MIS

MANAGEMENT
INFORMATION
SYSTEMS

BUILDING *SOCIAL PROTECTION FLOORS IN* AFRICA

TRANSFORM

SUMMARY DOCUMENT

TRANSFORM is the result of an iterative process of co-creation involving experts and practitioners from southern and eastern Africa. This summary manual is based on a document prepared by Valentina Barca (Oxford Policy Management) and Richard Chirchir (Development Pathways), with contributions from Thibault Van Langenhove (ILO). It draws extensively from a publication on the topic of 'Integrated Data and Information Management for Social Protection published the Australian Department of Foreign Affairs and Trade (DFAT) (Barca, 2017). The full version of the corresponding manual is available on the TRANSFORM website

The editors of the TRANSFORM curriculum series are Luca Pellerano, Luis Frota and Nuno Cunha. Participants to workshops in Kenya, Zambia and Tanzania provided useful comments and inputs. The content of this manual does not reflect the official position of the different organizations supporting the TRANSFORM initiative.

LIST OF ABBREVIATIONS

ADM   Administration and Delivery Systems
ICT   Information and Communication Technology
ILO   International Labour Organization
IT   Information Technology
M&E   Monitoring and Evaluation
MIS   Management Information Systems
PDA   Personal Digital Assistant
S&I   Selection and Identification
SITA   State Information Technology Agency
SP   Social Protection
SPF   Social Protection Floor
UDHR   Universal Declaration of Human Rights
UNICEF   United Nations Children's Fund

CONTENTS

1

INTRODUCTION AND SETTING THE SCENE

There is growing recognition that Management Information Systems, or MIS, play a pivotal role in the implementation of social protection (SP) schemes. In fact, **programme MIS** are increasingly viewed as a central plank that holds together social protection schemes' core processes i.e. registration, determination of eligibility, payments, complaints & grievances, and monitoring and evaluation systems.

In recent years this interest has expanded to encompass a new focus **on integrated approaches to data and information management**, capable of assisting decision makers with more harmonized and systematic information across programmes to ensure coordinated responses to the multi-dimensional vulnerabilities of individuals across a life cycle, (UNICEF and World Bank, 2013). This is in line with an increasing number of countries worldwide adopting national social protection strategies and implementing ILO Recommendation 202 (2012) concerning National Floors of Social Protection, seeking to coordinate interventions from different ministries and agencies (ILO 2015, Garcia and Moore, 2012, World Bank, 2015).

However, there is no widely acceptable terminology in the context of SP, especially when considering integrated approaches to data and information management. This terminological confusion is exacerbated by inadequate practical and detailed documentation on the subject. Quite often, this leads to: (i) confusion on the purpose, usage, objectives and evaluation of MIS in the SP sector; and (ii) mis-procurement, for example because suppliers may be biased towards a technical ICT based perspective, strictly packaging them in hardware and software terms with insufficient consideration for appropriateness and cost/benefit analysis and institutional matters.

This module's key objectives are therefore to:

- Increase the understanding that national social protection actors have of programme MIS and approaches to integration
- Support SP actors in the preparation of roadmaps for the development of such tools.

2

DEFINITIONS

There is no generally accepted terminology to describe data and information management in the context of SP. There are two main reasons for this confusion (Barca and Chirchir, 2016). First, the terms 'database, 'registry' and 'MIS' are often used interchangeably by social protection practitioners. However, these have different meanings and functions, as Box 1 clarifies. At both programme and integrated level, data and information management can only be achieved by combining the static 'data repository' role of a database/registry (effectively synonyms) with the dynamic 'data interrogation' role of an MIS.

Box 1: Database, Registry, MIS, Interoperability: definitions

This paper distinguishes between the following:

- **Database** – a system to organise, store and retrieve large amounts of data easily

- **Register** (nowadays referred to as **registry**) (a term of pre-ICT origin) – an official written record of names, events and/or transactions

  - In a computerised environment, 'databases' and 'registries' are overlapping concepts (effectively synonyms); both are for storing and retrieving data.

- MIS[1] – a system that transforms retrieved data from a program's database/register (or, in some cases, different databases linked to different modules) into information that can be used for efficient and effective program management.

  - In social protection literature, the term MIS is associated with program-level information management. When discussing integrated solutions we use the generic term **'application software'** or **'integrated MIS'**, referring to the tailored solution that allows for the input, processing and output (e.g. display/presentation) of information.

- **Interoperability:** the ability of two or more systems (or components) to communicate by exchanging data, so the information is understood by the receiving agency and subsequently used for its own business purposes.

Source: Barca and Chirchir (forthcoming)

Second, similar terms are used to refer to programme-specific and integrated approaches. For this paper, we introduce a new term to address this confusion: **Integrated System for Information Management** refers to the broader system that enables the flow and management of information within the Social Protection sector and sometimes beyond, to other sectors.

This overarching system will encompass:

- a data repository, such as a **registry/database** for storing and retrieving data.
- **a software application** which helps manage, link and process the data, transforming data into information and analysing/ using the information (at programme level these are referred to as Management Information Systems, MISs- at integrated level we can call these **Integrated MIS**).

It will also be sustained by a set of **procedures for data sharing**, most often using Information Communication Technology (ICT) and will ultimately be managed by qualified staff. This is the area with the greatest confusion in the literature, primarily as integration of information management in the Social Protection sector can be achieved in different ways – influenced by the main objectives pursued with integration, and by a country's context and trajectory. Details of this are discussed further in Section 4, where further definitions for integrated solutions are clarified.

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1 It should be noted that this term has been borrowed from the business world, where it is defined as a 'system that provides information that organisations require to manage themselves efficiently and effectively'.

3

PROGRAMME MANAGEMENT INFORMATION SYSTEMS

3.1.   OBJECTIVES AND FUNCTIONS SUPPORTED

A programme MIS enables the flow and management of information to support key processes within social protection schemes including:

- **Identification and registration** of applicants, using either a census or an on-demand method[2] for data collection, see also Module S&I;
- **Eligibility determination and enrolment** (i.e. determining beneficiaries for the programme) – see also Module S&I;
- **Continuous maintenance of Beneficiary Lists:** e.g. removal of those no those who are no longer eligible

- **Authentication and compliance monitoring** (if applicable, e.g. when conditionality imposed) - see also Module S&I
- Managing **payments** (e.g. producing "payrolls", monitoring payment receipts, amounts paid, etc.) - see also Module S&I
- Managing a grievance/ **appeals and redress system**-see also Module S&I
- Managing on-going programme **monitoring and evaluation** (e.g. producing lists of beneficiaries who have enrolled, which benefits have been paid, level of payments, characteristics of beneficiaries, etc.…) - see also Module S&I
- Supporting **on-going management and planning** (e.g. notifying managers when a process should or has happened etc.) - see also Module S&I

2 A census method means that the programme attempts to visit all households to undertake targeting; an on-demand method means that applicants are expected to visit specific registration points to apply for the programme.

Ultimately, **programme MISs enable harmonized implementation and monitoring of programmes, while ensuring transparency and good governance of Social Protection systems.** In fact, several functionalities of modern social protection programmes – such as e-payments – cannot be set in place in the absence of a programme MIS. Also to be noted in terms of functionality:

- When putting in place MIS, it is important to be clear about the SP programme's procedures, design parameters and operational processes from the outset: a programme **MIS is a reflection of the operational manual of the programme**, supported by appropriate technology.
- Conversely, not all programme functions are always supported by programme MIS, depending on programme objectives, set-up and what 'Modules' are prioritised during the MIS design. However, MIS can be adapted to follow changing programme requirements and are an **important platform to support cost-effective programme expansion and a pre-requisite for cross-programme integration**, as Section 4 further explores.
- MIS depends critically on the quality of data on beneficiaries, and requires appropriate quality checks and controls (hence the popular adage 'garbage in, garbage out').

3.2. KEY COMPONENTS OF A FUNCTIONAL PROGRAMME MIS

Ultimately, a programme MIS is an application software that functions thanks to the interplay of several components that are tightly related (note that these apply to integrated systems too, see Section 4). We list and discuss these below, visualising their interplay in Figure 1 and further discussing good practices for each in Section 5.2 (Chirchir and Kidd, 2011 and Barca and Chirchir, 2016):
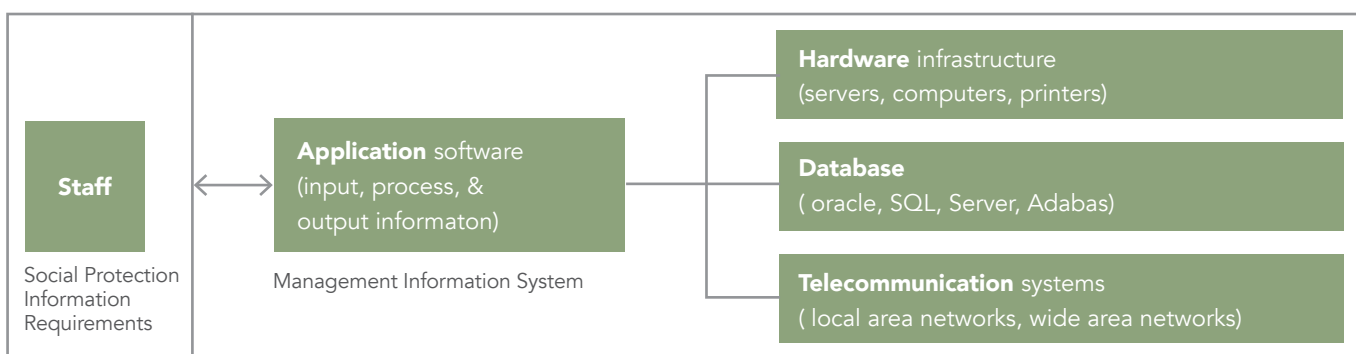
a) **Information requirements:** i.e. what data needs to be stored and managed. These are defined by programme staff on the basis of programme objectives and the core functions that need to be supported. For example, an MIS supporting a complaints and appeals process or a comprehensive M&E system will have additional information requirements compared to a programme that uses an MIS only for registration, enrolment and payment purposes.

b) **Software application ('MIS'):** the software application transforms the data that is retrieved from a programme's database (or in some cases, different databases linked to different 'modules') into information that can be used for efficient and effective management. It can take many different forms depending on the information requirements and functions it is designed to perform (each operationalised within a different 'module'). Such software can either be developed using proprietary applications or Open Source software.

c) **Database:** this is a system intended to easily organize, store, and retrieve large amounts of data. SP programmes can either use proprietary databases (Microsoft Access or Oracle) or Open Source.

d) **Hardware infrastructure:** this refers to the necessary infrastructure to securely collect and store large amounts of data (computers, PDAs, servers, etc.). Options for hardware technology vary, depending on the size of schemes, the overall context (remoteness, power supply, etc.), levels of security guaranteed and the particular operations to be undertaken.

e) **Telecommunications System:** this includes the network infrastructure – local area network and wide area network – that enables the necessary links between the software and the databases that feed into it. The choice of such system depends on local context (e.g. availability and reliability of internet).

Figure 1: Key components of a functional programme MIS

Source: Adapted by authors from Chirchir, R. and Kidd, S. (2011) Good Practice in the Development of Management Information systems for Social Protection.

4

INTEGRATED SYSTEMS FOR INFORMATION MANAGEMENT

4.1. ADVANTAGES AND RISKS OF DATA AND INFORMATION INTEGRATION

Integration of information and data within the SP sector can bring policy and operational gains. As discussed within Barca and Chirchir (2016), from a **policy perspective**, advantages could include the ability to:

- apply a potentially more equitable approach to distributing resources based on objective and comparable information, addressing the uneven and unequal provision of social protection across social groups and administrative jurisdictions
- increase responsiveness and inclusiveness of interventions to serve the chronically poor, serve those structurally vulnerable to poverty and respond to individual shocks, such as job loss, disability, childbearing, old age, or large crises (for example, natural disasters or conflict)
- ensure universal coverage and support implementation of the Social Protection Floor, potentially coordinating social assistance and social insurance
- build a stronger link to complementary institutional frameworks and wider social and economic policies[3]

3.'SP systems have the potential for maximizing outcomes and impacts if they are conceived as integral components of national development and poverty reduction strategies, linked with complementary programmes (e.g.: livelihood promotion, labour market and intermediation programmes, food security programmes, etc.) and macro policy determinants (macroeconomic stability, economic growth, etc.)". Organisation for Economic Co-operation and Development (OECD), 2009.

- increase transparency and accountability, since program information can be more easily shared and compared
- improve the "image" of the social protection system, as citizens better understand their entitlements
- increase knowledge on poverty and vulnerability based on access to the large amount of information available.

From **an operational perspective,** advantages include the ability to:

- facilitate oversight of multiple schemes and report to policymakers
- improve budget planning and ability to model and test policy changes
- decrease the burden on staff (e.g. less paperwork, less manual reporting, etc.)
- decrease the burden on potential applicants (e.g. can apply for several programmes at once, less documents needed, better/coordinated information on entitlements, etc.)
- avoid duplication of effort (for example, with data collection activities) and potentially establish a 'common entry point' for social protection
- establish common systems across all schemes (e.g. payment system, grievance mechanisms, etc.), increasing efficiency and saving money
- better manage error and fraud and monitor multiple payments (keeping track of who is receiving what)
- further digitalise service delivery, potentially reaching out to citizens in new ways (e.g. mobile phones)
- ensure reinforcing measures and/or complementary interventions to multiple disadvantaged households
- enable beneficiaries to transition between schemes as their circumstances change
- establish more effective emergency responses (for example, by directing additional payments to social protection recipients in areas affected by an emergency for a limited period) and context-based services.

However, **several challenges and risks** can emerge when embarking on such a process of data integration within the social sectors. These include:

- increasing costs and complexity at the initial development stages (and potential 'failure') – calls for high capacity, strong policy leadership and institutional coordination –
    - Attention: In certain cases, a more gradual and progressive approach is needed. It will be difficult to implement an Integrated System for Information Management when the underlying institutions have very rudimentary program definitions and guidelines, weak programme management systems, and institutions tend to compete in context of poor leadership over and above the different departments. Developing integrated approaches in those contexts entails costs with negotiation and arbitration, which may be prohibitive. The maturity of ICT development in different institutions, management complexities including maintenance of technology, back-ups and the possible coordination problems and escalation of costs must be taken into account.
- increasing risks to data privacy and security – misusing or losing information, potentially exposing households to further vulnerability (e.g. 'surveillance state')
- risks of multiple exclusion from all social sector schemes and systematic exclusion of certain types of households, and potential loss of specificity in the objectives of different social protection interventions (if integrated data is used for determination of eligibility across programmes, especially in census based poverty determination criteria as a first filter). This is because social policy interventions can address different social objectives beyond the issue of poverty – for example help improving the dignity of life of disabled people, empowering and protecting against bad social practices, abuse or negligence of certain groups.

Moreover, the extent to which the benefits of information integration are felt greatly depends on the **practical set-up** for integration (e.g. see Section 4.2) and on the ultimate use of the integrated system (e.g. see Section 4.4). To conclude, it is important not to lose sight of the ultimate aim of integrating data and information management systems for social protection: collecting and sharing information to support social objectives, including improving the standards of life of the poorest and most vulnerable citizen, protecting against life risks, empowering them and achieving social transformation.

4.For example, see Kenya's Hunger Safety Net Programme (HSNP) Phase 2 and Pakistan's CDCP programme. For more discussion on this topic see this comprehensive literature review on Shock Responsive Social Protection (Oxford Policy Management, 2016b).

4.2.   TWO APPROACHES TO CREATING AN INTEGRATED DATA REPOSITORY

The word **'single registry'** has gradually become the main word used by social protection policy-makers and practitioners to describe integrated approaches to data and information management in the social protection sector. This word is misleading, as box 2 explains, and the challenge of this paper is to unpack it's meaning in different contexts.

Box 2 'Single registries' – why is the word misleading?

Countries' approaches to integrated data and information management in the social protection sector have often been referred to as **'Single Registries'**. Here, we explicitly choose to avoid the use of this terminology.
Why?

- it was born as a literal translation of Brazil's 'Cadastro Unico'. In recent years Cadastro Unico is no longer translated as Single Registry but as 'Unified Registry'.
- it has been used to refer to very different approaches to integration in different countries, so does not ensure clarity. Eg. Kenya's solution is called a 'Single Registry' but has a different set-up and functionality compared to Brazil's Cadastro Unico.
- key stakeholders are rapidly moving away from the term (World Bank, ILO, etc.) – though it has stuck in describing country solutions to integration (e.g. Kenya).
- 'single registries' are not necessarily 'single' since they often do not comprehend all social protection programs in a country and are not a substitute for individual MISs.
- 'single registries' do not necessarily entail a 'single' process for targeting or unifying operations across programs.
- the word 'registry' alone does not cover the full functionality of data and information management in the social protection sector

Depending on country context and objectives pursued (see Section 4), there are **two main approaches to developing a database/registry supporting an Integrated System for Information Management within the Social Protection sector.** As defined within Barca and Chirchir (2016), these are:

1. **Integrated Beneficiary Registry:** a database/registry which is created by integrating programme MISs of several different existing schemes, meaning integration is only achieved across data and information on beneficiaries (programme recipients)[5]. The main objective of such integration is to provide coordination and oversight (e.g. M&E) and integrate selected operations and services across programmes. In practice, Integrated Beneficiary Registries decentralise the process of data collection (individual programs are in charge of this) but centralise selected services by consolidating existing data. Examples include Kenya ('Single Registry', see Case Study), Mauritius and Seychelles.

5.Note this is not necessarily the case, as data on applicants or anybody registered could also be integrated. But this case has not been encountered within country practice.

Box 3: Integrated beneficiary registry
– what it is and is not

What it is
- It is a registry of beneficiaries across several programs
- It integrates data from the program MISs of several programs, adopting a 'service integration' approach
- It supports integrated M&E and planning, and can be designed to support integration of delivery systems (e.g. payments and grievances)
- It is a building block that helps achieve integration. Its full potential as an 'Information System' is only unleashed when used together with a software application ('Integrated MIS') which enables dynamic links to other databases, systematically transforms data into information and analyses and uses the information

What it is not[6]
- It is not necessarily comprehensive (i.e. ensuring 100 per cent coverage of population) as it only includes existing program beneficiaries[7]
- It cannot be used for 'targeting' or determination of (potential) eligibility for programs, because it only contains information on people or households who have already been deemed eligible by existing programs (beneficiaries and not potential beneficiaries)
- It does not necessarily include data from all social assistance programs in a country (some programs may not have been integrated)
- It does not necessarily include data from social insurance beneficiaries (as this data may not have been linked)
- It is not necessarily highly integrated with other government databases (e.g. civil registry, tax authority, etc).
- It is not necessarily a substitute for individual program databases and MISs (unless specifically designed to do so, it cannot support program-specific delivery systems).
- It is not necessarily 'national' since social protection programs (and data collected for registration) are sometimes targeted geographically

2. **Social Registry:** a database/registry which collects and houses comprehensive (i.e. not program specific) information on potential beneficiaries within the country. In opposite fashion to integrated beneficiary registries, they front-end and centralise data integration by collecting data for a national database/register that is then drawn upon by specific programs[8] (see Figure 2). Their primary function is to support and consolidate the initial social protection implementation phases of intake and registration. They can also support the assessment of needs and conditions for the purposes of determining potential eligibility for enrolment in selected social programs Example is Brazil's 'Cadastro Unico' and Indonesia's 'Unified Database'.

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6. For all the statements below where we state 'not necessarily' we mean this can be achieved if explicitly pursued.
7. It could be if 100% of the population were beneficiaries (e.g. universal guaranteed minimum income).
8. In our 2014 report, we discussed this in Section 2.3.2 as the 'Centralised Model' (Barca and Chirchir, 2014).

*Box 4 Social registry
– what it is and is not*

What it is
- It is a registry/database of all people and households registered (the percentage of population registered will depend on the data collection approach and the user programme needs)
- Its primary function is to support the initial implementation phases of intake and registration, and assessment of needs and conditions for the purposes of determining potential eligibility for enrolment in selected social programs ('targeting')
- It aims to collect, record and store updated and historical information on individual and household characteristics and circumstances, and verifies and checks information consistency
- It adopts a 'data integration' approach (through a shared master data system)
- It is a building block that helps achieve integration. Its full potential as an 'Information System' is only unleashed when used together with a software application which enables dynamic links to other databases, systematically transforms data into information and analyses and uses the information

What it is not [9]
- It is not necessarily comprehensive (i.e. ensuring 100 per cent coverage of population) unless a national census survey is conducted covering the whole population.
- It is not just a list of beneficiaries (eligible people who have been selected for social protection programs) – i.e. it includes data on potential eligible households too
- It does not necessarily enable an integrated overview of who is receiving what across different programs, as the main data flow is from the social registry to programme MISs, not back again.
- It does not necessarily provide data for all social assistance programs in a country (some programs may retain their own registration and data collection)
- It is not necessarily highly integrated with other government databases (e.g. civil registry, tax authority, etc).
- It does not necessarily offer a current snapshot of poverty, unless data is kept sufficiently up to date
- It does not necessarily entail integrating operations across programs and is not a substitute for individual program registries and MISs
- It is not necessarily 'national' since social protection programs (and therefore data collected by the social registry) are sometimes targeted geographically

One technical approach to developing a social registry is to source data through interoperability of existing government databases: i.e. ensuring that these can 'talk to each other' (share data) effectively. We define this a **'virtual' social registry'**, an approach that can be used by countries wishing to have a comprehensive (100 per cent population), cross-sector and proactive (linked to life-cycle events) overview of their population. The amount of information consolidated based on this virtual integration is sufficient to determine eligibility for universal social assistance programs, as for Argentina's child allowance and Thailand's health insurance beneficiary registry schemes, but not for poverty-targeted programs. When this is the case, information from several sources is consolidated and further data is then collected in order to determine (targeted) eligibility into social programs.

9.For all the statements below where we state 'not necessarily' we mean this can be achieved if explicitly pursued.

4.3.   HOW THESE APPROACHES RELATE TO EACH OTHER

As briefly mentioned above, these approaches to developing an Integrated System for Information Management within the Social Protection sector are **not mutually exclusive, and can evolve over time**. For example, country consolidating information from existing programs using an integrated beneficiary registry approach may decide to coordinate data collection activities and move towards a social registry approach. This approach may then increase its level of interoperability with other government databases and take on features of a virtual social registry, as has been the case in Chile, where the majority of data for the 'Registro Social de Hogares' is now sourced through existing administrative databases.

- High levels of interoperability can be achieved within all of the three approaches.

The different development of integrated beneficiary registries, social registries and virtual social registries are represented visually in Figure 2, while Box 4 shows the comparison of each to a country's population.

Figure 2 Integrated beneficiary registry, social registry and virtual social registry
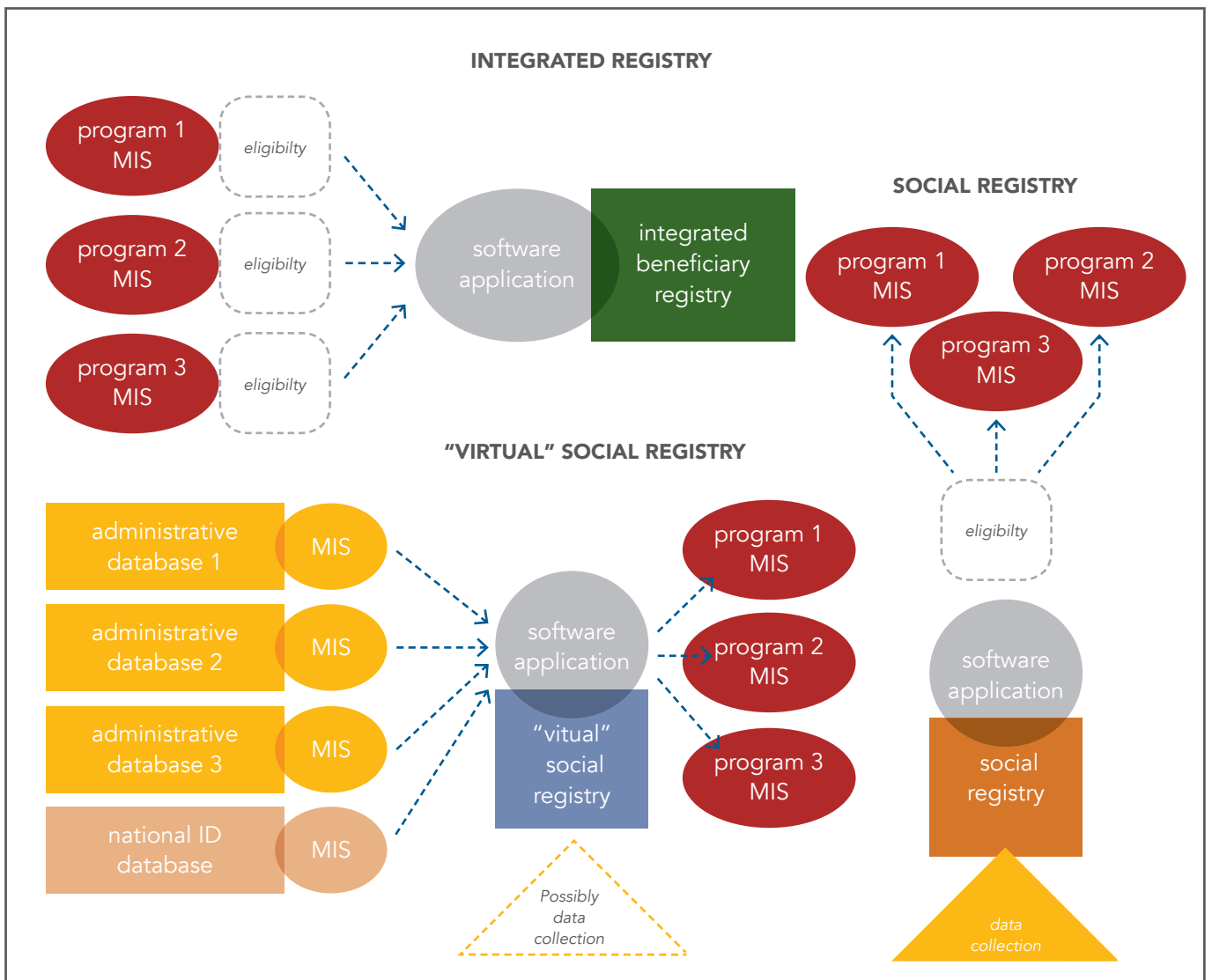
Source: Barca and Chirchir (2016) Note: Boxes indicate databases; circles indicate MIS. All arrows have been portrayed as mono-directional here (one-way data flow), though this is not necessarily the case.

Box 5: Comparison to a country's population

To better understand the relationship between social registries, integrated beneficiary registries and virtual social registries, it can be useful to represent them against the wider population (which can be potentially reached by virtual social registries). In Figure 4:

- The widest red circle is a country's whole population (rich and poor). Any interoperable system ensuring the creation of a virtual social registry could potentially reach 100 per cent of this population by linking to a country's national ID and/or civil registry
- The next blue circle is the population included in a country's social registry. This is 100 per cent of the total population in a few cases (red and blue circles overlap) – notably where comprehensive census surveys are completed – but most often focuses on the sub-population of those who are relatively poorer and primarily eligible for means-tested social assistance programs
- The smallest green circle represents the population included in a country's integrated beneficiary registry: the sum of all the beneficiaries of the social protection programs whose MISs have been integrated
- The grey dotted circle represents a country's eligible population (those who are entitled to receive some form of social assistance benefit based on the targeting criteria of any of the existing programs[10]). The area that does not overlap with the green or the blue line represents households who should be included but are not (exclusion errors). The area within the blue circle that does not overlap with the grey one represents households who are included in the social registry but not eligible based on existing eligibility criteria (they could be if these changed). All beneficiary households (green circle) are eligible (unless there are inclusion errors, not figured here).

Figure 3: How social registries and integrated beneficiary registries compare to a country's total and eligible population

Social registry

Integrated beneficiary registry

Country's population
(Virtual Social Registry)

Eligible population for targeted programmes (e.g. 'poor')
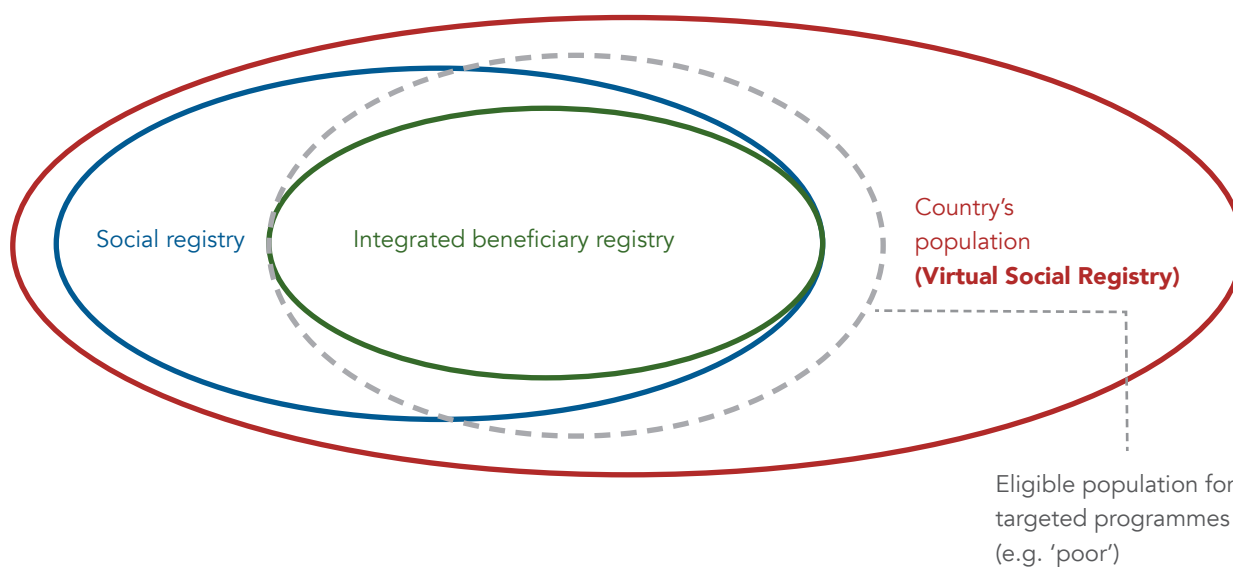
10. In cases of universal coverage, this grey dotted line would correspond to the outer red circle.

4.4. SET-UP FOR 'FULL' INTEGRATION

Potentially, the greater the interconnectivity, the greater are the gains in efficiency and effectiveness of service delivery. For example, the extent and type of integration ultimately achieved depends on the number and type of linkages established with other databases through the software application (integrated MIS) – see Table below for important examples.

Table 1: What type of integration can be achieved? Comparing Social Registries, Integrated Beneficiary Registries and Virtual Social Registries

	INTEGRATED BENEFICIARY REGISTRIES	SOCIAL REGISTRIES	VIRTUAL SOCIAL REGISTRIES
Overview of beneficiaries across programmes and integrated M&E	Yes	Only if Registry receives data from programme MISs	Only if Virtual Social Registry also receives data from programme MISs
Integrated process for eligibility determination across programmes	No (eligibility is determined at programme level, then integrated)	Yes	Yes for universal programmes. Additional info needed for means testing
Integrating operations and services across existing programmes (e.g. payments, grievances)	Yes (if pursued as policy objective)	Only if Registry receives data from programme MISs	Only if Registry also receives data from programme MISs
Integrating policy across Social Protection sector	Only if Registry linked to all social assistance programmes and Social Insurance registries, etc.	Only if Registry linked to all social assistance programmes and Social Insurance, etc.	Only if Registry linked to all social assistance programmes and Social Insurance, etc.
Integration with other sector MISs	Only if Integrated MIS enables this	Only if Integrated MIS enables this	Yes (depth will depend on what MISs are made interoperable)

Source: Barca and Chirchir (2016)

The key issue is therefore the level of coordination and interoperability[11] achieved, not the creation of a super-sized system or database that serves all purposes[12]. It does not matter whether the system is set-up as a 'Social Registry', 'Integrated Beneficiary Registry' or 'Virtual Social Registry' - what matters is that the approach chosen:

- responds to a **country's needs** (see Section 4.5),
- is **appropriate to its context** (see Section 4.6) and
- is **affordable and sustainable**

A system that guarantees full integration within the Social Protection sector and beyond, in accordance with the right to privacy, would ensure its application software establishes **a direct (e.g. web service) link to:**

- **All Social Assistance Programme MISs and related databases:** to keep track of who is receiving what, potentially integrate selected services, and enable adequate M&E and planning
- **Social Insurance MISs and related databases:** to integrate social assistance and social insurance and ensure a life-cycle and comprehensive approach to Social Protection
- **Any other relevant Government MISs and related databases** (e.g. Civil Registry, Tax Authority, etc.): to collect and crosscheck data, enhance accountability, and enable a comprehensive approach to Social Policy planning.

This can most robustly be achieved using each citizen's National ID number as a unique identifier (see Section 4.6.1 for more details and critique), allowing for instant access to up-to-date data, with information flowing in both directions – conditional on the permission-level of each user.

4.5. POLICY OBJECTIVES: INTEGRATING WHAT AND WHY?

Integration is mainly a policy issue requiring political and institutional arrangements before technical considerations, meaning that effective systems for data and information management cannot operate in a policy /institutional and programmatic vacuum. In this section we outline the **three main and overlapping objectives** pursued by policy-makers aiming to achieve integration, and the approaches to integration that can support these (Barca and Chirchir, 2016):

1. **Providing oversight:** Integrating to have an **overview** of who is receiving what, **coordinating** interventions, facilitating planning and more generally providing combined monitoring and evaluation (M&E) across programs. Ex. Kenya National Safety Net Single Registry
   - Achievable through a) An integrated Beneficiary Registry; b) a Social Registry or Virtual Social Registry which exchanges data with Programme MISs (often not the case)

2. **Consolidation of targeting processes so they serve multiple social programs.** The rationale here is to avoid the use of different and possibly conflicting targeting methods, increasing scale and thus cost efficiency of targeting tools. The aim is to create and maintain a database of poor households, which can be used for targeting of new programs.
   - Achievable through: a) A Social Registry; b) A Virtual Social Registry with no additional data collection (only universal non-means tested programmes); c) A Virtual Social Registry with additional data collection

3. Integrating data management to **integrate operations and services**. This is in line with the concept of the Single Window Services within the social protection sector and beyond.
   - Achievable through (when this is a policy objective): a) An Integrated Beneficiary Registry; b) a Social Registry or Virtual Social Registry which exchanges data with Programme MISs (often not the case)

On the next page, we briefly outline **key considerations** that need to be made when attempting to achieve either or multiple of these objectives.

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11. Interoperability is a characteristic of a product or system, whose interfaces are completely understood, to work with other products or systems, present or future, in either implementation or access, without any restrictions.
12. A large whole-of-government information and communications technology system is unrealistic and risks being too complex to be useful. Instead, e-government, for the purposes of this paper, means a set of policies and frameworks that ensure interoperability of multiple government sector systems and use of IT to provide services to citizens.

4.5.1. Integration for oversight, coordination and planning and M&E

As shown above, only when data is shared back from individual programme MIS to the national Registry (always the case for Integrated Beneficiary Registries, but often not the case for Social Registries or Virtual Registries) it is possible to provide an integrated overview of programme beneficiaries to understand who is receiving what and feed into Social Protection policy planning.

However, this requirement alone is not sufficient. Even complete, high-quality data have no value unless they can be converted into information that is useful for making decisions and improving programs (Villalobos et al, 2010) and policy. Whatever the integration set-up, **effective systems for the on-going analysis and use of existing data also need to be developed.** Good practice to ensure adequate reporting and use of data across government include (OPM, 2015):

- Clearly identifying data needs and reporting requirements of each actor and catering to those within an overarching M&E framework
- Developing a relevant and timely reporting system (e.g. Module within the integrated MIS software), informed by constant testing by data users. See for example Kenya's online Single Registry
- Providing adequately disaggregated data, catering to the planning needs of local governments and other data users. This is critical if we want local governments to be supportive of the system, which means analysis of the data needs at the local level.
- Presenting reports in easy to read formats e.g. dashboards, charts and graphs
- Using GIS and geo-referenced data where possible (e.g. Uruguay, Indonesia, Chile, Brazil, etc.)
- Publishing aggregate key data trends on a relevant institutional website, to engage citizenship more widely (e.g. Indonesia, Kenya)
- Encouraging data-sharing with a wide range of actors, including research institutions and universities

4.5.2. Integration for consolidated targeting

In order to achieve consolidated targeting, a solution for scoring and ranking households based on their levels of poverty and vulnerability needs to be implemented at central level (applying some form of a 'unified household or individual targeting system'), to avoid political interference. **The output, a list of eligible households can then be shared** with individual program implementers or decentralised counterparts who use the national list as a basis and often adapt it to their purposes by:

a. adding further criteria: for example, pregnant women or people aged 65 years and over
b. validating lists provided: for example, publicizing the list in the community and giving 30 days for people to object, calling a community meeting or conducting household visits
c. choosing what percentage of households ranked nationally are to be included: for example, only the poorest 10 per cent

This two-tiered targeting approach enables a common methodology to be developed across programs while maintaining the flexibility needed by individual programs or decentralised units of government to target specific household types.

However, the risks this national and integrated approach to determining eligibility poses go beyond those faced by individual social protection programs, **as any 'mistake' can lead to systematic exclusion of some groups or individuals** and exclusion from multiple social sector schemes as one error can affect eligibility to multiple programmes. Social programs can also have different objectives and targeting criteria, which do not have to pass the same filters. Moreover, a national approach to determining eligibility may not **adequately reflect local poverty or social and risk circumstances** – a big challenge in large and diverse countries (e.g. Indonesia, Brazil). Approaches used to mitigate these risks have included (OPM, 2015):

a. Institutionalising a validation process within communities, at registration. However this is time-consuming and can be counterproductive if validation results are not integrated into the system.
b. Enabling two decision-making layers. In Turkey, for example, data determines eligibility, but human decision (following household visit) prevails. Central level then validates local decisions, performing spot-checks on discrepancies with the central targeting index.
c. Having in place a functional grievance mechanism for complaints and appeals e.g. toll-free line (problematic if this does not translate into changes in eligibility decisions which are more difficult in supply/census based targeting systems). This is currently being extended for Kenya's Single Registry.
d. Ensuring people understand targeting through tailored communication strategies (e.g. to increase take-up and registration).
e. Including parameters relating to local context (e.g. urban/rural, services available, etc.) e.g. this is done by the SISBEN Social Registry in Colombia

4.5.3. Integrated management of selected operations and services

One of the ultimate aims of integration of data and information management should be to **improve citizen's experience and access to social protection programmes**. However, integrating operations and services across the social protection spectrum requires very high levels of capacity and institutional coordination – and may not always be feasible. For example, individual programs may be reluctant to relinquish control over their operations.

A great example of a legacy system being used to manage a wide variety of grants through an integrated system for data and information management is South Africa's SOCPEN system (see Box 9).

4.6.   COUNTRY CONTEXT: INTEGRATING HOW?

Beyond policy objectives, it is clear that certain set-ups for integration will only be achievable in certain contexts: a country's historical trajectory and ultimate 'endowment' has a great weight in determining choices. We discuss key enablers below (noting that recommendation in Section 3.2 also apply and that the key questions for a needs and feasibility assessment are set-out in Section 5.1).

Table 2: Key enablers for the development of an Integrated System for Information Management

DIMENSION	WHEN IS THE DEVELOPMENT OF AN INTEGRATED SYSTEM FOR INFORMATION MANAGEMENT FOR SOCIAL PROTECTION FEASIBLE? KEY ISSUES
Policy environment and budget	• National policy focused on developing a systems approach to social protection (aiming to achieve coordination and harmonisation to fill coverage gaps and address the fragmentation that limits the effectiveness and impact of social protection policies and programs) • Integration of data and information management clearly articulated in National Development Plans, National Social Protection Policies and Strategies, and other strategic documents • Strong political leadership advocating for reform and coordinating institutional actors • Focus on ensuring political buy-in and ownership of all actors, including social partners and representatives of beneficiaries, by addressing advantages for each (e.g. through social dialogue, participatory planning process and stakeholder mapping) • Existence of Programme operational rules and guidelines (often ICTs prompt the need to clarify this prerequisite!) • Sufficient capacity to identify and cost policy options (on what?), assess affordability and identify available financing options • Budget availability (and policy support) to back the vision • Acceptance of slow, iterative process and failures
Staff availability and capacity	• Highly trained and qualified staff, motivated through a performance management system, and at a sufficiently high salary to guarantee retention – both at central and local level • Sufficient budget for continuous staff training and retention • Culture of sharing and problem solving, e.g. no resistance and complacency of staff to want to keep the system as it is • Presence of 'hybrid' staff that understand both context, organization, and work processes of their sector and the role of information systems

DIMENSION	WHEN IS THE DEVELOPMENT OF AN INTEGRATED SYSTEM FOR INFORMATION MANAGEMENT FOR SOCIAL PROTECTION FEASIBLE? KEY ISSUES
Governance and institutional structure	• Existence or easy creation of an independent unit that is in charge of managing and maintaining the new system at a sufficiently high government level to effectively coordinate with all stakeholders and update new regulations etc.. • Role of the Integrated System for Information Management and its managing unit embedded in legislation (example Brazil) • Potential for strong institutional ties with other government bodies • Absence of parallel or competing structures for oversight of social protection policy (no power struggles); levels of agreement on basic issues regarding payment systems/contract and compensation of administration costs between agencies, etc. • Stakeholders clearly identified and their roles formalised through legally binding agreements, carefully designed incentives and mutually agreed terms of reference • Decentralisation approached as a resource rather than impediment: providing added value to decentralised government (tailored functionality and data sharing), involving local government and creating performance incentives
Wider country context	**Hardware (for example, computers and server)** • Adequate hardware available at local levels (these can be purchased, but this increases costs significantly). • Adequate servers—high-capacity computers—that can be are scaled up to accommodate potential growth (for example, a designated server room with reasonable physical and logical security that conforms to ISO 27001). • Stable provision of electricity at local level **Application software and database** • (If needed) potential to create a large database that is scalable, flexible and performs well. • Clarity of functional requirements and technical specifications at policy level. Key questions—such as purpose, benefits, hosting and nature of users—should be addressed at the feasibility stage and agreed by all stakeholders. • Availability of capacity to support and administer the relevant software, database and network **Transfer of data** • Adequate legislation and procedures ensuring data privacy and security • Existence of a solid system for a unique ID for social protection (National ID or social security number) that can be used as a backbone to integrate data across sources • Ideally, Internet access at all levels of implementation, including local (to build web-service access that greatly improves information flow).- preferable use of government internal network and hosting • Clearly documented protocols enabling quality controls on information before it is submitted over the Internet or transferred by batch process

Source: Barca and Chirchir (2016)

4.6.1. Lack of National unique number identifier (Eg. ID)

When attempting to integrate programs across and outside the social protection sector, a **unique ID number for individuals is needed to link Registry information with other systems and programs**. The most easy and effective solution for this – though not free of controversy – is the use of a country's National ID number.

Many countries, however, do not have a National ID number or have insufficient coverage of the poorest and most vulnerable population groups. So how to ensure linkage of databases in the lack of an existing ID system and unique identifier? Country experience suggests the following avenues (Barca and Chirchir, 2016; Castaneda and Lindert 2005; Gelb and Clark 2012; Gelb 2014):

- **Building a business case for a National ID System** as an important pillar for delivery of social services, **working alongside national registry offices** on a common effort to register individuals particularly in remote or poor areas where lack of identity documentation and numbers is prevalent. For example, this could include:
  - Assessing the effectiveness of a National ID system, evaluating pros and cons (see for example Table 3 and investing in a feasibility study as part of data and information integration planning[13]. Estimates on costs of large ID programs run from $3 to $15 per head[14] ;
  - Incorporating civil registration as a key objective of a social protection program. Examples include Kenya's Cash Transfer for Orphans and Vulnerable Children cash transfer, Kenya's Hunger Safety Net Program and Uganda's Social Assistance Grants for Empowerment program, where beneficiary households are given easy/free access to national ID[15];
  - Registering households for National ID during registration for the Social Registry. In Lesotho, for example, this was done during registration for the Child Grant Programme.

1. Incorporating social protection as a key objective of civil registration and National ID efforts. This is the case in Pakistan and India. **Partner with Home affairs for national campaign and extension of ID registration**

  - Taking advantage of national events such as elections to register all citizens. This has been done in Bangladesh, Benin and DRC, for example;
  - Sharing costs of setting up an ID system among government agencies to justify investment;
  - . Linking the ID to other desirable services. For example as part of the rollout of comprehensive ID system called "Adhaar"[16], India's government is opening bank accounts. In Pakistan, NADRA achieved registration by promoting wide range of wider benefits (ability to perform haj pilgrimage, access to bank accounts and other services).

- Considering the relative effectiveness of other existing functional ID systems e.g. Voter Registration, Birth Registration, etc.

- Generating **another functional 'unique number'** to substitute a national ID number and complement existing functional IDs. The most famous is the US's Social Security Number, a strategy adopted in Brazil[16], Mauritius, and Mexico, for example. However, the common practice of assigning new numbers as people apply (new number for each questionnaire) could lead to potential problems with duplication, as in Colombia.

- **Designing formulae or "algorithms"** that combine a number of variables to create a comparable identifier across databases in the government sector. For example, Brazil's "match key" variables consist of name, mother's name, birth and codes from selected documents[17], while in the Philippines probability models for matching data are based on birth dates and other identifying data;

- **Rejecting those who do not have an ID number**, as Brazil did, for example, in the early phases of the Cadastro Único. However, this is not a viable strategy for an inclusive Registry.

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13. Such a study would clarify objectives, benefits, costs, contextual constraints and set forth a clear road map.
14. See "Unique ID in Development and Social Programs" PPT (Gelb, 2014) for more details.
15. A controversial example comes from the Dominican Republic, where a program aiming to register poor citizens de facto stripped citizenship rights from many residents of Haitian extraction
16 See for example Brazil's 'Social identification number' (unique number for each registered person).
17. Note that cross checks across databases using these algorythms as a Unique ID are not 100% accurate.

4.6.2. Lack of appropriate safeguards to ensure data security and privacy

Eligibility into social protection programmes requires substantial amounts of personal information to be gathered from potential beneficiaries, including sensitive data on health, income, assets, and housing. This poses the risk of misusing or losing such information[18], potentially exposing households to further vulnerability (CALP 2013; Hosein and Nyst 2013; APSP 2015). In integrated systems, this risk increases, especially as data is shared across multiple actors. Importantly, the right to information privacy is also embedded in the Universal Declaration of Human Rights (UDHR), the International Covenant on Civil and Political Rights[19] and the ILO Social Protection Floors Recommendation, 2012 (No. 202), which explicitly calls on States to "establish a legal framework to secure and protect private individual information in their social security data systems" (para, 23[20]).

Best practice shows that – where Social Registries or any level of Interoperability is being developed – country laws should **adhere to international data transfer and information privacy protocols**, which legislate the collection, transfer and storage of information. This becomes even more important where data is shared across a public network and several institutions. Key laws that should be adhered to include: Council of Europe's Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data; United Nations Guidelines for the Regulation of Computerized Personal Data Files; and OECD Guidelines on the Protection of Privacy and Trans border Flows of Personal Data. Such practice is common, for example, in all Latin American countries.

In particular, some of the most important principles and actions for the secure use of personal data within social protection programmes are summarised below (CALP, 2013; Barca and Chirchir, 2016):

- ensure informed consent of those who are sharing their data, explaining the nature of the data being collected, the purpose of collection, with whom it will be shared, and who is responsible for the secure use of their data[21];
- establish a mechanism to respond to any complaints or concerns citizens may have about the use of their personal data;
- regularly undergo information system audits to analyse, document and understand the flow of data and develop risk mitigation strategies for potential risks arising from these flows;
- implement appropriate technical and operational security standards for each stage of the collection, use and transfer of beneficiary data to prevent unauthorised access, disclosure or loss;
- implement appropriate mechanisms to provide individuals with the right to access their personal data and correct it
- enforce data back-up and protection protocols and guidelines, for example by:
  - ensuring data users are trained and aware of these issues,
  - implementing user profiles on information system access, allowing for an audit trail
  - sharing data in anonymised and summary format except when needed
  - establishing non-disclosure agreements for anyone who is granted access to data;

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18. For example, data could be illicitly used for blackmail, identity theft, or marketing purposes.
19 Article 17 of the ICCPR, which reinforces Article 12 of the UDHR, provides that "no one shall be subjected to arbitrary or unlawful interference with his privacy, family, home or correspondence, nor to unlawful attacks on his honour and reputation"
20. States that are party to other United Nations or regional instruments, such as the International Covenant on Civil and Political Rights, the American Convention on Human Rights, or the African Union Principles on Freedom of Expression should also take into account their international obligations in the implementation of the national social protection floors.
21. Recent research in Kenya showed that this was often not the case (APSP 2015).

Specifically, backup and security should conform to **ISO 27001**[22] —an approach to managing confidential or sensitive information—so it remains secure, confidential and with its integrity intact. In some pilot transfer programs (for example, the Hunger Safety Net Programme Kenya and Social Assistance Grants for Empowerment in Uganda) backup and security systems are hosted in physically and logically secured servers at program level. But national programs sometimes outsource this security and hosting function. In Pakistan, for example, the Benazir Income Support Programme database is hosted by the National Database and Registration Authority. In South Africa, SOCPEN is hosted by the South African State Information Technology Agency (SITA).

A trade-off emerges when the need for data privacy conflicts with transparency and accountability. Several countries have solved this by making certain aggregate and anonymised datasets and data visualisations available to the general public. In Indonesia, for example, 16 of the 40 core indicators in the Social Registry are available online in aggregate format.

4.7.   COUNTRY EXPERIENCES TO DATE

Support for integrated data and information management for social protection has grown considerably in the last 20 years especially. The early wave goes back to the late 70s and early 80s, when Chile and South Africa were starting to set up their systems (see Box 9 for South Africa's legacy system). Following some further experiences in Costa Rica and Argentina, since the turn of the century this process has notably accelerated – in Latin America primarily and then expanding internationally. For example, Brazil started the set-up of its systems in 2001, Uruguay in 2006, Malaysia in 2007, the Philippines in 2009, Turkey in 2010 and Indonesia and Kenya in 2011. Each of these countries – as well as many others not listed here – has gone through several iterations during the course of this process, adjusting their system depending on the constraints and opportunities they were facing at that point in time, and on the overarching policy objectives pursued. For example, Brazil's Cadastro Único has gone through several iterations of the cadastro software and set-up, and – despite being a world-renowned case study in this field – in 2016 is starting a new round of discussions to further integrate the system (World Without Poverty, 2016b).

Based on data in the World Bank's State of Social Safety Nets 2015 (Honorati, Gentilini and Yemtsov, 2015) and on our updated assessment, **integrated data and information management for social protection is already fully institutionalised in 30 low- and middle-income countries worldwide** (15 in Latin America, six in Africa, five in Europe and the Middle East and four in the Asia-Pacific)[23]. Many of these systems are set up as social registries. Currently the number of countries considering and developing options for integration in this sector is expanding rapidly, with an additional 31 countries – 18 of which are in Sub-Saharan Africa – in the process of developing an integrated system for information management.

22. SO/IEC 27001:2013 is an information security standard that was published in September 2013. It is published by the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC). Organizations which meet the standard may be certified compliant by an independent and accredited certification body on successful completion of a formal compliance audit.
23. The World Bank's full list includes 21 countries. We have added further ones based on an updated assessment.

5

KEY STEPS WHEN SETTING UP A PROGRAMME MIS OR AN INTEGRATED SYSTEM FOR INFORMATION MANAGEMENT

Setting up a programme MIS is a challenging undertaking, which is compounded by a lack of standards and guidelines. Consequently, many countries, especially in sub-Saharan Africa, have been experimenting with a number of pilot programmes that implement programme MIS. Unfortunately, some of these experiments have been costly. For example, some countries have procured MIS software without accompanying source codes, while others have been forced to pay expensive licenses in instances where source codes were not supplied alongside other MIS deliverables. In other cases, vendors have over-sold expensive customized MIS solutions where standard off the shelve products would have been sufficient for the needs of the particular programme. Very often, the underlying problem has been lack of sufficient capacity of the commissioning body.

These risk are even larger for Integrated Systems for Information Management – which require significant levels of policy coordination to fulfil their objectives at full. Of course these challenges are not insurmountable. In fact, with better understanding of the key factors and risks, improved systems can be set up to best address the needs of SP schemes and systems.

Broadly speaking, we focus on three key steps:
1. conducting a needs assessment and agreeing on broad design parameters;
2. conducting a feasibility study; and
3. developing and implementing the selected solution.

5.1. NEEDS ASSESSMENT AND AGREEMENT ON BROAD DESIGN PARAMETERS

Design choices need to be defined through evidence, carefully analysing gaps in service provision and separating desire from need. In order to achieve this, broad consensus needs to be built among all key stakeholders. This can be on the basis of a comprehensive needs assessment and on-going participatory panning, with the objective of agreeing on broad design parameters. Using the creation of an Integrated System for Information Management as an example (this can be broadly applicable to programme MIS too), this will include:

- Taking stock of the broader Social Protection and E-Government context, to define objectives and understand opportunities and constraints
- Taking stock of existing programmes and their potential for integration, including the quality of existing programme business processes and whether/how to redesign/integrate these;
- Understanding specific information requirements for different levels of users (primary, secondary and tertiary), including policy makers from other sectors;

Table 3: Needs assessment -- what questions need to be asked to inform design?

COMPONENT	EXAMPLE QUESTIONS (UNDERLYING QUESTION FOR EACH: HOW DOES THIS AFFECT DESIGN CHOICES?)
Broad Social Protection context [24] (policy & legislation)	- What is the National SP policy? Priorities? Does this reflect plans for integration? How? What are the policy priorities in terms of integration (see Section 4.5)? (Stakeholder mapping) Who is in charge of delivering social assistance and social security in country, at both central and decentralised level (primary users)? What other stakeholders are involved (secondary users)? Which further actors may have a stake (tertiary users)? What are these actors' interests? What are their (information and management) needs that integration can help address? What resistance could be encountered? - What are the legislative foundations for Social Protection and for integration? What are the gaps? - What is the current degree of fragmentation or integration within Social Assistance and between Social Assistance and Social Insurance? What are the existing mechanisms for horizontal and vertical coordination? - What is the level of decentralization? What capacity is there at local level?

24 Primarily drawn from Lindert et al (2016)

COMPONENT	EXAMPLE QUESTIONS (UNDERLYING QUESTION FOR EACH: HOW DOES THIS AFFECT DESIGN CHOICES?)
Broad e-governance context[25]	• Does a broader e-governance platform exist? Status? Institutional arrangements? Is there a government framework for ICT and inter-operability? What is the main government ICT infrastructure? • What are the existing legal and regulatory provisions for information access, cyber-security, data security, data confidentiality, privacy standards, personal data protection, etc.? Are these sufficient? • What other government information systems could usefully share data (depending on objectives)? E.g. National ID, Civil Registry, employment and labour, tax system, social security, health, education, land titling, housing and other property, etc. Are links with each desirable and why? • Can the National ID be used as a Unique Identifier? E.g. What % of population has National ID; what info is collected; characteristics of those with no ID; other forms of ID; most common ID for low-income households; charges or fees for ID; accessibility of registry, etc.? Advantages and disadvantages? If not, what alternative solution?
Existing programmes and their business processes	• What programs exist in country (objectives, budget, implementing agency, targeting criteria, coverage and plans for scaling up, benefits, key features, business processes, information management approach)? • Which of these can usefully be integrated? Along which dimensions (e.g. integration of registration/data collection, eligibility determination, or other systems too – payments, grievances, etc.)? • Do programs' current business processes need redesigning and integrating? How?
Information requirements	• What are the specific information needs of all key actors (primary, secondary and tertiary - national and local, government and civil society, implementation and policy, etc.)? Why are these needs important? How will this information be used? What is the order in terms of priority? • What data will be needed to feed into the core business processes supported? • Has the amount of data collected been limited by keeping data focused on core objectives and processes

Source: Lindert et al (2016)[26], Feasibility study and refinement of design

A feasibility study aims to objectively and rationally uncover the strengths and weaknesses of the proposed design based on a wide range of parameters, that ultimately define the prospects for success. A good feasibility report should set out a clear road map on the design and implementation of the Programme MIS or integrated solution for data and information management at a strategic level.

In many developing countries, policy makers assume that programme MISs and integrated systems for information management are a 'technical tool' that is best delivered by ICT consultants or experts. However, these should be thought of holistically as broad systems that enable the flow of information within and beyond Social Protection programmes and are, therefore, policy tools that should find space in national SP policy agendas. Fortunately, this is increasingly happening in several developing countries.

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25. Primarily drawn from Lindert et al (2016)
26. Specifically, elements of this table are adapted from the World Bank's draft 'Assessment Tool for Social Registry Information Systems'.

However, not all developing countries have put in place social protection policies with clear agendas on MIS or integration. To avoid potential pitfalls, developing countries should therefore invest in feasibility studies. Such a study would address the following issues (see Table 4 below):

Table 4: Key feasibility parameters and questions

COMPONENT	QUESTION
Institutional capacity	• Does existing legislation and policy adequately reflect the rationale and main objective pursued? If not, is there space for shifting policy in this direction? How? • Is there strong enough political leadership advocating for reform and coordinating institutional actors across the board? If not, how can this be garnered? • What other institutions will back the process? Who will oppose? How can each be influenced and brought on board? • Is there sufficient capacity to identify and cost potential options for integration, assess affordability and identify available financing options. If not, how could this technical support be achieved? • Is the existing governance structure strong enough to ensure vertical and horizontal coordination and lead development and management phases? If not, how could this be strengthened?
Implementation capacity	• What capacity is there at all levels of Social Protection governance to implement such a project? What are the gaps that need addressing (number and qualifications of staff)? • Is there in-house IT capacity that can be leveraged? If so, how will this be used? If not, how will external providers be managed? • Is there a network of staff at local level (e.g. social assistants) that can be called upon? How can these most effectively be used? • Overall, what are the proposed roles and responsibilities of various actors involved in setting up, managing and using the system?
Infrastructure requirements	• What are the hardware requirements of the proposed model? Do these respond to country constraints (durability, etc.). Are these already available at all levels of governance or will they need to be procured? If so, how? Expected costs? • What are the telecommunication systems/network requirements? Do these respond to country constraints (availability of internet, power, etc.)? What back-up options exists?
Financial costs & sustainability	• What are the estimated start-up costs of the proposed model (including hardware and training costs)? • What are the estimated costs of operating the proposed model (including staff requirements)?
Intended users	• How will the system ultimately be used? How can use be most effectively enhanced?

COMPONENT	QUESTION
Potential positive impacts	• What are the expected positive impacts of the proposed system? How could these best be achieved? See list in Section 4.1 as an example.
Potential negative impacts	• What are the negative impacts and how can these be mitigated? E.g. privacy and security risks, excessive costs, unsustainability, etc.
Conclusions and Recommendations	• What are conclusions? • What are key recommendations?

Source: authors

The feasibility study would provide essential guidance as to how to implement the proposed project effectively – or could provide the basis for deciding the overarching project is unfeasible.

5.2. DEVELOP AND IMPLEMENT SELECTED SOLUTION

As discussed extensively above, the 'road-map' set out by the Feasibility Study should primarily focus on how the overarching strategy for implementing the selected solution (e.g. programme MIS or specific approach to developing an Integrated System for Information Management) will be effectively pursued. How this can be achieved in practice is beyond the scope of this Module, but is discussed in Module COO and Module GOV.

 In this section we focus on the 'IT components': the development (and implementation) of the MIS or Integrated MIS software, the database/registry creation, the hardware procurement and the choice of telecommunications system.

5.2.1. Software development

There are two main options for this: develop the MIS software in-house (if there is sufficient capacity) or tendering it out to an external provider. For example:

- Mozambique opted to develop and locate its MIS at the Ministry of Finance because it had sufficient resources to develop, host, and maintain it;
- Kenya outsourced the development of its 'Single Registry' (Integrated Beneficiary Registry) and the modernization of its cash transfer MIS to an external software firm that had local presence (important because it enables the supplier to provide 'handholding' throughout implementation and fix any potential software glitches within a minimum guarantee period, e.g. a year).

Outsourcing is essential where capacity is not available in-house, but requires careful contracting and management. For example, during the development of the software, it is necessary to support the supplier by internally establishing two teams:

1. Steering: to ensure that the MIS is delivered within scope and on time.
2. Technical: responsible for monitoring the tasks and deliverables of the project

Further best practice (to be incorporated in ToRs if managed externally) is to:

- Adopt iterative prototyping[27], whereby the system is designed and used to iteratively customise and incorporate feedback from users (one module at a time)
- Use open-source software, acknowledging the high costs of making changes to proprietal software. For any other proprietary third party software used, the suppliers should be asked to provide perpetual and valid license for at least a period of five years and ensure software is procured with accompanying source codes
- Ensuring the MIS software includes all standard data checks such as format masks, drop-down menus, data value parameters, warnings of repeating names, and cross-reference checks
- Ensuring 'segregation of functions': pre-defining roles and privileges of each user of the MIS system so as to prevent violations of security and any misuse of the MIS application
- Build in-house capacity to develop and update the MIS, for example by ensuring that contracts have clear provisions to allow suppliers to hand-over all the source code and technical documentation of the system without any preconditions.

5.2.2. Database/registry creation

An MIS can only function if it is fed by a database/registry that contains accurate, up-to-date data (garbage in-garbage out). This requires:
- Ensuring a strong approach to data collection and validation (see Modules S&I and ADM)
- Ensuring contents and formats such as names and identification numbers conform to those contained in the MIS' data dictionary. The length of fields and content structure should be standardized for aggregation and reporting.

5.2.3. Hardware procurement

As discussed in Section 3.2, MISs need to be supported by adequate hardware. Best practice in ensuring this is the case includes:

- Choosing hardware resources on the basis of the application software requirements of the MIS
- Carefully defining hardware specifications to ensure adequate memory, disc space and processing capacity; sufficient resilience to extreme conditions (high or low temperatures, rain, dust, etc.)
- Ensuring availability and appropriateness for local levels of administration, considering cost-effective technology (e.g. use of tablets, smartphones, etc.)

5.2.4. Telecommunications System (data-sharing) set-up

Data collected through an MIS, whether programme specific or integrated, is useless if it is not accessible by a wide variety of actors – and ultimately used. Best practice in setting such systems up include:

- Ensuring data is accessible and functional at sub-national level using the most cost-effective and appropriate telecommunication technologies available in-country, where possible sharing data through web-service access (not batch processes, using CDs or email).
- Investing in network infrastructure readiness
- Where possible, automating data sharing through pre-defined formats/templates/applications
- Ensuring adequate measures for data security and privacy (see also Section 4.6.2)
- Clearly documenting protocols for quality controls on information before it is submitted over the Internet or transferred by batch process

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27. Based on the design–divisibility concept, meaning staff can learn from early, relatively small, failures and not be overwhelmed by a single, whole-system design. 'Where design comes as this single whole, "big bang" implementation, opportunities for local improvisation are reduced and risks of failure correspondingly increase' (Heeks, 2002).

6

CONCLUSIONS

This Module has clearly shown that – when made a priority – programme MISs are a powerful tool to efficiently implement, manage and monitor social protection programmes. Developing an Integrated System for Information Management – that enables the flow and management of information within the Social Protection sector and sometimes beyond – can have further policy and operational advantages.

The extent to which these advantages are achieved greatly depends on the approach to integration selected (developing a Social Registry, Integrated Beneficiary Registry or Virtual Social Registry) and the overarching objectives pursued. It is clear that, whereas many stakeholders understand MISs and their registries/databases from an Information Technology (e.g. software and hardware) perspective, they are primarily a policy tool. This has several implications:

- It is essential for Social Protection stakeholders to set the policy, legal and operational framework for the establishment of their MISs or Integrated System for Information.
- In determining the model to set up, developing countries should not (even though it is natural to look to existing examples) be casually seduced by models arising from middle-income countries (e.g. Brazil, South Africa and Indonesia). Instead, the choice must be carefully made in light of country-specific purpose, needs, and context (including existing opportunities and capacity/financial constraints).
- Given the overarching objective of data and information management in the Social Protection field – collecting and sharing information to take action so as to improve the standards of life of the poorest and most vulnerable citizens – it is important to involve all potential stakeholders in the design and development process. This can be done through an in-depth Needs Assessment (see Section 5.1) and Feasibility Study (Section 5) and by keeping key actors continuously involved (e.g. Steering Committee, continuous user-testing, etc.);

- The development of a high quality programme MIS – and to a greater extent the development of an Integrated System for Information Management – requires a complex, costly, lengthy and iterative process which requires very high capacity. Risk of failure is high, and not for IT-related reasons. Governments lacking sufficient capacity will need to be advised/guided in the development process, while investing in capacity-development.

6.1.   IMPLICATIONS FOR SUB SAHARAN AFRICA

The implications for Sub Saharan Africa are extensive, given the importance of country needs and context in determining the 'right' solution to data and information management. Six main considerations should be noted.

First of all, from a policy perspective, a wide range of countries in the region are swiftly striving towards the creation of a **comprehensive vision of Social Protection policy** (in line with the ILO Social Protection Floor Recommendation). This is reflected in country strategy documents and in regional efforts and has already translated into practice.

Secondly, countries across Sub-Saharan Africa have **great opportunities to adopt leapfrog technology** when it comes to setting up MIS solutions. This has already been the case in countries pioneering the use of programme and integrated MISs, addressing challenges unique to the region: for example, biometric identification can overcome traditional difficulties in identifying beneficiaries without appropriate documentation; point-of-sale devices or mobile phones can be used to transfer cash to nomadic or hard-to-reach beneficiaries electronically (allowing for instant integration with MIS); and mobile phones or hand-held devices may be used for data collection (Garcia and Moore, 2012).

Third, **capacity constraints will need serious tackling** – at central and local level. While the Ministries and Agencies in charge of implementing Social Protection across the region have been strengthening their role and cadre of staff, there is still a significant lack of: a) technical staff at central level, capable of leading the MIS development process while also understanding policy and implementation requirements; b) field-staff at local level (e.g. a cadre of social assistants), capable of acting as liaisons with programme applicants and beneficiaries. Countries that have recently succeeded in their process of data integration, such as Kenya, have undertaken rigorous Capacity Needs Assessments to tackle this issue. They have also adapted their systems to existing capacity constraints, for example by a) gradually building on existing systems rather than adopting a 'big-bang' approach, b) outsourcing development tasks to external companies and/or receiving donor technical assistance, and c) adapting business processes to capacity constraints (e.g. impossibility of on-demand data collection in the short term given lack of local staff).

Fourth, the sustainability of any MIS project – and especially a large project involving the creation of an integrated system – is largely reliant on **a sustainable source of funding** allowing for on-going operations (including training and technical support for staff), maintenance and potential changes/tweaks. This is problematic in contexts where Social Protection is still struggling to garner sufficient domestic financing – as is often the case in Sub Saharan Africa (Garcia and Moore, 2012). An MIS project's Feasibility Study should realistically assess the cost implications of different models of MIS development and rollout, and base ultimate choices on the availability of adequate financing.

Fifth, MIS projects in the region need **extensive tailoring to the specific objectives and characteristics of social assistance programs**, as extensively described within Garcia and Moore (2012). For example, given most programmes' strong focus on targeting vulnerable groups rather than 'the poor', a unified approach to poverty targeting across different programs could be more difficult to implement. Similarly, given the high level of community involvement in all of the 'gateway' phases of programme implementation, any proposed MIS solution would have to find a way to accommodate this.

Sixth, **the wider 'enabling' (or 'disabling') context** also needs to be accounted for, possibly at the early design stages (Feasibility Study). From an IT standpoint, the lack of reliable mobile phone, network coverage and electricity, or lack of basic hardware infrastructure could seriously undermine the success of an MIS programme in the region (e.g. rural areas) – especially where one of the core objectives is improved management and coordination across central and decentralised levels of government. From a wider country-context perspective, it is essential to understand whether existing data privacy and security legislation in the region is strong enough to protect already-vulnerable groups from further vulnerability.

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CURRICULUM
OVERVIEW

The TRANSFORM Learning Package
is organized in a modular structure, and reflects the key building blocks of a holistic &
interdependent social protection system.

The TRANSFORM modules that are currently available are listed below.
Other modules are under development and will be added to the curriculum.

LEG	**Legal Frameworks**
S&I	**Selection & Identification**
ADM	**Administration and Delivery Systems**
COO	**Coordination**
GOV	**Governance, Institutions & Organizational Structure**
MIS	**Management Information Systems & Approaches to Data Integration**
FIN	**Financing & Financial Management**
M&E	**Monitoring & Evaluation**

All TRANSFORM materials are available at:
http://socialprotection.org/institutions/transform

WHAT IS TRANSFORM?

TRANSFORM is an innovative learning package on the administration of national social protection floors in Africa. The prime objective of TRANSFORM is to build critical thinking and capacities of policy makers and practitioners at national and decentralized levels to improve the design, effectiveness and efficiency of social protection systems. TRANSFORM aims not only at imparting state-of-the-art knowledge that is appropriate for the challenges faced by countries in the region, but also to encourage learners to take leadership on the change and transformation of nationally defined social protection systems.

WHY TRANSFORM?

Many training curricula exist in the field of social protection and thus fundamental ideas, concepts, approaches and techniques are accessible. And yet, institutions and individuals struggle with the complexity of developing a broad, encompassing social protection system.

This complexity requires a transformational approach to teaching and knowledge sharing. It is far from enough to impart knowledge, to fill heads. It requires learners to grapple with the features of complexity, to stimulate creativity, to appreciate diversity and uniqueness, to be involved as a key element of ownership –elements which are at least as important as the factual knowledge itself. This learning package aims at just that: TRANSFORM!

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