  - Programmatic Support to Countries
  - Project Selection Criteria
  - Partner Coordination

- **Country MPD Maturity Assessment**
  - Competitors Alternatives
  - Project Selection Criteria
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- **GDF Program Support to Countries**
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**Cohort Programmatic Support (~5 countries per cohort)**

- **Country Intake**: Webinars, workshops, Expression of Interest (internal/open)
- **Provision Data Infrastructure**
- **Technical Assistance**
- **Formalize Country Partnerships**: i(NSO, MNO, Regulator)
- **Facilitate WB lending**: Integrate with WB Lending Operations
- **2nd MPD Use Case**: Country driven (ITU technical areas: Migration, Disaster & Displacement, Tourism, Information Society)
- **Technical Training**: Data Literacy and Technical Training on MBD
- **1st Use Case**: Population, etc.
- **Concept Note**: Pre-Foundation
- **Country MPD Maturity Assessments**: Assess country policy landscape, safeguards, enablers, telco penetration, experience
- **Country Cohort selection**: Identify 3-5 countries for training cohort
- **Future Cohort?**

**PHASE 1**

- Pre-Foundation to Foundation

**PHASE 2**

- Optimizing MPD for Policy

**Use Case**

Population, etc.

**WB Lending – Digital GCP/Data Public Infrastructure/INDS**

Use WB lending activities to sustain use of MBD for official statistics and policy solutions.
## Structured Country Cohorts by Maturity - Indicative Activities

### Country Cohort Mix

<table>
<thead>
<tr>
<th>Pre-Foundation</th>
<th>Foundation</th>
<th>Practitioner/Expert</th>
</tr>
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<tbody>
<tr>
<td>~2-3 Countries</td>
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<td>~1 Country</td>
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<tr>
<td><em>Lower Cost Activities</em></td>
<td><em>(Higher Cost Activities)</em></td>
<td><em>(Economies of Scope)</em></td>
</tr>
</tbody>
</table>

### Country Specific Activities (Indicative)

#### Pre-Foundation
- Developing Country Partnerships in MPD
- Conduct in-depth country MPD maturity assessment
- Identify feasible MPD policy solutions

#### Foundation
- **Country Specific Activities (Indicative)**
  - Provisioning data access arrangements for MNO
  - **Provisioning mobile phone data management infrastructure on operator network**
  - Technical training on MPD foundations
  - Data Product Requirements for policy use case
  - Operational research activity
  - Lending Project Development

#### Practitioner/Expert
- **Country Specific Activities (Indicative)**
  - Additional MPD application(s)
  - Strengthen institutional environment
  - Prepare MPD lending activities
  - Operational research activities

### Cross-Cutting Cohort Activities
- Intake Workshops
- Technical Foundational Training (Optional)
- Cohort Webinars/Workshops
Country Considerations

- **Data Infrastructure**: Existing national data systems, availability of mobile data, and technical capabilities.
- **Stakeholder Engagement**: Level of interest and commitment from key stakeholders, including government agencies (ideally the NSO), mobile network operators (MNOs)
- **Political and Economic Stability**: Assess the political environment and economic conditions that could affect program implementation.
- **Regulatory Environment**: Understanding of data protection laws, privacy concerns, and any regulations that might impact data sharing and use.
- **Previous Experience**: Past initiatives or projects related to data use and management that could support the program objectives.

Program Considerations

- Experience of Task Team working with MPD for Policy
- Cohort implementation feasibility (geography, language)
- Global Practice collaboration on task team
- Proposal reflects alignment with country data strategy, WB initiatives in data
- Country lending portfolio/pipeline
- Country cohort mix considerations (stage, geography, budget)
- Country MNO market intelligence

### Country Cohort

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Business Models to sustain MPD for Policy

01 Data Philanthropy
Pro-Bono
- Ad-hoc projects with limited funding
- One-off data access

02 Subsided
Programmatic Returns
- MBD products are implemented or sustained by donor funding
- Targeted grants, funding windows, impact investments to achieve inflection point in growth toward sustainability
- Regulations oblige MNOs to provide data (e.g. crisis response)

03 Commercial
Subscription Data Products
- MBD products are fully paid for by Government or Private Sector
- Global Data Products for Official Statistics
- Data Products for Private Sector

Development Impact
Milestones to Cohort 1

Mobilization ➔
- WB Task Team Training (Jun)
- Un Big Data Science, Bilboa (Jun 10-14)
- GDF-MPD Expression of Interest Open (Week of June 6)

Identification ➔
- Country Cohort identified (late Jul)

Cohort Intake ➔
- Netmob, WB, Oct 7-9
- Country Intake Stakeholder Workshop, WBHQ Oct 7-9

1st Cohort ➔
- UNDF Colombia, Launch Event (TBD)
- GDF-MPD Cohort Task Teams Awarded
GDF-MBD Window: **Programmatic Support**

**GDF-MPD window and support program:** Delivers *essential resources* and *programmatic support* to strengthen local capacity to *durably* integrate Mobile Phone Data into data systems.

**Programmatic Approach:**
- **Multiple rounds of country cohorts to deliver programmatic support** to accelerate adoption and peer learning.
- **Promote standards** in MPD methods, tools, practices in alignment with multi-stakeholder MPD initiatives (UN-MPD, Eurostat-MPD).
- **Use grants activities to facilitate WBG lending in integrated national data systems.**

**Impact:**
- Integrate MPD into data systems of 20 countries by 2030.
- Enable use of MPD toward *responsive, targeted, cost-effective* statistics, policy solutions.
MPD for Policy Learning Resources

- UN Global Platform LMS – MPD Raising
  Awareness Course: learning.officialstatistics.org
- Flowminder CDR Knowledge Center: www. flowgeek.org
Thank You!

Contact: GDFMPD[at]worldbank.org