

# IDENTIFYING THE POOR THROUGH DATA LINKAGE AND INTER-AGENCY COORDINATION

## A HEALTH PRACTITIONER'S HANDBOOK AND TOOLBOX

*JLN Learning Collaborative on Population  
Targeting*



**JOINT  
LEARNING  
NETWORK**

For Universal Health Coverage

# CONTENTS

- About this document..... 1
- Acknowledgements..... 2
- What is Population Targeting, and why does it matter to health agencies on the journey to UHC? ..... 5
- What are the main functions and building blocks of a population targeting system?..... 7
  - Assessment: ..... 7
  - Enrollment:..... 8
  - Service provision and management:..... 8
- Why data linkage and institutional coordination as the core focus areas of this toolbox? ..... 12
- Institutional Coordination ..... 14
  - Definition of institutional coordination between health and non-health agencies for population targeting ..... 14
  - Who might health agencies want to coordinate with, and what for? ..... 16
  - A maturity matrix for inter-agency coordination for population targeting ..... 19
  - Institutional dimension ..... 22
  - Organizational dimension ..... 24
  - Individual dimension ..... 26
  - Case studies of institutional coordination for population targeting..... 27
- Data Linkage..... 32
  - Definition of data linkage between health and non-health agencies for population targeting ..... 32
  - What are the different models which can support data linkage for population targeting? ..... 34
  - A Decision Checklist on Data Linkage for Population Targeting ..... 36
  - Institutional Readiness..... 39
  - Data and sharing readiness..... 42
  - Updating, using and analyzing the data ..... 49
  - Case studies of data linkage for population targeting..... 52
- References ..... 56

## ABOUT THIS DOCUMENT

Many countries on the journey to Universal Health Coverage (UHC) need the ability to identify and target particular sub-groups within their population. Most commonly, this involves identifying low-income or otherwise vulnerable people, so as to offer them special access to health benefits, such as subsidized health insurance or services. But how can health agencies know that they are accurately reaching their target groups with the limited information available, and that they are doing so efficiently?

This handbook - and the associated collection of implementation tools ([institutional coordination](#), and [data linkage](#)) - provides a curated collection of practical tools and guidance for health agencies who wish to improve the accuracy and efficiency of these 'population targeting' functions. It is the result of a year of peer-led learning and co-production by over 40 public officials and other practitioners from 11 countries, who formed the JLN Learning Collaborative on Population Targeting. Drawing on the unanimous experience of this group that the best solutions involve close collaboration with other, non-health agencies (such as those operating cash transfer and other social protection programs), the focus is on two interrelated themes:

- (i) institutional coordination between health and non-health agencies, and
- (ii) data linkage between health and non-health agencies for population targeting.

For each theme, this handbook does three things:

- Explains the fundamental concepts, approaches and processes involved,
- Provides a diagnostic to help health officials and their non-health colleagues understand their level of progress against a range of practical prerequisites for success, and
- Offers a large, but carefully curated, library of practical documents and tools that can be used to address the specific next steps identified by the diagnostic. Many of these tools are new and/or previously unpublished, but best practice from previously published guidance in the social protection sector is also included.

The handbook is intended to be used by health leaders and practitioners who wish to improve the efficiency and effectiveness of their approach to identifying and targeting poor and vulnerable people. It can be used at any stage in this process - from the early design to refining a mature targeting system. Users are encouraged to use the two diagnostics (one on institutional coordination and one on data linkage) to understand where they most need to improve, and then look up and apply the tools associated with those specific areas. All the tools are practical in nature and designed to support real-world implementations (for it was through implementation support that most were created), and are a mix of the general and the highly technical, to support different levels of expertise and experience.

## ACKNOWLEDGEMENTS

This document, and the [associated resource website](#), were co-produced by the Learning Collaborative on Population Targeting (LCPT), an initiative of the Joint Learning Network on Universal Health Coverage (JLN). The production process followed an ‘implementation case co-learning’ model, in which an initial three-month period of thematic best practice workshops and task groups was followed by six months of virtual meetings in which the group supported two countries in the collaborative, Ghana and Liberia, with real-world implementations of these concepts. The outputs from these sessions make up the majority of the content in this document, with additional gaps addressed through ad hoc co-production sessions.

Special thanks go to the two implementation case country teams, whose hard work and candor were the foundation of this collaborative’s success:

From Ghana:

- Ben Kusi, Director, Membership and Regional Operations, NHIA, Ghana
- Ophelia Abrokwah, Senior Operations Manager, NHIA, Ghana
- Vivian Addo-Cobbiah, Deputy Chief Executive, Operations, NHIA, Ghana
- Prosper Laari, Head of Ghana National Household Registry (GNHR), Ghana
- David Odame - GNHR, Ghana
- Richard Adjetey, Social Protection Specialist- GNHR, Ghana
- Elizabeth O. Agyei, Logistics and Survey Information Officer - GNHR, Ghana
- Daniel Sackey, Data Analyst/Statistical Officer - GNHR, Ghana

From Liberia:

- George P. Jacobs, Assistant Minister, Health Policy and Planning, Ministry of Health & Social Welfare, Liberia
- Ernest Gonyon, Acting Director - Health Financing Unit, Ministry of Health & Social Welfare, Liberia
- Shadrach Gboki, Program Manager, Social Registry, Ministry of Gender, Children and Social Protection, Liberia
- Joseph Deema, National Identification Registry (NIR), Liberia
- Nuaker Kwenah, Health Financing Officer, MOH, Liberia
- Roland Y. Kesselly, Director, Health Financing, Ministry of Health & Social Welfare Liberia
- Aurelius Butler, National Coordinator for the LSSN / Ministry of Gender and Social Protection, Liberia
- Eric D. Mason, Database Administrator, Liberia
- Augustine F. Tokpa, Liberia Institute of Statistics and Geo Information Services (LISGIS), Liberia

Further thanks go to all the other members of the LCPT for their input and involvement throughout the 12 months of learning, implementation support and co-production.

- Dr. Almoghirah Alamin Gadasseed Abdellah, Director of Directorate General for Population Coverage National Health Insurance Fund, Sudan
- Dr Atikah Adyas, Associate Professor Lecturer in School of Health under Ministry of Health, University of Mitra Indonesia, Bandar Lampung, Indonesia
- Semlali Hassan, Consultant to the Ministry of Health, Morocco
- John Gachigi, Head Social Assistance Unit, Ministry of Labour & Social Protection, Kenya
- Christina El Khoury, Primary Healthcare Department Ministry of Public Health, Lebanon
- Esther Wabuge, -Coordinator, Kenya Country Coordinating Group, Kenya
- Dr. Halima Mijinyawa, Director General of the Es Kano State Health Insurance Commission, Nigeria
- Ademola Ade-Serrano, Innovation Manager and Digital Health Consultant, PharmAccess Foundation, Nigeria
- Susu Lin, Former Assistant Director at Ministry of Health, Myanmar
- Dr. Mohammad Abul Bashar Sarker, Attached Officer, SSK Cell, Health Economics Unit, MOHFW, Bangladesh
- Dr. Subrata Paul, PER, Health Economics Unit, MOHFW, Bangladesh
- Mona Osman, Assistant Professor of Family Medicine, American University of Beirut, Lebanon
- Ben Nkechika, Director General of the Delta State Health Insurance Commission, Nigeria
- Halima Kanini Yusuf, MOH, Kenya
- Aliyu Mohammed, Assistant General Manager, Monitoring and Evaluation Division of the National Health Insurance Scheme, Nigeria
- Njide Ndili, Country Director, PharmAccess Foundation, Nigeria
- Olakitan Jinadu, Health System Consultant, IFC, Nigeria
- Wit Yee Win, National Health Plan Implementation Monitoring Unit, Myanmar
- Rock Amegor, Director General of the Edo State Health Insurance Commission, Nigeria
- Boubacar Toure, Deputy National Director of Social Protection and Solidarity Economy, President of the JLN Mali Base Group, Mali
- Sogo Coulibaly, Head of the Social Nets Division at the National Directorate of Social Protection and Solidarity Economy, Mali
- Eka Yoshida Syofian, Hospital Manager, Pharmacist, Health Economist, MOH, Indonesia
- Rudy Kurniawan, Deputy Director of Data and Information Center, Ministry of Health Indonesia
- Dr. Simeon Onyemachi, Director General of the Anambra State Health Insurance Commission, Nigeria

Thanks also go to the technical facilitators who guided this process and inputted global expertise and additional specialist knowledge throughout many of the workshops, as well as supporting the final drafting of this output:

- Jonty Roland, Lead Facilitator

- Pip O’Keefe, Co-Lead Facilitator
- Jerry La Forgia, Co-Lead Facilitator
- Andrew Wyatt, Technical Expert – Institutional Coordination Theme
- Valentina Barca, Technical Expert – Data Linkage Theme
- Esteban Bermudez, Production Facilitation Co-Lead
- Jake Mendales, Production Facilitation Co-Lead
- Maddie Lambert, Production Facilitation Co-Lead

Finally, we would like to acknowledge the critical contributions of several individuals outside of the collaborative who significantly enhanced its work. Firstly, the two external case contributors who led case study sessions on their systems’ journeys towards improved population targeting. From Brazil, Rodrigo Assumpção, a Social Protection Management Information Systems Specialist in the International Labor Organization (ILO). From The Philippines, Vincent Leyson, a former social welfare official and now independent consultant in the field of social welfare, social protection and community development, and Lemuel Untalan, Acting Vice President, Member Management Group at PhilHealth. Secondly, Michal Rutkowski, Global Director for Social Protection and Jobs and Margaret Grosh, Co-Lead for Safety Nets Global Expert Team at the World Bank, who provided vital guidance at the outset of the collaborative on how it could build on the World Bank Group’s previous excellent work in this area. Thirdly, Dennis Streveler, Professor of Medical Informatics at the University of Hawaii, who acted as a valuable resource of advice and support on data linkage, as well as reviewing drafts. Finally, to the JLN Network Management team, Kamiar Khajavi, Sara Wilhelmsen and Amelia Zhao, whose guidance and support were enormously valuable throughout the course of the collaborative, but especially in response to the COVID-19 pandemic which required a pivot to entirely virtual working. Their advice and help ensured that, despite never meeting in person, the collaborative’s members complete their 12 months of learning activities not only wiser, but as friends.

## WHAT IS POPULATION TARGETING, AND WHY DOES IT MATTER TO HEALTH AGENCIES ON THE JOURNEY TO UHC?

Over the past decade, many low- and middle-income countries have made expanding health coverage a national priority. The push toward Universal Health Coverage (UHC) has catalyzed this effort, yet progress to date has been uneven and often excludes poor, vulnerable, and otherwise marginalized people (WHO and World Bank 2019). This is partly due to **challenges in effectively identifying and reaching these groups, especially in countries with patchy data on the population and a high proportion of informal sector workers (Bitran 2014).**

**Targeting mechanisms represent powerful ways to maximize the impact of public health spending and UHC reforms, by directing resources to those who stand to benefit most.** This might be in the form of free health insurance or copayment exemptions to those earning below a certain threshold, or with certain social and or health characteristics (pregnant women, people with disabilities), or some other vulnerability (children and older people, unemployed or orphans) (Cotlear et al. 2015).

However, doing this effectively requires large amounts of accurate and timely data on individuals and households that is not normally routinely collected by health agencies. In some countries, Ministries of Health or national health insurance agencies have found themselves having to ‘go it alone’, and create their own independent systems for data collection, enrolment and eligibility assessment of vulnerable groups. This is inefficient, as **other government ministries and social programs will have a similar mission to identify these at-risk populations** – from cash transfer schemes and associated social registries, to tax authorities, subsidized energy or childcare programs, housing and food benefits, population identification, electoral and school registers, and many others (Lindert et al. 2020).

In other countries, the opposite issue has arisen, and health agencies have become passive recipients of highly centralized systems for population targeting: essentially being given a list of people to enroll with no input as to how or why these were selected. This is also sub-optimal, as **health agencies often have particular requirements for the data they need. For example, in many countries subsidized health insurance will be offered to a far greater proportion of the population than poverty-targeted cash transfer schemes.** Furthermore, healthcare systems (often via civil registration databases) can provide vital data into centralized population targeting systems, such as records of births, deaths and disabilities.

It is therefore essential that health agencies work in partnership with other, non-health agencies in executing their responsibilities to reach poor and vulnerable groups. There are many models to do this, as outlined in this handbook, but **the benefits of a population targeting system in which health and non-health agencies work together effectively are numerous** – both institutionally and in terms of data linkage:

- **Costs savings** in having to only collect each type of data once,
- **Fewer errors** through bringing together a wider range of datasets, allowing a richer understanding of who is most in need and additional sources of data validation,

- **More up-to-date data** as a result of a greater number of ‘touchpoints’ between users and the state, increasing reach and public awareness,
- **Freeing up staff time** from the work of eligibility assessment, processing and appeals,
- **Ability to pool resources** across agencies to invest in more advanced and automated systems of population targeting, and
- **Simplifying fragmented processes** from the user’s perspective, in which they have to give the same information multiple times to multiple agencies.

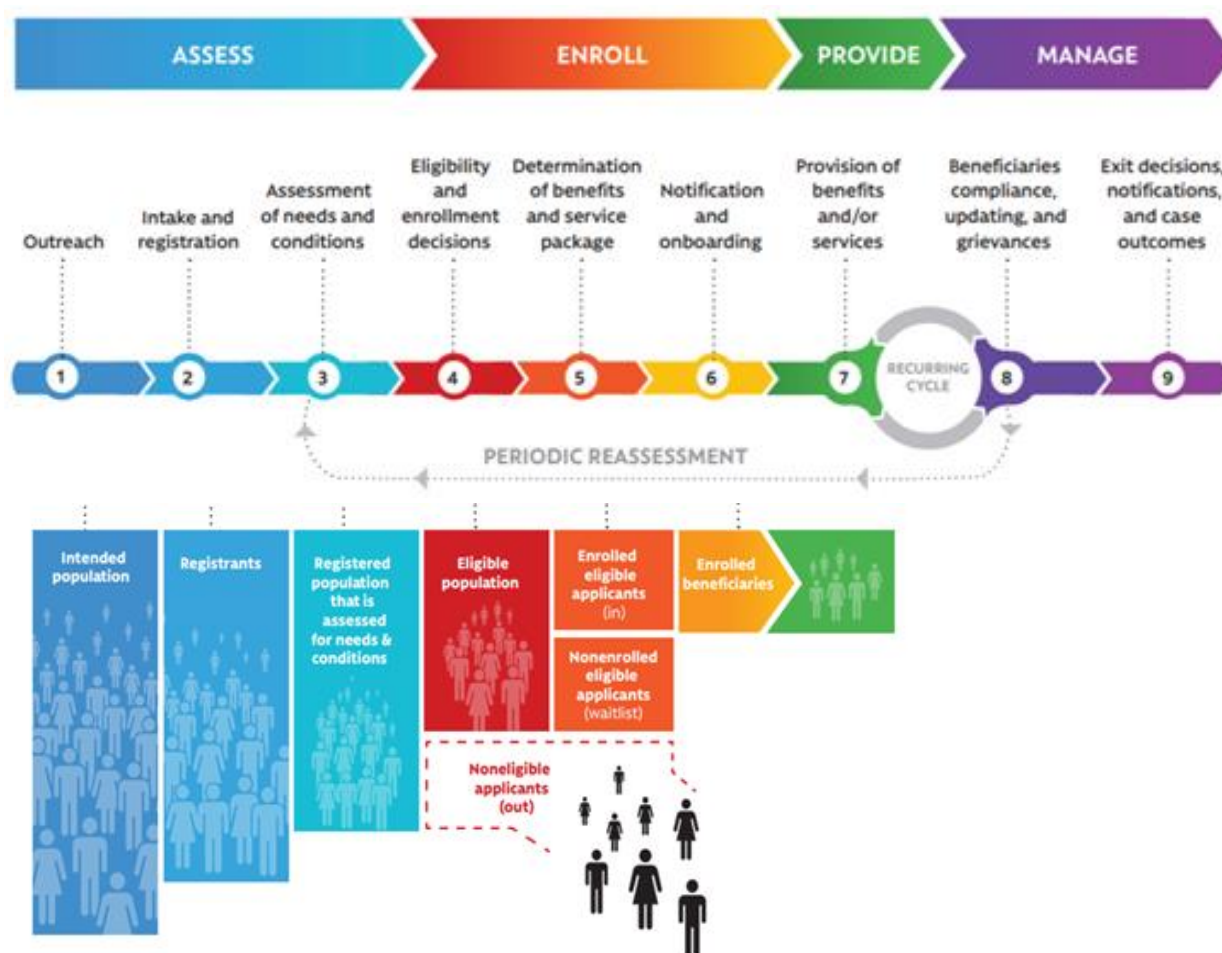
Beyond these direct improvements to efficiency and effectiveness, there is also an important intangible benefit to more effective population targeting. Citizens and political leaders are more likely to support further funding and reform for UHC if they see that resources are going towards those who need them most, and not being unfairly allocated or even ‘gamed’ by particular groups. **Effective population targeting therefore lies at the foundation of public confidence and trust in the health system.**



## WHAT ARE THE MAIN FUNCTIONS AND BUILDING BLOCKS OF A POPULATION TARGETING SYSTEM?

Perhaps the most useful framework for health agencies to understand the different functions necessary for a population targeting system is the ‘Social Protection Delivery Chain’, proposed by the World Bank in its invaluable resource *Sourcebook on the Foundations of Social Protection Delivery Systems* (Lindert et al. 2020). It features **nine distinct stages in the process of assessment, enrolment, service provision and management of beneficiaries of any given social protection program.**

Figure 1: The Social Protection Delivery Chain (Lindert et al. 2020)



### ASSESSMENT:

- 1) **Outreach:** The initial process of building awareness of the social program or benefit by sharing information with the groups for whom it is primarily intended. The goal of this first step is to help the intended population understand the program and engage by submitting their information for potential inclusion in it.

- 2) **Intake and registration:** For this step, information is collected about the targeted population, either through individuals and households actively registering for it, or inclusion of their information from other administrative data sources.
- 3) **Assessment of needs and conditions:** All of the required information to assess a registrant's eligibility is collected, verified and brought together with their identity and registration information to create a complete 'registrant profile' that can be processed. This might include collecting data on the registrant's income, assets, employment status, household expenditures, disability status and other socio-economic characteristics.

### ENROLLMENT:

- 4) **Eligibility and enrollment:** Each registrant's profile is assessed against a set of eligibility criteria specifying who should qualify (e.g. based on income status or some other risk factor).
- 5) **Determination of benefits and services package:** Registrants' profiles of need can also be assessed at this point to make alterations to the benefit or service package being delivered by the social program. For example, if a higher number of people than expected are assessed as eligible, the benefit package may be adjusted, budget increased, or a waiting list system may be established.
- 6) **Notification and onboarding:** Once notified as to whether they are eligible, ineligible, or waitlisted the successfully enrolled beneficiaries will be onboarded. The onboarding process includes providing information on rules, activities, expectation, rights, and responsibilities of the social program. It will inform the beneficiary as to how to access benefits and give them the means to do so (for example, a beneficiary smart card).

### SERVICE PROVISION AND MANAGEMENT:

- 7) **Provision of benefits and/or services:** The provision of services stage tends to vary from case to case based on the type of social program. Some programs may require additional information from beneficiaries at this stage, such as medical information or bank details.
- 8) **Beneficiaries' compliance, updating and grievances:** This stage consists of updating and correcting information on beneficiaries and their benefit-service packages, as well as ensuring that beneficiaries perform any tasks that the program requires of them (e.g. conditionalities such as attending certain health, education or labor related activities). It also includes appeals to the eligibility assessment process, in case a registrant feels they have not been correctly or fairly assessed, and a grievance redress process for resolving complaints.
- 9) **Exit decisions, notification, and case outcomes:** This final stage uses ongoing monitoring information as well as exit criteria in order to close cases, report service plans and case outcomes, as well as to notify beneficiaries if they are to exit the program for any reason.

**Periodic Reassessment:** For programs in which beneficiaries are only assessed and enrolled infrequently (e.g. following a census sweep every few years), it is important to periodically reassess the eligibility of existing beneficiaries, in case their circumstances have changed and they no longer qualify. In some programs there is a requirement for beneficiaries to be recertified every 1-2 years.

The *Sourcebook on the Foundations of Social Protection Delivery Systems* is itself a treasure trove of guidance, resources and tools to support agencies that are directly in charge of each of these population targeting functions, for example:

- Key performance indicators for population targeting systems,
- Advantages and disadvantages of different methods of data collection, as well as demand-driven (ongoing) versus administrator-driven (periodic) models of enrolment,
- Best practice in the design of criteria and formulae for calculating eligibility.

Since it is uncommon and rarely optimal for health agencies to be dealing with these questions alone or even as a principal responsibility, this toolbox does not replicate these tools and guidance, but rather focuses on what health agencies in particular need to consider and to do to be an active and effective partner in the design, implementation and maintenance of effective population targeting systems.

#### *Box 1: How is data for population targeting data generated?*

Gathering the data required for large-scale population targeting is a complex and logistically challenging endeavor. There are five primary means by which this data is gathered by systems, with most using a mix of methods (Barca and Hebbar 2020):

1. **Census survey registration:** A comprehensive household-by-household survey that is run at regular multi-year intervals (anywhere between every two and every 10 years). This may be for the whole country or targeted to areas pre-identified as high poverty locations, e.g., based on a national poverty map.
2. **Periodic active outreach:** Temporary ‘rotating desks’ that visit communities at regular intervals and invite potential beneficiaries to come and register. This may also be done periodically (often annually) as a beneficiary updating process.
3. **On-demand registration at local offices:** In person contact points where people can register at any time if they feel that they may be eligible for a program (e.g. at permanent local government offices or desks at partner agencies).
4. **On-demand online:** Websites or apps through which people can register themselves for programs at any time, with varying amounts of the eligibility assessment and other phases also conducted virtually.
5. **Data cross-checks:** Use of existing databases (e.g. tax, social security, land, vehicles, schools etc) to validate applicant information or passively identify potential beneficiaries and either reach out to them or enroll them directly.

Considerations of the advantages and disadvantages of each of these methods can be found in tool “B20” in the toolbox for the Data Linkage chapter below.

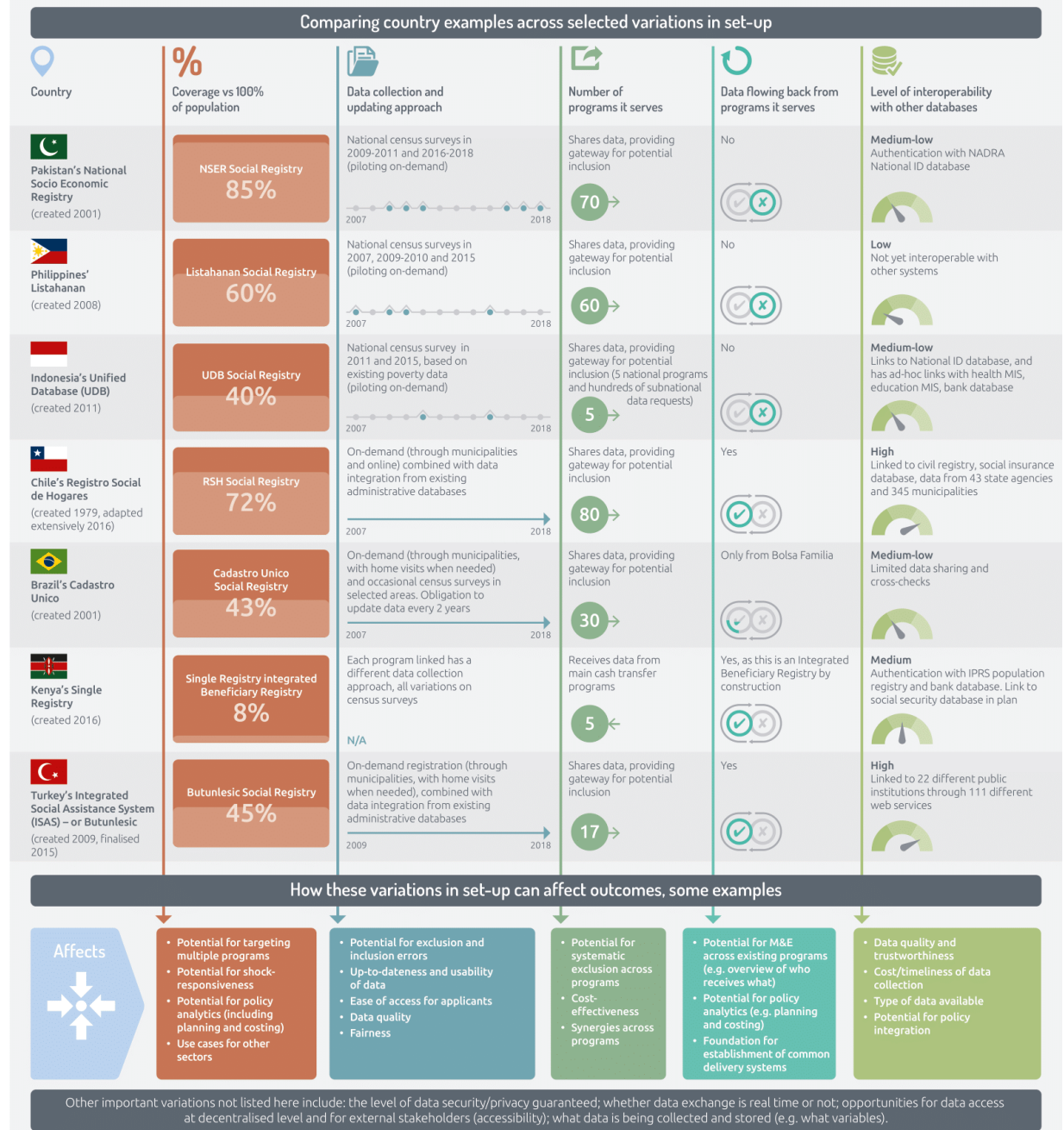
*Box 2: Beneficiary Registries, Social Registries and Beneficiary Operations Management Systems explained*

**Beneficiary registries** are data repositories of current beneficiaries of programs. They may be program-specific or include the beneficiaries of multiple programs. In either case, they provide an overview of who is receiving what from one or more social programs. When covering multiple programs, they are referred to as **integrated beneficiary registries**.

**Social registries** work on behalf of multiple social protection programs to support the core population targeting functions of outreach, registration and assessment of needs. A social registry creates a single, authoritative source of information on the population (households and/or individuals) that each individual program and agency can use to set its own eligibility criteria and draw down the list of beneficiaries who are likely to qualify. The scope of population information in social registries varies, but aims to provide a multi-dimensional picture of the welfare status of the population included in the registry. In short, social registries are a data repository of relevant information on *potential* beneficiaries, whether or not they are deemed eligible for a specific program. They may be *actual* social registries, which centralize collection and housing of data on potential beneficiaries, or take the form of *virtual* social registries which collect data primarily by ensuring interoperability with existing administrative databases through web service access. The share of population covered in a social registry exhibits major variation across countries, but can be up to 90 percent.

Figure 2 below from Barca and Beazley is a visual representation of some of the key design choices and differentiators between social registries in different countries, and how these impact on their application and use.

Figure 2: Comparing social registry design choices across seven countries and their impact on outcomes (Barca and Beazley 2019)



**Beneficiary Operations Management Systems (BOMS)** are a form of integrated management information system (MIS) which perform the latter-stage functions in the social protection delivery chain on behalf of different programs and agencies. This includes beneficiary notification and enrolment, payments, grievances and other elements of program delivery. BOMS may be used in health programs if the benefit is one that is only being aimed at the targeted group. However, they are less appropriate for universal services such as social health insurance schemes, as the poor and vulnerable individuals identified as eligible form just one part of a wider group of beneficiaries that the health agency will need to manage – usually necessitating its own, independent beneficiary management information system.

## WHY DATA LINKAGE AND INSTITUTIONAL COORDINATION AS THE CORE FOCUS AREAS OF THIS TOOLBOX?

The countries that participated in the JLN Learning Collaborative on Population Targeting represented a very broad range of approaches, models and maturity in their population targeting systems. Extensive scoping discussions were held in the early phases of the collaborative to discover where there were the greatest opportunities for health agencies to learn and improve, including: 120 minute interviews between each country and the technical facilitation team (January 2020); a poll where all countries rated potential themes (March 2020); a confirmatory prioritization poll following a pause in activities during the COVID-19 pandemic (December 2020); and a scene-setting virtual workshop (with follow up meetings) where participants could discuss between themselves the most important areas for co-learning (January 2021).

The results of these discussions included **a consistent finding across all countries that the most important route to improving population targeting was to develop better partnerships with other agencies**, both in terms of how the organizations themselves collaborated and in how their datasets could be linked together. There were a variety of reasons why these two areas were felt to be so important:

1. Many of the participating countries are simultaneously undergoing **other major governmental reforms** in addition to the drive to ‘health for all’, such as rolling out national identity cards and creating centralized social registries. There are considerable risks to health agencies not sufficiently coordinating with these changes – for example creating systems that duplicate this work, need to be replaced or aren’t interoperable.
2. Many health agencies were broadly aware of the types of changes that would improve their population targeting systems but found that these were **not within the legal remit of the health sector to change** (e.g. the relevant powers might reside with tax, social welfare, labor or statistics agencies).
3. Many health agencies did not feel they had the **specialist expertise** to properly perform their population targeting functions, and that in this regard the wider social protection sector was ahead in terms of knowledge, skills and available resources.
4. In countries where a National Health Insurance scheme was present, the agency responsible for this was often relatively new and/or did not have the status of a full ministry (e.g. a quasi-governmental, or ‘arms-length’, body). As a result, their **links to agencies beyond the Ministry of Health were often weak** or immature, and had not allowed the forms of partnership needed for efficient and effective targeting.
5. Many health agencies saw that the same population targeting functions were being **duplicated by other agencies** in the system.
6. The health agency **did not trust or could not interrogate or analyze the data** being supplied by other agencies.

A third priority theme, keeping population targeting data up to date, was also identified but in subsequent group discussions merged into the other two as the potential solutions were largely reliant on actions

already covered by the other two themes. Data updating and recertification therefore forms a specific category within the Data Linkage Decision Checklist (Box 6). A smaller subset of countries also highlighted the need to identify *non-poor* individuals and households as a priority, in order to enforce legal requirements to pay premiums into their social health insurance schemes. However, after discussion it was decided not to include this as part of this collaborative, as the solutions to doing this are very different to identifying the poor, and would not have been relevant for the majority of countries in the group. Furthermore, this theme has been partially covered before by a previous JLN learning exchange, resulting in the report *Closing the Gap: Health Coverage for Non-Poor Informal-Sector Workers* (Bonfert et al. 2015)

Since population targeting is fundamentally a data and systems issue, the resulting two themes that form the basis of the two main sections of this handbook are felt by the collaborative to be relatively comprehensive. Even if they do not cover every conceivable issue related to population targeting in health, if the data, the people and the institutions are able to effectively coordinate across health and other sectors then most remaining issues will likely either be fairly narrow (e.g. improving coverage of death records) or better solved by other agencies (e.g. adjusting the specific mix and weight of poverty indicators).

**The two chapters that follow take each of the core focus themes – institutional coordination and data linkage – and provide three things.** Firstly, an **explanation** of what the concept means from the perspective of health and other social protection officials that took part in the collaborative, including the different models available to countries. Second, a **diagnostic** in the form of a maturity model (for institutional coordination) and a decision checklist (for data linkage) to help identify the key strengths and weaknesses of any particular health system, as well as practical actions to improve. Third, a link for each step to one or more **‘tools’** that have been created or curated by the collaborative to assist with implementing the changes needed to move from one stage to the next.

## INSTITUTIONAL COORDINATION

### DEFINITION OF INSTITUTIONAL COORDINATION BETWEEN HEALTH AND NON-HEALTH AGENCIES FOR POPULATION TARGETING

Fragmentation and duplication are common features of population targeting systems in low- and middle-income countries, as different agencies and reforms are simultaneously evolving and developing their own approaches for particular programs over time. This leads to multiple, overlapping population targeting systems, or the reuse of existing targeting systems for other sectors that they were not designed for. For example, in Morocco there are more than 100 social programs in operation by different agencies of government, many of which have independent and often incompatible systems of targeting. While the Ministry of the Interior collects data on poor and vulnerable households on behalf of around 30 of these programs, there is still a great deal of fragmentation, which an ongoing national reform to create a centralized social registry for all Moroccan households (poor and non-poor) is designed to correct.

**The fundamental question faced by health leaders in these contexts is how can they, from the perspective of their health agencies, help to ‘defragment’ institutions doing population targeting work, so that their objectives are aligned, tasks streamlined, and synergies achieved?**

There are many different levers available that might be used to achieve this ‘defragmentation’ of population targeting functions across government. One possibility would be the ‘mega-merger’ approach that would bring all the functions in the delivery chain for all social protection programs together into a single lead agency. Instances of this being successfully put into practice are hard to find, though New Zealand’s Ministry of Social Development provides one example of the integration of a wide range of social policy functions. Another approach is to allow some functions to be shared or delegated between agencies but to introduce coordinating mechanisms to govern how this is done, such as harmonized approaches and data sharing through inter-agency agreements or a dedicated coordinating body like the Social Protection Secretariats in Kenya and The Gambia (Box 5). Still others will merge part of the social protection delivery chain, while retaining ultimate control within each parent ministry, such as the combined IT systems and other ‘front office’ functions of South Africa’s Integrated Community Registration Outreach Programme (ICROP) (Barbero et al. 2015) and Brazil’s Poupatempo ‘one-stop shops’ (Fredriksson 2020).

To understand which levers are likely to be most relevant, it is important to understand the overall model of institutional integration which is being pursued. **From a health agency perspective, there are four main models**, as shown in Figure 3, for which countries participating in this collaborative submitted data on which agency was responsible for each of the key population targeting functions (See Figure 1):

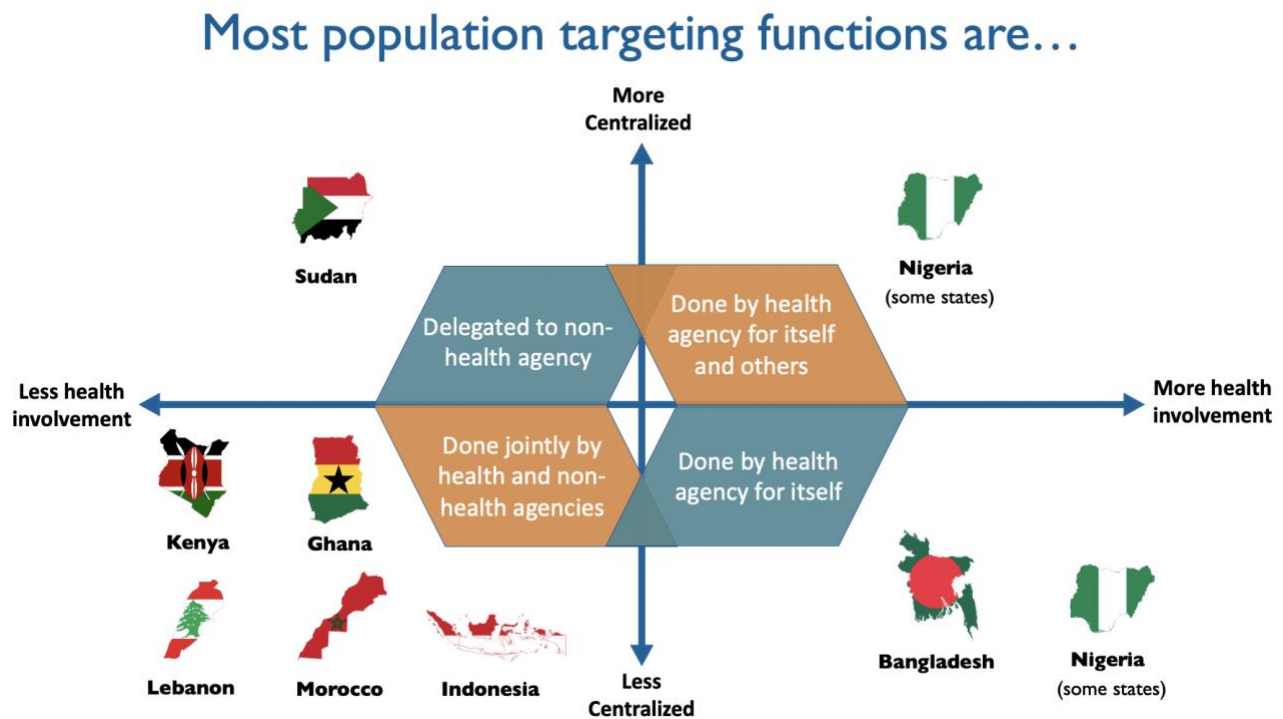
**Most population targeting functions are done by health, for health:** The health agency is ‘going it alone’ with respect to population targeting, often because no other robust systems exist to draw on, or because the health program is in some way being targeted differently (e.g. to a much greater proportion of the population than existing targeting mechanisms), or sometimes for simple lack of effective coordination mechanisms with other agencies. This is currently the case in Bangladesh, where their Ministry of Health and Family Welfare performs all of the tasks related.



1. **Most population targeting functions are done by health, for health:** The health agency is 'going it alone' with respect to population targeting, often because no other robust systems exist to draw on, or because the health program is in some way being targeted differently (e.g. to a much greater proportion of the population than existing targeting mechanisms), or sometimes for simple lack of effective coordination mechanisms with other agencies. This is currently the case in Bangladesh, where their Ministry of Health and Family Welfare performs all of the tasks related to population targeting by operating their own separate database independent from the social registry (which is operated by the Ministry of Social Welfare).
2. **Most population targeting functions are done by health, for itself and other agencies:** The health agency performs most of the core population targeting functions itself, as well as on behalf of other, non-health agencies. This is usually a transitional state in which a large-scale subsidized health program is one of the first major national social protection reforms undertaken by a country, therefore the health agency itself must go out and identify, assess and enroll poor and vulnerable households. Later, non-health programs then use this same data, but typically at some stage they may shift the mandate for ownership and management of population targeting data to a Ministry of Social Protection or a social registry operated by some third agency. While by no means true across the country, some Nigerian state-level health insurance schemes currently find themselves in this position, with targeting data from previous programs being so old that they are finding it necessary to go house-to-house to verify and expand this data, creating a resource that will in turn be used to update other social programs' registries.
3. **Most population targeting functions are performed by health and non-health agencies working together:** Most of the population targeting functions are in some way shared, in that health will have a role in either defining or carrying out the tasks required to decide who, how and why is selected for enrolment in the subsidized health program. Often these are systems in which a centralized social registry of vulnerable persons exists, operated by a separate social protection body, but either health contributes a significant amount of data to it, or is involved in key decisions through inter-agency committees. For example, in Morocco the assessment process and formulae are the responsibility of an inter-agency committee of five ministries (health, interior, economy and finance, agriculture, and national assistance) which meets to decide on what questions will be asked. Data collection itself is coordinated by local offices of the Ministry of Interior, and verification of this data (as well as data updating) is devolved to provincial governors. Each program that uses this central data can determine its own criteria and thresholds for eligibility.
4. **Most population targeting functions are performed by a non-health agency, and health uses the data:** The majority of population targeting functions are mandated to a non-health institution which manages the population targeting data on behalf of multiple agencies, with health given the minimum necessary information needed to carry out onboarding or point-of-care checks. For example, a list of beneficiaries to enroll into the national health insurance program without having to pay for premiums. Sudan, for example, does not have a centralized beneficiary registry for social protection. Yet, a mosaic of agencies work in concert to identify the poor and vulnerable for social protection programs, including the Ministry of Social Development, the Federal Ministry of Finance, Zakat Chamber, the Commission for Social Safety and Poverty Reduction, the National Fund for Pensions and Social Security, the Central Bureau of Statistics, the Civil Society Organizations, and the Civil Registry. Another common situation

in other countries would be a Ministry of Social operating a social registry, for which the data is later used by health but with little or no input or adjustment made to that population targeting data or approach as a result.

Figure 3: Four high-level models of inter-agency coordination for population targeting from the health perspective



All of these four models can be valid and efficient options in the right circumstances and with the right implementation. The particular model that a health system elects will have a major bearing on which policy levers are needed, however, typically the same underlying enablers of strong institutional coordination exist regardless - clear roles and responsibilities between the agencies involved, detailed policies and procedures for cooperation, and the right skills and relationships at the individual level. **These transcend any individual model, supporting the institutionalization of coordination, rather than any specific model for coordination of institutions.** This is therefore the foundation on which all health systems can analyze and better understand their current state and key actions towards improving in this dimension, as expressed in the maturity matrix below (See Figure 6).

### WHO MIGHT HEALTH AGENCIES WANT TO COORDINATE WITH, AND WHAT FOR?

The list of different ministries and programs with whom health agencies may wish to coordinate is very broad, as outlined in Figure 4 below. Generally speaking, the more agencies on this list who would need to work together, the more likely it is that a more centralized approach to integration will be needed. Whereas if only two or three agencies are looking to work together then this may be

achieved through more direct, bilateral mechanisms. **Greater breadth adds greater scale and potential benefits, but also comes at the potential cost of greater administrative complexity in coordination arrangements.** Leaders need to think carefully about these trade-offs in whichever end-state they define as their goal.

*Figure 4: Potential institutions with whom the 11 national health agencies in this collaborative wished to coordinate for population targeting*



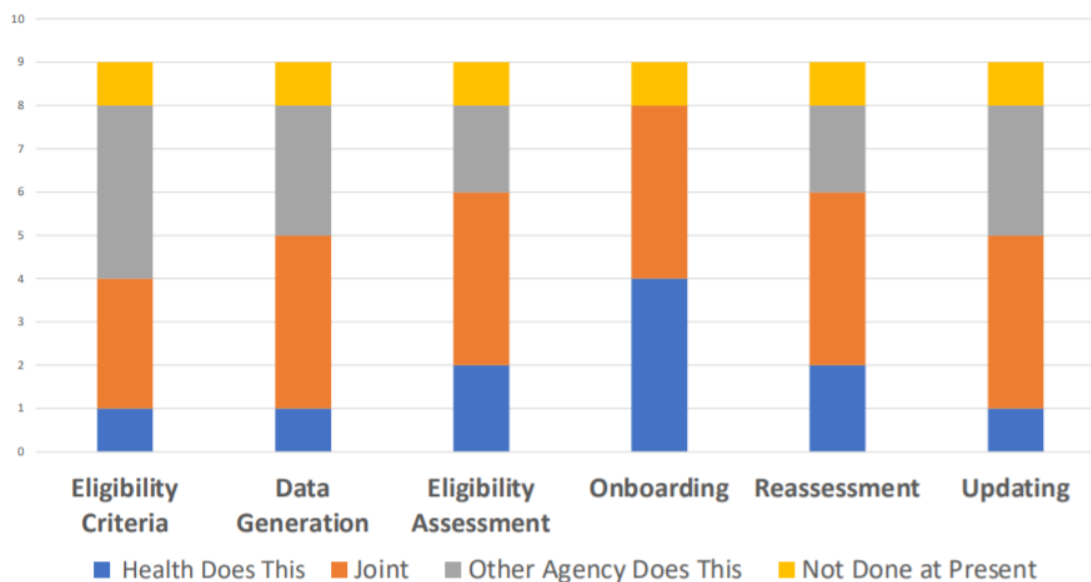
While the focus of this chapter is primarily horizontal coordination (between national or state-level agencies), vertical coordination between national, regional and local agencies is another important dimension to consider. This is touched on in various places in this chapter but is not a core focus, as it is hard to generalize lessons or best practice between countries since arrangements vary so widely. However, many of the same principles outlined below would apply just as well: properly defining roles and responsibilities and matching these to powers, creating clear policies and procedures for joint working, and strong interpersonal relationships.

Before deciding which agencies to coordinate with and how, it is important to decide on the goals that a health agency wishes to achieve, or in other words, **‘what is the problem that we are trying to solve?’**. This will differ considerably depending on the model and maturity of the system in question, but may range from specific operational aims, such as making efficiency savings, to paving the way for data linkage, to more macro-level aspirations, such as making sure that parallel reforms are well-coordinated, as is the case with Liberia’s simultaneous development of national health insurance, national ID cards, and a social registry (Box 4).

These aims will then determine which specific population targeting functions are most important to coordinate or integrate. Data from the 11 countries that participated in the Learning Collaborative shows that, across all population targeting functions, health agencies were most likely to retain onboarding of

beneficiaries as a direct or shared responsibility, whereas setting eligibility criteria and generating the data required to put into this formula was most likely to be done by other agencies.

Figure 5: Who performs which population targeting functions?



This more nuanced picture presented in Figure 5 demonstrates how **health agencies may have differing goals for institutional coordination across the different functions**. For eligibility criteria setting, for example, they may be looking for a more formalized route to influence functions performed by other agencies, since these essentially determine who they can enroll into their health programs. On the other hand for shared functions, like eligibility assessments, the health agency may be trying to achieve operational synergies such as savings through ceasing activities that could be or are already performed better by others.

The key barriers are also important to recognize. Previous setbacks and failures on the road to institutional coordination, according to the health leaders in the collaborative, included:

- Formal policies and procedures to promote coordination being neutralized or ‘trumped’ by informal and unwritten organizational conventions and cultures, or ‘organizational inertia’,
- Distrust that other agencies to whom population targeting functions had been delegated were properly fulfilling these tasks, and had the necessary motivation and skills,
- Conflicting institutional mandates and regulations,
- Misaligned institutional agendas and priorities,
- The sheer number of social protection programs that need to be coordinated, and
- The knowledge, skills and capacity required to design and maintain effective coordination mechanisms not being in place.

## **A MATURITY MATRIX FOR INTER-AGENCY COORDINATION FOR POPULATION TARGETING**

The following maturity matrix is designed to help health agencies diagnose their current state and progress towards inter-agency coordination for population targeting. Each dimension has a specific set of 'actions to improve' linked to it, as well as a curated selection of implementation tools to help with these tasks.

The maturity matrix is organized into three domains – the institutional, organizational and individual – all of which are necessary to improve coordination on population targeting across government. Users are encouraged to rate their own system's progress against each dimension underneath these three domains, and use the results to decide what to prioritize as a next step forward in improving institutional coordination for population targeting.

The different domains and dimensions should not be regarded as entirely separate, watertight categories - there are areas of overlap and interdependence, as well as room for debate as to where a particular issue should be classified. Nevertheless, the maturity matrix provides a useful analytical tool for considering the current state of development within and across ministries, departments and agencies, and identifying areas where change would be beneficial. It is also flexible in that it can be applied to one specific institution that a health agency wishes to work with, or many.

Figure 6: A maturity matrix for inter-agency coordination for population targeting

INSTITUTIONAL DIMENSION			
Theme	Features		
	Foundation Level	Intermediate Level	Advanced Level
<b>1. Formal and Informal Rules and Requirements</b>	Across government, the “rules of the game” do not require or support coordination and cooperation between organizations; even basic coordination between the Ministry of Finance and ministry responsible for social protection is limited or non-existent.	Rules requiring coordination between government organizations exist but are not always understood or followed; coordination between apex organizations (e.g. Ministry of Finance) and sectoral ministries and departments is well established.	Rules requiring coordination between government organizations are well understood and applied as part of the normal way government business is conducted in practice; coordination between all organizations involved in population targeting is well established, with shared accountability for outputs.
<b>2. Inclusive Structures</b>	The range of key institutions which need to work together on population targeting has not been identified.	Committees or high-level working groups have been established involving all institutions involved in population targeting.	An integrated structure of high-level and technical committees or working groups has been established to direct and support cooperation.
<b>3. Leadership and Direction</b>	The expectation of or requirement for coordination with others has not been clearly communicated downwards within organizations.	Organizations have agreed a shared policy direction and the leadership has clearly communicated internally the requirement for coordination.	The practice of coordination and cooperation has been internalized by staff across all participating organizations.
<b>4. Documentation of Requirements and Standards</b>	There is little understanding of the policy or operational requirements of other organizations with which coordination may be needed.	MOUs or similar instruments have been formulated which reflect the policy and operational requirements of all participating organizations.	MOUs etc establish standards for coordination, data sharing and external communication benchmarked against practice in leading countries.
<b>5. Data Protection</b>	No data protection policies have been formulated; there is little or no confidence that data shared with other organizations will be protected.	Policies or regulations governing data protection exist but are not always followed.	Data protection laws exist and are enforced; systems ensure traceability and continuity.
<b>6. Scrutiny / Evaluation</b>	No arrangements to aggregate information about problems across different population targeting systems.	Coordination working groups etc are tasked to consider issues and problems as they arise.	An independent system (such as a dedicated entity set up as an observatory) collects evidence about problems and reports them to the relevant management for rectification.

ORGANIZATIONAL DIMENSION			
Theme	Features		
	Foundation Level	Intermediate Level	Advanced Level
<b>1. Structures for technical cooperation</b>	Technical working groups of experts from across the organizations concerned have not been set up or do not function.	Technical working groups exist but are not solving problems effectively.	Technical working groups are working effectively to deliver coordinated and interoperable systems.
<b>2. Delegation</b>	Those involved in coordinating efforts on population targeting lack authority to make decisions on behalf of their organizations.	Adequate authority to make decisions has been delegated but is not always exercised.	Delegated decision-making authority is being exercised effectively to commit organizations to practical coordination.
<b>3. Incentives</b>	Performance management systems are absent or discourage coordination.	Performance management systems disincentivize coordination.	Performance management systems actively incentivize cooperation and coordination.
<b>4. Resources</b>	Resources (e.g. staff time, logistics, transport, IT etc.) to enable experts to work together do not exist.	Resources have been earmarked but are insufficient.	Sufficient resources are available, and include provision for external expertise when required.
<b>5. Data Management</b>	There is little or no capacity to integrate and use data provided by other organizations.	Capacity to integrate and use data from multiple sources is limited but the required skillsets and resources have been identified and are being developed.	Adequate capacity has been established; international expertise is drawn on where necessary to support data interoperability.
<b>6. Communication</b>	There are no arrangements to support communication with the public about population targeting.	Arrangements for public communication exist but are carried out in isolation by different organizations.	Messaging to the public on population targeting is clear, coordinated and effective.

INDIVIDUAL DIMENSION			
Theme	Features		
	Foundation Level	Intermediate Level	Advanced Level
1. <b>Commitment to coordination</b>	The need for coordination is not well understood or accepted; entrenched attitudes and rivalries obstruct communication across organizational boundaries.	The need for coordination is understood but not always practiced; interpersonal relationships across organizational boundaries are established but not always aligned with technical requirements.	All staff concerned are fully committed to cooperation and coordination with all relevant organizations; good interpersonal relationships support coordination across organizational boundaries.
2. <b>Knowledge and skills</b>	Technical and managerial knowledge and skills to support coordination are absent or weak. There are no measures to preserve institutional memory.	Technical and managerial capacity is being actively built, and best practice elsewhere being sought. Some measures exist to retain institutional memory of past population targeting work.	All technical, managerial, and interpersonal knowledge and skills required are present and being utilized.
3. <b>Empowerment</b>	Staff lack confidence to express opinions or make decisions.	Staff have confidence in their technical judgement but political interference presents obstacles.	Staff feel empowered to exercise delegated authority and are not constrained by external influences.

## INSTITUTIONAL DIMENSION

This dimension is concerned with the framework of formal and informal requirements and expectations which together make up what have been called the “rules of the game” under which government functions.

**Theme 1:** a key aspect of the institutional dimension is the **formal documentation**, such as laws and regulations, which determines the duties, responsibilities and powers of government entities and how they should work together. For example, is there a duty to cooperate on population targeting, accommodate data requests and move towards interoperable systems? This theme also includes the **informal and unwritten conventions** that shape how organizations and individuals in the public service work together in practice. For example, ministries of finance often carry greater weight in inter-ministerial disputes than line ministries; this may be rooted partly in the powers granted in public finance legislation, including the approval of extraordinary items of expenditure or transfers between budget lines, but it often also reflects simply a conventional recognition of the authority of the ministry.

*Key actions to improve:*

1. *Critically examine underlying obstacles to coordination and cooperation, to establish whether these are institutional, organizational or individual in nature, as a prelude to planning actions to improve.*



2. Review relevant legal mandates of all organizations concerned, to identify overlaps and inconsistencies, and formulate proposals for amendment.

**Theme 2** is concerned with the extent to which inter-ministerial committees or similar groups have been set up to provide an **inclusive structure** of high-level governance within which coordination of population targeting efforts can be taken forward. In the initial stages this might involve bilateral coordination mechanisms between individual agencies, but over time may develop into more integrated structures of coordination for population targeting across all relevant agencies.

*Key action to improve: Establish which organizations across government have an interest in population targeting mechanisms, or hold relevant data, and map out the existing coordination structures between them. Consider how additional structures might make these more inclusive, or linkages between them enable broader and more effective cooperation.*

**Theme 3** assesses the extent to which this has been followed through by the **leadership and direction** of the ministries, departments and agencies, to establish a clearly understood expectation that staff will act collaboratively.

*Key action to improve: Nominate senior officials responsible for leading coordinated efforts on population targeting in all organizations involved, and provide guidance in internal communications.*

**Theme 4** is concerned with the extent to which the intention to coordinate population targeting efforts has been reflected in explicit **documentation** such as Memoranda of Understanding or equivalent agreements, which establish the shared objectives of the collaboration as well as setting out the priorities and requirements of all of the participants and common standards of conduct.

*Key action to improve: Develop and refine MOUs or similar documents as framework for cooperation between all relevant organizations.*

**Theme 5** assesses the framework of **data protection** policies and legislation, which should promote coordination by providing assurance that any data that organizations share with each other will be held and processed safely, securely and appropriately to a common standard across government.

*Key action to improve: Involve body responsible for data protection policy and legislation in dialogue on population targeting, to ensure personal data is safeguarded.*

**Theme 6** considers whether there are any arrangements to provide oversight and **scrutiny and evaluation** of a coordinated population targeting system across agencies, to gather information about problems and issues arising across the system, and to ensure they are followed up and dealt with by the management of the respective ministries, departments, and agencies. This may take the form of a unit whose mission is to carry out periodic evaluations of the entire population targeting process across agencies, including compliance with regulations and agreements, who is doing what, the quality of coordination and any remaining bottlenecks.

Key action to improve: Develop arrangements to ensure information about problems arising with population targeting systems are identified and dealt with in a coordinated way. Consider what regular evaluation mechanisms should be put in place to ensure that coordination continues to work well.



### **Implementation Toolbox: Institutional Dimension**

The following tools have been created and curated to assist implementers and practitioners with the key action and decision areas highlighted above:

#### **Original implementation tools:**

A1: [Question guide for identifying underlying barriers to institutional coordination](#)

A2: [Template to review relevant legal mandates across agencies](#)

A3: [Messaging guide to encourage agencies to engage in closer coordination](#)

#### **Example documents:**

A4: [Example Memorandum of Understanding \(MOU\) between Kenya's social registry, national health insurance scheme and other social programs](#)

#### **Best practice reports and guidance:**

A5: Transform. (2017) "[Governance for Social Protection Systems: Institutions, Organizational Structure and Capacity - Manual for a Leadership and Transformation Curriculum On Building and Managing Social Protection Floors in Africa](#)" Transform.

A6: Leite, P. et al. (2017) "[Social Registries for Social Assistance and Beyond: A Guidance Note & Assessment Tool](#)" World Bank Group.

A7: International Labor Organization. (2021) "[Governance of social protection systems: a learning journey Module #2: Information and communication technologies and data](#)" International Labor Organization. ISBN: 978-9-22-035072-0 (Web PDF).

## **ORGANIZATIONAL DIMENSION**

Whereas the institutional dimension is concerned with the framework or enabling environment within which government bodies interact and work together, the organizational dimension is concerned with what happens *within* those agencies, and the way in which they are resourced, structured and managed to fulfil their objectives.

**Theme I** considers the extent to which high-level agreements between institutions have been cascaded down into **structures for technical cooperation** such as working groups or coordination units within which experts from all the organizations concerned are able to work together to solve practical problems.

*Key action to improve: Establish technical coordination units or working groups with appropriate functions and terms of reference to develop coordinated approach to population targeting.*

**Theme 2** assesses whether those involved in developing coordinated solutions to population targeting have adequate authority to take the necessary decisions on behalf of their organizations, through appropriate lines of **delegation**.

*Key action to improve: Ensure job descriptions and performance management frameworks of senior staff involved provide adequate delegated authority.*

**Theme 3** is concerned with how far the performance management systems in the participating organizations actively **incentivize** or discourage the collaborative behaviors on which coordination will depend. Do the objectives and/or competency requirements that are laid down recognize and reward cooperation across organizational boundaries?

*Key action to improve: Ensure performance management frameworks for all staff specify and incentivize inter-agency cooperation.*

**Theme 4** reflects the need for adequate **resources** of all kinds – from allocated staff time to office space, computers, vehicles and fuel to enable travel to meetings – to enable organizations to participate

*Key action to improve: Review budget provision in consultation with staff involved in operationalizing population targeting initiatives.*

**Theme 5** covers the organizational capacity to integrate, use and **manage data** across multiple agencies - including the availability of suitable software and hardware, appropriate business processes and procedures, existence of safe and secure facilities for data storage and the technical skills for managing and processing it.

*Key action to improve: Carry out rapid assessment of data management capacity, using international expertise if necessary to identify technical requirements, and implement findings.*

**Theme 6** examines the extent to which the capability has been established to **communicate** effectively with the public about the need for and benefits of population targeting systems, to assuage any fears about government data collection and storage, and to encourage uptake.

*Key action to improve: Engage government communications and public relations experts in development and dissemination of unified messages about population targeting.*



### **Implementation Toolbox: Organizational Dimension**

The following tools have been created and curated to assist implementers and practitioners with the key action and decision areas highlighted above:

**Original implementation tools:**

A8: [Checklist of functions, tasks and responsibilities for technical coordination units and working groups](#)

A9: [Organizational mapping formats to visualize current and future states for interagency coordination on population targeting](#)

**Example documents:**

A10: [Example terms of reference for technical coordination units or working groups](#)

A11: [Examples of a transparent 'public face' for integrated social protection initiatives](#)

**Best practice reports and guidance:**

A12: International Labor Organization, (2021) "[Governance of social protection systems: a learning journey - Module #1: Coordination](#)". ILO.

A13: Transform, (2017) "[Management Information Systems and Approaches to Data Integration - Manual for a Leadership and Transformation Curriculum On Building and Managing Social Protection Floors in Africa](#)" Transform.

## INDIVIDUAL DIMENSION

This dimension is concerned with the knowledge, skills and attitudes of the members of staff actively involved in population targeting initiatives, and their managers. These reflect the educational backgrounds and professional training and experience of the individuals in question, and can be improved through training or other capacity building interventions if necessary.

**Theme 1** is concerned with the underlying attitudes and **commitment towards coordination** with other organizations which staff bring to their work, and is closely related to the informal aspects of the institutional environment.

*Key action to improve: Establish a program of internal communications and workshops to improve attitudes towards working with other organizations.*

**Theme 2** addresses the levels of relevant **knowledge and skills**, both technical and related to managerial and administrative functions, which are available, and plans to address key gaps. Though it is not specifically highlighted, this should also include consideration towards institutional memory and how this is archived, especially in systems where key positions have high turnover.

*Key action to improve: Carry out capacity assessment with staff concerned and commission appropriate training interventions in priority areas identified. Also, consider establishing a knowledge management function or resource to preserve institutional memory of previous population targeting and coordination efforts.*

**Theme 3** reflects the extent to which staff have internalized any degree of delegated authority they have been accorded, and feel confident and **empowered** to take necessary decisions on their own initiative.

Key action to improve: Ensure clear messaging from senior levels, reinforced by practical action to support staff in taking and adhering to delegated decisions.



### **Implementation Toolbox: Individual Dimension**

The following tools have been created and curated to assist implementers and practitioners with the key action and decision areas highlighted above:

#### **Original implementation tools:**

A14: [Checklist of actions for improving individual cooperation across agencies](#)

A15: [Agenda and facilitator materials for running a multi-agency workshop to discuss closer cooperation](#)

#### **Example documents:**

A16: [Example of a methodology for how to evaluate and create a competency framework in the health sector, for potential application to institutional coordination for population targeting](#)

#### **Best practice reports and guidance:**

A17: Colville, J. (2008) "[Capacity Assessment Methodology User's Guide](#)" Capacity Development Group Bureau for Development Policy. UNDP.

## **CASE STUDIES OF INSTITUTIONAL COORDINATION FOR POPULATION TARGETING**

### **Box 3 - Institutional coordination arrangements for the Philippines 'Listahanan'**

The Listahanan (or household list) is the national social registry developed by the Philippines Department of Social Welfare and Development (DSWD) and launched in 2009. It is designed to centralize the identification and registration of low income Filipino families across a wide range of social programs, including the main conditional cash transfer scheme, social pension for the elderly, and the PhilHealth universal health insurance program, for whom it identifies low income families for whom the government pays their premiums. As of 2021, Listahanan had data on over 75 percent of households in The Philippines, including households well above the poverty line or eligible for targeted social assistance programs.

Listahanan is a leading example of a national social registry, which by centralizing population targeting into a single program has simultaneously increased the accuracy and coverage of targeting and reduced the cost. The primary means of data gathering is a census sweep of around three-quarters of Filipino households, which is conducted every four years and contains more than 100 questions relating to identity, living conditions and other socio-economic factors. Individual programs can then select their eligibility criteria from among these indicators, and draw down their own list of eligible households.

More than 50 national social protection programs are mandated by law to use the Listahanan, all governed by a Memorandum of Agreement that they must sign with DSWD, and which specifies:

- When raw/source data can and cannot be shared with other agencies
- How data requests should be made
- The report-back requirements for agencies using the data
- Usage of common data dictionary and standards among agencies using the data
- Minimum requirements of agencies with whom the data is shared, for example, secure hardware, designated data privacy officers etc.

The Listahanan itself also has a number of lines of accountability that ensure that it remains responsive to the needs of other ministries and social programs (as opposed to only placing mandates on them). This includes oversight by a group of cabinet ministers who form a special council to govern all public social programs for the poor. There are also two advisory committees - one of management level officials in the social programs that use the Listahanan, and another of external social protection and development experts. In addition, there are various regional project management offices who coordinate with relevant programs and officials at a more decentralized level.

Interoperability with PhilHealth has come a long way, but still with important priorities for further progress on the horizon. As of 2014, many government hospitals are able to enroll low income patients at the point of care, by having a medical social worker assess and enroll them for PhilHealth coverage, with this information later forwarded to the Listahanan for validation. This is an important potential element of bi-directional updating, however, it is currently not possible for PhilHealth to update Listahanan data in other ways, such as updating personal information (e.g. if there is a birth in a family) outside of the four-year census sweep. Another limitation is that, with no unique identifier between Listahanan and PhilHealth's beneficiary databases, the new data released by Listahanan every four years has to be manually matched. However, a solution to this is in sight as both agencies will soon adopt a common identifier as mandated by the Philippine Information System Act, and automated matching is planned for the next update of Listahanan data collected throughout 2021.

Figure 7: Governance structure of the Philippines Listahanan



#### Box 4 - Liberia Inter-Agency Technical Working Group Implementation Case study

With more than half of its 4.7 million population living below the national poverty line, Liberia faces a great many challenges in improving health and development. Currently, three major reforms are moving ahead in parallel, which, if they can work together, will be a major step forwards in poverty alleviation over the next decade:

1. The Ministry of Health is in the early stages of creating a social health insurance scheme, to be known as the Liberia Health Equity Fund (LHEF). This will hopefully use existing targeting systems to identify a proportion of the population (yet to be determined) who will be exempted from paying premiums into this scheme. The intention is to launch the scheme in 2023 and achieve universal coverage by 2030.
2. The National Identification Register (NIR) is being created as the foundational identity system for everyone in Liberia, and features a unique ID number, a smart card and a biometric verification system. Enrolment began in 2017 with a plan to achieve total coverage by 2023.
3. The Social Registry Information System (SRIS) will be Liberia's social registry of poor and vulnerable households. Presently in development by the Ministry of Gender Children and Social Protection (MoGCSP), data collection for the registry began in December 2020 with an expected completion date in 2022. The registry will be used to deliver a national cash transfer

scheme, but also - it is hoped - a wide range of other social protection programs, including health.

As the implementation dates for each of these show, the next few years are a critical period for all three reforms. Successful coordination will enable the data gathered on the poor and vulnerable to flow seamlessly to the new LHEF, allowing automatic coverage of these households when the social health insurance scheme launches. However, if each agency takes a more narrow view and focuses just on its own mandate and (sizable) responsibilities, then separate systems may develop which lumber Liberia with fragmented and non-interoperable processes for many years.

Recognizing this challenge, in April 2021 a joint team of officials from the MoH, MoGCSP and NIR put themselves forward as an implementation case learning example for the JLN Learning Collaborative on Population Targeting. They hoped to use the JLN platform as a means of bringing their agencies together and devising mechanisms that would more effectively coordinate their respective reforms. The approach meant that participants of the LCPT would be able to accompany the Liberian team through their initial thinking and plans - providing support and challenge as they developed them, but also taking the learning from this back to their own systems, many of which also had comparable issues of sub-optimal inter-agency coordination.

The group undertook a series of four 90-minute virtual workshops over five months through which to formulate a joint plan for an additional technical coordination group between the three agencies (and other key players). These virtual meetings began with mapping of current coordination mechanisms, key issues and challenges, with extended group discussion to understand where the experiences of other countries in the group might help. Asynchronous collaboration and offline activities and tasks supported three further workshops as the plans took shape, focusing on in particular on key lessons from equivalent groups in other systems such as their scope, structures, legal basis, composition and success factors.

During the course of these meetings, the Liberia team were able to make significant progress towards their goal of better coordination at the operational and technical levels. Their proposed Technical Working Group (TWG) now has a guiding objective, which is “To improve coordination in support of effective targeting for universal health coverage in Liberia”, draft terms of reference, a proposed membership structure, and an action plan that they would propose to follow in creating the TWG.

Though implementation of this plan is being held up until there is official approval from relevant ministers to move forward, such that there is no current timeline by which the Liberia team expect the TWG to be operational, the process of working together on these topics alone has created a much better level of cooperation at the interpersonal level among the individuals involved. The team are now finding it easier to invite and participate in each other’s policy and strategy development meetings, and the process was also helpful for the many other countries that participated in reflecting on how their own systems of institutional coordination could be improved in future.



### *Box 5 - Multi-Agency Coordination Mechanisms in The Gambia case study*

The Gambia is a relatively small country of 2.4 million population in West Africa, with widespread poverty and food security. In 2018 a World Bank assessment of the 21 different social protection programs run by seven different ministries was conducted, and concluded that this system was fragmented, under-coordinated and insufficiently systematic in addressing poverty. It pointed to opportunities for a more long-term approach that organized these different schemes under a coherent strategy and approach. A national social protection policy and implementation plan did exist at that time, but neither were being executed with any momentum.

Policy changes were made at multiple layers to create a more coordinated approach. At the institutional level, a National Social Protection Secretariat was set up to ensure that the national social protection policy was being implemented as planned. Key features of this secretariat include:

- It has authority, which is derived from being a secretariat of a much more high-level Social Protection Steering Committee with senior political leadership.
- Its institutional location, sitting within the Vice President's Office, gives it convening power above that of the individual ministries it seeks to coordinate.
- The Committee's membership balances seniority and continuity, by having Permanent Secretary-level delegates from all the social protection programs present, with one (named) alternate which they could send in their place if unavailable.
- The Secretariat was given a broad but focused role, with ownership of a wide range of responsibilities including establishing a social registry, aligning social protection policies across ministries, improving program coordination, jointly reviewing social protection sector spending plans, and developing a central social protection monitoring and evaluation system.

There was also a need to create coordination links at the more operational and managerial layers across agencies and programs. Therefore in 2019 a Social Registry Implementation Technical Working Group was established. This was still chaired by the Office of the Vice President, but had membership from more technical staff across eighth key ministries that would use the social registry in future. This too was highly successful, and quickly built momentum as a result of meeting frequently, having a clear work plan, all members having a clear reason to be there, and relatively quick development of trust.

Together, the secretariat and technical working group have significantly improved coordination, and the social registry reform is progressing well so far, with data collection for it well advanced. The focus of these units is now shifting towards the long-term sustainability of the reforms, particularly after World Bank support ends in 2024. This may involve the creation of a permanent committee of social registry users (both governmental and non-governmental organizations), and beginning to target wider interoperability issues across government.

## DATA LINKAGE

### DEFINITION OF DATA LINKAGE BETWEEN HEALTH AND NON-HEALTH AGENCIES FOR POPULATION TARGETING

The linking of different datasets together is perhaps the most important aspiration in the development of strong population targeting systems - especially from the health sector perspective which largely augments and uses population targeting data rather than generating the majority of it directly. **Data linkage is the primary reason why most officials participating in this learning collaborative ultimately wanted to get health and non-health institutions working together** (the subject of the last chapter).

The linking and/or merging of data systems for population targeting has been a common aspiration within the social protection systems of many low and middle-income countries. There has been particular attention over the last decade to the creation of Social Registries that centralize data on the poor and vulnerable for use by multiple government programs and ministries, as well as Beneficiary Operations Management Systems (BOMS) that integrate later stages of the social protection delivery chain (See Box 2). However, these reforms are often incomplete in not covering all the programs, geographical areas and population sub-groups intended, or allowing data to become outdated through infrequent updating. Furthermore, for a variety of reasons related to scale, timing and institutional divides, **health agencies are often not linked into these social registry reforms as other social protection programs are, creating a particular divide which this chapter seeks to help overcome.**

**Data linkage covers the ability to bring multiple datasets from health and non-health sources together, so as to enhance the completeness, accuracy, richness, relevance and timeliness of population targeting.** It does not necessarily entail creating one central registry, nor does it require full integration across systems. Rather, the operational goal is sufficient cross-agency interoperability of data systems to share population data from one agency which will enable targeting decisions by another. Indeed, increasingly the focus by countries is shifting away from centralized social registries and towards more distributed forms of interoperable and linked public data (See Figure 9 below). These include 'clearing house' and cloud-based systems in which each program or agency continues to operate its own independent system but with either one- or two-way data exchange between them.

**From a practitioner's perspective, all of these options require the use of common data standards, storage, management and analysis across different agencies and programs, typically supported by some form of unique identifier (or a proxy).** Merging records is just one stage in this process, with successful and sustainable data linkage requiring 'interoperability' at the political, legal, organizational, semantic and technical levels, as described in Figure 8, as well as an ecosystem of supportive policies, procedures, platforms and norms.

Figure 8: Dimensions of interoperability (Delgado et al. 2013)

<b>Political</b>	Cooperating partners have compatible visions.
<b>Legal</b> (Legislative & Regulatory Alignment)	Synchronization of the legislation from all participating organizations so that electronic data is accorded the proper legal weight wherever it needs to be used in the other organizations.
<b>Organizational</b> (Organizational and Process Alignment)	The processes by which different organizations collaborate to achieve their mutually beneficial, mutually agreed upon e-Government service-related goals.
<b>Semantic</b> (Semantic Alignment)	Ensuring that the precise meaning of exchanged information (concept, organization, services, etc.) is preserved and well understood.
<b>Technical</b> (Systems, Interactions & Transport)	Coordination of the technical issues involved in linking computer systems and services (open interfaces, interconnection services, data integration, middleware, data presentation and exchange, accessibility and security services).

Often health agencies will have a very clear aim that they wish to achieve through data linkage for population targeting, such as **merging the beneficiary registers of a health and cash transfer scheme, or incorporating a national ID number into their health insurance database**. This might enhance capabilities to offer **auto-enrolment into health programs**, for example, as is the aspiration in Ghana (See Box 8). There is also often a more general sense that data linkage could be used to improve population insight and reduce errors of inclusion (people enrolled or subsidized who should not be) and errors of exclusion (people who should be enrolled or subsidized but aren't). This is driven by a perception that **the amount of data held on poor and vulnerable citizens across government is proliferating rapidly but in a siloed manner, and that by achieving interoperability of different datasets it would be possible to conduct population targeting more accurately and with fewer resources**.

Despite the many opportunities identified by health officials in linking their population targeting datasets with national ID systems, social registries, school and nutrition data and other sources (See Tool B2 below), successful data linkage was perceived as a major technical and implementation challenge for the participants in this collaborative, who identified **seven key barriers** that they faced on the ground:

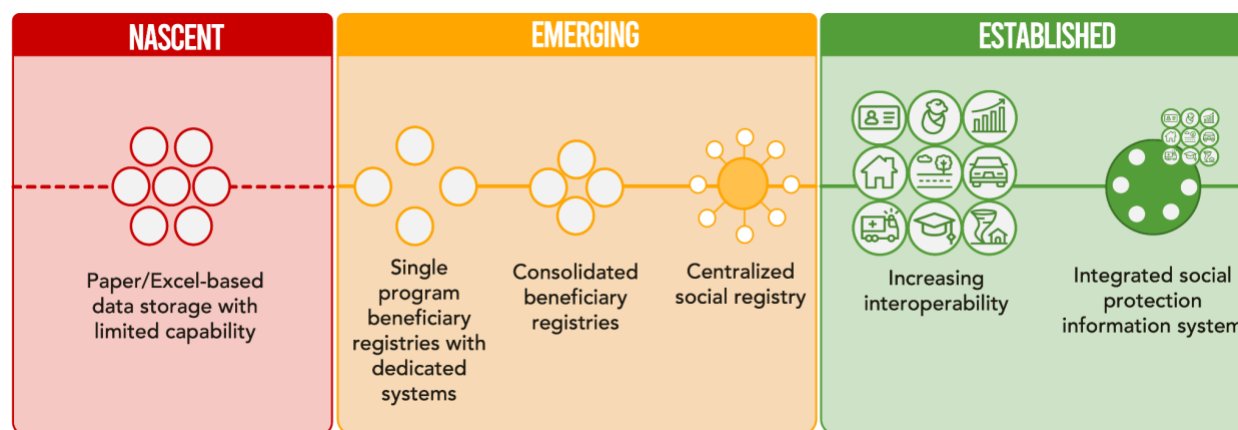
1. One or more of the datasets to link are outdated, or contain an unacceptable level of errors,
2. Legal frameworks that prevent exchange and sharing of population targeting data between agencies and programs,
3. Lack of a unique identifier, which means that linkage will result in substantial mismatches of data, duplicates and/or gaps,
4. Data systems that are required to inter-operate are on different platforms, often developed by external IT providers and with “vendor lock-in” requiring additional work to adapt systems to be ready for interoperability, potentially at additional cost,

5. The unit of measurement or definitions by which data are coded by different systems are incompatible - for example one data system or program may track individuals while another tracks households,
6. Keeping data linkage sufficiently high on the agenda between agencies working on their own major reform programs,
7. Securing the necessary IT resources to implement and maintain linked datasets.

## WHAT ARE THE DIFFERENT MODELS WHICH CAN SUPPORT DATA LINKAGE FOR POPULATION TARGETING?

Figure 9 describes a **hypothetical trajectory** that some countries have made towards fully linked data across government for social protection and population targeting. This starts with digitization of beneficiary data into **single program beneficiary registries**, which may then be brought together into an **integrated beneficiary registry** serving multiple agencies and programs. A social registry goes beyond integration of beneficiary to include information on a wider population of potential beneficiaries. This may be a centralized data repository or “virtual” in that it relies on interoperability with other administrative data sources to construct or validate the population information in the social registry. As the breadth and depth of data generated across different public agencies and programs grows, however, this centralization within a single registry can become a bottleneck. For this reason, some systems then move on towards a more **distributed system of interoperable data sets** in which one- and sometimes two-way linkage and updating are possible through the cloud.

Figure 9: A typology for assessing social protection information systems (adapted from Williams and Moreira 2020)



Though Figure 9 displays this as a linear journey, in reality there are many valid models for achieving the goal of linked datasets for population targeting (See Figure 10). Some of the other **key design choices** for leaders to consider include:

- Whether or not to have a central social registry, and whether health should use this data or have a system independent from this.

- How many datasets should health link to? For example, if the intention is to offer subsidized health insurance to half the population, but only 15 percent are covered by a social registry, there will be a need to link in and merge other datasets, or potentially to carry out sector-specific data collection.
- Should the link be one- or two-way, for example should changes made to beneficiary data in the health database also create changes in a social registry, or only vice versa?
- Should the link between datasets be real time, or only refreshed periodically?
- Whether to perform additional verification checks on the data being linked to, such as validating a sample of records, or targeting checks on particular groups at risk of being missed out (e.g. nomadic communities, refugees etc).
- Should health have access to the full richness of population targeting data held by other agencies so as to perform additional analyses, or only a subset of it (e.g. beneficiary names and addresses) so as to protect privacy?
- Should health apply its own eligibility criteria as to who qualifies for the program or use the same ones as other social programs using the population targeting data?
- Whether to only integrate at the data level, or also integrate the later processes of registration, eligibility assessment and onboarding.

Figure 10: Models of data linkage and integration

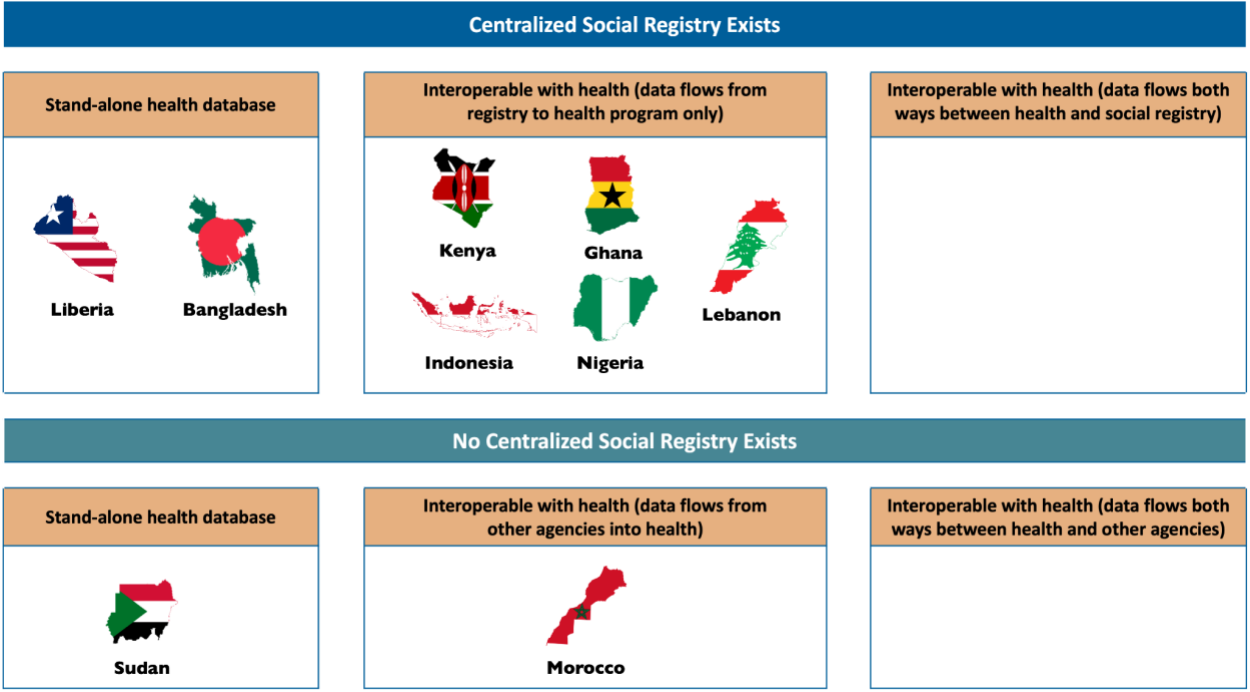
1. Manual merging into a consolidated beneficiaries list	2. Creating a new centralized register from legacy systems								
<p><i>Manual merging of data</i> involves gathering data from existing systems of different agencies. It then needs data cleaning and harmonization to produce a consolidated beneficiary list.</p> <table border="1"> <thead> <tr> <th>Pros</th> <th>Cons</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> <li>• Requires simple technologies to accomplish.</li> <li>• Can be done relatively quickly and cheaply.</li> </ul> </td> <td> <ul style="list-style-type: none"> <li>• Manual merging must occur as regularly as the data changes.</li> <li>• The resulting list may not have ability for analysis.</li> </ul> </td> </tr> </tbody> </table>	Pros	Cons	<ul style="list-style-type: none"> <li>• Requires simple technologies to accomplish.</li> <li>• Can be done relatively quickly and cheaply.</li> </ul>	<ul style="list-style-type: none"> <li>• Manual merging must occur as regularly as the data changes.</li> <li>• The resulting list may not have ability for analysis.</li> </ul>	<p><i>A new centralized register</i> requires a new data model which would underpin development of a new information system. All data from legacy systems of individual agencies then need to be migrated to the new model.</p> <table border="1"> <thead> <tr> <th>Pros</th> <th>Cons</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> <li>• Can build the system to suit up-to-date requirements.</li> <li>• Expertise required is relatively easy to find.</li> </ul> </td> <td> <ul style="list-style-type: none"> <li>• Development can be long and costly.</li> <li>• May create governance issues about who 'owns' the new system.</li> </ul> </td> </tr> </tbody> </table>	Pros	Cons	<ul style="list-style-type: none"> <li>• Can build the system to suit up-to-date requirements.</li> <li>• Expertise required is relatively easy to find.</li> </ul>	<ul style="list-style-type: none"> <li>• Development can be long and costly.</li> <li>• May create governance issues about who 'owns' the new system.</li> </ul>
Pros	Cons								
<ul style="list-style-type: none"> <li>• Requires simple technologies to accomplish.</li> <li>• Can be done relatively quickly and cheaply.</li> </ul>	<ul style="list-style-type: none"> <li>• Manual merging must occur as regularly as the data changes.</li> <li>• The resulting list may not have ability for analysis.</li> </ul>								
Pros	Cons								
<ul style="list-style-type: none"> <li>• Can build the system to suit up-to-date requirements.</li> <li>• Expertise required is relatively easy to find.</li> </ul>	<ul style="list-style-type: none"> <li>• Development can be long and costly.</li> <li>• May create governance issues about who 'owns' the new system.</li> </ul>								
3. Clearing house for exchanging data between systems	4. Virtual integration in which legacy systems remain separate but interoperable								
<p><i>A clearinghouse</i> allows for data and transaction changes between existing agency systems, leaving legacy systems in place but allowing them to communicate and share selected agency data through the clearinghouse.</p> <table border="1"> <thead> <tr> <th>Pros</th> <th>Cons</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> <li>• Addresses the problem of how to keep the systems updated.</li> <li>• Allows legacy systems to remain in place.</li> </ul> </td> <td> <ul style="list-style-type: none"> <li>• Separates out data harmonization issue without solving it directly.</li> <li>• Not always clear how to resolve inconsistencies between records.</li> </ul> </td> </tr> </tbody> </table>	Pros	Cons	<ul style="list-style-type: none"> <li>• Addresses the problem of how to keep the systems updated.</li> <li>• Allows legacy systems to remain in place.</li> </ul>	<ul style="list-style-type: none"> <li>• Separates out data harmonization issue without solving it directly.</li> <li>• Not always clear how to resolve inconsistencies between records.</li> </ul>	<p><i>A new centralized register</i> requires a new data model which would underpin development of a new information system. All data from legacy systems of individual agencies then need to be migrated to the new model.</p> <table border="1"> <thead> <tr> <th>Pros</th> <th>Cons</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> <li>• Provides appearance of integration without uprooting legacy systems.</li> <li>• Easier to add additional databases at a later date.</li> </ul> </td> <td> <ul style="list-style-type: none"> <li>• Less well utilized in the social protection sector to date.</li> <li>• Still requires strong data governance to ensure errors don't creep in.</li> </ul> </td> </tr> </tbody> </table>	Pros	Cons	<ul style="list-style-type: none"> <li>• Provides appearance of integration without uprooting legacy systems.</li> <li>• Easier to add additional databases at a later date.</li> </ul>	<ul style="list-style-type: none"> <li>• Less well utilized in the social protection sector to date.</li> <li>• Still requires strong data governance to ensure errors don't creep in.</li> </ul>
Pros	Cons								
<ul style="list-style-type: none"> <li>• Addresses the problem of how to keep the systems updated.</li> <li>• Allows legacy systems to remain in place.</li> </ul>	<ul style="list-style-type: none"> <li>• Separates out data harmonization issue without solving it directly.</li> <li>• Not always clear how to resolve inconsistencies between records.</li> </ul>								
Pros	Cons								
<ul style="list-style-type: none"> <li>• Provides appearance of integration without uprooting legacy systems.</li> <li>• Easier to add additional databases at a later date.</li> </ul>	<ul style="list-style-type: none"> <li>• Less well utilized in the social protection sector to date.</li> <li>• Still requires strong data governance to ensure errors don't creep in.</li> </ul>								

Source: Streveler and Lim PPT (Unpublished).

**A system’s starting point makes a major difference to which model of data linkage is most viable**, as health will typically be one of many different agencies contributing and using population targeting data. The presence of an existing social registry is one key factor - something that exists in most of the countries in this collaborative. However, this is by no means the only solution, as **health will often have different requirements for population targeting data to other social protection programs** (e.g. a higher proportion of the population requiring coverage, different groups in need of targeting). Furthermore, even in systems with interoperability between their social registry and health programs the link is rarely two-way. This means that while some health agencies contribute periodic data that is used in the social registry (such as birth and death records, or certification of disability or pregnancy), often this is not the case. Additionally, the social registry is losing out on the many contacts that health services have with beneficiaries (and potential beneficiaries) which could be used to ensure that data is kept up to date.

Figure 11 shows the different models and stages currently in use across the countries participating in this collaborative, although many are actively working on reforms that will move them towards greater interoperability.

*Figure 11: Degrees of data linkage and centralization among health agencies participating in the JLN Learning Collaborative on Population Targeting*



**A DECISION CHECKLIST ON DATA LINKAGE FOR POPULATION TARGETING**

With so many potential routes to data linkage for population targeting, and the options available to health being heavily dependent on external factors, **there is no one model or path which is necessarily ‘best’**. There are, however, a common set of steps and features which every successful model

**requires**, and which health leaders will need to consider regardless of which datasets they wish to link to and for what purpose.

The following ‘decision checklist’ goes through each of the stages where health leaders need to work through key choices and tasks, alongside their colleagues responsible for the other datasets with which data linkage is desired. Each question in the checklist is accompanied by a specific tool designed to assist with this implementation work, to assist health leaders to move through the necessary steps towards whatever their vision of linked population targeting data is. The checklist is divided into three distinct sections:

- 1. Institutional readiness:** Data integration and institutional coordination are inextricably linked, as agencies must be able to work together to bring their data together, and one of the biggest barriers to working together is siloed data that cannot be linked. While institutional coordination is more substantively covered in the previous chapters, there are some specific areas of readiness for data integration covered in this section.
- 2. Data and sharing readiness:** This section deals with the ‘nuts and bolts’ of getting two or more data sets to link together from a technical perspective, including tools for critical areas such as interoperability standards, records validation and data protection procedures.
- 3. Updating, using and analyzing the data:** So much attention and effort is typically directed to implementing a data linkage that the maintenance of the linked datasets - as well as making full use of them - can be overlooked. This section looks at how to ensure these important priorities are not lost sight of.

The decision checklist only focuses on linking existing health and non-health datasets for population targeting. For specific best practice on how health data systems themselves should be structured and established to perform their functions adequately, see the previous JLN best practice report: *A guide to common requirements for national health insurance information systems* (JLN 2019).

*Box 6: A Decision Checklist on Data Linkage for Population Targeting*

<b>Decision Checklist on Data Linkage for Population Targeting</b> (Commentary and implementation tools for each question can be found below)
<b>I. Institutional Readiness</b>
I.1. Is a whole-of-government data governance structure/agency in place? If not, what purpose-specific data sharing working group can be put in place?
I.2. Is there agreement on the key agencies to involve in the data interoperability process, including those beyond the health and social protection sectors? Are all necessary agencies signed up?
I.3. Is a data interoperability framework in place? If not, who is responsible for developing this?
I.4. Is there a data sharing service agreement or protocol which will regulate data sharing across agencies?
I.5. Has an assessment been conducted of existing/legacy systems that are in place in the key agencies?

1.6. Has a business case for the data sharing/integration been developed (including incremental investment needs) and presented to core budgeting agencies?

## **2. Data and sharing readiness**

2.1. Are agreed data standards and dictionaries in place, or a process to develop them?

2.2. Is there a common/unique identifier for households/individuals or - if not - can one be created?

2.3. Are any adjustments required in the business processes for data management and operational workflows in the agencies sharing data to ensure smooth data exchange and use of shared data in operations?

2.4. Has source data in key agencies been cleaned and validated according to common standards, and is there agreement on "clean enough" data thresholds?

2.5. In addition to data cleaning by individual agencies, has a process been agreed for data harmonization?

2.6. Is there an operational plan for the data interoperability project?

2.7. Do policies and procedures for requesting access to and use of the data exist?

2.8. Are systems and protocols for data security and privacy in place?

2.9. Is a testing (e.g. prototyping or alpha/beta testing) and/or piloting phase planned?

2.10. Will outsourced software vendors be used in developing data sharing software/platforms? If so, has a detailed specification for their work been designed?

2.11. What human resources are in place in each key agency to manage data matching and sharing and are they adequate? What HR capacity enhancement is needed to make the data sharing work smoothly?

## **3. Updating, using and analyzing the data**

3.1. How will integrated data be kept up to date, and who is responsible for this?

3.2. Is bi-directional updating planned, so that updating becomes a shared responsibility?

3.3. Have common challenges/pathways/options for recertification and data updating been considered?

3.4. Have the rights and roles of agencies to analyze the newly integrated data been agreed, and do they have the skills to do this?

3.5. What decision support and analytics systems exist in the participating agencies to maximize the value of population targeting data for operational, oversight and policy development purposes?



## INSTITUTIONAL READINESS

### ***1.1. Is a whole-of-government data governance structure/agency in place? If not, what purpose-specific data sharing working group can be put in place?***

A growing number of countries have whole-of-government institutional arrangements to promote common approaches and standards for data management and sharing. Such bodies typically have a mandate to coordinate issues such as infrastructure of data transfer platforms, setting of common data standards and data management practices, and “rules of the game” for data interoperability across agencies. They may be standalone agencies or a cross-agency council. The body often sits under a core agency such as the Presidency or Prime Minister’s Office, Finance or Planning, or an IT ministry, or elsewhere in government. The key is that they have a high-level mandate to convene different agencies and enforce common data standards across agencies. If such an agency exists, it is important to coordinate sector-specific efforts to improve population targeting data management with the whole-of-government agency from the start.

If such a whole-of-government agency/arrangement does not exist, it would be important to put in place an inter-agency working group of some form with representation from the agencies which will be critical to the sharing of data for purposes of population targeting for the health sector. At the outset, having a smaller number of committed and “mission critical” agencies is more important than broad membership, but this can be gradually expanded over time as needed.



#### **Implementation Toolbox**

BI: [Click this link](#) to access **examples of multi-agency and cross-government data governance and IT working groups**, including Mexico National Digital Strategy Office under Office of the President; Uruguay Agencia de Gobierno Electrónico y Sociedad de la Información (AGESIC) under Office of the President; Singapore Smart Nation and Digital Government Group (SNDGG); Moldova e-Government Center/Govt. CIO Office under PM Office; and Mauritius Central Open Data Team under IT ministry.

### ***1.2. Is there agreement on the key agencies to involve in the data interoperability process, including those beyond the health and social protection sectors? Are all necessary agencies signed up?***

Ideally all agencies which are essential to planned data sharing should be part of the governance arrangement discussed above. Beyond the relevant health sector agency, this would often include a social welfare ministry, the national identity agency if one exists, civil registration and vital statistics agency, and any whole-of-government data governance body. Depending on the country, representation of the subnational level may also be desirable.



### **Implementation Toolbox**

B2: [Click this link](#) to access a **unified list of potential data sources and institutions to consider linking with for improved population targeting, from a health agency perspective.**

### **1.3. Is a data interoperability framework in place? If not, who is responsible for developing this?**

Data interoperability is reliant on an agreed upon framework for how data sharing is going to happen and the technical aspects of sharing across systems. If that does not already exist, the concerned agencies should agree on the process for developing that framework and which agencies are responsible for what elements of development. It is unlikely that a single agency will take responsibility for the entire process. The participating agencies should formally endorse it as part of the overall work plan for data sharing.

A data interoperability framework should be agreed between relevant agencies to formalize a standardized approach to data sharing, specify the political and legal context within which sharing will occur, the business processes and concepts involved in interoperability operations, and the technologies used to implement them.

Elements that such a framework should include are: (i) infrastructure; (ii) data ownership, hosting and governance; (iii) “look and feel” of the data sharing platform and messaging standards between agencies; (iv) data security, safeguards, and privacy; and (v) operational details of data sharing (e.g., the form of inter-agency agreements). A growing number of countries also have an interoperability framework for data exchange across governments (e.g., France General Reference Framework, based on EU Framework), and interoperability platforms for such exchange (e.g., Argentina; Uruguay).



### **Implementation Toolbox**

B3: [Click this link](#) to access **an annotated list of useful interoperability frameworks and guidance, including global standards such as the European Union, International Social Security Association, IW3C, OASIS, the Open Group, as well as the Global Interoperability Framework building blocks, and Levels of Information System Interoperability Framework maturity model.**

### **1.4. Is there a data sharing service agreement or protocol which will regulate data sharing across agencies?**

A data sharing service agreement or protocol of some form between the relevant agencies should be in place. This may be high level and fairly general or more detailed and include business rules and procedures

for resolving conflicts in data from different sources. The agreement should include the following essential elements:

- Data assets: Types of data to be shared and standards for describing data,
- Participants: Rights and responsibilities of data requesters and data holders in the data sharing agreement,
- Risk management: Security protocols, liability, jurisdiction in which the agreement is operating,
- Access: Mechanisms for data to be shared, permissions, and usage rules,
- Retention: Where data is stored, how frequently it is updated, and duration of the agreement, and
- Individual rights: The extent to which individuals have control or transparency into how and when data is shared.



### **Implementation Toolbox**

B4: [Click this link](#) to access a **folder of example data sharing protocols, inter-agency data request templates, Memoranda of Understanding on data sharing and service level agreements.**

### ***1.5. Has an assessment been conducted of existing/legacy systems that are in place in the key agencies?***

In order to achieve seamless data sharing between systems, an initial assessment should be carried out of the existing information systems in each of the agencies which will be involved in data sharing. This would include a review of the hardware, software systems in use, any agency-specific data standards and definitions, what data are stored in each agency, and whether in traditional or cloud-based systems, etc. This will help to identify what degree of system harmonization is already present or what measures will be required to facilitate data sharing.



### **Implementation Toolbox**

B5: [Click this link](#) to access a **comprehensive information system assessment tool, *Social Registries for Social Assistance and Beyond : A Guidance Note and Assessment Tool* (Leite et al. 2017)**

## ***1.6. Has a business case for the data sharing/integration been developed (including incremental investment needs) and presented to core budgeting agencies?***

Ensuring effective data sharing will often involve some incremental investment and making the case to funding agencies for the budget to make the necessary investments. This will require a business case to support the budget request. This may include what incremental investment is needed to facilitate data sharing, identifying cost savings that will result from data sharing (e.g., through reduced duplication of data collection and updating across agencies), what work will be done in-house and/or outsourced (and cost implications), a timeline for making upfront investments, and estimated recurrent costs for operating the data sharing platform.

In costing funding requirements, investments can broadly be divided into “hard” and “soft” components. The hard components include hardware, software, middleware to support integration, telecommunications equipment, and supplies. The soft components include training and retraining of staff, maintenance and support, business process redesign, capacity building, and incremental staffing costs. It is vital in making budget proposals that not only initial but ongoing investment and recurrent cost needs (and benefits) are identified to ensure sustainability.



### ***Implementation Toolbox***

**B6: [Click this link](#) to access a framework for calculating shared savings between health and non-health agencies from data linkage for population targeting.**

**B7: [Click this link](#) to access the global best practice report World Bank (2018) “[Public Sector Savings and Revenue from Identification Systems: Opportunities and Constraints](#)” International Bank for Reconstitution and Development/The World Bank.**

## **DATA AND SHARING READINESS**

### ***2.1. Are agreed data standards and dictionaries in place, or a process to develop them?***

Common data standards are a crucial element of effective data sharing. These may be drawn from whole-of-government data standards where they exist, or may need to be agreed or supplemented between participating agencies. Data standards are guidelines by which data are consistently described and recorded. They provide the shared rules for data representation, data languages and formats, definitions, structure, tagging, and transmission, so that the data entered into a system can be reliably read, sorted, indexed, retrieved, and communicated between systems.

Where there is no or limited prior agreement on data models and standards, governments may build on internationally available data standards such as ISO/IEC TR 10032:2003 which outlines the ISO Reference Model of Data Management which defines common terminology and concepts pertinent to all data within information systems. It can be a reference point to help define more specifically services such as database

management systems or data dictionary systems. There are other general data standards such as the TOGAF Standard from the Open Group, and OASIS Open Data protocol, and also specific standards such as ISO 8601 for data/time, or ISO 6709/2008 for geographic coordinates.

Data dictionaries are centralized repositories of information about data definitions such as meaning, relationships to other data, origin, usage, and format. The data dictionary can take the form of a document outlining the information, or be an integral element of the underlying databases, or be “middleware” that extends or supplants the original data dictionary of the databases of each participating agency when sharing data. Data dictionaries catalogue the organization, contents, and conventions of one or more databases. They typically include names and descriptions of various tables (records or entities) and their contents (fields) plus additional details, like the type and length of each data element. The data dictionary can also show the relationship between tables.

The key steps and decisions with respect to data dictionaries are: (i) compiling the data dictionary; (ii) validating it; (iii) deciding who publishes it, and who provides electronic access; (iv) which agency enforces its use; (v) who ensures its security; and (vi) who updates it from time to time?



### **Implementation Toolbox**

**B8:** [Click this link](#) to access **example versions of data dictionaries and data standards, including international standards/protocols.**

## **2.2. Is there a common/unique identifier for households/individuals or - if not - can one be created?**

A common identifier at the household and/or individual level is vital to facilitate data sharing across systems. The optimal identifier would be a unique national identity number if available. If this does not exist or is not available, there are ways to establish a unique number across databases, such as using “match key” variables (name; mother’s name; DOB; and codes from documents), and simple probability matching models.



### **Implementation Toolbox**

**B9:** [Click here](#) for a **best practice report on creating unique digital identity systems**, World Bank (2019) “[Identity for Development \(ID4D\) Practitioner’ Guide](#)” Version 1.0 (October 2019). Washington, DC: World Bank. License: Creative Commons Attribution 3.0 IGO (CC BY 3.0 IGO).

### 2.3. Are any adjustments required in the business processes for data management and operational workflows in the agencies sharing data to ensure smooth data exchange and use of shared data in operations?

Business rules reflect the policies and procedures of each agency in an operational form, in particular providing guidance on what data are able to be accessed by whom and what each agency (and/or specified officers within each agency) is authorized to do with the data. From an IT perspective, business rules can be expressed in conventional programming languages or natural languages, and may be expressed in user-friendly rule forms such as decision tables or decision trees. Workflows focus more on the sequence of operational steps in the data sharing process and its use within each agency. Some aspects of business rules and workflows may be outlined in the data sharing service agreement, but typically more detailed operational guidance is needed for those managing the systems and frontline staff where relevant. These would be outlined in a basic operational manual or SOPs governing the inter-agency data sharing.



#### **Implementation Toolbox**

*BI0: [Click this link](#) to access **example business rules for integrated data systems, as well as global best practice guidance on their design.***

### 2.4. Has source data in key agencies been cleaned and validated according to common standards, and is there agreement on "clean enough" data thresholds?

The objective of data cleaning is to obtain clean and correct datasets prior to trying to link data across agencies. The data cleaning process should be guided by a few overarching questions:

- How “dirty” are the data which need cleaning? A realistic forecast is needed for how much dirty data you expect to find before setting a “cleaning budget”.
- Can the data be transformed using standard tables, such as locality tables, mapping tables, postal-code tables, facility tables, etc? This helps to standardize while cleaning.
- At what point to stop the cleaning process? If the goal is less than 90% clean data, it may not be worth doing at all, as the transformed database may never be sufficiently authoritative.

Where possible, some prior verification of data should be done within each agency before data linkage across agencies takes place, subjecting data to an external verification process that can be done in person or by comparing to other administrative data (e.g., identity and citizenship records). Validation checks should focus on ensuring data is: (i) complete; (ii) correct; and (iii) relevant. This requires internal consistency checks, checking for duplication of records, ensuring contents and formats (such as conformity of names and identity numbers to data dictionary) and ensuring the length of fields and content structure for aggregation and reporting is standardized.

Some common strategies in data cleansing include:

- Data auditing: Checks for anomalies and contradictions in data against a set of specific constraints (e.g., age, gender, location),
- Parsing: For detection of syntax errors,
- Data transformation: Allows mapping of data from its given format into the format expected by the other database or application which data will be shared through,
- Duplicate elimination: Requires an algorithm for determining whether data contains duplicate representations of the same entity, and
- Statistical methods: Finding values that are unexpected and probably incorrect, or using statistical methods to handle missing values.



### **Implementation Toolbox**

*BI 1: [Click this link](#) to access a collection of global best practice guides and tools for data cleaning*

## **2.5. In addition to data cleaning by individual agencies, has a process been agreed for data harmonization?**

Even if data from individual agencies are reasonably clean after their data cleansing processes and according to their business rules, matching data across agencies for the purposes of data sharing requires additional measures. These include:

- If not already done upfront, it is vital to standardize the data across agencies to ensure a consistent format and definitions for matching. Standard software packages can be employed for simple formatting inconsistencies, but more entrenched differences (e.g. definitions of “poverty”, “child” etc. require an agreed data dictionary to be in place - see 2.1 above).
- Carry out entity resolution which looks at all the information on households or individuals from both data sources and applies likelihood or probability scoring to identify matches using an entity resolution engine or middleware. This will allow sorting of the data and accelerate the matching process and resolution of unmatching data.
- There need to be agreed rules and processes for resolving data mismatches.

Useful ISSA interoperability guidelines include: (i) Guideline 32. Institutional semantic interoperability (non-ambiguous definition of core concepts); (ii) Guideline 33. Interoperable shared data services; (iii) Guideline 34. Data exchange; and (iv) Guideline 35. Institutional technical standards on interoperability.



### **Implementation Toolbox**

**B12:** [Click here](#) to access a **guidance document on data matching across agencies to support interoperability**.

## **2.6. Is there an operational plan for the data interoperability project?**

Developing the work plan for data harmonization and sharing is a demanding process. The work plan should include all the elements required by the main systems and applications, including precursor elements and tasks. The work plan should ideally cover tasks related to setting the data models and standards, the agreed interoperability framework, the application model for interoperability and relevant technical standards, clearly outlining the responsibilities of different agencies in executing each of these. There will be unexpected challenges along the way, however, so considering this a ‘living document’ to be revised and revisited is a good idea.



### **Implementation Toolbox**

**B13:** [Click this link](#) to access a **checklist of things to consider in any operational plan for data integration**.

## **2.7. Do policies and procedures for requesting access to and use of the data exist?**

It is vital to have clear procedures for access to and use of data by different people within the systems of each agency. Access controls are security measures put in place to regulate the individuals who can view, use, or have access to the data. The rights of users to access the data (and potentially revise it) are known as privileges and will vary according to the authorizations granted by those in charge of managing the platform. Often, these privileges are set out in the data sharing service agreement or more detailed standard operating procedures.



### **Implementation Toolbox**

**B14:** Click [here](#) to access an example of such policies from **Indonesia’s Management Standards for its Unified Database for Social Protection Programmes, Indonesia National Team for the Acceleration of Poverty Reduction (TNP2K), 2015**.



## 2.8. Are systems and protocols for data security and privacy in place?

Securing the interoperable data from unwanted eyes is the largest threat (both actual and perceived) which countries will face. There is no choice but to tackle this challenge head on by including budget items for high quality cybersecurity tools and for the human capacity and expertise which will be needed. While all individual data systems will be concerned with data security and privacy, these issues become even more pertinent when exchanging data between systems - though the integration may create opportunities to pool resources to put towards upgraded security.

The most effective approach to ensuring data protection and privacy is to ensure both comprehensive legal and institutional frameworks, and to incorporate privacy- and security-enhancing features into how technologies and operational controls are designed and implemented (“privacy by design”). Most countries will have some public data security and privacy standards, and increasingly legislation to protect individual data, especially health information. Standards should ideally include both physical security (transporting data across the systems) and logical security (e.g. authentication and data use authorizations to ensure only authorized use of data).



### **Implementation Toolbox**

**BI 5:** [Click here](#) to access an **annotated library of example data security and privacy protocols from global institutions and integrated social protection and health programs.**

**BI 6:** Click the report titles to access **two best practice reports on data protection for social protection in low and middle income countries:** (i) GIZ (2020) “[Data Protection For Social Protection: Key Issues for Low And Middle Income Countries](#)” Social Protection Interagency Cooperation Board (SPIAC-B). GIZ. and (ii) SPIAC-B, *Good Practices for Ensuring Data Protection and Privacy in Social Protection Systems*, GIZ (forthcoming).

## 2.9. Is a testing (e.g. iterative prototyping or alpha/beta testing) and/or piloting phase planned?

It is desirable to have a testing phase for whatever data sharing platform will be used. This will typically involve two steps. Alpha testing is the initial end-to-end testing of a software/platform to ensure it meets the business requirements and functionalities needed to support data sharing. Further debugging of software is often needed at this stage to ensure it is fit for purpose. Alpha testing is typically performed by internal staff of the relevant agencies in a controlled “test” environment. Beta testing involves having a limited number of real end-users of the software test it in an actual operating environment to confirm that it is ready to “go live”. This can be iterative and have several stages as designers understand the application of the software into the real-world operational environment (sometimes called the ‘design-actuality gap’). The testing phases may be preceded by prototyping of the software to check that it meets the specifications and have potential users provide input to its development and functionality, and usually involves an incomplete version of the end product.

The testing phase may also be followed by a pilot stage where the software is implemented in operations on a limited scale prior to national roll-out.



### **Implementation Toolbox**

**B17:** [Click here](#) to access **an example operational plan, using iterative prototyping, for social protection information system integration from Uganda.**

## **2.10. Will outsourced software vendors be used in developing data sharing software/platforms? If so, has a detailed specification for their work been designed?**

Outsourcing software development is common but has a mixture of benefits and drawbacks. If outsourcing of the data sharing software development is planned, close attention is needed to issues around intellectual property ownership (and avoiding “vendor lock-in”), confidentiality of the underlying data (often addressed through non-disclosure provisions in contracts), cost (both upfront and downstream for system operation, maintenance, tweaking and upgrading), in-house technical capacity to determine the quality of output and service provided and monitor performance; and ensuring regular communication between the hiring agencies and the vendor (with a dedicated project manager on the hiring side). It is also vital to have a detailed technical specification of the work to be done in the outsourcing contract, clarity on deliverables and timelines, and clear provisions for contract variations. If software requirements are likely to be changing often, this will pose additional challenges to managing the outsourcing relationship. It may be useful to require early development of a prototype of the software.



### **Implementation Toolbox**

**B18:** [Click here](#) to access **a checklist of dos and don'ts in vendor outsourcing for data linkage projects.**

## **2.11. What human resources are in place in each key agency to manage data matching and sharing and are they adequate? What HR capacity enhancement is needed to make the data sharing work smoothly?**

Data sharing may place additional workload on existing ICT staff in the concerned agencies - particularly in the set-up phases. This may well require supplementation, whether through additional staffing, temporary consultants or outsourcing of some functions. Ideally these needs should be estimated and included in the project costing and business case for budgetary investment.

One particularly important, and under-appreciated, personnel component in many of the most successful data integration initiatives is the presence of ‘hybrid’ figures at the central level, who “understand both context, organization, and work processes of their sector and the role of information systems. As such, they can bridge the contexts and assumptions of both technical designer and business-oriented user” (Heeks 2002). It may therefore be helpful to think about the necessary skills not just in totality across the teams involved, but also whether there is sufficient involvement from these key ‘hybrid’ practitioners.



### **Implementation Toolbox**

B19: [Click here](#) to access **a list of possible capacity building interventions to upskill key staff involved in a data linkage initiative**, in Section 4.1.3 of Barca (2017), *Integrating data and information management for social protection: Social registries and integrated beneficiary registries*. Government of Australia Department of Foreign Affairs and Trade.

## **UPDATING, USING AND ANALYZING THE DATA**

### **3.1. How will integrated data be kept up to date, and who is responsible for this?**

This question has several elements. The first element is whether database updating is based on an infrequent data collection exercise such as a census sweep every few years, or on-demand processes which provide regular updates on source data but for a subset of beneficiaries, or potentially some combination of the two approaches. More advanced systems aim to move towards on-demand updating of source data, but this may not always be feasible.

Second, depending on how often data are updated there needs to be agreement on (i) how and how often those data are uploaded in the master database and shared across systems, (ii) which is the master database which reflects the authoritative data at any point in time, and (iii) what procedures are needed for who is authorized to do the updating.



### **Implementation Toolbox**

B20: [Click here](#) to access **a practitioner experience and global best practice guide on methods and frequency of data updating**.

### 3.2. Is bi-directional updating planned, so that updating becomes a shared responsibility?

An important specific element of updating is whether updates will come from a single agency through its own data updating exercise (e.g., the agency managing the social registry), or more than one agency (e.g., authorized updating of some variables by other agencies such as health, civil statistics or national identity agencies).

Allowing for updates from more than one agency on the master data remains unusual in developing countries, but there are examples of it. In cases where agencies other than the one which manages the master data can do “push” updates, it would usually be for a small subset of household/individual variables for which the other agency has the authoritative data in the country (e.g. health in the instance of a death). It also needs a clear authorization framework and procedures for updating to ensure that the master data remains definitive.

If updates are coming from several sources, there are possibilities that they may be contradictory. It is important therefore to establish a hierarchy of authoritativeness among the different data sources, to ensure that the most reliable source data is used.



#### **Implementation Toolbox**

B21: [Click here](#) to access **a case study of Thailand’s two-way information flow between interoperable health beneficiary databases.**

### 3.3. Have common challenges/pathways/options for recertification and data updating been considered?

It is vital to agree where the interoperable data will ultimately live. And when updates are done, to outline a way to trace-back (drill-down) to the original data. An important eventuality to be prepared for is where data are lost or compromised, both the original data and during updating processes. It is good practice to have “restore points” in the data log of the system so that those managing the data can “turn back the clock” if necessary to retrieve data.



#### **Implementation Toolbox**

B22: Click the report titles to access **two best practice reports on recertification and data updating for population targeting systems in low and middle income countries:** (i) Barca, V and Hebbbar, M. (2020) “[On-Demand and Up-To-Date? Dynamic Inclusion and Data Updating for Social Assistance](#)” Deutsche Gesellschaft für Internationale

Zusammenarbeit (GIZ) GmbH. and (ii) Medellin, N (2015) “[Moving Ahead: Recertification and Exit Strategies in Conditional Cash Transfer Programs](#)” Inter-American Development Bank. IDB.

### 3.4. Have the rights and roles of agencies to analyze the newly integrated data been agreed, and do they have the skills to do this?

Defining which agency owns the integrated (and updated) data is crucial. If the SHI agency does not have ownership of the data, it is important to agree on what in-house analysis of the shared data can be done by the health agency, or – if such analysis is not authorized – to agree the procedures for requesting analysis of the data from the agency which owns it. Whichever arrangement is agreed, understanding the capacity for carrying out such analysis is important.



#### **Implementation Toolbox**

B23: [Click here](#) to access **a list of possible analyses and other uses for linked health and non-health population targeting data.**

### 3.5. What decision support and analytics systems exist in the participating agencies to maximize the value of population targeting data for operational, oversight and policy development purposes?

Decision support systems are increasingly common in public data systems to provide different levels of business intelligence and analytics. Data analytics include several layers of increasing complexity, including descriptive analytics (what has already happened in some prior period); diagnostic analytics (why what has happened occurred); predictive analytics (what is likely to happen in future and simulating scenarios); and prescriptive analytics (which suggests a course of action). What analysis can be done by each agency will depend on data ownership and use authorizations, as well as any limitations due to data protection regulations - though there are often ways around this by requesting specific analyses be carried out by the agency with primary ownership of the data, with the key findings fed back.



#### **Implementation Toolbox**

B24: [Click here](#) to access [ISSA ICT Guidelines 53-59](#), which **outline best practice on the different forms of data analytics, including big data, machine learning and artificial intelligence.**

## CASE STUDIES OF DATA LINKAGE FOR POPULATION TARGETING

### *Box 7 - Brazil Cadastro Unico case study*

Cadastro Único's is Brazil's flagship social registry, which has been in existence since 2001 to centralize the identification of poor and vulnerable households, and register them into relevant social protection programs. It is one of the largest social registries in the world, with around 80 million people (27 million households) enrolled, representing over 40 percent of the population.

The registry has gradually grown over the past two decades to support more and more social programs (now more than 30), and evolved to become a key pillar of the Brazilian welfare state. Although it is not used by the country's main health and education programs - which are universal, non-contributory services in Brazil - it does have a sophisticated system of data linkages that have allowed it to progressively increase the accuracy and richness of the data it holds.

Cadastro Único performs its own direct system of primary data collection, registration and verification, which updates every two years using a mix of home visits, mobile service stations and fixed service desks in over 9,000 public offices. However, this data then augmented and cross-checked through interoperability with an external 'data lake' of over 20 public databases that allow it to verify the information collected against records of incomes, deaths, addresses, and benefits reviews, as well as a range of other instant, automatic validation checks (common errors, duplication, completeness etc.) This data lake includes the tax registry, employers and employees registry, remuneration reports, voluntary social security contributions records, specially insured beneficiary registry, unemployment benefits registry, death registrations, civil registrations, prisoners registry, overseas citizens registry, as well as Cadastro Único.

This system is all the more remarkable because Brazil does not have a unique citizen identity number. This means that all of the matching must be done using 'match keys' such as name, mothers name, birth date and codes from tax identity and other documents.

With all of this linked information, data privacy, security and protection are key concerns. Of the many measures put in place to ensure this is a two-tier system of access, in which direct but not full access is given to public and private institutions legally responsible for a list of key social programs, and other institutions not on this list need to submit formal requests that clearly state the purpose for needing the data. Furthermore, cross-checks on sensitive data between one database and another are conducted using 'yes/no' questions (e.g. does this individual earn above this specific threshold) between these records, rather than the full data being shared.

The public data linkages that Brazil has achieved through Cadastro Único and the data lake were particularly valuable assets during the COVID-19 pandemic, in which they were used to rapidly identify a large number of newly vulnerable individuals to receive an emergency cash benefit. 68 million people received this in total, including around 30 million from the database itself, and a further 38 million who applied online and had their details cross-checked with other information held in the data lake, with less than one percent of successful applications believed to have been fraudulent.

### *Box 8 - Ghana Data Linkage Implementation Case study*

Ghana's National Health Insurance Scheme (NHIS) was established in 2003 and has grown steadily to now cover over 16 million active beneficiaries, out of a total population of 31 million. 64.9 percent of these beneficiaries are exempt from paying premiums, of which 1.3 million (or 8.3 percent of beneficiaries) are deemed to be poor or vulnerable.

The current system of identifying these poor and vulnerable groups is fragmented, resource intensive and results in significant gaps in coverage. Targeting methods include eligibility for all households that qualify for Ghana's main cash transfer scheme, Livelihood Empowerment Against Poverty (LEAP), which is administered by the Ministry of Gender Children and Social Protection (MoGCSP). MoGCSP takes responsibility for identifying eligible households, and shares the names of beneficiaries with the NHIS. However these are not automatically enrolled but rather NHIS must wait until the individual applies and then manually check their details against the LEAP list. Other poor and vulnerable people are identified by local opinion leaders (such as local chiefs) and sent as a list to NHIS. These are sent on to MoGCSP and must then be manually and individually endorsed by local development or social workers from MoGCSP before being sent back to the National Health Insurance Authority (NHIA) for enrolment.

There are a number of major limitations with this system which officials in the NHIA and MoGCSP are keen to resolve. It places a high administrative burden on both agencies due to the volume of manual checking that is required between their databases, none of which are currently interoperable. It is also frequently inaccurate, as mis-matches are common between the information given by the individual to NHIA and the data on the LEAP database. The use of local opinion leaders is also slow, somewhat subjective and misses a great many poor and vulnerable households who should qualify but whose names are not put forward or cannot be endorsed. As a result of these issues, as many as 3.5 million eligible people are missing from NHIA's lists of poor and vulnerable persons, it is estimated.

At the same time, two important reforms are ongoing which create the opportunity for a much more efficient, accurate and joined-up approach to population targeting in Ghana.

1. The MoGCSP is rolling out a national social registry of the poor and vulnerable, called the Ghana National Household Registry (GNHR). This is a far more rigorous and comprehensive method of poverty assessment than the opinion leaders approach currently used by NHIA - however with no link between the NHIS and GNHR databases, there is currently no means to easily absorb those households deemed poor in the social registry into the NHIS membership database.
2. Ghana is also rolling out a National Identification System, the Ghanacard, in which every individual will receive a unique digital identifier, with biometric verification. The initiative is administered by the National Identification Authority (NIA), which began issuing cards in 2017 and to date has registered more than 15 million people.

Seeing the opportunity that these reforms create, from April to October 2021 officials from the NHIA, MoGCSP and NIA participated in an implementation case learning process with the JLN Learning Collaborative on Population Targeting. The purpose of this was to support the planning process of creating a linkage between all three systems, in which the national unique identity numbers would be adopted by both the NHIS membership database and GNHR social registry, and this common ID would then be used to enable matching between the two. This would enable automatic enrolment of all the poor and vulnerable groups identified by MoGCSP into health coverage with fewer errors of exclusion, no need for manual verification and endorsement, and eventually, through comparing with the complete population database held by NIA, to identify remaining gaps in health coverage (whether exempted from premiums or not).

Led by NHIA Director of Membership and Regional Operations, Ben Kusi, the Ghana team offered regular presentations on their plans as they developed, allowing participants of the LCPT to learn from and support the implementation as it developed. Focused sessions were held on areas where external perspectives were most needed, namely (i) data matching and records verification, as there were likely to be mismatches between the GNHR and NHIS databases at first, and (ii) potential shared savings that would be generated, to be used in a business case to support the funding required for the development costs of a full rollout.

The pilot process is now underway and working through a seven-stage action plan which was developed and adapted through the implementation case learning process. Already the NHIA has agreed the data fields to be shared with the GNHR and has begun 'cleaning' its own beneficiary database using the national ID numbers. This means that already as of October 2021 around 150,000 NHIS beneficiaries can now avail health services using their Ghanacard rather than their NHIS one. The next steps include testing the level of mismatches in the data that remain after ID numbers are included then creating protocols to resolve these, and ultimately developing an algorithm that can automate this process so that the three systems can be continuously linked and kept up to date (planned for September 2022).

#### *Box 9 - Kenya Recertification Strategy Case study*

Kenya's flagship Inua Jamii Cash Transfer Program is one of the country's key social protection programs, and an important potential data source to identify poor and vulnerable households for the evolving National Health Insurance Reforms. Composed of four sub-programs which were successively launched between 2004 and 2017 to different populations groups (including older people; persons with severe disabilities; and orphans and vulnerable children), these data have never been updated, meaning that some of the beneficiary lists are as much as 17 years old. This lack of updating also creates additional limitations, such as that the databases of the four schemes are not compatible with each other. The program developed a Consolidated Cash Transfer Management Information System (CCTPMIS) in 2018, and some data was left in the legacy file as it could not be migrated to the new system due to compatibility issues.



In 2019 a national recertification and data updating effort was begun, starting with the development of a national recertification strategy that put at its core the rollout of a single digital management information system and mobile app with which local enumerators could collect and compile the new data. This would primarily be used to assess whether people on the four beneficiary lists were still categorically eligible (e.g. were they still an orphan) and still socio-economically eligible (e.g. were they still poor). The app has four main functions - a list of all the beneficiary households for enumerators to visit, a community validation for local leaders to certify the data, household registration and household recertification capabilities. It works both on- and offline, and the internal controls allow a household to be approved or rejected on the spot, with the data automatically consolidated onto the integrated cash transfer management information system when the app next gets connectivity.

A pilot was initially carried out in which 84 percent of the beneficiaries were retained, with 7 percent found to be no longer eligible, 7 percent deceased, and 1 percent not traced. Full implementation is now underway, albeit delayed by the COVID-19 pandemic. The recertification strategy is expected to produce three outputs for implementation. These are categorical eligibility whereby the some households that no longer meet the criteria; socio-economic eligibility whereby some households no longer categorized amongst the poorest; and finally exiting from the program those household who no longer eligible through a graduation model.

Remaining challenges are the extent of potential political resistance locally if large numbers of beneficiaries are deemed no longer eligible, and what happens to the significant savings that will be generated by the exercise removing beneficiaries that are no longer eligible. The best option is to replace them with more deserving cases drawn from the same geographical areas. Currently, the program is re-targeting all the beneficiaries in the legacy list through mobile app enshrined in the enhanced targeting module of the CCTPMIS. The process involves a mandatory proof of life through household listing, household registration, community validation and, finally, enrollment with the payment service providers. This will result in reinstatement to the payroll.

## REFERENCES

- Barbero, T et al. (2015) “South Africa: ICROP : reaching out to rural poor through mobile service units” International Labour Office, [Social Protection Department].
- Barca, V and Beazley, R. (2019) “Building on Government Systems for Shock Preparedness and Response: The Role of Social Assistance Data and Information Systems” Canberra: Commonwealth of Australia, Department of Foreign Affairs and Trade. ISBN: 978-1-74322-468-7
- Barca, V and Chirchir, R. (2020) “Building an integrated and digital social protection information system” Technical Paper. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.
- Barca, V and Hebbar, M. (2020) “On-Demand and Up-To-Date? Dynamic Inclusion and Data Updating for Social Assistance” Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.
- Bitran, R. (2014) “Universal Health Coverage and the Challenge of Informal Employment : Lessons from Developing Countries” World Bank. Washington D.C.
- Bonfert, A et al. (2015) “Closing the Gap: Health Coverage for Non-Poor Informal-Sector Workers” Joint Learning Network for Universal Health Coverage.
- Cotlear, D. et al. (2015) “Going Universal: How 24 Developing Countries are Implementing Universal Health Coverage Reforms from the Bottom Up” Washington, DC: World Bank. doi:10.1596/978-1-4648-0610-0. License: Creative Commons Attribution CC BY 3.0 IGO
- Delgado, F et al. (2013) “Proposal of an Interoperability Model for Social Security Information Systems” ICEIS 2013 - 15th International Conference on Enterprise Information Systems. ISBN: 978-989-8565-60-0
- Fredriksson, A. (2020) “One Stop Shops for Public Services: Evidence from Citizen Service Centers in Brazil” Journal of Policy Analysis and Management DOI: 10.1002/pam.
- Heeks, A. (2002) “Information Systems and Developing Countries: Failure, Success, and Local Improvisations” The Information Society. 18(2):101-112
- JLN (2019) “A guide to common requirements for national health insurance information systems” Joint Learning Network for Universal Health Coverage.
- Lindert, K et al, editors. (2020) “Sourcebook on the Foundations of Social Protection Delivery Systems” Washington, DC: World Bank. doi:10.1596/978-1-4648-1577-5. License: Creative Commons Attribution CC BY 3.0 IGO.
- WHO and World Bank. (2019) “Global monitoring report on financial protection in health 2019” Geneva: World Health Organization and International Bank for Reconstruction and Development / The World Bank; 2020. License: CC BY-NC-SA 3.0 IGO.

Williams, A. and Moreira, V. (2020) “Making Social Protection Information Systems Adaptive” Washington, DC. International Bank for Reconstruction and Development / The World Bank.