

# Management Information Systems for CCTs and Social Protection Systems in Latin America: A Tool for Improved Program Management and Evidence-Based Decision-Making

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## 1. Introduction

Latin America is home to numerous CCTs and other social protection programs, most of which use a Management Information Systems (MIS) to manage program data. MIS are considered the backbone of CCT programs because they facilitate good program management, decision-making, and program accountability. To better understand how MIS function and what role they play in decision-making and program management and improvement, we collected information on country MIS experiences in the region and analyzed these experiences in a workshop entitled, “The Role of Management Information Systems in CCTs and Social Protection Systems in Latin America” held in Washington, DC on January 25-26, 2010.<sup>2</sup> A workshop report describes the content of the discussion in detail, including lessons learned from the country experiences about the key functions and roles of MIS, principles and good practices for MIS, and how MIS in ten Latin American countries have been implemented and have evolved.

This note summarizes the main messages of the MIS workshop report. It outlines primary uses and functions

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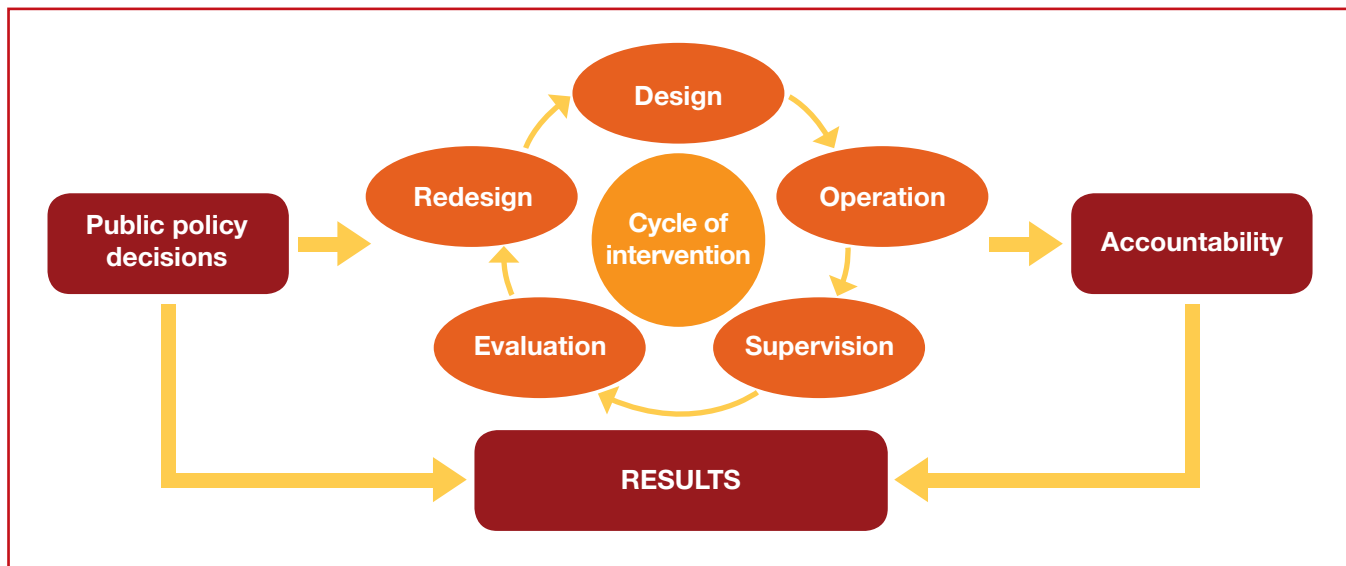
<sup>2</sup> The workshop was attended by Bank staff from headquarters and countries in the region and resource persons from Mexico and Chile. Information was collected on country experiences using a short survey focusing on the objectives, structure and use of the MIS. This note and the complete workshop report include information on the 10 countries that responded to the survey: Bolivia, Brazil, Chile, Colombia, Dominican Republic, Guatemala, Jamaica, Mexico, Panama, and Peru.

of an MIS, presents a categorization of MIS in Latin America and the Caribbean, with country examples from CCT programs and social protection systems, and discusses principles and good practices for MIS. The note aims to provide practical information and lessons for countries interested in creating or modifying an MIS, based on the particular needs and scope of their programs.

## 2. The Value of a Good MIS

Management information systems (MIS) are indispensable tools to manage data for all program processes, from operation to supervision to evaluation and redesign. MIS are not merely repositories for data, but rather can be powerful instruments to facilitate evidence-based decision-making and to ensure program oversight and accountability, all of which contribute to better program results (see Figure 1).

**Figure 1: MIS manages data for all program functions and facilitates positive program outcomes**



A simple and well-designed MIS can contribute to effective:

- Program implementation (by indicating how well a CCT is operating compared to implementation objectives);
- Supervision (by highlighting problem areas that require attention); and
- Accountability (by providing information about program effectiveness and facilitating transparency).

A more comprehensive MIS can be used to generate and manage information on services and institutions that are linked to a CCT (e.g. education, health, etc.) and to coordinate information across social protection programs.

## 3. MIS in Latin America and the Caribbean

In Latin America and the Caribbean there is a wide range of MIS models. Program and policy objectives define the scope of the MIS and determine its level of complexity and degree of integration with other programs and/or institutions. These MIS can be classified into three categories, based on the scope of the MIS. Figure 2 classifies 10 CCTs<sup>3</sup> in Latin America and the Caribbean according to these categories. Within each category, every program is

<sup>3</sup> The countries listed in this section are based on the list of 10 countries included in the MIS analysis.

at a different stage of development of its unique MIS. The programs with a dark border have more highly developed MIS within their category.

**Figure 2: Three categories of MIS in Latin America and the Caribbean**



If well designed and used appropriately, an MIS in *any* category can be an effective tool for program management. MIS can evolve in different ways. If program objectives stay focused on program operations, the MIS remains in the first category, but can gain sophistication. If program objectives expand to address other programs, services, and/or institutions, the MIS moves along the continuum to a different category as its scope becomes broader.

The type of MIS must be matched with appropriate institutional arrangements. While an MIS focused on internal program operations may be effectively housed with the program administration, an MIS that functions as an instrument for the whole social protection system, involving multiple sectors, must have modules in other institutions or exist within a separate entity that is responsible for the entire information system.

### Management of internal program operations

This category of MIS aims to support the internal operations of the program. It is the basic form of an MIS and contains everything needed to manage information for a CCT. This type of MIS includes information on three processes:

- Program operation (e.g. selection of beneficiaries, enrollment, registration, verification of conditionalities, and payments)
- Monitoring program management (e.g. creation of indicators and management alerts)
- Control and accountability (e.g. generation of reports and materials for communication with the stakeholders and the public)

#### **Colombia: MIS for *Familias en Acción***

The MIS for Colombia's *Familias en Acción* program is the most advanced within this category of MIS. It includes modules for the full range of program processes from beneficiary selection (using two instruments: SISBEN, an integrated targeting system for social benefits, and SIPOD, the registry on displaced persons), enrollment and registration, to the administration of transfer payments and monitoring of co-responsibilities.

## Management of program and related services

The purpose of this category of MIS is to support internal program operations and to provide information to sectors and institutions related to the program (e.g. education and health) to facilitate improvements in the efficiency of services. By providing information to other sectors about the demand for health and education services, this type of MIS can allow these sectors to respond with adjustments in their planning and allocation decisions (both in terms of quantity and quality of services). These adjustments can have important effects on the outcomes of CCT programs. In order to facilitate this process, the MIS must ensure that the following take place:

- Information exchange across institutions
- Identification of areas for improvement (e.g. service provision, quality of services)
- Institutional agreements, which require drafting agreements, monitoring commitments, and analyzing results

Countries may move from the first to the second MIS category as they move toward having stable relationships with other sectors and institutions. For example, the MIS for the *Solidaridad* CCT in the Dominican Republic has been moving toward involving multiple sectors. Now the education and health sectors can register information and use the MIS.

Within this category, the MIS in Guatemala and the Dominican Republic are still in the design and early implementation phase, while those in Mexico and Jamaica are more established and sophisticated, with tools for planning, service coordination, reporting for distinct MIS users and the public.

### Mexico: MIS for *Oportunidades*

The MIS for Mexico's *Oportunidades* program uses interconnected modules organized around the program management cycle: planning, implementation, supervision, and evaluation. The MIS has tools to automatically generate indicators, which are critical to identifying areas for improvement and improving accountability. The health and education sectors participate in defining the expansion of the program as they are responsible for ensuring their capacity to provide services to new beneficiaries. The beneficiary identification module is an intersectoral module used by *Oportunidades* and the health and education sectors.

## Integrated management of social protection systems

The objectives of this type of MIS include those of the two previous categories as well as providing common information for the inter-institutional management of a country's social protection system. In this model, the CCT program is only one component of a social protection system. This category of MIS is much broader than the previous two categories and is used to manage information for all of the social protection programs in the country. This kind of MIS is a tool that allows the social protection system to benefit from one or more of the following:

- A single beneficiary registry
- An integrated information system (e.g. for institutions involved in social protection programs and for beneficiaries)
- A single entry point for beneficiaries to access social protection programs

Countries may move from the second to third MIS category when they have stable relationships across institutions and want to create a comprehensive information system for their social protection programs. For example, in Chile the design of the CCT *Chile Solidario* involved linkages to other programs (e.g. early childhood development, scholarships), so there was a natural need to organize services. The country developed a legal framework governing intra- and inter-institutional roles for social protection, which included the information system with a unique identifier for beneficiaries across social programs.

### Chile: The Integrated System of Social Information (SIIS)

The SIIS was designed along with the implementation of the CCT, *Chile Solidario*, but it includes information on the country's entire social protection system. The SIIS is made up of 4 interconnected modules, which support: (a) access to the social protection system, (b) services and benefits for beneficiaries, (c) the management of these services and benefits, (d) a unique beneficiary registry, and (e) online information and consultation for citizens. Given the importance of decentralized management of social protection at the municipal level in Chile, the SIIS has functionality at the regional and local level.

## 4. MIS Principles and Good Practices

To be an effective tool for program management, an MIS must register data, transform these data into useful information, manage the information, and use it for program improvements. Depending on the category of MIS, these activities can occur exclusively within the CCT program, or link to other sectors and institutions.

### Collecting data

Selecting appropriate data to feed the MIS is essential to facilitate decision-making and program improvement. Key types of data to collect include those that:

- Identify beneficiaries (e.g. name, sex, birth date, address, ID #, etc.);
- Reflect desired program results (e.g. family income, nutritional status, school attendance, etc.); and
- Capture processes expected to lead to the desired results (e.g. verification of compliance with co-responsibilities).<sup>4</sup>

**Good quality data is the pillar of an effective MIS.**

Once the types of data have been selected, it is critical to determine who will collect the data and how. The best data registries with the most accurate data tend to be run by program operators, who are in direct contact with beneficiaries. A variety of data collection tools (e.g. hard copy or electronic surveys, internet forms, or other modalities) can be used to gather information for the MIS. The data collection instrument and MIS system should be appropriate given program and country capacity and countries can move gradually from simple to more advanced data collection instruments.

For example, in Panama, data collection is conducted using both electronic and hard copy forms, depending on infrastructure and capacity in different areas. In the case of *Oportunidades* in Mexico, electronic forms were always used for data collection in high schools (using school laptops or public internet cafes). Based on the success of this approach, the program moved toward using electronic forms in primary schools and health centers in places with sufficient infrastructure. This shift required that *Oportunidades* invest in technology and training of program staff and service providers at the local level. Currently data is still collected using both formats, but to the use of electronic formats is increasing. In the planned expansion of the program, data will be entered using mobile devices (palm pilots), which have built in controls to prevent errors (e.g. skipping necessary questions, providing an answer that is unrealistic, etc.). For example, there is a minimum number of questions that must be answered to calculate beneficiary eligibility and if this number is not achieved, the mobile device will inform the interviewer of the problem in real time.

<sup>4</sup> We use the term “co-responsibilities” instead of “conditionalities” because it reflects the double responsibility involved in compliance with program requirements to use social services. The beneficiary is responsible for using services (demand) and the program is responsible for providing the services (supply). MIS can regulate both aspects of co-responsibility.

More advanced technology does not necessarily make for a better MIS. However, electronic technologies can reduce errors, time, and cost, while improving the quality of the data in the MIS. Modern technology is appropriate if it is reliably available in all program localities and all program staff have access and are trained in its use.

## Transforming data into useful information for decision-making

Data alone have no value unless they can be converted into information that is useful for decision-making and program improvement. Data must, therefore, be transformed into indicators, which reflect program implementation and outcomes and which provide valuable information about the program to decision-makers (see Table 1).

**Data must be transformed into a format that is useful for decision-making: critical program indicators.**

**Table 1: Examples of indicators for CCT programs**

Program process	Indicator	Use of the indicator
Targeting	# of individuals/families that meet targeting requirements, but live in areas not covered by the program (exclusion rate due to geographical targeting)	Help program staff and politicians decide where to expand the program in a future stage of expansion, and possibly, encourage them to look for funding to do so
Registration	# of individuals/families that provided the required information to be registered in the program	Help program staff determine whether required information is available for the critical process of registry validation and, if not, look into how to rectify this
Certification of co-responsibilities	% of beneficiaries that comply with some, but not all, co-responsibilities (for each of the programs' co-responsibilities)	Help program staff understand which co-responsibilities have lower compliance rates and which co-responsibilities should be examined further (e.g. reasons for non-compliance)
Payment	Proportion of total payments that have been collected on time	Help program staff and donors see if money is flowing to beneficiaries in a timely manner and, if not, investigate reasons

For effective transformation of data to occur, an MIS must ensure that several steps take place.

- **Verification:** Data must be verified by someone other than whoever collected the data, either by a random sample of household visits or by cross-checking information with existing database(s). Some programs conduct cross-checks with tax registries, and social security, health insurance, or pension lists to verify eligibility.
- **Validation:** The verified data must be checked for incomplete information (e.g. missing one person in a household), inconsistencies (e.g. sex marked as male and pregnant as health status), and duplicate records. Validated data feed into a single master database, which is the only database that should be used for program operations and oversight.
- **Updating:** A static database does not allow for good management over time, whereas dynamic databases provide up-to-date information for timely decision-making. Key data (e.g. births, deaths, change of school or home, etc.) should be updated on a regular basis to ensure that information is current and that program management is relevant to the existing situation. The timing of data updating must be clearly communicated so that all users are aware of the status of the database they are using. Many programs conduct regular MIS checks or updates at specified times during the program operating cycle. For example, in Mexico, an operational calendar specifies time periods for all data processes so that all stakeholders understand the status of the database.

## Managing program information

The information generated from raw data must be organized within the MIS. To manage the different types of information generated, MIS utilize distinct modules, which generally focus on a specific program process (targeting, payment, verification of co-responsibilities, etc.). Modules can be separate or linked together to facilitate analysis across program processes and across institutions. A single database ensures that the same data is available to everyone, even if it is packaged and used differently to meet each stakeholder's interests and needs. For example, MIS reforms in the Dominican Republic have consolidated separate databases and registries into a unique beneficiary registry system, so that various institutions can use the same database to provide different benefits (e.g. CCT benefits, health insurance, and gas and electricity subsidies).

**The structure of the MIS affects the way information is used.**

Many MIS begin with a few key modules and add modules gradually as needed. For example, Jamaica's PATH program started with modules on targeting, enrollment, payment, and compliance and later added modules on case management, appeals, reports, audits, and system maintenance and control.

System audits can assess the effectiveness and security of a program's MIS. For example, in Colombia a systems audit identified opportunities to improve the security of the MIS and make more procedures automatic. In Jamaica, there is a person in charge of MIS quality control on the CCT program team.

## Using information for program improvement

The information generated by the MIS serves to improve program supervision, evaluation, and accountability. Geographic disaggregation of data within the MIS can highlight areas that require additional supervision. For example, in Mexico the MIS for *Oportunidades* collects georeferenced data, which can be analyzed at the national, state, or local level. The information is available on the internet to officials at each level of government and has been used both to improve *Oportunidades* and to target other social programs.

**MIS provide concrete tools for program improvement.**

Also, to enhance monitoring and supervision, MIS can provide alerts when indicators reach critical levels (called benchmarks) defined by the program, or when indicators fall outside the expected range, do not change over time, or show improbably large changes. These alerts not only signal the need for supervision, but also identify which aspects of the program need special attention. For example, the MIS for Colombia's *Familias en Acción* program creates alarms for indicators that fall outside a given expected range in either direction (too high or too low). Program staff respond to these alerts by contacting municipal or regional staff to identify the problem. There are "alarms" for nearly every operational indicator generated for the program, including figures on co-responsibilities, applications processing, and updates of beneficiary registries. If problems are identified using the MIS, the program should define an action plan to address these with concrete and realistic goals. The indicators generated by the MIS should be used to track progress on the action plan.

Effective institutional arrangements are essential to facilitate good program supervision and response to problems. A basic institutional structure must be in place to ensure that all relevant stakeholders have access to the MIS. For example, in Chile, institutions are legally mandated to share data on program beneficiaries and operations online.

The administrative data that emerge from MIS are fundamental for the design of both process and impact evaluations, which can identify corrective actions to improve program performance. To be sure, data from the MIS

are only one source of data for impact evaluations, which also include information from surveys, focus groups, key informant interviews, etc.

Finally, MIS can provide information that can be used to communicate to multiple audiences—both inside and outside the program—about program effectiveness to improve program accountability. For example, in Mexico the MIS for the *Oportunidades* program makes all monitoring indicators public. Information about program processes, results, and the use of program resources, tailored to the audience, should be shared on a regular basis. In Chile, the MIS makes data available online to all stakeholders with differentiated levels of access. Beneficiaries can review their profile see what programs they are eligible for and institutions can review beneficiary use of services and identify gaps in services by region. Transparency in information-sharing can assuage concerns about the program and improve public opinion.

## 5. Conclusions

The information generated by a good MIS provides a better understanding of the elements (e.g. beneficiary needs, service availability and quality, coordination, etc.) that are essential to developing an effective program and social protection system. MIS can also serve as tools that improve inter-institutional planning and form the basis of a broader social protection system (e.g. integrated targeting systems, like Colombia's SISBEN).

As technology advances, the possibilities for MIS expand and the potential for cost-effectiveness and efficiency increase. It is important, however, to keep in mind the importance of the structure and use of MIS, which does not depend only on technology, but also on good program design, strategic planning, and management. The ongoing evolution and innovation of MIS in Latin America and the Caribbean provide opportunities for us to continue learning from experience, avoid previous pitfalls, and test promising ideas.

