Development of Management Information System for Social Protection

International
Labour
Organization

Development of Management Information System for Social Protection

Acronyms

AT	Tributary Authority of Mozambique
BI	Bilhete de Identidade
CASB	Basic Social Action Council
CEDSIF	Center for Development of Information Systems
DFID	Department for International Development of the United Kingdom
DPC	Director of Planning and Coordination
ENAI	National Action Strategy for Intervention
ENSSB	National Strategy for Basic Social Security
GoM	Government of Mozambique
ID	Identification
ILO	International Labor Organization
INAS	National Institute of Social Action
MGCAS	Ministry of Gender, Children and Social Action
MIS	Management information system
MOPHRH	Ministry of Public Works, Housing & Water Resources
MoU	Memorandums of understanding
NUIT	Unique Tributary Identification Number
OPM	Oxford Policy Management
PASD	Direct Social Support Program
PASP	Productive Social Action Program
PMT	Proxy means test
PSSB	Basic Social Subsidy Programme
SGA	Autarchic Management System
SINAGEC	National System of Management of Construction Costs and Budgeting
SISTAFE	State financial administration system
SPF	Social Protection Floor Initiative
SPOC	Single point of contact
UN	United Nations
UNICEF	United Nations Children's Fund
TA	Technical Advisor

Contents

Introduction

Since the early 2000s, a growing number of developing countries have adopted non-contributory social protection programmes as an instrument to tackle poverty and vulnerability and promote human development. Often taking the form of conditional or unconditional cash transfers, social assistance programmes are now at the backbone of anti-poverty strategies of most countries across the globe. In many contexts, such programmes have been scaled up from pilot based interventions to nation-wide schemes, now covering a large share of the population and increasingly funded with domestic resources.

The ongoing process of institutionalization of large-scale social assistance programmes brings about challenges with the creation of necessary capacity and robust systems for effective management of such schemes in all phases of their implementation cycle, ranging from the identification and selection of beneficiaries, to the management of the transfer payment, to the case management, grievance and complaints system, to the monitoring, evaluation and exit of beneficiaries.

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. (TRANSFORM, 2017).

The availability of comprehensive and integrated MIS for social assistance programmes is key to ensuring efficient and reliable implementation of programmes, as well as to enhancing transparency and good governance of social protection systems. In fact, several functionalities of modern social protection programmes – for example as e-payments – cannot be set in place in the absence of a programme MIS.

Yet, the development of an MIS system is a complex process, requiring institutions responsible for social assistance to invest significant time, capacity and resources. Challenges include the highly specialized nature of MIS development and fast paced change with ITC technology, the fact that business processes of social assistance programmes are often little defined and ever evolving, the need to involve diverse institutional partners and ensure coordination and inter-operability, the importance of ensuring data confidentiality and protection, the limited hardware and human capacity to sustainably implement, use and constantly update and enhance the system. As a result, for many countries building a functioning MIS for social assistance programmes has been a tortuous route.

Knowledge sharing and exchange of experiences across countries and regions is essential for improving practices in the development of management information systems (MIS) for social protection. This paper presents an analysis of best practices regarding development of the MIS for basic (non-contributory) social protection in Mozambique, commonly known as e-INAS, a successful experience from which other countries in the region and beyond can draw useful lessons.

The paper starts with a brief description of the governance structure for social protection in Mozambique, followed by a retrospective glance at the MIS development over a span of 18 years from 1999 to 2016, with specific focus on the last three years, during which the e-INAS was designed. The paper then describes the management framework used for e-INAS development and, finally, reflects on the best management practices that led to its successful development.

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* MIS is a system that transforms retrieved data from a program's database (or, in some cases, different databases) into information that can be used for efficient and effective program management.

* A database is a system to organize, store and retrieve large amounts of data easily.

Source: Barca, 2017

There are several software development life cycle models, and the model the software developer chooses is important to achieve expected results. Likewise, all management information systems for social protection share the basic functionalities to reach the ultimate objective of managing social protection programs in an efficient and transparent way. However, what could mark a crucial difference between a good and a poor practice in the development of an MIS for social protection in a resource-constrained environment is the way in which the interaction between the user and the software developer is managed. The objective of this paper is to present the key managerial practices that in the Mozambican case have guaranteed relevance, promoted ownership, and ensured the sustainability of its MIS. Therefore, the technical aspects of e-INAS development will not be covered, and the paper will focus on the management model.
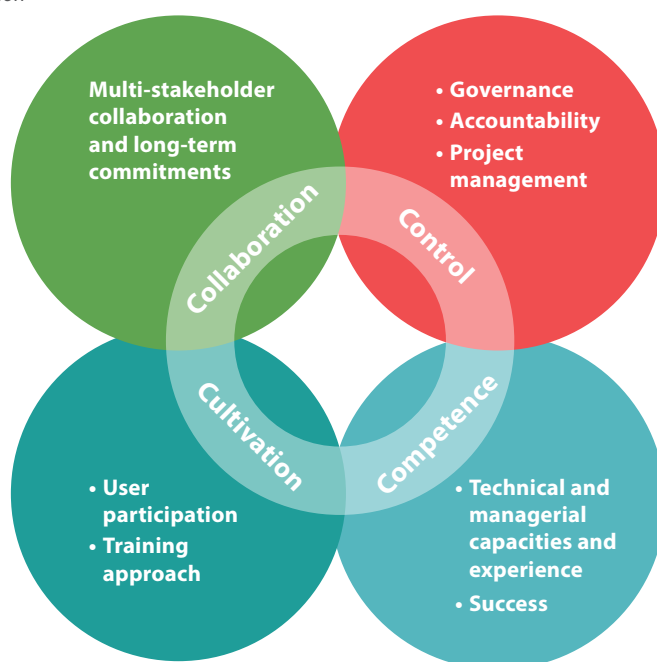
The research for this paper is based on a review of documents related to the e-INAS development process, such as assessment reports, memorandums of understanding (MoUs), terms of reference, contracts, progress reports, minutes of meetings, project charters, and project appraisal documents, as well as official government documents. The research is also based on interviews conducted with key actors, including International Labour Organization (ILO) and United Nations Children's Fund (UNICEF)

focal points, project managers from the Center for the Development of Information Systems (CEDSIF) and the National Institute of Social Action (INAS), members of the INAS MIS team, and CEDSIF developers.

The paper concludes that a pivotal element in the successful development of the MIS for basic non-contributory social protection in Mozambique has been the balanced synergy between four spheres of management practice: collaboration, control, cultivation and competence. In the sphere of **collaboration**, the most relevant factors for success have been the commitment of the government to create the policy environment and the fiscal space, the long-term multi-stakeholder cooperation from development partners, and the commitment of the service provider. In the **control** sphere, good governance, effective accountability mechanisms, a well-structured mobilization phase, as well as efficient communications and reporting mechanisms, have stood out as key factors. In the sphere of **competence**, the technical and managerial capacities, the model of user participation in the development process, and the training approach used, as well as the expertise of both the service provider and the technical advisor, have proved to be crucial in sustaining high standards of quality. The **cultivation** sphere is characterized by the model of user participation in the development process, and the training approach used.

Figure 1. Keys to success in the development of e-INAS

Source: Author's elaboration

Governance structure and policy environment for basic social security

Basic Social Security is one of the social protection subsystems in Mozambique, as established in the 2007 Social Protection Law. It consists of a series of programs aimed at mitigating the impact of economic and social risks on the population living in poverty and vulnerability. According to Mozambique's Regulation of Basic Social Security, this subsystem is divided into four components: Direct Social Action, Social Action in Education, Social Action in Health, and Productive Social Action.

The Ministry of Gender, Children and Social Action (MGCAS) is the government institution that directs and coordinates the execution of government policies in the areas of Direct Social Action and Productive Social Action. Within MGCAS, the National Direction for Social Assistance (DNAS) is responsible for the definition of policies for social action, as well as co-ordination and supervision of social action activities. In turn, the National Institute for Social Acton (INAS), an institution subordinated to MGCAS, is responsible for the execution of direct and productive social action programmes in coordination with other gov-ernmental and non-governmental organizations. INAS was created in 1997 to substitute the Gabinete de Apoio às Pessoas Vulneráveis (GAPVU). INAS has 30 delegations distributed across the country, which include one delegation in each provincial capital, and between one to two additional delegations in each province. INAS delegations depend directly from INAS central level, and keep communication with the MGCAS provincial delegations, which are re-sponsible for the supervision of the implementation of the social assistance programs.

Since 2005, the Government of Mozambique (GoM), in partnership with international donors, has signifi-cantly intensified its efforts to consolidate the basic social protection system. These wide-ranging efforts have included increasing budget allocation for social expenditure, strengthening systems of delivery for social protection programmes, and implementing legislative and institutional reforms. Institutional and policy reforms included the restructuring of INAS in 2005, the definition of INAS National Action Strategy for Intervention (ENAI) in 2007, the approval of the Social Protection Law (4/2007) also in 2007, and the adoption in 2010 of a five-year National Strategy for Basic Social Security (ENSSB), and its corresponding Basic Social Security Decree (52/2011) and an opera-tional plan.

The new ENSSB 2010-2014 (ENSSB I) called for the expansion, increased efficiency and coordination of the basic social protection system based on a reformed programme structure comprising1:

- **Basic Social Subsidy Programme** (*Programa de Subsídio Social Básico PSSB):* a cash transfer program oriented to extremely poor households with no members of active age able to work;

- **Direct Social Support Programme** (*Programa de Apoio Social Directo PASD):* short-term, in-kind support to temporarily vulnerable families (food and other discretionary in-kind subsidies, including housing, coffins, diapers, or any other item according to urgent need);

- **Productive Social Action Programme** (*Programa de Acção Social Productiva PASP):* employment in public works projects made available to extremely poor families in which one or more adults is able to work but where there are employment difficulties or limited income generation;

- **Social Action Services Programme** (*Programa Servicos Sociais de Acção Social):* support for home and institutional care for vulnerable or abandoned children, the elderly, victims of violence and homeless people who require intensive care services.

Furthermore, the ENSSB I mandated the develop-ment of an information system for a more effective, efficient and transparent management and assessment of INAS programmes.

The implementation of the ENSSB I coincided at regional and global level with sustained momentum around the expansion of social protection systems in developing countries. Most noticeably, in April 2009 the establishment of the Social Protection Floor Initiative (SPF), an international effort supported by the United Nations to promote universal access to essential social transfers and services.

An evaluation of the ENSSB I (Republic of Mozambique, 2016) conducted in 2015 highlighted a number of key challenges: low coverage of the eligible population; lack of basic social protection instruments for some vulnerable groups, particularly children; challenges in the implementation of the PASP; an absence of reliable and efficient operational procedures for programme implementation (payment delivery, case management, monitoring and evaluation); a lack of coordination among ministries responsible for the delivery of basic social protection; challenges in

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1 Previous programmatic structure included fragmented interventions such as *Programa Subsidio de Alimentos, Programa de Apoio Social Directo, Programa Geração de Rendimentos, Benefício Social pelo Trabalho e Programa de Desenvolvimento Comunitário.*

the coordination between MGCAS and INAS in the provision of social welfare services; and an absence of INAS offices in most districts, contributing to high administrative costs.The evaluation of the ENSSB I led to the approval of the National Basic Social Security Strategy 2016-2024 (ENSSB II), endorsed by the Council of Ministers in February 2016. The new strategy comprises four pillars with corresponding objectives to: (1) reinforce the level of consumption and the resilience of the poor and vulnerable; (2) contribute to the development of human capital through nutrition and access to basic health services and education for the poor and vulnerable; (3) prevent and respond to risks of violence, abuse, exploitation, discrimination and social exclusion through social services; (4) develop institutional capacity to guarantee that the first three objectives are achieved.

With the advent of ENSSB II, the government is committed to redesigning social protection schemes in the following categories:

- PSSB to be redesigned so that it includes five different subsidies:
  - Old age grant;
  - Disability and chronic and degenerative disease grant;
  - Child grant (0-2 years old);
  - Child-headed households grant;
  - Grant for orphan children living in poor and vulnerable families;

- PASD to be redesigned so that it includes multiform support in response to emergency situations such as natural disasters;
- PASP to be redesigned so that it includes the components of public works, income generation and resilience to climate change.

The ENSSB II also calls for strengthening the systems for the operational management of social protection programmes, and mandates to conclude the design of the INAS MIS and start its implementation.

To oversee the implementation of the ENSSB II, in 2016 the government established at ministerial level the Basic Social Action Council (CASB), composed of several Ministries[2] and chaired by the prime minister. In addition to the CASB, there is a Social Action Working Group, led by the director of Planning and Coordination (DPC) of MGCAS. This group consists of partners from other line ministries, INAS, UN Agencies, development partners, and national and international civil society organisations. The group meets on a quarterly basis to plan, coordinate and monitor the support of all interested parties. At the INAS level, the so-called *"Grupo de Acompanhamento"* is a coordination group established in 2008, with participation from INAS, MGCAS and development partners[3]. The group supports INAS in the operationalization of the basic social action programmes and the ENSSB, and is chaired by the director of INAS.

Table 1. ENSSB II programs

Social protection transfer programmes, ENSSB I	Social protection transfer programmes, ENSSB II
Basic Social Subsidy Programme (PSSB): long-term cash transfers for labour-contrained households	Old-age grant (٦٠+); Disability grant; Child grant (٠-٢ years old); Foster grant; Grant for child-headed households
Direct Social Support Programme (PASD): time-bound in-kind transfers for specific vulnerable groups	Multifaceted on-demand in-kind support in response to shocks
Productive Social Action Programme (PASP): public work programme for poor households with capacity to work	Public works programme for poor household with capacity to work (with revised focus and enhanced complimentary interventions
So**cial Action Services Programme (SSAS):** institutional care for those who are abandoned or marginalised	**Social Welfare Services Programme (SWSP):** preventive and protective welfare services provided at community level in response to social risks
	Institutional care

Source: Falange and Pellerano (2016)

2 MGCAS, Ministry of Education and Human Development, Ministry of Economy and Finances, Ministry of Health, Ministry of Labour, Employment and Social Security, Instituto Nacional de Gestão de Calamidades

3 ILO, DFID, Dutch Embassy, Sweden Embassy, UNICEF, WFP and the WB.

Historical Background of Mozambique's Management Information System for Social Protection

The usefulness of technology in improving the management of the INAS social protection programmes, and the importance of the implementation of technological innovations, has been under discussion for almost two decades. Policies and commitments to improve the quality of information management have been repeatedly stated, and the financial and technical support of development partners has provided ammunition for accelerating social protection programme reforms and the development of the INAS' MIS.

3.1 Early Stages of INAS Management Information System (1999-2004)

In an effort to systematize the management of its main programme – originally called Programa Subsidio de Alimentos (PSA) and subsequently redesigned into the current PSSB -, in 1999 INAS contracted the services of an individual consultant to develop an application to register beneficiaries and produce payment lists. A simple software – Lindex - was developed as a stand-alone, PC-based application, and installed in 30 INAS local offices (delegations). Lindex does not have a central database, and is not connected to INAS headquarters. Up to Feburary 2018, INAS was still using Lindex to produce payment lists for the PSSB. All other programmes continue to operate on paper based manual systems for information management, while payment lists are manually produced in an Excel format by each Delegation. Since October 2018, PASP started to operate using the new MIS, described in section 3.

Despite the advantages of Lindex over an entirely manual system to manage beneficiary registries and payment lists, the application has a number of serious weaknesses:

- It lacks a centralized database; the software is only installed in the delegations and is not electronically accessible from INAS central

- As a stand-alone software, remote availability of data is not possible; so for example data cannot be inputted or managed from the districts or from the field

- It does not allow remote monitoring of programmes, which impedes proper accountability and planning, as INAS central can't access monitoring information from Lindex in delegations;

- Communication between the delegations and INAS central, and internal communication between INAS central and various departments, requires re-writing data that has already been inputted. This leads to reduced efficiency, increased time consumption, and risk of error and loss of information;

- It lacks functionality to export or copy information to other software, requiring printing and re-typing of documents[4];

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4   Programs such as Statistical Package for the Social Sciences SPSS, ESDEM, ACCESS, EXCEL, PDF, among others.

The Road to INAS Management Information System

Lindex development

1999

Box 1. Lindex vs. e-INAS. Top five improvements

The old MIS (Lindex) vs the new MIS (e-INAS)
Top Five Improvements

Lindex	e-INAS
1 PC-based, stand alone software	Web-based software, Programme information is available online anytime in all delegations and accessible to INAS central
2 Lack of centralised database	Centralised database accessible at central and delegation levels
3 Does not allow remote monitoring of programmes	Produces up to date monitoring indicators to follow up progress
4 Hs limited functions	All processes for programme operations are included: targeting, enrolment, payments, monitoring & evaluation and case management
5 Covers only one of the social programmes (PSSB)	Covers the three main social programmes (PSBB, PASD and PASP)

- It covers only one of the main programmes managed by INAS (PSSB), omitting three others (PASD, PASP, and Social Services);

- It has limited functionality in areas such as queries and printing, and in particular does not allow the analysis or elaboration of indicators and reports on the basis of the available data, or a systematic control of the data;

- It is not very user friendly, creating difficulties for users to intuitively understand how it works, and generating levels of complication that users cannot deal with;

- It has little flexibility and is cumbersome from the point of view of updating;

- There is high dependence on the consultant who developed it, and whenever there are changes (however small) or breakdowns, it is necessary to hire the same consultant. This is particularly problematic because each adaptation, whether structural or functional, incurs a cost, and the support capacity depends on the individual consultant availability who is not in a position to assist all delegations country-wide.

5 INAS was restructured by Decree no. 46/2005 from 22 November 2005. Reforms included the creation of the Department of Social Assistance, and the Department of Planning and Statistics.

Lindex assessment

Feb 2008

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3.2 The Mandate for a Sound Management Information System (2005-2010)

At various working forums during the restructuring of INAS in 20055, INAS and development partners started discussing the need to reformulate the INAS management information system for social protection. In 2007, INAS set in motion a process to define its National Action Strategy for Intervention (ENAI) as an instrument to regulate its various in-terventions. ENAI's main objective was to promote greater coherence, efficiency, effectiveness, impact and sustainability of INAS programmes. The discus-sions on the ENAI highlighted the fact that despite the strong regulatory framework for social protection in Mozambique, the social protection system lacked adequate operational tools. This shortcoming affected proper implementation of the programmes and impeded appropriate follow-up of their impact on beneficiaries. One of the fundamental missing operational tools was a comprehensive MIS that could provide sufficient and accurate information to improve decision-making and planning processes. The discussions concluded that it was important to intervene in Lindex in order to adapt it to new strategies for implementing INAS programmes.

In the same vein, the Department for International Development of the United Kingdom (DFID) produced a report on INAS, "Fiduciary Risk Assessment and Institutional Appraisal", which highlighted the need to guarantee transparency, control and information flows. Thus, in 2008, with the support of ILO, INAS contracted the services of an individual consultant to assess Lindex. This assessment laid the foundations for the terms of reference to procure a company to develop, implement and maintain a more efficient MIS. Following the Lindex assessment, and with the support of ILO, a first data model and a business model proposal for INAS MIS were produced in 2009. Based on the assessment, the data model and business model, ILO launched the bid to contract a service provider to develop the system.

Fist data model and business model proposal for a new MIS

May 2009

In April 2010, the Council of Ministers approved the Basic Social Security Strategy 2010-2014 (ENSSB I), with a mandate to increase the efficiency of the basic social protection system. Besides highlighting the weaknesses of Lindex, the ENSSB I assessed the key operational tools and processes used by INAS to manage its programmes as inadequate, inefficient, ineffective, and likely to increase fiduciary risk.

The system was characterized by:

A targeting mechanism based on subjective and individual evaluation of poverty and eligibility criteria, conducted by INAS staff at delegation level and local leaders at community level, leading to potentially high inclusion and exclusion errors;

- Lack of a unique identifier ID to authenticate beneficiaries, and to avoid duplicates and ghost beneficiaries;

- Paper-based forms to collect very basic information on candidate households;

- Manual distribution of cash and food subsidies, and manual reconciliation of payments, conducted by INAS staff;

- Lack of enrollment, case management and monitoring and evaluation systems;

- Absence of standard protocols across delegations to implement operational processes;

- Poor accountability from delegation to central level;

- Insufficient and unskilled human resources, and scarce material resources at both delegation and local level;

- Lack of an accountability system to prevent, identify and solve cases of redundancy, fraud, and corruption;

- Lack of proper reporting mechanisms.

As one of the ways to address these shortcomings, the ENSSB I (2010-2014) called for the creation of an information system to register and manage INAS beneficiaries which would allow more effective, efficient and transparent management and assessment of the programmes. Several international development partners strengthened their support of the GoM for the realization of this objective. In August 2010, ILO signed a contract with CEDSIF to develop, implement, host and maintain an electronic MIS to manage INAS PSSB, PASD and PASP programmes.

CEDSIF is a public institution endowed with legal personality and administrative and financial autonomy functioning under the Ministry of Economy and Finance, and mandated to organize and manage the public finance information system (e-SISTAFE) in Mozambique.

It became soon evident that the work of developing the MIS could not start until the key design parameters of the new programs established in the ENSSB I were specified and the business model fully developed. For this reason, the contract with CEDSIF remained dormant for almost two years, allowing INAS to redesign its programme and determine the MIS functional specifications.

- Contract ILO-CEDSIF for MIS development
- Approval of ENSSB 2010-2014

Apr 2010

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Box 3. The benefits of developing e-INAS in partnership with a national institution: CEDSIF

- CEDSIF was chosen among a number of potential providers as a stable and reliable institution with long and deep technical expertise **developing MISs for the state institutions of Mozambique.**

- CEDSIF is not just a software development company, but has hands-on experience in **implementing and managing** the systems it develops, as well as storing and managing the system databases.

- CEDSIF staff have wide development expertise, strong skills in systems administration, systems security, and database management, as well as **strong communication, project management and business skills.**

The institution has enough human resources to appoint an in-house team of the right size to handle the INAS project and to deliver a personal service.

- Good development, systems administration and data storage require strong **internal infrastructure** and tools, another factor that favored CEDSIF. The institution has a modern data center, and is robust and well equipped, with mechanisms that guarantee security, confidentiality, speed, and reliability.

- Finally, CEDSIF is a **public government institution** under the Ministry of Economy and Finance. CEDSIF's solid commitment to e-INAS development, reflected in the willingness of its senior management to take joint ownership of the project, was an important consideration in its selection.

- CEDSIF offered one year of free data hosting and was flexible to modify its usual development process and create new protocols in order to **build INAS capacity** to manage the system once it is implemented.

3.3 The Road to an Improved MIS (2011- 2016)

Progress in the development of the MIS accelerated between 2011 and 2016 with the re-structuring of INAS social protection programmes under the ENSSB I (2010-2014) mandate. Major developments in this period included the provision of focused technical assistance to INAS, the finalization of CEDSIF procurement, and the establishment of key inter-institutional agreements. At the end of 2015, a first version of e-INAS was released, and in 2016, INAS started the operationalization of the system with the recording of socioeconomic data of 10,000 beneficiaries in the e-INAS single registry.

3.3.1 PHASE 1: *Re-structuring INAS Social Protection Programs (2011-2013)*

With the approval of the new package of programmes of the ENSSB I in 2011, INAS started the implementation of the new programmes using the old operational tools and processes and still using the Lindex software as the management information system for PSSB. To respond to this challenge, in August 2012, UNICEF strengthened its support to INAS by hiring the consulting firm Oxford Policy Management (OPM) to review PSSB and PASD operational systems, produce detailed operational manuals, define the business model for the MIS, and design a capacity building plan for INAS. Correspondingly, in March 2013, the World Bank supported the review and production of operational manuals of the PASP through a loan and technical cooperation funds. The support to PASP remodeling also included the development of a parallel MIS for the programme that would eventually be integrated with the PSSB/PASD MIS.

Approval of new programmes ENSSB 2010-2014	Contract UNICEF-OPM for TA to INAS	MoU INAS-AT for NUIT attribution to INAS beneficiaries
Sep 2009	**Mar 2012**	**Feb 2013**

In December 2013, OPM delivered the first versions of the operational manuals, capacity building plan, and technical documents for the MIS, while UNICEF continued its support to INAS through the appointment of a full-time Technical Advisor (TA) to INAS in March 2014. The TA was responsible for completing PSSB and PASD operational manuals, providing advice on all technical aspects related to the CEDSIF contract, and serving as business analyst for MIS development. Moreover, the TA was in charge of ensuring effective multi-sectoral coordination between the different stakeholders, and centralising project information between the different sectors and administrative levels.

3.3.2 PHASE 2: *Mobilisation for Project Initiation (March – August 2014)*

Between March and August 2014, besides the technical work on the completion of programme operational rules, manuals, and MIS business models, INAS, ILO, CEDSIF and UNICEF worked together on the mobilisation phase for MIS development. During this phase, inter-institutional teams defined and established the project governance structure and communication mechanisms, appointed technical teams from INAS and CEDSIF, and prepared and approved terms of reference, contractual documents, and detailed project plans. Furthermore, MoUs between the different institutional stakeholders were agreed and signed.

In August 2014, the new terms of the contract between ILO and CEDSIF, as well as a MoU between INAS and CEDSIF, were signed. Under the new agreements, ILO's responsibility was to guarantee the funding for the project, provide technical oversight, and, along with INAS, ensure timely and quality delivery of products. INAS was responsible for defining the business processes by way of operational manuals for each programme, validating technical specifications, and conducting usability tests. CEDSIF was in charge of: i) planning and coordination of the project; ii) producing and validating technical documentation; iii) developing the software to manage the programmes; iv) conducting integration and acceptance tests; v) implementing the system in testing, training and production environments; vi) hosting the system in the CEDSIF data center; vii) guaranteeing the security of the database; viii) producing a user manual; and ix) training INAS master trainers in the use of e-INAS functionalities.

3.3.3 PHASE 3: *MIS Development (September 2014 – December 2015)*

In September 2014, a joint team composed of developers, managers and business analysts, together with other technical staff from CEDSIF and INAS, started the production of technical documents and the development of the new INAS MIS. The new system, so called e-INAS, is a web-based software that runs in the intranet of SISTAFE, and is hosted in CEDSIF's data centre. It includes all modules required to successfully manage INAS social protection programmes: Administration, Programme Configuration, Single Registry, Targeting, Enrollment, Payments, Case Management, Monitoring and Evaluation, Beneficiary Portfolio Management, and Beneficiary Outreach/Tutelage/Referral.

e-INAS was conceived to achieve the following specific objectives:

- Ensure the inclusion of all processes regarding programme management: targeting, enrollment, payments, monitoring and evaluation, and case management;

- Ensure the existence of a centralised database which can be managed in a decentralised way;

- Ensure that programme information is available online any time in all delegations and accessible to INAS central;

- Ensure the quality of information, avoiding redundancies, and using cross-validation techniques between different programmes and different geographical areas;

- Make sure that candidates and beneficiaries are correctly registered, correct payment lists are generated, data updates, claims and complaints are correctly registered, and timely and accurate indicators for monitoring and evaluation are produced;

First draft of operational manuala	UNICEF appoints long-term individual TA to INAS	Governence and Technical team start operating	CEDSIF-ILO update ToR based on new manuals, MoU INAS-CEDSIF for e-INAS development and hosting	e-INAS version 1.0 released as a minimum viable product
Jan 2014	**Mar 2014**	**May 2014**	**Jul 2014**	**Aug 2014**

- Produce a waiting list of eligible candidates to allow more efficient planning of resources and activities;

- Allow the export of data in different formats to facilitate information management;

- Allow communication with the databases of other partners related to the programmes (mainly the Ministry of Finance, Tax Authority, Civil Registry);

- Produce up-to-date monitoring indicators to follow up on progress;

- Be user friendly and expandable, allowing the future integration of new functionalities and links with current and future systems;

- Reduce the dependency on the service provider for the maintenance of the software, allowing INAS to directly perform the configuration of certain functionalities in the interface.

In December 2015, a first version of e-INAS version 1.0, which addresses all the improvements required by the ENSSB I, was released and installed in INAS central office. This version, as a minimum viable product, contains the main functionalities of the following modules: Administration, Programme Configuration, Single Registry, Targeting, Enrollment, Payments, Monitoring and Evaluation, and Case Management.

3.4 Operationalisation of e-INAS and current status

In January 2016, the socioeconomic data of 10,000 beneficiary households collected using a mobile application (EpiCollect) during a re-registration exercise conducted in 2015 in Maputo Province was successfully migrated from the Epicollect server to e-INAS Single Registry. The results of the migration (94% of forms successfully migrated) proved the success of e-INAS functionality to upload information from external electronic devices. The remaining six percent were forms that due to data collection errors could not be uploaded to e-INAS.
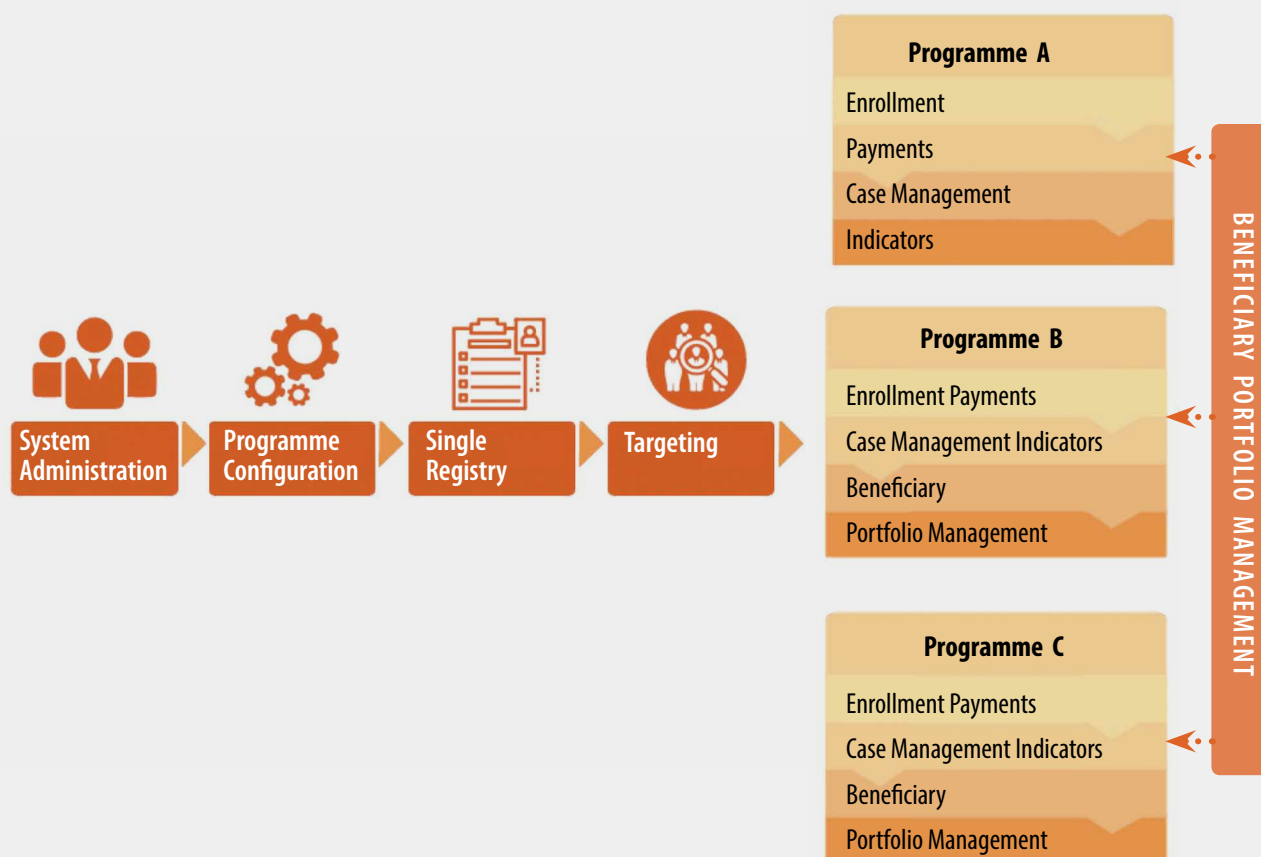
In January 2018 e-INAS final version was released. As of May 2018, the system is fully functional, and ready to process real data of beneficiaries from the PSSB, PASD and PASP. Due to challenges of the AT to attribute the NUIT to all INAS beneficiaries, this number has been replaced by a Unique Beneficiary Identification Number (NUIB) automatically generated by e-INAS. In the future, as soon as the government implements the unique citizen number (NUIC) the NUIB will be replaced by this national identification number.

With the support of ILO and UNICEF, funded by different development partners, INAS has started the installation of e-INAS the 30 delegations, which includes installation of SISTAFE network, and technological infrastructure, as well as refurbishing of the office space where the system will be operated. Installation process in all INAS delegations was completed by June 2018 with ILO financial support. After that, a training process started to ensure INAS staff at delegation level is adequately equipped with the appropriate knowledge to correctly operate e-INAS, also to help delegations to navigate the transition phase from LINDEX to e-INAS. This training process, provided by INAS central and funded by ILO with resources from the UN Joint Programme on Social Protection in Mozambique, funded by DFID, Sweden and Netherlands, was completed by December 2018.

- **e-INAS version 2.0 in progress**
- **Registration of 10,000 households into e-INAS**

Jan 2016

Box 3. INAS Management Information System

Provided that the flow of information defined in the remodeling of the programmes within the ENSSB I remains unaltered, the INAS MIS team already has the capacity to configure the operational rules of the new programmes defined by the ENSSB II in the programme configuration interface, without the need of altering the back-end. This means that as soon as the operational rules of the new programmes are defined, e-INAS could be operative immediately at the central level and in each delegation.

e-INAS intallation (CEDSIF) in all delegations supported by ILO

Mar 2018

e-INAS training to all delegations supported by ILO

Jun 2018

AND CURRENT STATUS »

4

Management Framework for e-INAS Development

The existing line management structures in the organizations involved were not appropriate for e-INAS development. Therefore, a management structure for the project was defined at the outset and will be dismantled at the end. The definition of management roles, responsibilities, relationships, accountabilities and authorities provides the basis of the governance framework for the project.

4.1 Governance Framework

The development process of e-INAS has required the participation of different actors with different functions ranging across four different organizations – INAS, CEDSIF, ILO, and UNICEF - and different departments within those organizations. These actors had to be brought together under a single governance framework, distinct from each organizational structure, for fast and efficient decision-making. This governance framework is made up of three core components: the decision-making structure, the people within the structure, and the information that informs them.

The decision-making structure is based on three levels of command in which representatives of INAS, CEDSIF, ILO and UNICEF participate equally (figure 1). The first level is an Executive Committee that acts as the supreme council of the project, responsible for providing appropriate project sponsorship and guidance. The Executive Committee is composed of the national directors and deputy directors of INAS and CEDSIF, one representative from ILO, one representative from UNICEF, the chief of the INAS Planning and Statistics Department, the CEDSIF project manager, and the INAS technical advisor.

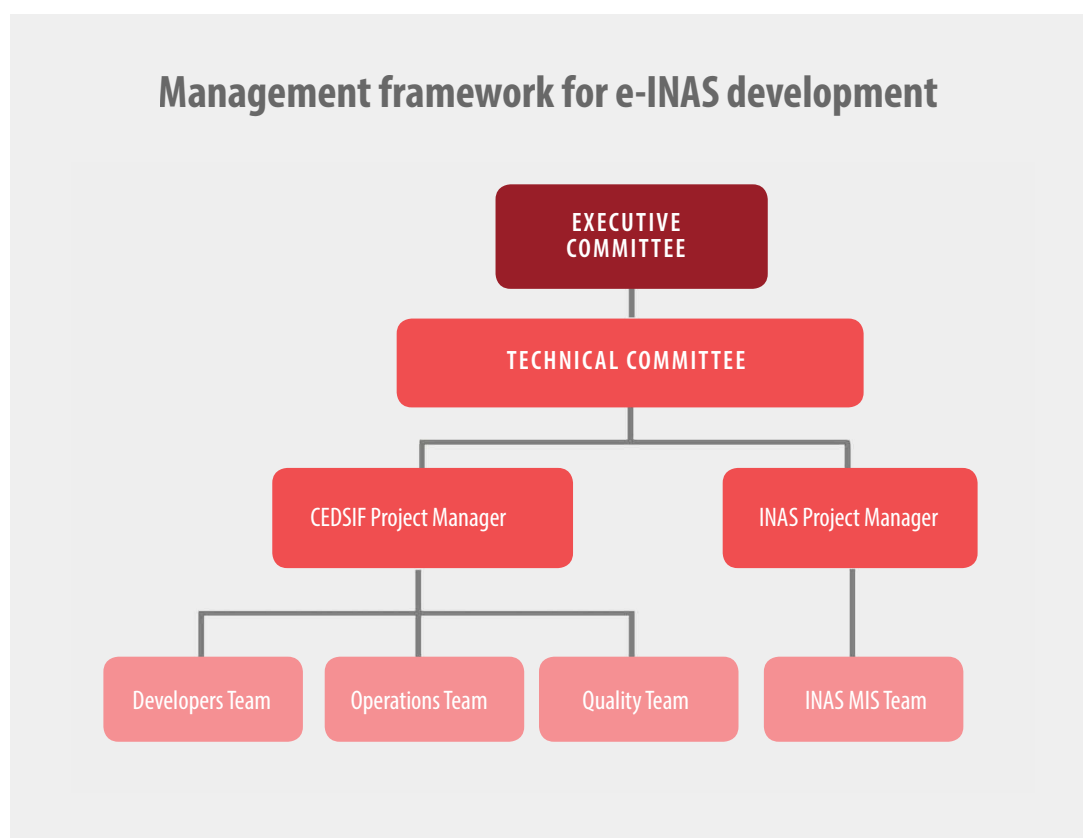**Figure 3.** Management framework for e-INAS development

Management framework for e-INAS development

- EXECUTIVE COMMITTEE
- TECHNICAL COMMITTEE
- CEDSIF Project Manager
- INAS Project Manager
- Developers Team
- Operations Team
- Quality Team
- INAS MIS Team

Table 2. Internal composition of permanent stakeholders for e-INAS development

Stakeholder	Team
INAS	Project Manager (1); System Administrator (1); Database Administrator (1); Developers (3); Clerical Assistant (1)
CEDSIF	Project Manager, Development Team, Operations Team, Quality Control Team
UNICEF	Technical Advisor
ILO	Project Manager

The second level is a Technical Committee that directly oversees the execution of the project in all aspects across the project development life cycle and provides progress reports to the Executive Committee. Among other tasks, it is responsible for approval of the design, overseeing of timely delivery of products, and approval of changes in scope and schedule. This committee is composed of the INAS project manager, three representatives of the INAS business team, one representative from ILO, one representative from UNICEF, the INAS technical advisor, and the CEDSIF project manager. When necessary, other staff from CEDSIF, such as the quality certification director, the data security director, the director of systems development, and the director of operations, participate in the meetings. The Technical Committee receives and processes information from the reports produced at the managerial level.

The third level of command is the managerial level, responsible for all project management activities. At this level, two project managers, one from INAS and one from CEDSIF, as well as the INAS technical advisor, are responsible for coordinated planning, supervision, reporting, change management, communications, risk management, and human resources. The CEDSIF project manager and INAS technical advisor are the sole points of contact for the project, and are informed by the technical reports produced by developers and business analysts.

The interaction between e-INAS and INAS governance structures occurs at the level of Conselho Consultivo of INAS, when issues related to change management of operational processes arise, or when there are changes in scope, schedule or budget. Other issues that are escalated at the level of Conselho Consultivo are the involvement of other partners in specific aspects of the development or when there is need to hire additional technical support.

4.2 Team Organisation

A total of 30 full-time staff are appointed to the project, 24 on behalf of CEDSIF and six on behalf of INAS. In addition, ILO appointed a Project Manager, and UNICEF supported INAS with the contracting of a full Technical Advisor with strong technical background in design and implementation of social protection programs, IT and project management knowledge and experience, as well as experience working with governments in resource-constrained environments. Table 2 shows the internal composition of permanent stakeholder´s team.

4.3 Work Organisation Framework

The development process of e-INAS differs from typical software projects, firstly because INAS participates with a full-time team in all steps of the workflow, and secondly because the team receives specialized technical training in all aspects of the process. This strategy was agreed upon to develop competencies and to build capacity in INAS to manage the system after its installation in INAS central and delegations. Under the managerial level of command of the governance structure, technical teams from both INAS and CEDSIF are responsible for the workflow of e-INAS development, namely: requirements analysis; design (system architecture); implementation; testing; user acceptance; installation; and support and maintenance.

Requirements Analysis

A team of business analysts composed by two analysts from CEDSIF, the six staff members from INAS, plus a UNICEF technical advisor, is responsible for providing all information relative to the programmes. The INAS team includes the fixed team from the IT department, and temporary technical staff in the areas relevant to the requirements to be gathered. A dedicated clerical assistant documents the agreements, freeing up the business analysts to lead the discussion. Occasionally, external subject matter experts are called to the forums for advice on specific topics.

The requirements analysis is a long and arduous process, during which INAS and CEDSIF hold daily meetings to discuss the operational rules of the programmes and the corresponding modules to ensure that all specifications and their implications are taken into account. Sometimes the analysis leads to adjustments to the operational process, or the inclusion of additional requirements. If these do not have a negative impact on the schedule, scope, budget, or INAS policies, vision or ethics, the team proceeds with the changes. Otherwise, the discussion is escalated to the level of the INAS Consultative Council, or to higher levels in the governance structure as required.

Once the requirements are clear, complete, consistent and unambiguous, and any conflicts have been resolved, CEDSIF business analyst send the summary via email to all team members, and CEDSIF technical staff produce the corresponding documents (business model, use cases, use case diagrams, prototypes, etc.). These are then discussed in a face-to-face meeting with the INAS team, which provides immediate feedback. CEDSIF shares the feedback with its relevant team members before the next iteration begins, and adjusts the documents if changes are required based on feedback, ensuring each iteration improves the former. Correspondingly, INAS Project Manager was responsible to make the respective changes in the operational manuals.
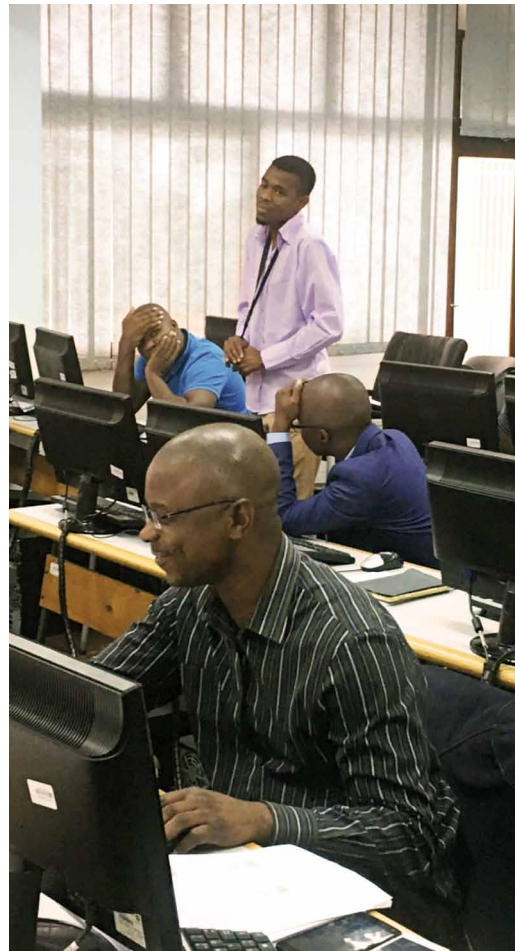
Development

Usually, the development of each functionality takes place in parallel with the requirements analysis. Once the INAS Project Manager has given the final go-ahead to a technical document, the CEDSIF Development Team starts working, using the technical requirements to create timeline estimates, develop the software, and make it available for testing. The CEDSIF Operations Team provides the infrastructure necessary for e-INAS development, while the Quality Control Team ensures the certification and quality of the development process. The INAS team does not participate in this phase of the workflow.

Testing

Testing of e-INAS is conducted at two different levels: the internal quality assurance testing conducted by CEDSIF, and the usability tests conducted by the INAS team at the front end. The usability test is the process to validate and verify that e-INAS is designed to perform all functions for which it is intended, complies with the programme requirements, and with INAS goals and needs. A usability test plan is produced for each functionality, and the INAS team conducts the tests in groups of two people. At the end of each test the team discusses the findings, consolidates them, and delivers a written test report to the developers. Usability testing is conducted using an iterative approach, in which after the first test results are provided to the developers' team, they make the necessary changes and then INAS tests the system again, until the desired results are achieved. The tests are conducted in the same office space where the developers work, which encourages interaction, and gives the teams the opportunity to discuss and resolve small issues immediately without the need to stop the testing sessions until a report is produced. System installation, support and maintenance will be CEDSIF responsibilities once INAS has equipped the delegations with the proper infrastructure to receive the system.

4.4 Training Approach

CEDSIF is sponsoring the training of the six INAS IT team members as a way to improve INAS's capacity to implement e-INAS across all delegations and headquarters. The training approach is based on "experiential learning", in which knowledge and skills are acquired as a by-product of work during three stages. In the first stage, the INAS team builds day-to-day on-site capacity by working side-by-side with the CEDSIF team in the roles of business analysts and quality assurance. In the second stage, the INAS team works as full-time CEDSIF interns, receiving a monthly subsidy paid by CEDSIF. During this internship, they receive specific technical training on several aspects of software development and systems management. Training topics include production of business models, techniques for requirements analysis, production of software test cases, production of user manuals, as well as training on the project management methodology PRINCE2®. The third stage of the training involves putting the results to work. First, the team takes the lead on the presentation of the system to different stakeholders, including other INAS staff, MGCAS and development partners; second, once the system is installed, the team become master trainers who will train e-INAS users at INAS headquarters and delegations; and third, the team serve as the technical support for e-INAS operations at central and delegation levels.

INAS-CEDSIF joint development team

Best Practices in the Development of e-INAS

The successful development of INAS MIS can be attributed to the balanced interaction of four core spheres of practice: collaboration, control, cultivation and competence. The collaboration sphere was shaped by the GoM's commitment to creating an enabling environment, the long-term inter-institutional cooperation of development partners, and a service provider committed to INAS goals. In the control sphere, the main cohesive forces were good governance, effective accountability mechanisms, a well-structured mobilisation phase, as well as efficient communications and reporting mechanisms. In the sphere of competence, the technical and managerial capacities, as well as the expertise of both the service provider and the technical advisor, were key to maintaining high standards of quality. Finally, the model of user participation in the development process, and the training approach used, characterised the cultivation sphere.

5.1 Enabling Environment

It is clear that the government of Mozambique played a key role in creating the conditions that facilitated the development of the INAS management information system. The enabling policy environment is characterised by a package of policy directions and institutional reforms designed to effectively address the challenges of the social protection system. These policies and reforms emphasise the importance of the application of information technologies in improving the efficiency of social protection programme implementation, supervision and accountability. Thus, they compel MGCAS and INAS to develop a sound MIS for INAS social protection programming, and make them accountable for the execution of this mandate. In addition, the favorable policy and institutional framework has presented an opportunity for development partners to strengthen and focus their actions in supporting the government in its efforts to design and implement the MIS.

5.2 Long Term Commitments from Development Partners and Multi-Stakeholders Collaboration

The multi-sectoral approach to the development and implementation of e-INAS maximised opportunities to create the necessary conditions for its success. The UN joint programme brought together the efforts and resources of ILO, UNICEF, and the World Bank, as well as major international development partners, to present coherent support to the GoM. Despite the challenges of differing organisations' views and practices, a coordinated portfolio of interventions allowed them to address the different dimensions of the project. While ILO took charge of all aspects related to the service provider for the software development, UNICEF provided technical support in technical and managerial aspects, including programme reformulation, and e-INAS development. In turn, the World Bank took the lead in the technical definition of methodologies and tools for beneficiary targeting for PASP, and was in charge of developing the temporary satellite management information system for the PASP. These set of interventions were backed up by a substantial and sustained pool of funds, which were committed until e-INAS's installation at the delegation level.

5.3 Inter-operability

In respect to inter-institutional collaboration, INAS made an important agreement for the operation of e-INAS with Tributary Authority of Mozambique (AT). The MoU aimed at conducting large-scale campaigns to assign a unique identification number (the Número Único de Identificação Tributaria, or NUIT) to all beneficiaries of INAS programmes, given that the vast majority of beneficiaries do not have a national ID (Bilhete de Identidade , or BI).

Typically, INAS beneficiaries face a number of barriers in accessing the BI, including vulnerability factors, remoteness, or associated transaction costs. Currently, INAS allows beneficiaries to register for the programmes using a wide range of documents, including the new BI, the old BI (from colonial times), voting cards, birth certificates, passports, driving licences, and even witness declarations, thus increasing the risks of error, duplication, fraud, and corruption. Notwithstanding some limitations, the NUIT helps to address this challenge as it has a series of advantages over the BI. First, the NUIT incurs no cost for the beneficiary; second, it is attributed locally during campaigns conducted by the AT; and third, the beneficiary retains the same number for a lifetime. Additionally, the NUIT is the unique identifier used by all government management systems, including the

Best Practices in e-INAS development

1 Enabling Environment

- Appropriate policies
- Fiscal Space
- Dialogue and collaboration
- Accountability

2 Long Term Commitments from Development Partners and Multi-Stakeholders Collaboration

- Collaboration
- Joint long-term financial support and technical assistance
- Common ground in commitments
- Maximisation of synergies and common agendas

3 Good Governance

- Governance structure and well-chosen members
- Appropriate behaviours
- Good understanding of roles and responsibilities
- Compliance with commitments
- Clear terms of reference

4 Effective Accountability Mechanisms

- Accountability landscape with a broad array of actors with varying degrees of control and oversight
- Proper tools for monitoring progress

5 Well-structured Mobilisation Phase and Existence of a Project Charter

- Clear mobilisation phase to prepare for project initiation
- Registry of common understandings in a project charter

6 Efficient communications and reporting mechanism

- Single Point of Contract for each participant organisation
- Multiple formal and informal communication channels

7 The Service Provider: A Committed Partner, not just a Vendor

- High level of integral experience in business, software development and system management
- Reliable and resilient technological infrastructure
- Commitment cooperation
- Leadership and focus on a common goal

8 Dedicated Technical Advice and Transfer of Knowledge

- Long-term technical advice
- Transfer of knowledge for in-country capacity building

9 User Participation in the Development Process

- Participatory model
- Reduction of risk rejection
- Facilitation of training
- Ownership promotion

10 Efficient communications and reporting mechanism

- Experiential approach
- Opportunities to learn trough the real experience
- Promotion of ownership and accountability

State Financial Administration System (SISTAFE)1, and is administrated by CEDSIF, guaranteeing validation and cross-checking between e-INAS registries and other government systems.

Conversely, to obtain a BI, beneficiaries have to pay around three US dollars, a large amount for a family living in extreme poverty; they have to travel to the district capital to obtain it, which for INAS beneficiaries entails insupportable costs; it has a limited validity of ten years; and there is no inter-agency exchange of BI holders´ data.

The main limitation of the NUIT is that consists of a simple sheet of paper without any kind of physical protection, and without any kind of biometric authentication to verify ownership. To overcome this challenge, INAS is currently exploring options to produce a programme ID card that integrates the NUIT and biometrics for beneficiary authentication. During the mobilisation phase, INAS and the AT started a campaign at delegation level to assign a NUIT to all heads of households participating in INAS programmes. To date, NUITS have been assigned to around 100,000 beneficiary household heads around the country.

5.4 Good Governance

Well-defined and efficient functioning governance has been one of the main success factors in the development of e-INAS. Effective governance has been based on three pillars: adequate structure, proper behavior, and clear expectations of governing bodies.

5.4.1 Adequate Governance Structure

The governance structure for e-INAS development guarantees that the forum is a project decision-making forum, with well-defined levels of command, the right people populating the structure, and the appropriate number of participants. The three levels of command - Executive, Technical and Managerial Committees - ensure that all stakeholders have the due authority to make project decisions at their respective levels. This prevents unnecessary escalation of decisions to higher levels within the project governance structure, or the organisations' own structures, which would slow down the development process.

Only when factors such as scope, schedule, budget, quality, outcomes, risks and interdependencies are affected at any level below the executive level, the next level needs to make a decision. The committees include representatives of those who fund the project and provide technical oversight (ILO), those who provide technical assistance (UNICEF), those who develop the project (CEDSIF), and those who use the project (INAS). This composition ensures that the main stakeholders have sufficient representation, competencies, and authority for making decisions, and are accountable for the success of the project. Finally, the fact that the number of participants at each level of command does not exceed ten members prevents decision-making forums from becoming clogged with stakeholders, which would result in difficult decision making.

When decision making is beyond the capacities of the project governance, the issues are escalated to INAS Consultative Council. This is a body that supports the director general in the decision-making process. The Council is composed of the director general, the deputy director, and department chiefs. During the Consultative Council meetings, department chiefs are responsible for presenting a progress report on the project, challenges and next steps.

5.4.2 Proper Behavior

Commitment to the mission, openness, and a win-win frame of mind are some of the behavioural aspects of the governance teams that have significantly contributed to success in the development of e-INAS. Good use of time during meetings, clear agendas, as well as proper production and sharing of meeting minutes, have also allowed e-INAS project committees to address significant and strategic matters. Unity on final decisions has been essential at times when difficult decisions on conflicting interests had to be made.

5.4.3 Clear expectations

The final pillar of good governance consists of clear expectations or, more specifically, committee members' knowledge of what is expected of them and what they can expect from others. These expectations are clearly outlined in the MoUs signed between INAS, CEDSIF, ILO and UNICEF, during the project initiation phase. e-INAS governance bodies have been committed to the agreements established in the MoUs, and have fully complied with their responsibilities.

 SISTAFE establishes and harmonizes rules and procedures for the programming, management, execution and control of the public treasury, in order to allow its effective and efficient use. It also allows producing information concerning the financial administration of the organs and institutions of State in an integrated and timely manner. SISTAFE applies to all organs and institutions of the State, both, with administrative autonomy and with administrative and financial autonomy. It also applies to municipalities and State enterprises, except for the rendering of accounts, as it is governed by specific legislation.

5.5 Effective Accountability Mechanisms

A multi-level accountability mechanism obliges INAS, CEDSIF and ultimately MGCAS to answer questions regarding project progress. Primarily, CEDSIF is accountable to ILO by means of a formal contract which clearly defines scope, deliverables, timelines and budget. In addition to the internal effective accountability given by the project governance, INAS and CEDSIF, as government entities, have a higher mechanism to ensure project accountability, which are the respective "Conselhos Consultivos". INAS is accountable to the MGCAS Consultative Council, where INAS presents the progress of e-INAS development. In turn, MGCAS is accountable to the Basic Social Action Council and the Council of Ministers, before which MGCAS demonstrates performance in light of the agreed-upon performance targets for e-INAS development established in the ENSSB.

Externally, INAS is accountable to the "Grupo de Acompanhamento" and to the Social Action Working Group, before which the e-INAS project manager presents the latest developments, challenges, and future steps in the development of the MIS. Partners provide feedback and recommendations when relevant. Although in case of poor performance these groups have no authority to execute sanctions, public exposure and negative publicity act as forms of social pressure to improve performance.

5.6 Well-structured Mobilisation Phase and Existence of a Project Charter

Starting the project by devoting the necessary time to completing the mobilisation phase, writing the project initiation document, and getting it approved by all business stakeholders, proved to be factors that increased the chances of successfully delivering e-INAS. The purpose of the mobilisation phase was to establish the project governance structure, prepare and approve detailed project plans, set up the project communication mechanisms between the parties involved, allocate team members and project stakeholders for the project kick-off, and produce the project charter.

The project charter provides a common understanding of the project to help manage expectations, identify resources required to complete the project, and identify any potential risks or issues so that they can be addressed as early as possible. In the case of e-INAS, the project charter was established in the terms of reference and MoUs signed between CEDSIF, ILO and INAS, detailing the following aspects: project definition; business case; scope; deliverables; strategy to deliver products; team structure and governance; communications plan; quality plan; risk management plan; issues and assumptions; controls; and budget. This detailed and accurate document has helped to resolve issues related to scope and deliverables, among others, for the simple reason that when issues arise, there is a written and signed reference to consult.

5.7 Efficient communications and reporting mechanism

Well-defined communication channels and rules were another key factor in the successful development of e-INAS. In addition to the reports agreed upon as part of the communication mechanisms during the mobilisation phase, INAS and CEDSIF established other formal and informal means of communication, such as: i) minutes of technical meetings for every meeting conducted at any level (meetings for requirements gathering, analysis of technical documents, usability tests); ii) email briefs on progress of development; iii) direct phone calls; and iv) a Whatsapp group. Although all these different communication channels may be considered an overhead, they have proved their worth as they have guaranteed the best possible comprehensive understanding between all parties.

One basic element of the communication mechanism was the appointment of a single point of contact (SPOC). On INAS side it was the technical advisor, while on CEDSIF side it was the project manager. The SPOCs were the focal points for all communications between all involved parties. They maintained close communication between them and with the other team members, and reported to their own top management on a regular basis. By having one point of contact, all stakeholders had immediate access to answers to questions and to updated data and information. The SPOCs prevented callers from interrupting the technical team, and properly routed requests based on skills required and resource availability. They organised unplanned visits by development partners, informed when a deviation of plans was anticipated, and escalated any such deviations to senior management in order to ensure preventive or corrective actions.

5.8 The Service Provider: A Committed Partner, not just a Vendor

Outsourcing the development of the software to CEDSIF was one of the main factors in the successful development of e-INAS. CEDSIF's expertise in the business of software development and MIS systems management for the Mozambican state, strong infrastructure and tools, senior management commitment and sponsorship, provided the project with a vital success element.

5.8.1 Business Expertise

CEDSIF has been in business since 2001, and its core activity is the development, design, implementation and management of state financial and administration systems. Besides managing the informatics platform of these systems, CEDSIF trains and certifies their users, and manages data in its data centre2.

5.8.2 Technical and systems management expertise

CEDSIF employs 274 staff and consultants including developers, programmers, systems analysts, network administrators, database administrators, and other personnel in functional and administrative areas. Key human resources allocated to e-INAS development are permanent staff, while some non-key staff have been hired for the project duration. This approach allows CEDSIF to maintain full control and manage the fine details of the project. Likewise, the expertise of the long-term employees, coupled with their familiarity with the institution's personnel and procedures, reduce the risk and the time needed to complete the project.

5.8.3 Strong Infrastructure and Tools

CEDSIF's data centre serves as the principal repository for all manner of IT equipment, and contains adequate infrastructure and provisioning for network carrier connectivity. The data centre meets the considerable demand of hosting external systems and applications, in terms of physical security, as well as capacity to safely storage and manage a large amount of data.

5.8.4 Commitment to INAS vision and mission

Thanks to CEDSIF senior management sponsorship and commitment, INAS received a series of benefits that would not have been possible had a private provider been hired. These were firstly the flexibility to go beyond the project scope and schedule with no budget extension to accommodate INAS challenges in meeting their commitments; secondly, the inclusion of the INAS MIS team as CEDSIF interns for training-by-doing; and thirdly, the availability of free hosting of the database during the first year of e-INAS operation. Additionally, the flexibility to involve INAS in the development process beyond the limits of a private provider to make sure the end result matches the actual needs of INAS as closely as possible was crucial for the success of the e-INAS development process.

5.9 Dedicated Technical Advice and Transfer of Knowledge

Appointing a full-time technical advisor (TA) with strong technical background in design and implementation of social protection programs, IT and project management knowledge and experience, as well as experience working with governments in resource-constrained environments, was very important for the success of e-INAS development. The objective of the TA is to build in-country capacity so that the INAS IT team becomes the motor behind e-INAS. The TA's task is not only to support the development and management of the project, but also to transfer knowledge and capacity to the INAS IT team, and for them to assume the responsibilities of the system's operation. The time-frame for this is difficult to establish, but the goal is for the TA to be phased out from an active role to one of mentoring and support until the support is no longer required.

A crucial aspect of the TA's selection was that the person chosen should be not only professionally qualified, but culturally aware and skilled in handling delicate negotiations. The selected TA had the ability to come up with new ideas and was creative in finding solutions to problems, and with the diplomatic skills and sensitivity to win the trust and confidence of counterparts.

Main state management information systems include SISTAFE, the Tributary Authority System (AT), the Autarchic Management System (SGA) for the National Association of Municipalities of Mozambique, and the National System of Management of Construction Costs and Budgeting (SINAGEC) for the Ministry of Public Works, Housing and Water Resources (MOPHRH).

INAS-CEDSIF joint development team

5.10 User Participation in the Development Process

Participation of INAS in the MIS development process can be considered as one of the key factors that played a positive role in achieving the success of the system. As the main user, INAS has directly participated in three phases: i) requirements gathering; ii) analysis and approval of technical documents; and iii) usability tests. To this end, INAS appointed a permanent team composed of six staff members from the IT department. This team has been physically located on a daily basis at CEDSIF data centre, working alongside CEDSIF business analysts and developers' teams. Other INAS technical teams with specific programme knowledge participate at specific moments during these phases according to need.

For the requirements gathering phase, the CEDSIF business analyst team works alongside the INAS team to produce solid business processes and flows for the operations supported by the system. The analysis and approval of technical documents involves production of documents by CEDSIF and review and acceptance by INAS. During the usability test phase, CEDSIF iteratively delivers various software versions to INAs for review. In this way, INAS ensures that the development is on the right track, and the end users test the product and report any issues or further requirements. Each new version contains additional features, which are then tested in the upcoming iteration.

5.11 Training Approach

The participation of the INAS MIS team in an experiential learning process contributed in important ways to the development of e-INAS. First, through experiential learning the INAS team was able to work in a "real world lab", where they took data and concepts and made them "real" by applying them to hands-on tasks, producing real results which apply to e-INAS. Second, experiential learning presented daily opportunities for individual and team creativity, and the variety of results produced enriched the design of e-INAS. Third, learning by doing presented the team with an opportunity for reflection and analysis. This will help them better understand how the concepts learned can be applied to the second phase of e-INAS, when the system will be adjusted following the rules of the new programmes within the ENSSB II.

The immersion in a real development process through the internship in CEDSIF strengthened the INAS team cooperation and contributed to improving their interpersonal and management skills. Finally, the experiential learning approach contributed to the creation of an ownership mentality within the INAS MIS team, by boosting their confidence to succeed, and giving them the necessary tools to accomplish what they were tasked to do. This in turn has promoted a culture of personal accountability, which along with the technical skills and sense of ownership will fertilise the ground for an efficient and effective operation of e-INAS.

Concluding Remarks

Management models for developing a MIS for social protection clearly differ from one system to another, and from one country to another. Different systems and local capacities require different solutions; however, some promising practices that support the effective development of MIS in resource-constrained countries can be drawn from the Mozambican context.

1. **The government is a key player in creating the favorable policy and institutional climate** needed to encourage development partners to invest in the development of management information systems to improve social protection efficiency and effectiveness. An enabling environment is as much a function of policies, fiscal space, dialogue and collaboration, as it is a platform from which to assess whether the accountable institutions have met their obligations in designing and implementing a comprehensive, efficient and effective MIS.

2. **A core element for success in the development of a MIS for social protection is long-term joint collaboration by development partners** in the form of financial support and technical advice. This long-term support, along with finding common ground in their commitments, the recognition of each organisation's added value, as well as common agendas, maximise the opportunities to create the necessary conditions for success.

3. The conditions for an **adequate business environment** for the efficient development of MIS are provided if:
    •   The governance framework established for the development of a MIS for social protection has a proper structure including well-chosen members;
    •   Committee members understand their roles and responsibilities, know what is expected of them, and comply with their commitments;
    •   There is a basic document that formally establishes the project structure and identifies its system of governance. The purpose of such a document is to clearly identify how the project will be governed.

4. An **accountability landscape** filled with a broad array of actors with varying degrees of control/oversight increases incentives for responsive performance in the development of a MIS.

5. To give a MIS development project the best chance of successfully delivering, it pays to devote time to gathering all the aspects needed in the **mobilisation phase**, and to getting a project initiation document written correctly, and approved by all the business stakeholders.

6. The **participation of the users** in the development process of the MIS is a fundamental factor for success. During the development of a MIS for social protection, software developers often get so involved with their ideas and with their vision of the product, that they forget the main goal or purpose of the product they are developing. They often burden the product with numerous unnecessary features, making it too complex for the user. Furthermore, they often forget some of the most useful features. A participatory model decreases the likelihood of misunderstanding, reduces the risk of rejection of the product at the end of the development, facilitates training on the use of the system, and promotes ownership of the final product.

7. Another crucial element that must be considered is the **involvement of a service provider with a high level of integral experience** in business, software development and systems management. The reliability and resilience of the vendor's technological infrastructure is a must, and its commitment, cooperation, leadership and focus on a common goal is imperative.

8. One essential factor in the successful development of a MIS for social protection is the provision of **full-time technical advice from day zero to the final stage** of project implementation, and mentoring and transfer of knowledge and know-how to a team of local counterparts who will "shadow" the TA in all stages of the development and implementation. Besides technical knowledge and experience, the TA must have management experience, as well as experience working with governments, diplomatic skills and cultural sensitivity.

9. It is very important for any successful MIS project to assign a **well-defined communication mechanism** between the developers' team and the client. One basic element of this mechanism is to appoint a Single Point of Contact for each one of the involved parties.

10. Besides enriching the design of the MIS and maximising the learning outcomes of the users, the experiential approach to training promotes ownership, accountability, and a sense of cooperation.

11. ILO and UNICEF financial and technical support to design and roll-out e-NAS at central level and in all INAS delegations would not have been possible without the financial contributions of the development partners supporting the UN Joint Programme on Social Protection in Mozambique (Sweden, Netherlands and DFID) along the time.

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