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Conference on  
**BIG DATA**  
& Data Science for Official Statistics

**BILBAO 2024**

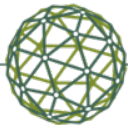
Informing Climate Change and  
Sustainable Development Policies  
with Integrated Data

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# Mobile Phone Data for Policy: Theory of Change and Maturity Assessment

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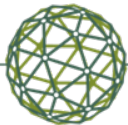


## Global Data Facility MPD for Policy: Background

Launched in 2023, the programme aims to ‘mobilise investments to accelerate local capacity to integrate the responsible use of anonymized, aggregated MPD into National Data systems for real-time statistics and responsive policy solutions’.

Flowminder tasked with developing a WB-GDF programme Theory of Change (ToC) and Maturity Assessment

Developed in partnership with the WB-GDF project team, drawing on collective experience of ‘what works’ to get MPD into use



# Theory of Change

## Mobile Phone Data for Policy



## Purpose

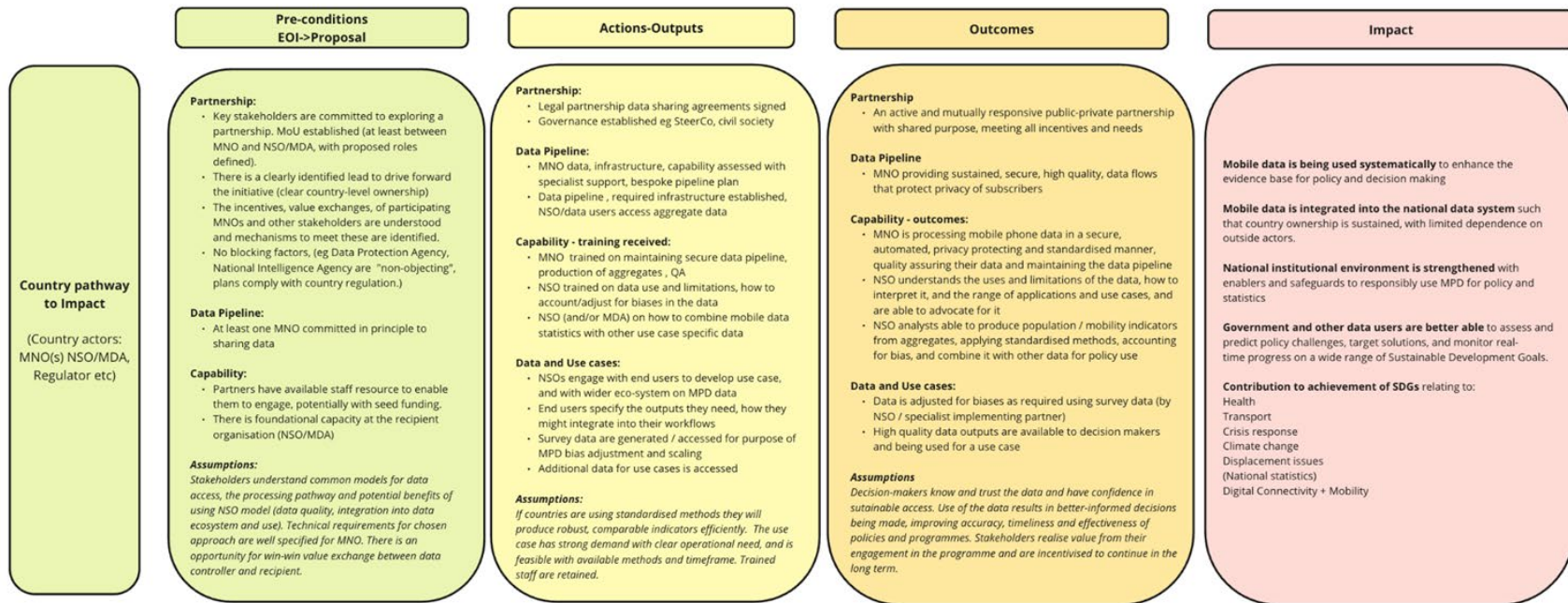
A theory of Change is essentially a **comprehensive description and illustration** of **how** and **why** a desired change is expected to happen in a particular context.

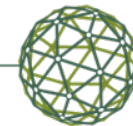


Image credit: Sidney Harris



# Structure





# Country-level preconditions

## Partnership:

- Key stakeholders are committed to exploring a partnership
- MoU established
- A clearly identified lead and country-level ownership
- The incentives, value exchanges, of MNOs and other stakeholders are understood
- No blocking factors eg compliance with country regulation

## Data Pipeline:

- At least one MNO committed in principle to sharing data

## Capability:

- Partners have staff resource to enable them to engage, potentially with seed funding
- There is foundational capacity at the recipient organisation (NSO/MDA)



# Country-level outputs

## Partnership:

- Legal partnership data sharing agreements signed
- Governance established eg SteerCo, civil society

## Data Pipeline:

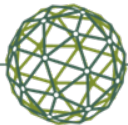
- MNO data, infrastructure, capability assessed with specialist support, bespoke pipeline plan
- Data pipeline , required infrastructure established, NSO/data users access aggregate data

## Capability (training received):

- MNO trained on maintaining secure data pipeline, production of aggregates , QA
- NSO trained on data use and limitations, how to account/adjust for biases in the data
- NSO (and/or MDA) on how to combine mobile data statistics with other use case specific data

## Data and use cases:

- NSOs engage with end users to develop use case, and with wider eco-system on MPD data
- End users specify the outputs they need, how they might integrate into their workflows
- Survey data are accessed for MPD bias adjustment and scaling
- Additional data for use cases is accessed



# Country-level outcomes

## Partnership:

- An active, mutually responsive public-private partnership with shared purpose, meeting all incentives and needs

## Data Pipeline:

- MNO providing sustained, secure, high quality, data flows that protect privacy of subscribers

## Capability outcomes:

- MNO is processing data in a secure, automated, privacy protecting and standardised manner, quality assuring their data and maintaining the data pipeline
- NSO understands the uses and limitations of the data, how to interpret it, and the range of applications, and are able to advocate for it
- NSO analysts able to produce population / mobility indicators from aggregates, applying standardised methods, accounting for bias, and to combine it with other data for policy use

## Data and use cases:

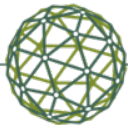
- Data is adjusted for biases as required using survey data (by NSO or specialist implementing partner)
- High quality data outputs are available to decision makers and being used for a use case





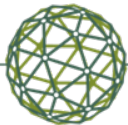
## Key assumptions

- Stakeholders understand common models for data access, the processing pathway and benefits of working with and through NSO/MDAs (data quality, integration into data ecosystem and use)
- Technical requirements for chosen approach are well specified for MNO
- There is an opportunity for win-win value exchange between data controller and recipient
- If countries are using standardised methods they will produce robust, comparable indicators more efficiently
- The use case has strong demand with clear operational need, and is feasible with available methods and within the expected timeframe
- Decision-makers know and trust the data and have confidence in sustainable access
- Use of the data results in better-informed decisions being made, improving accuracy, timeliness and effectiveness of policies and programmes
- Stakeholders realise value from their engagement in the programme and are incentivised to continue in the long term



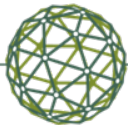
# Maturity Assessment

## Mobile Phone Data for Policy



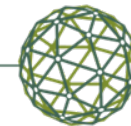
## Purpose

- Granular descriptions of the different dimensions that constitute an MPD initiative and what different levels of maturity might look like for each dimension.
- Purpose:
  - Identify that types of support than an initiative needs to develop
  - Assess how an initiative has progressed within the programme



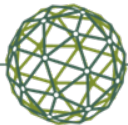
## Structure

- Tier 0: High-level themes addressing broad questions
- **Tier 1: Core dimensions of an MPD initiative**
- Tier 2: Stakeholder-specific dimensions
- Tier 3: Granular components related to specific requirements for an initiative



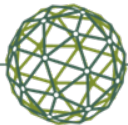
## Tier 0: High-level themes

Dimension	Question
<b>Feasibility</b>	<i>"To what extent do the conditions in a country allow for and facilitate the use of MPD for official statistics?"</i>
<b>Impactfulness</b>	<i>"To what extent does the use of MPD for official statistics result in improved decision-making that benefits the people of a country?"</i>
<b>Sustainability</b>	<i>"To what extent do current structures and processes enable the long-term use of MPD for official statistics?"</i>



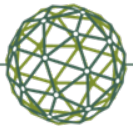
## Tier 1: Core dimensions

Tier 0	Tier 1
<b>Feasibility</b>	<b>CONTEXTUAL VIABILITY</b>
	<b>STAKEHOLDER ENGAGEMENT AND ALIGNMENT</b>
	<b>SUITABILITY OF DATA INFRASTRUCTURE</b>
	<b>SUITABILITY OF DATA ENVIRONMENT</b>
	<b>HUMAN RESOURCE CAPACITY AND AVAILABILITY</b>
<b>Impactfulness</b>	<b>IDENTIFICATION AND IMPLEMENTATION OF APPLICATIONS</b>
	<b>POTENTIAL FOR AND PROTECTIONS AGAINST MISUSE</b>
<b>Sustainability</b>	<b>SUSTAINABILITY PROSPECTS</b>



## Tiers 2 & 3: Contextual viability

Tier 2	Tier 3
<b><i>Legal &amp; regulatory framework</i></b>	Comprehension of data protection and privacy legislation and regulations
	Comprehension of statistics legislation and regulations
	Comprehension of MPD-specific legislation and regulations
	Comprehension of legislation or regulations related to work of the data controller (e.g. Mobile network operator licensing, scope of telecommunications regulator)
	Stability of legislation and regulations impacting the use of MPD
<b><i>Data governance policies of the data controller(s) (i.e. MNOs or telecommunications regulator)</i></b>	Suitability of data governance policies for the safe and secure storage and processing of MPD for official statistics
	Suitability of data governance policies export of MPD-derived anonymised aggregates and indicators for official statistics
<b><i>Data governance policies of the data end-users (e.g. NSO) other MDAs)</i></b>	Suitability of data governance policies for the safe and secure analysis of MPD-derived anonymised aggregates and indicators for official statistics
	Suitability of data governance policies for the safe and secure publishing of MPD-derived statistics
<b><i>Public perception</i></b>	Public understanding and acceptance of the use of MPD for official statistics



## Tiers 2 & 3: Suitability of data infrastructure

Tier 2	Tier 3
<b>Individual Data Controller(s) (e.g. Mobile Network Operator(s) (MNOs), telecommunications regulator)</b>	Access to necessary hardware to <i>store</i> the necessary volumes of MPD
	Access to necessary hardware to <i>process</i> the necessary volumes of MPD
	Necessary software tools to appropriately manage and process the quantity of data (volume, frequency, and complexity) (e.g FlowKit)
	Suitable tools and processes for the secure export of MPD-derived anonymised aggregates and indicators
	Frequency and regularity of MPD
<b>Data end-users (e.g. National Statistical Office (NSO), other Ministries, Departments and Agencies (MDAs))</b>	Access to necessary hardware to process anonymised aggregates and/or indicators derived from MPD
	Suitable data security tools and processes for the secure storage and analysis of MPD-derived anonymised aggregates and indicators
<b>Partnership-level data coverage</b>	Sufficient geographic coverage of the (combined) mobile network(s) of participating MNO(s)
	Sufficient representativeness of the (combined) subscriber base of participating MNO(s)
	Sufficient (combined) market share of participating MNO(s)



Thank you very much!  
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