BRIEFING

Integrated data and information management in social protection

Key messages

▷ Integrating data and information management of social protection programs through a Single Registry and associated Integrated Management Information System (IMIS) can:
  - lead to more equitable distribution of resources based on objective and comparable information,
  - facilitate oversight of multiple schemes,
  - establish links with other services and sectors and increase efficiency of delivery by avoiding duplication of effort and enabling economies of scale.

▷ Integration is mainly a policy issue requiring political and institutional arrangements rather than technical ‘fixes’. Successfully implementing such systems requires strong political commitment to integration within the social protection sector and beyond, as well as careful assessment of the country context and possible costs and trade-offs to centralising data and information management.

▷ Countries where developing a Single Registry and IMIS is most feasible are those:
  - with sufficient staff availability and capacity (including a network at local level);
  - where a clear and high-level governance structure can be created to manage the process and liaise with all relevant stakeholders;
  - where adequate hardware and Internet connection is available at central and local levels;
  - where there is a solid system for national identification (Civil Registry or social security number) that serves as a backbone for integrating data across different sources.

▷ The most important trade-offs to integrating data and information management include the high costs of establishing such systems (for which donor funding is often needed) and the risk of excluding households from multiple social sector schemes. These trade-offs are determined by institutional, operational and technological considerations. Depending on these, “international best practice” may not be appropriate in every instance.

▷ The costs of setting up and running a Single Registry and IMIS vary largely across countries and can be high. Depending on country context, implementation costs range between $0.2 and $9 million yearly; data collection costs range between $4 and $14 per application, and; development and equipment costs range between $1 million and $5 million.

Why is integration of data and information management important?

In recent years, global and national social protection policy has focused increasingly on systems, including integrating data and information management across programs. An integrated approach has policy and operational advantages:

▷ Policy advantages can include a more equitable approach to distributing resources based on objective and comparable information; increased responsiveness and inclusiveness of interventions; increased transparency and accountability; increased links to complementary services and sectors, and; increased knowledge on issues around poverty and vulnerability.

▷ Operational advantages include oversight of multiple schemes; reduced duplication (for example, of data collection) and efficiencies (for example, common payment system); reduced fraud by keeping track of who is receiving what; easier transition of beneficiaries between schemes as circumstances change; and potentially, more effective emergency responses.
Despite these advantages, it is evident that integration is mainly a policy issue requiring political and institutional arrangements rather than technical ‘fixes’, meaning that effective systems for data and information management cannot operate in a policy vacuum. In fact, the practical set-up of an integrated system depends on the key objectives being pursued through social protection policy in-country. Three main and overlapping objectives are:

- 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.
- Integrating to consolidate targeting processes so they serve multiple social programs. The rationale here—which has been acquiring weight internationally and has mainly been driven by the World Bank—is to minimise errors of exclusion and inclusion while increasing cost efficiency and transparency.
- Integrating data management to integrate operations and services. The strongest advocate of this approach is the International Labour Organization which has been promoting the concept of Single Window Services within the social protection sector and beyond.

What are the building blocks of an integrated data and information management system?

There is confusion around the terminology used to define and describe the specific information technology (IT) set-up for integrating data and information management at sector and cross-sector levels. For example, the terms MiS and database or registry are often used interchangeably. Also, while the literature often only refers to one concept (e.g. the ‘Single Registry’), two components are essential for integrating data management. These are:

1. The database where information on potential and actual beneficiaries is compiled—also called the ‘Single Registry’.  
2. The application software that allows for data to be systematised, transformed into information, linked to other databases (for example, program databases and MiSs), analysed and used. This is the role of the Integrated Management Information System (IMIS), which usually retains the name each country has chosen to associate to it (for example, ‘Integrated Social Assistance Information System’ in Turkey and ‘Integrated System for Social Information’ in Chile).

The specific set-up for integration needs to be linked to the overall objectives to be pursued by the system and country context. An ideal and fully integrated set-up is shown in Figure 1.

Figure 1: Ideal IT set-up for full integration of data and information management

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1. This term has been chosen as it is the most commonly used in the literature. However, it should be noted that a Single Registry: a) is not necessarily ‘single’ as it does not often comprehend all social protection programs in a country and does not substitute individual, program-level MiSs; b) is not necessarily ‘national’ since social protection programs, and data collection for registration, are sometimes targeted geographically; c) does not necessarily entail a single process for targeting or unifying operations across programs.
What key aspects are to be considered when establishing an integrated system for data and information management and related trade-offs?

When integrating information management in practice, a wide range of key crosscutting aspects are needed for a functional system. Table 1 summarises these.

Table 1: Key crosscutting aspects to consider for integration and related trade-offs

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<tr>
<th>Dimensions</th>
<th>International best practice</th>
<th>Main trade-offs and further considerations</th>
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| Administrative and institutional aspects |  > Coordination and management is independent from the management of individual social protection programs (for example, independent agency) and is high enough in the government hierarchy to effectively coordinate with all stakeholders.  
  > Clear identification of stakeholders and formalisation of their roles and responsibilities, possibly through legally binding agreements, carefully designed incentives and mutually agreed terms of reference. |  > The more complex and inter-linked the overall information management set-up the more difficult the institutional arrangements are to establish and conform to (transaction costs to coordination).  
  > Centralisation increases risk of errors being propagated across programs that have common points of entry, stifling creativity and responsiveness, and conducting fewer checks and balances, and information asymmetries. |
| Operational implementation aspects |  > Decentralisation of implementation while maintaining design and control functions at central level (including verifying and validating data and targeting functions).  
  > Shared consolidated data through web access with decentralised levels of government, though this is often impeded by technical and institutional constraints. |  > While decentralisation guarantees local government involvement (the ones most likely to understand the socio-economic situation of the population they serve), local authorities might have stronger incentive to facilitate access to social protection programs to those not necessarily eligible. |
| Collecting data |  > Two main methods prevail—on-demand registration and census methods. Each has pros and cons. Best practice is to combine the two to gain maximum benefits from the pros.  
  > Three ways to create a national comprehensive Single Registry: collecting data centrally; piggy-backing on data collection of one program; consolidating data from several programs. |  > Each piece of information collected costs. It also makes information management more complicated and potentially less effective.  
  > The adoption of one model or another mostly depends on the historical trajectory of social protection within the country and other country characteristics (for example, availability of local network of staff and density of poverty). |
### Dimensions

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| Transforming data into information | > The characteristics of high-quality information include accuracy, correctness, currency, completeness, and relevance to the business processes it supports.  
> This entails clear processes for verifying, validating, updating and reporting on data. | > Process can be lengthy and costly.  
> Without a unique identifier that can be used to verify data across databases there is much less potential for clean, updated data. |
| Targeting | > Scoring and ranking of households based on their levels of poverty and vulnerability is completed at central level by the agency or unit responsible for the Single Registry to avoid political interference.  
> Program implementers use the national list as a base and adapt it to their purposes by: a) adding further criteria; b) validating lists provided; c) choosing what percentage of households ranked nationally are to be included. | > Systematic exclusion of certain types of households due to problems with data collection, in data requirements (for example, lack of an ID card) or in determining eligibility (for example, if the targeting formula does not accurately capture those in need).  
> Exclusion from multiple social sector schemes (one error affects all programs). |
| Updating of data | > Scheduled deadlines for updating data through the census survey set for every two to three years (but often not respected).  
> Online integration of data from local to central level and integration of data with the Civil Registry.  
> Countries integrating on-demand data collection approaches with census approaches are more likely to succeed in continuously updating information. | > Any system that bases targeting on a static snapshot is likely to face serious challenges in providing support to those most in need.  
> The cost of continuous updating is high (especially if no local network of staff exists to manage on-demand applications).  
> Where no infrastructure (computer and Internet access) exists at local level, there is no possibility for updating online data.  
> Risks to modifying data in Single Registry based on programme decisions (un-transparent). |
| Linking databases | > Some form of unique ID for individuals is needed to link Single Registry information and beneficiaries with other systems and programs.  
> The solution to providing such ID has included working with national registry offices, assigning social ID numbers and assigning new ID numbers for new applicants (risks of duplication). | > National ID numbers and social security numbers are not widespread in many countries. The countries that do not have such identification are most often the poorest and most vulnerable. This presents risk of exclusion. |
| Integrating services | > Services and operations that have been integrated include payments, grievances and conditionality enforcement.  
> Success to date has been mixed, though countries with an accountable external payment provider have a good track record. | > Such integration is only possible if the centralised structure can manage the additional burden of implementing program operations and the individual program structures are willing to give up control over these roles. |
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<td>Data Privacy</td>
<td>&gt; Country laws should adhere to international data transfer and information privacy protocols, which legislate the collection, transfer and storage of information.</td>
<td>&gt; The need for data privacy conflicts with transparency and accountability requirements.</td>
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<td>Architecture and transfer of info</td>
<td>&gt; The Single Registry and IMIS should be centralised at national level but must be accessible and functional at sub-national level using the most cost-effective and appropriate telecommunication and computer hardware technologies available in-country.</td>
<td>&gt; Cost of setting up infrastructure (the more complex, the more costly).</td>
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<td>&gt; Choice of hardware depends on the software used for managing information. Overall, it should have adequate memory, disc space, and processing capacity.</td>
<td>&gt; Technology alone does not ensure information management.</td>
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<td>Hardware and security</td>
<td>&gt; Must conform to ISO 27001—an approach to managing confidential or sensitive information—so it remains secure, confidential and with its integrity intact.</td>
<td>&gt; Conforming to ISO 27001 has its costs.</td>
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<td>Developing and updating IMIS software</td>
<td>&gt; Importance of iterative prototyping, whereby a system model is designed and used to customise based on feedback from users. This enables the system to be tailored to suit user needs and enhance a sense of local ownership.</td>
<td>&gt; Costly, lengthy process: quick and/or cheap approach is to have an analyst document requirements and then pass these to a developer to integrate into the application software. This approach has a high chance of failure.</td>
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<td>&gt; Creating flexible, modular and incremental systems, based on the concept of design-divisibility.</td>
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<td>Costs and financing</td>
<td>&gt; External financing appears to be key in allowing the initial disbursements needed for such systems.</td>
<td>&gt; High costs that depend on complexity of system and country context.</td>
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<td>&gt; Very difficult to compare costs across countries. Main categories are implementation costs, data collection costs and infrastructure costs.</td>
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Source: Authors’ elaboration.
When is the development of a Single Registry and IMIS most feasible?

A key lesson learned from the study is that there are multiple advantages of integrating data and information management, especially if the overall policy environment is conducive to an integrated approach within the social protection sector and beyond. However, given the large financial costs involved (especially for data collection, where between $4 and $14 for each applicant is spent) and institutional challenges to be faced, it is essential that countries weigh up costs and benefits based on an assessment of their situation. The development of a Single Registry and IMIS is most feasible under the follow conditions.

Policy environment and budget

- National policy focused on developing a systems approach to social protection (aiming to achieve coordination and harmonisation to address the fragmentation limiting the effectiveness and impact of social protection policies and program).
- Strong political leadership advocating for reform and coordinating institutional actors.
- Sufficient capacity to identify and cost policy options, assess affordability and identify financing options.
- Budget availability and policy support to develop a Single Registry and IMIS.

Country context

- Existence of a solid system for national identification (Civil Registry or social security number) that can serve as a backbone for integrating data across sources (Single Registry and other government MISs).
- Existence of high-quality data collected by one social protection program or other large-scale data sources, if recent (e.g. piggy-back on data collection to avoid or reduce\textsuperscript{2} cost of re-collecting).

Staff availability and capacity

- Highly trained and qualified staff, at a sufficiently high salary to guarantee retention.
- Sufficient network of local staff to act as an entry point for an on-demand application system (not necessarily staff belonging to the same agency or unit—for example, trained municipal staff or social workers can be sufficient).
- Staff open to change and not complacent.

Governance and institutional structure

- Existence or easy creation of an independent unit to take charge of managing the new system at a sufficiently high government level to effectively coordinate with stakeholders.
- Potential for strong institutional ties with other government bodies.
- Absence of parallel or competing structures for oversight of social protection policy.

Tools and infrastructure

Hardware (for example, computers and server)

- Some level of adequate hardware available at local levels (these can be purchased but this increases costs significantly).
- Existence of adequate servers (high-capacity computers) that can be scaled up to accommodate potential growth of programs (for example, a designated server room with reasonable physical and logical security that conforms to ISO 27001\textsuperscript{3}).

Application software and database

- 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 software, database and network once the single registry and IMIS are established.

Transfer of data

- Ideally, Internet access is needed at all levels of implementation, including local (to build web-service access that greatly improves information flow).
- Clearly documented protocols that enable quality controls on information before it is submitted over the Internet or transferred by batch process.

The full DFAT Social Protection Hub report Single registries and integrated MISs: de-mystifying data and information management concepts, including references, is available at www.dfat.gov.au.

\textsuperscript{2} In Indonesia, for example, the Census was triangulated with other data sources and used as a basis for selecting households to be interviewed.